

**Table of Contents -- New Haven Public Schools**

**Competitive Preference Priority 1** – Need for assistance ..... 1

**Competitive Preference Priority 4** – Socioeconomic Diversity... ..... 14

**MSAP Selection Criteria:**

**(a) Desegregation** ..... **25**

(1) The effectiveness of its plan to recruit students from different social, economic, ..... 25

(2) How it will foster interaction among students of different social, economic, ethnic, ..... 34

(3) How it will ensure equal access and treatment for eligible project participants ..... 37

(4) The effectiveness of all other desegregation strategies proposed ..... 41

**(b) Quality of Project Design** ..... **49**

(1) The manner and extent to which the magnet school program will improve student ..... 49

(2) The extent to which the applicant demonstrates that it has the resources ..... 78

(3) The extent to which the training or professional development services ..... 84

(4) The extent to which the proposed project is supported by strong theory ..... 90

This section includes the two studies supporting Competitive Preference Priority 2 (CPP 2) on pages 97 and 100.

**(c) Quality of Management Plan** ..... **106**

(1) The adequacy of the management plan to achieve the objectives of the project ..... 106

(2) How the applicant will ensure that a diversity of perspectives are brought to bear in the operation of the proposed project including those of parents, teachers, ..... 115

**(d) Quality of Personnel** ..... **116**

**(e) Quality of Project Evaluation** ..... **122**

**Appendix (Attachments):** Resumes; Letters of Support; School Level Logic Models, etc.

considering (a) The costs of fully implementing the magnet school project as proposed.

New Haven, Connecticut is typical of many older cities. Once a thriving manufacturing center, it has lost jobs and white middle class residents to the suburbs. Its schools enroll students who are predominantly black (39%), Hispanic (43%) and poor. The surrounding suburban schools serve students who are mostly white (about 67%) and middle class. Compared with state averages, test scores of New Haven schools are low. Scores of suburban schools are high. This grant proposal is focused on bridging these differences by setting new standards for school integration in New Haven that will bring greater numbers of students from different races, ethnicities, and social classes together in its public schools.

New Haven has long been at the forefront of Connecticut's school desegregation movement. In the 1960s and 1970s, it tried a variety of desegregation plans including the pairing and rezoning of schools. Each of these efforts failed as white enrollments declined and schools became racially isolated. New Haven then tried magnet schools. The results were very different. New Haven opened four small magnet high schools in the 1980s. Although the white enrollment declines that began in the 1970s continued, especially at the middle school level, the white enrollments at the magnet high schools increased. While the results were impressive, there were few resources to start additional magnet schools. Then, in 1996, everything changed.

Forced by the Connecticut Supreme Court's *Sheff v. O'Neill* decision to take action to remedy the racial and economic disparities and achievement gaps between urban and suburban schools, the state legislature enacted laws that offer urban and suburban students the opportunity to attend schools in each other's districts in an effort to reduce the racial isolation of all students. Urban and suburban districts alike are encouraged to develop magnet schools. While the State,

under these statutes, provides funding for transportation, it provides few resources for initial magnet school theme and curriculum development. Because New Haven's schools have limited financial resources and are supported by a weak local tax base, this legislative funding scheme makes it difficult for New Haven to develop magnet schools that are capable of attracting suburban students. However, the Magnet Schools Assistance Program changed that.

**New Haven Magnet Schools Have Reduced Minority Group and Socioeconomic Isolation**

With MSAP support, New Haven has fully developed 17 magnet schools since 2001: 5 schools in 2001, 2 in 2004, 4 in 2007, 2 in 2010 and 4 schools in 2013. Using the first year of operation as the baseline, 14 of the 17 have reduced minority group isolation (MGI) through the current school year and 13 of the 17 have reduced socioeconomic isolation through the current school year. Every school is still operating as a magnet.

As a group, these 17 magnet schools, served 6,790 students in their baseline years and 7,681 students in 2016-17. They are serving more minority students (mainly black and Hispanic students since the Asian student enrollment is about 2%) now (6,557) than in the baseline years (6,305), many more white students (485 in the baseline years and 1,124 in 2016-17). The baseline minority enrollment for these schools was 93%. For 2016-17, it is 85%. The baseline white enrollment was 7%. For 2016-17, it is 15%. The baseline enrollment of low income students for these schools was 72%. For 2016-17, enrollment of low income students is 51%.

The reduction of minority group and socioeconomic status (SES) isolation in these schools has occurred because most have interdistrict programs that serve both New Haven and suburban students. Of the 1,124 white students currently enrolled in the 17 magnet schools developed since 2001, 598 (53%) are suburban students. For 2016-17, the New Haven Public (NHPS) Schools serve 21,849 students. Of those, 2,851 (13%) are suburban students attending New Haven magnet

schools. Of New Haven's 3,030 white students enrolled for 2016-17, 956 (31.5%) are suburban students attending New Haven magnet schools. (These include students attending magnet schools opened prior to 2001.) Without MSAP support, these schools could not have been as successful. New Haven has reduced the minority group and socioeconomic isolation of its schools through the use of magnet schools. As a result, test scores have largely improved although most schools still perform below state averages. In fact, New Haven's student achievement has shown greater improvement than Connecticut cities with similar populations (e.g., Bridgeport, Hartford). For example, in 2016, for the percent of students scoring at level 3 or above on the Smarter Balanced Assessment Consortium (SBAC) tests, New Haven had positive changes--for all students, black, Hispanic and white students and for high needs students—that were not only greater than either Hartford or Bridgeport for every subgroup in both ELA and math, but also greater than the statewide average for all subgroups. For ELA, Bridgeport's change was negative for every subgroup. Hartford's was negative for 3 subgroups, zero for one and positive for one. New Haven also had higher percentages of students scoring at level 3 or above than the other districts for all subgroups in ELA, for all math subgroups when compared with Bridgeport and for 3 of the 5 subgroups for math when compared with Hartford.

### **State Goals and Research Suggest New Haven Can Do Even More**

As defined by state law, the combined enrollment of all minority students at a Connecticut Interdistrict Magnet School, cannot exceed 75%. This is equivalent to saying that the proportion of white students should be at least 25%. This definition is part of the legislation that resulted from *Sheff v. O'Neill*. At this time, Connecticut does not have a goal for the proportion of low income students enrolled in an Interdistrict Magnet School.

Research shows that the higher a school's SES, the higher its achievement (Coleman, 1966;

Rumberger & Palardy, 2005; Perry & McConney, 2010). Schwartz (2010) shows that the effect may be strongest for schools that have 30% or fewer low income students. This research—please see Quality of Project Design (4)—has informed the goals of this project.

Reducing SES at its magnet schools has helped to increase student achievement in New Haven. However, only two New Haven schools had achievement levels that exceeded state averages, making clear that there is still work to do to improve academic outcomes. These two higher achieving schools are among the three schools with the highest school-level SES in New Haven. One is one of New Haven’s most racially/ethnically diverse magnet schools. The other, a neighborhood school serving a white, middle class population.

### **New Goals and Strategies to Reduce Minority Group and Socioeconomic Isolation**

New Haven has an opportunity to reduce the racial/ethnic isolation of five older magnet schools by strengthening their programs and revising themes that have become less effective over time and by developing new student selection procedures that include socioeconomic status (SES) weighting factors for its lottery and by using more extensive focused recruitment. These strategies will be supported by the development of new definitions of low, medium and high SES levels based on both research and the experiences of other cities and the assistance of Richard Kahlenberg, a nationally known expert. These definitions will be used to more accurately identify the socioeconomic status (SES) of students so that student selection lotteries for magnet schools can be used more effectively to reduce SES isolation, which will have a positive effect on reducing the racial/ethnic isolation of both magnet school and their feeder schools. New Haven currently uses a random lottery that does not use SES or geographic weighting factors.

This new selection process will first apply to the five schools in this grant. By the second year of the project, New Haven will select four additional magnet schools that will use the revised

process. Each subsequent year, additional magnet schools will use the selection process until all New Haven magnets are included. This phased approach allows modifications of the process each year to make it work better until a final selection process, is implemented.

### **Significantly Revised Magnet Schools**

Therefore, to remedy the racial/ethnic and socioeconomic segregation of its schools and improve achievement, the New Haven Public Schools (NHPS) will significantly revise four magnet schools to serve both New Haven and suburban students. One of these schools (Davis) is a higher performing school that will also attract low income students from schools with low academic performance in addition to white and middle class students. NHPS also proposes to significantly revise a fifth school (Edgewood) that will attract low income students from low performing schools in addition to white and middle and high SES students from New Haven.

The schools, their grades, racial/ethnic compositions and percentage of low income students follow. The isolated minority group and the percentage of low income students are in bold. ► High School in the Community Interdistrict Magnet (HSC) (gr. 9-12) (36.3% black, **46.1% Hispanic**, 14.4% white, other groups each < 2%. **Low Income: 57.4%**); ► King/Robinson Interdistrict Magnet: An International Baccalaureate STEM School (King/Robinson) (PreK-8) (**72.5% black**, 13.5% Hispanic, 9.3% white, 3% Asian). **Low Income: 52.5%** ► Edgewood Creative Thinking through STEAM Magnet School (Edgewood) (PreK-8) (**50.6% black**, 13.6% Hispanic, 30.7% white, 2 or more races 3.7%, other groups < 2%). **Low Income: 29.1 %** ► East Rock Community and Cultural Studies Magnet School (East Rock) (K-8) (35.8% black, **43.8% Hispanic**, 13.1% white, 6.5% Asian, other groups < 1%. **Low Income: 46.9%**); ► Davis Academy for Arts and Design Innovation Interdistrict Magnet School (PreK-8) (**59.0% black**, 14.9% Hispanic, 4% Asian, 21.5% white, 2 or more races 3.1%, other groups < 1%. **Low Income: 31.4%**).

Four of the proposed magnets will reduce minority group isolation by decreasing the percentage of black or Hispanic students and increasing the percentage of white students. For these schools, the percentage of black students (King/Robinson, Edgewood, Davis) or Hispanic students (HSC) are greater than the average K-8 school enrollment of black students (38%) and for HSC the average high school enrollment for Hispanic students (39%). HSC and King/Robinson have also failed to attain the State diversity goal with combined minority percentages of 86% and 91%.

East Rock is currently at the district K-8 average for Hispanic students (44%) and does not meet the state diversity goal because its combined enrollment of minority students (79%) exceeds the state goal of 75%. East Rock will eliminate and prevent the isolation of Hispanic students and attain the state goal by attracting white students from New Haven and its suburbs.

These five schools are among New Haven's oldest magnets and have not revised their themes in many years. King/Robinson has not changed its theme in 10 years. Edgewood, Davis and East Rock have not changed their themes in 12 years or more. HSC was one of the four small magnet high schools begun in the 1980s. It has not revised its magnet theme in more than 20 years. For this project, four (HSC, King/Robinson, East Rock and Davis) schools were selected that are minority group isolated (East Rock is at the district average of Hispanic students), do not meet the state racial diversity standard for interdistrict magnet schools, and have proportions of low income students that can be realistically reduced so that their SES integration goals are consistent with the literature linking statistically significant achievement gains to school level SES. A fifth school, Edgewood, that already meets the state's diversity goal and New Haven's SES goal, will reduce the racial isolation of Black students by increasing the percentages of white and Hispanic students and offer seats to low income students attending academically low performing schools.

Therefore, the New Haven Public Schools (NHPS) are requesting approximately \$15

million to implement its Magnet Schools Assistance Program (MSAP) at these five schools for each of the next five years. This will fund a Project Director, 9 Magnet School Resource Teachers, 2 Recruiters, extensive professional development (PD) for teachers and supplies and equipment to implement the magnet programs described in this application. New Haven could operate these schools without MSAP funds. It could not, however: ► Create five magnet schools with the power to attract suburban students. ► Develop improved units in all core academic subjects that are fully aligned with the Common Core State Standards (CCSS), the Next Generation Science Standards (NGSS) and Connecticut’s new, inquiry based social studies standards. ► Improve instruction and academic support in core academic subjects using practices and reforms such as Readers’ and Writers Workshop, inquiry, cooperative learning and RTI. ► Integrate the magnet themes into core curriculum areas as these schools are creating new units and lessons. ► Provide a minimum of 50 hours of professional development per teacher related to improving core academic instruction and 50 hours per teacher related to magnet theme development and integration. This professional development will include workshops, coaching and collaboration. ► Purchase the supplies and equipment needed to implement magnet programs that would compete with suburban schools.

A key to the successful development of these schools are the Magnet School Resource Teachers (MRTs). They will: ► Participate in and facilitate the writing of the curriculum materials for this project; ► Facilitate and guide PD planning and schedule PD; ► Train and coach teachers and facilitate their collaboration on the grant activities; ► Teach demonstration lessons in magnet theme areas ► Help develop and implement recruitment plans.

The staff, PD and activities described in this proposal are needed to make each magnet school unique, reduce minority group and SES isolation, and improve curriculum, instruction and achievement. Therefore, the total cost of the MSAP program described in this application is

\$2,997,763 for year one, \$2,999,296 for year two, \$2,998,705 for year three, \$2,998,082 for year four, and \$2,999,276. for year five.

**Priority 1- *Need for Assistance*.** (b) The resources available to the applicant to carry out the project if funds under the program were not provided;

New Haven Public Schools' (NHPS) financial resources come from the City of New Haven (local tax) revenues, the State of Connecticut, in the form of state education aid and grants, and from the Federal Government in the form of reimbursable program funds such as Title I. In the main, these are determined by formulas that allocate funds in proportion to student population and, as in the case of Title I, student need. **These funding sources do not supply supplemental funds for the activities that are described in this proposal.**

NHPS is funded in large part by the City of New Haven, whose 2016-17 public school budget is just over \$182 million, a \$2 million or 1.1% increase over 2015-16. However, increases in the cost of teacher salaries (\$3.6 million), non-teacher salaries (\$905,000), utilities (\$275,000), and transportation (\$590,799) more than offset the additional revenue. To accommodate these increases, NHPS has initiated cuts across the central office totaling \$4 million in 2016-17.

Since the 2009-2010 school year, the enrollment has grown from 19,947 to 21,886, an increase of 9.7% while the operating budget has increased from \$177,219,297 to \$182,218,697 in the same period, an addition of only 2.8%. Furthermore, the populations of English Language Learners and Special Education students have increased by 29% and 26%, respectively in this time. Given the additional educational needs of students in these groups, the relatively flat per-pupil funding over time (an increase of \$79 or 0.7% from 2009-10 to 2016-17) provides inadequate resources to support a differentiated and needs-based program to all students.

State aid from the Education Cost Sharing formula accounts for approximately 35% of the

revenue in the City of New Haven's education budget. The 2016-17 amount, \$154,551,977, is \$2,046,810, or 0.5% less than the \$155,322,630 in state funding received in 2015-16. The Education Cost Sharing (ECS) formula established by the State of Connecticut is intended to cover the difference between what local districts can fund based on local revenue and the full cost of operating that district. However, Connecticut is unable to fully fund the ECS formula and has shifted to the use of “block grants” not based on the equitable funding formula. The fact that the State of Connecticut’s contribution comprises a large proportion of New Haven’s overall funding makes any decrease a point of concern. The \$2 million increase in the overall budget for NHPS in 2016-2017, referenced above, is a result of increased funding from the City of New Haven and reflects the City’s commitment to providing stable funding to local schools; however, the ability to compensate for decreases in state allocations is not guaranteed in the years ahead.

New Haven will receive approximately \$53 million in federal grants this year, including Title I funding, a reduction of \$6.8 million from 2015-16. NHPS is classified as a Priority School District by the State Department of Education, indicating the need for improved academic outcomes, and therefore the district spends a larger proportion of local funds, in addition to state aid and Title I, on work to implement a rigorous core curriculum with an emphasis on reading, writing and math. Furthermore, NHPS will receive \$2 million (15%) less in Title I funding in the 2016-17 school year compared to 2015-16, making the targeted use of these funds even more essential. The majority of the federal funds allocated to New Haven are provided for specific purposes and cannot be used to develop and implement the magnet programs described in this application. A 2015 report by Education Resource Strategies validated the fact that NHPS is more dependent on grant funding than the average district, increasing the potential for variability from year to year and making the funding scenario in the district even more precarious.

New Haven has many fewer resources to spend on its pupils than the more affluent towns, and villages that surround it. As in many aging northeast cities, its tax base consists of poor and working class families. Whatever wealth and jobs New Haven once had are now gone. In addition, much of the property owned by Yale University, New Haven's largest employer and landlord, is tax exempt, making it harder to raise revenues. The New Haven Public Schools cannot compete with suburban districts which have more supplies, equipment and resources. With a meager tax base and relatively flat funding from the city and state, the New Haven Public Schools do not have the resources to fund the activities described in this proposal.

Every successful interdistrict magnet in New Haven has had MSAP support when it was first developed. Because over half of its schools are intensely segregated, defined as having 90-100% minority students, the district relies on the strategic use of magnet schools to promote the reduction of racial and socioeconomic isolation. NHPS has sustained 17 MSAP-funded magnet schools with local and state funds and has mobilized plans to do the same with the four schools funded in 2016. However, magnet schools without initial MSAP support have failed to attract suburban students because their programs could not compete with suburban schools. Since the most expensive period for a magnet is during its initial startup or revision years, MSAP funding is a key component of the magnet conversion/significant revision process. Without MSAP support, the schools described in this proposal will be unable to implement their magnet themes with fidelity and will therefore struggle to sustain weakly developed magnet programs.

**Priority 1- Need for assistance.** (c) The extent to which the costs of the project exceed the applicant's resources;

The requested budget for the project (including indirect costs) is \$2,997,763 for year one, \$2,999,296 for year two, \$2,998,705 for year three, \$2,998,082 for year four, and \$2,999,276 for

year five. New Haven currently spends about \$9,974 per student (operating budget and state magnet funds), an amount that has increased only slightly since 2009-10. Its state funding, which accounts for 35% of its operating budget, has decreased by 0.5% from the 2015-16 budget. Therefore, the New Haven Public Schools do not have the resources to increase instructional expenditures at the proposed magnet schools by approximately 18% for each project year, the added cost of this project.

Therefore, the New Haven Public Schools do not have the funds or resources to implement this project without Magnet Schools Assistance Program support. The cost of the project exceeds the resources of the New Haven Public Schools. If a greater proportion of the operating budget were used on magnet schools, nonmagnet schools would be inadequately staffed, and receive inadequate services, an unacceptable situation.

**Priority 1- Need for assistance. (d)** The difficulty of effectively carrying out the approved plan and the project...

New Haven magnet schools must attract white and middle class suburban students as well as New Haven students to help reduce minority group isolation and increase socioeconomic integration. However, suburban magnet and neighborhood schools compete for the same students that New Haven is trying to recruit. Suburban students have the choice of attending the schools in their town of residence, including magnet schools, or attending a variety of New Haven magnet schools. Therefore, the schools included in this proposal need more complete and exciting programs to attract suburban students and retain their own.

One of the most important gaps in Connecticut's support of interdistrict magnet schools is that virtually all state funds are used to support the basic education program for out-of-district students. There are no funds for supplies and equipment, magnet resource teachers and the

professional development needed to create the special magnet theme curricula. Affluent suburbs are better able to underwrite these activities than cash-starved cities.

New Haven is proposing to implement four magnet schools to serve New Haven and suburban students. Three of these schools (HSC, King/Robinson and East Rock) will be difficult to develop because they are currently highly minority group isolated Title I urban schools. The combined black and Hispanic population of each school is 80% or more. In addition, East Rock and King/Robinson are Connecticut Focus Schools (Title I school with one of its subgroups among the lowest performing in the State), and HSC is a Turnaround School (among the lowest performing Title I schools in Connecticut).

Edgewood is a Focus School because its “High Needs” subgroup, which consists of students with disabilities, English language learners, and low-income students, was deemed low performing by the state. One of the lessons learned by New Haven as it has developed its magnet schools is that the most effective schools reexamined and revised their entire curriculum, their student academic supports and their school structures including the delivery of professional development and curriculum and instruction support for teachers. Suburban schools are much more racially/ethnically and socioeconomically homogeneous than New Haven magnet schools. There are many fewer students with substantial needs as there are in New Haven schools. The diversity of urban magnet schools, while a great strength, also makes them more difficult to develop. Therefore, this restructuring/reexamination process is an essential step for New Haven magnet schools to address weaknesses. In the case of Edgewood, this process is needed to address the achievement gaps between African-American and Hispanic students, and white students, and between low income and more affluent students. This restructuring process (described in the Quality of Project Design section) is an essential step in creating schools that serve all students

well. Edgewood will recruit and serve students from some of New Haven's lowest achieving schools as well as reduce the isolation of Black students by attracting greater numbers of white and middle class students living near the school.

The State Department of Education issued a draft of its Comprehensive State-Wide Interdistrict Magnet Plan in October, 2016 that assessed the program. The plan will soon be submitted to the Connecticut General Assembly for legislative action. The following parts of the plan are important for New Haven: ► The current moratorium on the creation or expansion of interdistrict magnets schools should be continued. ► Interdistrict Magnet Schools not attaining the state's academic goals warrant "reexamination, reconstitution, repurposing or closure". ► If an Interdistrict Magnet School fails to reach the requisite racial/ethnic compliance percentage, it will be required to submit an enrollment management plan (EMP) to remedy the noncompliance. If the remedy does not correct the noncompliance for three years, or if significant progress is not made, the "Commissioner will reconstitute, repurpose, or close the school".

None of the Interdistrict Magnet Schools participating in this grant (HSC, King/Robinson and Davis) have attained the state's racial/ethnic compliance goal. In addition, all three are minority group isolated with proportions of at least one racial/ethnic group exceeding the district average for its level of schooling (K-8 or high school). In the SDE draft report described above, HSC and King/Robinson are cited for low academic performance (i.e., lowest categories of the state accountability system), not attaining the state diversity goal and being among the Interdistrict Magnets that are furthest from reaching that goal. Of the 93 Connecticut Interdistrict Magnet Schools, HSC ranks as number 81 and King/Robinson number 86 in terms of racial isolation.

If these schools do not revise their themes to make them more competitive with suburban schools, New Haven magnet schools, and suburban magnet schools, they are in danger of losing

their interdistrict magnet school status by 2021-2022 (an estimate based on passage of SDE recommendations by the end of this year) and revert back to being intradistrict magnet schools, which would end their usefulness as desegregation tools since they attract few white New Haven students. Such a shift would be a significant setback for school integration efforts in New Haven.

***Priority 4***... the extent to which the applicant proposes to increase racial integration by taking into account socioeconomic diversity in designing and implementing magnet school programs.

The relationship between race and class in New Haven is well-established. In 2010, 58% of black and 63% of Hispanic residents lived in low-income areas, compared to just 21% of whites residents (Abraham & Buchanan, 2016). This residential segregation translates, into school segregation. For the 2016-17 school year, the 12 schools that are the most minority group isolated (average combined enrollment of black and Hispanic students is 94%, average white enrollment is 5%) have an average proportion of low income students of 70%. The 12 schools with the lowest combined average enrollment of black and Hispanic students (64%) and an average white enrollment of 29%, have an average percentage of low income students of 33%.

There is also a gap in socioeconomic status (SES) between students who attend New Haven Public schools and suburban schools. For New Haven schools, the average proportion of low income students is 53%. For suburban feeder schools, the average is 31%. The white student enrollment of New Haven is 13.8%. For the suburban feeder schools, it is 68%. The 43 suburban feeder schools with the highest proportion of white students (average 85%) have, on average, enrollments of low income students of 13%. The correlation between race/ethnicity and income is high for New Haven and even higher for the suburban schools from which students will apply to and enroll in New Haven magnet schools.

This project proposes to confront minority group and socioeconomic isolation through the use

of desirable magnet schools strategically sited across the city and revised, race-neutral student assignment practices. This project will reduce or eliminate and prevent minority group and socioeconomic status (SES) isolation in 5 magnet schools by the implementation of focused recruitment strategies supported by the significant revisions of these schools and the use of SES weighting factors in the student selection lottery that will result in more middle and high SES students enrolling in these schools and reductions in minority group isolation.

Four of the proposed magnet schools will benefit from interdistrict transfers, a weighted lottery using SES, and focused recruitment strategies that have proven successful in previously funded MSAP projects. A fifth school, Edgewood, an intradistrict magnet, will also benefit from a weighted lottery using socioeconomic status, focused recruitment, and its location in a racially and economically diverse area to increase racial, ethnic and socioeconomic diversity.

**Interdistrict Transfers:** To promote diverse schools across the state, Connecticut offers supports for interdistrict transfer programs through legislation that resulted from *Sheff v. O'Neill* . All students enrolled in an interdistrict magnet program, including those described in this proposal, receive transportation to their school of choice provided through state funding. New Haven supports transportation for all magnet students not attending interdistrict magnet schools.

New Haven County, which includes the City of New Haven and its suburbs, is over six times the size of the City of New Haven alone and contains far greater proportions of white residents and fewer families living in poverty. The suburbs, which include 23 school districts serving over 53,000 students, provide an effective recruitment ground for New Haven magnet schools to reduce minority group isolation through the State of Connecticut's Interdistrict Magnet School or Open Choice programs. For this project, suburban students will have the opportunity to transfer to Davis, HSC and King/Robinson under the Interdistrict Magnet

Program, and to East Rock under Open Choice. For students and their families, there is no distinction between the two programs. Students simply apply to schools that have programs that they are interested in. Of the 2,046 suburban applicants to New Haven schools in 2016, 571 (28%) were white. However, the remainder of the suburban applicant pool was largely black (33%) and Hispanic (26%). Furthermore, the applicant pool at the 3 interdistrict magnet schools in this project that accepted suburban students in 2016-17 contained a smaller proportion of white suburban applicants (HSC 20%; King/Robinson 17%; and Davis 21%) and a greater proportion of black applicants (HSC 40%; King/Robinson 45%; and Davis 52%) than the district as a whole. The correlation between race and class in both New Haven and its suburbs indicates that the significant number of black and Hispanic applicants would result in an applicant pool that is also likely largely comprised of low-income students.

East Rock was an intradistrict magnet school through 2016-17 and did not admit suburban students, but has been approved as an Open Choice school and will begin serving suburban and New Haven students in 2018-19 if this grant is funded. Edgewood will remain an intradistrict magnet and will continue its successful recruitment strategies of New Haven students. While the foundational structures are in place to facilitate the transfer of suburban students into New Haven magnet schools, the current demographics of the applicant pool have not effectively reduced minority group isolation in this project's interdistrict magnet schools.

The number of New Haven and suburban families who apply to New Haven's magnet schools, is impressive. For the spring, 2016 lottery that selected students for the 2016-17 school year, there were 5,846 applicants of which 3,800 (65%) were New Haven residents and 2,046 (35%) were suburban residents. This means that the number of New Haven magnet school applicants equaled 17.4% of the total New Haven enrollment (21,883) and the number of suburban applicants was

72% of New Haven’s total enrollment of suburban students. The number of white suburban applicants (571) was 60% of New Haven’s total white suburban enrollment (956). Of those applicants, 743 suburban and 1,904 New Haven students were placed in New Haven magnet schools (2,647 total). Placements reflected the applicant pools. (For this discussion, the number of applicants rather than applications is being used. Each applicant is allowed 3 choices. Often, districts count each choice as an application. Since most students receive their 1<sup>st</sup> choices, using the number of applicants is more useful for this discussion.)

<b>Table 1: Applicants, Placements and Enrollments by race/ethnicity, Spring 2016</b>						
	Black	Hispanic	White	Asian	2+	Blank
New Haven Applicants	40.5%	40.1%	7.4%	1.0%	4.0%	7.0%
New Haven Placements	37.0%	41.9%	7.2%	1.1%	3.2%	9.6%
<b>Suburban Applicants</b>	<b>32.5%</b>	<b>25.6%</b>	<b>27.9%</b>	<b>4.8%</b>	<b>5.9%</b>	<b>3.3%</b>
<b>Suburban Placements</b>	<b>31.5%</b>	<b>29.5%</b>	<b>25.6%</b>	<b>3.6%</b>	<b>5.1%</b>	<b>4.7%</b>
New Haven Total Enrollment	39.2%	43.4%	13.9%	2.3%	1.2%	0
<b>Suburban Total Enrollment</b>	<b>8.2%</b>	<b>15.7%</b>	<b>66.5%</b>	<b>5.5%</b>	<b>2.1%</b>	<b>0</b>

It is interesting that 58.1% of the suburban applicant pool is black and Hispanic and that 27.9% is white. That means that more than twice the number of applicants are from the groups that are most isolated in New Haven schools. The racial/ethnic composition of placements closely reflect the applicant pools for both New Haven and the suburbs because the lottery is random without weighting factors. As described above, there is a high correlation between race/ethnicity and SES generally as well as in both New Haven and its suburbs. Therefore, adding socioeconomic weighting factors, for middle and high SES students, to the lottery will increase the average socioeconomic status of the New Haven magnet schools, and, reduce minority group isolation by

increasing the number and percentage of white students.

### **Weighted Lottery Using Socioeconomic Status (SES)**

To capitalize on the great interest of New Haven and suburban students in New Haven magnet schools as demonstrated by large numbers of applications, New Haven will introduce a composite weighting factor into its selection process that represents a comprehensive picture of each student's socioeconomic status. Currently, all of the magnet schools in this project need additional white, more affluent students to reduce or eliminate and prevent minority group and socioeconomic isolation. Given the relationship between race and poverty in New Haven and its suburbs, the use of socioeconomic weighting factors will reduce minority group isolation in the proposed schools. On average, 64% of the white students enrolled in New Haven interdistrict magnet schools live in the suburbs. However, because there are many more African -American and Hispanic applicants (58%) than white applicants (28%) from the suburbs, the reduction of minority group and SES isolation will be enhanced through the use of socioeconomic weighting factors and focused recruitment that uses SES, application pool and historic data (e.g., applicant).

In lieu of current and previous systems based on eligibility for the National School Lunch Program, the New Haven Public Schools (NHPS) will utilize a composite measure that provides a multi-faceted view of socioeconomic status. Measures utilizing only free or reduced price lunch eligibility were limited in that they reflected only household income as a proxy for socioeconomic status and are now antiquated, as many districts, including NHPS, now use the Community Eligibility Provision and no longer determine the standing of individual student. For the purposes of this project, SES will be defined as “one's access to financial, social, cultural, and human capital resources” (National Center for Education Statistics, 2012).

New Haven will contract with Richard Kahlenberg, a noted authority on socioeconomic

integration, to help operationalize the socioeconomic integration plan. Drawing upon Mr. Kahlenberg's work in Chicago and Charlotte-Mecklenburg, socioeconomic status in New Haven will be operationalized to include household income, parental education, single parent households, rate of homeownership, prevalence of non-English speaking households, and home school performance. Using extant data from the U.S. Census Bureau, each Census Tract will be assigned a designation based on current demographics within the factors described above. Every student who lives within that Census Tract (which typically contain between 2,500 and 8,000 inhabitants) will receive an identical designation. While it is possible that an individual student might not possess the exact characteristics assigned via the Census Tract designation, it is likely to be the case based on the distribution of New Haven's residents. Furthermore, use of this publicly available source of information will help to ensure the validity of the data while also reducing the paperwork burden on parents and families.

The six proposed weighting factors will be combined to yield a classification of low, medium, or high SES for each Census Tract in New Haven and its surrounding suburbs. Following the release of official enrollment data in the fall of each year, the Project Director will coordinate the work of evaluating the current student demographics of each magnet school as well as the enrollment targets for that school (see performance measures 1.1-1.8) and identifying student groups (based on SES) that are needed in order to reduce, eliminate or prevent socioeconomic integration. Weights will be set accordingly in the computerized lottery system that will randomly select from applicants placed within each of the three classification groups (i.e., low, medium and high SES) in both New Haven and its suburbs.

Table 2 projects the proportions of students who will be selected from each of the groups of students who will apply. These are based on 2016 enrollments and 2017 project goals. The

actual percentages will depend on the size and composition of the 2017 applicant pool but will be close to the projections. Students in the New Haven resident zone (NH Zone) of a school must apply and enter the lottery and are given priority in the lottery for the percentage of the seats in that column depending on the racial composition of the school and the applicant pool.

School	Suburban	NH Zone	NH Non-Zone
<b>HSC</b>	35% (High, Middle)	0	65% (High, Middle)
<b>King/Robinson</b>	35% (High, Middle)	32% (High, Middle)	33% (High, Middle)
<b>Davis</b>	35% (High, Middle)	50%	15% (Low)
<b>East Rock</b>	10% (High, Middle)	50% (High, Middle)	40% (High, Middle)
<b>Edgewood</b>	0	50%	50% (15% Low)

HSC, King/Robinson and Davis are minority group isolated Interdistrict Magnet Schools that have not attained the State diversity goal. HSC does not have an attendance zone and therefore has a zero in the NH Zone column. All three Interdistrict Magnets will fill 35% of their seats with suburban students. (The state minimum is 30%.) For these seats, they will use a weighting factor for high and middle income students (High, Middle) who will be underrepresented in the applicant pool and the enrollments of these schools.

King/Robinson and East Rock will use the high and middle SES factor for all applicants because they are highly minority group and SES isolated. King/Robinson will have very few white applicants from its New Haven zone which is predominantly African-American. East-Rock will have substantially more white applicants from its attendance zone which is racially/ ethnically diverse. Under the Open Choice Program, the maximum percentage of seats that the State will allow is 10%. However, since the two census blocks that make up its attendance zone

are about 50% white and 24% low income, the combination of suburban and NH Zone students (60%) supplemented by NH Non-Zone (not in the attendance zone) students will enable the East Rock to attain its desegregation goals.

Davis and Edgewood are located in diverse neighborhoods and will have greater proportions of white and high and middle SES students applying from their attendance zones than the other schools. Therefore, the lottery that selects students who live near these schools will probably not need a weighting factor. Finally, since Edgewood and Davis have the highest proportions of white students enrolled compared to the other schools, they will use a weighting factor for low SES students from academically low performing New Haven schools.

The process of allocating seats to each classification group will be conducted annually to ensure that the lottery process is responsive to shifts in the student populations at each magnet school. In addition, the classification of individual Census Tracts will be revisited periodically to account for changes in neighborhood demographics. The intent is that by using the combination of socioeconomic status and geographic location (urban-suburban, school attendance zones) and weighting factors, incoming classes will be more diverse. The goal each year is to get closer to interdistrict magnet schools consisting of approximately 33% suburban students and 33% low income and 66% middle and high income students. All five schools will have the goal of lowering SES to either 25-35% low income students (Davis, HSC, King/Robinson, Edgewood) or 35%-45% (East Rock) low income students. This will also reduce the minority group isolation of the schools while they remain racially and ethnically diverse since a portion of the middle/high SES students will be black and Hispanic as they are in Edgewood and Davis. Low income seats will go to students from New Haven's lowest performing schools. Although SES has a high correlation with race and ethnicity, it is not a proxy for either.

## **Focused Recruitment for Underrepresented Groups**

New Haven will invest substantial resources into the recruitment of all students to insure that the applicant pool for each school contains students from all racial, ethnic and socioeconomic backgrounds. Providing equal educational opportunity to all students is an essential part of all New Haven Public school activities and has always been a major focus of New Haven's magnet program. However, this project will supplement its regular recruitment with focused recruitment activities aimed at increasing the number and percentage of applications from students belonging to groups that are underrepresented in applicant pools based on the racial/ethnic and socioeconomic goals of this project.

The focused recruitment activities will be informed by successful practices utilized in existing New Haven magnet schools. Recruitment will be data-driven--using current and historic applicant pool data for specific suburban towns and schools and New Haven neighborhoods and schools as well as SES--and designed to reduce minority group and socioeconomic isolation through broad and targeted outreach to diverse groups across New Haven and its suburbs.

About 70% of the white students attending New Haven's Interdistrict Magnet Schools are suburban residents. This is reflected in each of the Interdistrict Magnet Schools participating in this project: King/Robinson 68%; HSC 70%; and Davis 57%. (Davis' percentage is somewhat lower because it also draws from an attendance zone with a significant number of white families.) Therefore, it is crucial for an interdistrict magnet school to attract a significant number of suburban students. King/Robinson and HSC have not been effective in their suburban recruitment efforts attracting only 18 and 4 suburban white applicants, respectively, in the spring of 2016. While Davis attracted 49 white suburban applicants for 2016, they represented only 21% of suburban applicants to that school.

However, supported by the significant revisions described in this application, these schools will draw additional applications from white and middle and high SES students. Focused recruitment will help by concentrating on suburban towns that have historically been receptive to these schools and especially to other New Haven magnet schools and that have the greatest numbers of medium and high SES students.

As an Open Choice school, East Rock will continue to attract New Haven students but will also recruit suburban students, concentrating on towns that have been proven to have families that regard New Haven magnet schools as high quality options for their children and have the greatest number of high and medium SES students. Edgewood will continue to attract students from New Haven as an interdistrict magnet school. It will target its recruitment on the white and diverse New Haven neighborhoods that have sent their children to this school.

Additional information about recruitment is discussed in the *Desegregation* section that follows.

**Siting Schools:** Three of the schools (Davis, Edgewood and East Rock) are in economically and racially/ethnically diverse neighborhoods that can draw more white and middle and high SES students through the attendance zone portion of the lottery than the other schools in this project. Davis and Edgewood more so, at least for now, than East Rock.

The adjacent neighborhoods of Westville, Amity and Edgewood, northwest of downtown, are served by Edgewood and Davis, the two most diverse schools in this project. They attract white and middle class students from within New Haven. Davis also serves suburban students through the Interdistrict Magnet School program. Both schools have higher proportions of white students and lower proportions of low income students than the other project schools because of the neighborhoods they are located in. Both will serve as destination schools for low income students from low performing New Haven schools.

New Haven has neighborhoods that have gentrified and are gentrifying as more white and middle class families move into areas that are closer to Yale University, the largest employer in New Haven. The East Rock section of the city, northeast of downtown is one of New Haven's fastest changing neighborhoods. This part of New Haven is close to both middle class areas (e.g. East Rock and Prospect Hill), as well as areas with highly minority group isolated schools (e.g., Fair Haven). As Yale expands, East Rock has become an attractive neighborhood for graduate students and professors with families which is driving the neighborhood's change.

East Rock is in a position similar to that of Edgewood in 1995 and is positioned to duplicate the successes of the west side schools (Davis and Edgewood). In other words, a neighborhood school that was converted into an intradistrict magnet that is somewhat diverse but can dramatically increase its diversity by serving white and middle class New Haven families from East Rock and Prospect Hill, Syrian refugees who find New Haven a welcoming community, and African-American and Hispanic students from Fair Haven and parts of East Rock through an improved magnet program. However, in addition, New Haven will also recruit students from the suburbs through the Connecticut Open Choice program, one of the two interdistrict transfer programs that were implemented by the State Department of Education in response to the *Sheff v. O'Neill* decision. The State Education Department has approved East Rock as an Open Choice school if this application is funded. With this approval, suburban students can be recruited, selected and enrolled in East Rock.

Two other schools in this project are interdistrict magnet schools. These schools are located in very different New Haven neighborhoods. King/Robinson, which has an attendance zone, is located in the Beaver Hills section near Newhallville, one of the poorest sections of New Haven. Both of these neighborhoods have high concentrations of poverty and are minority group

isolated. However, because it is also located near the north western border of New Haven, it is also close to the suburban towns of North Haven and Hamden and is easily accessible to many other towns containing higher proportions of white and more affluent students.

Although HSC, which does not have an attendance zone, is located in a commercial area with little residential housing in its immediate vicinity, it is near the Wooster Square/Mill River neighborhood of New Haven, a section with higher concentrations of white and middle class students. It is also adjacent to Fair Haven, an area of concentrated poverty. Its location, near all major highways in the area and close to downtown, makes transportation from the suburbs and New Haven neighborhoods on the city's east side easy. This provides the opportunity to draw students in contiguous neighborhoods near the school as well as suburban towns.

***(a) Desegregation.* ... (1) The effectiveness of its plan to recruit students from different social, economic, ethnic, and racial backgrounds into the magnet schools.**

On July 9, 1996 the Connecticut Supreme Court (in *Sheff v. O'Neill*) declared that racial segregation (whether *de jure* or *de facto*) in Connecticut's public schools violated the state Constitution, and ordered the General Assembly to remedy the disparity between urban schools serving minority and poor students and suburban schools serving mainly white and affluent students. The *Sheff* case and the resulting legislation established the foundation for the inter-district transfer programs that have become important school reforms in Connecticut.

To remedy the racial/ethnic and socioeconomic segregation of its schools and improve achievement, the New Haven Public Schools propose five magnet schools to serve both New Haven and suburban students. Students from 23 suburban school districts, with a total enrollment of 75,970, of which 67% are white, and 69% are middle and upper middle class, can transfer to New Haven magnet schools, through the Interdistrict Magnet School or Open Choice Programs,

to reduce minority group isolation. For this project, suburban students will transfer to Davis, King/Robinson, and High School in the Community (HSC) under the Interdistrict Magnet Program, and to East Rock under Open Choice. Edgewood will continue as an intradistrict magnet school. Approximately 65% of the students who attend these schools live in New Haven.

**The Recruitment Team:** Key to the success of the recruitment process for the five proposed magnet schools are the existing relationships between the District and parents, educators, administrators, and the communities. New Haven has fully developed 17 magnet schools with MSAP support since 2001 and therefore has procedures and systems in place that will support recruitment efforts at the five new magnets. The project recruitment team, with overall responsibility for planning, directing, and coordinating recruitment activities at the project and school levels, will consist of the Project Director, the Recruitment Coordinator, and a Recruitment Specialist. Working closely with each school's stakeholders, the project recruitment team will support the development of a targeted, data-driven marketing and recruitment plan that will include a unique "brand" for that school. Project staff will work with the district Supervisor of Bilingual/ESL Programs to translate all materials into the languages that are spoken in the district to ensure equal access for all families.

The school recruitment team for each magnet will consist of the principal, the school's parent coordinator, and magnet resource teachers and will be guided by the School Planning and Management Team (SPMT). Also critical to the recruitment process will be each school's Parent-Teacher Association, which will actively recruit parents for the school's program.

The Recruitment Plan is designed to disseminate magnet school information to parents from every racial and ethnic group both in New Haven and its surrounding suburban communities while also utilizing targeted strategies to better achieve a diverse applicant pool,

and to offer assistance to those who need it. This plan combines 21<sup>st</sup> century mediums and approaches to branding and marketing with traditional media and face-to-face communication. As a result, it will engage a broad range of New Haven and suburban parents, including those who do not have Internet access at home or at work.

If the grant is funded, work will begin immediately on developing and implementing project-wide and school-specific recruitment plans. Each will include clear timelines, staffing, activity descriptions, and target neighborhoods and feeder schools. All school plans will be approved by the Project Director and project recruitment staff, who will act as resources during their development. Each school's recruitment plan will be coordinated with district activities.

**Using Feedback and Outcomes to Develop Recruitment Activities:** Recruitment activities will be driven by the use of data and follow the continuous improvement cycle outlined in the evaluation section. **Plan and design:** Prior to the first recruitment period, project and school staffs will plan specific recruitment activities, based on and consistent with the strategies and activities described in this proposal, after examining the previous year's recruitment, applicant pool and student selection data, current and previous enrollment data and soliciting input from New Haven and suburban parents and students, and New Haven staff. Parent focus groups will play a valuable role in providing feedback that will strengthen recruitment strategies and emphasize to parents that their involvement is welcomed. Recruitment plans will focus additional resources on areas across the city and suburbs to increase their contribution to the racial and socioeconomic diversity of the applicant pool. For example, over 10% of students at Davis live in the suburb of Hamden, constituting 16% of that school's white students. Given that over 60% of Hamden's residents are white and over 90% live above the poverty line, planning targeted recruitment in Hamden will further develop an applicant pool that will reduce both

minority group and socioeconomic isolation at Davis.

Implementation and formative evaluation feedback: During the recruitment period, applicant pool data will be reviewed weekly to determine the size and diversity of the pools for each school regarding race/ethnicity, gender, socioeconomic status and geographic location (e.g., number and percent of low, medium, high SES students or white, black and Hispanic students from specific suburban towns or New Haven neighborhoods or schools). Adjustments to the recruitment plan will be made quickly if some groups of students are underrepresented in the applicant pool for a school (e.g., more open houses in Hamden, more direct mailings to parents in Fair Haven, community meetings in specific neighborhoods or towns, meetings in pre-K programs in specific neighborhoods or towns) to ensure a large and diverse applicant pool.

Reflection/Discussion. The evaluator will work with the project director, school recruitment teams and school evaluation teams to examine the successes of the magnet schools in reducing minority group and socioeconomic isolation and suggest areas for improvement through the Reduction of Minority Group Isolation Report (MGI Report) (please see evaluation section), conference calls with the project director and recruitment teams during the recruitment period and an October site visit that will focus on student recruitment, selection and placement and related benchmarks and performance measures.

Plan and Modify Activities: The October site visit and the MGI Report will provide an intense focus and facilitate comprehensive discussions of the data and how it will be used to inform the upcoming recruitment, application, selection and placement process. The group will develop and agree on recommendations that will be implemented to increase the effectiveness of the process including changes to recruitment activities, lottery weights and selection procedures. Finally, a new recruitment plan will be developed for the upcoming year.

The Recruitment Center: *New Haven has a Recruitment Center located at the district office, a location easily accessible to parents either by public transportation or highways. It will house the Recruitment Coordinator and the Recruitment Specialist.*

The Recruitment Coordinator will lead recruitment activities, including the development and implementation of recruitment plans, and will supervise the Recruitment Specialist who will have intimate knowledge of New Haven and its various neighborhoods, its suburban communities and New Haven's magnet school programs. They will be able to present the magnet programs to families and students in a convincing and persuasive manner.

The Recruitment Center also houses computers and written materials in multiple languages. The center has hard copies of all online recruitment materials, including application forms, magnet school booklets, brochures describing the magnet program at each school, and a list of common questions and answers about the magnet program and how to apply. Parents will learn at the center how to access the project website at home or public library where they can share it with other family members, learn about specific magnet programs, and receive assistance, if needed, to complete applications.

The Recruitment Coordinator and Specialist will give presentations both at the Center and at community meetings. They will be trained to assist parents individually in the school selection process, and, most importantly, in the application process (i.e., completing and returning the application in a timely fashion). They will keep individual records of their contacts with parents and will follow up with letters, emails and telephone calls to provide support and invite parents to events at the proposed magnet schools. A particularly important task will be giving individual and group guidance to parents who need assistance navigating the application process and selecting the school that best fits their child's needs, interests and aspirations.

The Recruitment Coordinator and Specialist will make presentations about magnet schools and the resources of the center at parent workshops for every feeder school in New Haven, at feeder schools in the suburban towns where interest in New Haven magnet schools has traditionally been high, and at public libraries in New Haven and surrounding communities.

**Magnet Recruitment Training:** The Recruitment Coordinator and Project Director will provide training that will enable school staff and parents on the school-based recruitment teams to describe the magnet program in clear, compelling, and consistent ways and will support these teams in developing a magnet school brand and recruitment plan. Training sessions will also engage school staff in developing an “elevator speech” articulating the highlights of each school and prepare them to respond to common questions during open houses and school tours. Finally, guidance counselors at each site will be trained in the application process and how best to supply prospective families with the information necessary to select their school of choice.

**New Haven Magnet Schools’ Website and Individual School Websites:** New Haven’s website gives detailed information about each magnet school, online applications, open house/tour dates, magnet fair dates, the application process and rules for New Haven and suburban residents, transportation information, directions, and magnet staff contact information. The site will also include links to information about each magnet school. The individual magnet schools will have their own websites containing additional school information, including information on the school’s theme, upcoming dates and events, and contact information for teachers and staff.

**Getting the Word Out. Magnet Fairs as Meeting Ground and Stimulus:** New Haven holds an annual Citywide School Fair and an Interdistrict Magnet Fair staffed by principals, teachers, students, and parents who will answer questions about their programs and invite prospective families to their open houses. Each school’s booth will reflect its magnet theme, have flyers

listing open house dates, and have image-rich student work that describes and models its theme.

**Open Houses, School Tours, and Shadowing:** Each New Haven magnet school will be required to hold at least three open houses and additional school tours in the months immediately after the Citywide and Interdistrict Magnet Fairs to welcome potential families to the school site. The school-based recruitment team, in consultation with the project director and recruitment coordinator, will plan school tours, including the role of the tour guide, the route, content and the things to highlight. Tours will be conducted by project and school staff and parent volunteers in English, Spanish, and other languages, as needed. Each tour will include parent representatives from both New Haven and suburban towns.

Open houses will also serve as an opportunity to solicit real-time feedback from parents on recruitment materials and their impressions of the schools. Each magnet school will, before and after the Fairs, allow prospective students in 3<sup>rd</sup> grade and up the opportunity to shadow a current student for a day to promote informed decisions as families apply to schools.

**Reaching Out to Pre-Kindergarten Programs:** The New Haven Public Schools will strengthen its links to pre-kindergarten programs by implementing parent workshops and parent and child joint learning activities to familiarize parents with the magnet programs. In addition, the pre-kindergarten programs, including private programs in both New Haven and its suburbs, will be provided with magnet school literature to share with the families that they serve. Finally, postcards will be mailed to pre-kindergarten students prior to the application period providing relevant student ID numbers and encouraging each family to apply.

**Personal Email and Email Blasts and Newsletters:** At open houses, school tours, individual school-choice counseling sessions, and other recruitment activities, magnet and school staff will request email addresses from those parents who have them. Magnet staff will follow

up with personalized emails and will also send parents email blasts (along with information via U.S. Mail) about upcoming events, new school selection information, and application deadlines.

**Direct Mail as a Tool:** After the magnet program begins, the project recruitment staff will send periodic mailings to its target groups, including suburban families in specific towns or parts of towns or New Haven families from specific neighborhoods whose students may be underrepresented in the applicant pools or enrollments of some schools, to inform prospective applicants and follow-up with families who have expressed interest in specific schools by attending open houses or magnet fairs.

**Print Media and Audio/Visual Media:** New Haven will use print and audio/visual media to advertise the Citywide New Haven Magnet Fair, the Interdistrict Magnet Fair, and individual open houses/tour dates for each magnet school, the web site for online applications, application deadlines, and contact information for the schools and Recruitment Center. The *New Haven Register*, the city's major newspaper, will be used to maximum advantage (e.g., editorial, advertising, etc.) and the district will send press releases to and advertise in smaller community newspapers such as *New Haven Living*, *La Voz (Spanish)*, *CT Parent Magazine*, *Shoreline* (covering 11 towns) and *New Haven Magazine*. These smaller periodicals maintain wide circulation locally and are closer to the "heartbeat" of the local community than the larger *Register*. New Haven will also run announcements of magnet events on local TV and radio stations and will produce 30- and 60-second magnet commercials to run on local TV stations, with a link to the magnet website on each TV station's page. The longer commercial will also air at New Haven and suburban movie theaters along with the coming attractions. Both commercials will be accessible on YouTube.

**Social Media:** Each school will develop its own Facebook page, which staff will update

regularly. It will contain, for instance, a list of upcoming events, photos of school activities, messages from school leadership, and links and videos related to the school choice process. Twitter will be used for sending short program notes, updates on school events, and links to thematic content. Finally, school staff will be encouraged to promote their magnet schools by creating a LinkedIn profile including professional experience, expertise, and areas of interest.

***Linkages with the Community:*** Many parents have strong ties to their religious communities. Therefore, churches, synagogues, and mosques throughout New Haven and its suburbs will be engaged as key partners and will serve as sites for focus groups and meeting places where parents can be presented with brochures and hand-outs. All public libraries in New Haven and targeted suburbs will have copies of the resource materials found at the Recruitment Center. District recruitment staff will train library staff so that they will be familiar with the magnet program and able to guide parents in using library computers to access the project website with its wide range of recruitment information. Furthermore, the Recruitment Specialist will set up temporary mobile information centers at supermarkets, malls, and other locations to disseminate materials and applications. Local bus advertising and billboards along highways will capture the attention of a broad range of New Haven and suburban families.

***Focused Recruitment:*** As previously discussed in Competitive Preference Priority 4, new and newly revised magnet schools often attract applicants who are demographically similar to the students who already attend the school. As a result, the proportion of students in various racial, ethnic and socioeconomic groups in the actual school enrollments and applicant pools can be similar. Therefore, focused recruitment is an important strategy in this project. As previously described, weekly analysis of applications during the recruitment period will help the recruitment team determine how many of the activities described above should be more heavily concentrated

in New Haven feeder schools and neighborhoods and suburban towns to attract students from groups that might be underrepresented in the applicant pools for each of the proposed schools. For example, magnet school ads may run more often in some suburban movie theaters. Bus advertisements might be put on suburban routes in neighborhoods and towns where families have shown past interest in New Haven magnets. Prekindergarten programs that serve the children of Yale faculty might receive additional recruiting visits. The goal of the focused recruitment is to tailor strategies that will achieve applicant pools for each school that will more effectively reduce minority group isolation and promote socioeconomic integration.

**(a) *Desegregation.*: (2)** How it will foster interaction among students of different social, economic, ethnic and racial backgrounds in classroom activities, extracurricular activities, or other activities in the magnet schools.

***Increasing Interaction among Students from Different Backgrounds***

A variety of strategies, including interdistrict programs, recruitment, developing exemplary magnet programs and improving student academic achievement at each proposed site will combine to reduce minority group and socioeconomic isolation. Once students from diverse backgrounds attend schools together, there should be strategies to insure that they learn together.

To insure that students from different backgrounds will interact during the course of the school day, New Haven will use heterogeneous classes and cooperative learning strategies. Each is part of a philosophy that helps guide the New Haven Schools: all children can learn and must be given the opportunity to learn the same things together.

***Heterogeneous Grouping: Every Class, Every School:* **Objective 6a.** All magnet school students will have equitable access to high quality education. **6.1** By the end of each project year, at each magnet school, at least 70% (yr. 1), 75% (yr. 2), 80% (yr. 3) and 85% (yrs. 4 and 5) of**

classes (elementary) and STEM classes (middle grades), will reflect their grade's enrollment for each racial/ethnic group (and gender for STEM classes) by  $\pm 15$  percentage points.

The first step in insuring the interaction of students from different backgrounds is to put them in the same classes, avoiding the use of “ability” as the sole criteria for organizing classes. Therefore, every magnet school class will have nearly the same racial/ethnic composition as every other class in its grade. In addition, STEM classes will serve as many girls as boys.

Assigning students of different racial, ethnic, social, and economic backgrounds to the same classes and making sure that they are in the same learning groups for most of the school day is only the beginning. Getting them to interact as they learn is the next step.

**Cooperative Learning** is a successful strategy to foster interactions among students of different racial, ethnic, and economic backgrounds and to improve student achievement. In cooperative learning, small teams, each consisting of students with different ability levels, engage in learning activities designed to improve their understanding and skills. Cooperative learning strategies have been extensively researched and have been shown to improve student achievement for a wide variety of subjects for grades kindergarten through high school, when properly implemented. It has been used to promote reading and writing achievement, conceptual understanding in science problem solving in mathematics and higher-order thinking and learning.

At all five magnet schools, instruction will be inquiry-based, bringing students together to solve open-ended questions and design solutions to them. Collaborative projects, an important part of the curriculum, will teach students valuable skills, such as teamwork and communication.

Cooperative learning will be used throughout the school day. When part of an established model such as Readers' and Writers' Workshop, small groups will be used and structured as specified by that model. At other times, cooperative learning groups will be set up and facilitated

by teachers and incorporate the features that successful cooperative learning approaches have in common (e.g., setting of group goals, diverse interdependent teams, teaching communications and problem solving skills). Professional development (PD) will help teachers understand the best cooperative learning approaches and how to implement them in their classrooms. For example, cooperative learning strategies that can be used during STEM project work will be part of the PD from the Center for Technology and School Change.

**After School Programs:** Each school will have an after school program funded either from 21<sup>st</sup> Century Community Development Program funds or state funds. After school magnet theme related activities will be developed jointly by a school's teachers, partners and the magnet resource teachers and will be related to the theme of each school. All after school activities will be project based, and require students to work together in the same way they would during the school day. After school activities will be taught by teachers from each school. The creation of after school projects will be part of the contract with the partners for each school. To ensure that all parents are aware of after school activities, they will be described during every parent activity, described on the website of each school, and be part of the normal communication that the school has with its families. Transportation will be provided by the district. Attendance will be taken to ensure that students from all racial, ethnic and socioeconomic groups will take part. The goal is for after school activity participants to reflect the racial, ethnic and socioeconomic diversity of its school. If the enrollment of an after school program does not reflect the racial/ethnic and gender diversity of the school, the project staff will focus on the reasons and work to ameliorate them (e.g., activities to engage a broader range of students).

**Family Activities:** Each partner will also create family activities for students and family members to engage in at home and at the partner institutions. Each school will hold family days

to get families started on these projects and to bring families with different backgrounds together in school and at partner institutions. For example, having family evenings or Saturday activities in school 4 times each year and then to have follow-up family activities at partner institutions, would help families from different backgrounds to get to know each other.

***(a) Desegregation. (3)*** How it will ensure equal access and treatment for...participants who have been traditionally underrepresented in courses or activities offered as part of the magnet school, e.g., women and girls in math, science or technology courses, and disabled students.

In its landmark 1996 *Sheff v. O'Neill* decision, the Connecticut Supreme Court held that the extreme *de facto* school segregation found in Hartford (overwhelmingly black and Hispanic schools) and its surrounding suburbs (overwhelmingly white schools) violated the state's constitution. Justice David M. Borden of the Connecticut Supreme Court said that the court's majority has effectively struck down, not just for the greater Hartford area, but for the entire state the municipality-based school system that has been in effect in this state since 1909. The court stated: "We conclude that the existence of extreme racial and ethnic isolation in the public school system deprives schoolchildren of a substantially equal educational opportunity and requires the state to take further remedial measures." The result is the state's support of interdistrict choice.

The focus of this project is to provide equal educational opportunity for minority students who have been denied access to a high quality education and to remedy the violation cited by the court. (The Office for Civil Rights of the U.S. Department of Education has classified New Haven's desegregation plan as a mandatory plan for previous MSAP grant cycles.)

***Equity and Excellence for all New Haven Schools and Students:***

New Haven will actively recruit applicants for magnet schools who are underrepresented in STEM fields and programs (members of racial or ethnic minorities, females, English language

learners, and students with disabilities) and ensure their participation in all magnet school activities described in this application. Most of these students live in resource deprived areas with hardly any opportunities for exposure to STEM related activities. Their communities lack the social and cultural capital that open doors to white, more affluent families. It is essential that these students be given the opportunity to access high quality educational activities in mathematics, science, engineering and technology from the beginning of their schooling, so they will have the confidence in their abilities and learning potential to fully develop their interests in STEM subjects. It is also essential that students from underrepresented groups be given opportunities, early in their schooling, to apply their own linguistic and cultural knowledge and experiences and learn the prerequisites that they need to enroll and be successful in advanced STEM courses in high school, an important goal of this project. Only then will they be able to compete at the same level as students from high socioeconomic backgrounds whose background experiences are generally well aligned with the demands of rigorous instructional practices.

All recruitment materials will make clear to parents of special education children the full range of choices that will be available in New Haven's magnet schools and the supports they will receive to succeed. Special education students and students with disabilities will be actively recruited to ensure that every magnet school is serving the broadest population of students possible. Each school will work with the Director of Student Services and Special Education to create a special education component that will maximize the possibilities for mainstreaming students, including them as fully as possible into each school's magnet program by offering the necessary scaffolds and supports. All magnet schools will be accessible to students with physical disabilities.

The magnet schools will include English Language Learners (ELLs) in all of its activities. The project staff will conduct outreach and provide comprehensible information about the project

to parents of English language learners, including materials written in a language they can understand and program descriptions that is accessible to families' literacy levels. Language instruction for ELLs will reflect the State Board of Education *Position Statement on the Education of Students Acquiring a Second Language*, which affirms that such students: "master the same content and meet the same academic performance standards expected of students whose first language is English." The Supervisor of Bilingual/ESL Programs, and his staff, will work with the project director to ensure their full participation in magnet activities. ELLs will receive the supports necessary for equitable and successful inclusion in all of the STEM activities with the general student population, including differentiation in instruction to allow students at different levels of language acquisition the opportunity to fully participate in the magnet curriculum.

New Haven magnet schools do not use academic criteria to select students. Student interest is the only criteria. Once they enter a magnet school, students from historically underrepresented groups receive equitable treatment. Equitable treatment is ensured through practices such as differentiated instruction, culturally responsive and sustainable instruction, cooperative learning, heterogeneous classes, English language development support for designated ELLs, culturally responsive classroom management supports, and, productive engagement with families. Staff will develop expertise in the successful implementation of these practices through an intense professional development aimed at: (1) preventing re-segregation within the school; (2) countering stereotypes and other biases; and (3) facilitating more positive interactions among diverse groups of students and between staff and students and staff and parents; and, (4) recognizing students' own resources for learning as well as their academic needs. To guarantee these important strategies are fully implemented, this project has performance measures that insure all students will be treated equitably by receiving the supports they need in order to be taught in heterogeneous classes, will

be exposed to the magnet program the same number of hours per week and will be instructed by teachers who receive the same amount of high quality professional development.

To better understand the role of equity in this project, improve cross-cultural communication and interracial understanding, every magnet school teacher will engage in practice based professional learning facilitated by known experts in the area of equity pedagogy and practices responsive to specific student groups. For example, Dr. Maria Pacheco of Brown University will engage the faculty in practice based professional learning that includes: 1) building educators' cultural competency; 2) addressing implicit biases in all areas of schooling; 3) differentiating instruction for ELLs and students with learning disabilities; 3) culturally relevant and sustainable instruction that recognizes students learning assets while addressing needs; 4) engaging with families and communities as partners in students' education; 5) addressing disparities in discipline and access to rigorous instruction; 6) using data tools to address inequities. (Dr. Pacheco has been the the Executive Director of the Education Alliance at Brown University since 2011. Since 1992 she has held numerous leadership positions at Brown including Executive Director of the New England Equity Assistance Center.) Dr. Pacheco has developed, tested, and implemented training modules with thousands of teachers, nationally and internationally. As part of its gender equity focus, the magnet project will support girls' access to and success in challenging STEM activities. For example, the magnet recruitment teams will pay particular attention to making the STEM-focused magnet schools attractive to girls. Girls' attitudes toward STEM as subjects, as an area of exploration, and as a future career are influenced by, among other things, the existence--or absence--of female role models. Working with the Yale Office of New Haven and State Affairs, and community partners, the magnet schools will include female mentors and classroom speakers, especially those who represent the students' varied ethnic and racial backgrounds, who have

STEM careers and can provide information about the needed educational preparation and how they achieved success in the STEM fields.

Schools in this project will work with the newly funded Equity Assistance Center for the region, the Mid-Atlantic Equity Consortium (MEAC), to provide the following support:

Family Engagement in the Classroom: The MEAC will introduce school staff to and provide training in the Family Engagement in the Classroom curriculum, co-created with the Flamboyant Foundation. Teachers will receive sample lessons, interactive homework, and tools to better understand, and bring into the classroom students' and families' knowledge and experiences.

Community Needs Assessment: MAEC will work with the district to build the capacity of families, schools and community organizations to collaborate, exchange ideas, and develop and implement policies and action plans. Both of these activities will support the schools as they expand and develop their parent activity plans described in the Quality of Project Design section.

Supporting STEM Reform: MAEC will help to bring key stakeholders together to identify needs, set priorities, and make realistic plans for STEM reform in the 3 project STEM schools.

---

**(a) *Desegregation.* (4)** The effectiveness of all other desegregation strategies proposed by the applicant for the elimination, reduction, or prevention of minority group isolation in elementary schools and secondary schools with substantial proportions of minority students.

---

**Interdistrict Transfers:** To remedy the racial/ethnic and socioeconomic segregation of its schools and improve achievement, the New Haven proposes four magnet schools to serve both New Haven and suburban students. Students from 23 suburban school districts, with a total of 75,970 students, of which 67% are white and 31% come from low income homes, are eligible to apply and transfer to New Haven magnet schools through the Interdistrict Magnet School or Open Choice Programs, to reduce minority group and socioeconomic isolation. A 5<sup>th</sup> school, Edgewood,

an intradistrict magnet, will serve New Haven students who live in its diverse resident zone and those who do not including low income students attending low achieving schools.

This project will build on New Haven's record of success with magnet schools. A major activity, previously described, is the extensive recruitment campaign that New Haven will implement for these magnet schools if this grant is funded. Students from both New Haven and its suburbs will be recruited. Past efforts for other similar schools have been successful.

As previously described, since 2001, New Haven has fully developed 17 magnet schools with MSAP support: 5 schools in 2001, 2 in 2004, 4 in 2007, 2 in 2010 and 4 schools in 2013. Using the first year of operation as the baseline, 14 of the 17 have reduced minority group isolation (MGI) through the current school year and 13 of the 17 have reduced socioeconomic isolation through the current school year. In addition, every school is still operating as a magnet.

As a group, these 17 magnet schools, served 6,790 students in their baseline years and 7,681 students in 2016-17. They are serving more minority students now (6,557) than in the baseline years (6,305), many more white students (485 in the baseline years and 1,124 in 2016-17). The baseline minority enrollment for these schools was 93%. For 2016-17, the minority enrollment is 85%. The baseline white enrollment was 7%. For 2016-17, it is 15%. The baseline enrollment of low income students for these schools was 72%. For 2017-18, enrollment of low income students is 53.

Of the 17 schools, 6 reduced MGI of the target group by 10 percentage points or more; 4 reduced MGI between 5 and 10 percentage points; 5 reduced MGI by up to 5 percentage points. The greatest reduction was 16.7 percentage points. Of the 17 schools, 4 reduced socioeconomic status isolation by 30 percentage points or more, 2 reduced it between 20 and 30 percentage points; 5 reduced it between 10 and 20 percentage points; 2 by less than 5 percentage points. For New

Haven, reducing minority group isolation (MGI) reduces concentrations of poverty.

Among New Haven elementary and middle schools, six had at least 45% of their students attain level 3 or above on the most recent Smarter Balanced Assessment Consortium (SBAC) ELA/Literacy Test. Four of those schools were magnets started after 2001 and originally supported by MSAP funds. Among the 14 New Haven elementary and middle schools that exceeded the district average for students attaining levels 3 or 4 on the SBAC ELA/Literacy Test, 12 were magnet schools and 8 were among the group started since 2001. The high school with the highest percentage of students attaining Connecticut levels 3 or 4 on the SAT for both English and mathematics is one of the MSAP supported magnet schools developed since 2001.

As is the case with many urban areas with high percentages of low income students, New Haven test scores are lower than the more affluent suburban areas even though its magnet schools are among the highest achieving schools in New Haven. Of the schools serving grades K-8, among the 14 that had the largest percentages of students reaching levels 3 and 4 in ELA were 12 magnet schools. Among the 17 that had the fewest students reaching levels 3 and 4 in ELA (below the district average) were 11 schools that were not magnets.

The reduction of minority group and SES isolation in New Haven magnet schools has occurred because most have interdistrict programs that serve both New Haven and suburban students. Of the 7,681 students served by the 17 magnet schools that have been developed since 2001, 2,051 (27%) are suburban students. Of the 1,124 white students currently enrolled in these schools, 598 (53%) live in the suburbs. For 2016-17, the New Haven Public Schools serve 21,849 students. Of those, 2,851 (13%) are suburban students attending New Haven magnets. Of New Haven's 3,030 white students enrolled for the 2016-17 school year, 956 (31.5%) are suburban students attending New Haven magnet schools (including students attending magnets opened prior

to 2001). Without MSAP support, these schools could not have been as successful.

**Combining Strategies to Reduce Minority Group Isolation (MGI) and SES Isolation**

There are four complementary desegregation strategies (interdistrict transfers, weighted lottery, focused recruitment, school location) that, when used in varying combinations depending on the demographics of each school and its surrounding neighborhoods, will reduce minority group and SES isolation. Table 2, repeated from Competitive Preference Priority 4 (CPP4), summarizes many of these and how they work together for each school. Students living in the New Haven resident zone of a school (NH School Zone) must apply and enter the lottery for the percentage of the seats in that column, depending on the racial composition of the school and the applicant pool. Suburban and NH Non-School Zone students (New Haven students not living in the zone of the school they apply to) will also compete in the lottery for seats in those columns.

Table 2: Selection Goals for New Haven and Suburban Students and (SES Weighting Factors)			
School	Suburban	NH School Zone	NH Non-School Zone
HSC	35% (High, Middle)	0	65% (High, Middle)
King/Robinson	35% (High, Middle)	32% (High, Middle)	33% (High, Middle)
Davis	35% (High, Middle)	50%	15% (Low)
East Rock	10% (High, Middle)	50% (High, Middle)	40% (High, Middle)
Edgewood	0	50%	50% (15% Low)

Seats not filled in the spring lottery will be filled only with students in that category who have applied. Late applications will be in the applicant pool for unfilled seats for their respective categories. Oversubscribed schools will choose students for empty seats from their waiting lists and then from the pool of late applicants using a lottery with weighting factors that will reduce minority group and SES isolation. Waiting lists expire at the end of each school year.

High School in the Community (HSC) (gr. 9-12) (36.3% black, **46.1% Hispanic**, 14.4% white. **Low Income: 57.4%**); is an Interdistrict Magnet School and does not have an attendance zone. About 35% of students selected in the lottery will be suburban residents. Lottery weights for middle and high SES students will be used for both suburban and New Haven students.

King/Robinson (PreK-8) (**72.5% black**, 13.5% Hispanic, 9.3% white. **Low Income: 52.5%**) is also an Interdistrict Magnet School but has an attendance zone which serves a predominantly low income, African-American neighborhood from which it takes about a third of its students. An additional third of the students are suburban residents and the last third are New Haven students from outside of its attendance zone. Lottery weights for middle and high SES students will be used for both suburban and New Haven students.

Davis (PreK-8) (**59.0% black**, 14.9% Hispanic, 4% Asian, 21.5% white. **Low Income: 31.4%**) is an Interdistrict Magnet School but its white population and average SES, which reflects its attendance zone population, is much higher than King/Robinson's and HSC's suggesting a somewhat different mix of strategies. Approximately half of Davis' students will be selected from its attendance zone without lottery weights since the school zone applicant pool has reflected its enrollment in the past, about a third from suburban communities (using middle and high SES lottery weights) and the remaining students from New Haven but outside of its attendance zone (using low SES lottery weights). All three Interdistrict Magnets are minority group isolated but to different degrees. Therefore, the strategies are mixed differently.

East Rock (K-8) (35.8% black, **43.8% Hispanic**, 13.1% white, 6.5% Asian. **Low Income: 46.9%**) serves a diverse area that has been gentrifying over the last decade and is demographically similar to Davis' (diverse) and a smaller area that has more white and affluent families. Therefore, approximately 50% of its students will be drawn from its attendance zone, 10% from suburban

communities (the maximum the State will allow for 2018-19) and the remaining students from New Haven but outside of the its attendance zone. This mix of strategies will work because East Rock is less minority group isolated than HSC and King/Robinson and can attract more affluent and white students from its attendance zone, and supplement that with suburban students. Because its combined minority enrollment is 87%, 13 percentage points over the State diversity goal of 75%, lottery weights for middle and high SES will be used for all applicant categories.

Edgewood (PreK-8) (**50.6% black**, 13.6% Hispanic, 30.7% white. **Low Income: 29.1 %**) is an intradistrict magnet located in an area that has significant numbers of white and middle class families attending the school. It therefore, does not need interdistrict strategies. It will draw about 50% of its students from its attendance zone, and the remaining students from the rest of New Haven. It will use a lottery weight for low SES for 15% of non-zone New Haven seats.

**Weighted Lottery for Student Selection:** To further reduce the racial, ethnic and SES isolation of its magnet schools, New Haven will design a composite SES weighting factor to improve the effectiveness its lottery as previously described in CPP 4.

While the 23 suburban districts from which New Haven recruits and enrolls students have much larger white enrollments (70% on average) compared with New Haven (13%) and have many fewer low income students (30%) than New Haven (54%), the proportion of suburban applicants who are white (28%) is much lower than would be expected and the proportions of black (33%) and Hispanic applicants (25.6%) much higher. (Please see Table 1 in CPP 4). Placements of suburban students reflect the applicant pool (25.6% white, 31.5% black; 29.5% Hispanic) because the lottery currently does not use weighting factors. If SES weighting factors were used, a greater proportion of white and middle and high SES students will be chosen.

The applicant pool of New Haven students reflects its general population for both black

(39% vs 41%) and Hispanic (40% vs 43%) students but is lower for white (7% vs 14%) students. Placements also reflect the applicant pool because the lottery for seats set aside for New Haven students (about 65%) currently does not use weighting factors. Weighting factors for medium and high SES will increase the number of white, middle and high SES students selected.

Using the non-weighted current lottery, of the 571 white suburban applicants in the spring of 2016, only a third (190) were selected. Therefore, using weighting factors for high and medium SES will significantly increase that number therefore, reducing the minority group and economic isolation of New Haven magnet schools more rapidly.

To maximize the impact of the weighting factor, Mr. Richard Kahlenberg, a nationally recognized expert with many published books and articles on SES integration, will help New Haven incorporate socioeconomic weighting factors into the existing school choice lottery. He will also help the district communicate with the public about the value of socioeconomically integrated schooling. Drawing on his work in other districts (e.g., Pasadena, Chicago, Charlotte-Mecklenburg), Mr. Kahlenberg will make recommendations about the optimal balance of low-income and more advantaged students in schools given local demographic realities as well as on the formulation of the factors, and how they can be used to reduce SES and minority group isolation. Because public buy-in is critical to successful implementation of a socioeconomic integration policy, Mr. Kahlenberg will also help prepare a report about the merits of economic school integration to facilitate outreach to stakeholders in New Haven and its suburbs.

As described in CPP4, the high correlation between race and ethnicity and socioeconomic status in New Haven and its suburbs makes the use of socioeconomic weighting factors to reduce both SES and minority group isolation necessary. Please see CPP4 for additional details.

**Focused recruitment strategies** to insure that applicant pools for each school will have

compositions that will result in the reduction of minority group and socioeconomic isolation were discussed in the Desegregation Recruitment section of this proposal and CPP4. A benchmark (logic model short term outcome) related to the applicant pool is: *For each magnet school's applicant pool, the proportions of students in the isolated groups for that school are at least 10 percentage points less than actual current enrollment for that school.* A related performance measure is that each project school will attract at least 150 applicants each year.

While strategic use of a weighted lottery based on socioeconomic status will accelerate the reduction of both SES and minority group isolation, it is essential that the applicant pool for each school is sufficiently diverse to attain project performance measures. Currently, this is not the case. For example, 49% (91 applications) of King/Robinson's last applicant pool were from the suburbs; however, only 16% of suburban applicants (15) were white. Consequently, while 31% of King/Robinson students live in the suburbs, only 17% of its suburban students are white, resulting in a white enrollment of just 9% school-wide. The suburban applicant pool (20 applicants of whom 4 were white) and the population of enrolled students at HSC (14.5% white) reflects similar trends. The most successful New Haven Interdistrict Magnets draw at least 130 suburban applicants and have proportions of white students usually above 30%. Therefore, focused recruitment will help increase both the numbers of applications and the proportion of applications from targeted groups.

Focused recruitment as described in the Desegregation Recruitment section of this proposal and CPP4 will focus resources on underrepresented groups of students (e.g., suburban white, middle and high SES students) combining data and techniques that have been successful.

**Enrolling students who are selected to magnet schools:** A pattern that sometimes emerges for new or newly revised magnets is that the proportion of white, suburban and middle class New Haven students is greater among the students selected than in the group of students who

were selected and enrolled. This will be addressed with these strategies:

Once placement lists are created, families will be notified by the recruitment/placement staff (district level) and lists will be distributed to each school to enable outreach. Magnet resource teachers will contact parents to set-up a school visit for them and their child, including shadowing a current student for part of the school day. Magnet resource teachers will give families their contact information and urge them to ask questions and visit the school. Magnet resource teachers will work during parts of the summer to continue this outreach including meetings with families and school tours. There will also be at least two school orientations over the summer to share information while also providing families with opportunities to meet school staff and each other and learn more about the school's new magnet theme. Each magnet school will welcome new families to a social night in September of each school year so that parents will have an additional opportunity to meet other families as well as teachers and staff.

**(b) Quality of project design. ...1)** the manner and extent to which the magnet school program will improve student academic achievement for all students attending each magnet school program, including the manner and extent to which each magnets school program will increase student academic achievement in the instructional area or areas offered by the school.

New Haven's magnet schools have usually attained three key objectives. (1) They reduced the isolation of Hispanic and black students by attracting white students. (2) They reduced the percentage of low income students (increased socioeconomic integration) by attracting middle class students. (3) They increased academic achievement for all students. Over time, a set of best practices evolved that worked regardless of the magnet theme that was being developed. These formed the basis of a logic model and a theory of action that the activities of this proposal are based on. Research has helped confirm and refine the model.

Please see Quality of Project Design section 4 Strong theory, for a summary of the research that the logic model is based on. In summary, core logic mode activities include:

**Improvement of Curriculum, Instruction and Student Academic Supports:** During this activity, teachers, supported by professional development (PD), will develop or revise, over the five years of the project, all core academic subject units and strengthen how they are taught.

**Magnet Theme Development and Integration:** The goal is to develop and integrate the magnet theme with the units created through the Curriculum and Instruction Improvement process (above). Schools may also decide to create magnet classes that are not integrated with core academic subjects (separate or discrete magnet classes) to supplement integrated magnet units. The PD supporting this component (at least 50 hours per teacher per year) will include curriculum mapping, unit development/enhancement, NGSS implementation, inquiry learning, the development of STEM projects and the creation of magnet standards.

**Professional Development (PD)** will include formal workshops with follow-up coaching by magnet resource teachers, professional development providers, district resource staff or instructional coaches, partner institution staff and teacher collaboration (e.g., PLCs, facilitated unit development, intervisitations with feedback and discussion, peer reviews of units).

The result of these activities will be: **Quality Magnet Curriculum and Instruction**--high quality, peer reviewed units that integrate the magnet theme with core academic subjects (for at least 3, 6, 8, 10 and 12 hours per week, for all students, by the end of years 1, 2, 3, 4 and 5 respectively) and use new and improved instructional practices.

### **Curriculum, Instruction and Student Academic Support**

**Science and STEM:** Connecticut adopted the Next Generation Science Standards (NGSS) on November 4, 2015. While the previous standards separated content from process, the

NGSS integrate content with science/engineering practices and essential broad ideas, a major change called 3-Dimensional Learning. Students learn content (Disciplinary Core Ideas) by applying science and engineering practices, including inquiry--asking questions and defining problems; developing and using models; planning and carrying out investigations; analyzing and interpreting data; using mathematics; constructing explanations and designing solutions; using data/evidence to support conclusions; obtaining, evaluating and communicating information--to that content as they use cross cutting concepts--patterns; cause and effect; scale, proportion and quantity; systems and models; energy and matter: flows, cycles and conservation; structure and function; stability and change--to deepen their understanding of the natural world.

NGSS will be implemented in Connecticut schools during the five years of this MSAP cycle. Therefore, to create unique magnet themes, the STEM schools in this project (Davis, Edgewood, King/Robinson) will: ► Create magnet curricula that will deepen STEM learning as defined by NGSS (i.e., offer enrichment that supplements and complements NGSS). ► Integrate STEM with core academic subjects and provide students with opportunities to learn science, mathematics and engineering by addressing problems that have real-world applications. ► Have more resources available to teach STEM enrichment that is above and beyond what is offered in other schools that are adopting NGSS. ► Teachers who are prepared to teach to the NGSS and the STEM enrichment that will supplement and complement the curricula based on NGSS.

Because the New Haven K-5 science curriculum currently uses the Science and Technology for Children (STC) program which has not fully transitioned to NGSS, the proposed magnet schools will use the Carolina Building Blocks of Science investigations which explicitly address NGSS 3-dimensional teaching and learning and were aligned to CCSS. These kits will be supplemented with an online visual learning component that integrates engineering and

technology (e.g., Carolina's TigTag program). These materials will be a beginning and building blocks which teachers may use to construct STEM units with the help of expert professional development partners as described later in this section. The middle school (6-8) and high school curricula have been rewritten to align with NGSS. All teachers, including, high school science teachers, will receive NGSS training and curricula from the district.

**Mathematics:** As part of the shift to the CCSS, New Haven switched the rigorous K-8 Singapore Math. Common Formative Assessments enable students, parents and teachers to receive data-based feedback concerning how students perform. Curriculum guides for grades K-8 include a scope and sequence that outlines where the CCSS standards for each grade will be taught. They also highlight when to use specific best instructional practices. In grades 9-12, Springboard math texts and the accompanying website are used. Books are published by College Board and are meant to provide easy preparation for the Scholastic Achievement Test. Rigor manifests itself in a hierarchical triad moving from fluency to application to conceptual understanding.

**English Language Arts (ELA):** New Haven's Reading Workshop and Writing Workshop (grades K-8), address all of the strands of the CCSS in ELA. The workshops incorporate mini-lessons to promote active reading or writing, independent reading or writing time (the heart of the workshop), and reflection, responding, and/or sharing. Students learn content-based vocabulary through reading informational texts and doing informational writing that builds on their knowledge of the chosen topic. The workshops support independent reading and writing and student choice of books and writing topics and approaches, while providing direct instruction, through mini-lessons and teacher/student conferences. Reading conferences with the teacher and conferring with the teacher or with peers about writing address the Common Core Speaking and Listening Standards, while providing time for students to get constructive

feedback. Publishing (on a school “writing wall” or website) occurs when a completed text is reworked and edited to the satisfaction of the author. High quality non-fiction texts directly connected to the magnet theme of each school will be used in every grade, including kindergarten. All project schools (including HSC) will have literacy coaches who will work with all teachers and will work closely with the school based magnet resource teachers who will be part of staff for this project. See HSC’s theme narrative a description of its academic program.

**The Social Studies Curriculum** is driven by recommendations made by the National Council on the Social Studies in their College, Career and Civic Life Framework (C3). The C3 Inquiry Arc is designed to support students as they develop questions and plan inquiries; apply disciplinary concepts and tools; evaluate sources and use evidence; and communicate conclusions and take informed action. Instructional strategies drawn from Marzano, Marzano, and Pickering’s “Classroom Instruction that Works” (2003), will support New Haven teachers as they move from a traditional didactic approach to the use of these inquiry-driven practices to promote active learning. The curriculum is designed to be hands on and conceptually based, with a focus on high-interest and relevance as students are taught to read for meaning and apply what they have learned. The use of driving questions and sustained inquiry within the C3 model will align to the broader project-based approach proposed for each magnet school and the use of primary source documents to drive student learning will lend further authenticity to magnet instruction.

**Differentiated Instruction: Empowering Teachers to Increase the Achievement of All Students**

Differentiating instruction means creating multiple paths so that students of different abilities, interests or learning needs experience equally appropriate ways to absorb, use and develop concepts as a part of the daily learning process (Tomlinson, 1999, 2001, 2003). It allows students to take greater responsibility and ownership for their own learning, and provides

opportunities for peer teaching and cooperative learning. In preparation for differentiating, the teacher diagnoses the difference in readiness, interests and learning styles of all students in the class. Differentiation varies the content, processes or product for each group in the class. The essential curricula concepts will be the same for all students but the complexity of the content, learning activities and/or products will vary so that all students are challenged and no students are frustrated. Differentiated instruction supports “teaching up,” rather than watering down.

### **Improving the Academic Achievement of Students in Need of Greater Assistance**

When needed, students will be given additional academic support. For example, for literacy, Response to Intervention (RtI) is used. (Please note that studies that meet the What Works Clearinghouse evidence standards have shown that RtI is an effective strategy for improving both English language arts and mathematics skills of students.) RTI provides services and interventions to students who struggle with learning at increasing levels of intensity.

New Haven's first step to intervention is to ensure that all students receive a high-quality instructional program in their core instruction (Tier I) with curricula aligned to CCSS and clear benchmarks and grade level expectations. Staff closely monitors student progress at each stage of intervention and use this data to make decisions about the need for further instruction and/or intervention. Tier 2 instruction provides remediation on skills not mastered, three to five times a week, through small group, targeted instruction. The level of support increases by reducing the teacher-to-student ratios. These groups are flexible with constant mobility. Tier 3 instruction includes even smaller groups, generally one to three students, with the instruction broken into more discrete instructional skills that is delivered daily for 30-45 minutes.

New Haven teachers and principals have been trained in Data-Driven Decision Making. All schools have data teams for every grade and content area, and all teachers meet for a

minimum of 2 hours per month to analyze school and individual student data. In addition, magnet schools will use the following research-based programs to address student literacy needs:

- ▶ Reading Recovery Intervention Program (gr. 1-2); ▶ Leveled Literacy Intervention (K-2);
- ▶ Plugged Into Reading (gr. 3-8). ▶ Wilson Reading System (gr. 6-8 for students with decoding and spelling difficulties); ▶ Achieve 3000 (gr. 6-8 students with comprehension difficulties), ▶ System 44 (gr. 4-8), Read 180 (gr. 5-12); and ▶ Lexia Core 5 (gr. K-5).

**English Learners (ELs):** The magnet schools will include English learners in all magnet activities as well as strong ESL/bilingual education programs that reflect the Connecticut’s English Learners Proficiency Standards. The magnet schools’ theme-based curricula and the integration of literacy learning into all content areas that is fundamental to the CCSS will provide ELs with multiple opportunities for stimulating language input as they master challenging content. The magnet schools will coordinate instruction by bilingual, ESL and regular classroom teachers and train bilingual and ESL teachers to fully support all magnet activities.

Individualized Language Development Profiles, for every English Learner, provides guidance to classroom teachers on the specific learning needs of ELs. Professional development will be provided so that teachers can implement a more personalized EL learning experience. Additional professional development will include: ▶ focus on mathematical (or scientific) discourse practices (e.g., explaining, conjecturing), rather than on a simplified view of language ▶ use, beginning in the early grades, of science as a motivator to encourage ELs to learn both, through sheltered instruction, content knowledge and skills including academic language in subjects that require specialized vocabulary, sentence syntax, and academic discourse. All bilingual and EL teachers will fully participate in all MSAP project professional development.

**School Improvement Planning:** New Haven’s school improvement process identifies school

strengths and weaknesses and develops a plan to remediate the weaknesses. Using an inquiry process to examine data to identify and prioritize needs, the process develops strategic objectives that drive a set of strategic initiatives and actions that lead to improved student learning. The resulting School Improvement Plan (SIP) measures progress and impact against collaboratively-identified benchmarks. The School Planning and Management Team (SPMT) of each school develops the plan in consultation with the district (Directors of Instruction and Curriculum and Instruction Supervisors). Each plan must be approved by the district. The results are evaluated by the district each year. Much of the professional development (PD) related to curriculum and instruction improvement (a logic model component) is related to the findings of the school improvement process. What the MSAP project adds to this process is an even more intense focus on curriculum and instruction at the classroom level, additional PD (50 hours per year per teacher for core academic subject improvement and 50 hours for magnet theme development and integration—logic model components) and resources focused on curriculum and instruction improvement, and the creation of a high interest (magnet theme) curriculum (a logic model component). An important part of the New Haven conversion/revision magnet model is revising all core academic subject units and how they are taught while teachers receive intensive PD.

**Common Planning Time** (180 minutes/week): During these sessions, teachers will learn how to develop STEM or PBL units and align them with the CCSS, NGSS and state standards. Magnet Resource Teachers (MRTs) will facilitate and help structure these sessions. This time will also be used for curriculum mapping, unit development and magnet integration.

**Magnet Theme Development and Integration:** Working with the Connecticut Science Center and the Center for Technology and School Change, Columbia University (STEM schools), the Buck Institute and Dr. Heidi Hayes Jacobs (East Rock), The Great Schools Partnership (HSC)

and the magnet resource teachers, classroom teachers will create units and lessons that integrate their magnet theme into interdisciplinary units aligned with the CCSS, the NGSS and the new state social studies standards, which are project based and use inquiry. Every unit will include a project focused on a school's magnet theme. Each magnet school will have a unique magnet theme, described below, that differentiates it from other schools in and around New Haven.

### **East Rock Community and Cultural Studies Magnet School**

East Rock will examine the multifaceted meanings of the phrase “We the People” as students explore the unique cultural landscapes of New Haven and our nation and the ways in which diversity makes us stronger. Students will consider the cultures of their classmates and New Haven and suburban residents and the ways in which each contributes to a rich and distinct way of life. Throughout their studies, students will examine guiding questions such as: *What roles does culture play in human and societal development? What are common characteristics across cultures? What is the role of diversity and how is it maintained within a culture? How does culture change to accommodate different ideas, and beliefs?* (National Council for the Social Studies). With a focus on inclusivity, culture, and language, students will investigate and learn from their differences while drawing on the ways in which we are the same to better understand what it means to be an American in a multicultural society.

**Magnet Theme Description:** Instruction at East Rock will emphasize collaborative, project based learning aligned to the Common Core, the NGSS and the new Connecticut social studies standards. Drawing from disciplines including linguistics, sociology, and anthropology, students will learn about the unique experiences of different peoples and how those experiences shape our interactions with one another. Culturally relevant strategies and curriculum will ensure that instruction is student-centered and draws upon the diverse backgrounds of the student

population. Students in grades K-2 will focus on their own personal identity and will discuss how students, families, and communities can cooperate and learn from each other. Young children will learn the cultural traditions of their classmates and the many languages their families speak as parents visit the class to tell their family stories. In grades 3-5, students will examine how elements of culture influence institutions through an expanded study of history and civics. Students will tour New Haven and study buildings and monuments to gain an understanding of the development of their city, state, and nation. In grades 6-8, students will investigate how culture is manifested in rule and law, especially the ways in which laws protect or might infringe on individuals' culture. Students will conduct an in-depth analysis of the process of obtaining American citizenship and will attend a Naturalization Ceremony at U.S. District Court in New Haven as they examine whether our nation is a melting pot or a salad bowl, and discuss the difference between the two. Teachers at all grade levels will utilize the Southern Poverty Law Center's Teaching Tolerance curriculum to support interdisciplinary study on the concepts of identity and diversity and to further cultivate an appreciation for differences in the school population. The use of primary sources, such as diaries, letters, documents, maps, and biographies will make the study of heritage and culture come alive. Students will be trained to be critical consumers of information and will use technology to access documents from sources such as the Public Library, The National Archives, The Library of Congress, The Smithsonian Institution, and The *Life Magazine* photo catalog.

In accordance with the National Council for the Social Studies' definition, students will examine culture through the lenses of language, literature, music, arts and artifacts, and food across the content areas. For example, students in the second grade will explore artifacts in **Math**, including a Mayan counting table, a Chinese abacus, and a British slide rule as they

explore how different cultures of the past represented place value. In **Language Arts**, eighth grade students will draw upon the Central Text Anthology and strategies compiled by Teaching Tolerance's literacy-based curriculum, Perspectives for a Diverse America, to examine the immigrant experience. Students will work with representatives from Integrated Refugee and Immigrant Services to create a StoryCorps-style documentary highlighting how immigrant residents of New Haven maintain elements of their home culture while also adopting new American norms. Students in the third grade will examine the art and artifacts of the indigenous people of Connecticut in **Social Studies**, in conjunction with The Mashantucket Pequot Museum and Research Center and the New Haven Historical Society. Students will draft a first-person narrative describing the daily life of a member of the Mashantucket Pequot tribe in the seventeenth century and discuss how indigenous culture continues to influence New Haven residents today. In **Music**, students will learn of the influence of various cultures on American musical styles and will visit the Yale Art Museum in **Art** to explore the ways in which immigrant artists represent their unique dual culture. An annual culture fair will highlight cumulative projects undertaken by students in the 5<sup>th</sup> and 8<sup>th</sup> grade.

Each year, 5<sup>th</sup> graders will be supported in designing an interdisciplinary course of study on the culture of a nation representing his or her ancestry and will share a multipart presentation on the language, literature, music, arts and artifacts, and food of their chosen country. In the 8<sup>th</sup> grade, students will conduct a similar exploration on a nation represented in a classmate's ancestry in order to better understand the unique cultural elements present at the school.

In order to establish and reinforce cross cultural relationships, students will receive Spanish instruction, aligned to the magnet theme, for at least ninety minutes each week. The curriculum brings together national and state standards in world languages and social studies, and will be

aligned to instruction in the core content areas. Units will include student objectives related to the 5 goals of the national World-Readiness Standards for Learning Languages (2014): Communication, Cultures, Connections, Comparisons, and Communities. A unique feature of the East Rock Spanish curriculum will be that the thematic units will derive their “Connections” objectives from the magnet theme and school curriculum, as well as the Connecticut Elementary and Secondary Social Studies Frameworks. The “Communities” objectives in each unit will require students to interact with native speakers, use materials meant for native speakers, or create materials meant for native speakers.

**Professional Development (PD):** East Rock teachers will receive PD from the *Buck Institute for Education* on project based learning and Dr. Heidi Hayes Jacobs on curriculum mapping and magnet unit development both described in *Quality of Project Design* (3). Teachers will be provided with professional development in the use of primary source documents from graduate students from the *Yale History Department*. Teachers will also work with *the New Haven Museum and Historical Society*, *the Connecticut Freedom Trail*, *The Yale Historical Archives of Newspaper Clipping, Music and Film*, and *The Yale Art Museum* to develop magnet theme units.

### **King/Robinson Interdistrict Magnet: An International Baccalaureate STEM School**

King/Robinson, a magnet school with a strong history in the International Baccalaureate (IB) program, is significantly revising its theme to incorporate STEM. King/Robinson students will continue to engage in rigorous, transdisciplinary IB learning with a new emphasis on real-world, hands-on STEM projects, facilitated by ubiquitous access to personal devices (e.g., android tablets or iPads, in early elementary grades and Chrome netbooks in the upper grades).

**Theme Description:** The STEM activities will be integrated into the Primary and Middle Years IB Programs (PYP and MYP, respectively), through inquiry and a focus on

knowledge, concepts, skills, attitudes and action—the five essential elements of IB.

Teacher-created transdisciplinary IB units will be supplemented by STEM curricular materials—STEM Sprouts (PK-K), Engineering is Elementary (EiE, Grades 1-5) and Project Lead the Way (PLTW, Grades 6-8)—and expanded with teacher developed activities that are extensions of the STEM units and lessons. PLTW's 10 units empower middle grades students to lead their own discovery; the hands-on program boosts classroom engagement and collaboration.

For example, 4th graders will study plants and insects through an IB unit whose essential question asks: How do plants and insects depend on each other? They learn about pollination and agricultural engineering through the EIE unit *Best of Bugs*, where they read about a young girl's butterfly garden in the Dominican Republic and design hand pollinators for different types of flowers. In language arts, Students revisit the classic Eric Carle picture book, *The Very Hungry Caterpillar* and then in science class research butterfly habitats, life cycles, anatomy, migration patterns, etc. Group members become experts on their topics, and will teach others. They will create reports and presentations, and will also create picture books that they will share with 1<sup>st</sup> graders. As the 4<sup>th</sup> graders learn about the life cycle and habitats of butterflies, they plan a butterfly garden. They learn how plants support butterfly life, and use mathematics to plan gardens that fit on irregular shapes on the school grounds, plan the garden beds and paths, and determine how many butterfly-attracting plants can fit in the space. As teachers become comfortable teaching STEM through intensive professional development (i.e., Connecticut Science Center and Center for Technology and School Change, Columbia University) they will begin to develop their own STEM and design challenges and integrate them into their IB units.

In the IB MYP, students complete a long-term project, where they decide what they want to learn about, identify what they already know, discovering what they will need to know to

complete the project, and create a proposal or criteria for completing it. In Grades 5-7, students will tackle group projects each semester that will help build their skills and knowledge for their long-term individual project in Grade 8. For example, Grade 6 students will learn about natural selection and adaptation via a unit that asks the essential questions: How are animals connected to the environments in which they live? And why do animals look the way they do? As one means of exploring these questions, groups of students will research biomes and the animals that live in them. They will explore adaptations of animals that allow them to successfully live in the biome, for example, the penguins' layers of fat, feathers, and oil that help keep them warm in subzero temperatures, and strong webbed feet that allow them to swim quickly. Pairs of students will then create an alien species designed to survive in the specific biome they have researched. They will make sculptures of their animals, and document the process using time lapse video using free software such as JellyCam--a program that creates time lapse videos by taking a photograph every two seconds using the computer's camera. They will write scripts about the adaptations specific to their animals, and record audio to go along with a short movie made from their time-lapse photographs. Project Lead the Way (PLTW) Gateway curricular units will complement and support middle grades students in meeting IB program expectations, scaffolding students as they learn to complete independent investigations. Examples of PLTW units include **Design and Modeling** where students develop an understanding of creativity and innovation through the design process, and are challenged to use and apply what they have learned throughout the unit to design a therapeutic toy for a disabled child.

Beginning at the early elementary level, students at King/Robinson will learn coding through the **Scratch** programming language provided free by the MIT Media Lab. Grades K-3 students will start with **Scratch Jr.**, an introductory programming language that runs on iPad and

Android tablets and that enables young children to create their own interactive stories and games. Students in Grades 4-6 will use **Scratch** to do the same with their Chromebooks, creating interactive digital stories and games. Teachers will supplement Scratch curricular resources (6 unit introductory Creative Computing curriculum) with **code.org**'s Computer Science Fundamentals curriculum (also free): 4 modules for elementary school, 6 units of study for middle school and supplemental units for coding aligned with middle school algebra and science classes. In addition, **Mouse.org** courses will enhance design and coding skills in the upper grades, when students will go deeper into serious games via web coding. Project Lead the Way computer science units for middle schoolers will be used, including *APP Creators*, where students are exposed to computer science as a means of analyzing and developing solutions to authentic problems through mobile app development and *Computer Science for Innovators and Makers* where students learn about programming for the physical world by blending hardware design and software development. In addition, powered by the organization Mouse.org, the school will establish a **Student Tech Team** to serve as a help desk for the one-to-one initiative, providing technical and user support while gaining valuable IT, communication and collaboration skills and giving back through community service.

To implement the 1-to-1 initiative, the school will develop a shared vision; establish an implementation plan aligned with the shared vision; empower stakeholders to help effect change; and make sure access is equitable for all students. Educators will have ongoing professional learning from Center for Technology and School Change (CTSC), Columbia University as well as time to share ideas. In Year 1, two volunteer teachers, one in upper elementary and the other in the middle grades, will, with the support of the CTSC, create model classrooms that will serve as learning laboratories and testbeds for the school. Through these two classrooms, the school

will begin to develop both instruction and logistics for students, families, and staff. The school will use these model classrooms to investigate and build digital curriculum materials, pedagogy, and projects; inform the development of policies and procedures; and develop family engagement and involvement activities. In Y2, the 1:1 program will be rolled in Grades 4 and 6. In Y3, students in Grades 4 through 7 will have devices (the new Gr4 and Gr6 students will receive devices, and students from the prior year will now be in Gr5 & Gr7). In Y4, students in grades 4-8 will have personal devices; students in grades 4-5 will keep their devices in school while those in grades 6-8 will be permitted to take their devices home. Meanwhile, the lower grades will use class carts of tablets for project-based work. The school will use Google Classroom as a cloud-based solution for learners and teachers to manage projects, assignments, and resources and Google Education to support administration, development, and professional learning. The detailed rollout plan will be determined by the shared vision and implementation plan referenced above under the direction of the School Planning and Management Team.

“Book Reports 3.0” are an example of standards-aligned ubiquitous technology use in language arts. In the upper elementary and middle grades, students will be responsible for creating book trailers as a way of recommending independent reading to their peers. First, they write a synopsis along with why they recommend the book. Next, they create storyboards and scripts. They will create or find images and music that are freely available, and create the audio track. Finally, they create 1-3 minute book trailers using iMovie, MovieMaker, or Scratch, with titles, credits, and transitions. These will be viewed in class, with awards given for different categories; uploaded to the school’s private YouTube channel; and embedded in students’ blogs. Students will do this project three times a year, each time recommending a book from a different genre—for example, a book on a science topic, a biography, and fiction. They will comment on each other’s blogs

after they read one of the recommended books.

**Professional Development (PD):** The following will be described in Quality of Project Design

(3): Connecticut Science Center, Columbia University Center for Technology and School

Change, and the Yale Office of New Haven and State Affairs. **Additional PD:** Two consultants,

STEM and IT experts (Yale faculty or graduate students), will assist teachers develop their

STEM units, help them better understand science content and support the 1:1 initiative.

### **Davis Academy for Arts and Design Innovation Interdistrict Magnet School**

At Davis, a STEAM school, students will find inspiration in nature as they seek design solutions to real-world problems in a collaborative, learner-driven environment that draws on the resources found in the natural world. In addition, a rigorous arts program, including music, dance, drama, and the visual arts, will encourage creative thinking about the ways that animals use sound, movement, and color and the techniques used by artists to convey the complexity of nature. Students will develop projects based on their own interests during a designated “Genius Hour” using the Enrichment Cluster model developed by Dr. Joseph Renzulli and will have the ability to bring their projects to life, in conjunction with the Yale Center for Engineering Innovation and Design, and the Eli Whitney Museum in a designated Makerspace.

**Magnet Theme Description:** Driven by essential questions, students will embark on interdisciplinary design challenges, as individuals and in teams, that will require them to: create a project plan; conduct research; design and build prototypes; and implement their ideas to improve the peoples’ lives. Students will use the engineering design process during design challenges (STEAM projects) and will utilize technology not only for science experiments and STEAM projects but also for graphic designs, robotics, animation, 3D printing, and video recording across content areas. Every unit will include a STEAM project.

In grades K-2, students will explore the manner in which plants and animals survive and thrive in the natural world through an in-depth study of biology, zoology, and ecology. For example, first grade students will study and observe the external parts of plants and animals during an excursion to The Beardsley Zoo and will apply their knowledge of a frog's extra eyelid to design goggles that would allow deep-sea divers to see clearly underwater. Second grade students will study the features of insect pollination with Audubon CT and apply their knowledge to construct a hand pollinator, using the 3D printer, to be used in the school's community garden. In grades 3-5, students will expand their understanding of the natural world as they investigate the earth sciences. In the third grade, students will explore how fossil fuels are created and distributed beneath the earth's surface, will evaluate the environmental impact of their use, and will create a solar car, modeled after a plant's process of photo-synthesis, in partnership with the Eli Whitney Museum to promote a shift towards more sustainable resources. In grades 6-8, students will explore and draw on the unseen forces that influence our world through sustained inquiry into the physical sciences. In 8<sup>th</sup> grade, students will conduct experiments on gravitational interactions and draw on this data and the strategies used by the flying squirrel to design and construct a model, in conjunction with the Eli Whitney Museum, to safely and accurately drop aid packages into distressed regions.

Interdisciplinary units, aligned to the magnet theme, will be used in all grade levels to encourage individual and collective exploration and applied, real-world learning. For example, third grade students will obtain and aggregate information to describe climates in different regions of the world in **Science** and will generate scaled picture and bar graphs to represent the prevalence of specific meteorological phenomenon in a given region in **Math**. These students will examine the effect of catastrophic environmental events on human settlements and

migrations in **Social Studies** and will use virtual reality and the examination of first-hand accounts in **Language Arts** to better understand the human impact of these events. At the same time, in **Art**, students will work with the Bruce Museum to design and build models of structures that will mimic a natural coastline and blend into the East Shore of New Haven to protect the city from flooding as a result of future storms and the rising sea level.

The school will introduce a “Genius Hour”, which will offer a time designated for wholly student-directed projects in a designated **Makerspace**. Students will pursue standards-based concepts on their own terms and will be encouraged to imagine, brainstorm, experiment, and build concrete evidence of their learning in the core content areas and understanding of the natural world. For example, students in kindergarten will apply their knowledge of shapes and basic geometric concepts to construct a secure animal habitat in conjunction with the West Rock Nature Center. Parents and families will be invited to participate in “Shark Tank” style events throughout the school year in which students will pitch the merits of their Genius Hour inventions. The Makerspace, which will be modeled after the workshop at Yale’s Center for Engineering Innovation and Design, will be equipped with collaborative work spaces, laptop computers loaded with design software, still and video cameras, 3D printers, and consumable materials to facilitate the development of authentic representations of student learning.

**Professional Development (PD):** The following will be described in Quality of Project Design (3): Connecticut Science Center, Center for Technology and School Change, Columbia University, and the Yale Office of New Haven and State Affairs. **Additional PD:** A consultant to support STEM and one to support planning and design. The Eli Whitney Museum will support the integration of design, engineering and experimentation into the core content areas and will support thematic units and lessons. Partners involved in hands-on learning activities will include

Audubon CT, The Beardsley Zoo, and the West Rock Nature Center.

### **Edgewood Creative Thinking through STEAM Magnet School**

The Edgewood curriculum will integrate the arts and higher-order thinking with the study of Science, Technology, Engineering and Math (STEM) as student artists and scientists are inspired by the natural world through in-depth explorations in Edgewood Park. The study of STEAM will be integrated into all subjects through interdisciplinary project based units.

**Theme Description:** Edgewood’s existing arts and higher order thinking skills (HOTS) programs will be strengthened and supplemented by an infusion of STEM into the curriculum. Each teacher-created interdisciplinary unit will include a STEM project, plus a collaboration between the classroom teacher and arts instructors (teachers and artists). Students will explore the connections between art and nature through use of the 240-acre Edgewood Park, which borders the school, as an outdoor classroom. Project-based learning will incorporate both arts and sciences through the study of the park’s ecosystem—its animals and plants; rocks, minerals and soil; streams and ponds; how humans interact with and influence the natural world; and eco-art education that includes environmental literacy and ecological awareness. Students will not only use the park as an outdoor classroom, but will also contribute to its betterment.

The school will have a service learning component, where students of all ages “give back” through projects that they will help identify, define, and implement as part of their weekly ECHO (Enhanced Curriculum HOT Opportunity) instructional blocks—a designated weekly time block in which the whole school, often in multi-age groupings, are engaged in active learning where students develop products and services that impact on intended audiences; ECHOs are student-driven, facilitating higher order thinking by providing students with opportunities to apply their interests, knowledge and thinking skills, and create ideas to self-

selected problems of study. For example, community service projects may include: park clean-up; creating guides and signage; mulching, planting, pruning; writing op-ed pieces for local news outlets; and creating Public Service Announcements through video and social media.

These studies in their own “backyard” will be extended through visits to the Marsh Botanical Garden at Yale, the Yale University Art Gallery, Nature Centers (e.g., Trowbridge Environmental Center at East Rock Park), Connecticut Audubon Society Centers and Sanctuaries near New Haven, the New Haven Historical Society, and the Bruce Museum.

Project based units will also utilize the Visual Thinking Strategy (VTS) approach. VTS is a powerful, research-based teaching strategy grounded in a theory of aesthetic development whose anchor are three questions: What’s going on in this picture? What do you see that makes you say that? What more can we find? It will be used not only for exploring visual art but also for primary historical sources, math problems, literature and non-fiction texts, and science.

As students learn STEM subjects, they will create music, dance, and writing **inspired by, made from, and created in nature**. For example, **1<sup>st</sup> Graders** will study **light and sound** through the arts and science. They will investigate sound waves by making different kinds of drums and other percussion instruments and measuring the vibrations (science and math); and they will experiment with the effect of placing different objects (transparent, translucent, opaque and reflective objects of different colors) in the path of light (science) and make “light box” art. They will read related fiction and non-fiction books such as *I See Myself* (Vicki Cobb, 2002) and *Sounds All Around* (Wendy Pfeffer, 1999). **4<sup>th</sup> Graders** will study sound and light in deeper ways; for example, they will create pinhole cameras and take indoor and outdoor pictures, learning about how light travels. They will draw diagrams that explain how a pinhole camera works and compare it to how an eye works. For sound, they will create multiple instruments such

as drums, kazoos, and simple guitars to explore vibrations and pitch. They will work with a music teacher to create music from the instruments they construct.

**2<sup>nd</sup> graders** will do a **bird study** that will include learning about birds with a focus on Connecticut birds; exploring the park with a Bird Habitat Bingo activity; creating a schoolyard bird feeding station, adjacent to the park (STEM); observing birds at the park, recording information, and reporting on it (science, ELA). The class will read books such as *A Bird In Winter* by Stépanie Girel, in which they learn about the artist Peter Breugel through a story about a girl who rescues a bird. They will learn about John James Audubon in *The Boy Who Drew Birds* and study Audubon's art. The CT Audubon Society will come to Edgewood for a *Science in Nature* bird program and the students will visit the Society's Birdcraft Museum and Sanctuary in Fairfield. For the culminating project, each child will create a book about a different Connecticut bird of their choosing that includes bird facts and illustrations and will write and perform stories, plays, poems, or puppets shows about birds (ELA, science, arts).

**6<sup>th</sup> Graders** will learn about insects through an intensive investigation that brings them into the park to observe and draw insects, and brings insects in to their classroom. They will examine how insects were depicted in scientific drawings and learn from staff of Yale's Peabody Museum of Natural History how insects have been depicted in scientific drawings through the ages (science, art). Students will identify the characteristics of insect anatomy; collect live insects and categorize them; learn about their life cycles, habitats, prey/food, and predators; and draw them in both scientific and artistic styles. Each student will pick an insect to research and create a likeness accurate in both scale and anatomy with foam, paint, paper and pipe cleaners.

Similar to TedX, Edgewood will host a series of EdgeTalks, where 7<sup>th</sup> and 8<sup>th</sup> graders present their independent projects in 8-10 minute talks with accompanying video or digital

presentation materials to parents, teachers, community members, and other students. Students will combine their work in art with STEM to create independent projects related to Edgewood Park, ecological literacy, environmental activism, or their local communities.

**Professional Development (PD):** Connecticut Science Center, CTSC at Columbia University, the Yale Office of New Haven and State Affairs. **Additional PD:** One Yale graduate students to support STEM and one to support STEAM and the arts. Teaching Artists; New Haven Department of Parks & Recreation (Edgewood Park); Yale Art Gallery and Peabody Museum; Marsh Botanical Garden at Yale; Connecticut Audubon Society Centers and Sanctuaries.

### **High School in the Community Interdistrict Magnet (HSC)**

HSC students will be prepared to be active and responsible citizens through a program focused on public policy that will empower students to understand and participate in government. Inspired by prominent graduate schools such as Harvard's Kennedy School of Government, HSC will prepare students for civic leadership through a multidisciplinary approach that emphasizes sustained critical thinking about what it means to work in the public interest. HSC will prepare students to be engaged, socially conscious leaders across public sectors including law, government, education, and non-profit management. Rooted in an ethos of social justice, staff at HSC will utilize collaborative, project based instruction to design innovative solutions to real-world issues in the New Haven community and around the globe.

A schoolwide Early College model will accelerate rigor across all subject areas in conjunction with Project Based Learning (PBL) to drive a personalized learning environment built on student voice and choice. In partnership with the New Haven Mayor's Office and City Council, students will establish a fully functional student government.

**Magnet Theme Description:** The goal of the magnet program at HSC is to help students

develop critical and strategic thinking to prepare them to be leaders in their school, communities and city. A wide array of new courses will be introduced to engage students in deep and sustained inquiry into the multifaceted components of the Public Policy theme. These courses, open to all students, will include: Math and Politics, in which students will examine the use and misuse of data and information in order to persuade; Debating Skills for Public Leaders, emphasizing the use of textual evidence in oral arguments; Leadership Lessons from the Civil Rights Movement and the 60's; Post-9/11 America will guide students in analyzing U.S. post-9/11 policy; Launch: Starting Your Own Organization for Change; Local Action: The City Government of New Haven; Green Leadership, in which students will explore environmental policy and water quality issues in Connecticut; Art for Social Justice: the study of political signage, protest art, and the power of image; and Supreme Court and the Law of the Land, which will offer in-depth case studies of the Court's most significant decisions.

The Public Policy theme will also be integrated into each of the core content areas in the form of project based units throughout the school year, supported through professional development with the Great Schools Partnership (described below). In English, active citizenship will be cultivated through the use of primary-source documents and digital resources. Students will examine power dynamics in both fiction and non-fiction texts. In alignment with the Common Core State Standards, students will focus on informational texts, especially the interpretation of seminal documents in the history of our nation such as the writings of the founding fathers, Supreme Court decisions, and presidential addresses. In 10<sup>th</sup> grade, students will read Dr. Martin Luther King's Letter from Birmingham Jail and then work in teams to prepare for and engage in a policy debate on the use of non-violent resistance as opposed to judicial means to achieve social change. In Mathematics, students will learn to interpret and

apply data through explicit modeling processes and will use statistical practices to conduct research and determine the impact of social policies. As part of their Senior Capstone, students in the 12<sup>th</sup> grade will work in their math class to design a random sampling procedure and implement a survey to determine interest and support in his or her issue and conceptual solution. Students will then use statistical processes to extrapolate their findings across a larger population in order to strengthen their proposals and Capstone presentations.

In Science and Social studies, students will examine how governmental policies affect the environment and the quality of life for people in impacted regions. Students in grade 11 will define, evaluate, and refine a solution to deal with lead-tainted drinking water in Flint, Michigan while also creating policy pieces to prevent similar crises in the future. In 9<sup>th</sup> grade social studies students will examine the rise of labor unions in the 19<sup>th</sup> century, especially their impact on the quality of life of individuals and their continued effect on market-based economies. Utilizing the case study model, students will conduct an in-depth exploration of the impact of the National Labor Relations Act of 1935 on a single U.S. industry. HSC will extend the core curriculum through an explicit focus on the needs of underserved communities, social and legal activism, and transformative leadership throughout history.

All units will be developed using the project based learning framework, emphasizing sustained inquiry, authenticity, reflection, and revision. Students will develop and maintain cross-curricular digital portfolios in which they will compile artifacts of their studies, including written papers, PowerPoint presentations, and videos of oral presentations. The portfolio will be used as part of annual student-led conferences, in which students will be guided through the process of reflecting on and presenting evidence of their work to family and other stakeholders.

Recognizing that students will require critical thinking skills in the core content areas to

become policy makers and strategic thinkers, an Early College initiative will be developed that will put all students in a position to enroll and succeed in college coursework before they graduate from high school. Early College programs emphasize rigor, relevance, and relationships to develop content knowledge while supporting students in applying their learning to the real world and have been validated by the WWC to improve both graduation rate and student performance in English (Berger, 2013). In partnership with Gateway Community College (GCC), HSC will develop an aligned, thematic academic program, beginning in grade 9, that will allow students to earn up to two years of higher education credit prior to graduation and delve more deeply in the magnet theme. Students will have the opportunity to take their college courses at GCC and/or at HSC taught by HSC teachers who have been approved and certified as adjunct GCC faculty. Early College courses will be offered across a range of departments to facilitate advanced study of the magnet theme and will include courses such as: Introduction to Peace and Conflict Studies, History of Human Rights, and Ethics. Individual Learning Plans, created through a collaboration between HSC staff and students will ensure that all students design and complete a rigorous academic program aligned to their unique interests and needs.

A coursework progression focused on leadership will help students develop a sense of their place in the world and their power to enact meaningful change through activism and policy. In the 9<sup>th</sup> grade, students will increase their understanding of social change through a year-long Freshman Seminar course. Using resources such as the PBS Enterprising Ideas program, and with guidance from The Future Project, students will be introduced to the concept of social service and guided through the process of defining identifying opportunities for civic leadership.

Students will demonstrate their emerging knowledge and social awareness in grade 10 by hosting an annual Social Justice Symposium, in which they will present their experiences

following community-based projects with New Haven partners in the fields of public administration, law, journalism, business and non-profit management and education. Students will examine a current issue faced by his or her industry, government or non-profit organization partner and will brainstorm and propose policy solutions that take into account the current legislative and political landscape. Mentors from the Yale School of Management's Program on Social Enterprise will provide support and guidance on research and presentation strategies.

In 12<sup>th</sup> grade, each student will complete a semester-long Senior Capstone course that will extend his or her initial work in grade 10 through an internship conducted in service to the local New Haven community. Examples of Senior Capstone placements will include New Haven's Youth Court, Integrated Refugee & Immigrant Services, the Agency on Aging of South Central Connecticut, and Habitat for Humanity of Greater New Haven.

**Professional Development:** Teachers will receive 57 hours of professional development each year from the **Great Schools Partnership (GSP)** on the use of project based learning within the context of the magnet theme and instructional improvement. Work with GSP will include 3 one-day instructional seminars on PBL, two full-day collaborative unit planning retreats, and monthly 90-minute small group discussions on PBL and other best practices based, in part, on 10 to 15 minute videos of teachers working with their classes. GSP staff will also provide on-site support for two days each week to facilitate in-class coaching and feedback related to the use of PBL.

Gateway Community College will serve as a partner in the development of the Early College model and will collaborate to develop pathways aligned with the magnet theme. The New Haven Mayor's Office and City Council, Yale Civic Leadership Initiative, and Quinnipiac University School of Law will support the creation and implementation of thematic units in the core content areas. The Future Project, Project Adventure, and Outward Bound, will help

develop the leadership progression, including the Freshman Seminar and the Senior Capstone.

**Parent Involvement for All Project Schools:** The meaningful involvement of parents in the education of their children is desirable and necessary in supporting academic achievement.

Every magnet school is required to develop a parent involvement strategy, as part of its School Improvement Plan (SIP). While helpful, this section of the SIP often lacks detail. Therefore, each school in this project will develop an annual Parent Involvement Plan that builds on the SIP's parent involvement strategies. Each Parent Involvement Plan will describe objectives and activities that address the five areas, in italics, that follow. After each area are descriptions of how district resources help each school better meet the needs of their parents. Schools will use district initiatives as springboards for school based activities. **The basic obligations of parents**

*refer to the responsibilities of families to ensure children's health and safety; to the parenting and child rearing skills needed to prepare children for school; to the continual need to supervise, discipline, and guide children at each level.* ► The five state-funded Family Resource Centers in New Haven provide parents and students with services and workshops. Each magnet school will hold joint parent activities with the center closest to their school. Boost!, a partnership with United Way of New Haven, brokers connections between schools, community providers, and public agencies to support children's development. Each magnet school will be part of this initiative.

**The basic obligations of schools** refer to the communications from school to home about school programs and children's progress. ► The student handbook and the parent handbook, distributed to all families through the school orientation process, include detailed descriptions of relevant policies. ► Each school will communicate to parents about the changes in their child's curriculum as a result of the magnet theme through school based workshops, newsletters and presentations during parent-teacher conferences. ► New Haven facilitates at least two in-person parent-teacher

parent-teacher

conferences per year and tracks attendance. Parents may also, at any time, request a meeting with a teacher or principal. ► Each school will familiarize parents with the PowerSchool Parent Portal which gives them access to information about their child’s progress, including real-time student attendance, grades, assessment scores, disciplinary activity, and weekly homework assignments.

► Detailed information is available for each school, including state assessment results and item-by-item responses from teachers, students and parents on the Learning Environment Survey. The district works to make access to this data easy, giving students and parents, access to school computer labs or to community resources (e.g., libraries).

***Parent involvement at school refers to parent volunteers who assist teachers, administrators, and children in classrooms or in other areas of the school.*** Parents can volunteer as classroom assistants or tutors or in other capacities determined by the SPMT at each school. Parents will be active participants in each school’s recruitment process, helping to shape decisions about branding and materials, and as ambassadors for the school at magnet fairs and open houses.

***Parent involvement in learning activities at home refers to parent-initiated activities or child-initiated requests for help, and ideas or instructions from teachers for parents to monitor or assist their own children at home on learning activities that are coordinated with the children’s class work.*** Activities at each magnet school will familiarize parents with their child’s school activities and illustrate ways for them to support their child’s learning, especially in literacy and STEM subjects including: ► Parent Inquiry Nights; ► Exploration and Innovation Nights; ► Family Math, Family Science and Family Engineering Nights.

***Parent involvement in governance and advocacy refers to parents’ taking decision-making roles in the PTA/PTO, advisory councils, or other committees or groups at the school, district, or state level.*** ► Parents are members of each School Planning and Management Team (SPMT), Personnel

Selection Committee, each school-based recruitment team and the District Magnet Advisory Council—all groups that make important decisions about the functioning of the schools and their magnet programs. ► Parents provide invaluable input through membership in the Parent-Teacher Associations. ► New Haven’s Citywide Parent Leadership Team meets monthly, with district participation, to discuss key policy issues of interest to parents.

**(b) Quality of project design. ...**(2) the extent to which the applicant demonstrates that it has the resources to operate the project beyond the length of the grant ....

New Haven is committed to sustaining the magnet initiatives described in this proposal following the conclusion of MSAP funding, as evidenced by the 28 magnet schools currently in existence in New Haven. Every magnet school that has been established has been sustained with local funds, most for more than a decade, some for nearly 40 years. The district will leverage activities undertaken during the grant period to facilitate the institutionalization of the magnet program through strategic multifaceted funding strategies that involve the following elements: use of state and local funding, intentional planning, and ongoing grant-seeking activities. Aggressive program development during the grant period, including professional development initiatives, the redevelopment of curriculum and instruction and the development and implementation of magnet themes, will be undertaken to develop a strong foundation for the long-term implementation of rigorous and comprehensive magnet programs.

***New Haven’s Commitment Of Resources After Federal Funds Are No Longer Available***

With MSAP support, New Haven has fully developed 17 magnet schools since 2001: Using the first year of operation as the baseline, 14 of the 17 have reduced minority group isolation (MGI). Every school is still operating as a magnet. Thirteen of these schools are being completely supported with local funds. The other four will be totally supported by local funds beginning next

year when their current federal grant ends. After federal funds are no longer available, the programs described in this proposal will be continued with local (city and state) funds just as all other New Haven magnet schools have been.

The activities described in this application will build the capacity of the New Haven Public Schools to continue its magnet schools after federal funds are no longer available.

This project is not simply developing and implementing magnet themes that will be integrated into existing curricula. The goal is to completely redevelop the entire curriculum and support this curriculum redevelopment with high quality, high intensity professional development. Logic model activities for this project include:

**Improvement of Curriculum, Instruction and Student Academic Supports:** The goal is to develop or revise, over the five years of the project, all core academic subject units and to strengthen how they are taught, supported by PD (at least 50 hours per teacher per year).

**Magnet Theme Development and Integration:** The goal is to develop and integrate the magnet theme into the units created through the Curriculum and Instruction Improvement process (above). Professional development will also support this component (at least 50 hours per teacher per year). The result of these activities will be: **Quality Magnet Curriculum and Instruction--** high quality, peer reviewed units that integrate the magnet theme with core academic subjects (for at least 3, 6, 8, 10 and 12 hours per week, for all students, by the end of years 1, 2, 3, 4 and 5 respectively) and use new and improved instructional practices.

New Haven has been able to successfully operate magnet schools because when MSAP funds have been available they have been used to completely redevelop and improve curriculum and instruction as well as develop and integrate a magnet theme supported by extensive PD. Therefore, MSAP funds will increase New Haven's capacity to carry on project activities after

federal funds are no longer available.

The New Haven Public Schools (NHPS) will pay for the costs of continuing the magnet schools and their themes, curricula revisions and rewriting, and the staff training necessary to support these initiatives with local tax levy and state funds. It will do this because these are the elements that its School Board believes all schools need to be successful for a diverse population of students, and belongs in all schools. That has been its commitment to magnet schools for the last 40 years. Besides using local funds to carry on magnet school activities described above after federal funds are no longer available, the NHPS will use State Funds.

To assure the sustainability of programs established as a result of the legislation that resulted from the 1996 *Sheff* decision, magnet schools that serve both urban and suburban students receive payments in excess of the regular education cost sharing (ECS) grant. Therefore, New Haven will receive Connecticut state funds to support the sustainability of these schools. In addition, the state will pay for all transportation costs.

For Interdistrict Magnet Schools (HSC, King/Robinson and Davis), Connecticut provides an award of \$7,085 for each student from a town/city other than the one operating the interdistrict magnet school (New Haven). For each student who lives in the town/city that operates the school, the state grant is \$3,000 in addition to its regular per capita state aid (ECS.) In other words, when a suburban child enrolls in a New Haven magnet school, the state ensures that most (but not all) of the cost of educating the student is covered by a subsidy and that the sending town keeps the ECS for the child. The additional per capita state aid that New Haven will receive for its own students attending the magnet school will help it sustain these programs as well as close the gap between the state subsidy for out of district (suburban) students and the actual cost of educating them. Another school, East Rock, will receive suburban students under the Open Choice program

for which the state subsidy is one half of ECS (about \$3,500) plus \$3,000 for each suburban student who attends the school. In addition, costs associated with transporting students to the magnet schools will be paid by the state.

This means that HSC, King/Robinson and Davis will each receive about \$1,000,000 per year from the State of Connecticut to support the education of its suburban students and the magnet program for all of its students. Of those funds, approximately \$175,000 will be available to support each school's magnet program when federal funds are no longer available. This will be used to maintain at least one Magnet Resource Teacher position, additional professional development and curriculum development and replace and repair supplies and equipment.

East Rock will accept suburban students under the Open-Choice Program and will receive a smaller subsidy from the state for its suburban students. As an intradistrict magnet, Edgewood does not receive state subsidies to support suburban transfer students. However, because New Haven regards its magnet program as a school improvement model, it uses other funds available to its schools to maintain Magnet Resource Teacher positions (one per school) and fund the relatively modest additional costs of maintaining a magnet program (e.g., some PD especially for new teachers, updating, replacing or repairing supplies and equipment for magnet program). Fortunately, Connecticut pays the transportation costs for suburban transfer students, a major support that makes this program possible. Finally, the district will allocate approximately \$100,000 per year in district funds to East Rock and Edgewood for supplies, equipment, text-books and field trips. While these schools would not have the resources to start or significantly revise a magnet program, or to redevelop and restructure curriculum and instruction, they will have the resources to maintain the programs that will be developed. Also, because magnet schools and school choice are part of the culture of New Haven and has been for so many years, the entire cost of the

recruitment, marketing, application and selection processes for the schools participating in this project will be paid for by New Haven and the State of Connecticut.

In addition to the funds described above, and per capita state aid for students, New Haven receives over \$6 million in Priority School Aid. These state funds are targeted for poor urban districts to support programs for students with low reading and math scores. Because three of the magnet schools are currently low performing, part of the priority schools money can and will be used to carry on the magnet programs in these schools after federal funds are no longer available. The status of HSC, King/Robinson and Davis as State approved Interdistrict Magnet Schools and the status of East Rock as a school that will receive suburban students through the Open-Choice

Program is confirmed in a letter from the Connecticut Commissioner of Education. This commitment is on-going and will continue for these schools as it has for New Haven's other magnet schools. In addition, this application is supported by the Teachers' and Administrators' Unions and the District Parents Advisory Council. New Haven has commitments of support from its other partners including Yale University. Please see letters of support in the appendix.

**Sustainability Planning:** Even though there are many capacity building activities built into this project and resources to continue the program, sustainability planning is needed to insure the best use of these available resources and to identify additional resources and supports. Therefore, the project director will coordinate the development, starting in the project's first year, of a detailed plan for program sustainability that will emphasize a results orientation, strategic funding, and adaptability to changing conditions (The MSAP Center and The Finance Project, 2013). This will involve a sustainability planning team that will include individuals with decision-making authority that are representative of all internal and external stakeholder groups. (e.g., principals, school and magnet staff, partners, New Haven and suburban parents, etc).

The sustainability planning team will begin by establishing an understanding of the current context, assessing both internal factors (e.g., program population, level of staff and district commitment) and external factors (e.g., partnerships, local community needs, other programs) that affect the operation of the magnet project. This work will be structured using the Sustainability Self-Assessment Tool for MSAP grantees developed by The MSAP Center.

Finally, the team will begin to develop the framework for a cohesive sustainability plan by (1) prioritizing the project strategies and activities they want to sustain (e.g., instructional practices, marketing activities, community outreach); (2) determining the project's personnel, fiscal, and other needs; (3) identifying the resources available to meet those needs and the remaining resource gaps; and (4) identifying the monetary and other resources (e.g., administrative, managerial) that would best fill those gaps. The sustainability planning team will meet regularly throughout the grant period to develop and refine a multi-year sustainability plan, aligned to the priorities and resources identified. By the end of the third grant year, the team will have completed a draft sustainability plan to be distributed to key stakeholders. Completing this design for sustainability in the third year will allow each school to adopt the plan in Year 4 making appropriate modifications, with the support of the project staff, to ensure that it meets its needs and ensures continued implementation after federal funds are no longer available. The final version of the plan will be implemented during project year 5.

Federal and Foundation Grants, and Competitive Grants: The New Haven Public Schools is confident that they will be able to offer a high level of continued support to the magnet schools described in this proposal based on their outstanding record in pursuing competitive federal and foundation grants. The district is currently administering over \$10 million in competitive grant programs that support, either directly or indirectly, existing magnet school programs and will

continue to apply to funders who will both enhance magnet activities during the period of MSAP funding for these five school and address ongoing program costs at the end of that period. The success of the district's outside fundraising, in addition to ongoing state and local funding streams, makes it possible to plan for the gradual assumption of project costs.

**(b) Quality of project design. ...**(3) the extent to which the training or professional development services to be provided by the proposed project are of sufficient quality, intensity, and duration to lead to improvements in practice among the recipients of those services.

**Performance Measures 5:** By the end of each project year, magnet school teachers will receive at least 50 hours of professional development (e.g., workshops, courses, coaching) in each of the following areas: **5.1** directly related to the improvement of curriculum and instruction including the development and implementation of the systemic reforms listed in the school improvement plan; **5.2** directly related to the development/integration of the magnet theme.

A core component of this project's logic model focuses on high quality professional development (PD) to strengthen core academic subject curricula and instruction and the development and integration of the magnet theme into core academic subjects.

The **Connecticut Science Center (CSC)** will provide professional development in inquiry, science content and the Next Generation Science Standards (NGSS) for King/Robinson Edgewood and Davis, the STEM schools. The **Institute for Inquiry** deepens teacher's understanding of inquiry in the classroom and models the concept's application to **science and other subjects**. During the Institute's 129 hours of professional development over three years (43 hours per year per teacher), teachers will learn the inquiry-based skills needed to develop and modify NGSS units. As with all professional development that will support the activities of this grant, there will be the main workshops (provided by CSC) and then school follow-up coaching

(by the MRTs) and collaboration (facilitated by the MRTs) for an additional 15 hours per year per teacher. In addition, CSC staff will participate in two review meetings throughout each year to discuss problems of practice and give guidance on how to address challenges as teachers work to put their learning into practice. The follow-up (MRTs, teacher collaboration and CSC staff) insures that teachers will receive continuous support and will be working on units, connected to their specific magnet theme, that they will be teaching. At the end of each year, teachers will have the opportunity to come together for two days to share ideas with other teachers from New Haven and around Connecticut who have been working to bring inquiry into their classrooms.

As part of the Institute, teachers will engage in full inquiries that they can use with their classes. Science content will be taught within the context of engaging in inquiry. They will also explore how to use inquiry in other subjects. In school follow-up will involve the teaching of additional science content, the modeling of inquiry in science and other subjects, demonstration lessons and unit and lesson development. These and all PD activities will make direct connections between the PD and what teachers are actually doing in their classrooms.

The second year will deepen teachers understanding of inquiry and provide an opportunity to further develop inquiry-based units and lessons. The pedagogy and strategies of inquiry teaching and learning are reinforced and modeled in different ways. The third year will focus on assessing student learning through the inquiry cycle. This will include helping teachers give effective feedback and more effectively analyzing student work.

To be better prepared to support teachers, all magnet resource teachers (MRTs) and middle grades science teachers will take the 36-hour Next Generation Science Exemplar Learning System (NGSX) course which will allow them to engage in and analyze the three-dimensional (3D) science used in the NGSS. Although the MRTs will be very knowledgeable in

the use of NGSS, this course will reinforce and deepen that knowledge.

The **Center for Technology and School Change (CTSC) at Teachers College, Columbia University** will provide all classroom teachers at the 3 STEM magnet schools with professional development on curriculum mapping, developing magnet theme STEM units that include projects that integrate science, math, engineering and technology and solve real world problems. The work is framed around the Center's model for professional development which includes interactive, hands-on workshops, collaborative planning sessions, and structured classroom-based work. Facilitators introduce new technologies within the context of structured design work to support key content-based understandings across the STEM disciplines. Teachers will become designers of student-centered STEM learning experiences.

The professional development work will be adapted to the needs and realities of each school, with all activities taking place at each school. Participants will include the Magnet Resource Teachers and all classroom teachers. Center facilitators will spend an annual average of 30 contact hours with each participating teacher per grant year. This initiative will span project years 2-4 for a minimum of 90 hours per teacher. Participants will also engage in a minimum of 8 hours annually on structured assignments with colleagues (collaboration), including ongoing project work. Magnet Resource Teachers (MRTs) will have a larger commitment to the project, as they work across grade-levels to support the related work for an additional 8 hours per teacher per year. Further, it is expected that principals and assistant principals will engage with Center staff to support the STEM design work for 8 hours per year.

The work will be rolled out in three phases: **(1) developing a scope and sequence:** identify big ideas across the curriculum, map the desired results of each unit, explore interdisciplinary and transdisciplinary Stem instruction. The outcome is a horizontally and

vertically planned scope and sequence of the magnet STEM units for each school; **(2) designing and implementing units:** Teachers will learn how to use project based learning (PBL) and will begin to design projects to use with their students building on the scope and sequence developed during phase 1. The outcome is to have an entire year of STEM PBL units. **(3) sustaining the design work:** Refining the units and their implementation

This PD will also help teachers' use of state of the art, real world technology to enhance math and science. Since this work is customized for the needs and themes of each school, the work with King/Robinson will include extensive support of the 1:1 computer initiative. (Please see that school's theme description.) CTSC will help each school develop a unit quality rubric.

**Buck Institute of Education:** The Buck Institute for Education (BIE) will provide all teachers at **East Rock** with professional development on developing magnet theme units that use project based learning (PBL) and include authentic projects to solve real world problems.

Work with BIE will begin with a three-day PBL 101 training, which will include intensive training in the PBL framework. Throughout the course of these 21 hours, teachers will learn to design and implement a rigorous and thematic, project based unit aligned to the CCSS and NGSS and Connecticut standards. These sessions will be facilitated by BIE National Faculty and will include a mix of direct instruction, video-based examples, and resource sharing and will promote collaboration among teachers to facilitate project design. By the end of PBL 101, teachers will have developed a plan for their project based unit, will have received feedback from their peers and BIE staff and will be prepared to implement the unit in their own classroom.

Throughout each project year, BIE will provide ongoing guidance through four Sustained Support Visits, which will offer an additional 28 hours of targeted training in the PBL framework. This sustained support will ensure that teachers are able to effectively implement

the project based model with fidelity. In addition, the magnet resource teachers will provide in-school coaching to support the Buck PBL training. They will facilitate curriculum writing sessions during collaborative planning time, after school curriculum sessions and summer curriculum writing sessions. BIE training will also be provided for years two and three.

**Dr. Heidi Hayes Jacobs**, known for her work in curriculum mapping and curriculum integration, will provide professional development to East Rock teachers who will be guided through a continuous cycle of curriculum mapping, with each map providing an overview of each magnet theme unit's overarching goals, concepts, essential questions, content, skills, methods of assessment, and lists of resources. Once the curriculum map is developed for each subject, the units of study will be written using the Buck Institute's PBL framework. Dr. Jacobs and the MRTs will support teachers, and help with the development of the quality unit rubric.

The **Great Schools Partnership** will work with teachers at High School in the Community (HSC), for 57 hours per year for three years on instructional improvement with an emphasis on project based learning. Please see the HSC theme description for more details.

**Yale University**: Yale's support of STEM education in the New Haven Public Schools is an important part of the work of Pathways to Science Yale's coordinated STEM outreach infrastructure. Guided by a steering committee of Yale senior scientists and administrators, the **Office of New Haven and State Affairs (ONHSA)** serves as a central hub for this initiative, both supporting programming efforts by faculty graduate students and undergraduates and coordinating school and community contact and partnerships. ONHSA will use this infrastructure to coordinate this work that will bring new resources to the five schools participating in this project. Graduate students and faculty, from departments across the university will provide in school learning experiences and offer content support at each site.

The **Yale Office of New Haven and State Affairs** (ONHSA), will help develop a speakers' bureau of local STEM and Social Science professionals, including faculty and graduate students, to provide professional development and mentoring for both teachers and students. ONHSA will facilitate the partnerships with Yale schools such as the School of Engineering and Applied Science and the Center for Engineering Innovation and Design (YCEID). These "scientists and engineers in residence" (2 per school) will help teachers with project development, integration and implementation, and speak to students.

**Getting Started:** Recognizing that building the capacity of teachers to create magnet units will take time, each school will immerse teachers and students in STEM activities from the very start by using selected district created NGSS units and Engineering is Elementary units that will be supplemented and expanded to integrate them with the magnet theme of each school. This will be done with the support of the MRTs and professional development from the Connecticut Science Center which is a certified Engineering is Elementary professional development partner. (Engineering is Elementary, a research-based curriculum, engages students in the engineering design process, applying science and math to engineering problems.) As the year progresses, teachers and MRTs will modify the units more extensively and will produce their own STEM units that are integrated with the magnet theme by the end of project year one and then throughout the grant period. The middle grades will use the same strategy but use grade appropriate units created by the Connecticut Science Center and Project Lead the Way.

In addition, **the Magnet Resource Teacher** at each school will provide and facilitate embedded professional development that will include: ► demonstration lessons and coaching; ► observations and feedback; ► creation of magnet standards, ► curriculum mapping; ► helping classroom teachers create project based units and lessons that integrate CCSS, NGSS, and

Connecticut standards and the school's magnet theme, and use inquiry and technology;  
▶ facilitating teacher collaboration; ▶ supporting individualized teacher learning plans.

**School Improvement Planning:** Much of the PD related to curriculum and instruction improvement is related to the findings of the school improvement process, described in Quality of Project design (1). This project contributes an even more intense focus on curriculum and instruction, professional development, and the creation of a high interest magnet theme curriculum. An important part of the New Haven magnet model is revising all core academic subject units and how they are taught while teachers receive intensive PD to support magnet theme development and implementation. Each School Improvement Plan will contain an extensive professional development plan for the improvement of core academic subjects.

**(b) Quality of project design.** ...the Secretary considers the following factors-(4) the extent to which the proposed project is supported by strong theory (as defined by this notice).

As previously described, New Haven's magnet schools have reduced minority group and SES isolation and increased student achievement. Over time, a set of best practices evolved that formed the basis of a logic model and theory of action that this proposal's activities are based on. Research and high quality evaluations have helped New Haven confirm and refine the model.

**Theory of Action:** (1) If all teachers, in each proposed magnet school, receive 50 hours of high quality Professional Development focused on Improvement of Core Subject Curriculum and Instruction and Student Academic Supports, and 50 hours on Magnet Theme Development and Integration into that curriculum each project year, then teachers will develop and implement Quality Magnet Curriculum and Instruction (a special curriculum capable of attracting substantial numbers of students of different racial and socioeconomic backgrounds).

(2) If Quality Magnet Curriculum and Instruction is taught to students and becomes the core of

the school's instructional program, and that is widely known in the communities served by the magnet school, then a large, diverse group of students will apply to a magnet school and minority group and socioeconomic isolation will be reduced.

(3) If a magnet school's students are exposed to Quality Magnet Curriculum and Instruction for 12 hours per week (project year 5 performance measure target), they will then attain higher levels of achievement than carefully matched students who do not attend a magnet school.

The logic model operationalizes the theory of action for this project, outlining the core components including activities, outputs and short, medium and long term outcomes. Below is a description of the logic model components. It refers to the "district level" logic model graphic that can be found at the end of this Strong Theory section (page 105). It shows both district and school level activities, outputs and outcomes how they contribute to the attainment of the annual and three-year project outcomes. **(Logic models for each school are included in the appendix.**

**School level logic models include more school specific activities and outputs.)**

**Logic Model Activities at the School Level: Improvement of Curriculum, Instruction and Student Academic Supports:** During this activity, teachers will develop or revise, over the five years of the project, all core academic subject units and strengthen how they are taught, supported by professional development (PD) (at least 50 hours per teacher per year), which will show teachers how to write high quality interdisciplinary units. This PD will include reviewing Common Core State Standards (CCSS), learning Next Generation Science Standards (NGSS) and the new social studies standards and how to use them, as well as specific practices such as inquiry, project based learning, cooperative learning, differentiated instruction and RtI, and programs such as Readers' and Writers' Workshop and Singapore Math. This PD will be linked to each school's improvement process and plan that assesses school strengths and weaknesses,

identifies areas to be strengthened, and provides remedies (e.g, PD) that lead to improvement. Performance Measure 2.1 requires that at least 15% (year 1), 40% (year 2), 65% (year 3), 90% (year 4) and 100% (year 5), of all core academic subject units will meet district and project quality criteria determined by peer reviews using a unit quality rubric.

**Magnet Theme Development and Integration:** During this activity, teachers will develop and integrate the magnet theme into the units created through the Curriculum and Instruction Improvement process (above). The PD supporting this component (at least 50 hours per teacher per year) will include curriculum mapping, magnet theme development, unit development/enhancement (integrating the theme into units), Inquiry, Project Based Learning, implementation of NGSS and the new, inquiry based social studies standards and the development of projects.

Science, math, engineering and other enrichment content--supplemented with core subject content when necessary--will be taught as part of this PD. For example, the content that is required for a specific inquiry unit or PBL will be taught within the context of that unit. Much of that may be part of the in-school PD supplied and facilitated by the magnet resource teachers. Curriculum mapping will be used to determine the best topics to target for theme integration and the creation of magnet standards to better define what students will do and learn that are related to the magnet theme and that supplement and enrich the core academic curriculum.

It is likely that the Magnet Theme Development and Integration and Improvement of Curriculum, Instruction and Student Academic Supports will occur at the same time. The exact sequencing of activities will be determined at the school level by the School Planning and Management Team (SPMT) of each school, in consultation with the curriculum supervisors and the project director. Each school has made the commitment to teach students units that integrate the magnet theme for no less than 3, 6, 8, 10 and 12 hours per week by the end of years 1, 2, 3, 4

and 5. These are project performance measures. **Participants** for both logic model activities described above will be all classroom teachers. Curriculum development will be implemented during common planning time for grade teams for 90-180 minutes per week. Additional time will be planned before and after school and during summer months.

**Professional Development (PD):** All teachers, in each school, will receive 50 hours of high quality Professional Development focused on the Improvement of Core Subject Curriculum and Instruction, and 50 hours on Magnet Theme Development and Integration into that curriculum. PD will include formal workshops with follow-up coaching (e.g., observations/feedback, model lessons, unit development, individual or small group PD) by magnet resource teachers (MRTs), professional development providers, partner organizations, district resource staff or instructional coaches, and teacher collaboration (e.g., PLCs, facilitated unit development, intervisitations with feedback and discussion, peer reviews of units).

Scheduling of PD and coordinating it with what is being developed for and taught in classrooms, will be done by the magnet resource teachers in consultation with the project director and each school's SPMT. For example, a workshop on a specific topic will be followed-up, immediately (that week) with in-school unit development, coaching, collaboration and eventually, unit implementation. Because magnet theme curriculum dosage goals (3, 6, 8, 10 and 12 hours per week for project years 1, 2, 3, 4 and 5 respectively) increase gradually during the project period, there is time for teachers to better understand new content, curriculum and instruction. **Participants** will be all classroom teachers in each school supported by magnet resources teachers, other instructional coaches, the district curriculum supervisors and professional development providers.

**Parent Involvement Planning:** Every magnet school will develop a Parent Involvement

Plan to address five key areas of parent involvement. Please see the parent involvement activities in the Quality of Project Design section of this proposal. **Participants** will be the SPMT, the parent organization, parents representing New Haven and suburban communities, the magnet resource teachers and classroom teachers.

**Desegregation:** School level recruitment activities include school tours and open houses, the production of brochures, participating in magnet fairs and community meetings. Please see the desegregation recruitment section of this application as well as district level activities below. **Participants** will be all New Haven families that have students in or about to enter grades PreK or K through 12, project recruiters, magnet resource teachers and SPMTs.

**Logic Model Outputs: Quality Magnet Curriculum and Instruction--**high quality, peer reviewed units that integrate the magnet theme with core academic subjects (for 12 hour per week by the end of year five) and use new and improved instructional practices. Each school will create a unit quality rubric, with the support of the magnet resource teachers, the staff of the Office of Curriculum and Instruction, professional development providers and the evaluators. This rubric will be used for a peer review of all units to insure that they meet district and school quality standards, and the project quality standards for magnet integration. All units not meeting quality standards will be revised. Schools may decide to develop classes or classroom time (discrete magnet classes) dedicated to teaching the magnet theme without integrating it into core academic subjects to supplement theme integration. Most magnet curriculum dosage at the elementary and middle school grades will be related to integrated units. Discrete magnet classes will be developed in the same way as integrated units and will meet the same quality standards.

**Parent Activities:** Parent activities will be developed for each school in each of the five areas described in the Parent Activities Plan.

**Desegregation:** A large and diverse (racially/ethnically, socioeconomically) applicant pool from which students are selected is a result of the student recruitment and application process described in this proposal and Quality Magnet Curriculum and Instruction. The quality of instruction, including the magnet theme, directly effects the results of the recruitment process. Please note that on the logic model graphic, both school and district activities lead to this output (a large and diverse applicant pool) and the reduction of minority group and SES isolation.

**Outcomes:** The Short Term Outcomes for this project are called Benchmarks. They indicate whether adequate progress is being made towards the attainment of annual performance measures, are described in the performance measure section of this proposal and are part of the evaluation. Medium Term Outcomes are the annual performance measures for this project. Long Term Outcomes are the Project Performance Measures (i.e., the targets expected by the end of the fifth project year). Please see the evaluation section of this proposal.

**Logic Model Activities at the District Level:** Although most of the activities in this project that will impact most directly on student achievement occur at the school level, district level activities and outputs are also important and contribute to the successful attainment of annual and project performance measures. These are project management and fiscal control activities and desegregation activities which, together with school level desegregation activities, will lead to reductions in minority group isolation and socioeconomic isolation.

**Desegregation:** These activities include working with schools to design and distribute recruitment materials, focused recruitment, implementing the application process and a revised student selection process that uses SES lottery weights and new definitions of SES. Please see the desegregation section of this application. **Participants:** all families with students in or about to enter grades PreK or K through 12, project recruiters, magnet resource teachers and SPMTs.

**Project Management:** This is an important part of the district level activities. As previously described, the project director will manage the project and be responsible for budgets and expenditures and all required fiscal and programmatic reporting. The director will ensure that performance measures are attained, that activities are implemented as designed and on schedule, that budget procedures are used, and that the project stays on budget.

**Outputs. Desegregation:** This output is the result of both district and school level desegregation activities. This item was previously discussed in the school level model.

**Project Management** is a district level function and results in a high degree of project fidelity of implementation as evidenced in evaluation site visit reports, the Annual Performance Report and the Ad Hoc Report. Project management outcomes include the attainment of school benchmarks and fidelity to the budget and fiscal controls. Medium and long range outcomes include attaining annual and project outcomes and a highly rated USDOE compliance review.

**Logic Model Context:** As previously explained in Priority 1, Need for Assistance, these schools will be implemented in New Haven, a Connecticut city with a large black and Hispanic population. The combined black and Hispanic enrollment of the New Haven public schools is over 80%. The five schools in this project are minority group isolated and serve large numbers of low income students. The district has 28 magnet schools. Many are among the best schools in New Haven. Many have reduced minority group and socioeconomic isolation.

The scores on state English language arts, mathematics and science tests are well below state averages for most New Haven schools. New Haven is surrounded by suburbs that have many more white and middle class residents. This is reflected in the enrollment of most suburban schools. Therefore, developing a socioeconomic integration plan, as is being proposed, can help increase the diversity of the proposed schools. Finally, the principals, staff and parents

of the proposed schools are enthusiastic about the prospect of either becoming a magnet school or significantly revising programs that are no longer effective. As previously discussed, there are two programs that allow suburban students to transfer to New Haven schools: the Interdistrict Magnet Program and the Open Choice Program both of which subsidize the transfers.

**Magnet School Research To Support Competitive Preference Priority 2 (CPP2) :**

The following study supports the significant revisions of four schools (HSC, King/Robinson, Davis and East Rock) that serve both New Haven and suburban students. It is relevant because it studies Connecticut Interdistrict Magnet Schools, the same model used in this project. It is the only magnet school study that meets the What Works Clearinghouse (WWC) standards with or without reservations and has statistically significant, positive outcomes.

**Citation:** Bifulco, R., Cobb, C. D., & Bell, C. (2009). *“Can interdistrict choice boost student achievement? The case of Connecticut’s interdistrict magnet school program”*. Educational Evaluation and Policy Analysis, 31(4), 323–345. **Rating:** Meets WWC group design standards without reservations. Reviewed using: Single Study Review Protocol.

**Citation Outcomes:** 1) The outcomes in the study presented and how those outcomes are statistically significant. The paper contains two components; an experimental and a quasi-experimental study. The WWC rating relates to the experimental study which found that students who attended two interdistrict magnet schools in Connecticut had higher test scores in reading and math than students who attended non-magnet schools in the same region of the state. These results were positive and statistically significant for eighth grade students. The effect sizes were .138 for math and .278 for reading. (See Bifulco, et. al., p. 335).

2) How the outcomes in the evidence relate to the outcomes in your project:

New Haven is proposing magnet schools with the same characteristics as the study

schools (please see below) serving similar populations of students and is expecting that by the end of the project period, reading (ELA) and math test scores of magnet students, on state tests, will be higher than students in non-magnet schools as determined by a quasi-experimental study performed by the CRESST center at UCLA. (Please see the evaluation section.)

Relevance to the Proposed Project: The experimental component of Bifulco et al., focused on two Connecticut interdistrict magnet schools in Hartford, Connecticut, about 45 minutes north of New Haven. The schools included in the study serve students from a city, Hartford, and its surrounding suburbs. The New Haven magnet schools proposed in this grant application also draw students from a city, New Haven, and its surrounding suburbs. New Haven students, like those of Hartford, are mainly African-American and Hispanic. (New Haven: 39% Black, 43% Hispanic, 14% White, 3% Asian. Hartford: 31% Black, 53% Hispanic, 11% White, 3% Asian.) The suburban communities surrounding both cities are predominantly white and middle class. Both districts serve large numbers of low income students. The two magnet schools in the study served students in grades 6-8 and in grades 6-12. The statistically significant results in reading and math were for grade 8 students. The New Haven schools in this proposal serve students in grades PreK or K-8 (4 schools), and a high school (grades 9-12). We believe that the study is relevant to all project schools because they have the similar design characteristics. However, the study may be most directly relevant to the four magnet schools that utilize interdistrict transfers (HSC, Davis, King/Robinson and East Rock).

The intervention, in both Hartford and New Haven, is to implement magnet schools, as defined by Connecticut statutes and regulations. The attributes of these schools include: ► A special curriculum (magnet theme) capable of attracting students of different racial/ethnic backgrounds across district lines (interdistrict transfers). ► They are designed to have more

racially/ethnically diverse enrollments than the schools that students previously attended.

- ▶ Students are selected through a lottery that does not use race as a factor. ▶ There are no academic selection criteria. ▶ They have a desegregation plan that includes enrollment projections, feeder schools and recruitment activities that can attain the State diversity goal.
- ▶ An important goal is to improve students' academic achievement. ▶ They have a professional development plan to support the development and implementation of a high quality program.

We believe that Bifulco et al., provides evidence of promise for this magnet model.

The foundation of a magnet school is its special curriculum that is capable of attracting students from different racial/ethnic backgrounds. Therefore, the logic model component that is supported by the intervention is the output Quality Magnet Curriculum, which is the special curriculum capable of attracting students from different racial and ethnic backgrounds. (Please see the logic model on page 105.) The researchers performed the quasi-experimental study because it was difficult to obtain carefully matched random samples for the larger number of schools. They found that their quasi-experimental design produced results of comparable reliability to the experimental approach. The quasi-experimental study, which included many more schools, found that middle school magnet students had significantly higher math scores than comparison students (.237 standard deviations) and that high school magnet students had significantly higher reading and math scores (.228 and .277 standard deviations). For this project, a quasi-experimental design that meets What Works Clearinghouse standards will examine test scores of grades 3 -12 students in project schools. (Please see evaluation section.)

**Professional Development (PD) Research:** An Institute of Education Sciences (IES), U.S. Department of Education funded research review (Yoon, et al., 2007; Yoon, Duncan, Lee, & Shapley 2008) identified nine studies (after examining more than 1,300) on the effect of teacher

professional development on student achievement that met the What Works Clearinghouse evidence standards. An analysis of these studies found that “teachers who receive substantial professional development—an average of 49 hours in the nine studies—can boost their students’ achievement by 21 percentile points.” The studies that had 30 hours or more of professional development showed a positive and significant effect on student achievement from professional development. All nine studies focused on elementary schools and included workshops or summer institutes. Eight included follow-up sessions supporting the main professional development event illustrating the importance of follow-up activities after workshops. Even though the content of the professional development varied, the effect sizes were about the same: 0.51 for science, 0.57 for mathematics, and 0.53 for reading and ELA. Each of the studies links intensive professional development with improved classroom teaching resulting in higher student achievement as does this project. Based on an extensive review of the PD literature, Dr. Linda Darling-Hammond, et al, (National Staff Development Council, 2009) recommends that professional development should (1) be intensive, ongoing, and connected to practice; (2) focus on student learning and address the teaching of specific curriculum content; (3) align with school improvement priorities and goals; (4) build strong working relationships among teachers. The PD for this project will follow these research based recommendations.

**Socioeconomic Research To Support CPP2 for Edgewood and Davis: Citation:** Schwartz, Heather. (2010). “*Housing Policy is School Policy: Economically Integrative Housing Promotes Academic Success in Montgomery County Schools*”. The Century Foundation (2010).

<https://tcf.org/assets/downloads/tcf-Schwartz.pdf>

**Citation Outcomes:** 1) The outcomes in the study presented and how those outcomes are statistically significant. This experimental study (random control trial) found that low income

students who were randomly placed in high SES schools (schools with relatively small proportions of low income students) had higher mathematics scores than similar students in schools with greater proportions of low income students. “By the fifth year in the district, statistically significant differences ( $p < 0.05$ ) emerged between the average performance of children in public housing in low-poverty schools compared to those in moderate-poverty schools. By the seventh year in the district, children in public housing in low-poverty schools performed an average of eight normal curve equivalent (NCE) points higher than children in public housing in higher-poverty schools. This difference is equal to 0.4 of a standard deviation in math scores—a large effect size in education research” (page 17).

“To determine whether there were diminishing academic returns to low-income students as school poverty levels rose, the graphs in Appendix 3 (page 42) show the same analyses as above, but with successively higher school poverty cutoff rates. As expected, the positive effect on the math scores of students in public housing dissipated as school poverty rates rose: the average student in public housing in a school with a poverty rate as high as 35 percent performed no better in math than the typical student in public housing in an elementary school with 35 percent to 85 percent poverty” (Page 20). The poverty rates that the analysis used were 20%, 25%, 30% and 35%. Results were positive and statistically significant for all but the 35% cutoff.

2) How the outcomes in the evidence relate to the outcomes in your project: Research shows that there is a relationship between school level socioeconomic status (SES) and student achievement. The higher the SES of the school, the higher the achievement (Coleman, 1966; Jencks & Mayer, 1990; Rumberger & Palardy, 2005; Sirin, 2005; Perry & McConney, 2010). However, the relationship is not linear. That is, the SES effect is strongest for schools with relatively small percentages of low income students—Schwartz (2010) found the effect strongest

for schools with proportions of low income students of 20% or less but still statistically significant at 30%. Other researchers have found that there is a threshold, which is closer to the low end as Schwartz found, but have not been able to suggest a percentage (Rumberger & Palardy, 2005; Perry & McConney, 2010). For that reason, the Schwartz study is important because it establishes, for now, a goal and strategies supported by evidence. The finding is that low income students will have higher test scores as the average SES level of a school increases. The research cited above also says that students attending low poverty schools will have higher achievement than similar students attending higher poverty schools regardless of the race of the students. Therefore, although Montgomery County was a majority white district with relatively low proportions of high income students compared with New Haven, we believe the results of Schwartz (2010) are still relevant for New Haven. That is consistent with the literature cited above and with New Haven's experience cited in this proposal that the schools with the lowest poverty percentages have the highest test scores.

Schwartz specifically, and the rest of the literature more generally, has influenced the (1) selection of schools in this project, (2) the SES integration goals of this project, (3) the decision to create a new definition of low income and use it as a weighting factor in the lottery used to select students for the schools in this project (and other magnet schools), (4) setting aside seats in Edgewood and Davis for low income students in low achieving schools and (5) working with Richard Kahlenberg to help the NHPS accomplish its SES integration goals.

The schools selected for this project either have enrollments of low income students below 35% (Edgewood 29%; Davis 31%); a school are capable of reducing the percentage to that level by project year 5 (East Rock, now 47%); and two schools that can lower their low income student enrollment to under 40% by project year 5. Both Davis and Edgewood will

weight their lotteries for low income students from low performing schools for at least 15% of their seats. The expectation is that the low income students at Davis and Edgewood will have statistically significant higher scores at than similar students who attend non-magnet comparison and higher scores than similar students at East Rock and King/Robinson (or other magnet schools with higher average SES) and that the gap in scores between the schools will narrow as the average SES gaps of the schools narrow.

The SES integration goals of the project (maintain Edgewood and Davis at 30% low income; reduce East Rock to below 35%; reduce the other schools to below 40%) and setting aside seats for low income students at schools already below 35% are being implemented because there is a greater chance of a significant and positive effect on test scores with low income enrollments of less than 35% (Schwartz, 2010). Creating more accurate definitions of low, medium and high SES to use as lottery weighting factors will help reach these goals.

It is important to note that Schwartz states that her research was limited by the small number of schools in Montgomery County, with percentages of low income students above 60%. She suggests that the threshold percentage may be higher than 35%. For now, however, the best evidence are the studies cited above. Of those, we believe that Schwartz (2010) provides evidence of promise that links the desegregation activities component of this project's logic models, especially the use of an SES weighting factor, to the medium term and long term outcomes for reducing SES isolation (performance measures 1.7 and 1.8).

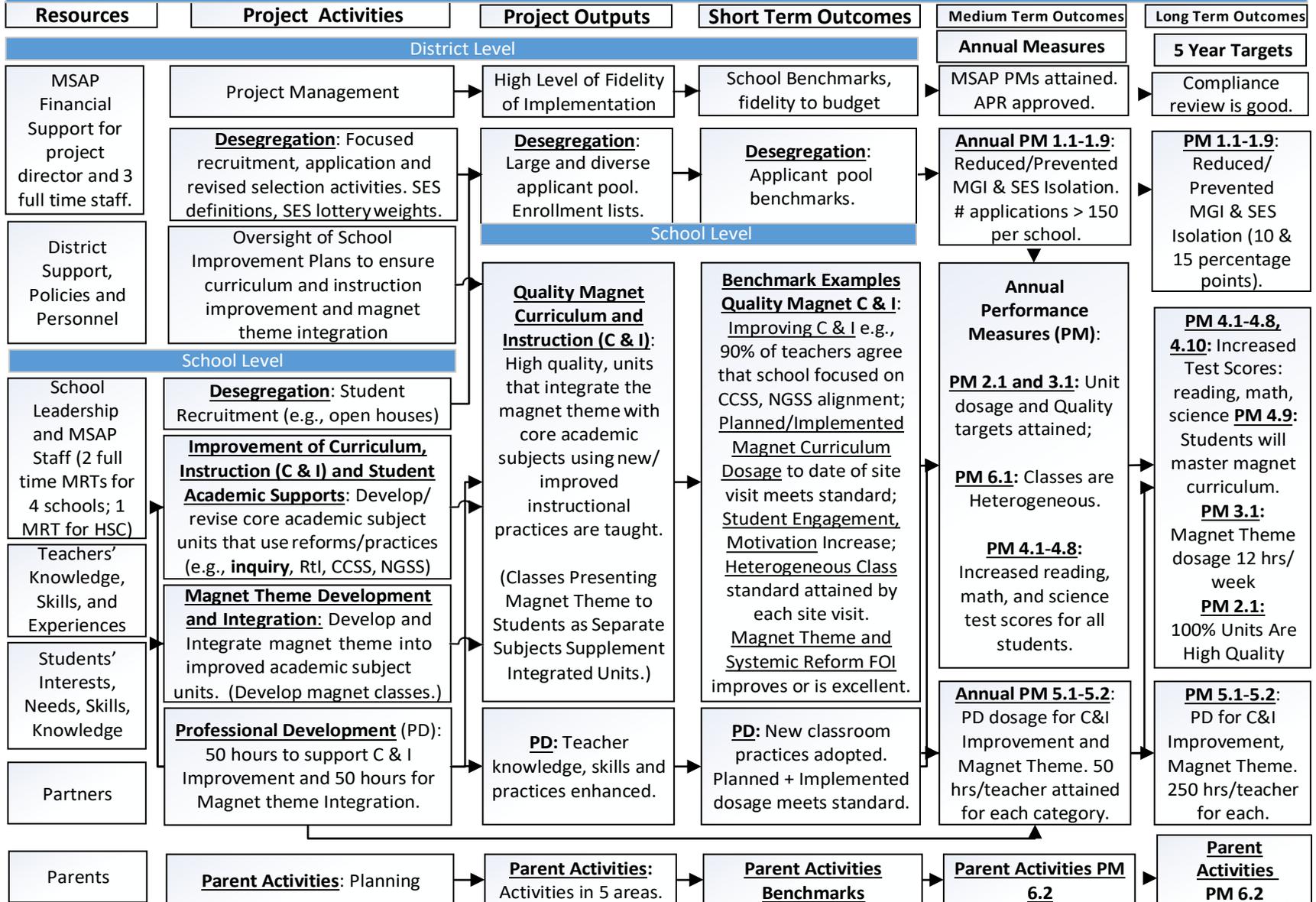
**Rationale for the study of the Institute for Inquiry Professional Development** (Please see quasi-experimental study 1 in the evaluation section of this proposal.)

With the rollout of the Next Generation Science Standards (NGSS), promoting inquiry learning, especially in elementary schools, where many teachers feel less secure teaching

science, is essential. The use of the Connecticut Science Center's (CSC) Institute for Inquiry professional development in three of this project's magnet schools was influenced by the following: (1) New Haven teachers who have participated in the training reported an increase in classroom use of inquiry. (2) The Institute for Inquiry PD follows many of the best practices identified in the PD literature and described in this proposal. (3) Inquiry is a cornerstone of the NGSS. If teachers do not properly implement inquiry, the NGSS will be much less effective.

There are three studies of intensive science inquiry professional development that meet What Works Clearinghouse standards and have positive, statistically significant results, that have helped shape this initiative. Marek and Methven (1991), one of the 9 high quality studies identified by Yoon et. al, studied 100 hours of PD on learning cycles, an inquiry based strategy to help teachers structure their science units and lessons, and found statistically significant gains on tests constructed for the study. Granger (2010) studied inquiry PD that supported 24 space science units and found that student science scores increased. Maeng, et. al, (2015) studied PD on science inquiry, PBL and Nature of Science and found that it increased the use of inquiry in classrooms and had statistically significant effects on the science scores of students with disabilities. The results of these studies show that sustained, intensive professional development that helps teachers implement inquiry in their classrooms can change teacher practice, increase student's science learning or both. Therefore, one of the two quasi-experimental studies for this project (please see evaluation section) will study the implementation of the Institute for Inquiry professional development to see if it increases the classroom use of scientific inquiry and if that change in practice leads to statistically significant changes in student achievement.

**NEW HAVEN PUBLIC SCHOOLS DISTRICT LEVEL LOGIC MODEL**



(1) The adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks;

The New Haven Public Schools have 38 years of experience in the planning and operation of magnet schools. The management plan that follows includes many of the individuals who have helped to successfully implement past desegregation and magnets school efforts. This section will first describe the management structure and reporting relationships that are most important to the management of the project and the attainment of objectives and performance measures. It will then describe the personnel responsible for attaining the various project outcomes. Please see the organization table in the appendix of this proposal.

District Level: The project director will report to the Chief of Staff to the Superintendent, and will meet with the Superintendent at least twice per month. All aspects of this project will be managed by the MSAP Project Director. She will work closely with the Directors of Instruction, who have direct supervisory responsibility for principals, to coordinate project activities with the Magnet School principals. She will also work closely with the District Curriculum Supervisors on the extensive curriculum development that is a cornerstone of this project. The Project Director will supervise all district-based MSAP project staff.

New Haven has successfully managed federal and state funded programs for many years. While the Grants Office manages programs that are relatively small and do not have full time project directors, larger grants, such as the MSAP, are managed by each grant's Project Director and supported by the Business Director, who assures proper and efficient fiscal administration.

A special District Magnet Schools Advisory Committee will be created to assist the Project

Director and Recruitment Coordinator with the administration of the project.

School Level Management: At each magnet school, a School Planning and Management Team (SPMT) will have overall responsibility for the program's success. It will be led by the building principal, and will be composed of representatives of all adult stakeholders, including teachers, parents, and Magnet Resource Teachers. The Project Director will attend these meetings as well. The team will have responsibility for establishing guidelines to address magnet program implementation including the revision and improvement of all core academic subject units, the development and integration of the magnet theme, and staff development. The SPMT will coordinate the activities of all individuals, groups and programs in the school; and will work with the Parent Teacher Organization (PTO) to plan an annual activity calendar. It will also produce a School Improvement Plan for each magnet school. The Project Director will also meet with magnet school principals and school based magnet staff at least once each week.

**Organizational Reporting Relationships:** The Magnet Project Director will report directly to the Chief of Staff to the Superintendent, who will meet at least twice weekly with the Project Director and will regularly visit the magnet schools. As part of her role in the New Haven Public Schools, the Chief of Staff is responsible for oversight of magnet schools, school choice and enrollment. New Haven's already established magnet schools as well the district's central registration process for new students will be managed by the Director of Choice and Enrollment who also reports to the Chief of Staff. Since New Haven has one recruitment and selection process for all of its magnet schools, the Director of Choice and Enrollment and the Project Director will work closely together to coordinate grant and district resources and activities. They will be located in the same suite of offices at the New Haven Central Office to facilitate communication and cooperation. The Chief of Staff, who was a magnet school principal for seven years, will ensure

that MSAP funds will only be spent in support of the MSAP program and schools and that the Project Director and Director of Choice and Enrollment coordinate the activities of their offices.

The **Curriculum and Instruction Supervisors**, will give support in their disciplines to the teachers in every magnet school and to the Magnet Resource Teachers to assist in the development and writing of curricula and the training of teachers. They will be available to meet with the School Planning and Management Teams (SPMTs) at the magnet schools to help plan staff development activities and to answer questions and offer suggestions concerning their subject areas. They have already been deeply involved in the initial planning of this project and have been valuable assets to the principal and planning team of each participating school.

There will be a monthly (more frequently if needed) meeting at which the Project Director will meet with the Chief of Staff, the subject-area Curriculum and Instruction Supervisors, the Directors of Instruction and the Director of School Choice and Enrollment to discuss the operation of New Haven's Magnet Schools Assistance Program, the activities that are being implemented, the progress that is being made, and any obstacles that have been encountered. At these meetings, problems will be solved and support services for the schools will be aligned.

The **Directors of Instruction**, who report to the Superintendent, supervise New Haven's principals. Each has been a highly successful principal. Their responsibilities include not only supervising principals, but also giving them support and helping them to solve administrative and instructional problems. They are the district's representative on the SPMTs of each school.

Reporting to the Directors of Instruction are the **Principals** of the magnet schools. They will direct their schools' programs, working cooperatively with their school's SPMT, the Project Director, and the MSAP Staff. As obstacles to implementation arise, the principal will work with the Project Director, the Directors of Instruction, and the Chief of Staff to the Superintendent to

modify and improve the activities in question. Because the Magnet Resource Teachers will be school based, their daily activities will be supervised by each school's principal. However, the Project Director, together with the Directors of Instruction, will insure that all of their time is spent on the activities described in this proposal, that project funds are spent appropriately, and that all project activities are implemented effectively and on time.

**Timeline and milestones:** At the beginning of each project year, each school will develop an implementation plan based on this proposal and its logic model. The process will begin by revisiting and clearly explaining to teachers and principals, project activities and why they will result in expected outcomes, the logic model and the theory of action so that stakeholders understand what is being implemented and why. Although this was part of the initial planning process prior to submission, it is still an important part of pre-implementation planning. Using the grant application and logic model, school staffs will list and describe the activities to be implemented, the professional development for teachers that will support the implementation of the activities, the people and organizations who will provide the professional development and a timeline. They will also outline, at a minimum, all units for the year including content. This activity recognizes the best practice of planning the entire year prior to implementation, in sufficient detail, to enable a strong and complete implementation. In the evaluation section of this proposal, the most important short term outcomes, called benchmarks, are described in relation to the logic model components they support. These benchmarks let school staffs, the project staff and the evaluators know if schools are on track to attain their annual performance measures. A timeline for each project year follows, listing key project activities and their timeframe for implementation. The timelines that will be created as part of the implementation plan development will be based on these timelines. Implementation plan timelines will be approved by the project director. **How**

**Personnel Will Help Achieve Project Outcomes.** Please note that performance measures (PM) described below are summarized. Full descriptions are included in the evaluation section.

**Summary of Performance Measures (PM) 1.4-1.6:** Minority group and socioeconomic isolation at each magnet school will be reduced by 2 and 3 percentage points per year respectively. Each magnet school will receive at least 150 applications. **Logic model Activity:** Desegregation-- Student recruitment, application and selection activities. **How Personnel Achieve Objective:** The success of these performance measures depends on the following key personnel who have important roles in the previously described recruitment plan: The Magnet Director is responsible for all recruitment activities and will supervise the Magnet Recruitment Coordinator and Specialist who will implement activities such as magnet fairs, sending recruitment mail/e-mail and school information, helping parents with the application, monitoring the applicant pool to improve effectiveness of recruitment activities. With the magnet resource teachers, principals, parents, teachers and SPMTs at each school, recruitment staff will implement open houses and school tours, help design school brochures and the school's web. Beginning in October of project year 2, an evaluation site visit will focus on the recruitment/selection process and its outcomes. Please see the recruitment section for a more complete description of these activities and staff responsibilities. For this project, the selection process will be modified to include a lottery weighting factor for socioeconomic status (SES) to better meet SES and racial/ethnic integration goals. This process will be assisted by Richard Kahlenberg, an authority on SES integration. He will work with the project director and recruitment staff and the school staffs to develop a socioeconomic integration plan for the magnet schools in this proposal. (Please see Competitive Preference Priority 4.)

**Timeline:** ► Develop district level recruitment plan. Site visit focusing on recruitment/selection process and data and outcomes. (Oct); ► Develop school level recruitment plans (Oct-Nov);

Implement Recruitment Activities (Dec-March); ►Parents submit application (Dec-Mar); ►Selection of Students (April); ►Activities to retain selected students (May-Sept); ►Develop socioeconomic integration plan and lottery factor with Richard Kahlenberg (Oct-Jan).

Key logic model components include improvement of the core academic curriculum, the development and integration of the magnet theme into the core curriculum and the academic life of each school, and the professional development to support these changes. They will be described together in this section because their implementation is closely tied together.

**PM 2.1 Summary:** Each year, an increasing percentage of core academic subject units will meet district and school quality criteria as determined during peer reviews using a unit quality rubric.

**Logic Model Activity:** Improve Curriculum, Instruction and Student Academic supports. **PM 3.1**

**Summary:** Students will receive 3, 6, 8, 10 and 12 hours of magnet theme instruction years 1 through 5 respectively. **Logic Model Activity:** Magnet Theme Integration. **PM 4.1-4.10**

**Summary:** Each project year, the proportion of students attaining level 3 or 4 on State tests will increase; Performance Indexes will increase for all and high needs students. **PM 4.11 Summary:**

Students will master the magnet curriculum. **PM 5:** Each project year, teachers will receive at least 50 hours of professional development (PD) related to improvement of curriculum and instruction and 50 hours related to the development and integration of the magnet theme. **Logic Model Activity:** Professional Development.

Students will study their school's magnet theme using an inquiry/project-based approach that integrates the magnet theme throughout the curriculum and will receive instruction that includes their school's systemic reforms and magnet themes.

With the support of the magnet resource teachers, classroom teachers will create new units or modify and improve existing units, aligned with Common Core State Standards and Next

Generation Science Standards and state standards that integrate their school's specific magnet theme. This will be supported by professional development from: the Connecticut Science Center (inquiry teaching, Engineering is Elementary, NGSS, science content); the Center for Technology and School Change (development of integrated magnet units, technology integration, project based learning); The Buck Institute (PBL); The Great Schools Partnership (PBL and school improvement for HSC); the Yale Office of New Haven and State Affairs (Engineers, Artists and Scientists in Residence). Partner organizations including the Eli Whitney Museum, the Connecticut Audubon Society, and various Yale University Schools will provide content area professional development. Professional development will be planned, coordinated and scheduled by the magnet resource teachers in collaboration with the principal and SPMT of each school and supervised by the project director. Curriculum, unit and project design will also be supported by the District Curriculum Supervisors and coordinated by the Project Director. The magnet resource teachers will assist in and support the professional development of teachers in the magnet theme areas including STEM subjects. They will help teachers in the development of the magnet theme curricula and the development and implementation of projects and units integrated with core subjects and will assist with the curriculum writing and alignment. A District Magnet Schools Advisory Committee will meet monthly to advise and assist the Project Director. The committee will discuss all aspects of the project including.

Magnet resource teachers will also provide each teacher additional hours of coaching each year and facilitate collaboration (e.g, intervisitations, PLCs). All units will be peer reviewed by teachers at least twice each year, a process facilitated by the magnet resource teachers. The unit quality rubrics, which have to be approved by the district (directors of instruction) and the project director will be developed by a committee of teachers who will work with the magnet resource

teachers, the school's reading and math coaches and the district curriculum supervisors. Magnet resource teachers will insure that curriculum development activities, the peer reviews and PD activities are implemented as designed and on time. **Timeline:** ► Develop Yearly Implementation Plan (Oct Year 1; Summer Years 2 - 5); ► Establish District Magnet School Advisory Committee (Oct-Nov Year 1); ► Magnet School Advisory Committee Meetings (monthly Oct-Sept except July); ► Strengthen (revise/develop) core academic subject units (Nov-Sept Year 1; Oct-Sept Years 2 - 5); ► Magnet unit development/integration (Dec-Sept Year 1, Oct-Sept Years 2-5); ► Magnet curriculum implementation (Dec-Sept Year 1; Oct-Sept Years 2-5) ► Creation of Unit Quality Rubric; (Nov-Dec Year 1); ► Unit Quality Reviews (May and Jan); ► PD Columbia (Nov-Sept); ► PD CT Science Center (Jan-Sept); ► PD Partners (Oct-Sept); ► In-school, job-embedded PD and support from MRT and partners for teachers (Oct-Sept).

**Objective 6a:** All students enrolled in the magnet schools will have equitable access to high quality education. **PM 6.1:** All classes will reflect the racial/ethnic and gender diversity of its grade. **Objective 6b:** There will be an increase in parent participation at each magnet school. PM 6.2 Each year, more parents will be involved in school activities.

**Uses of Key Personnel To Achieve Objectives:** An important aspect of ensuring that all students enrolled in the magnet schools have equitable access to high quality education is to monitor access. Performance measure 6.1 will be reported on each year and monitored by each magnet school's principal, the magnet resource teachers, the project director, and the evaluator. Schools not attaining the measure will take actions approved by project director, and the directors of instruction including examination of effectiveness of interventions and academic supports for students in need of greater assistance as well as teacher and administrator effectiveness. Cultural competency training to support equitable access will be done collaboratively by Dr. Maria Pacheco, former

director of the Brown University Equity Assistance Center with follow-up by the MRTs. A Parent Participation Plan will be developed at each school by the SPMT with the help of the magnet resource teachers. Schools will offer workshops for parents to better acquaint them with the school program and make them feel welcome.

**Timeline:** ► Evaluator checks ethnic/racial and gender enrollments during 3 site visits; results reported during visits and in reports (Dec, Mar, Sept); ► Project director reviews class level enrollment data and recommendations if any; discusses actions with principals if any (Dec, Mar, Sept); ► Dr. Pachecco's professional development including cultural competence (Jan, Sept); ► Develop parent participation plan (Oct Year1; Summer preceding Years 2 and 3); ► Implement parent participation plan; develop schedule activities (Nov-Sept Year 1, Oct-Sept Years 2-3).

Principals will oversee and manage the magnet implementation process in their school. The project director will monitor the entire process for all five schools and district level activities to determine if all project activities are being carried out as designed and on time. The director will be assisted by information provided by the evaluators. Implementation problems identified by evaluators or the director will be addressed under the direction of the Directors of Instruction.

**Achieving the Objectives of the Project Within Budget.** Linda Hannans, Business Director, will work with the project director, principals and magnet resource teachers to ensure that project performance measures are accomplished and that all fiscal controls are maintained. Ms. Hannans will provide appropriate internal controls to ensure that project funds will only be used for project activities, professional development, supplies, equipment and personnel that are in the approved budget or a budget modification approved by the USDOE. She will ensure that all items purchased will be consistent with the approved budget and the scope of the project. She will safeguard project funds, check the accuracy and reliability of project accounting data, promote

operating efficiency, and ensure compliance with prescribed management policies and fiscal requirements. Ms. Hannons will issue monthly budget reports that will list, in detail, all expenditures for that month and for the year to date by budget category. The project director will use that information to ensure that the project budget is being used as approved, that expenditures are occurring on schedule and that project budgets including those submitted in Annual Performance Reports (APRs), Ad Hoc Reports and the Final Report are accurate.



A District Magnet Schools Advisory Committee will be created to assist the Project Director and Recruitment Coordinator with the administration of the project. The committee will meet monthly (except July) and discuss all aspects of the project including activities, evaluation results, partnerships, parent activities and use of resources. The Magnet Schools Advisory Committee membership will consist of: (1) Three representatives from each of the magnet school's School Planning and Management Team (teacher, parent, administrator); (2) The President of the Parents Associations Council for each school; (3) Additional parent representatives to insure that the advisory committee will include representatives from every New Haven and suburban community that sends students to the magnet schools participating in this project; (4) A Magnet Schools Resource Teachers Representative from each school; (5) Representatives from Community Based Organizations; (6) Chief of Staff; (7) Representatives from Partner Organizations (e.g., Eli Whitney Museum); (8) Representative of Curriculum Supervisors; (9) Representatives of Yale University; (10) Representatives from the teachers' union; (11) Representative of the

Administrator's union.

At the school level, SPMTs will reflect the diversity of the families that each school serves and all of the school's stakeholders. Its members will include the principal, an assistant principal, the Director of Instruction for that school, classroom teachers, one per grade, the math, ELA coaches, the Magnet Resource Teachers, New Haven and suburban parents (representing each community that sends students to particular schools), non-instructional staff and community partners. Student representatives will be invited when appropriate.

**(d) Quality of personnel** (1) (a) the extent to which the project director is qualified to manage the project;

New Haven has 40 years of experience in the planning and operation of magnet schools. The district has 28 magnets. Therefore, many of those who have helped to successfully implement past desegregation and magnet school efforts will insure the success of this project.

***Qualifications of the Project Director*** (100% FTE): The Project Director will be a principal with experience in magnet theme development, teacher professional development, and the creation and implementation of school improvement plans that have increased student achievement.

**Specific qualifications will include:** ► advanced education degree and State certification as a School Administrator; ► at least five years' experience as a principal and three years' experience in a magnet school; ► a dynamic instructional leader; an exemplary administrator; ► at least five years' experience as a classroom teacher; ► expertise in the themes that are described for the proposed magnet schools including STEM; ► experience and knowledge related to the Common Core and the Next Generation Science Standards and the Connecticut Social Studies Standards.

**The Project Director will:** ► manage all aspects of the project; manage all district based project staff; ► ensure that the activities of the magnet school project are focused on promoting

desegregation; ► assist magnet school principals implement their MSAP programs; ► work closely with the District Curriculum Supervisors to coordinate their support for curriculum development; ► work closely with professional development partners to insure their coordination with magnet resource teachers and principals to insure that teachers receive the professional development that is needed to support the programs that are described in this proposal; ► manage, in cooperation with the school district's business director, all fiscal and budget aspects of the project; ► keep all project records; ► file all necessary reports with the U.S. Department of Education; ► coordinate the recruitment/ application process, the magnet schools lottery, and the student selection process.

---

**(d) Quality of personnel. (1) (b) Other key personnel are qualified to manage the project.**

---

The Magnet Schools program will be housed at the District Office. The Project Director will be supervised by the Chief of Staff to the Superintendent.

**Dr. Reginald Mayo, the Interim Superintendent of Schools**, has spearheaded the effort to desegregate the New Haven's public schools through the establishment of magnet schools. Under Dr. Mayo's leadership, 23 of New Haven's 28 magnet schools were developed. Dr. Mayo has been an educator for four decades and served as New Haven Superintendent of Schools from 1992-2013. He previously held the posts of science teacher; mathematics and science department chair; Assistant Principal; Principal; Director of Schools, K-8; and Executive Director for School Operations. Dr. Mayo holds a Master's degree from Southern Connecticut University and a Doctorate from the University of Connecticut.

As Superintendent, Executive Director for Operations, and Director of Schools, K-8, Dr. Mayo has been responsible for overseeing desegregation efforts and magnet school development in New Haven schools for over twenty years. Through his leadership, New Haven's public schools have participated in some of the most innovative reform efforts in the nation. New

Haven has more magnet schools than any other Connecticut district and offers its students a great variety of school choices (e.g., neighborhood schools, New Haven magnets, suburban magnets, Project Choice, and charter schools). New Haven's outstanding magnet school and choice programs exist because of Dr. Mayo's vision and outstanding leadership.

**Dr. Dolores Garcia-Blocker, Chief of Staff to the Superintendent**, will supervise the Project Director and ensure close coordination between the MSAP and other New Haven programs. Dr. Garcia-Blocker has been a magnet school teacher, assistant principal, elementary school principal (2000-2004) and principal of Cooperative Arts and Humanities (Co-op) High School (2004-2011), a New Haven magnet school. Under her leadership, Co-op High School was awarded U.S. News and World Reports' Bronze (2007) and Silver (2008) Medals. Dr. Garcia Blocker earned an Ed.D. in Educational Administration from Columbia University.

**Thenoa Sherri Davis-Googe, Director of Choice and Enrollment** since 2014, manages the programs for established magnet schools and the registration process for new students. As the Assistant Director of the Regional School Choice Office in the Hartford Region (2011 to 2014) she worked with Hartford and many suburban school districts to implement a recruitment and student selection process for thousands of students.

**William Clark, Chief Operating Officer**, responsible for supervising the business office, facilities, transportation and operations since 2007. He supervises changes in the school transportation system as new magnet schools are implemented and the design/building or renovation of new and revised magnet schools. Mr. Clark received a law degree from Quinnipiac University and a B.A. from the University of Notre Dame.

**Linda Hannans, Business Director** has worked closely with MSAP project directors grants since 1996, offering valued counsel and generating monthly budget reports. Ms. Hannans

has a Bachelor's Degree in Business Economics and a Master's in Public Administration.

Because New Haven has had successful magnet schools for many years, every **Curriculum Supervisor** has assisted in the design of magnet school curricula and in the integration of magnet themes with the curricula of their discipline. **Interim Literacy Supervisor Lynn Brantley, has over thirty years of experience in New Haven Public Schools,** including 17 years focused on specifically on literacy development. The project will be further supported by **Social Studies Supervisor Sandra Cates-Clark** who has led curriculum development as well as vertical and horizontal alignment within the social sciences since 2010 and holds a Bachelor of Arts in History from Fairfield University. **Science Supervisor Richard Therrien** and **Mathematics Supervisor Ken Matthews** will directly contribute to the development of thematic curricula. Both have over 25 years of experience as educators respectively, organizing and facilitating professional development and curriculum development in their respective subjects for hundreds of New Haven teachers. They have also assisted in the design of magnet school curricula, including the design of the successful 6-12 Engineering and Science University Magnet School, Quinnipiac Real World Math STEM Magnet and Celentano Biotech Health & Medical Magnet. **Jessica Lee Haxhi, Supervisor of World Languages** since 2013, was a teacher of Japanese at an interdistrict magnet school for 19 years and is an adjunct professor at Southern Connecticut State University teaching Methods and Materials in World Languages. **Pedro Mendia-Landa, Bilingual/ ESL Program Supervisor** since 2009, will continue to provide program support to ensure that English Language Learners have full access to magnet program activities.

Each principal will be supported by a **Director of Instruction,** who will be responsible for providing both supervision and support while ensuring that all academic initiatives, including those outlined in this proposal, are implemented with fidelity. Each Director of Instruction will

also sit on their school's Planning and Management Team. Directors of Instruction have an established track record of academic success as principals and have experience supporting implantation of magnet programs. Please see their resumes in the appendix.

The **Magnet School Principals** will have responsibility for implementing the activities described in this proposal in their schools. Each magnet principal is an experienced professional with years of teaching and administrative experience. They are all licensed principals and hold numerous university credentials. Further, they have all been highly rated by New Haven's administrator evaluation and development system. Please see their resumes in the appendix.

**Other Key MSAP Personnel:** **Recruitment Coordinator** (1 at 100% FTE) will supervise the recruitment specialist and work closely with project, district and school staffs on all aspects of student recruitment. Qualifications include a college degree, familiarity with all New Haven and suburban communities and 4 years experience working with magnet schools.

**Olga Sanchez, Recruitment Specialist** (1 at 100% FTE): Please see her resume in the appendix. The Recruitment Specialist will help implement previously described recruitment plan in both New Haven and its suburbs. Ms. Sanchez has years of experience in similar positions.

**Jubaliz Lopez, Purchasing Specialist** (1 at 100% FTE) will provide clerical and budget support for the project. Please see resume in appendix. She has years of experience in similar positions.

American Education Solutions (AES) will serve as the **External Evaluator** for this project. For the past 20 years, AES has evaluated 63 Magnet Schools Assistance Program grants and has partnered with the Education Alliance at Brown University and the SERVE Center at the University of North Carolina on 10 rigorous MSAP evaluations. Since 2010, AES has partnered with the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) at UCLA on 14 rigorous MSAP evaluations as well as on survey development and

analysis. CRESST will perform the rigorous test score study for this project. The AES MSAP site visit team includes former school administrators, all of whom have been teachers and have extensive evaluation and magnet school experience.

**(d) Quality of personnel. (1)(c)** Teachers who will provide instruction in participating magnet schools are qualified to implement the special curriculum of the magnet schools;

Qualifications of Magnet School Resource Teachers (9 full time; 2 per K-8 magnet school. 1 for HSC because of its smaller enrollment.) School-based Magnet School Resource Teachers (MRTs) will be hired to work in the 5 proposed magnet schools. At least one MRT at each STEM school will be expert in STEM subjects. The others will have expertise in the specific magnet theme of their school. Minimum requirements for Magnet Resource Teachers include: ► A highly qualified classroom teacher for at least 5 years with proven ability in STEM subjects or the specific magnet theme of their school. ► Experience with curriculum development in the magnet theme of their school as demonstrated by previously written curriculum materials. ► Have experience in desegregation related programs and/or magnet schools. ► Able to handle staff training responsibilities. ► Have college courses in curriculum development, and the magnet theme (for one MRT per STEM school, STEM courses or a science or math degree).

Duties and Responsibilities: These master teachers will support all of the school based activities that are described in this proposal. They will assist in and support the professional development of classroom teachers in the magnet theme areas through extensive coaching. They will assist in the development, with teachers, of the magnet theme curricula and the development and implementation of STEM, PBL and inquiry projects and magnet units. They will assist with curriculum alignment, facilitate collaborative teacher planning, teach model lessons and help in the development and implementation of recruitment plans and activities.

Classroom Teacher Quality: New Haven uses a clear process to determine teacher effectiveness based on student outcomes and teacher instructional practice, and develops an individual professional development plan for each teacher. The teacher learning goals in this plan result in targeted, primarily job-embedded professional development designed to improve each teacher's ability to help improve student learning. For the teachers at the five magnet schools, this process will include magnet theme related student outcomes, professional practices and teacher learning goals. Teachers receive an annual summative rating using a five-part scale (exemplary, strong, effective, developing, needs improvement). Magnet resource teachers must be highly effective with a rating of Exemplary or Strong. Classroom teachers must be rated Exemplary, Strong or Effective. Classroom teachers with lower ratings will receive extensive professional development focused on their needs and will be continued only if they improve.

New teachers hired will have at least 3 years' experience, a rating of Exemplary or Strong or its equivalent, proven ability in STEM subjects or an inquiry approach to social studies for Clemente and experience teaching racially/ethnically and socioeconomically diverse classes.

**(e) Evaluation Plan**...(1)...produce evidence of promise; (2) include the use of objective performance measures that are clearly related to the intended outcomes; and (3) the extent to which the costs are reasonable in relation to the objectives, design, and potential significance ....

This evaluation, spanning the five years of this project, is designed to produce evidence of promise (rigorous evaluation with two sets of quasi-experimental studies) as well as provide feedback to help school and district staffs improve project performance and attain high levels of fidelity of implementation. The evaluation will also produce information needed by the United States Department of Education (USDOE) to properly evaluate project effectiveness, determine

if all project activities are implemented as designed and on time, and to insure that adequate progress is made toward the attainment of all project outcomes (two annual summative reports).

**Data Collection:** This evaluation will draw on a wide variety of data to provide substance and context for formative and summative reports and the quasi-experimental study. The evaluation contractor will develop a complete set of data collection instruments (including surveys, data and document requests, and observation and interview protocols) designed to collect sufficient information to address performance measures, perform the quasi-experimental analysis and supplement extant data. However, extant data will be used whenever possible to lessen the burden on school and project staff. The data to be collected will include:

**Student academic achievement, demographic, enrollment and other data:** The contractor will collect standardized test score data (e.g., school and grade level and individual student data linked to their teachers) needed to address performance measures related to student academic achievement and perform the quasi-experimental study. School enrollment, applicant pool and student selection data disaggregated by race/ethnicity and socioeconomic status data will indicate the extent to which the schools succeed in meeting desegregation related performance measures.

**Document requests:** The contractor will request documentation from magnet school teachers and MSAP staff to help determine the quality and extent of MSAP implementation. Examples include: ► **descriptions of and dosage** (amount of program delivered) **for units and courses** that present the magnet theme to students; and student recruitment, teacher professional development, parent involvement; ► **schedules** of school based magnet staff; ► School improvement plans.

**Observation and interview data** will be collected during site visits to each school (see schedule at end of section), by trained evaluators with extensive experience in magnet schools. During site visits, the evaluator will conduct walkthroughs, observe lessons, and interview teachers,

administrators, students and parents to help assess progress towards performance measures.

**Surveys** will be administered annually to all teachers and a sample of students (one complete grade) at each magnet and comparison school. Comparison schools will be selected based on school size, grade span, and school-level student achievement and demographics. Drawing on its 20-year history of MSAP and regular and rigorous evaluations, American Education Solutions developed survey items and scales with its survey consultants, Dr. David Silver, a senior researcher at UCLA's CRESST Center, and currently, Dr. Jia Wang, a senior research scientist at CRESST. *These survey items are directly related to the purposes of the MSAP and the logic model, objectives and performance measures of this proposal.* Validated survey items and scales measure constructs including school climate, instructional leadership, professional development hours (formal, collaborative and coaching) and effectiveness, student academic commitment and expectations, student engagement and motivation, student and teacher perceptions of intergroup relations and magnet theme implementation, standards based instruction, systemic reform implementation, parent involvement, and magnet-specific professional development dosage.

**(e) (1) The extent to which the methods of evaluation will... produce evidence of promise.**

***Rigorous Evaluation:*** The evaluation design proposed below will be carried out by researchers at University of California Los Angeles (UCLA), Center for Research on Evaluation, Standards, and Student Testing (CRESST). Dr. Joan Herman will be the principal investigator (PI), and Dr. Jia Wang will be the co-principal investigator (co-PI) and project director. The UCLA team has many years of experience conducting similar studies, including evaluations of magnet schools (e.g., Los Angeles CA, New Haven CT, Bridgeport CT, Hartford CT, Nashville TN), charter schools (e.g., Green Dot), and I3 validation grants (e.g., Literacy Design Collaborative). Both the

PI and co-PI have publications (Wang & Herman, 2017; Wang, Schweig, 2014 & 2017) on magnet schools based on their prior magnet work. (Please see appendix for more details).

UCLA CRESST's rigorous evaluation of the impact of the New Haven Magnet Schools Assistance Program (MSAP) grant on student learning will be comprised of two sets of quasi-experimental studies. These studies are designed to meet the "What Works Clearinghouse Evidence Standards with reservations" by comparing MSAP outcomes with an identified comparison group that is similar to the treatment group at the baseline. If the interventions are well implemented, we expect the quasi-experimental studies to produce evidence of promise on the relationship between program implementation and objective performance outcomes.

The first set of quasi-experimental studies will examine how intensive professional development (PD) on inquiry-based science teaching provided by the Connecticut Science Center to teachers in STEM-focused MSAP schools impacts student achievement relative to comparison students at other STEM magnet schools in New Haven Public Schools (NHPS). The second set of quasi-experimental studies will explore how students in each of the five individual magnet schools funded through this proposal perform relative to demographically similar peers in similar non-magnet in NHPS. The following sections will describe these studies in detail.

Our studies will be conducted with the statistical rigor of a high-quality quasi-experimental design, but with keen attention to limitations of available data and sample sizes, and on a scale that is reasonable within the current funding structure. This evaluation strives to bolster the current body of research with instrumentation and analytic methodology aligned directly with the priorities and selection criteria of the MSAP, and it is intended to contribute to the evidence-based database on magnet schools the Department of Education is building.

While we will administer annual surveys to students and teachers to get their perspectives on

their schools and provide context for the student outcome analysis, the evaluation focuses on measuring MSAP impact on student achievement in English Language Arts (ELA), math, and science. Using a statistically rigorous, high-quality quasi-experimental design, we examine the following broad questions:

**Evaluation Question 1.** How did students taught by teachers who received extensive Science Inquiry PD at six STEM magnet schools (3 funded by this grant and part of this project) perform on state tests in relation to matched students at comparison NHPS STEM magnet schools whose teachers did not receive the PD?

**Evaluation Question 2.** How did students attending each of the five MSAP schools in this project perform on state tests in relation to matched students at comparison NHPS non-magnet schools? How did the graduation rate at the MSAP high school in the project (HSC) compare to graduation rates at comparison high schools?

**Evaluation Question 3.** How is the fidelity of implementation to the science inquiry professional development model at the teacher level related to student achievement outcomes?

**Evaluation Question 4.** How did the level of magnet implementation vary across the five MSAP schools participating in this project?

All magnet and comparison schools are in the New Haven Public Schools district.

**Evaluation Question 1. Quasi-Experimental Design (QED) Study of Science Inquiry Professional Development:** Teachers in three STEM focused K-8 schools included in this grant, will receive professional development on inquiry-based science teaching. The training will be provided by the Connecticut Science Center through their Inquiry for Teaching and Learning series to all elementary school level teachers and science teachers at the middle school level. The focus is on making science teaching more student-centered with students challenged to use,

explore and build knowledge through the inquiry process. The professional development includes intensive in-person training as well as coaching during the school year.

The treatment group consists of six magnet schools, with three included in this grant application (Davis, Edgewood, and King/Robinson) and three STEM-focused K-8 magnet schools (Bishop Woods, John Martinez and West Rock) funded in a recent MSAP cycle, which are also implementing the Connecticut Science Center Inquiry professional development.

We hypothesize that an effect on student outcomes will be found after teachers receive two years of the extensive inquiry professional development that was described in the Quality of Project Design (3). We estimate that because of the time it takes to start a new project, that teachers will not complete the first “course” in the sequence and therefore not receive sufficient PD to fully implement inquiry-based instruction until the end of Project Year 2. Therefore, Year 1 of the grant will serve as the baseline year and our analysis will focus on outcomes in Project Years 3 and 4. Attendance records will be used to calculate the total number of hours of professional development received by each teacher. As shown in Table 1 below, UCLA CRESST will pool and combine data from 2 cohorts of three schools each for the analysis of the effect of inquiry PD. The 2016 cohort of schools will reach Year 3 of implementation by 2018-19, while the newly funded 2017 cohort will reach Year 3 of implementation by 2019-20. The schools from a previous grant cycle were added to increase the sample size so that this science inquiry professional development could be effectively studied.

**Table 1. Timeline for 2 Cohorts of MSAP-funded Schools**

	Year 1	Year 2	Year 3	Year 4	Year 5
2016 Cohort (3 K-8 magnets)	2016-17	2017-18	2018-19	2019-20	2020-21
2017 Cohort (3 K-8 magnets)	2017-18	2018-19	2019-20	2020-21	2021-22

To be eligible for inclusion in this set of quasi-experimental studies, an MSAP school student must (a) have prior Smarter Balanced achievement scores from Year 1, (b) be taught by a teacher who received the inquiry professional development, and (c) have assessment scores in the outcome year. The primary outcome of interest will be the new CMT Science assessment (updated to align with Next Generation Science Standards). Secondly, our analyses will test the impact of professional development training on student performance on the Smarter Balanced English Language Arts (ELA) and math achievement. Past experience has shown that because magnet STEM units are interdisciplinary, and because the social studies curriculum uses inquiry extensively, teachers have used inquiry in most if not all subjects.

The above inclusion criteria allow us to test the impact of professional development on students' grade CMT Science test scores in Year 3, on grade 8 CMT Science test scores in Years 3 and 4, on Smarter Balanced scores for students in grades 5-8 in Year 3, and on Smarter Balanced scores for students in grades 6-8 in Year 4. Student performance data will not be available in time to analyze impacts in Year 5. In addition, we will not be able to analyze impacts at grades lower than grade 5 because of the lack of prior achievement scores in Year 1 for lower grades. Table 2 summarizes the outcomes the professional development QED study will test.

Year 3 outcomes will include CMT Science (gr. 5 & 8), Smarter Balanced ELA and Mathematics (gr. 5-8). Year 4 outcomes will include CMT Science (gr. 8), Smarter Balanced ELA and Mathematics (gr. 6-8).

**Identification and Matching of Comparison Group:** The comparison group consists of 5 STEM focused K-8 or K-4 magnets and 1 middle magnet school not receiving the inquiry professional development. They are Barnard Environmental Studies Interdistrict Magnet School, ESUMS (Engineering & Science, University Interdistrict Magnet Middle School), Mauro-

Sheridan Science, Technology & Communications Interdistrict Magnet School, Celentano Biotech, Health & Medical Magnet School and Quinnipiac Real World Math STEM School.

The 5 control schools are all magnet schools with a STEM theme and therefore form a good comparison group for the MSAP-funded STEM schools receiving the professional development. We will utilize a radius matching approach to select students in the comparison schools who are similar to treatment students across a broad range of variables (Huber, Lechner, & Wunsch, 2010). The radius matching approach will compute a distance measure comprised of both a propensity score and a Mahalanobis distance score for all eligible comparison students. Any comparison student whose distance measure falls within a defined distance (radius) of a treatment student in the same grade will be matched to that student.

If the propensity scores of multiple comparison students are sufficiently close to a single treatment student, each comparison student will receive a weight inversely proportional to her difference measure. For example, two comparison students who have identical difference measures within the defined radius distance would each receive a weight of 0.5. Treatment students will be removed from the analyses when they cannot be matched to any comparison student within the defined radius. The approach will also apply a trimming technique to ensure that no single control case is weighted too heavily in the analysis (Huber et al., 2010). We intend to use the following variables in the matching process: grade, gender, race/ethnicity, English Language Learner (ELL) status, National School Lunch Program (NSLP) status, special education status, and Year 0 Smarter Balanced achievement in ELA and math.

**Analysis Approach:** Our research will examine the effect of teachers who received the intensive inquiry science professional development by comparing outcomes of students taught by teachers who received that PD to their peers at similar magnet schools in the same school district. To

examine the effect of inquiry-based PD on student achievement outcomes we will use a regression-based approach with bias adjustment, which performed well in a recent simulation study as detailed in Huber, Lechner, & Steinmayr, (2012). Specifically, we will first use a Weighted Ordinary Least Square (WOLS) regression equation on the comparison student population to produce the coefficient estimates.

A counterfactual estimate will then be obtained by adding a bias adjustment from the regression results to the average observed score of the comparison population in an outcome year. This counterfactual represents an estimate of how these students may have fared if they had not been taught by a teacher who received science inquiry professional development and had instead attended a comparison school. The average treatment effect on the treated (ATT) (Ho, Imai, King, & Stuart, 2007) is determined by subtracting the counterfactual estimate from the actual average observed score of the students under teachers receiving the professional development in MSAP schools. This approach is known as a double-robust regression as the estimator is said to be consistent if either one of the two models (propensity score or regression) is correctly specified (Huber et al., 2010). In other words, controlling for prior indicators relevant to treatment status and achievement in both the matching model and the analysis model increases the robustness of the estimates.

**Evaluation Question 2. Quasi-Experimental Studies of Students Attending Magnet Schools:**

To answer Evaluation Question 2, we will conduct individual school analyses for each of the five magnet schools in this grant application (as compared to the professional development study which focused on only three of the five schools). We will employ the same radius matching approach described above, this time to identify the comparison students at similar non-magnet schools in New Haven Public Schools, and the same Weighed Ordinary Least Square (WOLS)

regression equation to analyze the student data.

However, there are three distinct differences. One is that instead of identifying comparison students from other existing magnet schools in the district, the comparison students will be identified from similar non-magnet schools in New Haven via a two-step process. Specifically, we will first select comparison schools within the district based on how closely they match the characteristics of MSAP supported schools in the year prior to magnet implementation using hierarchical cluster analysis. The comparison school selection will take into consideration the grade span of the school, school size based on enrollment, school racial composition (i.e., percentage of Black and Hispanic students), the percentage of ELL students and the percentage of NSLP participants. To identify comparison students, the research team will first restrict the pool of MSAP and comparison students to those that had achievement outcomes for each outcome year and may also limit the students to those at the same MSAP or comparison schools for a defined period of time. A covariate balancing propensity score will then be computed for the eligible comparison students. Students from each comparison sample will be matched to MSAP students with similar propensity scores using radius matching.

The second difference is that instead of investigating the effect of PD on student outcomes, we will investigate the effect of attendance at a magnet school on student outcomes. Our research will examine the effect of MSAP implementation by comparing outcomes of students in MSAP schools to the counterfactual condition of how they would have fared if they had not been a part of the MSAP program. As described earlier, this effect is known in the literature as the average treatment effect on the treated (ATT).

The third difference is that instead of pooling/combining students across STEM magnet schools, we will conduct individual school analyses (one for each of the five schools). As noted

earlier, one of the five schools is a high school. For that school, grade 11 CMT Science, SAT ELA, and SAT math scores will be used as outcomes in Years 3 and 4 of the program.

**Evaluation Question 3. Relationship between Fidelity to Science Inquiry Professional**

**Development and Student Outcomes:** In our fidelity of implementation analysis, we will also explore how differences among teachers in how they use the professional development are associated with differences in student learning outcomes. This within treatment study will take advantage of three main data sources: attendance records capturing teachers' exposure to professional development; surveys and/or logs capturing teachers' attitudes regarding inquiry-based instruction and use of inquiry-based teaching strategies; and analysis of instructional unit artifacts created by the teachers as part of the professional development.

The UCLA team will construct a number of measures based on these three data sources, including variables capturing the dosage of inquiry professional development that a teacher received, the extent to which teachers use inquiry-based instruction in their classrooms, and the quality of instructional units that teachers create. Exploratory HLM analyses will then be conducted with teachers at Level 2 and students at Level 1. Given the small sample size (20 or fewer teachers in the given schools) we anticipate only being able to include one to two teacher level variables in each model. Statistical power at Level 2 is likely to be a constraint on identifying relationships between fidelity of implementation and student outcomes, so we stress that these analyses will be exploratory in nature.

**Evaluation Question 4: Variation in Magnet Implementation across Target MSAP Schools:**

As described earlier, our evaluation will collect and analyze data on magnet implementation via surveys, site visits, and analysis of artifacts. These instruments will be used to construct variables such as magnet theme implementation, professional development usage,

etc. and thresholds for adequate fidelity of implementation will be set for each measure.

CRESST will work closely with American Education Solutions (AES) and the school district in developing the rubrics used to rate the classroom artifacts teachers submit for peer review. The classroom artifacts will include end-of-unit assessments developed by teachers and the accompanying student work. Assignment/assessment tasks can serve as windows to such variables as teacher clarity of instruction, cognitive rigor of instruction, and, in this case degree of quality of magnet theme implementation. The CRESST team will also independently score a random set of these artifacts to ensure that school site peer review teams are reliably scoring the artifacts in alignment with the expectations set forth in the rubrics

Based on collaboration with AES and the school district, the CRESST research team will create a fidelity index incorporating the various variables which we will use to measure quality of implementation at the school level. We will determine different levels of fidelity for each construct, including a threshold for adequate implementation. The fidelity index will indicate whether a particular school performed adequately across the different constructs, such magnet theme implementation, quality of professional development, etc.

**Evidence of Promise:** (1) The inquiry professional development study will establish a link between the professional development component for the three STEM project schools, and student outcomes in science, mathematics and ELA. (2) The magnet school study will be conducted for each of the five project schools and will establish a link between the Quality Magnet Curriculum and Instruction component of their logic models and student academic outcomes for ELA, math and science on state tests.

**Rigorous Evaluation Reporting:** Students are tested in late spring. Testing data is usually available in September, at the end of each project year. Therefore, the analysis of student scores

in years 3 and 4 will be done in the beginning of years 4 and 5 (October-December) and a draft report will be submitted to the district within 8 weeks of the receipt of the complete data set.

The report will contain an executive summary, introduction, description of the school district and the participating magnet schools, analysis procedures that describe data, data collection and analysis approaches, and the analysis results for both quasi-experimental studies. For the inquiry PD study, results will be reported for the 3 project STEM schools and for all 6 STEM schools (3 project schools and 3 recently funded MSAP STEM schools), to add statistical power, an important consideration when determining the effectiveness of an intervention that is being implemented in a small number of schools (in this case the project magnet schools).

For school magnet study, student results will be reported for each school. When the sample size allows, the results will be disaggregated by race/ethnicity, grade, low income, English language learners, disabled students and resident town or New Haven zone.

### **Rigorous Evaluation Timeline**

- ▶ Study design revision (Year 1); ▶ UCLA and district IRB application & renewal (Years 1-5);
- ▶ Request and analyze school level data to identify comparison schools for surveys (Year 1);
- ▶ Survey development (Year 1); ▶ Survey administration, analysis and reporting (Years 1-4);
- ▶ Development of artifact scoring rubrics (Years 1-2); ▶ Scoring and analysis of artifact data (Years 3-4); ▶ Analysis of implementation variables (Years 3-4); ▶ Student level data request (Years 1-4); ▶ Student outcome data analysis & reporting for Inquiry study (Years 3-5); and ▶ Student outcome data analysis & reporting for magnet attendance study (Years 4-5).

---

*Project performance measures follow the description of the formative evaluation.*

**Formative Evaluation:** The evaluation contractor will aid in the continual improvement of the project through formative evaluation, an examination of implementation that returns information to project, school and district staff to help them improve program performance. Formative evaluation includes the study of program fidelity (the degree to which a program is implemented as designed) and reach (the proportion of the target group that participates). Components of fidelity include: ► adherence – the degree to which the program adheres to its goals, plans, activities, timeline; ► dosage – the amount of program delivered; ► quality – the quality of program activities and services; ► responsiveness of participants to program activities; ► program differentiation – unique features when compared to non-magnets.

**Formative Evaluation Reporting:** Data will be collected, as available, and analyzed, and findings will be discussed with the project director, the school evaluation team and school staff throughout the year. Five formative evaluation reports will be written by evaluators each year:

**Reduction of Minority Group Isolation (MGI) Report:** Enrollment data will be compared with applicant pool data (both disaggregated by race/ethnicity, SES, and resident town/city), student placement data (disaggregated by race/ethnicity and categories such as school zone, resident, New Haven or suburban resident, high, medium or low SES), benchmarks and data from previous school years to determine why performance measures were or were not attained and if previous recommendations were implemented. The October site visits, will focus on desegregation activities including recruitment, student selection and placement procedures and on the final results of the process. During this visit, the MGI report and all related data will be

discussed with the project director, each school's recruitment and evaluation team, and MSAP project staff. If minority group isolation performance measures were not attained, the data supporting the findings will be discussed and will inform modifications to recruitment or selection procedures and the collection of additional information (e.g., parent focus group results) if needed. Recommendations for improvement will be jointly formulated by the evaluator, the project director and the school evaluation teams.

**Site Visit Reports** provide feedback based on data related to project implementation. After each site visit (2 for year 1; 3 for years 2-4; 1 for year 5), a report will be written by the site visitor and submitted within ten days. It will summarize the findings of the visit, help school staff understand if they are on track to attaining performance measures and benchmarks, discuss reasons they may not be attained and highlight project successes. Recommendations for improvement, jointly arrived at by the staff (school evaluation team), the project director and the evaluator, will be included. **Documentation Reviews**, included in site visit reports, will summarize descriptive and quantitative data related to magnet curricula and instruction, systemic reforms, parent activities and professional development, and report on: adherence (e.g., activities implemented on time), dosage (e.g., the amount of time participants are exposed to grant activities), quality (e.g., peer reviews of units). Note: Because of project start-up, there will be 2 visits for year 1. Due to increased school capacity, only 1 visit is needed for year 5.

**Survey Reports** will include item by item results for each school and summaries of survey construct results for each school. Relationships between variables (e.g, magnet implementation and student engagement, professional development dosage and impact) are explored as is change over time. Other formative evaluation strategies include: Short Term Outcomes. Benchmarks are short term outcomes that indicate whether adequate progress is being made towards the

attainment of annual performance measures. Most are derived from site visit and documentation review reports, survey items or the MGI report. Examples of critical benchmarks are included in the performance measure section which follows. The project director, evaluator and the school evaluation teams can decide on additional bench-marks that could help guide one or more schools. The degree to which benchmarks are attained will be reported in the site visit, documentation review, survey and MGI reports or during Skype or Google Hangout sessions when needed (e.g., at critical points during recruitment).

**Continuous Cycle of Improvement.** This evaluation uses a four-part iterative cycle that will lead to better understanding of the components of this project's logic model and theory of action as well as improved outcomes for students: **1) Planning or Modifying Activities.** The logic model and the activities described in this proposal will form the basis of the implementation plans that will be developed at the beginning of each project year. **2) Implementation.** Activities described in the MSAP proposal will be implemented by school and project staffs with fidelity. **3) Formative Evaluation Feedback** includes the five reports listed above, three site visits (most years, please see schedule at the end of this evaluation), two annual summative reports, and ongoing telephone, Skype and e-mail discussions with the evaluators about the reports and data. **4) Reflection/Discussion.** This part of the cycle insures that formative and summative data are discussed and used for project improvement. A school evaluation team, composed of the magnet resource teachers, teacher representatives (determined by the school planning and management team) and the principal, review all formative and summative reports and data, discuss report findings and recommendations with teachers during faculty and grade conferences, get teachers' feedback and monitor the implementation of recommendations. The team will meet at least five times per year within a few days of the receipt of each report. PLC's

for magnet resource teachers. Magnet resource teachers and the project director will meet once per month to discuss project implementation, examine benchmark and short term outcome data and discuss barriers to implementation and how to solve them. Successes (best practices) will be identified, shared and duplicated in other schools. The results of **Reflection and Discussion** will be used for **Planning or Modifying Activities** as the cycle repeats throughout each project year.

**Summative Evaluation and Reporting:** The evaluator will determine the extent to which performance measures (medium term outcomes on the logic model) are attained. The evaluator will collect and analyze the data, prepare two semi-annual summative performance reports (mid-May and end of September), summarizing findings, and discuss the results with district and magnet school staffs. The data and findings in the semi-annual summative reports can be used in the Annual Performance and Ad Hoc Reports for the U.S. Department of Education. The following section describes the annual performance measures, their relationship to each MSAP program purpose and to this project's logic model and how the evaluators will assess their attainment (e.g., indicators, measures of change, data collection methods, data sources and frequency of data collection). Some of the most important benchmarks associated with each performance measure are also described. Long term outcomes on the logic model are the year 5 performance measures and represent the outcomes for the entire project period. They will be reported on in the final report.

**Program Purpose 1: The elimination, reduction, or prevention of minority group isolation in ... schools with substantial portions of minority students....****Logic Model Activity: Desegregation – Student recruitment, application and selection activities; Benchmarks: for applicant pool - proportion of isolated students (race/ethnicity and socioeconomic status [SES]) is 10 percentage points less than actual enrollments for each school.** The proposed magnet schools will reduce

minority group isolation (MGI) (1.1-1.4) or eliminate or prevent MGI (1.5) by decreasing the percentage of black or Hispanic students and increasing the percentage of white students.

**Objective 1.** Minority group and socioeconomic isolation will be reduced, eliminated or prevented at the proposed magnet schools. (This objective addresses MSAP Performance Measure a.)

**Performance Measure 1.1-1.4:** By October 1 of each project year, for the following magnet schools, enrollment targets (see Table 3: Enrollment Data-Magnet Schools) will be attained by reducing the isolation of black or Hispanic student (using 2016-17 as the baseline) by at least 2 percentage points per year (10 percentage points or more over 5 years). The schools and their 2016-17 enrollments (isolated groups in bold) are:

**1.1** ► High School in the Community (HSC) (gr. 9-12) (36.3% black, **46.1% Hispanic**, 14.4% white, 2 or more races 1.6%, other groups < 2%. **Low Income: 57.4%**); **1.2** King/Robinson (PreK-8) (**72.5% black**, 13.5% Hispanic, 9.3% white, 3% Asian). **Low Income: 52.5%**; **1.3** ► Edgewood (PreK-8) (**50.6% black**, 13.6% Hispanic, 30.7% white, 2 or more races 3.7%, other groups < 2%). Low Income: 29.1 %; ► **1.4** Davis (PreK-8) (**59.0% black**, 14.9% Hispanic, 4% Asian, 21.5% white, 2 or more races 3.1%, other groups < 1%. Low Income: 31.4%).

**1.5** By October 1 of each project year, enrollment targets (see Table 3: Enrollment Data-Magnet Schools) will be attained by reducing the percentage of Hispanic students by at least 2 percentage points per year (10 percentage points or more over 5 years) at East Rock (K-8) (35.8% black, **43.8% Hispanic**, 13.1% white, 6.5% Asian. **Low Income: 46.9%**), thus reducing, eliminating and preventing MGI.

**1.6** By October 1, 2021 (the end of the project period), the State diversity goal for interdistrict magnet schools (combined minority enrollment of less than 75%) will be attained for the four schools that serve New Haven and suburban students (HSC, King/Robinson, East Rock, Davis).

**1.7** By October 1 of each project year, the proportion of low income students will be reduced by at least 3 percentage points at HSC, King/Robinson and East Rock.

**1.8** By October 1 of each project year, the proportion of low income students will be maintained at 30%  $\pm$ 5 percentage points, the district goal, at Davis and Edgewood.

**1.9** For each project year, each magnet school will receive at least 150 applications.

**Assessment:** School enrollment data, disaggregated by race/ethnicity and socioeconomic status, as defined in Competitive Preference Priority (CPP4), collected by the district, will help determine the degree of attainment of 1.1-1.6. Each year (October 1), the percentage of students in the isolated racial/ethnic group and low income students enrolled in each school will decrease. Baselines are 2016-17 school enrollments. School census data is collected by teachers at each school and aggregated and confirmed by the district. The SES data (1.7-1.8) will be compiled by the district from Census data. (Please see CPP4.) Applicant pool (applications for magnet school seats) and student selection data (students who applied and were selected), collected by project staff (recruiters and project director) each spring will determine if 1.9 was attained and explore how outcomes can be improved for all measures.

***Purpose 2: To develop, implement and expand magnet school programs that will assist LEAs achieve systemic reforms, and provide all students the opportunity to meet challenging State academic standards. Logic Model Activity: Improve Curriculum, Instruction & Student Academic Supports; Benchmark: 90% of each school's teachers agree that a great deal of emphasis was placed on (a) alignment of curriculum content and assessments with CCSS, NGSS and state standards; (b) data based decision making; (c) RtI; d) Inquiry; (e) Unit quality reviews. (Survey results.) Objective 2:*** All students will receive high quality instruction that includes their school's systemic reforms and magnet themes in units and courses aligned with CCSS, NGSS and State

standards. **Performance Measure 2.1** By the end of each project year (September 30), at each magnet school, at least 15% (year 1), 40% (year 2), 65% (year 3) and 90% (year 4) and 100% (year 5) of all core academic subject units will meet district and project quality criteria determined by peer reviews using a unit quality rubric. **Assessment:** Unit quality rubrics will be designed, and passing scores established, by each school under the guidance of the curriculum and instruction department, the project director and evaluator. Reviews will occur 2 to 4 times per year as determined by School Planning & Management Teams. Teachers will review each other's units facilitated by magnet resource teachers who will monitor the process and maintain a database of review results. Teachers will be trained in rubric use to insure inter-reader reliability. Evaluators will review a sample of units to check for inter-reader reliability. Baseline is zero for 2016-17. The percent of units meeting quality criteria increases each year.

**Purpose 3:** *The development, design and expansion of innovative educational methods and practices....* **Logic Model Activity:** *Magnet Theme Integration;* **Benchmark:** *(a) Unit dosage attains the target number of hours. (Checked 3 times/year.) (b) See Benchmark for Project Purpose 2. (c) Student surveys indicate that engagement and motivation increase each year (year 1 is baseline). (d) 90% of students are interested in magnet theme and find it challenging.*

**Objective 3.** All students, at each magnet school, will receive magnet theme instruction.

**Performance Measures:** **3.1** By the end of each project year, all students, at all magnet schools, will receive magnet theme instruction coordinated with or including systemic reforms for at least 3 (year 1), 6 (year 2) and 8 (year 3), 10 (year 4) and 12 (year 5) hours per week.

**Assessment:** Success will be determined, by the evaluators, through unit analysis and confirmed with surveys, interviews and walkthroughs. Unit summaries for each teacher (including teacher dosage logs) are submitted to evaluators by each school 3 times per year. Entire units are made

available by schools (magnet resource teachers) to evaluators (on-line access) on a continuous basis. The dosage is the average number of hours per week each teacher presents magnet theme related instruction (integrated units and separate magnet theme classes) to students. The baseline is zero for 2016-17. The number of hours will increase each year to meet the target.

**Program Purpose 4:** *Courses of instruction in magnet schools that will substantially strengthen the knowledge of academic subjects...* **Logic Model Activities:** *All activities.* **Benchmarks:** *See*

**Benchmark for Project Purposes 2, 3, 5 and 6.** Connecticut's Accountability System includes academic performance indices for all students and for High Needs Students (economically disadvantaged, English learners, students with disabilities). Performance Indices in English Language Arts/Literacy (ELA) and Math are based on Smarter Balanced Assessment Consortium (SBAC) tests (grades 3-8) and the SAT (Standardized Achievement Test) for grade 11 students. Performance index scores in Science are based on the Connecticut Mastery Test (CMT) for grades 5 and 8 and the Connecticut Academic Performance Test (CAPT) for grade 10. The maximum index is 100. The target is 75 for all schools. Although the state is considering long term goals, targets and the allowable time period to reach them have not yet been set.

**Objective 4** (a) Student academic achievement will increase each year in ELA and math and science (for STEM schools) for all students. (b) The percentage of students from major ethnic and racial subgroups attaining level 3 or 4 on the state assessments will increase each year.

**Performance Measures: 4.1-4.2:** By the end of each project year, the percentage of "All Students," from each major racial and ethnic subgroup, and low income students in each magnet school who score at level 3 or above on the SBAC, or SAT for HSC, will increase when compared with the previous year in: **4.1:** ELA/Literacy. **4.2:** Mathematics.

These performance measures address MSAP GPRA Performance Measures b and c: *The*

*percentage of students from major racial and ethnic groups ... who score proficient or above on State assessments in reading/language arts and math.*

**4.3-4.5:** By the end of each project year, each magnet school will increase its Performance Index by 10% in: **4.3:** ELA/Literacy. **4.4:** Mathematics. **4.5:** Science (STEM schools).

**4.6-4.8:** By the end of each project year, each magnet school will increase its Performance Index for High Needs Students by 10% in: **4.6:** ELA/Literacy **4.7:** Math **4.8:** Science.

**4.9:** By the end of the project period, 75% of students at each school will develop mastery of the magnet curriculum, as determined by project based assessments scored by rubrics.

**4.10:** By the end of the fourth year of the grant (September 30, 2018), for each project school, students in two or more of the tested groups/subgroups will have higher test scores than carefully matched students attending non-magnet schools in at least one subject area tested by the State (ELA/literacy, mathematics, science). These results will be statistically significant.

**Assessment:** All students are tested in April of each school year. Data is analyzed by the State Education Department and made available to school districts. This data (4.1-4.8) will be presented in the Annual Summative Performance Reports in tabular form, highlighting the performance targets and how each magnet school – both in aggregate and by subgroups – performed in relation to these targets. Baselines are 2015 scores and indexes.

Project based assessments (4.9) will be developed in year 1 for each grade by the magnet resource and classroom teachers with the support of the curriculum and instruction department. Rubrics will be used in years 2 through 5 by teachers at least twice per year (frequency to be determined by each school's planning and management team) and be approved by the magnet project director and the deputy superintendent for curriculum and instruction. The baseline is zero for 2016-17 and will increase each year. PM 4.10 will be determined through the quasi-

experimental analysis of SBAC, SAT (ELA/Literacy and math) and CMT (science) scores.

(Please see the quasi-experimental design section of this evaluation.)

***Purpose 5: Improvement of the capacity of LEAs, including through professional development, to continue operating magnet schools at a high performance level after Federal funding...is terminated. Logic Model Activities: Professional Development (PD); Benchmarks: (a) PD is implemented as designed. (Checked during site visits.) (b) At least 85% of teachers will agree with survey items related to PD: (i) helped me integrate the magnet theme into lessons; (ii) deepened my content knowledge; (iii) helped me better maintain student engagement; (iv) I use what I learned from PD in my classroom:***

**Objective 5.** Provide professional development related to Improvement of Curriculum, Instruction and magnet theme development and implementation.

**Performance Measures 5:** By the end of each project year, at each magnet school, teachers will receive at least 50 hours of professional development (e.g., workshops, courses, coaching) in each of the following areas: **5.1** directly related to the improvement of curriculum and instruction including the development and implementation of the systemic reforms listed in the school improvement plan; **5.2** directly related to the development and integration of the magnet theme.

Other performance measures related to capacity building include: (2.1, 3.1) development and implementation of systemic reforms and magnet theme units and courses.

**Assessment:** Magnet resource teachers (MRTs) will collect professional development (PD) data including the type of training, the number of hours provided and which teachers are involved and summarize it. This information will be entered into a database at each school under the supervision of the MRTs. Attendance sheets and data, agendas, workshop materials and magnet resource teacher logs and schedules will be available at each school and checked by the evaluator

and project director. The 2016-17 baseline is zero. Since the effects of PD on student achievement are mediated by classroom teaching activities related to the PD, the evaluation of PD effectiveness will include measures of classroom teaching practices and student achievement. These include teacher surveys, teacher logs (self-reports) of inquiry based teaching strategies (this protocol will be created jointly by the evaluators and the Connecticut Science Center staff), instructional units created by teachers, and student testing data. Individual student test scores will be link to their teachers' implementation data. This data will be analyzed by the evaluators and used for the quasi-experimental study. Please see the quasi-experimental study design.

*Purpose 6: Ensuring that all students ... have equitable access to high quality education that will enable the students to succeed academically ....* **Logic Model Activities:** *Parent Involvement and all other logic model activities;* **Benchmarks:** *The degree to which: (a) parent activities described in the proposal are being implemented; (b) all classes reflect the racial/ethnic composition of the school. (Items a and b be determined during each site visit.)* **Objective 6a:** All students will have equitable access to high quality education. **Performance Measure 6.1** By the end each project year, for each magnet school, at least 70% (yr. 1), 75% (yr. 2), 80% (yr. 3), 85% (yrs. 4 and 5) of classes (elementary grades) and STEM classes (middle grades), will reflect their grade's enrollment for each racial/ethnic group (and gender for STEM classes) by  $\pm 15$  percentage points. **Assessment:** Success will be determined by analysis of class enrollments disaggregated by race/ethnicity and gender. Baselines are 2016-17 enrollments. The percentage of classes meeting the criteria increases each year.

Parent involvement promotes equitable access to high quality education for all students.

**Objective 6b:** There will be an increase in parent participation at each magnet school.

**Performance Measure 6.2** By the end project years 2 through 5, for each school, there will be a

5% increase (compared with the previous year) in the numbers of parents who participate in school activities. **Assessment:** Workshop materials, attendance records and parent interviews will determine parent participation and satisfaction. They will be collected by the magnet resource teachers as sessions occur and summarized and submitted to evaluators and the project director 3 times per year. The baseline year will be 2016-17. There will be an increase in the number of parents involved in school activities for years 2 through 5.

**Annual Evaluation Schedule:** ► Initial meeting with project and district staff (Week 1); ► Refine data collection instruments and plan; refine analysis plan; (Weeks 1-3); ► Collect data (throughout year): Enrollment data (Week 1); Documents (e.g. units integrated with magnet theme - Weeks 17, 29, 2 in next school year); Site visits including interviews, observations, implementation data collection for quasiexperimental study, etc. (Weeks 18, 30, 3 in next school year); Site Visit-Documents Review Reports (Weeks 19, 33, 3 in next school year); applicant pool data (Week 31); Dosage data (ongoing); Surveys administered (Week 33-35); State test data (Week 49); Survey results reported (Week 40); ► Formative evaluation including discussion of recommendations (Weeks 1-52); MGI Report (Week 3); ► Analyze and process summative data (Weeks 30-32 and 50-52); ► Prepare Summative Evaluation Reports (Weeks 29-30 and 50-52); ► Summative Evaluation Reports (Weeks 31 and 52); Quasi-experimental Evaluation Report (Week 3). Week 1 is the week the project begins each year. For the 2016-19 MSAP cycle, October 1 was week 1. The site visits and related activity dates denote two visits for year 1 and the third visit at the beginning of year 2, three visits in years 2 through 4, and one for year 5.

This evaluation contains the most important activities that will provide the support and feedback that schools need to modify and improve project activities and produce evidence of promise, while keeping an eye on level of service in relation to cost. The frequency of major evaluation activities is summarized in the table below.

<b>Activity</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
Quasi-experimental Analysis 1 and 2	No	No	Yes	Yes	No
Site Visits and Site Visit Reports	2	3	3	3	1
Surveys	Yes	Yes	Yes	Yes	No
MGI Reports	No	Yes	Yes	Yes	Yes
Summative Reports	2	2	2	2	2

Project year 1 will most likely start on October 1, 2017. Project staff need to be selected following district guidelines and procedures, and project activities are just beginning. Therefore, it makes more sense to have two, rather than three, site visits during project year 1 to allow time for startup. Also, MGI reports will start in year 2 after the first recruitment/application/selection cycle during the first year. For years 2 through 4, there will be three site visits. By year 5, project activities will be completed or nearly completed, Therefore, there will probably be a need for only one visit. Site visit reports and documentation reviews will be written after each site visit. Two summative evaluation reports will be written each year (May and October). Surveys will be given for years 1-4. The quasi-experimental design (QED) analysis will be performed for project years 3 and 4 (see rigorous evaluation section). An analysis for years 1 and 2 may not

show significant results, because students and teachers may not be exposed to the treatments for a long enough period of time. Experience has shown that there may not be enough time during project year 5 for an analysis of test scores before the end of the project period.

Part 1 of the QED analysis is significant, because it looks at the impact of science inquiry professional development as the Next Generation Science Standards are being implemented in Connecticut. An important question is whether the Connecticut Science Center's intensive Institute for Inquiry, described in the quality of project design section, will result in a more extensive use of inquiry by teachers, and whether that translates into improved science scores and, secondarily, improved math and ELA scores for students of those teachers. While the literature contains studies of specific science inquiry programs and the PD that supports them, there is no study of the Institute for Inquiry that is used extensively throughout Connecticut.

Quasi-experimental analysis 2 is significant, because it compares the test scores of magnet school students in this project's schools with those of similar students in non-magnet comparison schools. There are very few high quality studies of magnet schools that show significant and positive results. Ballou (2009) examined 14 studies and found four that met high design quality criteria. Of those four, two, Crain, et al. (1992, 1999); Ballou, (2007) had statistically significant positive results. The What Works Clearinghouse has only one study (Bifulco et al., 2009) that meets its design standards and has positive, statistically significant results. A recent multi-site study (Wang, et. al. 2015, 2017) of 24 MSAP magnet schools in five districts found no effect on test scores, on average across all schools, but wide outcome variability. Using local implementation data to differentiate among schools, Dr. Wang found that the variability in student achievement was due to the degree of fidelity of implementation, which included magnet theme implementation (e.g., curriculum and professional development

dosage, quality and reach) and support of classroom teachers (e.g., time with coaches). The two study-level covariates explained about 60% of the variance between school sites for the magnet effect on math and about 40% of the variance on reading. The effect of both factors was statistically significant. Wang, et. al., indicates the importance of fidelity of implementation of key grant components and of coaching, part of this project's professional development activities.

If the magnet schools in this project are well implemented, as determined by the evaluation described in this section, we believe that test scores of students attending project schools will be higher than those of similar students attending non-magnet schools, and that the differences will be statistically significant, an important result. This result would support the findings of Wang, et. al., that the degree of fidelity of implementation of a magnet program is related to student achievement and that attending a magnet school contributed to improved student achievement, supporting the findings of Bifulco (2009).

The total 5 year cost of this evaluation is \$637,000 or 4.2% of the total 5 year budget of \$14,993,125. This is much less than evaluation budgets for grants such as I3, which can cost as much as 10% to 15% of a budget's total. The 4.2% is also reasonable considering the research focus of part of the evaluation as well as the formative and summative evaluation components.

It is difficult to separate this exactly into the categories of rigorous evaluation, summative evaluation and formative evaluation as described in the evaluation section because of the close working relationship between UCLA CRESST and American Education Solutions. That said, however, the cost of the "rigorous evaluation," including the QED design, analysis, reporting, design of collection instruments, collection of test score data, survey design and analysis and reporting, is \$265,000 for the five years of the grant.

The cost of the formative and summative evaluation components (\$372,000 for the five

years of the grant), includes site visits and site visit reports and documentation reviews, the MGI Report, the summative reports, the collection of all data except for test scores including data related to desegregation (e.g., enrollments, applicant pool, placements) and teacher level implementation data related to the QEDs. Clearly, there is some overlap. For example, teacher level implementation data collection, including logs, interviews and unit quality rubrics will occur in schools, and their collection cost is included in the formative/summative component.

The average cost of the evaluation per year is therefore, \$127,400 for all evaluation activities. That is \$53,000 per year, on average, for the “rigorous component” and \$74,400 per year, on average for the formative and summative evaluations as described in this section.

We believe these costs are reasonable because: (1) two quasi-experimental studies are being performed to answer questions that the district feels are important; (2) the formative evaluations include site visits to five schools, and, most years, five formative evaluation reports; (3) evaluators will collect teacher level implementation data related to professional development, magnet theme units, and other activities needed for either the quasi-experimental study or the formative and summative evaluations; (4) the evaluation will look at the effectiveness of professional development at the teacher level and at the quality of the magnet curriculum including rigor. Using validated survey scales and items, the evaluation will look at school climate, instructional leadership, student engagement, magnet theme implementation, etc. (5) the evaluators are very experienced. CRESST at UCLA has done hundreds of high quality education studies. (Please see the description of CRESST and the researchers in the appendix). American Education Solutions (AES) has evaluated 61 MSAP grants since 1995 working not only with CRESST but with the Education Alliance at Brown University.