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## **Competitive Preference Priority 1—Need for Assistance**

### **(a) The costs of fully implementing the magnet schools project as proposed**

Clark County continues to seek recovery from a statewide economic downturn in 2008 that forced business and community stakeholders to reexamine infrastructure and investments in both social services and human capital. Home foreclosure rates in Clark County (1 in every 871 homes) remain nearly double the national average. The county's unemployment rate of 5.1% is above the national average of 4.8% (BLS, Jan. 2017), and its high school graduation rate of 74.2% (NV Dept. of Education, 2016) ranks below the national average of 82% (U.S. Dept. of Education, 2016). Reliance on consumer service industries such as gaming, hospitality, and construction has proven devastating due to the instability of the national economy and increased gaming industry competition in the U.S. and the world. Tax revenues lost from the highly volatile industries upon which Las Vegas depends has resulted in a harsh financial reality that has been particularly damaging to systems of public K-12 education in the state. As a result, 2016 per pupil spending averaged \$7,565 in the Clark County School District (CCSD), 36% lower than the national average, and the quality of education in Nevada continues to rank last in the nation according to Education Week's Quality Counts 2017: Report and Rankings (Education Week, 2017).

The demographic profile of CCSD has significantly changed over the last 25 years. As the most populous region of the state, Clark County is home to over 2 million residents, an increasing number of whom are low income, immigrants, or children. Of the 322,770 children who attend public schools in CCSD (the fifth largest school district in the country), 193,265 (60%) qualify for Free and Reduced Lunch (FRL), and 59,209 (18%) are English Language Learners (ELL).

Beginning with the 1993-1994 school year, the CCSD School Board adopted a voluntary desegregation/magnet plan in order to reduce minority group isolation and to provide students the opportunity to attend a school that offered a program that addressed their interests. Since 1994, CCSD has implemented magnet programs in 37 schools – 10 elementary schools, 10 middle schools, and 17 high schools. As a result, magnet school programs have contributed to the reduction of racial and socioeconomic isolation and increased academic achievement in CCSD. To continue voluntary desegregation efforts and increase academic achievement, CCSD has developed the STEM<sup>3</sup> Project to create three new magnet programs – one elementary school and two middle schools – at Roger D. Gehring Elementary School, Lied Middle School, and Mike O’Callaghan Middle School.

In order to fund the STEM<sup>3</sup> Project, the Clark County School District is requesting \$14,829,400.14 over the five-year Magnet Schools Assistance Program (MSAP) grant period to fully establish and implement new Science, Technology, Engineering, and Math (STEM) magnet programs at Roger D. Gehring ES, Lied MS, and Mike O’Callaghan MS. This cost represents investments in school infrastructure, including staffing, professional development, instructional programs and supplies, and technology.

Funding will be utilized for a project coordinator that will coordinate MSAP implementation, liaise with principals and teachers at the three new magnet schools, provide assistance for curriculum development, monitor the implementation of activities and services, further student integration and educational equity, and supervise staff development opportunities. A grant evaluator will provide technical assistance to grant programs, develop evaluation plans, and assist with data collection, data analysis, and evaluation reporting. A grant coordinator will provide fiscal oversight, complete financial reporting, and monitor for adherence to MSAP

guidelines. A magnet theme coordinator will assist with the integration of and transition to the new program at each school, plan with staff for trainings, assist with the selection of materials, and support instructional staff in planning and curriculum development. A magnet recruiter at each middle school will market the program, recruit students, and build family and community partnerships. A licensed learning strategist will support STEM-focused instruction, build supplemental project-based learning experiences, assist with assessments, and develop and implement teaching strategies at the elementary school.

A critical use of funds will be extending instruction time for students. The instructional day will extend an additional 19 minutes at the elementary school in years 2-5. These extra minutes will be used for instructional enrichment activities to support the STEM curriculum. At the middle schools, students will attend an extra class period to enhance their STEM program experience in years 2-5. Funds will be used for eight licensed teachers at O'Callaghan MS and nine licensed teachers at Lied MS to provide STEM elective opportunities.

Funding will be used for licensed extra-duty pay in which teachers will be provided professional development opportunities to integrate STEM and project-based learning throughout the curriculum. Teachers will attend a three-day Project Based Learning workshop through the Buck Institute for Education. Funding will be utilized for licensed substitute teachers to provide release time to teachers participating in professional development training, planning, and curriculum development related to this project and for support staff to assist with student recruitment and planning activities. CCSD will contract with STEM and project-based learning consultants and professional development providers, such as the Buck Institute for Education and the Flying Classroom. Registration and travel fees will be paid for administrators, coordinators, and lead teachers to attend magnet school and STEM-related conferences, including the Magnet

Schools of America (MSA) Technical Assistance Training Conference (TATC) and Project Lead the Way (PLTW) conferences.

The purchase of STEM-based instructional materials will support and enrich the magnet program experience at each school. Project Lead the Way (PLTW) instructional materials and supplies will be purchased to support instructional activities. Additional materials and instructional supplies, such as STEM kits, robotics kits, and garden supplies to create indoor and outdoor science and makerspace lab areas. Funds will be used to purchase technology supplies, including Chromebooks, Chromebook cases, and laptop carts to support digital and blended learning at each school.

Finally, funding will be allocated for a comprehensive external evaluation to produce quantitative and qualitative data related to intended outcomes and to demonstrate evidence of promise for the methods implemented in this project.

**(b) The resources available to the applicant to carry out the project if funds under the program were not provided**

Financial resources for the Clark County School District (CCSD) come from an approximate mix of 55% local, 40% state, and 5% federal revenue streams. The funding of K-12 public schools in Nevada consists of the “Nevada Plan” and Distributive School Account (DSA) funding, which includes tax revenues, bonds, interest and financing programs, state and local general funds, and federal Title funds. CCSD’s financial plan, developed within projected available resources, includes a \$2.3 billion general operating fund for an estimated 322,770 students at 361 schools during the 2016-2017 school year. Contract negotiations and agreements for administrator, licensed, and support staff salaries during 2015-2016 and 2016-2017 caused significance stress to the general operating fund and resulted in cuts to school site budgets.

Additionally, the state mandated a District reorganization requiring the reallocation of at least 85% of the general operating funds to schools, leaving a maximum of 15% for central office services and personnel.

Without the support of MSAP funds, the development and implementation of new magnet programs at Gehring ES, Lied MS, and O'Callaghan MS would be extremely difficult, if not impossible. The three schools would not be able to provide the extra staffing needed to offer the extended school day schedule or the professional development required to improve teacher quality and increase student academic achievement. Schools may be able to purchase instructional programs and supplies over time; however schools will not be able to purchase programs and supplies sufficient to meet the needs of a new magnet program or in the timeframe required to implement new magnet programs at these three schools in the immediate future. Compounding the situation is the fact that these schools currently operate well below their student capacity. Without the funding to develop these sites into magnet programs and fill vacancies with additional students, the District funds directed to the school will be significantly less over the five-year period than is projected if they become magnet schools. These schools will remain demographically isolated and will operate with fewer funds than their counterpart in other neighborhoods, due to low student numbers and the resulting per capita contributions.

**(c) The extent to which the costs of the project exceed the applicant's resources**

The requested MSAP funding of \$14,829,400.14 would provide an additional allocation of \$628.50 per pupil to develop and implement the magnet programs at the three schools. The Clark County School District is confident that, once developed, STEM3 Project magnet programs at Roger D. Gehring ES, Lied MS, and Mike O'Callaghan MS can be sustained through carefully planned allocation of existing District resources. However, without MSAP

funding to provide initial staffing, professional development, and instructional supplies, the implementation of these new magnet programs in the next five years would be exceedingly unlikely due to budget constraints. In the absence of MSAP support, the numbers of magnet applicants would continue to exceed the available seats for the foreseeable future and the District's voluntary desegregation implementation would be hindered.

**(d) The difficulty of effectively carrying out the approved plan and the project for which assistance is sought**

Clark County School District (CCSD) magnet schools must compete with private schools, charter schools, virtual schools, and other alternative school models designed to recruit students who may share common social and academic interests. The number of Las Vegas families enrolling students in charter schools has increased by 64% since 2010. (National Alliance for Public Charter Schools, 2015.) There are currently 53 charter schools operating in Clark County serving approximately 18,700 students. Of the 53 charter schools, 38 opened between 2012 and 2016. Additionally, there are 61 private schools in Clark County, 55 of which serve students in grades 1 – 8. Private schools currently serve 14,638 Clark County students in grades K – 12 (Nevada Department of Education, 2016.) In 2015 the Nevada Legislature passed SB302, establishing the Nevada Education Savings Program. SB302 authorizes the parent of a child who is required to attend school and who has attended a public school for 100 consecutive school days to enter into an agreement with the State Treasurer, according to which the child will receive instruction from certain entities and receive a grant of money in an amount equal to 90 percent of the statewide average basic support per pupil. The average basic support is approximately \$5,700 per student (Nevada Department of Education, 2017). If the child is a student with a disability or has a household income that is less than 185% of the federal poverty

level, the student will receive 100% of the statewide average basic support. These grants can be used for tuition, textbooks, tutoring, and fees at a qualifying private educational institution. The legislation is awaiting finalization and, if approved, will offer the over 8,000 Nevada families who have applied for the program, and opportunity to withdraw from the public school system in favor of a private school education (nevadatreasurer.gov, 2016).

CCSD magnet schools must offer groundbreaking curricular models to attract students and remain competitive. It is the innovative and unique curricular aspects of magnet schools that will create excitement and draw the interest and applications from new students to the schools. The terms most often used to describe the most successful magnet schools - innovative, unique, exciting - can be translated into an expensive and challenging undertaking that involves substantial financial obligations as well as a great deal of time and effort on the part of many staff members. The quality, excitement, and lure of the new magnet schools must be powerful enough to prevail over the poor reputation and negative stereotypes of these urban schools. To create these innovative new magnet programs capable of attracting magnet choice students to achieve project objectives, significant curricular enhancements must be made. As highlighted in Priority 1, Section A, MSAP funding is directly aimed at creating compelling, appealing, and innovative learning environments with unique STEM programs, proven instructional methods, and a culture of academic achievement that will create an attractive option for families in the neighborhoods where each school is located. The three school communities included in this application are prepared to accept this challenge, but they cannot bring the vision of the magnet programs to fruition without a significant infusion of resources.

Without additional funding to supplement existing financial resources, it will be difficult for the Clark County School District (CCSD) to implement Science, Technology, Engineering,

and Math (STEM) magnet school programs at Roger D. Gehring ES, Lied MS, and Mike O’Callaghan MS, and the schools will continue to operate as regular zoned schools, serving only the neighborhood children. Professional development to implement STEM, blended learning, and project-based learning at these schools will only occur if schools are able to cut costs or reallocate funds in existing budgets. Students may not receive the instruction, enrichment, or experiences that a STEM magnet program would provide.

Without magnet programs at these schools, CCSD will not be able to continue its voluntary desegregation/magnet plan to reduce, eliminate, or prevent socioeconomic and/or racial isolation.

### **Competitive Preference Priority 2—New or Revised Magnet Schools Projects and Strength of Evidence To Support Proposed Projects**

See Appendix A for full studies.

**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 standards without reservations.

Interdistrict magnet middle schools have positive effects on reading achievement. The positive effects of magnet middle schools on reading scores are statistically significant and imply that three years of exposure to a magnet middle school in the middle school years increases reading achievement between 0.093 and 0.152 standard deviation for city students and between 0.219 and 0.265 standard deviation for suburban students. Additional outcomes are that interdistrict magnet schools, on average, succeed in providing their students more integrated,

higher-achieving peer environments and that they also, on average, have positive effects on achievement suggests that they represent a promising model for helping address the ills of racial and economic isolation.

The outcomes in the evidence indicate that magnet middle schools have positive effects on reading achievement. The STEM<sup>3</sup> Project is expecting that academic achievement will increase for all students and student subgroups in the proposed magnet schools by the end of the project period.

**Relevance to Proposed Project:**

The study of Connecticut’s interdistrict magnet school program presents evidence that choice-based desegregation provides students access to less racially isolated and economically isolated educational environments and estimates the impact of attending a magnet school on student achievement. The study found that interdistrict magnet schools in Connecticut provide substantially more integrated environments than the non-magnet schools in similar parts of Connecticut and the percentage of free-lunch eligible students in the interdistrict magnet schools is also much lower than the non-magnet schools (See Figure 1 on p.329 of the study). In addition, the study demonstrates that the reading and math test scores were higher for students that attended interdistrict magnet schools than they would be if those students had attended other schools (see Table 5 on p. 335).

The evidence presented in the study supports STEM<sup>3</sup> Objective 1, which is to increase the academic achievement of all students and student subgroups and STEM<sup>3</sup> Objective 2, which is to reduce, eliminate, or prevent socioeconomic and racial isolation in the proposed schools. It is expected that the outcomes of the proposed project measures will be consistent with the outcomes of the study in demonstrating that attending a magnet school has positive effects on

academic achievement and provides students with a less-isolated learning environment.

The magnet schools that participated in the study shared common features that align with the schools in the STEM<sup>3</sup> Project. First, Connecticut magnet programs are designed to integrate students across district lines. While Connecticut consists of smaller school districts within its 5,543 square miles, the Clark County School District encompasses all of Clark County, Nevada, which covers 7,910 square miles and includes the metropolitan Las Vegas area and all outlying communities and rural areas. CCSD schools in the proposed project will offer magnet school choice across the District to integrate students. Second, participation in a magnet school is voluntary. The admission policies for the schools in the study are similar to the admission policies for the schools in the STEM<sup>3</sup> Project. Students apply to the school of their choice and are selected to attend each school through a random lottery process. Third, student race is not used in determining admission to any magnet school in the study or the STEM<sup>3</sup> Project. Students are not provided additional preference or weight in the lottery based on ethnicity or socioeconomic status.

The interdistrict magnet schools in the study serve students that would otherwise attend schools with high levels of racial and socioeconomic isolation, including higher proportions of Black and Hispanic students and students who are eligible for free lunch. The interdistrict magnet schools provide a less isolated learning environment than non-magnet schools. The CCSD schools in the proposed STEM<sup>3</sup> Project currently have higher proportions of Hispanic students and students who are eligible for free and reduced lunch (FRL) than the District average. The STEM<sup>3</sup> Project expects that the school racial and FRL populations will align with the District averages after the period of the project and schools will provide a less isolated learning environment.

**Bill & Melinda Gates Foundation. (2014). Early progress: Interim research on personalized learning. Retrieved from <http://collegeready.gatesfoundation.org/>**

**Rating:** Meets WWC standards with reservations.

Students attending the schools in the study made gains in mathematics and reading over a two year period that are significantly greater than a virtually matched comparison group and students generally ended the school year with math and reading test scores above or near the national average. The effect sizes were 0.41 for math and 0.29 for reading. Additional outcomes include positive perceptions among teachers about professional development, working conditions, and access to and use of technology conducive to implementing personalized learning practices.

The outcomes in the evidence indicate that personalized learning practices and the role of technology as an enabler contribute to the increase of academic achievement in reading and math. The proposed STEM<sup>3</sup> Project is expecting that academic achievement will increase for all students and student subgroups in the proposed magnet schools by the end of the project period and the quality of the school climate, including the number of teachers and students reporting a respectful learning environment, will improve.

**Relevance to Proposed Project:**

The RAND Corporation, on behalf of the Bill and Melinda Gates Foundation, conducted a quasi-experimental design study examining 246,617 students in grades K-12. The study presents evidence that personalized learning practices contribute to increased achievement in reading and math and increased positive teacher and student perceptions. The findings are

grouped into three categories: school design characteristics, student achievement results, and teachers' and students' perceptions of the schools.

The evidence presented in the study supports STEM<sup>3</sup> Objective 1 of the proposed project, which is to increase the academic achievement of all students and student subgroups and STEM<sup>3</sup> Objective 5, which is to improve the quality of the school climate. It is expected that the outcomes of the proposed project measures will be consistent with the outcomes of the study in demonstrating that personalized learning has positive effects on academic achievement and that an increase in positive teacher and student perception demonstrates an improvement in the quality of the school climate.

Four common elements of personalized learning emerged from the findings. Each of the schools in the study implemented one or more of the key personalized learning practices: learner profiles, personal learning paths, competency-based progression, and/or flexible learning environments. The proposed CCSD schools in the STEM<sup>3</sup> Project will implement three of the key personalized learning practices identified in the study.

**Learner Profiles:** Each school will use learner profiles so that teachers will have a record that provides a deep understanding of each student's individual strengths, needs, motivations, progress, and goals. Students will meet individually with their teacher at the beginning of the school year to develop student learning goals for the year and continue to meet regularly to reflect on progress towards those goals.

**Personal Learning Paths:** Students will follow personal learning paths and work toward learning goals through the use of technology within a blended learning model, project-based learning, independent work, and one-on-one instruction. Digital content will be utilized in core subject areas to complement teacher instruction.

**Flexible Learning Environments:** Flexible learning environments in each school will be driven by student needs and will include operational elements, such as staffing plans, space utilization, and time allocation. Classrooms will have furniture that can be easily rearranged to facilitate personalized learning. Additional staffing will allow schools to offer an extended school day schedule to enrich instruction and provide additional STEM elective options.

The schools in the study consisted of 23 public charter schools located in predominantly urban locations with 89% of the student population eligible for free or reduced lunch. The three magnet schools in the proposed project are in urban locations and a range of 59% to 83% student population is eligible for free or reduced lunch. The study served students in grades K-12, however, significant results were only evident in elementary and middle schools. The proposed schools include one elementary and two middle schools. The STEM3 Project expects that student achievement will increase and the quality of school climate will improve to be consistent with the findings of the study.

#### **Competitive Preference Priority 4— Increasing Racial Integration and Socioeconomic Diversity**

The District's definition of diversity goes beyond race and ethnicity by also taking into consideration socioeconomic status. The Magnet Department will engage in targeted recruitment efforts during the application period in order to ensure that the pool of applicants reflects the overall diversity of the District. The overall goal of CCSD's desegregation plan at the proposed magnet sites is to align the school demographics as closely as possible to the district-wide demographics for that grade level. This means reducing existing isolation at O'Callaghan MS while preventing the sharp shift toward increasing isolation at both Gehring Elementary and Lied Middle schools.

Table A: Roger D. Gehring ES Demographics vs. Target (2017-2018)

	Amer.	Asian	Black	White	Haw/	Two or	FRL%	
<b>Gehring</b>	<b>0.34%</b>	<b>11%</b>	<b>7.85%</b>	<b>38%</b>	<b>5.29%</b>	<b>27.3%</b>	<b>11%</b>	<b>56.49%</b>
<b>Districtwide</b>	<b>0.32%</b>	<b>5.26%</b>	<b>14.31%</b>	<b>47.02%</b>	<b>1.53%</b>	<b>24.5%</b>		<b>56.05%</b>
<b>% change at site</b>	<b>0%</b>	<b>-3.08%</b>	<b>+1.26%</b>	<b>+9.24%</b>	<b>-4.24%</b>		<b>-.038%</b>	<b>+20.45%</b>

CCSD selected Gehring ES to become a magnet school because the percentage of African American and Hispanic students enrolled in Gehring ES is below the elementary district-wide average of African American and Hispanic students, and because of a sharp decline in enrollment of White students since the school opened. The goal over the five-year grant period is to increase the percentage of African American and Hispanic students enrolled in Gehring ES to reflect the district-wide elementary percentages of African American and Hispanic students, and to reverse the trend toward racial isolation by stabilizing the percentage of White students enrolled at Gehring.

Table B: Lied MS Demographics vs. Target (2017-2018)

	Amer.	Asian	Black	Hispanic	Haw/	White	Two or	FRL%
Lied Middle	0.39%	3.95%	20.6%	34%	2.27%	29%	9.58%	59.1%
Middle	0.4%		13.67%	46.63%	1.66%			56.05
site since		-1.57%		+17.79%	-1.66%			

CCSD selected Lied MS to prevent the racial and socioeconomic isolation that is projected to occur based on a significant decline in the number of White students over the last 10 years while increasing the number of African American and Hispanic students enrolled at Lied to align the school’s demographics to the district-wide middle school proportions.

Table C: Mike O’Callaghan MS Demographics vs. Target (2017-2018)

	Amer.	Asian	Black	Hispanic	Haw/	White	Two or	FRL%
O’Callaghan	0.22%	2.5%		71.2%	.97%	12.6%	3.9%	83.14%
Districtwide	0.4%	6.66%	13.67%	46.63%	1.66%	24.82%	6.16%	56.05%

<b>% change at site since 2004</b>	<b>-1.08%</b>	<b>-5%</b>	<b>-6.81%</b>	<b>+37.87%</b>	<b>-0.69%</b>	<b>-30.31%</b>	<b>-0.56%</b>	<b>+38.72%</b>
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CCSD selected O’Callaghan MS because the percentage of African American, White, and Hispanic students enrolled in O’Callaghan MS is significantly below or above the district-wide average. The goal over the five-year grant period is to increase the proportion of African American and White students enrolled in O’Callaghan MS to more closely reflect the district-wide middle school demographics.

In determining who will be admitted to each magnet program, the CCSD will analyze the applicant pool for each school at the close of the application period. If diversity of the pool for a school reflects the diversity of the CCSD and the number of applicants matches the number of seats available in the school, the CCSD will admit all students. If the number of applicants for a school is greater than the seats available in that school and the pool of applicants reflects the diversity of the CCSD, the CCSD will utilize the lottery process to determine who is admitted.

CCSD’s lottery process takes diversity factors into consideration while determining admission to each of its magnet programs. In addition, the lottery will continue to give preferences for students that have attended a magnet school (feeder preference), sibling preference, and a geographic preference for those students living in a defined proximity to the school determined by the Zoning and Demographics Department.

To ensure targeted recruitment is resulting in desired outcomes, CCSD will review and analyze every magnet school’s application pool at the end of the selection period. This review and analysis will include review of the diversity of the pool for each school and consideration of whether there are any barriers for minority students, English Language Learner students, and

special needs students. It also will include an analysis of the efforts made by the individual schools including reflection and feedback on their required yearly targeted recruiting plans that are monitored by the Magnet and Legal Departments. If there are matters to be addressed despite efforts being made and the applicant pool is not reflective of the CCSD, the legal department will seek guidance from CCSD legal consultant Maree Sneed to determine additional ways of attracting a diverse applicant pool and whether other means of communicating about the magnet programs would be effective. Ms. Sneed is a partner at Hogan and Lovells Law Firm in Washington, D.C. with an extensive background in representing school districts in desegregation legal issues, and has provided regulatory advice and litigated cases for clients in federal, state, and appellate courts.

## **Project Narrative**

### **(a) Desegregation**

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

It is an organizational philosophy of CCSD that racial and socioeconomic integration promotes better outcomes for all students. Since the CCSD began implementing magnet programs in 1994 as part of the voluntary desegregation plan, the District has evaluated the success of its magnet programs through formal and informal evaluations. These evaluations have shown that the CCSD has been successful in desegregating the schools in which it has implemented magnet programs. In 2009, the District commissioned an evaluation of its Prime 6 plan by Dr. Gary Orfield and the UCLA Civil Rights Project. Following that review, the CCSD convened a panel of desegregation experts (including Dr. Orfield) to review the findings report

and recommend next steps. These next steps included considering implementing additional magnet programs for schools in the West Las Vegas area. An International Baccalaureate Primary Years Magnet Program (PYP) was started at Kit Carson ES in the West Las Vegas area in 2011. In 2014, the CCSD was experiencing a large number of magnet student applications with limited seats available, prompting the expansion of magnet programs to increase access to engaging curriculum, enhance learning, and expand choice for families. Over the next two years, the CCSD phased in 12 additional magnet school programs in STEM, Fine and Performing Arts, and International Baccalaureate across the District, adding approximately 4,000 seats.

In developing the revisions to its voluntary plan, the CCSD took into the findings from Dr. Orfield's study, the recommendations from the panel of desegregation experts, the District's evaluations of its magnet schools and programs, the demographics of the District and its schools, the Guidance on the Voluntary Use of Race to Achieve Diversity and Avoid Racial Isolation in the Elementary and Secondary Schools, and the MSAP grant requirements. To continue voluntary desegregation efforts, the CCSD's STEM<sup>3</sup> Project will implement three new magnet programs – one elementary school and two middle schools. The District will implement new STEM magnet programs at Roger D. Gehring ES, Lied MS, and Mike O'Callaghan MS. Each of these programs is designed to provide opportunities for students to attend schools with peers from diverse backgrounds; reduce, prevent, or eliminate minority group isolation in each of these schools; and provide students the opportunity to attend schools with themes that address their particular needs and interests.

Qualitative research from three urban school districts in Boston, New York, and Philadelphia provide additional insight into school preferences in urban areas and suggest under what conditions parents send their children to diverse public schools. Interviews with parents in

New York City public schools revealed that parents often chose to send their children to neighborhood public schools when the schools offered specialized programs for their children (Urban Institute, 2015). The CCSD has effectively used a magnet school choice model to reduce, prevent, or eliminate racial and socioeconomic isolation as evidenced by a reduction in minority group isolation at 34 of 36 CCSD Magnet schools. All CCSD Magnet schools have maintained socioeconomic enrollments within 2% of the District average through the current school year. The District goal is to recruit a diverse applicant pool for each magnet school that reflects the actual diversity of the District. The CCSD defines diversity to include: race/ethnicity, socioeconomic status, geography, English Language Learners, and special education. Based on previous effective desegregation through implementation of current CCSD Magnet programs, as well as evidence presented in a study on effective desegregation through the implementation of magnet programs in Connecticut (Bifulco, Cobb, and Bell, 2009), CCSD views school choice as an integral factor in the reduction, elimination, and prevention of minority and socioeconomic isolation and the promotion of academic achievement among all students. STEM<sup>3</sup> Objectives 1 and 2 are directly tied to desegregation efforts.

As required by the MSAP guidelines, the CCSD has developed a broad range of strategies to recruit students from diverse backgrounds. Recruitment through community education and awareness will be a priority, particularly for the STEM<sup>3</sup> Project programs. CCSD believes that knowledge of STEM career opportunities and career compensation will appeal to potential applicants and magnify the importance and impact of participation in STEM magnet schools. In alignment with STEM<sup>3</sup> Objective 6, increased participation in and positive perceptions of STEM education, recruitment literature and materials will emphasize the importance of STEM education as a gateway to high-compensation STEM employment. In the

Brookings Institute’s 2014 report entitled “Cracking the Code on STEM: A People Strategy for Nevada’s Economy,” researchers indicate that “Growth in some of Nevada’s more STEM-oriented target sectors—such as Business IT Ecosystems and Health and Medical Services—is beginning to challenge the state’s ability to deliver an adequate supply of both blue collar and professional STEM workers.” The report goes on to offer strategies to combat this deficit, which include “...support the creation and replication of effective STEM education strategies throughout the state..., incorporate computer science into the P-12 curriculum, and support high-quality, ongoing professional development for P-12 STEM educators.” The vision for current CCSD STEM magnet programs as well as the three proposed new programs aligns with the scope of the Brookings Institute research on the future of STEM in Nevada. The community is becoming aware of the need for a trained STEM workforce in Nevada and the importance of STEM education in CCSD schools to build a pipeline from school to work. Continuing to incorporate this type of statistical data and educational information in recruitment materials will emphasize the benefits and maximize appeal to parents through STEM opportunities.

Recruitment materials are available in both English and Spanish. Additionally, the CCSD Magnet Department website and online Magnet Application utilize Google Translate to provide over 80 languages for translation. With the push of a button, the magnet application and all related school information will be translated into the language selected. To ensure access for all families, recruitment materials and applications are available both online and as paper documents. Additionally, schools will continue to provide availability to computer labs during school hours for family computer access. Paper materials and applications will be available at all community recruitment events, all magnet school campuses, at the District magnet office, and made available for download on the Magnet Department and school websites.

The CCSD Magnet Department and Magnet Schools continually strive to raise parent awareness of magnet program options through the use of a two-tiered recruitment approach. This structure is designed to offer equal access to magnet school information and application policies to all families in the CCSD, to support targeted recruiting to build a diverse applicant pool, and to provide a yearly “review and revise” system to address District and individual school goals. Gehring, Lied, and O’Callaghan will participate in all CCSD Tier 1 and Tier 2 recruitment efforts as well as employ additional strategies and tactics to focus on the need to strengthen the schools’ branding infrastructure and develop a comprehensive approach to relationship marketing by addressing these four areas: consistency, visibility, relationships and vision. The current comprehensive outreach, marketing, and recruitment plan for both Tier 1 and Tier 2 efforts are reviewed and revised on an annual basis. End-of-Year application statistics are reviewed by the Magnet Department, individual schools, and the Legal Department to assess the overall effectiveness in meeting identified targets. Additionally, all applicants provide information on the means by which they were made aware of magnet programs to assess the overall effectiveness of marketing and outreach efforts. When it is noted that recruitment efforts are not achieving desired results, District and/or school magnet personnel work with community leaders in targeted areas to restructure efforts, including magnet school representation at community events already scheduled in targeted areas (back to school fairs, family nights, school events), strengthening relationships with community leaders who represent targeted demographics, and enhanced partnerships with schools in targeted neighborhoods to offer school tours or informational breakfasts for target school counselors, teachers, administrators, and families.

Tier 1 recruiting efforts aim to educate and inform CCSD families about magnet schools as a vibrant and attainable school choice option for elementary, middle, and high school. There are 356 schools in the CCSD, 37 of which are magnet schools – 10 elementary, 10 middle, and 17 high schools. At these 37 magnet schools, 140 unique programs are offered. The addition of the STEM<sup>3</sup> schools, Gehring ES, Lied MS, and O’Callaghan MS, would bring the totals to 40 magnet schools – 11 elementary, 12 middle, and 17 high schools. Gehring, Lied, and O’Callaghan will be promoted heavily in the CCSD Magnet Department’s Tier 1 recruiting efforts. During each year’s recruiting season (September – January), the CCSD Magnet Department disseminates information to the community through a variety of means including Magnet Fairs, Heart of the City parent informational workshops, targeted mailers, Family and Community Engagement seminars, Back to School Fairs, and a robust information guide and website. Magnet Fairs are large-scale events designed to showcase the District’s magnet schools. School displays include handouts and information about their unique programs, examples of student work, student performances, meet-and-greet opportunities with school administration, teachers, and students, and often include hands-on opportunities for prospective students to explore program-related activities and experiences. Magnet Fairs are held twice per recruiting season and are held at different locations throughout the community. Fairs have been held at local malls, community centers, and high school gymnasiums and are scheduled in both urban and suburban neighborhoods, each targeting a different demographic. New magnets Gehring, Lied, and O’Callaghan will be mentioned specifically in all Magnet Fair advertising materials.

Heart of the City Parent Workshops are held 4 – 7 times per recruiting season at community centers or libraries in a variety of neighborhood across the valley. The workshops include a presentation given by District magnet personnel, which provides general information

on magnet schools and program strands, a look at all CCSD magnet schools, and an in-depth explanation of the application and selection process. Parents are then able to interact directly with participating representatives from the magnet schools. Workshop locations are chosen to directly target families in each quadrant of the Las Vegas Valley (north, south, east, and west), as well as both upper and lower socioeconomic areas of town. Magnet school personnel have the freedom to determine which workshops they will attend, based on the individual targeted recruiting plans developed by each school. Plans are developed at the conclusion of the previous school year after each school examines the recruitment data for that year including application trends with regard to socioeconomic, ethnic, gender, ELL, FRL, and special education subgroups. Gehring, Lied, and O’Callaghan will be represented at all Heart of the City events in the planning year and implementation year 1. In subsequent years, Gehring, Lied, and O’Callaghan will determine which workshops to attend to best meet their targeted recruitment goals and MSAP STEM<sup>3</sup> Project objectives. Heart of the City Parent Workshops are presented both in the evening and during the day to address the varying availability of parents and guardians in Las Vegas, a city where there are a number of occupations with non-traditional (9 – 5) work hours. Additionally, a Heart of the City workshop is presented entirely in Spanish, including a Spanish language PowerPoint presentation, Spanish-speaking workshop presenter, and Spanish-speaking representatives from participating schools to address the needs of Clark County’s largest ethnic subgroup. Finally, multiple Heart of the City parent workshops are offered online, using GoToMeeting, to meet the needs of parents or guardians who may find it easier to attend a workshop from home or on their lunch hour at work.

Targeted Mailers are crafted by the District Magnet Department on behalf of a school or schools that may wish to reach a particular demographic. Targeted mailers may be sent as an

invitation to an open house or other school event or simply used as a means to promote a particular school or program to a desired segment of the community. Targeted mailers will be created by the District Magnet Department staff to advertise the magnet school conversion of Gehring, Lied, and O'Callaghan in the planning year.

The CCSD Title I Family and Community Engagement Services (FACES) Department and District magnet staff partner to offer parent workshops at FACES centers across the Las Vegas Valley. FACES centers provide families the opportunity to improve family capabilities by establishing and nurturing relationships to focus on the goal of student achievement. The centers offer parents and families academic support, classes, and workshops in a variety of topics and access to community resources. They are located at twelve elementary schools, usually in the more disadvantaged neighborhoods in the city, often those with high percentages of minority subgroups. FACES Magnet workshops include the District Heart of the City presentation followed by a session during which parents can complete a magnet program application with District magnet personnel present for guidance if needed. Additionally, District Magnet Department personnel attend the annual FACES Family Enrichment Day, which offers family-focused workshops on topics such as student achievement, literacy, STEM education, career planning, student engagement, and additional education-related themes to families in underserved neighborhoods. District Magnet Department personnel provide information on the Magnet school application and selection process. In the planning year, District Magnet Department staff will work with FACES to schedule workshops at centers nearest to Gehring, Lied, and O'Callaghan.

The CCSD partners with Cox Communications to offer four Back to School Fairs in the weeks leading up to the start of each school year. The Fairs are held at local malls in each

quadrant of the Las Vegas Valley and target all demographics. Families are provided with resources and information on a variety of topics including Equity and Diversity, FACES, Magnet Schools, Registration, Transportation, Online and Blended Learning opportunities, Zoning and Demographics, and other pertinent topics. The new magnet schools will be promoted at the Back to School fair prior to the implementation year.

The CCSD Magnet Department publishes a yearly robust information guide, which includes a history of Magnet Schools in Clark County, overview of the magnet application and selection process, information on program classifications (STEM education, International Baccalaureate, Arts Academies, and Career and Technical Education) as well as brief descriptions including maps and contact information for all 40 magnet schools. The information guide is available at all Magnet Fairs, workshops and other events described above, and is additionally available at all magnet schools. The guide is available for download on the CCSD magnet department website ([magnet.ccsd.net](http://magnet.ccsd.net)), which provides all information available in the guide as well as information on all upcoming events and application deadlines. Through the use of Google Translate, the CCSD magnet website can be translated in over 80 languages. The 2017 CCSD Magnet Informational Guide will be available in both English and Spanish.

Additional Parent Information Nights will be scheduled to promote the three proposed new magnet programs at Gehring, O'Callaghan, and Lied. These parent information nights will be scheduled both on the school campuses and at community centers near each school in order to provide families, community members, and other stakeholders with information regarding the new magnet programs. Representatives from the District Magnet Department and from each individual STEM<sup>3</sup> school will present at the parent nights. These events were held for each

school during the CCSD's recent 12-school magnet expansion program and were paramount in educating the community about each school.

Every year, each CCSD Magnet School completes a targeted recruiting plan to frame the school's Tier 2 recruiting efforts. Tier 2 efforts are conceived, organized, and executed by individual schools to address recruitment goals unique to each school. Recruitment goals are based on review of the previous year's application and enrollment data, and include both broad (increase the number of female applicants) and specific (increase the number of African American applicants by 2%) measures. Targeted plans then include the means by which schools intend to achieve their identified goals. Strategies to "increase the number of female applicants" included "showcase female students in photographs used on all marketing materials and school website, highlight yearly Disney musical and school fairy garden on all parent tours and open houses, and hold an on-site, girls-only open house event." Strategies to increase the number of African American applicants included "schedule lunchtime visits at six elementary schools in neighborhoods identified as having a high percentage of African American residents, send informational postcard and open house invitations to families in identified neighborhoods, and showcase African American student ambassadors at recruiting fairs, open houses, and parent nights." Tier 2 recruiting efforts for Gehring, Lied, and O'Callaghan will be framed by the MSAP STEM<sup>3</sup> project objectives and performance measures in years 1 – 5, becoming more aligned with unique school goals as each school evolves and develops in years 3 – 5 and beyond. Shadow Days are offered by many CCSD magnets as a way for prospective students to experience a typical magnet school day. Applicants schedule a day or portion of a day to attend all or some classes alongside a current magnet student. Shadow days are implemented in a variety of ways, with some schools opting to schedule individual shadow students as requested,

others scheduling all shadow visits on the same day each week, and others arranging a bus for students from one particular school to come as a group for a shadow experience on one day. Exit interviews and surveys from participating prospective students indicate that the shadow experience is often the deciding factor in choosing a magnet school. Similarly, Open Houses are offered by all CCSD Magnets. All schools offer multiple open house events, scheduled at a variety of hours to accommodate working families. Open houses are structured in a multitude of ways, including a welcome from the principal, and overview of the school and program, school tours, student speakers, performances, or demonstrations, and interactive activities for prospective students. Parents are often given the opportunity to submit a magnet application on-site at an open house event. CCSD magnet schools typically host between three and ten open house events during the September – January recruitment season. Gehring, Lied, and O’Callaghan will each host a minimum of six open house events and/or parent informational nights in both the planning and implementation years.

School Tours are offered at all CCSD magnet schools. Tours are facilitated by personnel at each school site, and are implemented in a number of ways. Student tours are typically scheduled by school magnet personnel working in conjunction with school staff from targeted feeder schools to arrange a tour during the school day for a group of students from a particular school or schools. Students are shown the campus, visit classrooms in small groups, participate in a program-related activity, and may even be served lunch. Parent tours or Parent/Student tours may be scheduled by appointment only or may be offered at an appointed time (every Wednesday at 2:00) and typically include a tour of the campus, classroom visits, and interaction with school staff and students. School tours may be conducted by magnet student ambassadors, the magnet coordinator, principal or other administration, magnet teachers, or a combination of

these.

On-site activities are offered at many magnet schools as part of targeted recruiting efforts. Engineering camps, math camps, girls-only open houses, and summer institutes are some examples of on-site activities CCSD Magnet schools have offered. Camps and institutes provide hands-on experiences in school program areas. Camps are offered as an organized field trip during the school year, either on evenings or Saturdays. Middle school summer institutes often target 4<sup>th</sup> grade students rising to 5<sup>th</sup> grade, as the 5<sup>th</sup> grade year is when students apply to attend middle school. Many STEM programs host girls-only open houses, targeted at attracting female students and their parents to explore STEM education. Current female magnet students interact with prospective applicants and their families to offer insight into their own experience as a female STEM student. Schools have the flexibility to tailor Tier 2 activities to address individual recruitment goals. Shadow day, school tour, and on-site activity norms for Gehring, Lied, and O'Callaghan will be established by the School Magnet Team in the planning and implementation year; however, school tours for parents, students, families, and community members will regularly be given at each new magnet school during the planning year as part of additional recruitment goals for new magnet schools.

The three new STEM<sup>3</sup> magnet schools will have additional recruitment goals related to the establishment and introduction of new programs (Appendix B). In the CCSD's most recent 12-school magnet expansion which occurred over a three-year period from 2014 – 2017, new magnet school recruitment goals focused on the promotion of new magnet school conversions and educating the community about school program offerings. Activities included parent information nights at both school campuses and at libraries and community centers, multiple Open House events for families and community members, participation in open houses, parent

nights, and other community events at neighborhood feeder schools, and mailing postcards, flyers, and informational packets to feeder school families. The new magnet school recruitment goals for Lied, Gehring, and O'Callaghan are:

*Goal 1: Scream the Theme: Educate the community about new Magnet Programs*

*Goal 2: It Takes a Village: Build Relationships with Target Audience*

*Goal 3: If You Build it, They Will Come: Develop Awareness, Pride, and Excitement*

*Goal 4: Believe and Achieve: Empower Magnet Leaders at the School and Community Level*

**(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**

For nearly 25 years, the CCSD has had success in creating and maintaining effective magnet schools of choice. The District's voluntary desegregation plan has resulted in the implementation of high-quality thematic programs at 37 schools in all across the Las Vegas valley. Since the CCSD began implementing magnet programs, District officials have evaluated the success of CCSD magnet programs through formal and informal evaluations. These evaluations have shown that the District has been successful in desegregating the schools in which it has implemented magnet programs and that the reduction of racial isolation in these schools has been significant. New magnet programs at Lied and O'Callaghan Middle Schools and Gehring ES would assist in reducing, eliminating, and preventing the current and impending racial isolation within the student population at these sites. The overall demographics of the CCSD have changed significantly over the last 25 years. In 2000, 44% of the District's students were White and 33% were Hispanic. As of 2016, the numbers have reversed, with just over 45%

Hispanic students and 26% White. Hispanic numbers are rising at twice the rate that the White student population is declining (CCSD Zoning and Demographics, 2013/2016). Reflective of this district-wide change, both Gehring and Lied have experienced a drastic shift in demographics over the last 15 years.

In 2014, the Urban Institute hosted a convening of housing and education policy experts, researchers, and practitioners to bring critical attention to the research and policy implications of school choice and changing neighborhood demographics. Participants agreed that, as the literature suggests, parents need incentives to enroll children in schools within revitalizing neighborhoods. They also confirmed previous studies that flexible hiring practices, principals, pedagogy, and curriculum can close the divide between gentrifiers and longtime residents within a school (Urban Institute, 2015). While current school enrollment is reflective of district-wide diversity, demographic data projects that Gehring and Lied will have a substantial minority population in the immediate future. The proposed new magnet programs at each of these schools would provide an incentive (each school's unique STEM program) for parents of White students to maintain enrollment at the schools and prevent projected minority isolation. O'Callaghan is currently enrolled with substantial minority student populations. The proposed programs at these schools would reduce or eliminate current isolation as well as prevent further minority isolation in the future. The implementation of robust STEM programs, in tandem with targeted recruiting will ensure that the current enrollment trends at the three schools are reversed and that the student enrollment at MSAP schools would more closely align with the District demographics.

The selected magnet STEM themes at all three schools represent innovative curricula with instructional approaches that motivate students to participate in a wide variety of learning projects and activities, aligning with STEM<sup>3</sup> Objective 6. These magnet themes epitomize the

wide range of STEM-related interests that can guide students to become knowledgeable, creative, and well- rounded citizens of the world. Statistics from the U.S. Bureau of Labor indicate that last year there were over 600,000 tech jobs open across the U.S. By 2018, 51% of all STEM jobs are projected to be in computer science and coding related fields. A growing number of industries, including transportation, healthcare, education, and financial services, use software to transform their products and services. In fact, more than two-thirds of all technology jobs are outside the technology sector. Yet, the “leaky STEM pipeline” acknowledges that students who are Black and Hispanic, and women of all colors, leave science, technology, engineering and math as they progress through their educational careers. A new study indicates that a hole in the STEM pipeline may start as early as elementary school (The Hechinger Report, 2016). Many underserved children enter school with a low level of general knowledge and tend to falter in STEM courses throughout school. The proposed STEM programs at Lied, O’Callaghan, and Gehring will be an accessible choice for students of all backgrounds who are seeking unique and innovative learning environments with opportunities not available in traditional schools.

Fostering interaction within each magnet school for students from different social, economic, ethnic, and racial backgrounds begins with the recruitment of a diverse pool of applicants. All CCSD students have an equal opportunity for selection into a magnet program, regardless of socioeconomic, gender, ethnicity, ELL, or special education status. CCSD Magnet Program recruiters use a myriad of targeted recruiting strategies to increase the number of applicants in desired demographics. These strategies include targeted mailers, school visits, open houses, parent and community information nights, and require continual review of application and enrollment data with ongoing revision to strategies as needed.

The CCSD is fully committed to providing all students a high-quality, inclusive educational experience. Each proposed STEM<sup>3</sup> magnet school will be free of stereotypical patterns and functions that could be a barrier to open participation by students of different backgrounds. Extensive professional development will enhance instructional practices that meet the needs for differentiation, access, inclusion, and achievement. The innovative magnet themes will be motivational to students from a wide variety of backgrounds that come together out of interest and choice. Historically, magnet schools have taken on a significant role in promoting visionary school reform that values a diverse student body as a starting point for the delivery of meaningful, scaffolded academic programs. The value of diversity in the school population is more than simply recruiting a diverse student population, and it goes beyond merely having diverse students in classrooms. Diversity becomes meaningful when there is a school-wide commitment to seeking out the greatest strengths of all learners in the school's population: learners from different social, economic, racial, and ethnic groups, learners of different background skills and languages, and learners who manifest intelligence differently. As the magnet schools become more diverse, the children of different racial, ethnic, and social backgrounds will interact through the school day and after school. They will be scheduled in the same classes, the same learning groups, the same lunch times, the same elective classes, and the same extracurricular activities or after school clubs. This project will strive for both equity and excellence through integrated schools and classrooms, with teachers trained to use strategies that have proven to foster the interaction of students during the school day.

The first step in ensuring the interaction of students from different racial, social, and economic backgrounds is to put them in the same classes. To accomplish this heterogeneous grouping, the new magnet schools will avoid "ability" as the sole criteria for scheduling classes.

Each school will prioritize heterogeneous grouping, so that all class enrollments reflect that grade level's enrollment for each of the major subgroups, leading to school and class enrollments that reflect the makeup of the District as a whole. The principal and lead teachers of each magnet school will monitor student participation within classrooms to ensure participation of students with varied backgrounds as represented within the school. Monitoring will occur regularly to remedy any imbalances that do occur as soon as they are apparent. Heterogeneous grouping presents challenges - even to teachers who are deeply committed to equity principles. With teachers at the center of these efforts to provide inclusive, effective learning opportunities for all students, this project recognizes its dependence on meeting the needs of teachers as well as students. To provide support for staff in managing diversity, teachers will receive technical assistance in their ongoing professional development during weekly Site-Based Collaboration time on topics to include culturally responsive teaching, learning styles, inclusive classrooms, and differentiated instruction. The STEM<sup>3</sup> schools will partner with the CCSD Equity and Diversity Department to provide ongoing cultural competency awareness professional development.

Differentiated instruction will be used to provide multiple paths so that students of different abilities, interests, or learning needs experience equally appropriate ways to absorb, use, develop, and present concepts as part of the learning process. It allows students to take greater responsibility and ownership for learning and provides opportunities for peer teaching and cooperative learning. Blended and personalized learning will be implemented at all STEM<sup>3</sup> schools to facilitate effective differentiation, including the development of a Learner Profile and Personal Learning Path for each student (Bill and Melinda Gates Foundation, 2014). In preparation for differentiation, the teacher diagnoses the differences in readiness, interests, and

learning styles of all students in the class using a variety of performance indicators. 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. Magnet school teachers will orient their pedagogy and curricula around differentiation as a means of advancing all learners.

Within classrooms, magnet school students will study, solve problems, and design projects in small, cooperative instructional groups as a strategy to bring together students of different backgrounds and to offer more prospects for students to learn from and to teach one another. Challenging project-based learning in cooperative learning teams will create environments in which all students are encouraged to be full and contributing members. Cooperative learning most often involves heterogeneous teams of students of different academic levels, working together toward a group task in which each member is individually accountable for part of an outcome that cannot be completed unless the members work together, thus making the group members positively interdependent. When students learn to work cooperatively in groups, they have a chance to explore ideas, justify views, and synthesize knowledge within the supportive group environment. These heterogeneous groups ensure that students are learning together in a respectful, courteous, and democratic environment. The STEM curriculum designed for each magnet school will be structured to give students choices of learning projects in which to participate. Projects, performances, presentations, and other activities will be planned purposely to bring groups of students from different backgrounds together in classrooms, in grade levels, in learning activities, and throughout the entire school to interact in a positive manner. Meaningful project-based learning features real-world context, tasks and tools, quality standards, or impact – or speaks to students’ personal concerns, interests, and issues in their

lives. Project-based learning is a teaching method which allows students to gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge. To that end, teachers will receive ongoing, robust professional development from the premier institute in providing Project Based Learning (PBL) training – the Buck Institute for Education – in order to become equipped with the expertise needed to facilitate high-quality project-based learning experiences for students.

Just as common interests bring students to apply for the magnet schools in the first place, students learning together on a common project will also find themselves with others of all backgrounds who share their interests. This will encourage diversity in relationships as students develop a respect for their peers and recognize them as individuals who share their interests.

**(3) How it will ensure equal access and treatment for eligible project participants who have been traditionally underrepresented in courses or activities offered as part of the magnet school**

The size and complexity of the STEM workforce has grown by leaps and bounds. Data from the U.S. Bureau of Labor Statistics indicates that employment in occupations related to STEM—science, technology, engineering, and mathematics—is projected to grow to more than 9 million between 2012 and 2022. Last year, there were over 600,000 tech jobs open across the US. By 2018, 51% of all STEM jobs are projected to be in computer science and coding related fields. The Federal government alone needs an additional 10,000 IT and cybersecurity professionals, and the private sector needs many more. A growing number of industries, including transportation, healthcare, education, and financial services, use software to transform their products and services. In fact, more than two-thirds of all technology jobs are outside the technology sector. Yet students who are Black and Hispanic, and women of all colors,

leave STEM as they progress through their educational careers (Hechinger, 2016). Many underserved children enter school with a low level of general knowledge and tend to falter in STEM courses throughout school. Providing access to computer science and coding is a critical step for ensuring the nation remains competitive in the global economy and strengthens its competitive edge. Despite the critical importance of access to rigorous STEM courses, the most recent survey from the Department of Education's Civil Rights Data Collection shows that 25% of all K-12 schools in the U.S. offer computer science with programming and coding. Educators and business leaders increasingly agree that computer science and coding are the "new basic" skills necessary for economic opportunity and social mobility. Furthermore, 90% of parents surveyed last year say they want computer science taught at their child's school. They understand that today's elementary, middle, and high school students are tomorrow's engineers, entrepreneurs, and leaders who must be equipped with strong computational thinking skills and the ability to solve complex problems (Hechinger, 2016). STEM education is a priority in the CCSD. For example, the District's Code.org Initiative was established in order to increase awareness of computer science-based careers and to encourage more students of underrepresented minority and gender populations to pursue STEM education. Through the initiative, over 650 K-5 teachers received training on how to integrate the Code.org curriculum into the classroom as a means to expose students to technical education at an early age. Thanks to positive experiences with coding in the early grade levels, interest levels in computer science and coding have spiked among CCSD students. As a result, an Exploring Computer Science course was developed and is now offered at many CCSD middle schools. Additionally, AP computer science is offered at an increasing number of high schools in order to provide a natural progression in computer science for interested students.

Another measure taken by the CCSD to promote interest in STEM education for female students is the Girls in Tech Initiative. The CCSD seeks a more welcoming environment for female students in the area of STEM education. Incorporating STEM and Technology programming into curriculum that engages girls earlier in their elementary, middle, and secondary school education will help shift the classroom dynamic away from the existing male-majority norm. Supporting interdisciplinary STEM projects, such as using computer programming in an art or science class to process a data set into a visual representation of an infographic, will give female students a better understanding of how these subjects are used in real life. As a result, the District is seeing an increase in female students participating in STEM-related magnet and other specialized programs.

The demand for STEM programs in CCSD schools is increasing. The proposed STEM programs at Lied, O'Callaghan, and Gehring provide an accessible choice for students of all backgrounds who are seeking unique and innovative learning environments with opportunities not available in traditional schools. Through the implementation of innovative programs and recruiting efforts, these three new magnet programs will reduce, eliminate, or prevent socioeconomic and racial isolation at the three schools as well as increase female and minority participation in STEM education, aligning directly with STEM<sup>3</sup> Objective 6. Authentic STEM experiences will be a common thread in all three schools, in response to the calls from the industry and community, as well as alignment to the higher education. To assure attractiveness of the new STEM-rich programs to diverse populations, each program will adopt a variety of themes uniquely supported by the STEM backbone, allowing students to transfer knowledge and apply science, technology, engineering, and mathematics within various contexts. This is particularly important in assuring that all demographic groups, including those traditionally

underrepresented in technology, engineering, science, and math careers, develop understanding of applicability of STEM in their interest areas and choices of the future.

It is the goal of the CCSD to provide all interested students equal access to magnet programs. CCSD magnet program recruiters use a myriad of targeted recruiting strategies to increase the number of applicants in desired demographics. These strategies include targeted mailers, school visits, open houses, parent and community information nights, and require continual review of application and enrollment data with ongoing revision to strategies as needed. Selection criteria for CCSD magnet programs at both the middle school and elementary school level are interest based. There are no academic criteria for selection to a magnet school. Students are selected through a blind lottery process. Therefore, all CCSD students have an equal opportunity for selection into a magnet program, regardless of socioeconomic, gender, ethnicity, ELL, or special education status.

Equity is a critical issue, and it is critical to the design of this MSAP proposal. This project initiative has been designed to take advantage of the wisdom of CCSD's professional educators, students and families, communities and businesses, and others who have shared their advice on maximizing conditions to ensure true equity in teaching approaches and learning experiences that truly appeal to students of all backgrounds. This project is designed to provide the necessary scaffolding to attract students of all backgrounds to these three magnet schools, equip students at each school to take advantage of and succeed in the innovative academic opportunities made available, and raise achievement levels for all. Additionally, magnet schools have been shown to "succeed in providing their students more integrated, higher-achieving peer environments and that they also, on average, have positive effects on achievement suggests that they represent a promising model for helping to address the ills of racial and economic isolation"

(Bifulco, et. al., 2009). These proposed magnet schools will be challenging, innovative, and attractive to the District's highest achievers; but they must also break the old remediation paradigms to ensure that all students can achieve and be successful through these same innovative and inspiring educational opportunities.

District and school magnet personnel will actively recruit girls for participation in STEM classes, competitions, and extracurricular activities by scheduling girls-only open houses, summer programs, and school visits, providing hands-on STEM activities at targeted recruiting events, and showcasing female STEM students during all recruitment activities. Current female STEM students will receive encouragement to sustain interest in STEM through programs such as the Girls in Tech initiative, working with community partners to provide professional women mentors for girls, featuring female engineers and other professionals as speakers, engaging girls in long term STEM collaborative projects of their interest, and collaborating with after school programs and community organization to provide STEM activities to recruit and retain girls. These efforts directly address STEM<sup>3</sup> Objective 6, enhancing perceptions of STEM education and increasing participation in STEM activities.

District and school magnet personnel will actively recruit a diverse student population by scheduling recruitment events in targeted neighborhoods, working with community leaders to educate targeted demographics about magnet school opportunities, offering Spanish language materials and workshops, using Google translate on school and magnet websites to allow for use in over 80 languages, and showcasing diverse student and faculty recruiters at all open house and information events. School curriculum will include contributions of diverse individuals within content areas, provide diverse students opportunities to participate in academic and STEM competitions and teams, provide tiers of support systems, match students with mentors with

whom they can identify, and hold high expectations of all students. Magnet school administrators will strive to recruit diverse faculty and provide teachers with training and support for reaching diverse students.

Faculty at all magnet schools will receive ongoing cultural competency training from the CCSD Equity and Diversity Department. In order to address the needs of District ELL populations, the CCSD has implemented an ELL Master Plan after extensive research, town hall meetings, focus groups, classroom visits, and a district-wide survey. The Academic Language and Content Achievement Model is at the core of the plan, which will be implemented at all CCSD schools using a phase-in approach over the next three years. The model addresses the needs of both ELL students and students who come to school speaking non-standard varieties of English. It allows teachers to integrate content and language simultaneously so that all students regardless of language proficiency can receive support in all subject areas. For example, a student in math class would learn to calculate percentages while at the same time gaining an understanding of how to use percentages in vocabulary and in conversation. The ELL master plan aims to strengthen both current grade-level, standards-based instruction in the core content areas as well as meet the unique needs of ELL learners at all levels. All CCSD teachers will receive ongoing professional development on the implementation of the ELL Master Plan through the District's ELL department team. Administration and faculty at Lied, O'Callaghan, and Gehring will involve parents of linguistically diverse students as members of parent volunteer groups or school organizational team members. All schools will establish a culture that provides ELL students with a respectful, safe environment with multiple opportunities to practice language.

All Lied MS, O'Callaghan MS, and Gehring ES staff will receive training in implementation of exceptional students' accommodations and individualized education plans. All three school facilities accommodate physically challenged students; however, these sites will provide further accommodations on a case-by-case basis, as needed, to ensure that the proposed programs are accessible to students with disabilities. All recruitment materials will make clear to all parents of special education children the full range of choices that will be made available in CCSD magnet schools. Each CCSD magnet school works with the District Director of Student Services to maximize the possibilities for special education students. Every effort will be made to identify and eliminate potential barriers within the programs, courses, or activities and to involve parents in the decision process to determine the most appropriate placement for each student.

Each school will address the potential needs of families by providing parents with school technology use policies as well as a list of libraries, centers, and other places with free internet access, providing student access to computer labs before and after school, and offering a technology lab/parent resource center available for parents at designated times during the week.

Fostering inclusiveness to the maximum degree possible is a major priority in the design. Careful attention has been given to planning instructional strategies to make the challenging thematic curriculum content in each school fully accessible to all groups of students, including ELL students and students with disabilities. All instructional and support services will be integrated fully into the delivery of each school's innovative curriculum. The magnet themes are built around the premise that all students are capable of performing at high academic levels. All magnet staff will be trained in culturally responsive teaching, learning styles, and inclusive

classroom strategies. Principals will monitor participation to ensure that all groups have equal access to all aspects of and to specialized learning tools and technology of the magnet programs.

**(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**

The CCSD Board of School Trustees first approved the implementation of magnet programs, beginning with the 1993-1994 school year. Since then, magnet programs have been implemented in 37 schools (10 elementary, 10 middle, and 17 high schools). Since 1993, the CCSD has developed 16 magnet schools with MSAP support: 10 schools between 1993 and 1999 and 6 schools between 2001 and 2004. There have been 21 CCSD magnet schools developed with no federal funding: 1 in 1993, 7 between 2007 and 2010, and 13 between 2011 and 2017. Using the first year of operation as the baseline, 14 of the 16 MSAP funded schools have reduced minority group isolation through the current school year, contributing to a reduction in minority group isolation at 34 of 36 CCSD magnet schools. All 16 of the MSAP funded schools have matched the District's socioeconomic enrollment average of 94% through the current school year. All CCSD Magnet schools have maintained socioeconomic enrollments within 2% of the District average through the current school year. In addition, every school is still operating as a magnet. The District has grown from 3 magnet schools in 1994 serving 2,884 students, to 36 magnet schools in 2017, serving 24,541 students, with a 37<sup>th</sup> school opening in the fall of 2017, serving an additional 805 students. The proposed MSAP schools would add 3,850 to the total number of CCSD students served. All 16 of the previously funded MSAP schools have been operating as magnet schools for more than 10 years. Nine schools have been operating as magnets for 20 or more years. Of 36 currently operating CCSD magnet schools, 20

or more have been identified as Magnet Schools of America Schools of Excellence or Schools of Distinction each year for the last five years.

As required by the MSAP regulations, the District has developed extensive strategies for recruiting students from diverse backgrounds to attend these three schools including hosting magnet fairs, open houses, and student and parent information sessions both at school and throughout the community. Individual targeted recruiting plans are developed and reviewed yearly by each school, followed by revisions to the plans as determined by data review. CCSD recruiting strategies are outlined in great detail above in Selection Criteria, Section A. These targeted recruitment strategies will insure that applicant pools for each school will have compositions that will result in the reduction of minority group and socioeconomic isolation.

In addition to a comprehensive targeted recruiting plan, a key factor in the successful reduction, prevention, and elimination of socioeconomic and racial isolation is the retention of students who are selected to magnet schools. Therefore, there are strategies that project and school staff will implement to help retain students who have been selected for each school. Research has repeatedly found that effects of quality educational programs are cumulative, meaning that the longer the student stays in a program, the more likely the student is to show significant academic gains. A comprehensive study entitled “Are High Quality Programs Enough to Close the Achievement Gap?” found that significant gains in performance are related to the length of participation (Fryer & Dobbie, 2009). Furthermore, several studies show significant attrition of students from choice school programs is related to “lack of feelings of belonging and success” (Flay & Allred, 2003). CCSD magnet schools have a relatively low attrition rates for all students, including underrepresented ones. However, safeguards are embedded at all CCSD magnet school to assure retention and support for underrepresented students, beginning with an

increased student interest in academics through engaging, hands-on, relevant magnet themes.

Academic supports are infused into classroom instruction through personalized learning, differentiation, and multiple ways of learning and demonstrating knowledge. Academic supports continue beyond the classroom with the quarterly (or more frequent, if needed) monitoring of magnet student progress by teachers, counselors, and/or the magnet coordinator. All students at the STEM<sup>3</sup> schools will develop a Learner Profile and Personal Learning Path at the beginning of each year, as part of the blended and personalized learning method to be utilized at all schools. Students who are in need of extra supports will develop a plan for success with input from teachers, counselors, and parents in order to ensure that individual student needs are addressed. Plans for success may include additional one-on-one instruction, tutoring outside the school day, summer school or other summer programs, attendance/behavior contracts, or other strategies to increase student achievement. Finally, community partnerships provide mentorship, guidance, and support services to students and all schools strive to provide culturally responsive, nurturing environments with high expectations and respect for all students and families.

Once selection lists are created, families are notified by the CCSD Magnet Department staff and lists are given to each school to enable outreach. School site magnet coordinators and recruiters contact parents to provide registration and orientation information to newly accepted students and their families. A new student orientation is held in the spring to welcome new families to the school, share information, and give families opportunities to meet school staff and each other. Magnet coordinators and recruiters may work during parts of the summer to continue this outreach including meetings with families and school tours. Each magnet school will have a welcome night in the fall of each school year where parents have the opportunity to meet other new and current families as well as teachers and staff. In addition, active parental involvement

will need to be increased by welcoming diverse parents and understanding their needs and cultural characteristics.

The websites of each school will be redesigned to include information about the new magnet theme curricula, what students are currently studying, projects and field work that students engaged in, and a section on activities for families both in school and at partner institutions that are tied to the magnet theme of the school. Magnet themes at the STEM<sup>3</sup> Project schools were selected by looking at the overall configuration of CCSD magnet schools, including current themes offered at all grade levels, location of current magnet schools, the number of applications that current magnets receive, themes that school personnel were enthusiastic about, and program of study pipelines most sought out by local colleges, universities, and businesses. As part of Nevada's most recent economic diversification strategy, the state's current governor, key state legislators, and numerous civic-minded leaders in Nevada's regions have begun to understand the need to cultivate a STEM-proficient workforce. Most notably, the passage during the 2013 legislative session of Senate Bill 345 establishing a state STEM Advisory Council, which is tasked with developing a strategic plan for the development of STEM education resources to serve as a foundation for workforce development, college preparedness, and economic development, suggests a new awareness of the importance of STEM education and training to the state's economic future. In the letter of support for this proposal, Brian Mitchell, Director of the Nevada Governor's Office of Science, Innovation, and Technology states that the STEM<sup>3</sup> proposal aligns directly with the priorities of the State Strategic Plan for STEM. Ten of the 17 CCSD magnet high schools offer at least one STEM program, and 40% of existing elementary and middle magnet schools specialize in STEM curriculum.

Notably, there are no magnet middle schools serving the neighborhoods where Lied or

O’Callaghan are located. In the southwest Las Vegas/Henderson area where Gehring ES is located, only one out of 30 elementary schools is currently operating as a magnet program. Over the last three years, the number of applicants to elementary school STEM programs has increased from 522 to 601 first choice applicants for first grade, with a total of 454 available seats at 10 schools for the 2017-2018 school year. At the middle school level, 1858 out of a total of 2232 6<sup>th</sup> grade applicants indicated a STEM program as first choice for the 2017-2018 school year, with a total of 1052 available seats at 10 schools.

The new magnet programs at Lied, O’Callaghan, and Gehring will serve students from Clark County by offering additional opportunities for STEM education, specifically targeting underrepresented female and minority students, and reducing, preventing, or eliminating minority group and socioeconomic isolation just as previous CCSD magnet schools have done.

## **(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 the magnet school programs, including the manner and extent to which each magnet school program will increase student academic achievement in the instructional area or areas offered by the school, including any evidence, or if such evidence is not available, a rationale based on current research findings, to support such description**

The Magnet Schools of America (MSA) organization’s mission is to “[provide] leadership for high-quality innovative instructional programs that promote choice, equity, diversity, and academic excellence for all students” (2013). MSA has established the pillars of magnet school success including diversity, innovative curriculum and professional development, academic excellence, high-quality instructional systems, and family and community partnerships.

Membership in MSA has guided the development of magnet and other school choice strategies in Clark County. Nineteen of the 20 CCSD magnet elementary and middle schools are neighborhood schools that were converted to magnets, largely because the CCSD's conversion magnet schools attained three key objectives: 1) they provided high-quality instructional systems and specialized programs on school campuses in previously underserved neighborhoods; 2) they reduced the isolation of Hispanic and African American students and low socioeconomic students by attracting middle class white students; and 3) they increased academic achievement for all students.

The proposed STEM<sup>3</sup> Project magnet schools – Gehring ES, Lied MS, and O'Callaghan MS – are designed to improve academic learning and achievement for all students enrolled in the schools. All three are neighborhood schools in areas that have experienced a rapid shift in both racial and socioeconomic demographic populations. O'Callaghan is currently a racially isolated school. Gehring and Lied are experiencing a dramatic and steady shift in demographics, indicative of impending racial isolation at both schools. Gehring and Lied are also located in areas that are lacking a nearby magnet school option for families. All three schools will undergo full-school conversions, serving 3,850 additional magnet students beginning in the 2018-19 school year. There appear to be three factors – demand, location, and structure – in attracting whites to magnet schools that need to be considered in creating magnet schools (Boston University, 2003). The CCSD has considered all three in the selection and design of the proposed STEM<sup>3</sup> magnet programs.

**Demand:** As stated above, over the last three years the number of applicants to elementary and middle school STEM programs continue to increase and exceed the number of available seats available within the current CCSD STEM magnet program offerings.

Additionally, the number of STEM jobs locally and nationally is rapidly increasing, indicating a dire need for a STEM educational pipeline. The three proposed new magnet programs would add an additional 3,850 seats in grades 1-8 once the conversion to full school programs is complete.

**Location:** Gehring and Lied are located in geographic areas currently unserved by a neighborhood magnet school. Lied is in close proximity to a STEM Career and Technical Academy and would provide a natural matriculation opportunity, creating continuity in education for an educational cohort of students in grades 6-12. O’Callaghan MS is located centrally between a new elementary magnet and a high school magnet, both offering a similar STEM program pathway, providing a natural matriculation pipeline for a student cohort in grades 1-12.

**Structure:** Research has shown that 40% of the districts nationally that have developed magnet schools to affect district-wide desegregation experienced positive results. Larger districts, districts experiencing population growth due to new economic opportunities, and districts that were multi-racial and multi-ethnic had the most success desegregating with magnets. (Yale Law & Policy Review, 1995/2015). As a large, growing, and multi-racial/multi-ethnic district, the CCSD remains a prime location for a successful magnet/desegregation plan. Additionally, all three proposed STEM<sup>3</sup> schools are designed as full school ( “dedicated” ) magnet schools. Dedicated magnet schools have shown to be the most effective at attracting and retaining white families (Yale Law & Policy Review. 1995/2015).

Measurable objectives and performance measures are established in order to quantify the effectiveness of the project, not only to meet academic objectives to which energy and time will be directed, but also to provide a continuum of benchmarks through the project years that will empower both teachers and students to proceed toward mastery of those objectives.

*Table D: CCSD MSAP Objectives*

CCSD MSAP Grant Objectives	
Objective 1:	Increase academic achievement of all students and student subgroups (ethnicity, FRL, LEP, gender) in Literacy, Mathematics, and Science in MSAP STEM magnet schools.
Objective 2:	Reduce, eliminate or prevent socioeconomic and racial isolation in MSAP STEM magnet schools.
Objective 3:	Increase parent and community support in MSAP STEM magnet schools.
Objective 4:	Increase highly-effective instruction through a rigorous and sustained professional development initiative in MSAP STEM magnet schools.
Objective 5:	Improve quality of climate in MSAP STEM magnet schools.
Objective 6:	Evaluate participation and perceptions of STEM

Commonalities for the STEM<sup>3</sup> Project programs at Gehring ES, Lied MS, and O’Callaghan MS to promote student achievement:

Diverse levels of achievement among students exist in every classroom. Student achievement level is a critical factor in determining instructional methodology to be implemented at the proposed new magnet schools. At Gehring, Lied, and O’Callaghan, STEM education, blended learning, personalized learning, and project-based learning will form the foundation of instructional systems designed to improve academic achievement for all students. *Authentic STEM experiences will be a common thread* in all three schools, responding to the calls from the industry and community, as well as alignment to higher education. To assure attractiveness of the new STEM rich programs to diverse populations, each program will adopt a variety of themes uniquely supported by the STEM backbone, allowing students to transfer knowledge and apply science, technology, engineering and mathematics within various contexts. Infusing STEM across the curriculum will allow students to view science, mathematics,

engineering and technology as broadly encompassing disciplines with limitless applications, in alignment with STEM<sup>3</sup> Objective 6. Further, using students' identified interest in STEM as a unifying theme in all subject areas will allow for greater student engagement, improved school climate, and improved academic achievement in the core subjects, aligning with STEM<sup>3</sup> Objectives 1 and 5. Unique program features such as Project Lead the Way Launch, Flying Classroom, Blended Learning, and Digital Media, will further enhance STEM and help attract a diverse group of students, as well as offer an opportunity to develop a dynamic, rigorous high interest curriculum. This is particularly important in assuring that all demographic groups, including those traditionally underrepresented in technology, engineering, science and math careers, develop understanding of applicability of STEM in their interest areas and choices of the future, aligning with STEM<sup>3</sup> Objectives 1, 2, 4, and 6.

All three schools will infuse STEM concepts across the curriculum, offering a learning environment where teachers have high standards and high expectations for all students, fostering academic growth and achievement in all subject areas. Students will be engaged in a dynamic, technology rich, project-based learning, in a rigorous curriculum, designed to stimulate potential, interest, and creativity, while simultaneously promoting academic achievement through the study of STEM disciplines. Preparing students for success in the 21st century will require a shift in the learning environment to one which fosters student experimentation, exploration, and peer interaction. Each school will offer a rigorous, interdisciplinary curriculum, using project-based learning study of science, technology, engineering, and mathematics. STEM is the framework for teaching across academic disciplines, using project-based learning and inquiry to creatively engage students in scientific discovery and technological innovations through original, creative, and critical thinking. Each school will be an exciting place to learn, with a rigorous and relevant

cross-disciplinary approach that integrates academic and experiential learning, focusing on complex problem solving and critical thinking skills. STEM is designed to increase the intrinsic learning motivation of students, thereby improving academic performance and engagement. This project-based STEM infusion model is designed with all six STEM<sup>3</sup> Objectives as the overarching goal: increased academic achievement, reducing minority isolation, robust parent and community support, high-quality instruction, and improved school climate through increased exposure to STEM curriculum.

Offering students choice and autonomy in learning within an environment that meets individual students' needs will be a priority. Each school will take a unique approach to STEM implementation, described below, that differentiates it from other STEM magnet schools in the CCSD.

*Table E: Proposed CCSD MSAP STEM<sup>3</sup> Project Magnet Schools*

<b>Proposed CCSD MSAP STEM<sup>3</sup> Project Magnet Schools</b>				
<b>School Name</b>	<b>Grades Served</b>	<b>Magnet Theme</b>	<b>Special Feature(s)</b>	<b>Feature Details</b>
<b>Roger D. Gehring STEM Academy</b>	1 – 5	STEM	Project Lead the Way Launch	Students engage in hands-on modules in computer science, engineering, and biomedical science
<b>Lied MS Navigator Academy</b>	6 – 8	STEM	Flying Classroom	Students participate virtually in STEM expeditions led by a National Geographic explorer

<p>Mike O’Callaghan i<sup>3</sup>Learn Digital Media Academy</p>	<p>6 – 8</p>	<p>STEM</p>	<p>Blended Learning, Digital Media</p>	<p>Blended learning model in all core classes, enhancement options in Video Game Technology, Video Production, Web Design, and Coding</p>
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Blended and personalized learning will be used at all three new magnet schools in order to meet the diverse needs of all students, differentiate and scaffold instruction, and ensure all students are moving forward academically to meet and surpass standards and benchmarks. Students at each school will be challenged by an innovative and engaging STEM-based curriculum, but they will also have the safety net of academic support and interventions to see them through. Blended learning is a term increasingly used to describe the way technology is being combined with traditional classroom methods and independent study to create a new, hybrid teaching methodology. Blended learning encompasses a much greater change in basic technique than simply adding computers to classrooms. A true blended learning classroom model involves a fundamental shift in the way teachers and students approach the learning experience. More than simply placing a child in front of a computer, a blended learning model may be used to enhance classroom instruction, allow for remediation, or fill in gaps in traditional classroom instruction. In “Blended Learning: Making it Work in Your Classroom,” an Edutopia case study done at the P.K. Young Developmental Research School, researchers identified effective implementation strategies for a blended model. One of the key components of blended learning is to identify what is already working well in the classroom, and what might be better suited as digital content. Adding digital content doesn’t mean eliminating all the direct instruction in the classroom. The most effective blended learning models keep what is working well in a face-to-face mode, and add what could be more effective in a digital format. Deliverables will differ

from teacher to teacher depending on the content area. Some teachers may overhaul an entire course unit; others may focus on creating assessments for learning and putting those in place, while others may take a more general approach and transition all handouts into a digital format so they were more accessible (Edutopia, 2014). All three proposed STEM<sup>3</sup> magnet schools will incorporate blended learning into the curriculum as a means to increase academic achievement.

Teachers at all three schools will receive sustained professional development to equip them with the skills necessary to implement highly-effective blended instruction. Incorporating technology in the classroom has been proven to support student achievement, especially in at-risk populations. Blended learning is often used to facilitate personalized learning. However, it is essential that the most productive approaches are used in order to achieve desired results. A 2014 report from the Alliance for Excellent Education and the Stanford Center for Opportunity Policy in Education (SCOPE) finds that technology—when implemented properly—can produce significant gains in student achievement and boost engagement, particularly among students most at risk. The report notes that “for many years, educators and policymakers looking for strategies to close the achievement gap and improve student learning have sought solutions involving new uses of technology, especially for students placed at-risk. Unfortunately, the results of technology initiatives have been mixed. Often, the introduction of technology into classrooms has failed to meet the grand expectations proponents anticipated.” (Darling-Hammond, et. al., September 2014). Often, technology is used in place of traditional instruction, presenting information to students who passively work on practice problems and complete modules until they demonstrate “learning” and move on to the next batch of digital information. Results from this type of instruction have been disappointing. Studies have found no significant difference on student test scores in classrooms using this type of digital learning as compared to

classrooms using traditional face-to-face instruction. (Darling-Hammond, et. al.) Research has indicated that three major factors contribute to increased student achievement utilizing a blended learning model: interactive learning, use of technology to explore and create rather than to “drill and kill,” and the right blend of teachers and technology (Darling-Hammond, et. al.).

Through the use of interactive technology, students see content in many forms as it comes alive with maps, videos, hyperlinks to definitions, additional content and more. (Dynarski, et al., Effectiveness of Reading and Mathematics Software Products, 2012) Other research finds increased academic achievement when student use technology to create new content themselves, rather than just being the recipients of content designed by others. Additionally, students demonstrate stronger engagement, self-efficacy, attitudes toward school, and skill development when they are engaged in content creation projects. This can include creating reports using multimedia content, graphic representations of data they have researched, building websites, PowerPoint presentations, video production, digital storytelling, and other means. (Darling-Hammond, et. al.) Finally, along with the ready availability of technology, it is equally important to have the ready availability of teacher supports and other students’ input, thoughtfully used. Results are strongest when the uses of technology are combined with opportunities for strategic teacher support and social interactions among students. The proposed MSAP schools are committed to implementing high-quality blended learning instruction into each classroom, beginning in year one of the grant cycle with teacher professional development, curriculum planning sessions, and designing a logical implementation plan. The predicted outcomes – increased student achievement (particularly among low-socioeconomic and minority students), highly-effective instruction through relevant professional development, and improved student engagement and self-efficacy are in direct alignment with STEM<sup>3</sup> Objectives 1, 2, 4, and 5.

Personalized learning allows for customization of rigor and depth of content knowledge by allowing for both remediation and acceleration to happen in one class simultaneously using one of four blended learning rotation models.

*Table F: Blended Learning Rotation Models*

Blended Learning Rotation Models	
<b>Station Rotation</b>	Students rotate within a contained classroom.
<b>Lab Rotation</b>	Rotation occurs between a classroom and a learning lab for online learning.
<b>Flipped Classroom</b>	Rotation occurs between the school for face-to-face teacher-guided practice (or projects) and the home or other off-site location for online content and instruction.
<b>Individual Rotation</b>	Differs from the other Rotation models because each student in essence has an individualized playlist and does not necessarily rotate to each available station or modality.

All three proposed STEM<sup>3</sup> magnet schools will utilize a blended/personalized learning rotation model, though implementation will vary from school to school. To foster academic development and achievement among all students, these models allow for significant differentiation of instruction in all subject areas. Differentiation is not only a key part of personalized learning, but also an essential component in education. “Without personalization, there is a gap between the individual student, their learning, and the support they need to succeed in a way that makes sense to their interests” (Abel, N., 2016). A recent study of schools funded by the Bill & Melinda Gates Foundation to implement personalized learning approaches found positive effects on student performance in reading and mathematics, with the lowest-performing students making considerable gains compared to their peers (RAND Corporation, 2014/2015). The creation of yearly Learner Profiles and Personalized Learning Paths will allow teachers at all

three schools to document each student's strengths, weaknesses, goals, and individualized plans to accomplish these goals. Through the use of technology and rotation models, teachers at all three schools will be able to facilitate ongoing monitoring of student profiles, paths, and progress, in order to ensure that all students are advancing academically. In conjunction with targeted recruiting practices, blended and personalized learning at all schools will address STEM<sup>3</sup> Objectives 1, 2, and 4, targeting increased academic achievement for all students and student subgroups, reduced socioeconomic and racial isolation, and sustained highly-effective instruction.

Project-based learning will be a major component of all three proposed MSAP programs, in order to create a cohesive, relevant, school-wide infusion model of instruction. All teachers at the sites will engage in Project Based Learning (PBL) training provided by the Buck Institute for Education (BIE). The professional development will give teachers the tools on how to design, assess, and manage projects that engage and motivate students. The BIE training helps bring coherence to PBL practices across grade levels and subject areas, and supports the creation of school-wide processes and structures to support PBL. It is important that all subject areas are included in the implementation of the magnet program and that student exposure to the curriculum is not solely dependent on their magnet elective. The implementation of PBL helps teachers address standards and emphasize real-world application of knowledge and skills, and the development of success skills such as critical thinking/problem solving, collaboration, communication in a variety of media, and speaking and presentation skills, thus fostering academic achievement across a broad range of content and skills. PBL will complement each school's unique STEM curriculum and enhance student projects by instructing students on how to include essential project design elements.

*Table G: Buck Institute Project Based Learning (PBL) Design Elements*

<b>Project- Based Learning Design Elements</b>	
<b>Key Knowledge, Understanding, and Success Skills</b>	The project is focused on student learning goals, including standards-based content and skills such as critical thinking/problem solving, collaboration, and self-management.
<b>Challenging Problem or Question</b>	The project is framed by a meaningful problem to solve or a question to answer, at the appropriate level of challenge.
<b>Sustained Inquiry</b>	Students engage in a rigorous, extended process of asking questions, finding resources, and applying information.
<b>Authenticity</b>	The project features real-world context, tasks and tools, quality standards, or impact – or speaks to students’ personal concerns, interests, and issues in their lives.
<b>Student Voice &amp; Choice</b>	Students make some decisions about the project, including how they work and what they create.
<b>Reflection</b>	Students and teachers reflect on learning, the effectiveness of their inquiry and project activities, the quality of student work, obstacles and how to overcome them.
<b>Critique &amp; Revision</b>	Students give, receive, and use feedback to improve their process and products.
<b>Public Product</b>	Students make their project work public by explaining, displaying and/or presenting it to people beyond the classroom.

PBL is has its roots in the project method models of noted educational theorists, William H. Kilpatrick (1918) and John Dewey (1938), who define students as active investigators in the learning process as opposed to passive recipients. Empowering students to be active learning constructors was the primary feature of the project method. PBL has been developed from this project method and is referred to in the boundary of the reform movement in the early part of the 21st century. More recently, PBL has been more generally implemented into K-12 education than before to encourage students' deep understanding. Deep understanding occurs when students are provided scaffolds and formative assessment within social structures (Han, et al., 2014). STEM PBL is an instructional approach embedded in classrooms for STEM education. It is grounded in the theoretical background of constructivism where students are engaged in the diverse components of problem solving, interdisciplinary curriculum, open-ended questions, hands-on activities, group work, and interactive group activities. Effective STEM PBL should be interdisciplinary and contain diverse content objectives within the context of hands on activities to produce an artifact (Capraro & Slough, 2008). STEM PBL has positively influenced students' non-academic performances. Students who have experienced STEM PBL showed positive attitudes toward learning itself, team communication, and collaborative behavior. Compared to the studies on the impact of STEM PBL on students' attitude and perspective on learning, few studies have investigated the effect of STEM PBL on the improvement of student achievement. However, a 2012 study by Han, Capraro, and Capraro determined that low performing student groups who participated in regular STEM PBL activities showed significantly higher growth rates in mathematics than the high and middle performing groups of students. Results of the present study supports the work of others (cf. Capraro, Capraro, Morgan, 2013) to provide varied learning environments for students who are at different performance levels. Students in high,

middle, and low performing groups in this study demonstrated varied growth rates, which indicates that a learning environment may influence different impacts on each performance group (Han, et. al.). Based on the above research, the proposed STEM<sup>3</sup> magnet programs at Gehring, Lied, and O’Callaghan will employ a variety of instructional strategies to positively impact student achievement, including STEM-infused education, blended and personalized learning, and project-based learning, aligning with STEM<sup>3</sup> Objectives 1, 2, 4, 5, and 6.

Sustained, robust professional development is essential to the success of this project, and is at the heart of STEM<sup>3</sup> Objective 4. Teachers at all STEM<sup>3</sup> schools will receive ongoing professional development opportunities during the life of the grant and beyond. As mentioned above, all teachers will attend the Project Based Learning training through the Buck Institute for Education (BIE). The training provided by the BIE consists of an initial three-day intensive seminar, presented by BIE trainers at each school site, followed by a one day refresh visit each year for the next two years. New teacher onboarding and refresh training will be provided in subsequent years by school administration and lead teachers following the initial three year BIE training.

Additional professional development will be offered during each school’s Site-Based Collaboration Time. All CCSD schools allot one hour per week towards job-embedded site-based collaboration. During this time, teachers may participate in a variety of professional development activities. Planned professional development during this time for all three new magnet schools includes Blended and Personalized Learning training through the CCSD K-12 Online and Blended Learning Department, cultural competency training provided by the CCSD Equity and Diversity Department, ELL master plan implementation training provided by the CCSD ELL Department, blended and personalized learning and PBL onboarding and refresh,

and other opportunities as determined by each school’s unique implementation of the STEM curriculum, including Google Apps for Education (GAFE), Project Lead the Way, Flying Classroom, and Redbird Blended Learning. These professional development activities address STEM<sup>3</sup> Objectives 1, 4, and 5 focusing on professional development needed to implement high-quality instructional systems to increase student achievement in all student subgroups as well as improving school culture and climate.

*Table H: STEM<sup>3</sup> Professional Development Plan*

<b>Professional Development</b>	<b>Presenter</b>	<b>Participating School(s)</b>	<b>When Offered</b>	<b>Years Offered</b>
<b>Project-based Learning</b>	Buck Institute for Education (BIE)	Gehring, Lied, O’Callaghan	Two and a half full days during the summer, 1 full day refresh during the school year for two years after initial training	Gehring and Lied – Initial training in June of Year 1, refresh in years 2 and 3, O’Callaghan – Initial training in June of Year 2, refresh in years 3 and 4
<b>Blended and Personalized Learning</b>	CCSD Innovative Learning Environments	Gehring, Lied, O’Callaghan	Job-embedded Site Based Collaboration Time (SBCT)	1 session per month in Years 1 and 2, 2 sessions per quarter in Years 3 – 5
<b>English Language Learner Master Plan</b>	CCSD ELL Department	Gehring, Lied, O’Callaghan	SBCT	16 sessions per year over three years, starting year determined by CCSD ELL cohort assignment

<b>Cultural Competency</b>	CCSD Equity and Diversity Department	Gehring, Lied, O'Callaghan	SBCT	2 sessions per year in years 1 – 5
<b>Google Apps for Education</b>	Google/Online	Gehring, Lied, O'Callaghan	Online	Self-paced, to be completed during years 2 and/or 3 of the grant cycle
<b>Project Lead the Way Launch (PLTW)</b>	PLTW	Gehring	3 Day Training for Lead Teachers, travel required, job-embedded classroom teacher training at Gehring presented by lead teachers upon completion of training	Lead Teacher training June/July of Year 1, Classroom Teacher training ongoing through Year 2
<b>Flying Classroom</b>	Online	Lied	SBCT, Quarterly teacher collaboration days	Completed during Year 1 of the grant cycle
<b>Canvas Learning Management System</b>	Online	O'Callaghan	SBCT, Online	16 modules, completed during Years 1 and 2 of the grant cycle
<b>Redbird Blended Learning</b>	Online	O'Callaghan	SBCT, Online	18 hours, completed during Years 1 and 2 of the grant cycle

<b>Professional Conferences, Model School Visits</b>	Travel potentially required	Gehring, Lied, O’Callaghan	As offered	Ongoing, Years 1 – 5 and beyond
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In alignment with STEM<sup>3</sup> Objective 3, parent and community involvement will be a major priority at all three schools. Key members of the local STEM community are preparing to establish and build partnerships with the proposed three new schools. The Desert Research Institute (DRI), the environmental research arm of the Nevada System of Higher Education, has committed to developing partnerships with Gehring, Lied, and O’Callaghan. DRI conducts cutting-edge applied research in air, land and life, and water quality across Nevada, the United States and on every continent. The STEM<sup>3</sup> project aligns with the DRI’s mission for excellence in basic and applied research and the application of technologies to improve people's lives throughout Nevada and the world. The DRI strives to fulfill this mission by fostering scientific and engineering talent, applying scientific understanding to the effective management of natural resources, meeting Nevada's needs for economic diversification, and providing science-based educational opportunities. The Desert Research Institute plans to educate and inspire STEM<sup>3</sup> magnet students by providing guest speakers, facilitating drone demonstrations, and providing other real world science opportunities. Current CCSD community partner Green Our Planet is also prepared to partner with the three new schools. Green Our Planet (GoP) is a non-profit conservation organization that runs the largest school garden program in the United States. Locally based in Las Vegas, GoP maintains the largest school garden program in the U.S., and has built more than 100 school gardens at CCSD over the past four years. Green Our Planet is committed to partnering with the proposed new schools to connect their students with real-world

STEM instruction and environmental discovery. The STEM<sup>3</sup> project has the support of local higher education, with the University of Nevada, Las Vegas (UNLV) and College of Southern Nevada (CSN), pledging to work with both schools to provide authentic STEM experiences for students and establish pipelines to STEM higher education programs. Additionally, CCSD magnet schools work very closely with the District Community Partnership Office to match interested local businesses with schools and programs. Over 100 Clark County businesses participate in partnerships with local schools. Casinos, construction firms, banks, local media, retailers, hospitals, law offices, and other local businesses all maintain vibrant partnerships with the CCSD. The Partnership Office will be actively involved in matching Gehring, Lied, and O'Callaghan with industry partners. Finally, the CCSD Magnet Department has developed a partnership with the Las Vegas Global Economic Alliance (LVGEA) called Future Ready. Future Ready assists local industry leaders, policy makers, educators, and community advocates in creating productive partnerships with CCSD magnet schools. Through Future Ready, Gehring, Lied, and O'Callaghan will have access to industry professionals in STEM and related areas. These industry partnerships will form the foundation of the Magnet Advisory Committee at each school, a body of professionals from local business who may provide input on curriculum and projects, guest speakers and field trip opportunities, or potential financial support to enhance the magnet program at each site.

A commitment to facilitating and encouraging parental involvement is essential to this project. Parents are responsible for the education of their children, but educators have the obligation to assist parents in learning about the education process and the potential the parent has in that process. Students benefit the most from a true partnership between parents and educators. The very nature of a magnet school of choice in itself increases parent involvement.

When applying for a magnet school, parents become automatically involved in decision making about their children's education. Parent involvement will continue through the duration of their students' participation in a magnet program. Parents will be regularly included in STEM<sup>3</sup> campus activities, through open houses and tours, parent nights, parent university activities, student showcase events, and parent/teacher conferences. Through the CCSD student information system (Infinite Campus) parents receive regular updates on student progress that is accessible from a computer or smartphone. Parents can monitor student attendance, grades, and view other academic information such as incomplete or missing assignments. Additionally, all magnet student progress is regularly assessed by teachers, counselors, and the magnet coordinator. Students who are in need of extra supports will develop a plan for success with input from teachers, counselors, and parents in order to ensure that individual student needs are addressed. Plans for success may include additional one-on-one instruction, tutoring outside the school day, summer school or other summer programs, attendance/behavior contracts, or other strategies to increase student achievement. This system is in place at all CCSD magnet schools and has a proven record of effectiveness in both improving student achievement and ensuring that students are able to continue and succeed in CCSD magnet programs.

Closing achievement gaps is a goal both nationally and locally. While the results of the National Assessment of Educational Progress (NAEP) show some progress toward meeting this goal, the findings are as a result of Black and Hispanic students showing larger gains rather than White students causing a small narrowing of the gap. Only the White-Hispanic gap in mathematics at age nine has not shown significant change. The gender gaps are narrowing in reading because male students are making larger gains than females. Ultimately, the gap may be narrowing but the bar is not being raised (NCES, 2012). In order to do so, Waters, Marzano and

McNulty (2003) suggest leaders must enact a balance of technical and adaptive leadership in order to effectively improve student achievement. Gaps exist not because of a lack of intention or effort but possibly a misguided focus. Daly and Chrispeels (2008) argue, “reform that closes the gap requires new and different kinds of school leadership” (p. 42). The current leadership in place at Gehring, Lied, and O’Callaghan is committed to the STEM<sup>3</sup> Project and has expressed a willingness to make the incremental adjustments to current practice necessary to improve efficiency and effectiveness at each school in order to meet the STEM<sup>3</sup> Objectives.

### **Individual Schools at-a-Glance:**

**Roger D. Gehring ES** opened during the 2002-2003 school year in the southern part of Las Vegas during a time of rapid growth and development in Southern Nevada. Since then, the school has experienced a drastic shift in student demographics. CCSD selected Gehring ES to become a magnet school because the percentage of African American and Hispanic students currently enrolled in Gehring ES is below the elementary districtwide average of African American and Hispanic students, and because of a sharp decline in enrollment of White students since the school opened. The goal over the five-year grant period is to increase the percentage of African American and Hispanic students enrolled in Gehring ES to reflect the district-wide elementary percentages of African American and Hispanic students, and to reverse the trend toward racial isolation by stabilizing the percentage of White students enrolled at Gehring ES.

As principal at Gehring ES for the last four years, Amy Yacobovsky has worked to provide a safe, nurturing learning environment to promote the academic and social success for all students. Rigorous academic instruction is provided through whole group and explicit targeted differentiated instruction in reading and math. The Nevada Academic Content Standards are taught through aligned curriculum programs, such as the ReadyGen Blended Literacy program,

Envisions Math, Engage NY, and FOSS. Additional programs, such as Accelerated Reader, Reading Eggs, EPIC, Voyager, ST Math, and Fastt Math provide supplemental and tiered instruction for all students. A school-wide focus on making meaning through student discourse is facilitated through Kagan structures.

Recognizing that students need to be prepared for a rapidly changing world that will include career opportunities in Science, Technology, Engineering, and Math (STEM) related fields, a new magnet program at the Roger D. Gehring STEM Academy will utilize an adapted curriculum infused with STEM to enrich, engage, and excite all students. Students will participate in academically rigorous curriculum that integrates inquiry, critical thinking, and problem solving; technology and engineering processes; and relevant societal factors. Teachers will utilize interdisciplinary, hands-on projects that incorporate standards-based learning. Students will observe and ask questions, create and conduct their own investigations, analyze data to draw conclusions, and use the engineering design approach to communicate their findings to others. One-to-one technology will enhance student learning engagement and expand learning experiences far beyond the walls of the classroom. The Gehring STEM Academy will offer highly-effective, engaging instruction, thereby increasing student achievement and improving school climate, aligning with STEM<sup>3</sup> Objectives 1, 4, and 5.

Gehring ES would be one of two magnet schools in a cluster of approximately 30 elementary schools. The nearest elementary magnet school, the McCaw STEAM Academy, is adjacent to a mine and offers a Geological/Earth Science-focused program of study. The program at Gehring would serve an area with limited access to magnet school options and would offer a unique program otherwise unavailable in the CCSD. The Gehring STEM Academy will be the first and only CCSD elementary school to offer the Project Lead the Way (PLTW) Launch

curriculum, which will provide the foundation for interdisciplinary STEM learning. PLTW students engage in hands-on learning modules that build knowledge and skills in areas including computer science, engineering, and biomedical science. Cross-disciplinary activities will build literacy and math skills and understanding and help students make connections to the real-world. PLTW Launch modules align to Next Generation Science Standards and Common Core Math and ELA standards in each grade level. PLTW Launch empowers students to adopt a design-thinking mindset through compelling activities, projects, and problems that build upon each other and relate to the world around them.

*Table I: Project Lead the Way Launch Modules*

Project Lead the Way Launch Modules		
Grade Level	Module – aligned to standards	Activities
First	Light and Sound	Students investigate light and sound and design a tool to communicate over a distance.
	Light: Observing the Sun, Moon, and Stars	Students build upon their knowledge of light and design a playground structure that protects students from UV radiation.
	Animal Adaptations	Students learn about animal adaptations and apply what they’ve learned to design a shoe made for desert exploration.
	Animated Storytelling	Students build computational-thinking skills by creating animations based on their own short stories.
Second	Materials Science: Properties of Matter	Students explore materials science and devise a way to keep popsicles cold – without a cooler.
	Materials Science: Form and Function	Students research the variety of ways animals disperse seeds and pollinate plants and use what they know to design a gardening device.

	The Changing Earth	Students explore how the surface of the Earth is always changing and design solutions for a fictional community threatened by a landslide.
	Grids and Game	Students learn about the sequence and structure required in computer programs and work in teams to build tablet games.
Third	Stability and Motion: Science of Flight	Students learn about the forces involved in flight and design a solution to deliver aid supplies via an aircraft.
	Stability and Motion: Forces and Interactions	Students explore simple machines such as wheel and axles, levers, the inclined plane, and more and then use what they know to rescue a trapped zoo animal.
	Variation of Traits	Students investigate the differences between inherited genetic traits and traits that are learned or influenced by the environment and then model how the gene for a plant's stem color is passed on.
	Programming Patterns	Students discover the power of modularity and abstraction and then use what they know to create a video game for a tablet.
Fourth	Energy: Collisions	Students investigate how mechanisms change energy by transferring direction, speed, type of movement, and force and then use what they know to design a car safety belt.
	Energy: Conversion	Students learn how energy can be converted to meet a human need or want and then develop solutions to move donated food from a truck to a food pantry.
	Input/Output: Computer Systems	Students explore how computers work and create a reaction-time computer program to assess a baseline before a concussion occurs.
	Input/Output: Human Brain	Students learn about stimuli and responses and then use what they know to create a video to teach children about concussions.

<b>Fifth</b>	Robotics and Automation	Students explore the ways robots are used in today’s world and then design a mobile robot that can remove hazardous materials from a disaster site.
	Robotics and Automation: Challenge	Students explore mechanical design and computer programming and design an automatic-guided vehicle to deliver supplies in a hospital.
	Infection: Detection	Students explore the transmission of infection and run an experiment to help find ways to prevent the spread of illness.
	Infection: Modeling and Simulation	Students investigate models and simulations and apply their knowledge to program a model that simulates the spread of infections.

As students engage in hands-on activities in each module, they become creative, collaborative problem solvers ready to take on any challenge. As part of a dynamic, relevant, and challenging STEM curriculum, the PLTW program at Gehring is designed to attract a diverse body of student applicants, addressing STEM<sup>3</sup> Objectives 1, 2, 4, and 6.

PLTW STEM curriculum will be further aligned with literacy and social studies standards through project-based learning (PBL) and blended and personalized learning experiences. PBL will enhance student engagement and excitement about learning through real world application. Students will gain knowledge and skills by working collaboratively to identify, research, investigate, and find solutions for authentic problems or challenges. To allow for PLTW instruction, project-based learning activities, and a robust, STEM-infused curriculum, students at Gehring will receive an extra 19 minutes of instruction every day. Using blended and personalized learning station and lab rotation models, teachers will provide individualized, small group, and whole group instruction. Computer adaptive software will enrich literacy and math instruction and provide additional personalized learning opportunities for students. The blended

and personalized approach will enable classroom teachers to provide both remediation and acceleration simultaneously, targeting STEM<sup>3</sup> Objective 1.

In order to implement and maintain a rigorous integrated STEM program through highly-effective instruction, teachers must have access to high-quality professional development and robust resources. In line with STEM<sup>3</sup> Objective 4, focusing on rigorous and sustained professional development, over the course of the MSAP grant and beyond, Gehring teachers will participate in sustained professional development. Lead teachers will attend Project Lead the Way (PLTW) readiness and lead teacher training. Lead teachers will conduct site-based PLTW readiness training for all classroom teachers and provide ongoing guidance for program planning and implementation. Classroom teachers will complete grade-level specific and ongoing core training through online sessions. Lead and classroom teachers will attend annual workshops to strengthen content knowledge and pedagogy. To further capacity to provide project-based learning experiences at Gehring, teachers will participate in a Buck Institute for Education (BIE) foundational three-day Project Based Learning workshop and annual one-day workshop. Teachers will learn how to design, assess, and manage interdisciplinary projects that will engage students in STEM education. Additional professional development for blended and personalized learning will be provided for teachers throughout the school year during established Site-Based Collaboration Time (SBCT) by Clark County School District (CCSD) K-12 Online and Blended Learning team, the District's blended learning experts. Teachers will also meet during job-embedded Site-Based Collaboration Time (SBCT) provided at all CCSD schools for one hour per week and Professional Learning Communities (PLC) to plan, review data, and share instructional strategies. Gehring teachers will meet one day quarterly for ongoing PLTW and PBL professional development and to review and plan curriculum and common assessments.

Innovative learning spaces, such as indoor and outdoor gardens, science and engineering labs, and digital media rooms, will support collaborative, project-based, blended, and personalized learning. Classroom environments will include student desks, small and whole group learning areas, and digital learning space. Common areas centered among classrooms will become digital media rooms and science and engineering labs. The addition of an outdoor greenhouse and indoor hydroponics gardens will enrich science instruction and build upon current programs which include an outdoor garden space for students to plant, grow, and market local produce. These enhancements will target STEM<sup>3</sup> Objectives 1, 4, and 5, providing materials and environments to foster high-quality instruction that will in turn increase academic achievement and improve school climate.

In line with STEM<sup>3</sup> Objectives 3 and 5, strong family and community partnerships contribute to strengthening the quality of educational programming for all students. Meaningful communication builds relationships with parents, families, and the community through a weekly parent newsletter entitled The Gecko Gazette, a school website, an active parent volunteer program, and a committed Parent Teacher Association (PTA). School Organizational Teams (SOT), consisting of school administration, teachers, support staff, and parents, assist and advise the school principal on the development of the plan of operation (budget and school performance plan) and provide continued assistance and advice to the principal in carrying out the plan of operation. A School Organizational Team exists on every CCSD campus. Parents are involved in all aspects of school life. They assist in classrooms and participate in student recognition programs, fundraising activities, and special events that include: Parent Workshops, Literacy Nights, Family Math/Science & Bingo Night, Book Fairs, and Field Day. Annual Family Academic Nights will educate parents about STEM, PBL, and blended and personalized learning

and provide parents with strategies to support their students at home. A "STEM Night" exhibition to showcase student learning will culminate each school year.

**Lied MS** opened in 1997, during the height of the population growth that Las Vegas experienced throughout the 90s into the early 2000s. According to the 2000 United States Census Report, Las Vegas gained 796,264 residents, from 1990 until the year 2000, a *66% increase* in the overall population. During this time, CCSD opened several new schools to accommodate overcrowding due to the tremendous increase in growth. The goal over the five-year grant period is to increase enrollment and ensure that the continued increase in the minority student populations does not devolve into a situation of racial isolation.

The Las Vegas valley is no longer experiencing the record-setting growth seen in the 90s and the early part of the new millennium. In fact, many schools including Lied MS have experienced a steady decline in their overall student population as well as a significant change in demographics and socioeconomics. Currently, Lied MS is under-enrolled by approximately 600 students, a number that continues to increase. When Lied MS first opened, the school was predominantly populated by White students. Those numbers over the last decade have fallen by 34 percent, while numbers of minority subgroups have increased. For example, Lied MS has had a 17% increase in the number of Hispanic students and an 8 percent increase in the number of African American students enrolled in the last decade. Additionally, the free and reduced lunch percentage has increased by 43%. The significant changes to the demographic and socioeconomic composition of the school are a direct result from the economic downturn. The location of the Las Vegas valley in which Lied MS resides was one of the hardest hit communities during the recession resulting in some of the highest foreclosures in the country.

Principal Derek Fialkiewicz is eager to build upon practices already implemented at Lied

to improve both student achievement and school climate including cultural competency training for staff and a focus on building positive relationships with the staff and community. These programs were implemented as a response to a significant decrease in parent and student satisfaction and low teacher morale. The practices being implemented are designed to improve morale as well as address significant discipline issues and poor teacher/student relationships.

Recently, Lied MS has integrated Google GSuite for Education (GSuite) to increase opportunities for critical thinking, communication, collaboration, and creativity for students and teachers. Students and teachers at Lied MS utilize GSuite for their assignments and notes, as well as extended instruction for math as teachers upload videos for students to view at any time. Lied MS also is a 1:1 technology school in which students use Chromebooks as a primary device.

As part of their MSAP transition, Lied MS will implement the Navigator Academy (named after their school mascot) utilizing the Flying Classroom curriculum. Part of the educational outreach of Experience Aviation, a Florida nonprofit organization that utilizes aviation to build STEM skills in students and direct them toward careers in aviation and other STEM-related fields, the Flying Classroom is a global STEM learning adventure which utilizes a digital learning tool designed to help students excel in math and science as well as other core subject areas aligned to grade appropriate academic benchmarks. The Flying Classroom is also aligned to the National Common Core Standards and Next Generation Science Standards. The digital, cutting-edge global curriculum is designed to make STEM practical in the lives of students as well as to help students excel in the core subject areas. The program consists of virtual STEM expeditions led by National Geographic Explorer Captain Barrington Irving. The STEM expeditions will allow the students and teachers to virtually fly along with Captain Irving as he meets STEM professionals and solves problems that require application of the knowledge

and skills the students are learning in the classroom. This experience will help the students understand the importance of STEM in solving local and global problems and engage students in the possibilities of STEM careers, addressing STEM<sup>3</sup> Objective 6. Captain Irving will serve as a guide and role model for the community for engagement in authentic STEM experiences.

Captain Irving became the youngest African American pilot to fly solo around the world in a single-engine airplane. On his 97-day journey, he flew 30,000 miles in a single-engine plane called “Inspiration.” He made the trip to show other youth that if he could achieve his dream, they could too. Teachers, students, and parents will interact directly with Captain Irving and the STEM professionals involved in the expeditions through in-person and online interactions. The STEM professionals who lead the virtual expeditions along with Captain Irving come from a wide array of well-renowned institutions such as Embry-Riddle Aeronautical University, National Geographic, and The Guardian.

Utilizing a blended learning lab rotation model, the Flying Classroom will be implemented using 16 “expeditions” or learning modules a year. Students will virtually explore 3 continents and 11 countries with 30 stops. The activities will engage students in real-world, STEM research and expeditions by air, water, and land; and students will collaborate with classrooms and peers around the world. Expedition features will focus on culture, technology, environment, and wildlife. The implementation of the Flying Classroom will allow for students to engage in authentic STEM experiences and role model interactions with a diverse group (by gender and race) of STEM professionals. This distinctive and exciting curriculum will offer a unique STEM experience to CCSD students and is expected to draw a diverse pool of applicants. The diversity represented among the Flying Classroom expedition leaders will provide inspiring role models for a diverse student population, adding an additional motivational layer to the

instructional environment at Lied. This aligns with STEM<sup>3</sup> Objectives 1, 2, 5, and 6, increasing academic achievement and preventing isolation among minority and low socioeconomic students, while improving school climate through increased STEM-related opportunities.

Flying Classroom Expeditions cover a myriad of topics, presented in an exciting and engaging manner. Sample expeditions include: Learn aerodynamic principles as Captain Irving flies with the world's top aerobatic pilot; Meet a chef with a bionic arm and see how he can control it using only his mind; See how geometry and physics are used to make video games realistic; and Dive below the waves to see what coral reefs can tell us about the health of the oceans. In order to implement the Flying Classroom curriculum with the appropriate level of rigor and relevance for students and to ensure that there is a high level of cohesiveness with the program implementation across the curriculum, all teachers will engage in Project-Based Learning (PBL) training provided by the Buck Institute for Education (BIE). The professional development will give teachers the tools on how to design, assess, and manage projects that engage and motivate students. PBL will complement the Flying Curriculum and enhance student projects by instructing students on how to include essential project design elements such as sustained inquiry, authenticity, reflection, critique, and presentation. All Lied teachers will participate in the Buck Institute's on-site seminar and the two subsequent refresh sessions starting in the second year of the MSAP grant. Lied will provide ongoing PBL onboarding training to new staff using lead teachers and other school leadership. In line with STEM<sup>3</sup> Objective 4, focusing on rigorous and sustained professional development, over the course of the MSAP grant and beyond, Lied teachers will participate in sustained professional development. Additional professional development opportunities offered to teachers during the life of the grant and beyond include MSA, International Society for Technology in Education (ISTE), and the

International STEM Education Association (ISEA). Teachers will have the opportunity to attend a conference which best meets their individualized needs.

The Flying classroom curriculum is designed to expose students to a multitude of different topics or exploration-based learning. Exploration-based learning is an active learning approach. This model is positioned to deliver high levels of engagement and concentration while reducing stress and boredom for all students. Through these experiences, students build their levels of confidence and creativity, resulting in improved performance and sustained motivation to learn (McGrath, 2015). As students become exposed to the Flying Classroom global STEM curriculum, they will have the opportunity to delve into further research as they develop their quarterly projects each year in their area of interest which will ultimately build up to a culminating 8th Grade Capstone Project.

The 8th Grade Capstone Project is designed to encourage students to think critically, solve challenging problems, and develop skills such as oral communication, public speaking, research skills, media literacy, teamwork, planning, self-sufficiency, or goal setting—i.e., skills that will help prepare them for college, modern careers, and adult life. The projects will also be interdisciplinary in the sense that they require students to apply skills or investigate issues based upon or an extension of the expeditions they will embark upon in the Flying Classroom curriculum. Capstone projects will also encourage students to connect their projects to community issues or problems and to integrate outside-of-school learning experiences, including activities such as interviews and scientific observations. A Capstone Exhibition will be held each spring to showcase student accomplishments and display Capstone projects for Lied students, faculty, parents, and community members. The goals of the 8th Grade Capstone Projects are to: Increase academic rigor, increase student motivation and engagement, increase educational and

career aspirations, improve student confidence and self-perception, and demonstrate learning and proficiency. These align with STEM3 Objectives 1, 3, 4, and 5, increasing academic achievement through high-quality instruction while improving parent and community engagement and school climate.

At the Lied MS Navigator Academy, students will have a magnet elective that will be double-blocked with their science class. While projects can be interdisciplinary, STEM will be the focus of the curriculum, quarterly projects, and 8th Grade Capstone Projects. Double-blocking science with the STEM magnet elective into one 90 minute period (facilitated by implementing an extended seven-period school day at Lied MS) will allow for greater collaboration between the science teacher and STEM elective teacher as well as increased STEM coursework opportunities for students. Teachers will have the ability to use the combined time in a more fluid sense as opposed to one set block of time. Expeditions can be completed with seamless transitions to and from core, standards-based science instruction, all within one uninterrupted block of time, targeting STEM<sup>3</sup> Objective 6 and allowing for an increase in the amount of STEM-related coursework offered to students.

*Table J: Lied Navigator Academy Curriculum Structure*

Lied Navigator Academy Curriculum Structure		
16 Expeditions (4 Each Quarter)	Quarterly Projects (1 Each Quarter)	Capstone Project (1 in Spring)
Grades 6,7, and 8	Grades 6 and 7	Grade 8
Engage in real-world, STEM research and expeditions by air, water, and land. Expedition features: culture, technology, environment, wildlife	Students will engage in four small quarterly projects each year.	Students will engage in a year-long development of a Capstone Project in groups of 3-4.

Collaborate with classrooms and peers around the world	Projects will be completed in groups of 3-4 students.	For quarters 1-3, students will present to a panel of community partners on where they are in the development of their project and receive constructive feedback.
Three year rotation with exposure to a different concept each year. (6 <sup>th</sup> grade: Biology and Medicine, 7 <sup>th</sup> grade: Food Conservation and Recycling, 8 <sup>th</sup> grade: Geothermal Energy and Climate Change)	Projects will be an extension of topics from Flying Classroom curriculum	Students will present final project in the spring to the community at the 8th Grade Capstone Exhibition.

Located in the northwest part of Las Vegas, the Lied Navigator Academy is located in a neighborhood where there are few magnet school options. However, Lied is less than five miles away from the Northwest Career and Technical Academy (NWCTA), one of the CCSD’s premier magnet high schools. The NWCTA offers many STEM-based program strands, including Engineering, Construction Technology, Biotechnology, Mechanical Technology, and Medical Professions. Matriculation to NWCTA will be a natural progression for Lied students. This intentional design targets STEM<sup>3</sup> Objectives 1, 2, 3, 4, 5, and 6, increasing student and subgroup academic achievement, reducing racial and socioeconomic isolation, providing high-quality STEM instruction and improving parent and community involvement and school climate in an educational cycle from grades 6-12.

Parent involvement will continue to be a priority at Lied, addressing STEM<sup>3</sup> Objectives 3 and 5, increasing and improving parent and community support and school climate. In response to recent negative feedback regarding school climate, Lied has focused efforts on becoming a true Community School, with a welcoming atmosphere for parents, students, staff, and

community members. Over the last two years, Lied has created a parent technology area on campus, allowing internet and technology access for parents in a convenient space. Lied hosts two large-scale family and community events – one in the spring and one in the fall, showcasing student performers, student work, and providing food and activities for families and students. The administration holds monthly parent workshops to provide information about school activities and to gain feedback from families. Additionally, parents elected to the Lied School Organizational Team have the opportunity to provide input on school budgets, aligning school programs with the needs of the local community, school culture and climate, and hiring of staff.

**Mike O’Callaghan MS** opened in 1991 in northeast Las Vegas near Sunrise Mountain. During the school's initial years, O'Callaghan MS experienced great success with the support of a cohesive staff and parent community. Major changes have occurred in the surrounding community, affecting the student demographics of O'Callaghan MS. The greater Las Vegas community and the northeast community exploded in growth in the 1990's and the first decade of the new century. The opening of new schools during this time period led to major changes in the demographics of the O'Callaghan MS attendance zone. The economic downturn of the years following 2008 also had an effect on the educational community. These factors have had a direct impact on the student achievement. The school was designated a school in need of improvement beginning in 2003, a Title 1 school in 2009, and a Turnaround School in 2012. The administration of the school changed in 2009, 2012, and 2014, and staff turnover was especially high between 2012 and 2014. During the years of frequent changes in school leadership, staff morale and school climate have been on the decline. The goal over the five-year grant period is to increase the percentage of African American and White students enrolled in O’Callaghan MS to more closely reflect the district-wide middle school proportions.

Appointed in 2014, current Principal Scott Fligor has begun implementing programs and policies to improve both student achievement and school climate including a student incentive program for academic growth, a new tardy policy and procedures, an increase in elective course offerings, improved implementation of the cooperative consultative model, the addition of a behavior mentor, and a new rotation bell schedule. Most recently, O'Callaghan MS has implemented the i<sup>3</sup>Learn Academy, an innovative, interactive, and individualized blended learning program. During the 2016–2017 school year, the program served 165 of 1,300 students. During the 2017–2018 school year, the program will be incorporated into all but four classrooms on campus serving neighborhood students. Once converted to an MSAP magnet school, the Mike O'Callaghan i<sup>3</sup>Learn Digital Media Academy will become a full school magnet program, offering a blended learning environment to all students, with a focus on Digital Media.

The i<sup>3</sup>Learn Academy will continue to use the Canvas Learning Management System to power blended instruction. Founded in 2008 and powered by Instructure, Canvas is an online lesson delivery system. To date, it is used by over 2,000 K–12 and higher educational institutions, including eight of the 2017 U.S. News and World Report Top 20 Bachelor's Degree Programs for Online Students. Top 20 users include Embry-Riddle Aeronautical University Worldwide, New England Institute of Technology, Ohio State University, Oregon State University, Pennsylvania State University, Utah State University, and the University of Florida. For students, Canvas LMS helps them to get notifications, submit paperwork, and interact with the learning materials given to them on the devices they use. They can also combine their Canvas LMS account with their social media accounts such as Facebook and Twitter. For teachers, Canvas LMS offers a platform with which they can create the learning tool they want for their learners. Teachers can offer feedback, integrate videos, blogs, wikis, and other channels of

education, while tracking their students' progress. O'Callaghan i<sup>3</sup>Learn Academy students will receive instruction in all core subject areas through Canvas, using a hybrid flex and station rotation system. Core classes will be divided, with half of the students receiving face-to-face instruction while the other half complete lesson modules online using Canvas. Groups rotate each day. To facilitate this, the i<sup>3</sup>Learn Academy is a 1:1 technology school, with all students receiving Google Chromebooks for easy access to the Canvas system. Classrooms will be outfitted with flexible furniture, including a hybrid of tables and individual desks as well as desktop whiteboards to allow for student collaboration, individual workstations, and technology-based instruction. The blended learning approach is the cornerstone of instruction at O'Callaghan and will provide personalized learning in all core classes to all i<sup>3</sup>Learn Academy students. Supplements to the Canvas models include proficiency-based, adaptive software including Reading Plus and ALEKS Math. Personalized learning allows for customization of rigor and depth of content knowledge by allowing for both remediation and acceleration to happen in one class simultaneously through the use of the station rotation system. Combined with the school's targeted recruiting plan, the blended and personalized learning model at O'Callaghan focuses on STEM<sup>3</sup> Objectives 1, 2, and 4, targeting increased academic achievement for all students and student subgroups, reduced socioeconomic and racial isolation, and sustained highly-effective instruction.

The infusion of technology into instruction at the Mike O'Callaghan i<sup>3</sup>Learn Digital Media Academy will be two-fold. Every student will receive online personalized instruction in all core areas. Additionally, all students will cycle through a series of Digital Media courses during the three years at O'Callaghan. All sixth grade students will enroll in a common four-quarter (one year) exploratory course, offering one of the following pathways each quarter:

Video Game Technology, Video Production, Web Design, and Coding. Seventh and Eighth Grade students will select one of the four pathways and will receive more advanced instruction in their chosen area over the next two years. An extended seven-period school day at O’Callaghan will allow students to enroll in all core courses, Digital Media program courses, and an additional elective such as band, choir, orchestra, or Spanish, addressing STEM<sup>3</sup> Objectives 4, 5, and 6, targeting high-quality instruction, increased STEM coursework, and improved school climate.

The Mike O’Callaghan i<sup>3</sup>Learn Digital Media Academy provides vertical program alignment between both an elementary feeder school and the neighborhood high school. The blended and personalized learning model at O’Callaghan will serve as a direct extension from a nearby magnet elementary school. The Marzano STEM Academy at Lomie Heard ES offers personalized competency-based education based on the research of noted educator Dr. Robert Marzano. At the Marzano Academy, students receive personalized learning through blended learning in a station rotation structure. Additionally, coding is a major component of the STEM curriculum at the Marzano Academy. Matriculation to the i<sup>3</sup>Learn Academy will be a natural progression for Marzano students. A few miles away from O’Callaghan, the Eldorado High School Academy of Video Game Technology and Web Design opened in 2015 as a new magnet school during the CCSD’s most recent magnet school expansion initiative. Matriculation to Eldorado will be a natural progression for O’Callaghan students. This intentional design targets STEM<sup>3</sup> Objectives 1, 2, 3, 4, 5, and 6, increasing student and subgroup academic achievement, reducing racial and socioeconomic isolation, providing high-quality STEM instruction, and improving parent and community involvement and school climate in a complete educational cycle from grades 1 through 12.

In order to deliver highly-effective instruction, teachers must have access to high-quality professional development and robust resources. In line with STEM<sup>3</sup> Objective 4, focusing on rigorous and sustained professional development, over the course of the MSAP grant and beyond, O’Callaghan i<sup>3</sup>Learn teachers will participate in sustained professional development which will include job-embedded blended learning training through Stanford University’s Redbird Learning. Combining the research capabilities of Stanford University with advanced learning technologies, Redbird Learning offers a digital curriculum that equips teachers with the training and support required to effectively implement cutting-edge pedagogical blended and personalized learning practices. The 14 to 18 hour experience is delivered in 20 minute blocks to increase retention of information and engagement. Throughout the experience, teachers receive checks for understanding, frequent motivation, and points to incentivize continued learning. Online and real world projects create direct connections between learning and practice. Required Redbird Blended Learning Training will be completed during job-embedded Site-Based Collaboration Time provided at all CCSD schools for one hour per week, but curriculum is accessible at any time, allowing teachers the flexibility to complete or review modules at their own pace. All teachers will receive additional coaching support in blended learning instruction through the CCSD K-12 Online and Blended Learning team, who are the District specialists in online, blended, and personalized learning. The team currently works with O’Callaghan teachers to provide support for the existing blended learning program. Blended learning professional development and coaching will be the focus for the first two years of the MSAP grant, with job-embedded refresh training and new teacher onboarding provided during the remainder of the life of the grant and beyond. A cohesive and relevant infusion of magnet theme content into all subject areas is a key factor in building and sustaining a robust program. To that end, all

O’Callaghan teachers will participate in the extensive Project Based Learning (PBL) training provided by the Buck Institute. The premier organization in the field of PBL training, the intensive three-day seminar equips teachers with the skills necessary to create engaging, relevant, thought-provoking project-based learning activities for students. All O’Callaghan teachers will participate in the Buck Institute’s on-site seminar and the two subsequent refresh sessions starting in the third year of the MSAP grant. O’Callaghan will provide ongoing PBL onboarding training to new staff using lead teachers and other school leadership. Over the life of the grant, O’Callaghan administrators and teachers will attend the Magnet Schools of America (MSA) Technical Training conferences (with a focus on implementing and sustaining MSAP grant programs). Additional professional development opportunities offered to teachers during the life of the grant and beyond include MSA, International Society for Technology in Education (ISTE), or International Association for K-12 Online Learning (iNACOL) National Conferences, and the Patrick Suppes Personalized Learning Summit. Teachers will have the opportunity to attend a conference which best meets their individualized needs.

Parent and community partnerships will be formed to build, strengthen, and sustain the magnet program at the Mike O’Callaghan i<sup>3</sup>Learn Digital Media Academy, addressing STEM<sup>3</sup> Objectives 3 and 5, increasing and improving parent and community support and school climate. Parent and community involvement begins in the planning year, with strategically scheduled informational meetings, open houses, and campus tours aimed at informing families and community members about the new i<sup>3</sup>Learn Digital Media Academy at O’Callaghan. Parent involvement continues each year with ParentsLearn, an introductory seminar on blended learning for families and parents of i<sup>3</sup>Learn Academy students. ParentsLearn will acquaint families with the blended learning process and introduce them to the personalized learning model to ensure

that families have a clear understanding of the unique educational setting that students experience at O’Callaghan. Updates on the i<sup>3</sup>Learn Digital Media Academy will be provided at all parent meetings. Additionally, parents elected to the O’Callaghan School Organizational Team, an advisory group comprised of parents, school administration, teachers, and community members, will provide input on school budgets, aligning school programs with the needs of the local community, school culture and climate, and hiring of staff. A School Organizational Team exists on every CCSD campus.

As CCSD MSAP grant schools, Gehring, Lied, and O’Callaghan will each experience a conversion to a full-school magnet program. This implementation will begin in year one of the grant cycle: the planning year, with parent informational meetings, open houses, and school tours. Flexible classroom furniture and technology upgrades will be purchased in the planning and first implementation years of the grant. Business and community partnerships will be built and maintained through open houses and school tours, outreach, and networking beginning in year one, relying heavily on the CCSD Community Partnership Office and the CCSD Magnet Future Ready initiative. Teacher professional development will be ongoing during the life of the grant and beyond, with all-faculty training sessions held in years 1 – 3, including Project Lead the Way Launch (Gehring), Flying Classroom (Lied), Stanford University Redbird Blended Learning (O’Callaghan), and the Buck Institute Project Based Learning three day seminar (all schools.) Years 3 – 5 and beyond will consist of refresher trainings and new teacher onboarding, as well as professional conferences and potential all-faculty trainings as cutting edge methods are developed in each school’s unique curriculum. Targeted recruitment planning, implementation, and evaluation will be ongoing, focusing on the goal of bringing in a diverse pool of applicants in order to ensure a diverse student body at each school, reflective of the diverse CCSD

enrollment.

Implementation for all STEM<sup>3</sup> project new schools will begin in year one of the grant cycle: the planning year, with parent informational meetings, open houses, and school tours. Parents will be informed of the full school magnet conversion at each site. School personnel and CCSD Magnet Department personnel will conduct informational meetings for each school in a variety of neighborhood locations at a variety of times to accommodate varying family schedules. Spanish translation will be available at all events. Information specific to each school will be provided. South Las Vegas families will receive information about the Roger Gehring STEM Academy including blended and personalized learning and the Project Lead the Way Launch curriculum. Northwest Las Vegas families will receive information about the Lied Navigator Academy including blended and personalized learning and the Flying Classroom curriculum. East Las Vegas families will receive information about the Mike O'Callaghan i<sup>3</sup>Learn Digital Media Academy including the blended and personalized learning component and the Digital Media focus. Parents will also be informed of the procedures for the phase out of the neighborhood zone for each school. All three schools will begin targeted recruiting efforts, with the assistance of the CCSD Magnet Department, in the fall of 2017.

Fostering academic achievement has been at the forefront of the design for all CCSD magnet schools and will continue to be a priority in building and sustaining all existing and new programs.

**(2) The extent to which the applicant demonstrates that it has the resources to operate the project beyond the length of the grant, including a multi-year financial and operating model and accompanying plan; the demonstrated commitment of any partners; evidence of broad support from stakeholders critical to the project's long-term success; or more than one of these types of evidence.**

CCSD is committed to sustaining the magnet initiatives described in the STEM<sup>3</sup> project proposal following the conclusion of MSAP funding, as evidenced by the 37 magnet schools currently in existence. Every magnet school that has been established since 1993, when magnet programs first began, has been sustained with District funds. 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.

CCSD's Commitment of Resources after Federal Funds Are No Longer Available:

With MSAP support, CCSD has developed six magnet schools since 2004: Using the first year of operation as the baseline, five of the six have reduced minority group isolation (MGI) through the current school year. In addition, every school is still operating as a magnet. All six of these schools are being completely supported with the District general fund as well as Title funding at many of the schools. After federal funds are no longer available, the programs described in this proposal will be continued with local (county and state) funds just as all other

CCSD magnet schools have been.

This project is not simply developing and implementing magnet themes that will be integrated into existing school structures and curricula. The goals are in direct relation to the STEM<sup>3</sup> Objectives: increase academic achievement of all students; reduce, eliminate or prevent socioeconomic, racial, and gender isolation; increase parent and community support; increase highly-effective instruction through a rigorous and sustained professional development initiative; improve school climate; and increase participation in STEM education and improve student perceptions about STEM. CCSD has chosen its magnet school model for the proposed magnet schools because it has been the successful model that has worked in all other CCSD magnet schools. The activities described in this application will build the capacity of CCSD to continue its magnet schools after federal funds are no longer available.

For over two decades, CCSD magnet programs have been the trusted public school choice and, as a result, the demand for these programs greatly exceeds the number of available seats. CCSD magnet programs have been award-winning since its inception. CCSD has been awarded over 20 Magnet Schools of America Merit Awards a year for over five years. Two schools received the MSA award for top magnet school in the nation. CCSD magnet schools also typically have the highest number of National Merit Scholars and Gates Millennium Scholars in the District. Over the past few years, CCSD has greatly expanded the number of magnet schools and seats available to students; but even with this expansion over half of the students that apply are not accepted. Currently, CCSD does not have the funds to open new programs despite this being a strong demand from the community. There are only funds to sustain the current schools leveraging District and Title funding.

CCSD has memorialized specific language in the official CCSD Budget Book to support

existing magnet programs. If the proposed MSAP STEM<sup>3</sup> schools are awarded, they will also be sustained with the following resources after the five year period ends. As a result of varying length of day and program requirements, magnet schools within the District require additional enhancement appropriations. Increased allocations for instructional supplies and textbooks are required to accommodate longer instructional days resulting from additional classroom periods. At the secondary level, when magnet school instruction requires students to attend either seven or eight period days (rather than the traditional six period day), textbooks and instructional supply formulas will be increased by the following percentages applied to the number of students enrolled in the magnet program: schools with seven-period schedules are calculated at 16.7 percent and schools with eight-period schedules are calculated at 33.3 percent. The school growth formula is applied to the total magnet student enrollment increase in each magnet school. Growth in a magnet program will be calculated at a rate which equates to the percentage of the student day spent in magnet classes for magnet students. Lastly, the District supports magnet programs by providing the following staffing: Elementary magnet schools will receive 19 minutes of additional instruction to support the magnet theme and a Magnet Theme Coordinator. Secondary magnet schools are funded for either an extended seven or eight period day and a Magnet Theme Coordinator, Magnet Recruiter, and Office Specialist. In addition, the District pays for all transportation costs.

The majority of the District's current 37 magnet schools receive Title I allocations. Gehring ES, Lied MS, and O'Callaghan MS also receive Title I funding. For the 2016-2017 school year, Gehring ES received \$49,980 and Lied MS received \$83,860. Due to designation as a low-performing school combined with a high percentage of students who qualify for Free or Reduced Lunch, O'Callaghan receives \$400,000 in Title I funds. These funds can be used to

support a wide variety of activities to improve the academic achievement of students including professional development, supplies, equipment and curriculum development. Finally, the CCSD Magnet Schools and Career and Technical Academies Department will allocate approximately \$75,000 a year to the three MSAP STEM<sup>3</sup> Project schools (Gehring ES, Lied MS, and O'Callaghan MS) for things such as professional development, supplies, equipment, textbooks and field trips. Therefore, while these schools would not have the resources to start a magnet program or to completely redevelop and restructure curriculum and instruction, they will have the resources to maintain the programs that will be developed. Also, because magnet schools have been part of the culture of CCSD for so many years, the entire cost of the recruitment, marketing, application, and selection processes for the three magnet schools participating in this project will be paid for by the District.

### **Sustainability Planning:**

While there are many activities, structures, and resources built into this project, sustainability planning is needed to ensure the best use of these available resources and to identify additional resources and supports. Successful magnet programs must focus on progress and have systems in place to constantly evaluate and maintain the program. Therefore, the STEM<sup>3</sup> Project Director will coordinate the development of a detailed plan for sustainability, starting in the project's first year. The goals of this process will be aligned to best practices around ensuring program sustainability: (1) engaging strong leadership; (2) understanding the magnet program's mission, vision, and goals; (3) the development of realistic goals and objectives for after federal funds are no longer available; (4) knowing the community; and (5) documenting and communicating magnet program successes (The MSAP Center, 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, magnet department staff, school staff, community partners, parents, and relevant District staff ). This work will be structured using the Sustainability Self-Assessment Tool for Magnet School Assistance Program Grantees developed by The MSAP Center and The Finance Project. The team will develop a theory of action for the plan that will include components key to magnet sustainability: Vision and Results, Conditions and Causes, Strategies and Activities, Performance Measures, Interim Indicators, and Ultimate Indicators (The MSAP Center and The Finance Project, 2013). Goals will follow the SMART framework and will be Specific, Measurable, Action-Oriented, Realistic, and Timely. 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 and recruiting activities, community outreach); (2) determining the project's fiscal needs; and (3) identifying the resources available to meet those needs and the remaining resource gaps.

The Magnet Sustainability Team will meet regularly throughout the school year and for the duration of the grant period to ensure that the goals of the sustainability plan are being met for each school. By the end of the second grant year, the team will have completed a comprehensive sustainability plan to be distributed to key stakeholders, which will include the following elements: History, Progress, and Future Plans; Strategic Considerations; a Financing Plan; an Action Plan and Timetable; and Supporting Documents as needed (The MSAP Center and The Finance Project, 2013). Completing the sustainability plan by the end of the second year (which will be the first full year of implementation) will allow each school to implement the plan as proposed in subsequent years (3 through 5). At the end of each implementation year,

modifications will be made to ensure that the school is staying on the path for successful magnet program implementation.

**(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.**

A core component of the STEM<sup>3</sup> Project 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. An Institute of Education Sciences (IES) sponsored review (Yoon, et al., 2007; Yoon, Duncan, Lee, & Shapley 2008) identified nine studies that met the What Works Clearinghouse evidence standards and 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. Each of the nine 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. Therefore, at all STEM<sup>3</sup> Project schools, all teachers will receive at least 50 hours of PD focused on STEM subjects and integration including formal workshops or online training, professional learning communities,

and collaboration with colleagues. The project design builds follow-up and coaching activities into the professional learning model. To ensure that training is sustained over time, the project requires each teacher in each school to engage in 50 hours of follow-up, job-embedded professional learning, providing opportunities for teachers to practice, research, and reflect to effectively transfer new learning to the classroom. The proposed PD, supporting STEM<sup>3</sup> Objective 4, the professional development component of the project, is comprehensive and rigorous and, as demonstrated in the research, is of sufficient intensity and duration to lead to improvements in practice among the recipients of those services.

Site-Based Collaboration Time (64 minutes/week; 1,724 minutes/year): During these collaborative sessions, teachers will participate in online trainings and workshops for PD in themes unique to each new school. Site-Based Collaboration Time (SBCT) will be implemented to provide time for CCSD staff to meet in small and large groups to focus on improving instruction and student learning, with professional development topics that are mutually planned and scheduled by staff and principal at the school level or site administrator and licensed staff in units/departments. Expected uses of SBCT include, but are not limited to professional development and teacher collaboration. As all teachers at all CCSD schools participate in SBCT, weekly PD during this time will be ongoing during the life of the grant and beyond.

Quarterly Planning Time (7 hours/quarter per grade level and/or subject area): During these collaborative sessions, teachers will learn how to develop STEM units and projects and align them with the CCSS, NGSS, and state standards. Magnet lead teachers, grade level leads, department chairs, instructional coaches, learning strategists, and technology specialists will facilitate and help structure these sessions. This time will also be used for unit development and magnet integration. Teachers at Gehring, Lied, and O'Callaghan will implement quarterly

planning time during the planning year, and the procedure will continue through the life of the grant and beyond.

**School Improvement Planning:** The CCSD'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. Each school develops the plan in consultation with their Performance Zone School Associate Superintendent. Each plan must be approved by the District and the results are evaluated each year. Much of the PD related to curriculum and instruction improvement is related to the findings of the school improvement process. The MSAP project contributes an even more intense focus on curriculum and instruction at the classroom level, additional PD and resources focused on curriculum and instruction improvement, and the creation of a high interest (magnet theme) curriculum. An important part of the CCSD conversion magnet model is revising all core academic subject units and how they are taught while teachers receive intensive PD to support the magnet theme development, integration, and implementation. Each School Improvement Plan will contain an extensive professional development plan for the improvement of core academic subjects that is the result of the school improvement process. This will continue during the life of the grant and beyond.

Buck Institute for Education: (21 hours over three days) The Buck Institute for Education (BIE) will provide all teachers at Gehring, Lied, and O'Callaghan with professional development on developing interdisciplinary magnet theme units that use Project Based Learning (PBL) and include authentic projects that integrate the global awareness theme to solve real world problems.

BIE will guide teachers through the development of a quality rubric for magnet units to be used in the peer review process. 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 three days, teachers will be given the skills and knowledge to design and implement a rigorous and thematic, project-based unit aligned to the CCSS and NGSS. 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 project plan for their first 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. As with other types of professional development in this project, the magnet lead 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 includes a full day (7 hour) follow-up for once a year for two years after the initial training. Gehring and Lied staff will begin the BIE training in June 2018, with follow up trainings in 2019 and 2020. O’Callaghan staff will begin in June 2019, with follow up trainings in 2020 and 2021.

**Project Lead the Way Launch:** (24 hours over 3 days) Specifically used at Gehring ES, Project Lead the Way Launch Lead Teacher Training is an in-depth, collaborative experience designed to empower educators to develop the confidence, understanding, and knowledge necessary to lead Building-Level Training for prospective PLTW Launch Classroom Teachers at their site. Gehring lead teachers will be identified during the planning year and will attend the Launch Lead Teacher Training in June/July of 2018. During the 24 instructional hours (covered over three days) of Launch Lead Teacher Training, participants experience the roles of the

PLTW Launch student, Classroom Teacher, and Lead Teacher as they engage in PLTW Launch activities, projects, and problems and delve into pedagogical strategies. PLTW Launch Lead Teacher Ongoing Training empowers teachers to continue growing through ongoing learning experiences. Ongoing Training provides Launch Lead Teachers with access to professional development resources like Lynda.com; best practices related to facilitating Building-Level Training; and networking through the national online PLTW Launch Lead Teacher Professional Learning Community (PLC). PLTW Launch Lead Teachers are dynamic instructional leaders who have the capacity and passion to lead on-site teacher professional development activities, serve as the PLTW Launch point person at their program sites, and provide ongoing guidance and support for PLTW Launch Classroom Teachers within their buildings. After engaging in in-depth training experiences, PLTW Launch Lead Teachers conduct on-site Building-Level Readiness Training for all educators at their site who will teach PLTW Launch. Once the program is up and running, PLTW Launch Lead Teachers provide ongoing guidance to PLTW Launch Classroom Teachers in areas like inventory management. PLTW Launch Lead Teachers may be classroom teachers, instructional coaches, or administrators. Gehring Lead Teachers will conduct Classroom Teacher Training during SBCT during years 2 – 5 of the grant cycle and beyond.

**Redbird Blended Learning:** Specifically used at O’Callaghan MS, Redbird Blended Learning is a scaffolded series that helps educators at all levels effectively deliver 21st Century instruction through increased personalization, better integrated technology, effective data and classroom management, and engaging lesson planning. The 14 to 18 hour experience is delivered in 20 minute blocks to increase retention of information and engagement. All O’Callaghan teachers will participate in Redbird Blended Learning Training beginning in the planning year

(fall 2017) and must complete the modules at the end of implementation year 1 (spring 2019). Throughout the experience, teachers receive checks for understanding, frequent motivation, and points to incentivize continued learning. Online and real world projects create direct connections between learning and practice. The Blended Learning model will be incorporated into all O’Callaghan MS classrooms over a three-year period.

**Flying Classroom:** Easily accessible via internet, the Flying Classroom curriculum, used specifically at Lied MS, includes 16 expedition modules, all of which include teacher facilitation guides and professional development resources. All Lied teachers will participate in Flying Classroom module training beginning in the planning year (fall 2017) and must complete the modules at the end of implementation year 1 (spring 2019). The Flying Classroom STEM+ curriculum will cover core STEM subjects plus Reading, Language Arts, Geography, Social Studies, and Health. All lessons are aligned to the National Common Core Standards.

CCSD K-12 Online and Blended Learning, Instructional Design and Professional Learning (IDPL), English Language Learners (ELL), and Equity and Diversity Departments: Teachers at all schools will participate in district-provided professional development during weekly SBCT time including, but not limited to the following topics:

**Blended and Personalized Learning:** A major focus of the project design at all three schools, blended and personalized learning training and refresh provided by the K-12 Online and Blended Learning department will occur at Gehring, Lied, and O’Callaghan during all five years of the grant cycle and beyond.

**Core Content Areas:** Regular PD occurs at all CCSD schools in the core content areas provided by the IDPL Division. Teachers will receive PD on cutting edge instructional strategies for instruction in ELA, mathematics, science, and social studies. Combined with innovative

STEM infusion, PBL, and blended and personalized learning, these approaches will target increasing student achievement in core areas, aligning with STEM<sup>3</sup> Objective 1.

**Cultural Competency:** With STEM<sup>3</sup> Objectives 1 and 2 aimed at preventing isolation and increasing student achievement in minority and low-socioeconomic student groups, cultural competency training is imperative to ensure that teachers at all three new schools are equipped with the tools to address the unique needs of all learners. To that end, cultural competency training provided by the Equity and Diversity Department will occur at Gehring, Lied, and O’Callaghan during all five years of the grant cycle and beyond.

**ELL Master Plan:** The CCSD has developed an ELL Master Plan, which will be implemented at all CCSD schools using a phase-in approach over the next three years. The model addresses the needs of both ELL students and students who come to school speaking non-standard varieties of English. It allows teachers to integrate content and language simultaneously so that all students regardless of language proficiency can receive support in all subject areas. The ELL Master Plan aims to strengthen both current grade-level, standards-based instruction in the core content areas as well as meet the unique needs of ELL learners at all levels. PD will occur in 16 hour-long sessions over three years. The time frame at all three schools will vary, as the trainings will occur over a five year period, with a staggered implementation process, dividing all schools in the District into three cohorts.

**Professional Conferences:** Gehring, Lied, and O’Callaghan staff will attend conferences for additional PD relevant to specific roles and assignments at each school. Conferences will include Magnet Schools of America (MSA), International Association for K–12 Online Learning (iNACOL), International Society for Technology in Education (ISTE), International STEM

Association (ISEA), and other applicable conferences as determined by school administration and teachers.

**Additional PD:** Magnet Lead Teachers at each school will provide and facilitate embedded STEM and/or Blended and Personalized Learning professional development that will include: demonstration lessons and coaching; observations and feedback; creation of magnet standards, curriculum mapping; help classroom teachers create units and lessons that integrate the CCSS, the NGSS, and the school's specific magnet theme, are project-based, and use inquiry and technology; facilitate teacher collaboration; and support individualized teacher learning plans. A train the trainer model will be utilized, with District magnet staff, lead teachers and coordinators attending a variety of certification and train the trainer activities that will enable them to continually provide training and support for teachers. PD may include teacher visits to model schools, both locally and nationally, for observation and evaluation purposes. To allow for flexibility and customization, Quarterly Planning and Site-Based Collaboration Time will account for 49 PD hours per year, with the other 51 occurring through PBL, PLTW, Redbird, Flying Classroom, Professional Conferences, model school visits, demonstration lessons and coaching, and online workshops.

**Onboarding and Refresh:** Magnet Lead Teachers, instructional coaches, learning strategists, and technology specialists in each school will provide new teacher onboarding and refresh follow-up supports with coaching, modeling, demonstrating, and providing feedback, with additional follow-up provided by the expert trainers and consultants. The model will enhance collegiality as teachers will collaborate in peer coaching and work together to solve problems related to teaching and learning. The design provides for evaluation of the impact of the professional development program on the teacher as the learner and on the students in their

academic performance and achievement. All teachers are part of the magnet school project and will participate in professional development. Strategic components will focus on effective instructional strategies for improving academic achievement for all students and for all student subgroups, as well as for meeting the unique needs of a staff undergoing change in the development and implementation of the magnet school project. Training will also address the specific challenges unique to the students in these schools. Further, in their role as administrators, it is expected that principals and/or assistant principals will engage with staff to support the program design work for 8 hours per grant year.

Utilizing both local and national resources, teachers at each STEM<sup>3</sup> school will work collaboratively to build shared understanding of best practices and to increase differentiation and rigor across each of the core content areas through the lens of the magnet theme. Research has found a correlation between professional development and both improved instruction and student achievement when professional development focuses on the teacher's actual curriculum materials, standards, and assessment (Yoon et al., 2007). These opportunities for facilitated dialogue, coupled with structured guidance from magnet resource specialists and project partners, will permit teachers to navigate the implementation of the integration of the STEM curriculum, blended and personalized learning, and the Common Core in a way that meaningfully and demonstrably impacts student achievement.

#### **(4) The extent to which the proposed project is supported by strong theory**

The proposed STEM<sup>3</sup> Project is supported by strong theory and aligns with Clark County School District (CCSD) initiatives. Research, best practices, and almost 25 years of successful magnet program implementation in CCSD are the foundation for the selected strategies, activities, programs, and practices included in the project and outlined in the District logic model

and school logic models found in Appendix C. The logic model activities focus on achieving the project objectives and performance measures. These activities include designing and implementing research-based magnet programs, creating and implementing a sustained professional development program, developing targeted recruiting plans, and fostering family and community partnerships.

The STEM<sup>3</sup> Project incorporates lessons learned about program implementation, promotion, and continuous improvement outlined in *Creating Successful Magnet Schools Programs* (USDOE, 2004). These include: 1) *appealing and sustainable themes*; 2) *developing and selecting quality staff*; 3) *cultivating community resources*; 4) *special roles*; and 5) *district support*.

**Appealing and sustainable themes:** STEM education advocates stress the interrelationships of the STEM subjects and the necessity of an interdisciplinary approach to teaching science, technology, engineering, and mathematics (Thornburg, D., 2008.). In addition to developing content knowledge, STEM education also seeks to cultivate soft skills such as scientific inquiry and problem-solving skills (Katehi, L., G. Pearson, and M. Feder, 2009). These comments confirm that STEM education should include the interdisciplinary and hands-on, experience- based pedagogical techniques (Hanover, 2013) proposed at all of the schools, specifically the school-wide project-based learning strategy proposed for all three STEM<sup>3</sup> schools.

**Developing and selecting quality staff:** Time for high-quality professional development is essential to the project's success. In a meta-analysis of 1300 studies addressing the effect of professional development on student achievement in mathematics, science, reading and English/language arts, the nine that met *What Works Clearinghouse* Standards demonstrate the

vital importance of the amount of time devoted to professional development for teachers. These nine studies conclude overall that a larger amount of time (with quality, intensity, and duration) devoted to professional development will have a direct and positive impact on student achievement. The results show that students would increase their achievement by 21 points if their teachers had substantial professional development (an average of 49 hours across these studies) (Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K., 2007). The design of the *professional development proposed in this MSAP project* is based upon the *strong theory* found in these nine studies that more hours of professional development for teachers will have a positive effect on student achievement, and the professional development planned for this project meets the design standards of quality, intensity, and duration. Therefore, at all STEM<sup>3</sup> Project schools, all teachers will receive at least 50 hours of PD focused on STEM subjects and integration including formal workshops or online training, professional learning communities, and collaboration with colleagues. The project design builds follow-up and coaching activities into the professional learning model. To ensure that training is sustained over time, the project requires each teacher in each school to engage in 50 hours of follow-up, job-embedded professional learning, providing opportunities for teachers to practice, research, and reflect to effectively transfer new learning to the classroom. The proposed PD is comprehensive and rigorous and, as demonstrated in the research, is of sufficient intensity and duration to lead to improvements in practice among the recipients of those services.

**Cultivating community resources:** The CCSD has cultivated strong partnerships with the Las Vegas Community over the last 50+ years. Hundreds of Clark County businesses participate or have participated in partnerships with local schools. Casinos, construction firms, banks, local media, retailers, hospitals, law offices, and other local businesses all maintain

vibrant partnerships with the CCSD. Local entities Green Our Planet and the Desert Research Institute and have committed to building partnerships with the STEM<sup>3</sup> project schools. Additionally, CCSD partners with local higher education agencies to establish college and career readiness pipelines for Nevada students (see letters of support.) CCSD Magnet Schools work closely with the District Community Partnership Office to match interested local businesses with schools and programs. Finally, the CCSD Magnet Department has developed a partnership with the Las Vegas Global Economic Alliance (LVGEA) called Future Ready. Future Ready assists local industry, policy makers, educators, and community advocates in creating productive partnerships with CCSD Magnet Schools. Through Future Ready and the Community Partnership Office, the STEM<sup>3</sup> schools will have access to a wealth of community resources.

**Special roles and District support:** School Magnet Teams, Magnet Coordinators, Magnet Recruiters and Lead Teachers will assume special roles at all STEM<sup>3</sup> schools in order to spearhead the implementation of the new magnet programs at each school and will receive District support from the Magnet Sustainability Team, Project Director, and CCSD Magnet Department to complete activities and achieve the objectives and performance measures of the project. Additional District support will be provided by the Instructional Design and Professional Learning Division (IDPL) and K-12 Online and Blended Learning Department; Family and Community Engagement Services (FACES); English Language Learner (ELL) Division; Student Services Division (SSD); and Equity and Diversity Education (EDE). See Quality of Personnel section for additional information.

The STEM<sup>3</sup> Project also aligns with USDOE recommendations to promote the programs through extensive marketing efforts, ensuring that the application process is easy for parents, consistent, and fair; and that the transportation plan is coordinated with other choice programs.

Finally, as recommended, the project planning has carefully provided for, and budgeted for, all of these vital magnet school implementation components: 1) time for teacher collaboration; 2) high-quality professional development; 3) coordination with state and District standards; 4) use of parents and outside resources to implement the program; and 5) continuous improvement through data driven decision-making with community and parental involvement. The project's continuous improvement, community partnerships, and outreach and marketing strategies will help sustain the project, as outlined in *Creating and Sustaining Successful K-8 Magnet Schools* (USDOE, 2008). Research demonstrates that attendance at a magnet middle school has positive effects on students' reading achievement, as well as academic attitudes and behaviors and attendance, compared to students in non-magnet schools, aligning with all six STEM<sup>3</sup> Objectives.

### **(c) Quality of Management Plan**

#### **(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.**

Nearly 25 years of planning and operation of magnet schools has provided the Clark County School District with the experience and knowledge required to maintain successful magnet programs. The management plan that follows includes many of the individuals who have helped to successfully implement past desegregation and magnet school efforts. The CCSD is the applicant and fiscal agent responsible for the execution and administration of the MSAP STEM<sup>3</sup> Project. The District has the experience and capacity to manage the MSAP grant effectively, with clearly delineated authority and responsibility, and with experienced, highly qualified and professional staff who are full-time District employees in positions that require continuity and follow-through. The management plan for the proposed STEM<sup>3</sup> Project provides the guidance

and oversight necessary to achieve the objectives and performance measures of the project on time and within budget. All project expenditures will be monitored by the Grant Coordinator and finance department to ensure expenditures are reasonable and meet purchasing guidelines. Planning will begin in the 2017-2018 school year with implementation for all three proposed schools in the 2018-19 school year. All objectives, as measured and quantified by an external, independent evaluator, will be accomplished within the designated five-year project period. The MSAP Project Coordinator will work closely with the MSAP Project Director, CCSD Magnet Department staff, Assistant Superintendent, MSAP School Teams, and Community Partners to implement, monitor, and evaluate all activities outlined in the proposed project logic model and in the MSAP Project Timeline (Appendix D).

The management plan is designed to enable project staff to achieve the goals and objectives in a timely and efficient manner with all objectives accomplished as quantified by annual performance measures. To foster systems change in the proposed magnet schools, continuous hands-on support, leadership and technical assistance will be provided by the project management team throughout the 5-year project period. Local capacity to provide, improve, and expand services is built-in at every level of planning, development, and implementation.

## STEM<sup>3</sup> Project Organizational Chart



### **District Level Management:**

The Magnet Sustainability Team, which includes the MSAP Project Director, MSAP Project Coordinator, MSAP School Principals, CCSD Magnet Department staff, community partners, parents, and relevant District staff, will meet monthly to assess all activities and

outcomes of the project. The MSAP Project Coordinator will be responsible for the implementation of all proposed project activities. The MSAP Project Coordinator will be housed in the CCSD Magnet Offices and will report to the MSAP Project Director weekly on all aspects of the project. The MSAP Project Director will report weekly to the Assistant Superintendent and Superintendent on the project finances, activities, and outcomes.

**School Level Management:**

The MSAP Project Coordinator will meet with the MSAP School Magnet Teams weekly to organize, facilitate, and manage all MSAP proposed project activities. The MSAP School Magnet Team at each school will consist of the Principal, other school administrators, the Magnet Coordinator, the Magnet Recruiter or STEM Specialist, and lead teachers. The Magnet School Teams will be responsible for implementing all activities outlined in the proposed project logic model and timeline above. Magnet School Teams and staff will receive district-level support to complete activities and achieve the objectives and performance measures of the project, including professional development and curriculum development support from the Instructional Design and Professional Learning Division (IDPL) and K-12 Online and Blended Learning Department; family and community partnership support from the Family and Community Engagement Services (FACES); and further support from the English Language Learner (ELL) Division; Student Services Division (SSD); and Equity and Diversity Education (EDE).

**External Evaluator:**

The MSAP Project Director will meet quarterly with WestEd, the external evaluator, to plan for the implementation of surveys and data tools to evaluate the objectives and performance measures of the project. Complete details can be found in the Quality of Evaluation section.

**(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, the business community, a variety of disciplinary and professional fields, recipients or beneficiaries of services, or others, as appropriate.**

Strong efforts will be made to ensure that a diversity of perspectives are considered in the scope of the project. Overall, there will be three teams that will assist in guiding the success of the proposed magnet schools: Magnet Sustainability Team, Future Ready Initiative, and the school-based Magnet Advisory Committee. Efforts will be made in the formulation of these teams to be reflective of the diversity of the families that each school serves.

The Magnet Sustainability Team will provide high-level direction to ensure the successful implementation of the grant, including the process of continuous improvement, and will serve as a sounding board for ideas and solutions to critical issues that arise through implementation. The Future Ready Initiative will serve a critical role in providing opportunities and experiences for students that will be a valuable extension of the magnet program. For example, they will provide: field trip opportunities, mentor relationships with students and teachers, consult on curriculum development and provide guidance on student capstone projects. The Magnet School Advisory Committee will embrace the principle characteristics of the Community of Practice. Promoting diversity and academic excellence and equity will be at the core of the Magnet Advisory Committee efforts which will include: building relationships with the community, creating synergistic relationships to assist in problem solving, opportunity to reflect upon practices and how to integrate new ones, and exchanging ideas and thoughts that can be built upon by the school (The MSAP Center and Communities of Practice, 2013).

*Table K: STEM<sup>3</sup> Advisory Teams*

Level	Team/Board	Individuals Involved	Frequency of Meetings
District Level	Magnet Sustainability Team	MSAP School Principals Magnet Department Staff Community Partners Parents Relevant District Staff	Monthly
District Level	Future Ready Initiative	Business Partners Higher Education Community Advocates Policy Makers	Quarterly
School Level	Magnet Advisory Committee	Parents School Administration Lead Teachers Magnet Coordinator Community Partners	Once Per Semester

**(d) Quality of Personnel**

**(1) The Secretary reviews each application to determine the qualifications of the personnel the applicant plans to use on the project.**

The Clark County School District (CCSD) MSAP STEM<sup>3</sup> Project will be led by a team of highly qualified individuals with experience in implementing successful magnet programs and innovative learning environments. Highly qualified administrators, faculty, and staff will dedicate their efforts to thorough and successful implementation of the proposed project.

Additional district services will be provided for each school to support curriculum development,

English language learners, students with special needs, family and community partnerships, and equity and diversity.

*Table L: STEM<sup>3</sup> Project Personnel*

Personnel	District	Building	In-Kind	Grant
Project Director	X		X	
Project Coordinator	X			1.0 FTE
Superintendent	X		X	
Associate Superintendent	X		X	
Project Facilitator	X		X	
District Support from IDPL, FACES, EDE, SSD, and ELL	X		X	
District Grant Coordinator	X			.1 FTE
District Grant Evaluator	X			.1 FTE
External Evaluator				X
Principal (3)		X	X	
Magnet Coordinator (3)		X		3.0 FTE
Magnet Recruiter (2)		X		2.0 FTE
STEM Learning Specialist		X		1.0 FTE
Classroom Teachers		X	X	

**(a) The project director is qualified to manage the project**

Gia Moore, Director, Magnet Schools and Career and Technical Academies Department, Clark County School District, has been an educator with the Clark County School District for the past 14 years. She has worked in the capacity of a teacher and administrator at three of the District’s magnet schools. Three years ago, she was appointed as Director of Magnet Schools

and Career and Technical Academies where she currently oversees magnet and select school programs in 42 schools that service over 24,000 students. In 2014, she embarked upon an 11 school magnet expansion in order to provide more access and opportunity to an additional 4,000 students. As the MSAP Project Director, she will be responsible for managing: professional development and training, evaluation of current magnet schools, targeted recruiting to ensure equity and diversity of the applicant pool, parent engagement and workshops, marketing of programs, the application and lottery process, capital improvement projects, facilitating collaboration and articulation of curriculum with feeder programs, support of instructional needs for each magnet program, business and community partnerships, transportation needs and challenges, and governance of magnet policies and procedures.

**MSAP Project Coordinator (100% FTE – Grant Funded)**

The position will be filled in accordance with the regulations of the Nevada Department of Education.

**Position Summary:** The MSAP STEM<sup>3</sup> Project Coordinator will have a master’s degree from an accredited college or university, a Nevada school administrative endorsement, and current or previous experience of successful licensed teaching or as an administrator. Preferred qualifications include experience working in a magnet school; expertise in the proposed project design areas, including STEM, project-based learning, and personalized learning; effective communication, collaborative, and interpersonal skills; effective skills in planning, organizing, and coordinating activities; demonstrated experience in project management; and demonstrated experience in data analysis and grant evaluation.

**Duties and Responsibilities:** The MSAP STEM<sup>3</sup> Project Coordinator will assist the Project Director in overseeing MSAP implementation; liaison with principals and teachers at the

three new magnet schools; coordinate activities associated with project objectives and performance measures; provide assistance for curriculum and program development; monitor the implementation of activities and services; further student integration and educational equity; and supervise professional development opportunities provided to staff.

**(b) Other key personnel are qualified to manage the project**

**District Personnel:** Superintendent Pat Skorkowsky, Clark County School District, has spent the last 29 years as an educator in the Clark County School District. He has served as a teacher, assistant principal, principal, academic manager, deputy superintendent and now superintendent. Since he began his tenure as Superintendent in June 2013, Skorkowsky has outlined an ambitious and aggressive agenda to improve academic outcomes for every student in the District called “The Pledge of Achievement.” He also outlined a District Scorecard, which measures the District’s progress on six important goals: increasing third-grade proficiency, increasing the graduation rate, reducing achievement gaps, increasing family engagement, ensuring student safety and happiness, and increasing student participation in career and technical and magnet programs.

Superintendent Skorkowsky has made magnet schools and career and technical education a focus of his administration. He has committed to improving academic excellence within CCSD through the expansion of programs that have a proven pattern of increased student achievement. In the Clark County School District, students that attend magnet schools have consistently demonstrated higher proficiency rates in reading, math, and science and higher graduation rates than traditional schools. The increasing demand for specialized programs of study and educational choice has been evident in the rising number of applications each year. Recognizing that CCSD was not meeting the demands of the community, Superintendent Skorkowsky

spearheaded an aggressive Magnet School Expansion plan to add 11 magnet schools to the Clark County School District over two years. These additional magnet schools bring the total offering to 37 magnet schools with 114 programs of study. At the beginning of the 2015-2016 school year, seven magnet schools opened with programs of study including International Baccalaureate (IB), Performing Arts, and Science Technology Engineering and Math (STEM). In the 2016-2017 school year, four additional International Baccalaureate candidate magnet school programs opened. Superintendent Skorkowsky's commitment to improving the quality of education in the Clark County School District has contributed to a successful magnet expansion meaning more choice and access for the students of CCSD.

Dr. Jesse Welsh, Associate Superintendent, Instructional Design and Professional Learning Division, Clark County School District, has twenty years of experience as an educator, including teacher, building administrator, and central office administrator. He currently oversees the IDPL Division which consists of College & Career Readiness, Career & Technical Education, Guidance & Counseling, Humanities, Literacy & Language Development, Magnet and Career & Technical Academies, Mathematics, Online & Blended Learning, Professional Development Education, and Science for the Clark County School District. As Academic Manager of Innovative Learning Environments in CCSD, Dr. Welsh led the largest District expansion of magnet schools, adding 11 new schools over a two-year period, increasing student access by 4,000 seats to programs in International Baccalaureate, Fine and Performing Arts, and STEM. Charged with having 100,000 students engaged in online/blended learning by 2015-2016, Dr. Welsh supports all District schools in implementing online and blended learning programs and other digital learning initiatives for the CCSD. He established Canvas Learning Management System as the district-wide enterprise-level solution for online learning, with usage of over

53,000 student enrollments and 88 schools as of June 2016. He developed a catalog of 26 fully online courses implemented at middle and high schools district-wide and provided support and access to utilize Apex Learning at all District high schools for credit retrieval and original credit, with over 16,800 completed enrollments in June 2016. Dr. Welsh implemented district-wide system for Google Apps for Education, serving over 250 schools K-12, ensuring structures met the needs of stakeholders and created the Nevada Learning Academy at CCSD online school through merging Virtual High School and the Academy for Individualized Study High School, and adding grades 6-8, with 525 full-time students, 4,719 part-time students, and over 23,500 courses completed as of July 2016.

Nancy West, Project Facilitator, Magnet Schools and Career and Technical Academies Department, Clark County School District, is in her 20th year in the field of education, 14 of which have been with the Clark County School District. She has seven years of experience working in magnet schools - first as a Magnet Counselor/Recruiter and later as a Magnet Theme Coordinator. She has experience at both full school and school-within-a school campuses. Nancy now serves as Magnet Schools and Career and Technical Academies Project Facilitator, where she provides assistance to magnet and select school programs in 42 schools encompassing all grade levels. She offers support to District magnet schools, career and technical academies, and select schools including parent engagement events and workshops, marketing of programs, facilitating collaboration across program areas and grade levels, daily operational procedures, business and community partnerships, and execution of magnet policies and procedures.

Dr. Jason Snipes, Director of Alliance Research, WestEd Dr. Snipes is an established expert in education research, with over 20 years of experience designing and implementing rigorous studies in education. As the applied research lead for the Western Regional Educational

Laboratory (REL West). Dr. Snipes supports, oversees, and provides quality assurance for REL West's entire portfolio of applied research. He has developed and implemented research designs and analysis strategies for a number of large-scale evaluations of K–12 education reforms, including several cluster and student-level randomized trials, as well as several quasi-experimental studies of education reforms. Prior to joining WestEd, he designed and lead the high school cluster randomized trial of the Reading Apprenticeship as part of an i3 validation grant from the Department of Education. He currently serves as co-PI of another a cluster random assignment study of Reading Apprenticeship in middle schools. Dr. Snipes also recently designed and acted as PI for a short term low-cost randomized trial of a supplementary middle school algebra intervention.

Dr. Snipes also has substantial experience designing and executing qualitative research, and was co-principal investigator and lead author of *Foundations for Success*, an influential set of case studies of education reform in large urban school districts. He has extensive experience in the development and application of sophisticated experimental and quasi-experimental methods for estimating the effects of education programs on student outcomes. His previous experience includes research and evaluation projects focused on comprehensive school reform, teacher professional development, school-to-work, career and technical education, adolescent literacy, dropout prevention, urban district reform, and middle grade math. He holds a doctorate in public policy from Harvard University's John F. Kennedy School of Government.

Sara Allender, Senior Research Associate, WestEd Ms. Allender is a Senior Research Associate at WestEd. She currently directs the Charter Schools Program (CSP) monitoring projects under separate contracts from the U.S. Department of Education's Office of Innovation and Improvement (OII). Previously, Ms. Allender directed a compliance monitoring project for

OII's Magnet School Assistance Program grant (2011-2016) and for OII's Voluntary Public School Choice (VPSC) grant (2009-2011). Throughout her career, Ms. Allender has sought to support funders and grantees through the effective monitoring and oversight of grant opportunities. As a part of the MSAP monitoring work, Ms. Allender provided technical assistance to MSAP grantees as it pertained to grant project administration and implementation fidelity. A major focus of her work was been effectively communicating MSAP expectations for grant implementation and ensuring that grantees understand the evolving responsibilities related to their MSAP grants and that that understanding is reflected in compliant grant projects. Her responsibilities include the development of monitoring indicators, instruments, and tools; the design and delivery of training and technical assistance for project directors and monitors; training and supervision for a team of more than 20 monitors from WestEd, subcontractors, and external consultants; content and quality assurance reviews of all written products; development of annual summary reports; and participation on or supervision of monitoring visits.

Dr. Jonathan Nakamoto, Research Associate, WestEd During his time at WestEd, Dr. Nakamoto has employed experimental and quasi-experimental and research designs to estimate the impact of a range of educational interventions. Dr. Nakamoto was the lead analyst for WestEd's evaluation of Clark County School District's *Investing in Innovation* (i3) grant. The evaluation assessed the impact of a middle school science curriculum using a quasi-experimental design and is poised to Meet WWC Standards with Reservations. Previously, Dr. Nakamoto was the lead analyst for WestEd's evaluation of the *Arts for Learning* (A4L) Lessons supplemental literacy curriculum. This cluster-randomized study, which is poised to Meet WWC Standards without Reservations, was part of the Beaverton School District's i3 grant and assessed the impact of the A4L Lessons program on elementary students' reading achievement. He was the

lead analyst for an evaluation of a *Teaching American History* (TAH) grant that utilized propensity score matching to select comparison students for the students that received instruction from the teachers who participated in the TAH program. Dr. Nakamoto also used Mahalanobis distance matching to identify comparison students for a quasi-experimental evaluation of a network of career academies at high schools in the San Francisco Bay area that is focused on green technology. As part of a quasi-experimental evaluation of Michigan's *School Improvement Grants* (SIG), Dr. Nakamoto used ANCOVA to estimate the impact of the SIG funding on student achievement.

Thomas Bean, Grant Coordinator, Clark County School District (.1 FTE – Grant Funded), will provide fiscal monitoring, approve purchases, and complete financial reporting requirements during the five-year grant period. He has worked for CCSD for 24 years as an educator, instructional technology leader, and grant professional. He has been with the Grants Department for the last seven years as a grant evaluator and grant coordinator. Mr. Bean manages a number of federal and state awards for CCSD including Title VI Indian Education, Johnson-O'Malley, Nevada Library Books, Breakfast After the Bell, and Special Olympics of Nevada.

Lisa Pitch, Grant Evaluator, Clark County School District (.1 FTE – Grant Funded), will provide technical assistance to grant programs, develop evaluation plans, and assist with data collection, data analysis, and evaluation reporting during the five-year grant period. She has worked extensively in research and evaluation in several locations for more than 20 years, beginning at the Center for Social and Behavioral Science Research (University of California, Riverside) to her current position as Grant Program Evaluator at the Clark County School District. Ms. Pitch has also worked independently on research and evaluation projects through

Davis Squared Research, the Public Education Foundation, and ImproveCareNow. She was Chairperson of the Research Review Board for the Clark County School District for more than ten years as the Coordinator of Research. She currently is serving as a member of that board, and also sits on the Research Review Board for the Patient Centered Outcomes Research Institute (PCORI) funded ImproveCareNow.

Instructional Design and Professional Learning Division (IDPL), Clark County School District, will provide leadership and guidance for all stakeholders to increase student achievement through standards-based curricula, professional development, and educational support.

K-12 Online and Blended Learning Department, Clark County School District, will assist schools in developing and implementing blended and personalized learning strategies into classroom instruction through professional development, mentoring, and educational resources and support.

Family and Community Engagement Services (FACES), Clark County School District, will assist schools with developing, coordinating, and implementing programs that increase family engagement to raise student achievement.

Equity and Diversity Education Department (EDE), Clark County School District, will provide professional development learning opportunities and resources that address climate, cultural competency, and diversity in support of student achievement, family and community engagement, and student safety.

Student Services Division (SSD), Clark County School District, will bring services closer to the schools and promote improved collaboration. SSD provides a structure that defines the division's role as a leader in safeguarding the rights of all students and ensuring equitable access

to all educational opportunities. The design strengthens school-based services while providing technical assistance and support to students, parents, administrators, and school staff.

English Language Learner (ELL) Division, Clark County School District, will support proposed schools to implement the ELL Master Plan which empowers all English Language Learners by providing high-quality, rigorous, engaging instruction in a supportive and safe learning environment. The ELL Division will provide in-depth training on the essential components of the Master Plan including: engaging language and content learning experiences, deepening academic discourse in classrooms, and integrating and refining academic discussions focused on discourse and analytical practices.

**MSAP School Personnel:** Amy Yacobovsky, Principal, Roger D. Gehring ES, has a thirteen year history of employment as an elementary school principal that combined instructional leadership, the creation of a collaborative culture with a focus on student learning, an emphasis on research-based instructional strategies and data-driven instructional planning, and effective communication and problem solving skills to maximize student achievement. As principal at Gehring ES, Yacobovsky is working to build and lead a school of excellence in the Clark County School District that makes a difference in the lives of the students it serves, sets high expectations for academic and social development, and engages the entire school community to create a shared responsibility for student and school success. Yacobovsky's many years of principal experience as well as her dedication to research-based instructional strategies and data-driven instructional planning make her an asset to the proposed project.

Derek Fialkiewicz, Principal, Lied MS, has recently been selected as the Principal of Lied MS, after more than five years as the Assistant Principal at CCSD's Brian and Teri Cram MS. While at Cram MS, Fialkiewicz was appointed to the Nevada Assembly Committee on STEM

Education and served on the Nevada STEM Advisory Committee, working to advance and promote STEM education in Nevada. While on the Nevada Assembly Committee on STEM, he was a member of a subcommittee to develop a rating system to designate STEM schools of different levels. Over the past 12 years, he has served as the President of the Nevada Mathematics Council and Southern Nevada Mathematics Council. In this capacity, he has coordinated an annual two-day professional development for over 500 math and science teachers as the chairperson of the Southern Nevada Mathematics and Science Conference. A former high school mathematics teacher, he brings a wealth of experience in math and computer science curriculum to the proposed project.

Scott Fligor, Principal, Mike O’Callaghan MS, has 14 years of experience as a school administrator and is in his third year at O’Callaghan MS. Fligor leads a diverse staff, student body, and the community in the development, implementation, and evaluation of building level goals focused on the improvement of student learning. Fligor has significantly impacted the student achievement at O’Callaghan MS with the implementation of a blended learning academy within the current school structure and plans to expand the opportunity to all students if awarded the MSAP grant funds. Fligor’s experience and knowledge of blended and personalized learning will contribute the successful implementation of the proposed project design.

**(c) Teachers who will provide instruction in participating magnet schools are qualified to implement the special curriculum of the magnet schools**

**Magnet Theme Coordinator (3 – 100% FTE’s)**

The positions will be filled in accordance with the regulations of the Nevada Department of Education.

**Position Summary:** The Magnet Theme Coordinators in each school will have a degree from an accredited college or university, highly qualified teaching status, and at least three years current or previous experience of successful licensed teaching. Preferred qualifications include: experience working in a magnet school; expertise in the proposed project design areas, including STEM, project-based learning, and personalized learning; effective communication, collaborative, and interpersonal skills; and demonstrated experience in planning, organizing, and coordinating activities and professional development.

**Duties and Responsibilities:** The Magnet Theme Coordinators at each school will assist with the integration of and transition to the new program at each school; coordinate activities associated with project objectives and performance measures; plan with staff for professional development; assist with the selection of instructional supplies; and work with teachers and administration in planning and developing innovative, rigorous, and relevant curriculum. Magnet Theme Coordinators will also coordinate, plan, develop, and maintain consistent family and community partnerships.

**Magnet Recruiters (2 – 100% FTE's)**

The positions will be filled in accordance with the regulations of the Nevada Department of Education.

**Position Summary:** The Magnet Recruiters at Lied and O'Callaghan Middle Schools will have a degree from an accredited college or university, highly qualified teaching status, and at least three years current or previous experience of successful licensed teaching. Preferred qualifications include: experience working in a magnet school; experience recruiting and/or marketing specialized programs; effective communication, collaborative, and interpersonal skills; and demonstrated experience in planning, organizing, and coordinating activities.

**Duties and Responsibilities:** The Magnet Recruiters at each school will market the new program at each middle school and implement recruitment activities designed to reach the program enrollment goals and attract a diverse student population. Magnet Recruiters will assist the Magnet Theme Coordinator with implementing activities associated with project objectives and performance measures and support efforts to build and maintain consistent family and community partnerships.

**STEM Learning Specialist (1 – 100% FTE)**

The position will be filled in accordance with the regulations of the Nevada Department of Education.

**Position Summary:** The STEM Learning Specialist at Gehring ES will have a degree from an accredited college or university, highly qualified teaching status, and at least three years current or previous experience of successful licensed teaching in STEM subjects. Preferred qualifications include: a master's degree in a STEM subject and/or expertise in the proposed project design areas, including STEM, project-based learning, and personalized learning; effective communication, collaborative, and interpersonal skills; and demonstrated experience in planning, organizing, and providing professional development.

**Duties and Responsibilities:** The STEM Learning Specialist at Gehring ES will support all activities associated with the proposed project objectives and performance measures; assist and support professional development of classroom teachers in project areas including STEM, project-based learning, and personalized learning; and assist with the development of innovative, rigorous, and relevant STEM curriculum.

**Classroom Teachers:**

All teachers in the proposed project schools must be “highly qualified” in core subject areas. To become “highly qualified”, a teacher must hold a clear Nevada teaching license and demonstrate competency through additional coursework, proficiency, or experience. Classroom teachers will be required to attend professional development during the five-year grant period to increase their content knowledge and instructional skills in STEM, project-based learning, and blended and personalized learning. In addition, classroom teachers will collaborate to develop innovative, rigorous, and relevant curriculum.

**(2) To determine personnel qualifications, the Secretary considers experience and training in fields related to the objectives of the project, including the key personnel’s knowledge of and experience in curriculum development and desegregation strategies.**

The Clark County School District has identified highly-qualified key personnel with extensive knowledge of and experience in curriculum development and desegregation strategies to develop, implement, and sustain magnet programs in the STEM<sup>3</sup> Project schools. The superintendent recognizes the role magnet schools play in desegregation efforts and has demonstrated his commitment to increasing the number of magnet programs in the District in order to offer innovative and engaging learning experiences to all students. The Assistant Superintendent’s expertise in developing and delivering innovative curriculum through digital content and blended learning supports the development of innovative, rigorous, and relevant curriculum and learning environments. The Magnet Director’s and Magnet Project Facilitator’s experience in developing, implementing, and sustaining highly successful magnet programs ensures that the proposed project schools will receive the support necessary to meet the objectives of the project.

### **(e) Quality of Project Evaluation**

WestEd, the proposed external evaluator, will use a mixed-methods approach (Tashakkori & Teddlie, 1998) to provide the District with a complete and holistic understanding of implemented programming, project achievements, and areas for improvement. To support the investigation of project activities, implementation, and impact, WestEd will design a rigorous evaluation that includes a formative evaluation of project implementation efforts and an examination of impacts on student performance and minority group isolation using a randomized controlled trial (RCT) that will result in evidence of promise.

The external evaluation will be designed around the following broad questions of implementation and impact. These questions may be revised or supplemented upon award of the grant.

1. How and to what extent have grant project activities been implemented as intended?
2. What are the major factors facilitating and hindering implementation, and how have these been addressed by the District?
3. What impact does attendance at an MSAP-funded magnet school have on student performance?
4. What impact does attendance at an MSAP-funded magnet school have on reducing, eliminating, or preventing minority group isolation?
5. What impact does attendance at an MSAP-funded magnet school have on perceptions of and participation in STEM?

WestEd's prior work has identified six essential steps to developing an effective and supportive evaluation for magnet programs (see <https://www.evaluationtoolkit.org/>). These

include: setting the stage for purposeful evaluation, developing a theory of action for the program, evaluating implementation, evaluating outcomes, getting quality data, and taking action by using evaluation data to improve programming. Through these steps WestEd will work closely with the District to ensure the evaluation and the project activities continuously inform each other. As a part of this approach, WestEd will address the five primary evaluation questions outlined above, as well as evaluate the implementation and outcomes of the MSAP services relative to the grant objectives and performance measures outlined in this application.

**(1) The extent to which the methods of evaluation will, if well-implemented, produce evidence of promise (as defined in this notice).**

In order to evaluate the extent to which evidence of promise exists, WestEd will conduct rigorous implementation and impact evaluations that address each of the primary evaluation questions. This evaluation will span all five years of this project, which includes the initial planning year leading up to the implementation of the proposed magnet programs. The evaluation will be both formative and summative in nature. WestEd will gather and report information that will support and improve the effective implementation of the programs, assisting District staff in modifying and improving their approaches and activities in order to reach and maintain ideal levels of implementation relative to the intended design of their programs. The evaluation will also produce rigorous evidence that the U.S. Department of Education can use in order to assess the fidelity of implementation and evidence of promise. This will include impacts on student performance, racial isolation, and perceptions of and participation in STEM.

**Implementation**

The implementation component of the evaluation is focused on examining the extent to which the project activities have been implemented as intended, understanding the process through which these activities have been implemented, and describing the factors that have impeded as well as facilitated implementation, as well as the manner in which the District has addressed them. To address these questions, WestEd will collect and analyze a variety of qualitative and quantitative data. In particular, WestEd will analyze data regarding project implementation and participant experience, including focus groups, interviews, and surveys (as appropriate) as well as classroom observations and school walk-throughs. These data will be used to provide summative answers to the research questions stated above, but they will also be included in formative feedback to the District. This will put the District in a position to adapt implementation strategies and supports in response to emerging findings regarding implementation successes, implementation shortcomings, and the factors that appear to facilitate or hinder success.

### **Implementation Data**

School walk-throughs will be conducted semi-annually by the evaluation team to assess the extent to which magnet themes are appropriately incorporated and displayed as well as to observe instruction and interactions. The information collected from school walkthroughs will also be used to assess adherence to timelines, progress monitoring, adoption of roles, responsibilities, process and procedures.

Focus groups with students, parents, teachers, and magnet coordinators will be conducted, recorded, and transcribed on an annual basis. WestEd will upload the qualitative data into ATLAS.ti and organize the data in a manner that allows for analysis within each school as well as across schools. The use of ATLAS.ti will expedite the coding process, which is the first

step in the qualitative data analysis process (Patton, 2002). Focus group transcripts will undergo the process of thematic qualitative analysis (Ritchie, Spencer & O’Conner, 2003). WestEd researchers will develop an initial coding scheme organized around the implementation research questions and the core components of the magnet programs being implemented. The study team will also inductively develop new codes to record relevant details that do not correspond to the initial set of codes, expanding the codebook as necessary. Researchers will then code the focus group transcripts, leading to the identification of common themes and patterns. Interviews with principals will undergo similar thematic analysis. The results of these analyses will permit the study team to describe the implementation of the MSAP program and the experience of the participants.

Survey data will primarily be used to assess perceptions regarding STEM programming and STEM in general. Utilizing existing survey administration efforts in the District to facilitate data collection and established STEM survey items, WestEd will assess how, if at all, perceptions and attitudes toward STEM are impacted by participation in the MSAP-funded schools. Potential survey items may be drawn from the Test of Science-Related Attitudes (TOSRA; Fraser, 1981), the STEM Semantics Survey for students (STEM-S; Tyler-Wood et al., 2010), and/or the School Attitude Assessment Survey-Revised (SAAS-R; McCoach & Siegle, 2003). Analysis of the student, parent, and teacher survey data will supplement the narrative analysis, triangulating the qualitative information with survey data from a larger sample of participants. All survey items will be developed in concert with the grantee to ensure that survey items best address the grantee’s project. The WestEd team will calculate descriptive statistics based the survey data to synthesize the information within and across participant groups and

schools. This formative information will feed into recommendations to improve implementation for subsequent years and provide rich context for the summative results.

### **Implementation Data Collection**

Critical to the efficacy of the evaluation is the feedback loop that is integrated in the evaluation design that ensures implementation efforts are informed by evaluation data. Linking implementation to evaluation will help the District ensure that its efforts are effectively and efficiently directed at driving program improvement and success. To establish and maintain effective feedback loops, WestEd will work with the District to create a documented formal reporting cycle as well as informal collaboration and learning opportunities. Recently WestEd has had success using Learning Sprints to support feedback loops and formative learning outside of traditional evaluation report activities. The goal of the Learning Sprints is to provide timely feedback to address implementation challenges in a responsive and efficient manner. The steps involve outlining a continuous improvement goal or implementation challenge; identifying questions in order to outline data sources needed to understand the current system/approach; gathering and analyzing necessary and relevant data; reviewing results; and retooling the program based on what was learned. Learning Sprints will be used to help organize the feedback process during the on-site visits. At the beginning of each on-site visit, WestEd and the CCSD team will identify specific implementation challenges or questions to be addressed during the visit in addition to the established protocols for each visit. Once these challenges are identified, the team will identify appropriate questions and data sources to address the issue; incorporate those questions in to existing data collection efforts during the visit; and review the results on site with the CCSD team. The goal of the Learning Sprints is to be able to address time-sensitive implementation challenges in a way that complements existing data collection efforts. In this

manner, the on-site visits can be used to address the broad evaluation questions as well as immediate implementation issues.

To inform the evaluation on student impacts and perceptions, students in MSAP schools will be surveyed on their attitudes toward the program, as well as their participation in STEM activities and their perceptions of STEM. These surveys will be administered in the spring of every year beginning in year 1 of the grant. WestEd will rely on District staff to facilitate the effective administration of any surveys by utilizing existing District survey administration vehicles in the District. For example, student survey items may be administered aligned with other District efforts to minimize the number of times students are surveyed. In addition, focus groups will be conducted with a sample of students in each school and at selected grade level as appropriate.

To assess parent attitudes toward their children participating in the magnet program and levels of parent engagement, all parents in MSAP schools will be surveyed each year and focus groups will be conducted with a sample of parents in each school. Parents may be asked about their attitudes toward their child being exposed to the magnet content, their child's experiences in the program, any observed changes in their child's academic or personal behaviors, and their overall thoughts on the magnet program.

All participating teachers will be surveyed and focus groups will be conducted with a sample of teachers in each school. Teachers may be asked about how well the training prepared them to deliver the content in their classrooms, how students responded to the material, any observed changes in their students' academic or personal behaviors, perceptions of the overall quality of implementation; strengths and weaknesses of the magnet program and supports; and their overall thoughts on the magnet curriculum and program. The evaluation will use available

extant teacher data (e.g., professional development participation data, teacher evaluation data) to complement other MSAP specific data collected by CCSD and the evaluation team.

Magnet Coordinators play a critical role in implementing MSAP-funded activities at school sites. As such, they will provide vital implementation data through focus groups and interviews. Magnet coordinators may be asked about implementation experiences, successes, and challenges; perceptions of the overall quality of implementation; strengths and weaknesses of the magnet program and supports, and the sustainability of magnet program in their schools following the end of the grant.

Participating principals will be interviewed to assess their experience implementing the program in their schools. Principals may be asked about the perceptions from parents, teachers, and students; implementation successes and challenges; and their plans for the sustainability of magnet program in their schools following study completion.

Each magnet program will have at least one community partnership. WestEd will conduct interviews with these community partners in each year of the grant. Partners may be asked about perceptions of the quality of the partnership and program implementation, the activities they have participated in, and their perceptions of both barriers and supports for successful implementation. In addition, they will be asked about their perceptions of best practices in recruiting and maintaining other community partnerships that can contribute to program and school success.

Table M: Data Sources by Stakeholder

Stakeholder	Data Sources				
	Surveys	Focus Groups	Interviews	Observations/ Walkthroughs	Extant Data
Students	•	•			•
Teachers	•	•		•	•
Parents	•	•			
Magnet Coordinators		•	•		
Principals		•	•		
Schools				•	•
Community Partners			•		

### Impact Analyses

WestEd intends to use both randomized trials and quasi-experimental analyses in order to examine the extent to which the magnet programs succeeded in improving student achievement, reducing racial isolation, and generating interest and participation in STEM. Using the lotteries employed by CCSD to place students into magnet schools, WestEd plans to conduct several student-level Randomized Control Trials (RCTs) to examine the impact of the programs on the subset of students who participate in the lottery. Additionally, WestEd proposes to employ QEDs in order to estimate the effects of the magnet on all students enrolled in the magnet programs. Although QED methods are less rigorous than RCTs, this approach allows an assessment of

impact of the magnet programs on student outcomes for a broader student population outside the RCT groups.

CCSD's use of an oversubscription lottery to determine admittance into its magnet schools will allow WestEd to conduct an "opportunistic experiment" (Resch, Berk, & Akers, 2014) and exploit the random assignment of students to a treatment group that has access to the magnet school or control group that does not. In CCSD's previous magnet program implementations, approximately twice as many students as could be served applied for CCSD's magnet schools. The District predicts the three magnets schools proposed in this application will have similar levels of excess applications. The use of a random assignment design, along with the use of reliable student achievement measures (e.g., Science Criterion Reference Test (CRT), English Language Arts (ELA) and mathematics Smarter Balanced Assessment Consortium (SBAC) assessments), and the low attrition resulting from collecting data directly from District records will enable WestEd to conduct an evaluation study that meets the What Works Clearinghouse standards without reservations.

### **Impacts on Academic Achievement**

The evaluation of the impact of the three CCSD magnet programs in this application will consist primarily of three separate randomized trials. One RCT will focus on the impacts of the magnet program on the cohorts of entering 6th graders in O'Callaghan MS, another RCT will examine on the impact of the magnet program on the entering 6th graders in Lied MS, and a third RCT will estimate the impact of the magnet program being implemented at Gehring ES. The lotteries for each school will occur in the spring prior to each school year from 2018-19 through 2021-22. In each middle school, the lottery will be focused on cohorts of entering 6th graders to maximize numbers of students in the cohort and longitudinal analysis. As shown in the

exhibit below, at each middle school WestEd will be able to track four cohorts of 6th graders for varying lengths of time and will be able to estimate longer term impacts (though the end of grade 8) of magnet participation for the initial year’s two cohorts of 6th graders. In addition to conducting analyses individually by cohort, WestEd will combine the impact analyses across cohorts at the end of the grant and conduct additional analysis. For example, an examination will be conducted of the combined impact of two years of participation in the magnet program (i.e., through the scheduled end of the 7th grade) for Cohorts 1, 2, and 3.

*Table N: STEM<sup>3</sup> Middle School Cohorts*

	2018-19	2019-20	2020-21	2021-22
Cohort 1	6 <sup>th</sup> grade	7 <sup>th</sup> grade	8 <sup>th</sup> grade	9 <sup>th</sup> grade
Cohort 2		6 <sup>th</sup> grade	7 <sup>th</sup> grade	8 <sup>th</sup> grade
Cohort 3			6 <sup>th</sup> grade	7 <sup>th</sup> grade
Cohort 4				6 <sup>th</sup> grade

At Gehring ES, WestEd will focus the RCT on estimating the impacts of the magnet program on the cohorts of entering 1st graders. There will be four cohorts of 1st graders entering the school each year from 2018-19 through 2021-22. As shown in the exhibit below, three cohorts of students will reach the 2nd grade by the end of the grant period, and two cohorts of students will reach the 3rd grade by the end of the grant period. WestEd will combine the impact analyses across all cohorts to estimate the impact of one year of access to the magnet school on 1st grade outcomes and across the first three cohorts of students in order to estimate the impact of two years of access to the magnet school on 2nd grade achievement. Additionally, WestEd will combine the impact analysis across the first two cohorts of students in order to estimate the impact of three years of access to the magnet program on 3rd grade outcomes. First and 2nd

grade reading and mathematics achievement will be measured by the Northwest Evaluation Association (NWEA) Measures of Academic Progress (MAP) assessment, which CCSD administers to students in grades k-2 throughout the District. Third grade ELA and mathematics achievement will be measured with the SBAC assessments. One cohort of 1st graders will reach the 4th grade by the end of the grant period. However, the sample size for a single cohort will be insufficient to detect meaningful effects should they exist. Therefore, impacts on 4th grade achievement will not be included in this analysis.

*Table O: STEM<sup>3</sup> Elementary School Cohorts*

	2018-19	2019-20	2020-21	2021-22
Cohort 1	1 <sup>st</sup> grade	2 <sup>nd</sup> grade	3 <sup>rd</sup> grade	4 <sup>th</sup> grade
Cohort 2		1 <sup>st</sup> grade	2 <sup>nd</sup> grade	3 <sup>rd</sup> grade
Cohort 3			1 <sup>st</sup> grade	2 <sup>nd</sup> grade
Cohort 4				1 <sup>st</sup> grade

In addition to the three randomized trials, WestEd will employ QEDs to examine the impact of the magnet program on all students in the three participating schools, including those who receive preferences in the lottery because their siblings attend the magnet programs, they live in a geographic preference area, or they attended a magnet at the elementary school level. To conduct the QED, WestEd proposes identifying a comparison group of non-magnet students for each magnet school, using propensity score matching (Stuart, 2010). The proper use of propensity score matching will ensure that magnet and non-magnet students are equivalent (i.e., within +/- 0.25 standard deviations on a pre-test measure of the outcome variable) prior to the magnet students' participation in the programs, which is critical to meet What Works

Clearinghouse's evidence standards. Although less rigorous than a RCT, a QED can meet the What Works Clearinghouse Evidence Standards with reservations.

The QED analysis for each of the middle schools will also generate an estimate of the effects of each middle school magnet program on student outcomes. It will include all students enrolled in the magnet schools, in each year from 2018-19 through 2021-22. This sample will be comprised of 6th grade students, irrespective of whether or not the students entered via the general lottery, received preference in the lottery, or entered via another mechanism. It will also include the 7th and 8th grade students attending the schools in 2018-19 who, for the most part, will be exempted from the lottery, as well as any students who enrolled in the schools in 7th and 8th grade in 2019-20 through 2021-22. The analysis will focus on a comparison of students in the magnet program to a matched comparison sample of students who are observationally equivalent but are not in the magnet programs (Stuart, 2010). Sub-group analyses by grade and potentially by entry mechanism (e.g., lottery versus reserved space) will be conducted in order to estimate the effects of the magnet program on different groups of students. Sub-groups could include students who are eligible for Free or Reduced Lunch (FRL), ethnicity, and gender.

A similar analysis will be conducted at the elementary level. Students in the elementary school magnet program in 2018-19 through 2021-22 will be compared to observationally equivalent students who are not in the magnet program. As is the case for the middle school analysis, sub-group analyses will examine the estimated impacts of the program for students at different grade levels, including students in grades 2-5 attending the school in 2018-19, who did not participate in the lottery, as well as any new students who enrolled in the schools in the later elementary grades. Consistent with the analytic approach outlined for the RCT, WestEd will

track each cohort across time to assess the impact of multiple years of magnet participation and will combine impact estimates across cohorts at the end of the grant.

WestEd will conduct the RCT and QED analyses using ordinary least squares regression, with appropriate corrections to account for the clustering of variation within school (Rabe-Hesketh & Skrondal, 2012). To increase the precision of the impact estimates, the models will include student demographics and measures of prior achievement as covariates. A dummy-coded variable included in the models contrasting magnet and non-magnet students will provide the estimates of program impacts. The equation below illustrates the basic approach to estimating program effects:

$$Ach_{ij} = \beta_0 + \beta_1 T_{ij} + \beta_2 PriorAch_{ij} + \beta_3 FRL_{ij} + \beta_4 Hispanic_{ij} + \beta_5 Black_{ij} + \beta_6 Asian_{ij} + \beta_7 Gender_{ij} + \varepsilon_{ij}$$

Where:  $Ach_{ij}$  represents the academic achievement outcome for student  $i$  in school  $j$ ,  $T_{ij}$  is a treatment indicator that equals one for students in the treatment group, and 0 otherwise;  $PriorAch_{ij}$  is the prior achievement measure (e.g., the test score from the year prior to entering the magnet);  $FRL_{ij}$  is a dichotomous indicator for student eligibility for the free and reduced price lunch program;  $Hispanic_{ij}$ ,  $Black_{ij}$ , and  $Asian_{ij}$  are each a dichotomous indicators for ethnicity and race; and  $Gender_{ij}$  is a dichotomous indicator for whether a student is male or female. In this case,  $\beta_1$  is the estimated effect of membership in the treatment groups on academic achievement (this approach will be repeated for each additional outcome). In this equation,  $\beta_1$  represents the impact of random assignment to the magnet program on student achievement. In addition to estimating the average impacts on student achievement, WestEd will conduct separate analyses among key sub-groups, including Black, Hispanic, English learner, gender, and FRL eligible students in order to estimate the impact of the magnet program on

student achievement among these particular groups. Consistent with What Works Clearinghouse recommendations, WestEd will calculate effect sizes based on the standardized mean difference between the treatment and control groups.

WestEd conducted separate power analysis for the middle school achievement analyses and another power analysis for the elementary school achievement analyses to identify the minimum detectable effect sizes with power of 0.80 using the Optimal Design software (Spybrook et al., 2011). The middle school analysis assumed a pre-test measure (i.e., SBAC assessments from grade 5) would explain 56% of the variation in the outcome measures. This analysis indicated that WestEd could detect an effect size of 0.15 with 640 participants (i.e., 320 treatment and 320 control students) and detect an effect size of 0.10 with 1,380 participants. Because both middle schools will likely have at least 300-400 open seats and twice as many applicants for each entering 6th grade class, all of the proposed analyses that combine two or more cohorts of students will be more than adequately powered to detect impacts from an educational intervention like the MSAP programs (Hill et al., 2008). The elementary school analysis assumed a pre-test measure (i.e., NWEA MAP assessments from kindergarten) would explain 36% of the variation in the outcome measures. This analysis indicated that WestEd could detect an effect size of 0.25 with 326 students (i.e., slightly more than two cohorts of entering 1st grade applicants) and an effect size of 0.20 with 512 elementary students (i.e., less than four cohorts of applicants). Although the elementary school analyses will have less power than the middle school analyses, they will still be adequately powered to detect small effect sizes with multiple cohorts of students.

### **Impacts on Minority Group Isolation**

In addition to the effects on academic outcomes, WestEd will evaluate the effects of the magnet program on minority group isolation. This will be done in two ways. First, WestEd will also use the RCT and QED approaches described above to conduct an individual student-level analysis of the impact of the magnet programs on minority group isolation. For each nonwhite student included in the RCTs and QEDs, WestEd will calculate the percentage of nonwhite students in their schools before and after they applied for the magnet programs to create a student-level measure of racial isolation (Conger, 2008). The percentages from after they applied for the magnet programs will be used as outcome measures in the same regression models used for the student achievement analyses described above.

In addition to these individual student-level analyses, WestEd will analyze aggregate school-level trends over time in the proportion of nonwhite students in the magnet programs. At Gehring ES and O'Callaghan MS, the magnet programs are designed to reduce the number proportion of nonwhite students in the school. WestEd will examine the extent to which these programs reduce these numbers relative to the baseline averages of nonwhite students in the 3-5 years prior to the implementation of the program. At Lied MS, a different approach is required. Lied MS has relatively low levels of racial isolation. However, over the last several years there has been a significant trend showing the reduction in the percentages of white students attending the school. The magnet program at Lied MS is intended to slow or halt this reduction in the percentage of white students. In order to estimate the extent to which this has been accomplished, WestEd will use the previous 3-5 years of data in order to establish a baseline trend in the percentage of white students, and will examine the extent to which the percentage of white students exceeds the percentages predicted by this trend.

### **Impacts on STEM Participation and Perceptions**

The evaluation will also assess the impacts of the magnet program on participation in STEM activities and student perceptions regarding STEM. For the two middle school programs, the primary analysis of the impact on STEM participation will be based on student course taking detail records, focusing on the number of STEM courses completed by each student. Given the structure of the proposed STEM magnet programs, it is expected that students who attend the magnet programs would take more STEM courses and earn more credits than they would in the absence of the program. Using CCSD student records data, WestEd will create outcome variables measuring the number of STEM courses students have taken, as well as the number of STEM courses students have earned. Using the same analysis as illustrated in equation 1 above, WestEd will examine the extent to which assignment to the magnet program increases the number of STEM courses students enroll in as well as the number of STEM activities completed. As students do not earn credits for different subjects in elementary school, this analysis will only be possible at O'Callaghan and Lied Middle Schools.

In addition to the exposure to courses, the proposed programs are based on an integrated approach that will infuse STEM themes and content throughout the curriculum, including courses beyond math and science. Because this infusion of STEM activities and themes throughout the curriculum will not be captured in course records, WestEd will rely on the annual CCSD Districtwide Student Survey data, which is administered by CCSD to students in grades 4 through 8 in the spring of each year. In addition to the traditional Districtwide Survey questions, the CCSD surveys will include an additional series of questions for the three MSAP schools regarding the frequency with which STEM themes are covered in general, as well as in non-STEM classes. Measures of STEM participation will be based on a series of questions employing a 5-point Likert scale. The average scores on these scales will be used to measure student

exposure to STEM themes and activities. WestEd will examine changes over time in this metric in order to assess the growth in exposure to STEM since the implementation of these programs. The specific MSAP student survey data will not be available for non-magnet students, therefore they lack counterfactual based on random assignment. Nevertheless, the examination of changes over time will be sufficient to demonstrate the extent to which student reports of exposure to STEM themes in MSAP schools change after conversion to magnet programs. While this analysis cannot isolate the effect of the magnets over and above any other district-wide patterns, it can be conducted at the elementary (grades 4 and 5) and middle school levels.

**(2) The extent to which the methods of evaluation include the use of objective performance measures that are clearly related to the intended outcomes of the project**

In addition to the analyses described above, WestEd will analyze and report on five grant objectives and associated performance measures annually or more frequently as may be necessary. WestEd will develop an analysis plan for the performance measures that clearly defines performance measures, identifies available data sources or gaps, and outlines analysis approaches. This analysis plan will help the District maintain consistent performance measure interpretations across grant years and will mitigate knowledge losses in the event of staff turnover. Additionally, WestEd will provide direct support to the District to complete its annual and any ad-hoc reporting requirements for the grant. This will include the submission of the Annual Performance Reports (APRs), any required additional reporting as well as any ad-hoc APRs, and the Final Performance Report (FRP) as well as the Government Performance and Results Act (GPRA) tables.

***Objective 1: Increase academic achievement of all students and student subgroups (i.e., students who are Hispanic, Black, White, FRL, LEP, female, and male) in Mathematics, Science, and***

*Literacy in MSAP STEM magnet schools.* The WestEd RCT developed for the MSAP study that relies on the oversubscription lottery will be used to calculate Performance Measure 1A, 1C, and 1D. The effect sizes will be calculated for all students and separately for the subgroups of interest. WestEd will use descriptive analyses to calculate Performance Measures 1B and 1E, which correspond to the overall MSAP Performance Measures. All of the Performance Measures will be calculated annually in Years 2-5 of the grant.

*Table P: Objective 1 Performance Measures*

Objective 1 Performance Measures	
<b>1A Mathematics:</b>	The scale score difference between the magnet students (who were selected through the lottery) and non-magnet students (who were not selected through the lottery) on the SBAC mathematics assessment will be equivalent to an effect size of 0.20 in favor of the magnet students.
<b>1B Mathematics:</b>	The percentage increase of students from major racial and ethnic groups in magnet schools receiving assistance who score proficient or above on State assessments in mathematics as compared to previous year's data (MSAP Performance Measure C.
<b>1C Science:</b>	The scale score difference between the magnet students (who were selected through the lottery) and non-magnet students (who were not selected through the lottery) on the grade 8 Science CRT will be equivalent to an effect size of 0.20 in favor of the magnet students.
<b>1D Literacy:</b>	The scale score difference between the magnet students (who were selected through the lottery) and non-magnet students (who were not selected through the lottery) on the SBAC ELA assessment will be equivalent to an effect size of 0.20 in favor of the magnet students.
<b>1E Literacy:</b>	The percentage increase of students from major racial and ethnic groups in magnet schools receiving assistance who score proficient or above on State assessments in reading/language arts as compared to previous year's data (MSAP Performance Measure b).

**Objective 2:** *Reduce, eliminate or prevent socioeconomic and racial isolation in MSAP STEM magnet schools.* WestEd will use school-level demographic data to calculate Performance Measures 2A and 2B, with the 2017-18 school year used as the baseline for year 1 of implementation. Given there are different strategies used to address socioeconomic isolation across schools means that the performance measures used will also have to differ. At O’Callaghan MS, the magnet program is designed to reduce current levels of racial and socioeconomic isolation. Therefore the performance measures will be focused on reductions in the percentage of Hispanic students and students that are eligible for FRL. At O’Callaghan the goal for performance measure 2A will be to reduce the percentage of students eligible for FRL each year and the goal for 2B, the goal will be to decrease the percentage of Hispanic students each year.

At Lied MS and Gehring ES, though the demographic characteristics of the student body resemble the District average, there have been substantial demonstrated trend in the reduction of percentages of white students and substantial increases in the percentages of students that are eligible for FRL. At Lied MS, there was a 35 point reduction in the percentage of white students and a 43 point increase in the percentage of FRL students from the 2003-04 to the 2015-16 school year. At Gehring ES there was a 23 point reduction in the percentage of white students and a 33 point increase in the percentage of students qualifying for FRL over the same period. At these schools, the goal will be to dramatically reduce the changes in the percentages of white and FRL students relative to these trends so that rather than having to attempt to integrate segregated schools, the District can avoid the creation of racially isolated schools in the first place. In short, this means that for goal 2A, the objective will be to avoid further increases in the percentage of

students that qualify for FRL each year, and that for goal 2B the objective will be to avoid further increases in the percentage of white students each year.

*Table Q: Objective 2 Performance Measures*

Objective 2 Performance Measures	
<b>2A Socioeconomic isolation:</b>	The percentage of students qualifying for FRL in the O’Callaghan MS will be reduced by 3 percentage points per year. In Lied MS and Gerhing ES, the percentage of students qualifying for FRL will increase by no more than 0.5 points per year.
<b>2B Racial isolation:</b>	The percentage of Hispanic students in the O’Callaghan MS will be reduced by 3 percentage points per year. In Lied MS and Gehring ES, the percentage of white students will decrease by no more than 0.5 points per year.

**Objective 3:** Increase parent and community support in MSAP STEM magnet schools.

*Table R: Objective 3 Performance Measures*

Objective 3 Performance Measures	
<b>3A MSAP MSAC Achievement:</b>	The MSAP Magnet School Advisory Committee (MSAC) will meet two times yearly to provide school-specific targets aimed at improving student achievement.
<b>3B Parent Workshops:</b>	The percentage of parents participating in Parent Workshops will increase 5% per year based on previous year’s participation rate.
<b>3C Community Partnership:</b>	MSAP STEM schools will develop and maintain at least one community partnership that supports school strategic goals..

**Objective 4:** *Increase highly-effective instruction through a rigorous and sustained professional development initiative in MSAP STEM magnet schools* WestEd will use attendance sheets and other District records to calculate Performance Measure 4A annually for each school and for all

participating schools. A survey administered to teachers each spring will be used to calculate Performance Measures 4B, 4C, and 4D for each school and for all participating schools.

*Table S: Objective 4 Performance Measures*

Objective 4 Performance Measures	
4A Professional Development:	80% of MSAP STEM teachers will participate in all MSAP STEM professional development activities.
4B Instructional Practices:	80% of MSAP STEM teachers will report that participation in MSAP STEM professional development is effective for their instructional practices.
4C MSAP Strategies/Protocols:	Survey data will show that 80% of teachers report implementing project based learning, personalized learning, or blended learning strategies/protocols on a daily basis.
4D MSAP Curriculum:	Survey data will show that 80% of teachers are implementing MSAP STEM curriculum.

**Objective 5: School climate quality improvement.** WestEd will utilize Districtwide Climate Survey data to calculate Performance Measures 5A, 5B, and 5C, and 5E for students, parents, and teachers, respectively, annually for each school and for all participating schools. The District Climate survey includes a set of questions regarding how frequently students report doing the readings for class, turning in homework, actively participating in class, and doing more than is expected of them. These self-reports among middle school students have been shown to be strong predictors of high school success (Snipes and Tran, 2016). WestEd also will collect with school-level discipline data in order to calculate Performance Measure 5D.

*Table T: Objective 5 Performance Measures*

Objective 5 Performance Measures	
<b>5A School Climate:</b>	The percentage of students reporting a respectful learning environment will increase by 2 percentage points annually based on Districtwide Climate Survey data.
<b>5B School Climate:</b>	The percentage of parents reporting a respectful learning environment will increase by 2 percentage points annually based on Districtwide Climate Survey data.
<b>5C School Climate:</b>	The percentage of teachers reporting a respectful learning environment will increase by 2 percentage points annually based on Districtwide Climate Survey data.
<b>5D Student Behavior:</b>	The number of student discipline incidents will decrease by 2% annually from the previous year.
<b>5E Student Engagement</b>	Each year of implementation, student self-reports of participation in academic behaviors (completing homework, participating in class, preparedness, etc.)

**Objective 6: *Participation in STEM and Perceptions of STEM.*** WestEd will utilize data from student survey administered in the spring of each year (starting in the year prior to implementation of the magnet programs) to calculate Performance Measures 6A, 6B, 6C, and 6D for students, parents, and teachers, respectively, annually for each school and for all participating schools.

*Table U: Objective 6 Performance Measures*

Objective 6 Performance Measures	
<b>6A STEM Participation:</b>	The percentage of students reporting a respectful learning environment will increase by 2 percentage points annually based on Districtwide Climate Survey data.
<b>6B STEM Participation:</b>	The percentage of parents reporting a respectful learning environment will increase by 2 percentage points annually based on Districtwide Climate Survey data.

<b>6C STEM Participation:</b>	The percentage of teachers reporting a respectful learning environment will increase by 2 percentage points annually based on Districtwide Climate Survey data.
<b>6D STEM Perceptions:</b>	The number of student discipline incidents will decrease by 2% annually from the previous year.

**Evaluation Reports and Products:**

**Interim Reports:** On a semi-annual basis, WestEd will provide an Interim Report to include a discussion of the data collection efforts as well as any critical feedback from the focus groups and observations.

**Annual Reports:** Annually, WestEd will produce a report that highlights lessons learned, technical assistance recommendations, and implementation strengths and weaknesses from the previous year’s data collections. WestEd will work closely with the District to determine the content and format of the report that best needs the District’s needs. Where appropriate, the Annual Report will include longitudinal data to demonstrate project growth and development.

Other reports or products may be produced as directed by the District.

**Timeline:**

WestEd proposes to carryout evaluation services (included performance measures analysis and reporting as well as external evaluation activities) according to the following schedule. This timeline will be further developed as necessary to meet the evaluation needs of the District.

*Table V: Evaluation Activity Timeline*

Task/Activity	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Evaluation Administration</b>					
Kickoff Meeting with Clark County (August – October)	•	•	•	•	•
Mid-Year Review (March – May)	•	•	•	•	•
MSAP Project Directors’ Meeting (TBD)	•	•	•	•	•
<b>Protocols and Instruments</b>					
Protocol and Instrument Development	•				
Pilot Protocols and Instruments	•	•			
Refine Protocols and Instruments, as necessary		•	•	•	•
<b>Data Collections</b>					
Fall On-site Data Collection (October – December)		•	•	•	•
Spring On-site Data Collection (March – May)	•	•	•	•	•
Extant Data Collection (June – August)	•	•	•	•	•
<b>Reporting, Products, and Dissemination</b>					
Annual Performance Report (APR) (Initial and Ad Hoc)	•/•	•/•	•/•	•/•	•
Final Performance Report (FPR)					•
Annual Report (August – September)	•	•	•	•	•
Final Report (August – September)					•

**(3) The extent to which the costs are reasonable in relation to the objectives, design, and potential significance of the proposed project.**

WestEd's proposed evaluation accounts for 7% of CCSD's total budget and includes formative, implementation, and impact evaluation components. WestEd's reliance on CCSD's lottery and the use extant data (e.g., SBAC scores) for the RCTs will allow it to carry out three low-cost RCTs within budget (Coalition for Evidence-Based Policy, 2012). Additionally, WestEd's cost for the qualitative data collection will be minimized by scheduling the onsite data collections in a way that minimizes the number of trips taken by the evaluation team.

WestEd is a preeminent educational research, development, and service organization with over 600 employees and 17 offices nationwide. WestEd has been a leader in moving research into practice by conducting research and development (R&D) programs, projects, and evaluations; by providing training and technical assistance; and by working with policymakers and practitioners at state and local levels to carry out large-scale school improvement and innovative change efforts. The agency's mission is to promote excellence, achieve equity, and improve learning for children, youth, and adults.

WestEd conducts evaluations and research studies driven by high standards of scientific rigor and the conduct of inquiry. As part of WestEd's evaluations, it helps clients frame appropriate questions, develop and apply innovative methods to obtain reliable answers, and discover findings that may have implications beyond a single program. The staff has expertise in research design, data collection and data analysis, including: randomized controlled trials (RCTs); quasi-experimental designs (QEDs); case study designs; survey development; survey administration; analysis of extant data, including student assessment data from districts and states; thematic analysis; sampling and power analyses; and multivariate modeling. WestEd

combines these skills in research and evaluation with broad content knowledge of education and organizational change to construct evaluations that provide accurate, relevant, and useful data for clients.

WestEd has unique experience with the MSAP grant and magnet schools. WestEd was awarded two contracts (2011-2014, 2014-2016) from the U.S. Department of Education to monitor MSAP grant compliance and implementation efforts. A central function of this monitoring work was ensuring that MSAP grantees were implementing their grant projects as proposed and approved within the statutory and regulatory frameworks required by the MSAP program. In this capacity, WestEd worked closely with the MSAP program office and MSAP grantees to monitor grant project implementation efforts as well as identify best practices and areas for technical assistance. As a part of this effort, WestEd has monitored more than 40 MSAP grantees from the FY2010 and FY2013 cohorts and visited dozens of MSAP-funded school sites. Over the course of this work, WestEd has developed significant experience with and exposure to a variety of magnet projects and MSAP-funded activities. Additionally, WestEd has developed for the U.S. Department of Education a series of resources for magnet schools including guides on Successful Magnet High Schools; Creating and Sustaining Successful K-8 Magnet Schools; and an Evaluation Toolkit for Magnet School Programs. The profiles of successful magnet schools analyze their common characteristics and examines the strategies that have allowed these schools to demonstrate sustained success. The products themselves have won an award for visual design, and illustrate WestEd's ability to communicate information effectively. The Evaluation Toolkit is a web resource that offers practical advice and resources informed by research and the experiences of magnet directors and their partner evaluators. The

tools, videos, checklists, and sample materials are designed to support an evaluation of magnet school program that can be used to make informed decisions about magnet programs.

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