

## Program Overview

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/24/2022 7:25 PM

**Case Id:** 15087

**Name:** Kaleideum - 2022

**Address:** \*No Address Assigned

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### Program Overview

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Please provide the following information.



City of Winston-Salem  
ARPA Transformational  
Non-Profits Application

City of Winston-Salem  
P.O. Box 2511  
Winston-Salem, NC 27102  
336-727-8000  
[ARPA@cityofws.org](mailto:ARPA@cityofws.org)

This application portal is to request funding from the City of Winston-Salem as part of the Transformational Non-Profits Application Process. Applications received through this portal will only be reviewed by the City of Winston-Salem. Other jurisdictions may have separate application processes. Please contact other jurisdictions (e.g., Forsyth County) for instructions regarding requests to those jurisdictions.

Submitting an application does not guarantee funding. Please see the section below regarding the scoring process. The Mayor and City Council will have final decision-making authority regarding program funding requests.

Non-profit organizations may submit funding requests for capital or operating costs.

#### Minimum Criteria

- Must be registered non-profit organization (includes faith-based organizations providing a public purpose)
- Must have been incorporated as a non-profit for at least one year

#### Scoring Process and Matrix

All completed applications will undergo a review to ensure required documents are attached. Fully completed applications will be reviewed by selected City staff members and scored based on the scoring matrix approved by the Mayor and City Council. [Click here](#) to view the scoring matrix. Scored applications will be reviewed by the City's Management Team for potential recommendation to the Mayor and City Council who will have authority to appropriate funding for programs.

Staff reserves the right to contact any applicant to request clarification or additional details regarding application responses and materials.

## Defining Performance Measures

Sections of the application will reference performance measures and outcomes as required by the U.S. Department of Treasury. Specifically, the application will request workload and effectiveness/outcome measures. Please see this video (<https://www.cityofws.org/2809/Performance-Measures-Video>) for general information on performance measures.

## Upcoming Application Orientation Session

The City will host a virtual application orientation session on April 1, 2022 at 10:00 am. The meeting will take place virtually via the Zoom platform and will also have a live simulcast on the City's YouTube page. The link for that meeting will be posted the morning of the meeting to the website: [www.cityofws.org/clfrf](http://www.cityofws.org/clfrf)

## Contact Information

For any questions or concerns, please email [ARPA@cityofws.org](mailto:ARPA@cityofws.org) or call City Link at 336-727-8000.

## A.Contact Information

Completed by craymer@kaleideum.org on 4/24/2022 7:28 PM

**Case Id:** 15087

**Name:** Kaleideum - 2022

**Address:** \*No Address Assigned

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### A.Contact Information

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Please provide the following information.

#### ORGANIZATION/AGENCY INFORMATION

**A.1. Organization/Agency Name**

Kaleideum

**A.2. Mailing Address**

400 W Hanes Mill Rd WINSTON SALEM, NC 27105-9667

**A.3. Organization Website**

<https://kaleideum.org/>

**A.4. Year 501 (c)(3) Status Obtained**

2,017

**A.5. Organization/Agency Fiscal Year**

2,022

**A.6. Federal Tax ID Number**

**A.7. Federal DUNS Number**

**A.8. Federal SAM Registered?**

Yes

#### ORGANIZATION/AGENCY CONTACT INFORMATION

**EXECUTIVE DIRECTOR**

**A9. First Name**

Elizabeth

**A10. Last Name**

Dampier

**A11. Title**

Executive Director

**A12. E-mail**

edampier@kaleideum.org

**A13. Phone Number**

(336) 767-6730

**BOARD CHAIR**

**A14. First Name**

Vivian

**A15. Last Name**

Coates

**A16. E-Mail**

superviv@gmail.com

**A17. Phone Number**

(650) 776-8526

**A18. Term Expiration Date**

06/30/2022

## B. General Project Information

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/24/2022 7:29 PM

**Case Id:** 15087

**Name:** Kaleideum - 2022

**Address:** \*No Address Assigned

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## B. General Project Information

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Please provide the following information.

### PROJECT INFORMATION

#### B.1. Project/Program Title

STEAM Education Outreach

#### B.2. Project Location/Address

Kaleideum North 400 West Hanes Mill Road Winston-Salem, NC 27105

### PROJECT CONTACT/MANAGER

#### B3. First Name

Casey

#### B4. Last Name

Raymer

#### B5. Title

Vice President of Philanthropy

#### B6. E-Mail

[craymer@kaleideum.org](mailto:craymer@kaleideum.org)

#### B7. Phone Number

(336) 399-2155

## C. General Project Narrative

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 2:09 PM

Case Id: 15087

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### C. General Project Narrative

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Please provide the following information.

#### C.1. Provide description of project and how funds will be used

Kaleideum will use ARPA funds to support community outreach efforts in underserved parts of our community and with underserved populations. Kaleideum has long offered FREE field trips for all WSFCS students and FREE programming for all Title I schools. The proposed outreach project will enable the Museum to extend this critical programming by taking STEAM education directly to public schools in our community in QCTs. In addition to public schools, Kaleideum will be able to extend existing outreach to under-resourced early childhood education/pre-K programs (e.g., Head Starts) and other community locations (e.g., summer camps, after school programs, community/recreational centers, etc.) A comprehensive outreach initiative will enable Kaleideum to significantly expand the Museum's reach ensuring that access to high-quality STEAM education is not limited by an individual's, family's, school's, or community partner's ability to get to the Museum. Kaleideum's outreach initiative will support the democratization of STEAM education through programming that makes it accessible to ALL instead of a select few.

Kaleideum's STEAM outreach initiative has two primary components:

1. STEAM Mobile Education Unit (MEU) --- The funding will support STEAM outreach in the Winston-Salem community through a future-focused, fully equipped makerspace on wheels/ mobile education unit. Capital funds will allow Kaleideum to fabricate a fully functional and equipped MEU that can be dispatched in the community within a year. With a fully equipped traveling makerspace that can be set up anywhere — in classrooms, gymnasiums, libraries, or outdoors — Kaleideum's MEU will be equipped with 3D printers, laser and vinyl cutters, laptops, and other high-tech digital fabrication tools, and everything else needed to bring innovative, hands-on workshops to students, educators, and families in historically underserved parts of our community.

Kaleideum's MEU, modeled after the Massachusetts Institute of Technology (MIT) program and Carnegie Science Center's FAB LAB program, will be a special prototyping workshop that employs digital design and fabrication tools and processes such as 3D printers, laser cutters, vinyl cutters, CNC routers, and other technologies. The MEU will be an applied STEAM learning environment that includes computer-controlled subtractive and additive tools to make structures with development tools for embedded computing, sensing, actuation, and communications. The MEU will include tools to design integrated functional systems, and video and online tools for collaborative development.

Once fabrication is complete (approximately 12 months), the Kaleideum MEU will be deployed in the community, primarily to under-resourced WSFCS Title I schools. Programming will thoughtfully incorporate STEAM competencies into making experiences that teach technological literacy. Learners of all ages and abilities will be able to engage with digital fabrication content through classes, outreach, student programming, and professional learning. Kaleideum's MEU will bridge STEAM content with social-emotional learning, allowing students to reconnect with their creativity, communicate with peers in meaningful ways, and build self-confidence through the iterative nature of the design process. Through the MEU, Kaleideum will be able to deliver standards-based lesson plans, presentations, and programming that can be adapted for learners of all ages and experience levels. The MEU will reach thousands of

students in underserved schools in WSFCS within the grant period.

## 2. FIRST® Robotics Teams

FIRST (For Inspiration & Recognition of Science & Technology) is a global non-profit youth robotics program founded in 1989. Their successful approach to STEM education has been well researched and documented through many evaluations. FIRST serves elementary students with First Lego Leagues (FLL), grades 7th-12th with First Technical Challenge (FTC) teams, and grades 9th-12th with First Robotics Challenge (FRC) teams. This multi-tiered approach allows students to “level up” as they advance in age and abilities. Kaleideum supports FIRST teams at all levels, but this outreach funding will support high school teams at the FIRST Tech Challenge (FTC) level. FTC teams are easier to support as they cost a quarter of what FRC teams cost and require practice space the size of a classroom instead of a basketball court. Each FTC team consists of up to 15 students. Teams design and build robots coded using Java-based programming. Each season concludes with regional and state championship competition events.

With this funding, Kaleideum will expand the existing high school based FIRST Tech Challenge robotics program in Winston-Salem from four teams (at two high schools) to 10 teams (at eight high schools.) The goals of the project are to: (1) increase students’ competence in STEAM; (2) increase students’ enthusiasm for STEAM; and (3) increase students’ interest in STEAM careers. Over the course of three years, this funding will establish six (6) new public high school robotics teams in Title I schools in WSFCS. This funding will enable 360 Winston-Salem students to receive hands-on, in-depth STEAM training that will prepare and inspire them to go on to STEAM careers.

Participating schools will be able to field a team at their school without the added barrier of having to get to Kaleideum — this is possible in part because teams will be able to access equipment and technology through the MEU if the technology is not available at their home school. Funds will support supervision and evaluation by Kaleideum staff; FTC team fees and annual costs; mentor stipends and professional development; supplies/materials/equipment necessary to construct competition robots; and food/transportation/lodging necessary for full participation in the FTC program.

Funding will:

- Fully fund the yearly cost of new rookie teams including one time start up equipment such as a field, reusable controller kit, and starter set of tools.
- Fund 50% of the yearly cost of veteran FTC teams. Kaleideum philanthropy staff will help connect teams with engineering firms in the area to provide the remaining 50% yearly costs. Kaleideum Philanthropy Staff, Caren Hamrah, will teach mentors and students to obtain and retain funding from these organizations.
- Provide stipends for mentor teachers, who work upwards of 135 hours a season.
- Hire an external evaluator (Karen Peterman Consulting) for the project.
- Recruit new mentors and train them on FIRST mentoring. These mentors will in turn recruit new student and train veteran students to recruit future teammates.
- Provide opportunities for teams to meet other robotics team students to problem solve and celebrate successes together.
- Provide mentoring opportunities with career engineers for teams through volunteers and the annual Engineering Festival.
- Supply food at kick off and celebration events for teams that will involve parents and professional engineers as well as interest/info meetings to recruit and train teachers to serve as mentors.
- Support Kaleideum staff who will oversee the project, teach mentors and students to fund raise, staff the fabrication shop, assist the external evaluator with evaluation, and recruit volunteers to assist.

### **C.2. How will a participant access the proposed project/program, use the services, and derive a beneficial outcome**

## from participation?

Kaleideum recognizes that just getting to the Museum can be a barrier for many in our community. Even as the Museum offers FREE field trips to all WSFCS students and FREE programming to all Title I schools, funding inadequacies, transportation challenges, and scheduling difficulties — especially for middle and high school students — can make accessing high-quality STEAM programming difficult, if not impossible for many in our community, especially those in QCTs. To remove these barriers to access and opportunity, Kaleideum is committed to meeting the community where they are through a sweeping outreach initiative that will reach out to the most vulnerable in our community, ensuring that students who are historically underrepresented in STEAM are enthusiastic about STEAM, competent with STEAM skills, and interested in pursuing STEAM careers.

Exposure to STEAM in elementary school leads to more STEAM careers. Research has shown that exposing kids to STEAM in elementary school — specifically between the first and third grade — provides students with the foundation necessary to fulfill an increased number of STEAM-related careers. Research also shows that, U.S. adults with 1-2 years of experience in the workforce have reported the highest exposure to STEAM concepts in elementary school. Between the ages of 5 and 8, 46 percent of this population experienced a STEM-related track in school. Fifty-three percent of this population is currently working in a job that either entirely or heavily involves STEM -- by far the largest percentage of any other group of people in the workforce. This suggests that exposing students to STEAM at an early age goes a long way in capturing their imagination and keeping them interested in science, technology, engineering, and math jobs in the initial stages of their career.

Children are not exposed to STEAM early enough, but this is especially true of girls. However, when we look at these numbers by gender, it becomes clear that girls need to catch up. Overall, girls are five percent less likely to recall learning STEM concepts in elementary and middle school. In fact, only 18 percent of girls learned STEM concepts between ages 5 and 12, while 23 percent of boys learned STEM concepts at the same age. Microsoft's report, "Closing the STEM Gap," also provided some interesting insights into the lack of girls in STEM classes and careers -- including the idea that only 60 percent of girls understand how STEM subjects are relevant for their personal and professional pursuits. Multiple studies show that girls value helping people over making money or working with things, and this is not the case with boys. STEM, therefore, is often considered a more masculine career path. However, when creativity is injected into the STEM learning process often and early on, STEM tends to become a stickier subject for girls. According to our findings in conjunction with YouGov, girls are 6 percent more likely to say their teachers used creative activities to teach STEM concepts. That is why it is so important to embrace the idea of STEAM (Science, Technology, Engineering, Art, and Math). Adding the "art" to STEM enables students to kickstart their creativity and develop creative confidence.

Hands-on learning is the best way to teach STEAM Concepts. While teachers are still learning the best ways to teach STEAM lessons in school, U.S. adults had no trouble pointing to the most effective STEAM lessons from their childhood. Hands-on learning ranked highest in terms of effectiveness in teaching STEAM concepts, with 64 percent of respondents listing it among the most effective ways of learning STEAM. This ranking was equal between girls and boys, suggesting that — no matter their gender — children are looking for authentic understanding of STEM topics. They thrive when they can dive in, play, remix, and share what they have built. Incorporation of real-world issues was the second most effective way for students to learn STEAM topics. Forty-two percent of respondents listed it among the most effective ways of learning STEAM.

If we can get high-quality STEAM education in the hands of all youth — regardless of race/ethnicity, gender, and socio-economic status — through hands-on exploration, integration of two or more subjects, connections to real-world problems and solutions, and the use of technology to facilitate learning early and continue to engage students in deep and meaningful ways over time, we can build a community culture that encourages and supports STEAM exploration throughout the educational journey resulting in adults who pursue STEAM careers. And the best way to do this is to

bring the experiences directly to students where they are: in schools, after-school programs, community centers, etc.

**C.3 Total estimated number of unique participants to be served annually**

2,000

**C.4. Will program beneficiaries be only residents of Winston-Salem?**

Yes

**TOTAL FUNDING REQUEST**

**C.5. Total Operating Funding Request**

\$383,828.00

**C.6. Total Capital Funding Request**

\$200,000.00

**SPENDING TIMEFRAME**

**C.7 Capital Spending Timeframe**

1 year

**C.8 Operating Spending Timeframe**

3 years



## D. Project Budget Categories

Completed by craymer@kaleideum.org on 4/25/2022 1:44 PM

Case Id: 15087

Name: Kaleideum - 2022

Address: \*No Address Assigned

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### D. Project Budget Categories

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Please provide the following information.

Use templates below to input **the total** Project Budget (**only requested expenses and estimated revenues related to the program or project for which you are requesting funding**) by clicking **Add Column**. Please include all funding from the City and other sources.

Operating Costs	Total
Personnel Expenses (Salary, Wages, and Fringe)	\$364,756.00
Travel/Food/Transportation/Lodging	\$14,100.00
Materials & Supplies - Robotics Team Fees & Equipment, MEU consumables	\$55,300.00
Contractual Services & Subawards - Robotics Teacher/Mentor Stipends, Robotics Teams Fees	\$48,150.00
Consultant (Professional Services) - External Evaluator	\$29,700.00
Training & Education - PD for Robotics Teachers/Mentors	\$10,000.00
Telecomm - Mobile Phones for Outreach Staff	\$5,000.00
Direct Admin (3%)	\$16,422.00
Marketing/Recruitment/Dissemination	\$20,400.00
	\$563,828.00

Capital Costs	Total
Equipment & Capital - Mobile Education Unit (MEU) Vehicle, Lift and Equipment	\$200,000.00
	\$200,000.00

### PROJECT/PROGRAM REVENUE CATEGORIES

Please fill out the revenue estimate table. **Note: operating revenues and expenses must be balanced (be equal).**

Operating	Total
Burroughs Wellcome Fund (pending)	\$180,000.00
City of Winston-Salem ARPA	\$383,828.00
	\$563,828.00

Please list below all known/expected **individual** grants and contributions totaling 10% or more of the project's budget.

**Note: capital revenues and expenditures must be balanced (be equal)**

Capital	Total
City of Winston-Salem ARPA	\$200,000.00
	\$200,000.00

## E. Demographic and Geographic Distribution

Case Id: 15087  
Name: Kaleideum - 2022  
Address: \*No Address Assigned

Completed by craymer@kaleideum.org on 4/25/2022 8:45 AM

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### E. Demographic and Geographic Distribution

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Please provide the following information.

Demographic distribution is an assessment of the level of the project funds spent on a program or service provided at a physical location in a Qualified Census Tract (QCT), OR where the primary intended beneficiaries live within a QCT, OR whether the program benefits residents that earn less than 60 percent of median income for the City, OR whether over 25 percent of program beneficiaries are below the federal poverty line.

E.1 Is this project/program located in a QCT or serve residents that live in a QCT?

Yes

If yes, what percentage of clients served are estimated to be residents of QCTs? ([Click here](#) to view the QCT mapping tool)

75.00 %

E.2 If the project or program is not a QCT or specifically serve residents in a QCT, will residents meet the follow criteria:

25% or more of participants below the federal poverty line or participants served make less than 60% of the Area Median Income

The project/program does not operate in a QCT, and beneficiaries neither reside in a QCT nor meet the income thresholds mentioned above.

## F. Alignment to Strategic Plan

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 8:46 AM

Case Id: 15087

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Address: \*No Address Assigned

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## F. Alignment to Strategic Plan

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Please provide the following information.

Strategic planning is a process in which organizational leaders determine their goals and objectives, and allocate needed/limited resources to successfully achieve those goals and objectives. [Click here](#) to view Winston Salem's Strategic Plan. The Strategic Plan includes three (3) tiers of priorities:

### Tier 1:

- Focus on job creation/sustainability and workforce development
- Collaboration and funding for pre-K opportunities
- Funding for affordable housing
- Funding for economic development

### Tier 2:

- Poverty reduction/cessation
- COVID reopening plan
- Community engagement (Power of connections)
- Funding for arts

### Tier 3:

- Community Fundraising
- Environmental initiatives
- Address digital divide
- Address childcare needs
- Neighborhood maintenance
- Organization efficiency and public-private partnerships
- Law enforcement reform

**F.1. Please select the primary priority from the list above addressed by your project/program.**

Tier 1

**F.2. Please select the secondary priority from the list above addressed by your project/program.**

Tier 2

**F.3. Please describe how the workload or outcomes from your project/program addresses the primary priority you**

## **selected.**

Research shows that early exposure to STEAM leads to more STEAM careers. Research tells us that exposing children to STEAM early and in a meaningful way provides students with the foundations necessary to fulfill an increase number of STEAM-related careers. Research also shows that, U.S. adults with 1-2 years of experience in the workforce have reported the highest exposure to STEAM concepts in elementary school. Between the ages of 5 and 8, 46 percent of this population experienced a STEAM-related track in school. Fifty-three percent of this population is currently working in a job that either entirely or heavily involves STEAM by far the largest percentage of any other group of people in the workforce. This suggests that exposing students to STEAM at an early age goes a long way in capturing their imagination and keeping them interested in science, technology, engineering, and math jobs in the initial stages of their career. If we project serving 4,000+ students during the course of the program, and extrapolate the aforementioned percentages of STEAM employment percentages, we can assume that 2,000+ of participating students may seek out STEAM jobs early in their careers.

Making these same opportunities available to early learners/pre-K students would provide even earlier exposure to STEAM content during the first five years of life, considered to be a critical stage of development. During this time, children's brains are rapidly making connections. STEAM education teaches important foundations for math and science, critical thinking and problem solving skills, skills for group work and collaboration, and ways to think about complex subjects and real-world challenges through authentic learning experiences. Studies show that many children grow disenchanted with education much earlier than we usually think, not because they don't want to learn but rather because they don't like the way they are learning.

The FIRST program has a proven track record of boosting STEM abilities. FIRST students are two to three times more likely to have gains in STEM outcomes than those not participating in FIRST. FTC teams engage in advanced STEM learning through a process like that of professional engineers. Students research challenge requirements and creatively innovate designs to achieve the necessary function. They engage in engineering-thinking to design, draw, and code using CAD and Java. They use STEM knowledge to construct prototypes with electronics, mechanics, and technology. They problem-solve and think critically as they trouble-shoot design flaws through controlled experimentation and document, analyze, and interpret data. Students engaging in FTC learn STEM content and skills and show enhanced school science performance. This learning is long-lasting and builds upon existing knowledge, and students engaging in informal learning programs gain improved attitudes and interest in science.

In addition to hard STEM skills, FTC students develop durable skills like fundraising, budget management, collaboration, time management, empathy, resilience, adaptation, receiving constructive criticism, leadership, and communication as they build, test, launch, and present their final design in competition as a team. Students will learn to work together and compete against others with Gracious Professionalism and Coopertition. These two philosophies guide all FIRST activities, including those of this grant. Gracious Professionalism “encourages high-quality work, emphasizes the value of others, and respects individuals and the community.” Coopertition—a mash up of cooperation and competition —is “displaying unqualified kindness and respect in the face of fierce competition.”

What specific STEM activities will students do? Like professional engineers, students will research and innovate designs to achieve the necessary function. They will draw and code using CAD and Java. They will construct prototypes using electronics, mechanics, and technology. They will problem-solve as they trouble-shoot design flaws, analyze and interpret data, and collaborate to build, test, and launch their robots in competition as a team.

Does this program meet NC learning standards? Yes, this program far exceeds NC Science Standards. Materiality (Standard 8.P.2), electronics and magnetism (Standard PSc.3.3), speed, velocity, and acceleration (Standard PSc.1.1), motion (Standard Phy.1.1), work, energy, and power (Standard Phy.2.1), electrostatic systems (Standard Phy.3.1), and

more are included in the building, coding, and testing of robots. What opportunities are there for students to level up? Ambitious students on FTC teams can move up into the more intensive FRC teams hosted at Kaleideum. First Alumni are also eligible for 3500+ scholarships totaling over \$80 million, potentially helping students continue their STEM education at a community college or university.

Does this program nourish interest in STEM careers? Yes, the FIRST program has a proven track record of producing alumni who begin STEM career paths. Evaluation shows that 81% of FIRST alumni declare college majors in STEM. Structured non-school science programs like FTC expand participants' sense of future science career options and result in improved attitudes and interest in science. In addition to guidance provided by mentors and volunteers at practices, students will interact with two career engineers while at Kaleideum. They will meet around 20 professional engineers at Kaleideum's Engineering Festival where robotics teams present their robot.

The research is clear: early STEAM exposure and exploration is one of the primary indicators of future career trajectories. STEAM education while students are in pre-k, elementary, middle and high school ARE workforce development.

## G. Collaboration

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 8:59 AM

Case Id: 15087

Name: Kaleideum - 2022

Address: \*No Address Assigned

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### G. Collaboration

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Please provide the following information.

**Collaboration is when an organization is partnering or proactively working with one or more external stakeholders to achieve the same goal.**

**G.1. How many other external partners, organizations, stakeholders will you be collaborating with to provide the project/program?**

3+

**G.2. Please provide the names of the organizations and the roles they will serve in the project/program?**

As an expert in informal learning, our mission supplements the critical work of the school system's formal education. Kaleideum has long played a critical role in the community's learning ecosystem as a partner and collaborator with teachers, administrators, students, and schools and as a resource for student engagement and enrichment. Traditionally Kaleideum has done this with in-person field trips that are hands-on and exploratory. During the COVID-19 pandemic, when students were unable to participate in in-person field trips, Kaleideum sought funding to support the development and delivery of live, but virtual programming that specifically targeted NC Essential Science Standards differentiated by grade level. Kaleideum's commitment to partnering and collaborating with Winston-Salem Forsyth County Schools has long and storied history. Pre-pandemic Kaleideum was providing FREE field trip admission to roughly 7,000 students annually and approximately 4,000 students accessed FREE programming through our Title I initiative. We have been serving schools in our community for years, but recognize that the numbers referenced above only represent those students who were able to travel to Kaleideum. How many more students would we be able to reach if we were able to take programming directly to schools? Through the requested funding, Kaleideum will deepen and expand our collaboration with WSFCS through programming that brings high-quality, hands-on STEAM education directly to WSFCS in QCTs. Additionally, we will continue to partner with the district as we expand our existing robotics program in Title I high schools. (See letter of support.) To help form the six new FTC Robotics Teams, Kaleideum is partnering with Winston-Salem Forsyth County Schools and Marty Creech, their District Instructional Technologist. Mr. Creech is already in the process of recruiting principals to select teacher-mentors for teams. He is focusing on the high schools whose populations are greater than 75% students from groups traditionally underrepresented in STEM. The target schools are Parkland, Carver, John F. Kennedy, Reynolds, Glenn, and Winston-Salem Preparatory Academy. The teacher-mentors will in turn recruit the students for their teams and veteran teammates will also help to recruit new teammates in subsequent years. The teacher-mentors will place extra effort in encouraging students who are from groups traditionally underrepresented in STEM to join the teams. This will be emphasized in the interest/info training sessions with teacher-mentors each spring.

In addition to our deep collaboration ties with WSFCS, Kaleideum will deepen existing relationships with community partners like Head Start and Imprints Cares. These community agencies, which historically serve populations residing in QCTs, are partners in existing outreach programming like Leap Into Science (Head Start) and Invention Convention (Imprints Cares). Furthermore, Kaleideum will continue to strengthen and leverage relationships with corporate and foundation partnerships to advance the outreach initiatives outlined in this proposal.

FIRST (national and NC) -- Kaleideum staff are in regular contact with Marie Hopper who is the president of FIRST NC and Kory Bennett who is both the FTC Program Delivery Partner for FIRST NC as well as the Director for Robotics Outreach/Lecturer at North Carolina A&T State. Both Ms. Hopper and Mr. Bennett have been a tremendous resource for our current teams and have connected us with other mentors and teams when needed. Local University Engineering Departments. Finally, Kaleideum has established strong relationships with many engineering educators in the community who collaborate with us regularly on other engineering initiatives such as summer camps and the Engineering Festival. They are willing to assist as needed with the high school robotics teams as well. This includes Erin Hensley, PhD from Wake Forest Engineering and Denise Johnson, PhD, from Winston-Salem State University.



## H. Administration/Reporting

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 1:31 PM

Case Id: 15087

Name: Kaleideum - 2022

Address: \*No Address Assigned

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### H. Administration/Reporting

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Please provide the following information.

Per U.S. Treasury rules and associated guidance, the City's framework for using these funds aligns with specific administrative reporting requirements. The administration/reporting criterion has three core elements: 1) the organization's/project's development of clear performance indicators and measurable outcomes, 2) the use of evidence-based interventions, 3) and the City's evaluation of organization and project risk.

#### H.1. Please clearly define the workload and outcome measures that are associated with your project/program

Workload	<p># of students who participate in MEU hosted lower intensity, hand-on STEAM education through school and community outreach programs (Target: 4,000, students; Y1=0; Y2=1,500; Y3=2,500)</p> <p># of students who receive hands-on, in depth STEAM training through robotics team participation that will prepare and inspire them to go on in STEM careers (Target: 360 students; Y1: 90; Y2=120; Y3=150)</p> <p># of hours of rigorous STEAM education for robotics team participants/students (Target: 48,600 hours)</p>
Effectiveness/Outcome	<p>#/% of students who report an increase in STEAM competence</p> <p>#/% of students who report increased enthusiasm for STEAM</p> <p>#/% of students who report an increased interest in STEAM careers</p> <p>#/% of students who identify as female, Black, Hispanic and/or from low-SES households/QCTs -- all groups who are historically underrepresented in STEAM fields</p>

#### H.2. Does the project/program use evidence-based interventions?

Yes

Please provide a link to (or attach a copy of) the evaluation of the program model

<https://www.firstinspires.org/resource-library/first-impact?hsCtaTracking=9b5ad900-be66-4b70-8377-de93a4056be6%7C30fbe329-cffe-4667-ad95-fbb100ede7d4>



Program Model Evaluation

\*\*No files uploaded

H.3. For transparency purposes, the risk matrix is attached. This is NOT required, however, you can self-assess if you wish. Please fill out and upload the [Risk Matrix](#).



Risk Matrix



## I. Capacity

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 2:01 PM

**Case Id:** 15087

**Name:** Kaleideum - 2022

**Address:** \*No Address Assigned

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### I. Capacity

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Please provide the following information.

**An organization's capacity can be defined as its ability to implement the proposed project, as characterized by the alignment of its mission and vision with the proposed project, existing internal infrastructure to support it, and its plan for implementation and assessment of project success.**

**I.1. Please provide your organization's vision and mission statements and explain the alignment between the proposed project/program and the organizational mission.**

Kaleideum Mission: Inspiring wonder, curiosity, and lifelong learning in our children and community through interactive play and discovery. We achieve this through the overlapping lenses of literacy, the arts, and STEM.

Kaleideum Vision: We envision a creative, innovative learning ecosystem that equips and empowers us all to make a difference in our ever-changing world.

Kaleideum, an expert in informal learning, utilizes a learner-centered educational approach that encourages active participation where visitors engage in learning as recreation. Like a kaleidoscope, Kaleideum encourages examining the world through different overlapping lenses and provides our community the opportunity to explore the fertile ground that is created at the intersection of disciplines, cultures, and generations.

Kaleideum has long been a community leader as a provider of summer camps and field trips for students and educators in our community. The proposed outreach initiative is a natural extension of work currently taking place at the museum. By taking our expertise in informal learning into the community we are reducing barriers to access and opportunity and making programming accessible to an even broader swath of our community.

**I.2. Describe the organization's current infrastructure and capacity to deliver the program services or complete the project. Include any relevant current programming and experience providing similar services.**

Kaleideum's Education Department, under the guidance of Dr. Shari Brady, a long-time public school educator and adjunct professor, ably and nimbly leads Kaleideum's education department which offers hundreds of field trips each year, 60+ summer and day/school break camps annually, and a robust schedule of educational floor programming and educational special events. Additionally, the team is engaged with current outreach initiatives including Invention Convention, a K-12 project-based learning program that provides a hands-on STEAM (Science, Technology, Engineering, Arts, and Math) educational enrichment opportunity to budding young inventors, and Leap Into Science, a national program that integrates open-ended science activities with children's books for young children and families.

FTC team students and mentors will interact with Kaleideum staff who will monitor teams on site and teach teams how to use the fabrication shop equipment during the practice, build, and competition season (Sept -Feb). This grant will help cover the required hours of fabrication shop staff time for this purpose each week for six months and the cost of the senior staff member who will project manage these efforts and train/assist the lead educator to evaluate these three student programs. This senior staff member has an engineering degree as well as decades of experience evaluating

informal learning experiences with student visitors.

Additionally, Kaleideum will contribute the additional cost of staffing to be available for hosting all practice times with students as well as all time required to be at off-site competitions, to manage the practice schedules, and to help recruit and mentor team students and new coaches. The lead staff members in this role have had careers as engineers and have worked as FIRST Robotics Mentors for the last several years. They bring extensive experience working with this age group in this context. Mentors have already been established for the four existing teams (who are not on staff), and new teacher-mentors will be recruited for the new teams. The new teacher-mentors will receive a small stipend (provided by this grant) for their heavy contributions of time and expertise.

Winston-Salem Forsyth County (WSFC) school system has Lego-based robotics teams in middle schools. Students were interested in advancing to high-school level programs, but there were no public high school robotics teams in WSFC. Meanwhile Kaleideum was hosting two community and private high school robotics teams on-site. Many public-school students, though interested, could not find a way to commute to the museum to practice. So, in Summer 2021 Kaleideum and WSFC partnered to create two new teams. Both were at North Forsyth High School, a Title 1 school, and practiced at school with support from Kaleideum's Mounts Robotics Center. Both teams successfully built a robot and competed, a triumph for rookie teams. This project expands that pilot program to support a minimum of six additional teams that can meet either on school or Kaleideum grounds and receive support from Kaleideum's Mounts Robotics Center.

With funding from the David L. Mounts Foundation, Kaleideum now serves as a robotics center supporting robotics teams for ages 6-18. In addition to two community teams for elementary-age students, it currently supports seven robotics teams for older students. The three highest-level FRC teams are community teams. One all-girls team practices exclusively at Kaleideum. The other two teams utilize Kaleideum when they need space for a full field. These teams are populated with a mix of Triad high-school students who can commute to Kaleideum. Of the four current FTC teams (the kind of team proposed to replicate in this grant), Salem Academy (an all-girls private school) populates two of those FTC teams—Sisters of the Motherboard and Code Sisters. These teams practice on-site at Kaleideum. North Forsyth High School (NFHS -a public Title 1 school) populates the other two FTC teams. These NFHS teams started last year in the pilot program. Named Coding Vikings and Vikings for Technology, they primarily practice on NFHS's campus but visit Kaleideum for help as needed. Kaleideum provides 3,000 sq. Ft. of practice space, equipment, and access to two professional engineers on Tuesday and Thursday evenings and Saturdays. Upon request, access to Kaleideum's fabrication shop (with 3D printers, CNC machine, drill press, etc.) and shop staff are also available.

Kaleideum itself will provide facilities, equipment, staff, and materials/supplies to this grant project. Kaleideum is providing a 3000 sq. ft practice/build space at Kaleideum for all FTC teams to use for research, planning, meeting, building, storage, and practicing for competitions. In addition, Kaleideum provides access to its own fabrication shop, complete with hand tools, band saws, a CNC custom milling machinery, soldering stations, a welding setup, drill press, 3D printers, and more. Kaleideum is also dedicating considerable staff time to managing and hosting robotics teams. Inmar Intelligence, a local technology firm, is loaning the two engineers (Bee Bube and George Peterson) to work part-time at Kaleideum to manage the robotics teams practices and competitions at the robotics hub at Kaleideum. Mr. Peterson and Ms. Bube will continue and expand their role to support the FIRST Tech Challenge Robotics Teams created with this grant off-site at the high schools as well.

### **I.3. Describe the program/project implementation plan. Include any known barriers to success and how those will be overcome**

Mobile Education Unit

Summer 2022 -- Fabrication of the MEU will begin as soon as funding is secured.

Fall & Winter 2022/2023 -- Fabrication timeline is estimated at 6-8 months depending on supply chain challenges.

Spring 2023 -- Staff will undergo approximately four months of training in order to be prepared to delivery curriculum.  
Spring/Summer 2023 -- Marketing and education around the MEU and curriculum guide development.  
Summer 2023 -- Staff will test run many activities and curriculum with the 1,000+ children pre-K through middle school age during our summer camp program and at select community outreach activities..  
Fall 2023 -- Kaleideum staff will begin delivering MEU programming at WSFCS public schools and through community partner organizations.  
Continuation -- program delivery will continue throughout the 2023/24 and 2024/25 academic years.

### Robotics Teams (Annual Plan - Three Years)

The three-year program cycle would begin as soon as funding is received. Each year would follow the same schedule as outlined below.

#### April -May (Mentor Recruitment)

- Kaleideum works with Marty Creech District Instructional Technologist at the WSFS school system to encourage high school principals to enlist teachers to serve as coach-mentors for FTC teams.
- An information session is held for potential teacher coach-mentors.

#### June –July (Team Prep)

- Two new FTC teams and practice schedules are organized.
- New mentors participate in mentor training.
- Field, reusable controller, and starter tools for rookie teams are purchased.
- New elements needed by all teams are purchased.

#### Aug -Sept (Student Recruitment and Kick Off)

- Teacher coach-mentors recruit students to join teams.
- Teams are registered with FIRST. Yearly parts are ordered for all teams.
- Annual kickoff event is held for all robotics teams for collaboration, relationship building, and mentoring. This will include training on how to fundraise so the teams can begin creating relationships of their own to sustain their teams in the future.

#### Oct –Dec (Build Season)

- Teams build their robots. They can choose to practice at their school and/or on-site at Kaleideum’s Robotics Hub or a combination of both.
- Kaleideum evaluation staff and External Evaluator, KPC, visit each team’s practice for naturalistic observations and interviews for formative evaluation.

#### Jan –Feb (Competition Season)

- Teams compete with their robots. Between competitions they make improvements and optimize game strategy.
- Students complete end of season surveys prepared and analyzed by KPC, External Evaluator, and administered at a final practice by Kaleideum staff.
- Teams participate in Kaleideum’s annual Engineering Festival to showcase robots to the community and meet with local engineers about their careers.

March(Wrap-Up)•A Year End Celebration is held with all Robotics Teams. External Evaluator, KPC, conducts final student interviews, and Kaleideum team gathers summative evaluation surveys.

**I.3a. Describe the program assessment plan including how the data will be collected for selected performance metrics and any other evaluation tools that will be used to determine program/project success.**

Impact to Evaluate: Kaleideum will evaluate this project for three main goals: (1) to increase students' competence in STEM; (2) to increase students' enthusiasm for STEM; and (3) to increase students' interest in STEM careers. The project will also track the number of students who identify as female, Black, Hispanic, and /or from low socioeconomic status households -- all groups who are traditionally underrepresented in STEM fields.

Evaluation Conductors: External Evaluators, Karen Peterman Consulting (<http://consultkp.com>), will lead the evaluation efforts. KPC has been conducting external evaluation of STEM education projects since 2010, with evaluations that have spanned grades K-22, teacher professional development, programs, and informal STEM learning programs. Kaleideum Staff will also be contributing to the evaluation. Kaleideum's VP of Planning has been evaluating informal science experiences in science centers and children's museums since 1995.

**Evaluation: Mobile Education Unit**

Kaleideum will track demographic information related to all participating students. Kaleideum will survey participating students and educator (with developmentally appropriate surveys) both immediately following participation in the MEU activities and again later to track the "stickiness" of the instruction and continued enthusiasm for STEAM subject matter. Additionally, we will gather information through Informal Interviews and Naturalistic observations. This feedback will guide mid-course adjustments for all activities, help identify impediments to student success and lead to solutions to improve student learning and experience.

**Evaluation: Robotics Teams**

Front End Evaluation (May –Sept): Kaleideum staff will conduct Mediated Interviews with mentors and students at the May information session and the September Kick-off event. Questions will be designed to discover where mentors and students expect they will need assistance and to assess expectations. This will enable Kaleideum to prepare support as needed for the build and competition season. Demographic information will be collected at the Kick-Off Event to document participation and retention in the project.

Formative Evaluation (October –Feb). Evaluators will perform Informal Interviews and Naturalistic Observations of mentors and student when they visit practices off site or when teams practice on Kaleideum's campus. This feedback will guide mid-course adjustments for all activities, help identify impediments to student success and lead to solutions to improve student learning and experience.

Summative Evaluation (March). The external evaluator, KPC, will conduct Summative Evaluation to assess the three main goals at the end of the season as follows: (1) Change in students' STEM competences will be evaluated through a pair of 360-degree reflection exercises. The first of these will be conducted towards the end of the build phase in December. During this first review, students will use an online survey form to reflect on their own and others' contributions to the team to date and in relation to a number of STEM and project management competencies. A second review will be conducted after the spring celebration. The results of both 360-degree reviews will be shared with students as part of a short, Zoom-based interview that is designed as a final reflection for students to describe their work. (2) Change in students' enthusiasm for STEM and (3) changes in students' interest in STEM careers will be evaluated via a post-season survey to quantify students' self-perceptions of the program's impact in these areas.

## J. Impact/Community Need

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 1:17 PM

Case Id: 15087

Name: Kaleideum - 2022

Address: \*No Address Assigned

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### J. Impact/Community Need

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Please provide the following information.

**Impact/Community needs concern whether or not the proposed project will address an identified need within the community and what the short term (One year) and long term (3 years) impact of this project will be**

**J1. Describe the identified community need for this project/program. Cite specific data or studies/reports that have identified this as a community need.**

Investing in STEAM education initiatives for youth shows tremendous immediate value. STEAM education today helps prepare students for tomorrow's jobs. In the next decade 80% of jobs will require a deep understanding of STEAM skills yet 57% of students struggle to meet basic math requirements and do not avail themselves of classes that will prepare them for STEM careers. Investment in STEAM education—nurturing the next generation of innovators in the field of engineering, manufacturing, and innovation—ensures future employees who will help area companies stay relevant and competitive. Today's STEM jobs demand creativity and innovative thinking, offering opportunities to work with modern, evolving technology that has a dominant place in modern society. While the companies in our area reimagine themselves, resulting in a shifting landscape of job and career trajectories, it is not merely appropriate—but mandatory—for Kaleideum to direct significant institutional energies toward ensuring our community's youth have a path to educational and workforce opportunity.

Unfortunately, formal and traditional STEAM learning environments often teach without context. Their focus is mastery of content rather than development of scientific practices and computation processes. This deeply entrenched, content-focused approach persists despite changing demands of the workforce and attempts to reprioritize educational outcomes through the implementation of Next Generation Science Standards, inquiry-based teaching pedagogy, and other systemic models. According to Bransford et al (2000), "In science, existing curricula tend to overemphasize facts and underemphasize 'doing science' to explore and test big ideas" (pp.136-7). The work and problems posed to students a) have little relevance or practical application in their own lives, b) are devoid of any authentic problem-solving, c) lack an opportunity to prototype a tangible final product that grew from "failures" and multiple iterations and are unrelated to the many regional STEAM careers awaiting them.

Consequently, students often develop a "Why do I need to know this?" attitude, lose interest in the STEM disciplines, and drop out of the STEM study pipeline at predictable benchmarks throughout high school and early in college. In a recent study conducted by Campos Research Strategy for CSC titled *Work to Do: The Role of STEM Education in Improving the Tri-State Region's Workforce*, researchers found that only 29% of the students surveyed felt STEM classes were for everyone. In the *Work to Do* research study, a local business leader, when asked about the benefits of project-based learning stated, "A good example of how quality STEM education would prepare students for the real world and for jobs would be to invite groups of students into the workplace, provide them with a project with established goals, and ask them to develop a solution" (pg. 16). Parents in the study agree, with 90% of those surveyed saying their children would be interested in STEM courses if they could participate in engaging activities and 91% agreeing that participating in engaging activities is the best way for children to learn (pg. 16). The problem most schools face is they do not have the time, space, or equipment to replicate a STEAM working environment that caters to these project-based

learning activities. Kaleideum’s outreach initiative can bring this hands-on making environment to schools and community settings so that students can experience STEAM lessons based on the existing curriculum using computer-aided design and digital fabrication tools.

The effective integration of similar outreach initiatives in other communities has allowed students to follow their natural curiosity about how things work and their natural interest for making things they want or need, scaffolding them on a journey through STEAM during which knowledge is acquired “just in time” instead of “just in case.” In STEAM MEUs, a number of critical skills necessary to succeed in the 21st century are acquired, including, but not limited to, systems thinking, critical thinking, problem solving, analysis skills that inform an evidence-based iterative design process, communication and collaboration skills, and integration of social and ethical considerations into design thinking. Kaleideum’s STEAM outreach initiative can go beyond simply augmenting traditional education structures by lacing robust tools into the hands of students of all ages, capabilities, and backgrounds. This initiative will break the mold of traditional education by providing a space in which all areas of curriculum can be engaged and supplemented with hands-on, memorable experiences that encourage and embrace continual progress rather than initial perfection.

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**J2. Describe the short-term impacts of the project/program and how they align with the community need identified above.**

In the short term (one year), Kaleideum is committed to:

- 1) Fabricating a STEAM Mobile Education Unit (MEU) that will be a fully equipped maker space on wheels.
- 2) Developing a curriculum package that includes standards aligned, project-based lesson plans, and digital templates to deliver engaging programming — curriculum to include project workshops, engineering challenges, and capstone projects.
- 3) Training and providing professional development for Kaleideum education team to prepare them for taking the MEU — a traveling makers space — on the road.
- 4) Testing MEU curriculum and equipment during Summer 2023 summer camp programs and making adjustments as needed to prepare for launch.
- 5) Supporting and shepherding six (6) robotics teams — four (4) existing/veteran teams and two (2) rookie teams from Title I schools in QCTs through a robotics season. Recruiting two (2) additional rookie robotics teams prepared to launch in Y2.

Resulting in the following impacts:

- 1) Beginning to cultivate a pervasive culture of confident problem-solvers in the greater Winston-Salem area who are proficient with the skills needed to be successful in STEAM fields.
- 2) Increasing students' competence in STEAM, enthusiasm for STEAM, and interest in STEAM careers.
- 3) Reaching out to students who are historically represented in STEAM including girls, Black and Hispanic students, and students from low-SES households.
- 4) Strengthening relationships with community partners and expanding the network of collaborators and thought partners.

**J3. Describe the long-term impacts of the project/program and how they align with the community need identified above.**

In the long-term (three years and beyond), Kaleideum is committed to:

- 1) Deploying the MEU to WSFCS in QCTs. Serving 1,500 students in Y2 and 2,500 students in Y3.
- 2) Supporting ten (10) robotics teams — four (4) existing/veteran teams and six (6) rookie teams from Title I schools in

QCTs.

3) Working with robotics teams to secure sustainable funding to maintain the program after ARPA/grant funding has been exhausted.

Resulting in the following impacts:

1) Advancing a pervasive culture of confident problem-solvers in the greater Winston-Salem area who are proficient with the skills needed to be successful in STEAM fields.

2) Increasing the number of students who choose – and have the skills and experience needed to succeed in – technology, engineering, manufacturing, and innovation as fields of study and subsequent careers.

3) Growing a robust pipeline of homegrown talent to work at local companies, as well as start new ones.

4) Creating a self-perpetuating system where local talent is committed to investing in and mentoring the next generation of STEAM students and workers.

5) Moving the needle around increased representation of individuals historically underrepresented in STEAM — girls, Black and Hispanic students, and students from low-SES households.

**J4. Referencing previous section on outcomes, describe how the impacts noted above will be measured.**

Kaleideum will work closely with community collaborators and partners to:

1) Survey participating students and educators to gauge reported increases in student STEAM competence and enthusiasm among participating students, and a demonstrated interest in pursuing further STEAM education or a STEAM career path.

2) Track participation on robotics teams by girls and Black and Hispanic students, individuals who are historically underrepresented in STEAM.

3) Track whether participation on a robotics team increases the likelihood of students taking more advanced STEAM classes as part of their coursework and/or pursuing further STEAM education and/or a STEAM career path post-graduation.

4) Expand network of corporate/engineering partners and mentors by 100%.

## K. Funding Stability

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 2:09 PM

Case Id: 15087

Name: Kaleideum - 2022

Address: \*No Address Assigned

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### K. Funding Stability

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Please provide the following information.

**Funding stability is an assessment of both the organization's annual funding and the planned funding mechanism for the project/program from grants, donations, sales, and other income generators. To the extent possible, the City wishes to ensure applying entities have sustainable funding sources outside the City's ARPA allocation. An entity will be deemed as having superior funding stability if it demonstrates at least three years of sustainable grant, contribution, and/or fee-based revenues to cover operating costs. The entity must also demonstrate commitments from other organizations to cover the full cost of project deficits or future-year operating costs (in combination with realistic fee-based revenue assumptions).**

**K.1. Have your organization's operating revenues covered operating expenses the last three years?**

No

**K.2. Approximately what percentage of your organization's total budget is covered by competitive grants that you must re-apply for?**

28.00 %

**K.3. What percentage of your project/program's budget is covered by City ARPA funds as part of this request?**

76.00 %

**K.4. Please provide narrative on funding for this program after City ARPA funding has been exhausted.**

Kaleideum's outreach initiative is sustainable through a variety of different funding and/or revenue sources.

The mobile education unit (MEU), when not being deployed at schools/programs in QCTs, has the potential to generate revenue for the Museum through corporate sponsorships and paid programming/out-of-pocket bookings that are STEAM-based and mission-driven. Any earned income through sponsorships/out-of-pocket bookings would be reinvested in program delivery to underserved populations. Additionally, Kaleideum's philanthropy department will continue to seek foundation partners who are similarly committed to STEAM outreach and programming in underserved parts of our community where it is needed most.

There exist a variety of different funding streams for high-school robotics teams once ARPA funding is exhausted.

1) In 2021, Kaleideum received a sizeable gift from the L. David Mounts Foundation to launch an engineering and innovation initiative at the Museum. This funding enables Kaleideum to provide 3,000 sq. ft. (about the area of a tennis court) of space for robotics teams to practice for a minimum of 12 hours/week. As part of this gift agreement, Kaleideum is committed to raising an additional \$500,000 in matching funds that can support robotics and engineering initiatives at the Museum and in the larger community through outreach initiatives.

2) Inmar Intelligence has provided two professional engineers/loaned executives for 20 hours a week each to work as

Kaleideum employees year-round for five years. During the 6-month robotics build season they will staff the robotics center for at least 12 hours/week. Additionally, they will spend another two hours/week traveling to robotics team practices should participating schools want/need to practice on their own campuses as opposed to at the Museum. These “loaned engineers” are a critical component of the success of the robotics initiative.

3) Kaleideum has established relationships with local engineering firms including Stantec, Collins Aerospace, Westrock, HDR, and others. Kaleideum is leveraging relationships with these corporate partners to help support robotics teams at individual schools so that they might be self-sustaining well beyond current funding. For example, Stantec has committed to providing 50% of annual funding needed for two existing robotics teams at North Forsyth High School for the 2022-23 academic year. Collins Aerospace, Westrock, HDR and other local engineering firms participated in Kaleideum’s inaugural Engineering Festival in February 2022 and will be cultivated to support veteran robotics teams once preliminary start-up funding is expended. Kaleideum’s philanthropy team is also committed to working with students and mentors to draft grant/funding proposals for continued support.

4) WSFCS is applying for a grant supported by the NC Budget that would help fund additional high school robotics teams until there is a team at each high school in the district. The hope is that this government grant will be available annually and will help support teams after the sun sets on ARPA funding. This will help supplement additional funding teams are required to solicit beyond the initial seeded years.

5) Kaleideum currently has a grant pending with Burroughs Wellcome Fund (BWF) — \$180,000 over three years — that would specifically be allocated to outreach related to robotics teams in WSFCS Title I high schools. Should we receive funding from BWF, Kaleideum would continue serving our four existing programs, two located at North Forsyth High School, a WSFCS Title I high school, and expand programming to include six additional WSFCS within three years.

**K.5. Please attach commitment letters from other organizations showing financial support for the project/program.**

 **Commitment Letters**

April 17, 2022 Marty Creech LOS\_DRAFT.pdf

2021.2.25 David Mounts Agreement Final.pdf

Kaleideum-BWF.pdf

## L. Representation

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 6:22 AM

Case Id: 15087

Name: Kaleideum - 2022

Address: \*No Address Assigned

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### L. Representation

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Please provide the following information.

**Representation deals with how diverse an organizations leadership is compared with community demographics, which includes Winston-Salem's race/ethnic backgrounds as well as gender. Local non-profit organizations should reflect the communities they serve. Since organizations are requesting to receive ARPA funding through the City, we must ensure these entities hold themselves accountable to having diverse staff and leadership panels**

**L.1. Provide a list of board members including the race, ethnicity, and gender identification for each member.**

Name	Race	Ethnicity	Gender Identification
Alan A. Andrews	Black	Not Hispanic or Latino	Male
Pamela Anglin	Native American	Not Hispanic or Latino	Female
Amber Baker	Black	Not Hispanic or Latino	Female
Nora P. Baker	Black	Not Hispanic or Latino	Female
Latasha Barr Lewis	Black	Not Hispanic or Latino	Female
Michelle Barson	White	Not Hispanic or Latino	Female
Gerard Clodomir	Black	Not Hispanic or Latino	Male
Vivian Coates	Asisan	Not Hispanic or Latino	Female
Erin Craver	White	Not Hispanic or Latino	Female
Conrad Emmerich	White	Not Hispanic or Latino	Male
Kevin Goode	White	Not Hispanic or Latino	Male
Shelley S. Holden	White	Not Hispanic or Latino	Female
John D. Horth	White	Not Hispanic or Latino	Male
Luke Jackson	White	Not Hispanic or Latino	Male
Donald L. Martin	White	Not Hispanic or Latino	Male
Calvin McRae	Black	Not Hispanic or Latino	Male
Laura C. Miller	White	Not Hispanic or Latino	Female
Robin K. Miller	White	Not Hispanic or Latino	Male
Portia Mount	Black	Not Hispanic or Latino	Female
Kevin Mundy	White	Not Hispanic or Latino	Male
Rosa D. Otero	Hispanic/Latino	Hispanic or Latino	Female
Robert Parsley	White	Not Hispanic or Latino	Male
Margaret Pike	White	Not Hispanic or Latino	Female
Nadiyah Quander	Black	Not Hispanic or Latino	Female
Latoya Robinson	White	Not Hispanic or Latino	Male
Michael C. Setliff	White	Not Hispanic or Latino	Male
Jimmy Smith	White	Not Hispanic or Latino	Male
JoAnn Sofis White	White	Not Hispanic or Latino	Female
Mesia Steed	Black	Not Hispanic or Latino	Female

Adam Suter	White	Not Hispanic or Latino	Male
Catrina Thompson	Black	Not Hispanic or Latino	Female
Cathleen Thompson	White	Not Hispanic or Latino	Female
Claire T. Tuttle	White	Not Hispanic or Latino	Female
Trent Wall	White	Not Hispanic or Latino	Male

## M. Required Documents

Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 6:22 AM

Case Id: 15087

Name: Kaleideum - 2022

Address: \*No Address Assigned

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### M. Required Documents

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Please provide the following information.

For North Carolina Secretary of State - Current and Active Status, [Click Here](#)

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### Documentation

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**Code of Conduct/Conflict of Interest Policy \*Required**

2020-2021 Board Handbook.pdf

**Copy of the agency's latest 990 Form as submitted to the Internal Revenue Service \*Required**

Kaleideum 2020-21 Form 990 2021.pdf

**Organization By-Laws \*Required**

2020-2021 Board Handbook.pdf

**Articles of Incorporation \*Required**

Articles of Incorporation.pdf

**Organization Policies (including personnel, formal non-discrimination, procurement, accounting, etc) \*Required**

2020-2021 Board Handbook.pdf

**IRS 501(c)3 Designation Letter \*Required**

IRS Determination Letter for Kaleideum 501c3.pdf

**Most recent audited financial statements or a third-party review \*Required**

Audit 2021.pdf

**North Carolina Secretary of State - Current and Active Status \*Required**

Kaleideum Solicitation License 2022.pdf



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Completed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 2:09 PM

**Case Id:** 15087

**Name:** Kaleideum - 2022

**Address:** \*No Address Assigned

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## N. Submit

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Please provide the following information.

I certify that all information entered into this application is true.

Casey Raymer

*Electronically signed by [craymer@kaleideum.org](mailto:craymer@kaleideum.org) on 4/25/2022 2:09 PM*

04/25/2022