

Overview

For centuries, immigrants to New York have energized science, commerce, technology, and education, building our nation in the process. It is precisely this audience that NYSCI serves most directly. NYSCI is committed to engaging new generations of young people in creating the clearest possible pathway to futures in science, technology, engineering and mathematics.

NYSCI Strategic Plan, 9.30.09

The New York Hall of Science (NYSCI) seeks IMLS funding to support the development of a process for engaging its local, largely immigrant, community in creative ways that reflect its current composition. Queens is one of the most diverse counties in the United States, with over 100 languages spoken within a 5 mile radius of the museum. NYSCI intends to form powerful partnerships with local organizations that represent the rich cultural heritage of the different immigrant communities that reside in Queens. Our goal is to jointly build science programming that is steeped in the particular histories of selected ethnic groups and to do so in a way that underscores the historical and cultural relevance of science to the people in those communities and beyond.

The Sustainable Community Collaborations project will establish partnerships with leading local organizations representing the Hispanic, Chinese, and Korean communities, to develop a process for co-creation of science programming. The project will launch collaboratively developed, culturally anchored science experiences for families and children from these three ethnic communities. Partners include the Latin American Cultural Center of Queens (LACCQ) and the Flushing Business Improvement District (BID), which includes the Korean American Association of Queens (KAAQ), and the Flushing Chinese Business Association (FCBD). These organizations bring culturally grounded math and science content in topics such as astronomy, architecture, design and mathematics. Initial discussions have elicited interest in the Lunar New Year with a focus on astronomy and astrophysics science content, and Mesoamerican art, science, and architecture, connecting to content around physics and mathematics.

This is the first substantial undertaking by NYSCI to co-construct programming with Hispanic and Asian constituencies in the local Queens community. It entails joint participation in project goals, direction, and outcomes. The timing of the project is especially opportune as NYSCI embarks on a capital campaign, with a new CEO, revitalized mission, and ambitious strategic plan, in celebration of its 50th anniversary on the site of the 1964 World's Fair, a most appropriate symbol for the work of this project.

Statement of Need

As the New York Hall of Science looks toward its 50th anniversary, the CEO and Board of Trustees have committed to grounding the museum more firmly in its home community. As New York City's premier hands-on science center, and a major national and international presence thanks to its signature Science Career Ladder program, NYSCI has turned its attention to the communities in its home borough of Queens. "Because we are located in the most ethnically diverse county in the U.S. and the immigrant gateway to New York City, we have the privilege of being able to engage and educate *next generation Americans*," says CEO Margaret Honey. "Diversity is our strength and our neighborhood is our greatest asset."

Building NYSCI capacity to engage its community. The Sustainable Community Collaborations Project fulfills MFA goals by establishing systematic processes to attract substantial numbers of families and children who have not been regular users of NYSCI or other museums. The project advances the mission of NYSCI—"to bring the excitement and understanding of science to children, families and teachers by galvanizing their curiosity and providing creative, participatory ways to learn" as it insures a steadfast commitment to deliberate and targeted outreach. The new five-year strategic plan, developed over a six-month period by senior staff and members of the Board of Trustees, was approved at the June 10, 2009 Board meeting. The plan identifies 6 major objectives that will position NYSCI as an authoritative institution for:

- **Science Leaders** - Engaging the world's leading scientists in our activities and mission.
- **Educators** - Serving as a core strategic partner for City and State Departments of Education.
- **Academics** - Establishing ourselves as leaders in the science of learning.
- **Community** - Developing deeper ties with the communities that make up our own *backyard*.
- **Government Leaders** - Creating a groundswell of support from Community Boards to Congress.
- **Business and Philanthropy** - Developing a broad base of support from business and philanthropy.

The work proposed in this project will help NYSCI move forward with the *community* objective of the strategic plan. These efforts will translate into institutional capacity across four departments: 1) Education and program development, creating a process for collaborative, multi-lingual programming, and participatory evaluation; 2) Membership, including data collection systems, sponsorships, and mechanisms for reaching under-represented groups and low-income visitors; 3) Human resources and professional development; and 4) Executive, including development and external relations.

Description of the community. The intended audience for the project is the museum's immediate neighbors: the Corona neighborhood to the west and the Flushing neighborhood across Flushing Meadows Corona Park to the east. Corona is a vibrant community that features a bustling commercial hub populated by locally owned businesses, ethnic restaurants, and cultural institutions and organizations. The demographics of the community have changed radically since the 1960s, when Corona was primarily white and middle class. It is now often the first stop for newly arrived immigrants. Nearly two-thirds of the community is foreign born (1), and over 90% speak a language other than English. The community is predominantly Hispanic, from Mexico, the Dominican Republic, and Ecuador, with smaller numbers from other countries of Central and South America. Poverty rates in Corona are higher than in the rest of the Queens, with over 21% of households below the poverty rate (2). Similar demographic changes occurred in Flushing, where the largest ethnic group is now Asian, accounting for 44.4% of the population in the 2000 census. It has the largest Chinese community in New York City, surpassing Manhattan's Chinatown. Whites make up 30% of the community, Hispanics 18.5%, and African Americans 3.6% (3). The population of Flushing is about double that of Corona, 176,257 in 2000, (8% of Queens County), and 58.5% of Flushing residents are foreign born. A third of Flushing's immigrants come from China, followed by Korea, India, Colombia, El Salvador, Pakistan, Greece, and Ecuador (4).

Who comes and doesn't. NYSCI has regularly collected visitor statistics since 2003. Results from the Summer 2009 survey and the 5 year summer average (2004-2009), and ongoing membership tracking underscore the critical need for this project. Among general admissions visitors, 9% in the 2009 survey period and 11% in the 5 year average were Hispanic, compared to 71% in the community; and only 6% (7.2% 5 year average) were Asian, a strikingly low percentage given the high numbers who reside in Flushing. Low-income families were significantly under-represented, with the median household income of surveyed visitors at \$79,728, compared to \$28,000-\$40,000 for Corona (5) and \$40,000 for Flushing (6). NYSCI offers free hours on Sunday mornings and Friday afternoons and has been tracking free hour zip code data since February 2009; between February and June, 8.3% of visitors came from Corona and 13.7% from Flushing.

Why the community groups are interested in partnering. Based on discussions with the organizations' leaders, the partners want their constituencies to know about NYSCI, and to use all the resources it has to offer. They want them to feel comfortable and to see the museum as a place for themselves and their families. Families are looking for opportunities for their children. Nayibe Nunez-Berger, director of the LACCQ, stated, "For new immigrants, it is about taking ownership of the community's institutions, recognizing that they are contributing to their communities and can expect resources in return." Our community partners believe that if we can jointly build science programming that reflects the cultural histories of different ethnic groups, NYSCI will honor this heritage in a way that underscores the relevance of science to a broad mix of people.

What the community deserves from the museum, and what NYSCI can bring. NYSCI offers high quality

STEM education (science, technology, engineering, and mathematics), interactive exhibits that involve the public in current developments in science and technology, and paths to careers in science and education. Staff-intensive experiences, learning by doing, investigating scientific phenomena in a relaxed and energizing environment is what the community can expect when it enters NYSCI's doors. Parents, including those from the local community, recognize that the NYSCI after school program, which for a decade has served 150 children from Corona annually, fills a critical need in their children's science education. (seems a funny boast on such small numbers) Yet they don't necessarily build on that experience with return visits or recognize that the benefits can extend to others in their family, including themselves.

NYSCI's Explainers and staff, who are responsible for engaging and supporting the public when they visit the museum, are a critical component of this project. For 20 years, the Science Career Ladder (SCL) has involved 200 high school and college students annually who work as Explainers. Participants reflect the diversity of surrounding neighborhoods: 90% are minority and the 2009 class speaks more than 20 languages, ranging from Urdu to Haitian Creole. The Explainers are the public face of NYSCI, greeting visitors, interpreting exhibits, conducting science demos, and helping to staff many of NYSCI's after school and camp programs. They play a critical role in making NYSCI's visitors feel welcome. NYSCI staff is also extremely diverse: 18% are Asian, 18% are Hispanic, 17% are African American, 12% are Pacific Islander, 27% are members of more than one ethnic group, and 25% are white. They speak multiple languages and many live in the Queens neighborhoods of Corona, Flushing, Elmhurst, Jackson Heights, Sunnyside, Jamaica, and Fresh Meadows.

Project Design

Goals. The project will increase the participation of under-represented communities in NYSCI, strengthening the institution as a public resource, and enhancing its role in preparing the next generation for careers and literacy in STEM fields. The goals are to:

1. Strengthen partnerships with community organizations to increase the participation of their constituencies
2. Develop programming that highlights the contributions of current and historical cultures to STEM
3. Attract more visitors from NYSCI's neighboring communities of Flushing and Corona
4. Expand systems to monitor participation and track progress
5. Integrate the systems and processes produced through this effort into the ongoing infrastructure of NYSCI

Activities

1. Strengthen partnerships. NYSCI has formed collaborative relationships with the Latin American Cultural Center of Queens and the Flushing Business Improvement District. Meetings with each of the partners to develop the proposal have resulted in initial consensus about how to proceed. The project will begin with joint assessments of interests, concerns, and resources. Explainers, staff, and community stakeholders, guided by the project evaluator, will conduct focus groups, interviews, and community meetings. Project staff will organize with each partner appropriate ways to gather input and feedback. The partners will "map" the area to identify the places, spaces, and people who can serve as resources to the project—people with knowledge and stories related to the programs being created, scientists and others who use science in their work, calendars of celebrations, informal and formal gathering places, businesses willing to advertise and sponsor project events.

2. Co-create community science events and family workshops. The purpose is to ground the science in events that already take place, so that the science and NYSCI's resources and staff become part of a familiar tradition. Initial discussions with partners have focused on the following topics and cultural celebrations:

- a. Lunar New Year. Major Chinese and Korean celebrations take place throughout Flushing for the month associated with the Lunar New Year (Jan/Feb), and the NYSCI events will join the festivals and cultural history with the science of astronomy, the relationship of earth to moon and sun, and the development of lunar and solar calendars. How humans measure time is a unifying theme and basis for cross-cultural comparison.
- b. Mesoamerican math, science and architecture. Mid-September through mid-October is Hispanic Heritage month, which is celebrated locally through the Junta Hispana Festival in Flushing Meadow Park. The NYSCI

events will focus on achievements of the Mayan people in mathematical systems, astronomy and architectural alignment, and astronomy and calendar systems. Programming will then look at mathematical and scientific contributions of other Mesoamerican cultures such as the Aztec and Inca.

Each launch event will attract 500 families and key community leaders. Launches will be timed to coincide with the significant celebrations cited above. The events will also be of interest to NYSCI's larger audience, broadening visitors' understandings of historical and cultural dimensions of STEM. Each event will include hands-on science and creative activities developed specifically for the culture/science theme. All exhibits will be open and staffed with the language needs of each group in mind. A combination of NYSCI and community group greeters will have a strong presence at NYSCI's entrance. Additional cultural programming, such as live music, dancers, and puppet shows will build on and enhance the event's theme.

Each launch will be followed by 4 weekends of family workshops that highlight specific science and culture interactions. These will attract not only the communities of origin, but members from all the communities involved in the project. Participants will get to know each other and NYSCI staff and Explainers. The learning and cross-fertilization will take place through hands-on activities that engage families in culturally anchored science, as they bring knowledge, artifacts, and stories from their own cultures and countries. Participants will compare how different cultures respond to common concerns and how each makes sense of natural and physical phenomena. They will examine different approaches, including what makes it "science" from the western science perspective: how we know what we know, where that knowledge comes from, and the role of evidence.

Explainers and staff will involve families with relevant exhibits, so that parents get accustomed to using the museum's resources to expand their own and their children's learning and cultural connections. A key goal of the launch events and family workshops is to enable participants to become *insiders* at NYSCI. Staffing will be consistent, enabling participants to get to know staff and Explainers. When they return to the workshops and come on their own, they will have friends on the floor, know their way around and become repositories of information about the exhibits and their development. They will be able to connect their experiences at NYSCI with the stories, knowledge, and wisdom from their own communities.

The programmatic foundation will be used to build enduring relationships with key stakeholders. NYSCI staff, including the CEO, Director, and project directors, will meet with partners and community leaders to solicit their input, sponsorship, and strategies to support additional community participation.

3. Attract more visitors from NYSCI's neighboring communities of Flushing and Corona. To build an environment that welcomes and supports visitors from our immediate neighborhoods, the project will:

- Conduct an analysis of what works and what needs to be changed to be fully welcoming to different segments of the community. Partners and NYSCI staff will use a real-time, experiential focus group methodology to gauge neighborhood visitors' sense of comfort and engagement in the museum, documenting reactions to signage, space, symbols, and staff.
- Tap the skills among the already diverse staff and Explainers by collecting their ideas and strategies about how to ensure that all visitors to NYSCI feel welcome. Staff and Explainers will attend brainstorming sessions to contribute and respond to ideas. Education and visitor services staff, in consultation with project partners, will take the best of these ideas and put them into practice on the floor and during family workshops.
- Organize professional development for all staff (senior, program, and floor staff as well as parking lot attendants, security, and maintenance). The training will focus on institutionalizing the best practices identified through the partnerships that help NYSCI serve as a welcoming neighborhood place.
- Develop multilingual materials and additional strategies to identify multilingual staff and Explainers. NYSCI has already committed to developing multilingual signage (Spanish, Chinese, Korean) that runs along the building's perimeter on 111th Street. NYSCI's membership department reports that visitors to NYSCI want information available in their native languages; the project will develop these materials for Spanish, Chinese

and Korean audiences. Currently Explainers wear buttons that indicate what languages they speak; project partners will help generate new ideas, (kiosks, meet-and-greet times), that make it easy for visitors to connect with multilingual staff and Explainers.

4. Expand systems to monitor participation and track progress

- a. Add features that enhance systematic tracking of local zip codes visitorship. Visitor services staff will design additional measures that probe at reasons for coming, not coming, return visits, and decisions about cost.
- b. Conduct periodic focus group and feedback sessions with partners. Regularly scheduled meetings of partners will include reflection on “how are we doing?” questions devised by partners and staff. Focus groups will shed additional light on the formative evaluation, and suggest strategies for mid-course correction.

5. Integrate systems and strategies into key NYSCI departments. The efforts described above all involve modifying current operational practice at NYSCI. Semi-annual meetings of the CEO and department heads will review processes developed through the project, and determine how procedures will change as a result.

Project Management

Project management will focus on the key tasks of designing the co-development process and building the relationships with the community partners, and both the institutional capacity building and the immediate project tasks will receive substantial attention. The project is set up to make modifications and corrections based on data, input and feedback from the evaluation processes listed below, regular meetings and contacts with community partners, ready access to the NYSCI CEO, and involvement of senior staff responsible for relevant departments.

The project partners have deep roots in the local community. The Latin American Cultural Center of Queens (LACCQ) was founded in 1993 by six Latino activists, including Nayibe Nunez-Berger, a founding board member who became executive director in 1997 and remains in that position. The LACCQ has longstanding relationships with Latinos from all national groups as well as policymakers. The Flushing Business Improvement District, established in 2003, is a public/private partnership that “acts as advocate, liaison, promoter, and problem solver for the community and provides a critical link between NYC government and the neighborhood” (6). It represents a range of organizations, among them The Flushing Chinese Business Association (FCBA) and the Korean American Association of Queens (KAAQ). Both FCBA and KAAQ were founded in the early 1980s to foster commercial and economic development, and serve as a bridge between community and government agencies. Representatives of these groups will be part of the core project team, co-planning and co-creating the events, activities, meetings and forums. They will invite community members to participate, identify those who are active in the sciences, gather and provide feedback on the science programming, and support the marketing of the project and the partnerships.

Evaluation processes will be overseen by Cecilia Garibay, president of The Garibay Group, and involve baseline and front-end data collection, formative evaluation, and impact evaluation. In keeping with a culturally responsive approach to evaluation, all data collection will be collected in whichever language is most appropriate for the community group, and evaluators will work with community partners to be able to conduct surveys, interviews, and focus groups in the range of languages necessary for this project. The front-end and formative evaluation will be conducted internally, and the summative will be conducted by Garibay.

- 1. Front-end evaluation will focus on obtaining baseline information to inform the project’s development. Data collection will use interviews, focus groups, and secondary data analysis methods. Using census and museum visitation data, the evaluation will analyze who is visiting NYSCI and who is not. Focus groups with non-visitors will help staff to understand their perceptions of NYSCI, conceptions of museums, and leisure values and interests and barriers to visitation. Interviews with partners will elicit perspectives, interests and concerns.
- 2. Formative evaluation will focus on strengthening project implementation and activities. It will track the planning and implementation of the partnerships, events, workshops, and staff training. Methods will include observation, document analysis, interviews, surveys, and written reflections by staff, partners and participants.

3. Summative evaluation will focus on project outcomes, detailed below. Mixed methods will include surveys, interviews, and document analysis.

Reaching the intended audience is one of the primary aims of the partnerships. Strategies include:

1. Interactive information sessions hosted by the community partners at their locations and at other venues in the community that feature engaging activities like those the project will offer
2. Personal outreach by community partner leaders to their constituencies
3. Interactive activities at local schools and afterschool programs and presentations at parent-teacher meetings
4. Explainer and floor staff talking up the project to field trip groups
5. Presence, presentations, and interactive experiences at community events
6. Information on the websites of NYSCI, community partners, community organizations, as well as up to date activity posted through Facebook and Twitter and other media outlets.
7. Multilingual flyers in local stores, health clinics, libraries and other community spaces.

Scholarly and community involvement in content, planning, and execution is central to this project. Our goal is to establish and institutionalize processes for community collaboration starting with co-creating science programs. Mechanisms for community involvement include meetings, focus groups, interviews, and involvement in formative evaluation. The advisory council includes experts from the local community, staff from other museums that have engaged communities, social scientists involved in community studies, and informal science education program developers committed to equity. A list of advisors is included in supplemental documents.

Scholarship that informs the project includes ethnographic accounts of Corona (7) and Flushing (8) that detail the history, demographics, and social and political relationships. Sanjek holds that Corona offers a “window on America’s great transition” to a multiracial society, a transition that science centers ignore at their peril, says Eric Jolly, president of Science Museum of Minnesota. Jolly urges the adoption of practices that result in truly “*sustainable diversity*,” which entails “mutuality between the science center’s decision-makers and community leaders, [and] ongoing relationships with current and potential audience members”(9). This approach can help the project avoid trivialization and short-term contacts that end when the heritage month or holiday is over. The experience of the museum community also informs this project, including ASTC and AAM efforts to engage museums with their communities (10); the San Jose Children’s Discovery Museum use of Three Kings Day to initiate powerful community partnerships that endured beyond the festival, the Field Museum’s *Common Concerns, Different Responses* framework (12), and the Urban Network ten museums’ efforts to “embrace communities” (13), among others.

Project Resources: Time, Personnel, Budget

The Schedule of Completion demonstrates how the Sustainable Community Collaborations Project will be completed over a two-year time frame, starting in September 2010, and ending by August 2012. NYSCI will provide a 1:1 match. Each of the three managerial staff will dedicate 2.5 calendar months: the aspects of the project that demand time above and beyond their regular duties will be supported by IMLS funds; to create this extra time, managerial staff will delegate coordination tasks they normally do (e.g., recruitment for the afterschool program) to assistant level staff. NYSCI cost share of approximately 56% will cover portions of salaries, fringes, project event supplies, and other program expenses not covered by IMLS funding. The cost share funding will be secured with a mixture of private and corporate funders. Funds from IMLS will be used to support approximately 44% of the total project expenses, which include portions of education staff salaries, training materials, office supplies, conference registration, domestic and local travel, printing & meeting costs, partner expenses, honoraria, and evaluation fees. Funding from IMLS will cover indirect costs of \$40,080 over two years, in accordance with our negotiated federal rate of 42%.

Project personnel are highly qualified, and complement what the community partners bring. Preeti Gupta, who started her career as an Explainer 20 years ago, has led multiple national and local projects, including the national replication of the SCL, and created the after-school program. She will oversee the project. Alice Stevenson will be responsible for developing and maintaining the community relationships, and oversee planning, signage changes, and staff training. She will work with the evaluator, and serve as liaison with other NYSCI departments. Madelaine Hartman, Coordinator, Family Programs and Special Events, will plan events including the orientation, family workshops and culminating events. Membership department staff will handle tracking visitors and expanding the database. The evaluation contract () will be directed by Cecilia Garibay, is president of the Garibay Group, which specializes in audience research and program evaluation in informal settings, particularly efforts aimed at attracting underrepresented groups.

Impact

The project will produce tangible products, long term relationships, and integrated practices. Products include: Lessons learned. Report intended for the partners and the field about how to forge community partnerships around a programmatic focus, and translate that into institutional capacity building and mutual support. A co-development process. Internal guide to strategies that promote community involvement in science. Community event design. Institutionalized system for how to co-develop events around science topics that reflect cultural and community contributions, interests, and themes. Workshop materials in 3 languages to engage Hispanic, Chinese, and Korean families in hands-on science. Staff training materials for creating an inclusive welcoming environment. Multilingual flyers and signage, both the products themselves and the process for their creation. Website additions that welcome the intended audience in multiple languages.

Measurable impacts will be reported by the evaluator and project director to the CEO, community partners, and the Board of Trustees. Impact: Measures include:
Double local visitorship: Comparison of baseline data from local zipcodes to figures at end of years 1 and 2.
Continuation of partnerships beyond grant: Schedule of future meetings, MOUs or other agreements, ongoing working relationships with partners.
Written process for co-development of programs that informs future program development: Existence of document, its current and planned use by staff, and plans in proposals to use the process;
Enhanced data collection about visitors, community participation and use, contributions from community: Number of new systems in place, new measures, expanded database.
Multilingual membership and visitor information in website and print materials: Comparison of materials available at beginning and at end.
Professional development to train staff and integration into staff review criteria: Existence of training schedule and inclusion in HR practice.
New advisors or partners representing the community: Change in numbers from community and ethnic groups, and new networks for recruiting influential individuals.

The long term impact on the museum and its community will be significant. The programmatic collaboration will produce a solid foundation for engagement of the community that in turn will mobilize community stakeholders and influential individuals to support NYSCI's efforts. It will alter the way that the museum sees the community and the way the community perceives the museum, breaking down tangible and intangible barriers. The enrichment of the science content and programming by the community's participation will heighten the quality of the educational experience and enable visitors as well as staff to see firsthand how human creativity and ingenuity are at the root of scientific discovery.

BUDGET FORM: Section B, Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages	\$46,092.00	\$82,953.00	\$129,045.00
2. Fringe Benefits	\$12,947.00	\$23,552.00	\$36,499.00
3. Consultant Fees	\$19,600.00	\$0.00	\$19,600.00
4. Travel	\$2,650.00	\$0.00	\$2,650.00
5. Supplies and Materials	\$5,540.00	\$2,160.00	\$7,700.00
6. Services	\$16,000.00	\$0.00	\$16,000.00
7. Student Support	\$0.00	\$0.00	\$0.00
8. Other Costs	\$2,200.00	\$20,000.00	\$22,200.00
TOTAL DIRECT COSTS (1-8)	\$105,029.00	\$128,665.00	\$233,694.00
9. Indirect Costs	\$40,080.00	\$54,039.00	\$94,119.00
TOTAL COSTS (Direct and Indirect)	\$145,109.00	\$182,704.00	\$327,813.00

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	\$145,109.00
2. Cost Sharing:	
a. Applicant's Contribution	\$182,704.00
b. Kind Contribution	\$0.00
c. Other Federal Agencies*	\$0.00
d. TOTAL COST SHARING	\$182,704.00
3. TOTAL PROJECT FUNDING (1+2d)	\$327,813.00
Percentage of total project costs requested from IMLS	44 %

*If funding has been requested from another federal agency, indicate the agency's name:

