Agency: Commerce, Community and Economic Development

Grants to Municipalities (AS 37.05.315)

Grant Recipient: Fairbanks North Star Borough **Federal Tax ID:** 92-6000096

Project Title: **Project Type:** Remodel, Reconstruction and Upgrades

Fairbanks North Star Borough - Barnette Magnet School Renovation and Reconstruction

State Funding Requested: $9,500,000 **House District:** 9 / E

Future Funding May Be Requested

Brief Project Description:

Renovation/Reconstruction – School reconstruction (Phase 3) as planned in the Educational Specifications and not completed in prior phases. Includes an addition, ADA compliance, structural upgrades and energy cost reductions. When completed, this renovation will extend the life of the school 50+ years.

Funding Plan:

Total Project Cost:	$26,450,000
Funding Already Secured:	($8,000,000)
FY2012 State Funding Request:	($9,500,000)
Project Deficit:	$8,950,000

Funding Details:

$1.4 million was secured in 2002 in a successful local bond election. It was expended on Phase I of the project, exterior and site safety improvements.

$6.6 million was secured in 2006 in a successful bond election. It has been expended on Phase II of the project, renovation of the gym wing.

Detailed Project Description and Justification:

Background:

The facility known, until recently, as Barnette Elementary is the oldest facility in the district which has not received major rehabilitation work. Most of the structure is over 50 years old and major building systems are wearing out. It is the largest user of energy per square foot of all of our schools (see Utility usage by school, attached). The facility is not ADA compliant, and is in violation of many fire codes, it is also structurally deficient in terms of seismic and lateral loads. The envelope is in very poor general condition. This project is the final phase of an essential renovation.

Phase 1: encompassed location, parking lots, and playground upgrades. Phase 2 involved overall planning, educational specifications and remodel as far as possible with available resources from a 2006 bond issue.

Five years ago, Barnette Elementary was converted to a K-8 magnet school. The school has been very successful in spite of the condition of the facility. At present there is a waiting list and a lottery to gain admittance to the program.

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$9,500,000 Approved

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As mentioned above, phase 2 involved design development for the entire renovation. It included a facility audit and assessment that is included as part of the schematic design report included with this application. The survey showed many code and design problems including many serious and some potential safety issues. During the educational specification process an appraisal was completed in reference to educational program suitability of the facility. The finding is in the educational specification also included here. The existing building has a problem of being underutilized in the morning and over utilized in the afternoon. The design matrix was to convert the building to bring about even and full utilization, as much as possible, for the entire day.

Scope of Work:
The scope of this project is to continue the renovation as designed. This will include roofing, building envelope, windows, doors, finishes, mechanical, electrical and phone/ data systems. Additionally, as detailed in the educational specifications, the building is deficient in a number of areas with regard to educational program deliverability. The scope addresses this through realignment, rearrangement, and upgrades of spaces to match the highly successful magnet school program.

Building wing replacement: During early engineering analysis, it quickly became apparent that the building wing constructed in 1970 had major seismic issues. Additionally, the layout of this wing did not fit the educational program (in fact has never fit any program). The problems began to exceed the value of this part of the structure. During the educational specification process the planning committee decided to remove this addition and build a new addition to the south of the original structure. The new addition will assist in the lateral stability of the original structure, make phasing and accommodation of the occupants easier and less expensive, and provide a better final educational program solution. Note: This renovation/replacement project proposes no space addition to the school or attendance area.

Roof and envelope as shown in both the roof survey and the building audit, are in extremely poor shape and contribute to high energy usage and even potentially dangerous situations. The roof is very old, with insulation R-values varying from 15 to 24. Research, through our energy management program, shows that this school has the highest energy usage per square foot in the district. The envelope consists of an original storefront panel system spanning both floors on the exterior of the structure. Many mechanical attachments have failed and these panels risk “breakaway” failure in a large seismic event. Some areas have had EFIS placed over the panels, placing additional stress on them. The panel system is poorly insulated and is not sealed letting air through. This requires fans to work more than should be necessary to keep the building pressure positive. This becomes expensive, especially under arctic conditions. In summary, age, and the extent of the problems warrant large scale replacement of the envelope. (Chapter 3 of the Technical Assessment)

Structural deficiencies in the building were recorded in the building survey. They include poor lateral bracing and insufficient roof load capabilities. The worst problems were found in the 1970 addition to the building, largely associated with massive concrete tip-up panels. Cost analysis indicated the main wing constructed in 1960 could be economically brought to seismic code. The cost of upgrading the 1970 addition, however caused the engineering team to look at other solutions, explained in the program layout changes below. (Chapter 2 of the Technical Assessment)

The mechanical system is old and does not meet requirements or present codes. It is also not energy efficient and adds unnecessary costs. The school was originally heated with coal fired boilers. In 1986, the boilers were replaced with oil fired steam boilers. These boilers have a fuel to water efficiency of approximately 68-70%. This coupled with the envelope problems contribute to the poor energy performance of the building. The ventilation system does not meet the current requirements for outside air and the distribution system leaves many spaces under-served with ventilation air. This has caused continuing complaints concerning the indoor air quality. Many of the restrooms have little or no ventilation. This project will replace the heating system with either gas fired boilers or connect to municipally provided hot water heat. Either

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system offers better than 90% efficiency, an improvement of almost 50% over existing conditions. The new ventilation system will have new fan units with heat recovery. The distribution system will include variable air volume control for efficient delivery of fresh air to all spaces as needed. There will also be a new exhaust fan system to handle restrooms and other spaces that need direct exhaust of fumes. The entire system will be controlled by an updated digital control system to maximize efficiency. (Chapter 4 of the Technical Assessment)

The electrical system, including the service, is old and in this case is dangerous for maintenance staff to access. The service entrance consists of a pole mounted transformer on the floor of the electric room with bare wires to the primary side, a major code violation. The distribution panels are original and parts are no longer available. The distribution system was originally installed before computers and other electrical devices. Over the years, the district has extended service distribution to rooms to try and keep up with the growth of technology. The result is a temporary fix that needs to be redone, properly designed, and upgraded. The lighting is old magnetic ballast T-12 fixtures. The ballasts have PCBs and we routinely have to change out some ballasts that have failed and leaked. This project will include a new service, a new main distribution system and panels with new wiring and outlets designed for a modern school. The lighting will be new T-5 high efficiency lighting with controls to maximize energy efficiency and still provide the best lighting appropriate for learning. (Chapter 5 of the Technical Assessment)

The phone/data system, is for the most part, school district installed systems to try and keep up with demand. As stated before, when this school was built there were no computers, only a one or two line phone system, no fax machines, and a very simple PA system in the school. The remodeled school will have a new phone system, intercom, and fire alarm system. There will be a modern data system including data ports in classrooms and wireless network so that education can take place throughout the school and not just next to a wall. (Paragraph 7.5 of the Schematic Design Report)

Interior finishes will be replaced during this project. Most of the interior finishes are original with only repainting and normal maintenance for their 48+ years. School district forces have done a wonderful job of maintaining the facility to get almost 50 years of useful life out of these finishes but, it is past time to renovate. The interior also contains asbestos including potentially friable components above the ceiling. Given this, a full interior demo and rebuild will be performed.

Educational program layout improvements - during the educational specification process, the facility survey confirmed what was already known; that the layout does not fit the program. Success of the program revolves around two components; the core educational curriculum and wide ranging exploratory offerings. These two components have widely varying space and furnishing needs, requiring design to be as flexible as possible. The educational specificication and concept design reflect this desired flexibility.

The voters of the Fairbanks North Star Borough have twice approved expenditures for phases 1 and 2 in the plan to renovate Barnette Magnet School. This included educational specifications, design work as well as performed renovation work. The educational specifications and designs have been approved by the school board and DEED. This shows local commitment to the improvement of this facility and in the end to have a facility to meet the educational programming and needs for many decades.

Project Timeline:

Engineering work and preparation of contract drawings would commence as soon as funding becomes available (late 2011). The project would be bid in late 2012 for construction start in the spring of 2013. The project would be completed by the end of 2014.

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Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Fairbanks North Star Borough School District

Grant Recipient Contact Information:

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Has this project been through a public review process at the local level and is it a community priority? [X] Yes [ ] No

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