

House District \_\_\_\_\_  
Senate District \_\_\_\_\_

THE TWENTY-EIGHTH LEGISLATURE  
APPLICATION FOR GRANTS  
CHAPTER 42F, HAWAII REVISED STATUTES

Log No:

For Legislature's Use Only

Type of Grant Request:

GRANT REQUEST - OPERATING

GRANT REQUEST - CAPITAL

"Grant" means an award of state funds by the legislature, by an appropriation to a specified recipient, to support the activities of the recipient and permit the community to benefit from those activities.

"Recipient" means any organization or person receiving a grant.

STATE DEPARTMENT OR AGENCY RELATED TO THIS REQUEST (LEAVE BLANK IF UNKNOWN):

STATE PROGRAM I.D. NO. (LEAVE BLANK IF UNKNOWN):

1. APPLICANT INFORMATION:

CENTRAL  
MIDDLE  
SCHOOL

Legal Name of Requesting Organization or Individual:

Db:

Street Address: 1302 QUEEN EMMA ST.

Mailing Address: HNL, HI 96813

2. CONTACT PERSON FOR MATTERS INVOLVING THIS APPLICATION:

Name ANNE-MARIE MURPHY

Title PRINCIPAL

Phone # 808-587-4400

Fax # 808-587-4409

E-mail Anne-Marie-Murphy@notes.k12.  
hi.us

3. TYPE OF BUSINESS ENTITY:

- NON PROFIT CORPORATION INCORPORATED IN HAWAII  
 FOR PROFIT CORPORATION INCORPORATED IN HAWAII  
 LIMITED LIABILITY COMPANY  
 SOLE PROPRIETORSHIP/INDIVIDUAL  
 OTHER

6. DESCRIPTIVE TITLE OF APPLICANT'S REQUEST:

REBUILDING A LEGACY  
An Urban Garden

4. FEDERAL TAX ID #:

5. STATE TAX ID #:

7. AMOUNT OF STATE FUNDS REQUESTED:

FISCAL YEAR 2017: \$ 55,034.00

8. STATUS OF SERVICE DESCRIBED IN THIS REQUEST:

- NEW SERVICE (PRESENTLY DOES NOT EXIST)  
 EXISTING SERVICE (PRESENTLY IN OPERATION)

SPECIFY THE AMOUNT BY SOURCES OF FUNDS AVAILABLE  
AT THE TIME OF THIS REQUEST:

STATE \$ 0  
FEDERAL \$ 1  
COUNTY \$  
PRIVATE/OTHER \$ 0

TYPE NAME

TITLE:

Anne Marie Murphy

NAME & TITLE

1/20/16  
DATE SIGNED



RECEIVED  
1/21/16

# **Rebuilding a Legacy**

An Urban Garden  
Central Middle School



# **BACKGROUND AND SUMMARY**

## **1. Applicant's Background:**

At Central Middle School (CMS), our Ohana (faculty, staff, students, parents/families, and community members) embraces our school's vision of Ke a`o `ana ā mau loa – Learning for Life, as our mission is to prepare all students to be college, career, and life ready in an evolving global society.

Located in the heart of downtown Honolulu, CMS sits on a property filled with rich Hawaiian history and has been placed on the National Register of Historic Places in 2004. Once the site of Keoua Hale, the palace of Princess Ruth Luka Ke`elikolani, CMS was established in 1928 and serves students in grades 6 – 8 from Kakaako, lower Makiki, lower Nu`uanu, downtown Honolulu, Liliha, and Palama. While many of these areas have luxury condominiums and homes, the majority of our students currently reside in government and affordable housing complexes or transitional and homeless shelters, and others live with relatives or in multi-generation homes.

CMS students proudly come from diverse backgrounds, with multi-languages spoken at home. There has been a slight decline in our English Language Learners (ELL) to 29% receiving supports and services. About 9% of our students are eligible for Special Education and/or related services. Our disadvantaged population has remained steady at about 89% of students qualifying for free and reduced meals.

We believe the key to high academic achievement is through the implementation of evidence-based instructional practices in the classroom with fidelity, strong relationships between and amongst all of our stakeholders, rigor and relevance in our curriculum and instruction, and a plethora of learning opportunities to prepare students for high school, college, career, and life.

## **2. Goals and Objectives:**

The purpose of requesting this grant is to teach 6-8<sup>th</sup> grade students, using STEM strategies to design, construct and maintain an urban farm that can produce food for the community and improve sustainability in our city.

The superintendent of the Department of Education of Hawaii, Kathryn Matayoshi, recently announced a new goal for all schools. Na Hopena A'o or "HA". This is a framework that reflects core values and beliefs in action to strengthen a sense of belonging, responsibility, excellence, Aloha, and total well being in ourselves and students. This project aligns well with these new objectives.

Public schools are community centers financed by taxes. Central Middle School is an excellent place to teach the ancient and modern methods of growing food since the school is the only public school located in downtown Honolulu where many do not get a chance to see how farming has changed. It has a long history with the Alii. There is a need for education and community involvement to protect ourselves from over processed, over sprayed, contaminated food supplies. Modern farming techniques use less space, less energy, require less maintenance, and produce less pollution.

What student doesn't like to go outside? Our immediate goal is to involve 6<sup>th</sup> graders in a STEM class incorporating projects using gardening experimentation. They will use the scientific method and hands on approach to have fun where the fish, water, and plants become their motivation to learn Life Science, Earth Science, Chemistry, Engineering, Agriculture and Environmental Science, along with math and using technology to record and publish their findings.

The ancient Hawaiians were masters of sustainability with their Ahupua'a way of living, but modern society has gotten away from this and instead depends on processed, unhealthy food brought from far away. It's important that we learn from our history.

Presently, our school has a small aquaponic garden and it is successful. We would like to expand the garden area to include above ground planters, compost vermicast, vertical hydroponics and more aquaponic beds. It would be maintained and used for experiments by our new 6<sup>th</sup> grade elective STEM class next year. Experiments will be carried out on various vegetables and herbs using various growing methods, STEM strategies, and the inquiry process. Included in the curriculum will be Life Science (photosynthesis, nitrogen cycle, and fish habitat), Chemistry (Ph levels, ammonia and iron content, oxygen requirements and dissolved solids), Earth Science (sustainability, water cycle, Ahupua'a, and alternative energy), and Engineering (designing pump systems). Along with science benchmarks, students will be writing, speaking and using math to analyze data. They will be using iPads to record their process, observations, data, and research.

**3. Public Purpose:** Central is the only downtown public school and we feel a need to contribute to the community by teaching sustainability and science research involving new methods of farming in an urban area.

**4. Target Population:** The students of Central Middle School.

**5. Geographic Coverage:** There are two areas on campus that we would like to use for this endeavor.

Area I is a 52'x 13' space next to the auditorium stairs now being used as a part time parking for a few cars between the "A" building and the "B" building. The

plan is to build a caged fence garden area to hold the A-Frame hydroponics and aquaponic beds. We are in the process of getting solar panels for the school, and hopefully will be able to get something installed for the garden.

Area II is an area that already has a low fence with a gate and was previously used as a fruit tree garden. Over the years, the fruit trees have been neglected. We would like to use this area for above ground planters and worm composting.

## I. Service Summary and Outcomes

### 1. Scope of work, tasks, and responsibilities:

**Area 1:** This is a 52' x 13' flat area that is currently being used for part time parking. It receives the correct amount of sunlight and is sheltered from high winds to allow a good environment for growing plants. It currently has electricity available, and will soon be powered by solar panels that are being installed on the roofs of Central this month. Our vision is to run four rectangular 3' x 8' aquaponic systems using Tilapia fish, and to install one six by ten foot A-Frame hydroponic system. To achieve this goal, funding must be secured. A new STEM class is being created to utilize this garden. Students will be creating experiments, using computers to research and record data. Graphs will be completed using Excel worksheets, and PowerPoint presentations will be made by students to share their process.

**Area 2:** There is an area on campus that was previously used for fruit trees. It is now surrounded by a low 3' fence with a gate. Our goal for this area is to create new soil and fertilizer using compost /vermicast. Gravel will be used for a walkway. We would also like to build four above ground planter boxes for sweet potatoes, onions, and pineapple. The Downtown Honolulu Rotary Club hired an arborist to cut and chop the trees. We now have a huge pile of mulch that needs to be processed. We will need two large vermicast bins which will produce fertilizer for the hydroponic and above ground gardens. Eventually students will be recycling all of the school's compost from the cafeteria.

2. Timeline: Our timeline aligns with the Department of Education school calendar year. The projected Priority List is as follows: Since this will be used for the 2016-17 school year, it would advantageous to complete the basic construction by August, 2016.

#### Basic Construction

Fence area for security

Cement floor for enclosed Area 2

Gravel for Area 1

### Second Phase Construction

Grow Beds, Ponds, and pump systems

Set up Solar Panels

Vertical Garden

Worm Compost Bins

Planter Boxes

Build Wind Mill Pump

3. Quality assurance and evaluation plans:

*Monitor, Evaluate, Improve:* Anne Marie Murphy, the principal, Becky Moylan, the Science teacher at Central, The Kokua Foundation, Downtown Honolulu Rotary, and Project Learning Tree organizations will oversee guidance on construction.

4. Measures of effectiveness: The grant Central Middle School is seeking is solely for construction. The effectiveness of fund use will be monitored by the adherence to the projected timeline stated in *II. Service Summary and Outcomes-question 2.*

## **II. Financial**

1. Budget—Attached lists
2. Anticipated quarterly funding requests
3. Not Applicable
4. Not Applicable
5. No other federal, state, or county government grants will be received.
6. Balance of unrestricted current assets as of Dec.31, 2015

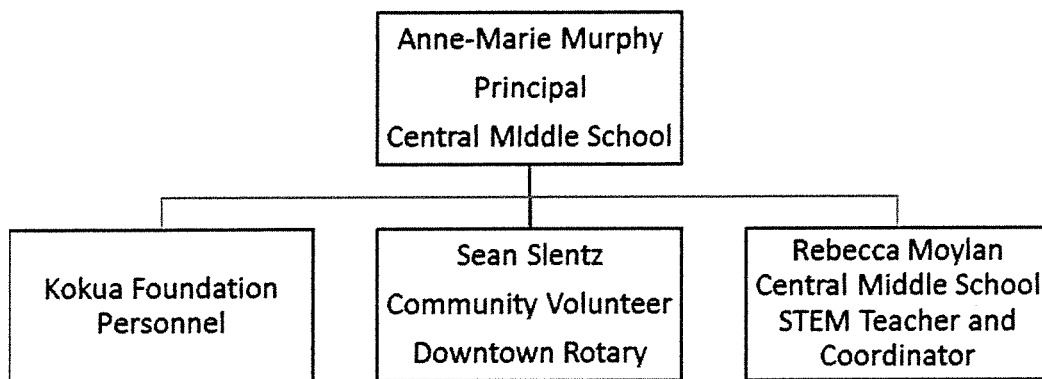
## **III. Experience and Capability**

- A. All of our teachers are fully licensed and carry Highly Qualified Status. Our high retention rate, with over 80% of our staff being with our campus for 10+years', speaks to the commitment our faculty and staff have for the children and parents of our community.

- B. The facilities being used are already a part of Central Middle School. No additional facilities will need to be secured.

#### **IV. Personnel: Project Organization and Staffing**

- A. No compensation for personnel is needed. Rebecca Moylan is funded by Weighted Student Formula for Central Middle School. Sean Slentz is a community volunteer. The Kokua Foundation will assist through their Mini-Grant and advice to support environmental education in the schools and communities of Hawaii.



#### **V. Other**

- A. Litigation: Not Applicable
- B. Licensure or Accreditation: WASC Accredited



Pictures of current Aquaponic garden in fenced cage. (January, 2016) It is very small and difficult for teaching a class. It includes four small grow beds, and two fish ponds underneath.



**AREA 1 MATERIAL LIST-CENTRAL URBAN GARDEN**

Name of Material	Vendor	Quantity	Cost	Extention
Fencing for cage and cement pad	Pacific Island Fence	52' x 13'	\$30,000.00	\$30,000.00
160 gallon Agricultural Troughs	The Aquaponics Place	4	\$140.00	\$560.00
3 X 8 Rectangular Grow Out Beds	The Aquaponics Place	4	\$395.00	\$1,580.00
3 X 8 Wooden Tables	The Aquaponics Place	4	\$125.00	\$500.00
Bell Siphone Set	The Aquaponics Place	4	\$49.00	\$196.00
Black Cinders	The Aquaponics Place	64	\$10.00	\$640.00
Pump - Pondmaster Model 7	The Aquaponics Place	4	\$108.75	\$435.00
Leaf Trap - Wave	The Aquaponics Place	4	\$75.00	\$300.00
Filter - Ultima 11 2,000	The Aquaponics Place	1	\$740.00	\$740.00
PVC Pipe Set	The Aquaponics Place	4	\$21.00	\$84.00
Large Nets - Loki Nets MMN-2	The Aquaponics Place	4	\$28.25	\$113.00
Organic Digester - STRATA	The Aquaponics Place	4	\$19.85	\$79.40
Water Quality Tester - TDS Essential	The Aquaponics Place	4	\$29.18	\$116.72
pH hydrotester - HM Digital	The Aquaponics Place	4	\$63.50	\$254.00
Aquarium Tubing 3/16inch (100 feet)	The Aquaponics Place	1	\$50.00	\$50.00
Aeration Pumps - HAKKO	The Aquaponics Place	4	\$165.00	\$660.00
02 Cylinder Stones	The Aquaponics Place	12	\$3.50	\$42.00
Manifold - 6 way splitter	The Aquaponics Place	4	\$29.98	\$119.92
Matala Mats - 24X39	The Aquaponics Place	4	\$40.00	\$160.00
Oyster Shells - 4 pound bag	The Aquaponics Place	2	\$3.65	\$14.60
pH Up - gallon	The Aquaponics Place	2	\$28.00	\$56.00
Small Nets - Marina	The Aquaponics Place	8	\$3.45	\$27.60
Smaller Nets - Marina	The Aquaponics Place	8	\$2.45	\$19.60
Food-Brood Stock and juveniles (20 #1)	The Aquaponics Place	2	\$21.15	\$42.30
Food for Fingerlings - fish flakes (3 oz)	The Aquaponics Place	4	\$4.50	\$18.00
Hollow 8 X 8 concrete blocks	The Home Depot	80	\$1.56	\$124.80
Everbilt Submersible Pump 1/6 HP	The Home Depot	1	\$94.98	\$94.98
Treated Lumber 2 x 12 x 8'	The Home Depot	12	\$20.00	\$220.00
<b>TOTAL</b>				<b>37,247.92</b>

**AREA 1a-- MATERIAL LIST FOR HYDROPONICS A-FRAME**

<b>Name of Material</b>	<b>Vendor</b>	<b>Quantity</b>	<b>Cost</b>	<b>Extension</b>	
PVC Pipe 4in x 10'	Home Depot	12	\$12.00	\$144.00	189781
PVC End Caps	Home Depot	24	\$3.00	\$72.00	
PVC 1in x 10'	Home Depot	3	\$5.00	\$15.00	193755
PVC 1/2 in x 10'	Home Depot	10	\$2.50	\$25.00	193682
PVC Primer and cement	Home Depot	2	\$10.00	\$20.00	462620
PVC Cutting tool-HDX	Home Depot	1	\$12.00	\$12.00	1000012738
End Pieces PVC-	Home Depot			\$100.00	misc. sizes
Pretreated Lumber-2 x 4 x 8	Home Depot	10	\$4.50	\$45.00	655840
Pretreated Lumber-2 x 4 x 10	Home Depot	4	\$5.77	\$23.08	655841
PVC J hook hangers	Lowes	36	\$1.50	\$54.00	298089
Plastic tote-27 gallon	Home Depot	1	\$20.00	\$20.00	207585
<b>TOTAL</b>				<b>\$530.08</b>	

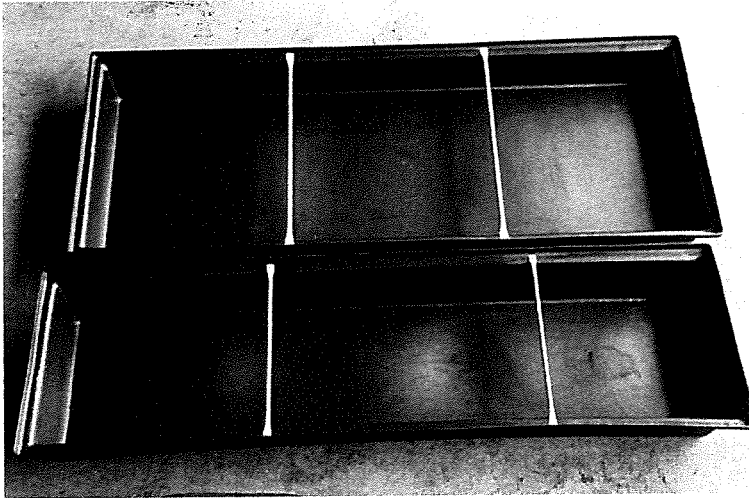


AREA 1 and AREA 1a---This will not longer be a parking area. It will be fenced in with cement pad to be used for Aquaponic and A-Frame Hydroponic Garden. Outdoor electricity is already set up to use.

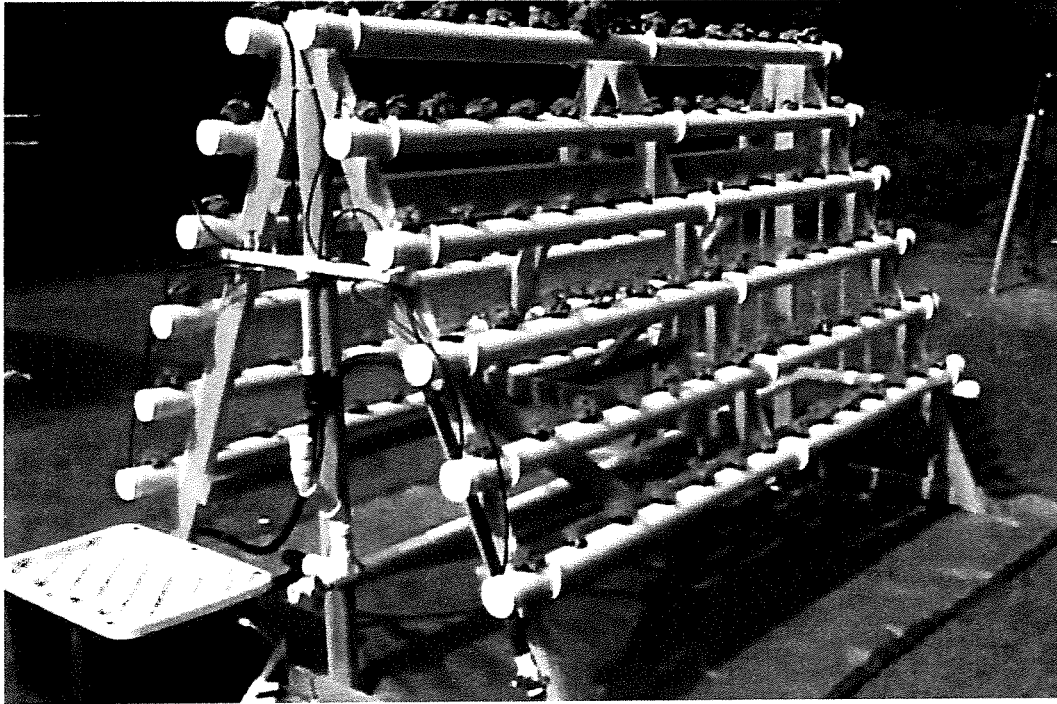


The Aquaponics Place- Waimanalo, HI

**2'x 8' grow bed approximately 120 gallons, 110 gallon pond, 700 gph water pump, large siphon kit, large piping set, 2'x 8' table, 18 bags of pre-washed cinders**



3 x 8' Bed and 2 x 8' bed



### A-FRAME HYDROPONIC SYSTEM

This setup uses inexpensive materials, including 2 x 4' boards for the frame, PVC pipe and tubes for water circulation, valves to control the water flow and drainage, and a plastic tote for the reservoir. Each of the 12 PVC tubes in the system holds 14 plants, for a total of 168 plants, an incredible number of plants for the size of the growing space—6' wide x 6' tall x 10' long. It is also portable.

**AREA 2 MATERIAL LIST--CENTRAL URBAN GARDEN**

<b>Name of Material</b>	<b>Quantity</b>	<b>Cost</b>	<b>Extension</b>	<b>Vendor</b>	<b>Item #</b>
Shovel - Digging	8	15.97	127.76	Home Depot	1,554,300.00
Shovel - Transfer	8	16.47	131.76	Home Depot	765,236.00
Metal Rakes	8	17.97	143.76	Home Depot	1,000,014,817.00
Soil Scoop	8	12.47	99.76	Home Depot	652,724.00
Dandelion Digger	8	10.97	87.76	Home Depot	157,634.00
Garden Gloves	32	2.37	75.84	Home Depot	5023-72
5 gal Un Buckets	16	3.98	63.68	Home Depot	2,670,305,555.00
5 gallon Bucket ids	16	1.98	31.68	Home Depot	RGS502G
Weed Block	2	54.97	109.94	Home Depot	IN-2519RP
Milwaukee Measuring Tape 25 feet	8	34.97	279.76	Home Depot	1,000,011,162.00
Digital Scale	4	408.00	1,638.00	FlinnScientific	AP4839
Printer HP Laser Jet PRO 400	1	320.05	320.00	Conrad Enterprises	M4010NE
Replacement cartridges (2 pack high yield toner)	1	332.79	332.79	Conrad Enterprises	CF280XO
BELKIN 8 outlet Sur11e Protector	6	35.16	210.96	Home Depot	932,677.00
Bretford Store and Charge	1	683.50	683.50	Amazon	CORE OS Cabinet
Stereo Microscopes	8	409.45	3,275.60	Flinn Scientific	MS5035
Compound Microscopes	8	679.25	5,434.00	Flinn Scientific	MS1098
Petri Dishes • Disposable pack of 20	5	6.95	34.75	Flinn Scientific	ABL1470
Petri Dishes - 2 Pan tions Disposable pack of 20	5	8.15	40.75	Flinn Scientific	AB1471
Glass Slides (box of 72)	2	9.45	18.90	Flinn Scientific	ML1381
Cover Sl ps (box of 100)	2	3.25	6.50	Flinn Scientific	ML1377
Foreceps (stainless steel)	12	3.15	37.80	Flinn Scientific	AB1015
Safety Goggles - glasses. visitors, clear	32	3.39	108.48	FlinnScientific	AP3302
Aprons (packs of 12)	3	130.92	392.76	Flinn Scientific	AP7125
Beral Pipets, This Stem (box of 500)	1	23.45	23.45	Flinn Scientific	AP1444
Beakers 2000ml	6	13.90	83.40	Flinn Scientific	AP4657
Beakers 000ml	6	5.05	30.30	Flinn Scientific	AP8106
Beakers 500ml	6	4.25	25.50	Flinn Scientific	AP8105
Beakers 00rnl	6	2.00	12.00	Flinn Scientific	AP8101
pHTest Strips (50 strips)	4	8.95	35.80	Flinn Scientific	FB0499
Gravel--Grade B coarse-368 sq.ft	6.5 tons	40.00	400.00	Ameron-HC & D	
Vennicast Bins	2	1,500.00	3,000.00	WaikikiWorms	
<b>TOTAL</b>			<b>17,256</b>		



**Area 2—COMPOST:** Currently the trees have been trimmed by an arborist hired by the Downtown Rotary Club. The piles of mulch were left for the school to compost. Also the Downtown Rotary is bringing fertilizer to add to the mulch. This area will have a gravel pathway and compost bins. There will be two vermicast bins (see Area 2 Budget.xls).

**DECLARATION STATEMENT OF  
APPLICANTS FOR GRANTS PURSUANT TO  
CHAPTER 42F, HAWAII REVISIED STATUTES**

The undersigned authorized representative of the applicant certifies the following:

- 1) The applicant meets and will comply with all of the following standards for the award of grants pursuant to Section 42F-103, Hawaii Revised Statutes:
  - a) Is licensed or accredited, in accordance with federal, state, or county statutes, rules, or ordinances, to conduct the activities or provide the services for which a grant is awarded;
  - b) Complies with all applicable federal and state laws prohibiting discrimination against any person on the basis of race, color, national origin, religion, creed, sex, age, sexual orientation, or disability;
  - c) Agrees not to use state funds for entertainment or lobbying activities; and
  - d) Allows the state agency to which funds for the grant were appropriated for expenditure, legislative committees and their staff, and the auditor full access to their records, reports, files, and other related documents and information for purposes of monitoring, measuring the effectiveness, and ensuring the proper expenditure of the grant.
  
- 2) If the applicant is an organization, the applicant meets the following requirements pursuant to Section 42F-103, Hawaii Revised Statutes:
  - a) Is incorporated under the laws of the State; and
  - b) Has bylaws or policies that describe the manner in which the activities or services for which a grant is awarded shall be conducted or provided.
  
- 3) If the applicant is a non-profit organization, it meets the following requirements pursuant to Section 42F-103, Hawaii Revised Statutes:
  - a) Is determined and designated to be a non-profit organization by the Internal Revenue Service; and
  - b) Has a governing board whose members have no material conflict of interest and serve without compensation.

Pursuant to Section 42F-103, Hawaii Revised Statutes, for grants used for the acquisition of land, when the organization discontinues the activities or services on the land acquired for which the grant was awarded and disposes of the land in fee simple or by lease, the organization shall negotiate with the expending agency for a lump sum or installment repayment to the State of the amount of the grant used for the acquisition of the land.

Further, the undersigned authorized representative certifies that this statement is true and correct to the best of the applicant's knowledge.

Central Middle School	
(Typed Name of Individual or Organization)	
	1/20/14
(Signature)	(Date)
Anne Marie Murphy	Principal
(Typed Name)	(Title)