# Grant Application
# Montana Land Information Act
# Fiscal Year 2014

## APPLICATION FOR GRANT FUNDING

### STEP 1 – Applicant and Partner Information

**Primary Applicant (Required):**
Name of principle individual: Gail Shatkus
Name of agency\entity: Chester-Joplin-Inverness Schools
Street: School and Main
City: Chester
County: Liberty
State: Montana
Zip Code:59522
Contact email address: gshatkus@cji.k12.mt.us
Contact fax address:
Contact phone:406.759.5108 x264
**Organizational Unit (if applicable)**
Department:
Division:

**Other Project Partners – complete for each partner (copy box as needed):**
Name of contact:Larry Hendrickson
Name of Agency: Liberty County Commissioners
Street: 111 1st Street E
City: Chester
County:Liberty
State:Montana
Zip Code 59522
Contact email address com@co.liberty.mt.gov
Contact phone: 406.759.5365

**Other Project Partners – complete for each partner (copy box as needed):**
Name of contact: Noel Walston- Mayor
Name of Agency: City of Chester
Street: 22 West Madison Ave

City: Chester
County: Liberty
State: Montana
Zip Code 59522
Contact email address noel@chester-montana.com
Contact phone: 406.759.5635

**Other Project Partners – complete for each partner (copy box as needed):**
Name of contact: Jesse Fulbright
Name of Agency: Liberty County Extension
Street: 111 1st Street East
City: Chester
County: Liberty
State: Montana
Zip Code 59522
Contact email address jlf@montana.edu
Contact phone: 406.759.5625

**Other Project Partners – complete for each partner (copy box as needed):**
Name of contact: John Pfister
Name of Agency: Musselshell Golden Valley Extension
Street: 116 1st Street West
City: Roundup
County: Musselshell/Golden Valley
State: Montana
Zip Code 50972
Contact email address msuext@midrivers.com
Contact phone: 406.323.2704

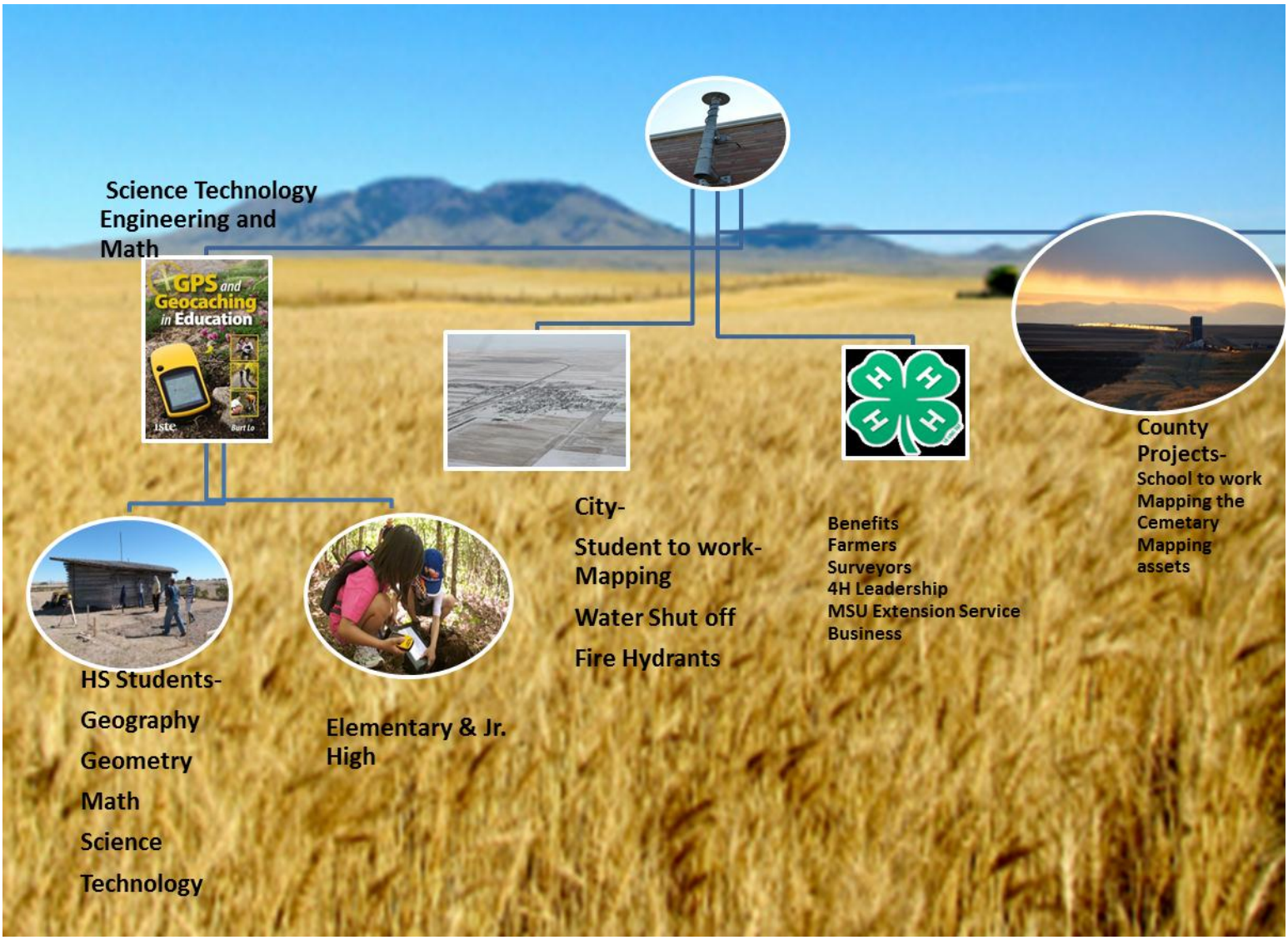
**Other Project Partners – complete for each partner (copy box as needed):**
Name of contact: Jeff Crews, Ed.D.
Name of Agency: SpacialSci
Street: 6185 Delarka Drive
City: Lolo
County: Missoula
State: Montana
Zip Code 59847
Contact email address Jeff Crews (crewsertech@gmail.com)
Contact phone: 406.360.6340

| **Date Submitted (Required):** | February 15, 2013 | **Date Received by State:** |
|---|---|---|

**Descriptive Title of Applicant's Project (Required):**

**GIS-GPS Community Partnerships through Education, Training and Real World Projects with Students, "Finding Our Way"**

**{Chester; Liberty County; Chester-Joplin-Inverness Schools}**



## STEP 2 – Relevance and Public Benefit

The GPS Community Partnerships meets the Land plan in the follow areas: A3-Statewide GIS coordination, Outreach and Education. This project focuses on education of the very young to the mature adult through training partnerships, hands on learning activities, 4-H and "School to Work". Classroom work includes geocaching, construction-staking corners, treasure hunts, and geometry and geography activities.

Students will work with the city and county workers to begin mapping assets on a prioritized basis which meets B2.1. This partnership is willing to pool existing GIS equipment, computers, software, printers, talent, and monies to combine with this grant which will allow the partnership to expand the GIS-GPS infrastructure. The acquisition of a complete set of GIS equipment from low accuracy to high accuracy to fit a variety of training and real world applications it considered critical program equipment.

This partnership meets B2.2 because the city currently does not have any GIS capability and utilizing the "School to Work" student to map critical infrastructure will improve the quality of life for citizens especially when the city needs to find a water shutoff in the middle of winter. One of the initial identified projects is mapping the water shut offs and fire hydrants. The community permanent base station and rover is the critical equipment for this application.

Initially all of the data will be stored and backed up between the school and the Liberty County Extension Service. The development of the computer software, map lab and pooling of resources makes this activity viable.

Funding this project is a win-win for all.

## STEP 3 – Scope of Work Narrative

This grant provides Geographic Information System hardware (GPS-Global Positioning System handhelds capable of different levels of accuracy) with Industry Standard ArcGIS software (mapping) for the school, county and city. A community GPS base station for high accuracy GPS/GIS positioning will be established and made available to surveyors, farmers, contractors, state and federal agencies to use when surveying near Chester. High school students will also have access to the community base station for technical education and school to work projects.

Students from grades 3-12 will be trained to use this equipment in science, math, geography, and technology. This technology is part of the Science Technology Engineering and Math initiative in the United States Education System and the Extension sponsored 4-H program. Geographic Information System Technology teaches students to collect, evaluate, and interpret data through mapping, using math, science, and technology.

The school will purchase additional computers to expand the Computer Aided Drafting lab to support the deployment of ArcGIS software. Additional AutoDesk software will also be purchased and deployed. The computer hardware software will completely

reform the Drafting lab into a comprehensive Computer Aided Design/GIS Lab for student and adult education.

The county, MSU Extension, city and school have preliminary agreements for school to work opportunities using GPS to solve problems for the school, city and county. 4-H has GIS leadership training as part of their curriculum. MSU Extension will be collaborating with all entities in this grant proposal.

The county and city are planning to begin mapping the infrastructure, and make the data part of the town and county permanent record, through the student to work initiative and summer jobs.

## A) Goals and Objectives.

**Goal 1)** The County, City and School will negotiate how the student to work and equipment reporting will be shared.

1) Develop access to computers and printer
2) Document the agreements
3) The county, city, school, and Extension office representatives will monitor the grant with input from the MLIAC as we go through this process.

**Goal 2)**
Purchase program critical hardware and software (GIS-GPS-CAD) to provide the industry quality equipment necessary to train students and adults. This equipment reflects the level of accuracy puts technology in the hands of many students and allows students, teachers and community to progress from easy to more challenging equipment and software like the ESRI ArcPad, ArcGIS and AutoCAD. It is important to purchase the hardware and software package in order to satisfy our goals to share with the students, city, county and community.

1) Purchase 20 Garmin 62st with SD card (lower accuracy, easy to use)
   a) Purchase the map software
   b) Purchase the SD Card
2) Purchase 3 mobile mapper 10s (hand held units w/ ArcPad)
   a) Higher accuracy
3) Purchase Leica Base station and rover (Centimeter accurate)
4) Update the CAD Lab into a combination CAD/GIS Lab for a total of 10 computers installed with ArcGIS and Topographical Maps for student and adult education.
   a) Purchase 6 computers w/ one server
   b) Update 4 computers with RAM Memory chip.
   c) Wire the lab for 6 additional computers
   d) Purchase an additional 10 seat license of AutoDesk Design Academy-(includes AutoCAD, Architectural Desktop, Inventor, Civil3d) software recommended as part of Science Technology Engineering and Math Initiative.
   e) Install ArcGIS on the computers in 4 computer labs for a total of 60 stations.
5) Install Base Station
   a) Determine location
   b) Partner with Selbys, City and County to install the station

**Goal 3)**
Provide training and support to MSU Extension, 7 teachers, city and county employees, community members, and volunteer student trainers to learn to use the equipment to collect and disseminate data through the use of technology.

The trainers are John Pfister, Extension agent with 21 years of training gps use for the Musselshell and Golden Valley counties and around the state. John will be providing 3 days of training. Bryce Scala will be the Selbys vendor trainer spending 3 days in Chester to teach us how to use the mobile mapper 10s the base station and rover. Bryce will also assist with set up of the base station.

Jeff Crews, Professor will provide 3 days of training to teachers (and possibly a full student class). Jeff will share his technical expertise in curriculum development using spacial data and GIS for outdoor education in science. Jeff has over 9 years of teaching middle school science and is the founder of Beyond the Chalk- Transforming learning experience, and is President of SpacialSci.

1) Teachers will learn how to use the Garmins and Blue tooth devices and
   a) Learn how to collect data and place data on the maps
2) Pam Graff (Principal) will be scheduling this training
3) Development of curriculum ideas with Jeff Crews
4) The Base Station set up and training will occur with the adults using the equipment.

**Goal 4**

Teachers will design and implement GIS activities that fit their specific curriculum. Note: A core group of 7 teachers from grade 3 to high school have been identified to incorporate this equipment into their lessons.

1) Each teacher will teach at least one lesson using the Garmins and /or blue tooth/mobile mapper 10 or base and rover.
2) Write a simple report of the activities and turn in their report in to the Principal to satisfy the grant. If possible, teachers will include pictures.
3) Teachers will share their projects with the remaining staff through meetings and reports.
4) The Career & Technology Teacher will train students in the use of the base station and rover for the school to work project.

**Goal 5**

The Principal will coordinate and develop the student to work relationship with the county and the city by scheduling training of small group of students to learn to collect and disseminate GIS DATA.

1) Students will use the base and rover
2) Students will work with the county or city employee to gather data
3) A log and maps will be generated to document the work completed

**Goal 6**
**Project evaluation**
The principal partners will evaluate the relationships, work, and equipment and determine what needs to improve.

1) Schedule quarterly meetings to collaborate and discuss the project and determine any changes and improvements.
2) Each community partner will write a report documenting the work that has been completed.
3) These reports will be created in collaboration with the county, city and school administration and be made available to the MLIA Council

## B) Tasks and Project Schedule*

| Task | Description | Start Date | End Date |
|---|---|---|---|
| 1 | Document the project through written report summaries. (if possible document the project on the county web site) | 7/1/2013 | 6/1/2014 |
| 2 | Finalize the core teaching group | 2/12/2013 | 6/1/2013 |
| 3 | order and install all gps equipment | 7/1/2013 | 7/30/2013 |
| 4 | Order and install all computer hardware & software | 7/1/2013 | 7/30/2013 |
| 5 | Selbys Vendor Training | 8/1/2013 | 9/30/2013 |
| 6 | Training by John Pfister | 8/10/2013 | 9/30/2013 |
| 7 | Training By Jeff Crews | 8/1/2013 | 10/30/2013 |
| 8 | Core teachers implement grade level classroom activities. (Each teacher must complete one activity) | 9/1/2013 | 4/15/2014 |
| 9 | Develop school to work partnerships | 8/1/2013 | 1/15/2014 |
| 10 | Set up data sharing through the extension office | 8/1/2013 | 9/30/2013 |
| 11 | The principal partners create the written report summary | 6/1/2013 | 6/30/2014 |
| 12 | Share this experience at two conferences and submit articles to the local press and trade associations. | 12/1/2013 | 6/30/2014 |

*** Schedule may vary depending on weather, grant notification and vendor scheduling.**

# STEP 4 – Project Management and Organizational Capability Narrative

Chester-Joplin-Inverness School's has a history of seeking grants and leveraging assets to qualify for grant funds. The diverse talent of all of the grant participants makes this GIS-GPS Community Partnership exciting. Project coordination will be conducted by Gail Shatkus, school administration, county, and city government representatives with the educators implementing teaching in the classroom. Adult education will also be provided for the county and city workers. Pam Graff will coordinate teacher training and implementing curriculum. Rita Chvilicek, Superintendent will implement and track the ordering and grant fund management through a separate line item in the budget.

**Gail Shatkus- M.Ed. Ashland University, 2009.** Have14 years Career & Technical Education Teaching experience. Former Year book advisor and school Web Master. Experienced in curriculum integration and alignment. Certified Welding Educator. Teaching construction- CAD-Woods-Welding and Technology Education. Teaching gps units as part of the construction curriculum. Former Aerospace Senior Engineer and Quality Supervisor( Thiokol Corporation) for the Space Shuttle program working on the Solid Rocket Boosters and External Tank. Worked as an Acting Program Manager, in Configuration Management during the Solid Rocket Booster Redesign after the Challenger explosion. Experience meeting schedules and deadlines for small dollar projects (yearbook) and multimillion dollar key milestones (Aerospace).

**Rita Chvilicek, Superintendent, Chester-Joplin-Inverness Schools.** 18 years of direct classroom instruction and three masters in K-12 Supervision and Administration in Nevada and Montana. Experience in supervising teachers, students, and staff. Have run multi-million dollar budgets for as high as $15 million and as low as a $900,000. The district is supporting the GIS-GPS project because it will benefit students through the Science Technology Engineering and Math initiative and potentially raise math and science standardized test scores. This project gives students the opportunity to be involved in the community in and beyond the school.

**Pam Graff, Principal, Chester-Joplin-Inverness Schools.** 25 years' experience in Education. 16 years of experience in Administration. 4 years as an independent education consultant. As K-12 Principal with 25 years of experience in public schools I can directly address the impact this funding will have on our educational system. As director of curriculum and first line manager of a multi-million dollar budget, this will be a windfall for our district with far reaching implications to our three rural school communities of Chester, Joplin and Inverness.

**Brett Earl, Chemical Engineer** with Refinery experience, Bio Diesel Researcher and Entrepreneur (owns the only bio diesel plant in Montana); School Board Member, City Council Member, and Farmer. Brett will be acting as a technical advisor on this project.

**Larry Hendrickson, Liberty County Commissioner.** 7 years, 9 years on the Chester School Board, current assets under management are $7,000,000. Farmer and pilot.

**Noel Walston, Mayor, City of Chester**. 1 year, Current City assets under managements are $1,000,000. Private business owner 19 years.

**Jesse Fulbright, MSU Extension agent, Liberty County**.3 years. Taught basic GPS to adults and youth groups and delivered other extension related training to 4-H, farmers, and the public on a variety of subjects.

**John Pfister, MSU Extension agent Musselshell and Golden Valley.** Pfister has been teaching GPS and GIS for around 21 years. He has taught mapping grade to recreational grade GPS equipment to government, farm ranch, sportsman, and youth. Some of the project that I have been involved in are: Community Assets inventory, City Water and waste water Inventory, flood damage assessment, Wild land Fire maps, county noxious weed inventory projects and Salt Cedar mapping on Musselshell River. John will be teaching the partnership how apply the GIS-GPS technology to the community projects.

**Jeff Crews**, PhD. Adjunct Professor, Lesley University; co-founder of BeyondtheChalk; coordinator of the state educational site license from ESRI for ArcGIS Desktop 10.x Software. 9 years middle school science teaching experience; former assistant director on the NASA EOS Education Project which disseminated NASA remotely sensed imagery and other geospatial data to K-12 educators around the state of Montana; has served as an adjunct professor for the

University of Montana teaching future teachers elementary science methods and Instructional Technology. Jeff will be one of the trainers on this project.

**Donna Rudolph,** Teacher Chester-Joplin-Inverness School,23 years in elementary grades;M.E. in Elementary Education; Reading Specialist; The third grade students will be applying GPS-GIS into Social Studies/Geography lesson using GPS: Treasure Hunt: Searching for types of rock needed for Science lesson Learning north, south, east, west, along with coordinates Imaginary destinations: create "Land of Oz" or some other imaginary place to find; Underground Railroad: Move safely from one location to another

**Maureen Callahan Wicks,** BA of Arts-Montana State University-Bozeman 1974- Currently teaching social studies at Chester-Joplin-Inverness High School Chester, MT. GPS would be used in our 9th grade Geography class to determine absolute location in class lessons.

**Windie Goldhahn** has been teaching for thirteen years, and this is her third year teaching high school math at CJI. She holds a Bachelor's degree in Elementary and Special Education, a Master's degree in Interdisciplinary Studies in Special Education and Math, and is currently finishing her endorsement in Mathematics Education. She plans to utilize the materials and software in her Geometry class.

**Pat Goldhahn** has been teaching for nineteen years, and this is his third year teaching fourth grade at CJI. He holds a Bachelor's degree in Elementary Education with a Minor in Health and Physical Education. He plans on implementing the program in his fourth grade math and science classes.

**Jada Fraser,** Teacher Chester-Joplin-Inverness Schools, has been teaching elementary for more than 10 years and she is looking forward to implementing this in her Science Curriculum.

**Sue Smith** has 35 years' experience teaching title 1, Math and Science. Using the handheld GPS will make the science and math lessons concrete to the learners.

## STEP 5 – Budget Justification Narrative and Tables

***(Note: See the attached Excel Spread Sheet and Equipment Quotes for clarification)***

Project total is $113,864.36 of which the MLIAC share is $59,477.36 (52.2% of the project). The In Kind Matches of personnel, cash and equipment purchases are $54,387.00 (47.8% of the project). **The MLIAC Grant Request is $52,447.36 (which is the MLIAC amount less the $7,000 county and city hard match. The MLIAC Grant Request is 46.1% of the total.** The county and the city have pledged to donate $7,000 cash. The school will purchase $8,747.00 worth of computer equipment. In addition, other equipment and previous grant purchases make up the remaining In Kind Donations. Refer to the grant narrative & excel tables for clarifying information.

**Professional Services**

**(MLIAC)Professional Services for training, computer support and substitutes is $4,240.00**

Training is for the teachers, community partners, city/county employees, and some students. Training is delivered by professional educators, Extension Agents and Vendor training on the equipment and software.

**Applicant Share**
Professional services for administration and in kind donations totals 6800.00. (Applicant Share). This number reflects donated hours by the grant writer, administration and the current project that the construction students and teacher is working on which is mapping the cemetery for a total of $6,800. Training is most important for the success of this project. If the teachers, partners and others do not like the system, or do not understand it, the equipment will not be used.

**Travel expenditures** (MLIAC)
Two of the trainers are willing to be guests in private homes in order to keep costs down. The Extension Agent will be paid by his home district for his daily wage. The cost of travel, meals, and housing are his only expense. The total travel expenditure is $1,039.86

**Equipment expenditures-**

The purpose of these purchases is to have a complete basic GIS-GPS hardware and software kit so that all members of the educational community (including students) have the opportunity to learn and use the equipment that most benefits them. This equipment will be shared among the community partners. The GPS permanent base station is critical to this project because it ensures accuracy and saves about 40 minutes of setup/take down time in the morning and afternoon. Students and community members can turn on the rover and begin collecting data immediately with the permanent base station.

The purchase of 6 computers, monitors w/ HP ProLiant Server to manage software licenses and act as a depository for data on this project will complement the 4 existing computers. This will establish a Computer Aided Drafting /GIS GPS mapping lab for the students, city and county to train on and print. These computers have extra RAM and higher graphics cards to specifically support 3d design and mapping
.
*Note: Selbys was selected as the vendor for the GIS-GPS equipment because of their proximity to the City of Chester. Comparison quotes were obtained from a vendor out of Salt Lake City, however, any savings in equipment cost would be eaten up by travel time and down time if equipment fails or breaks down. PacifiCAD is the authorized Autodesk Educational retailer and they also sell computer hardware designed for CAD applications. PacifiCAD also provides training for the professionals in the field.*

**Applicant** $ 27,497.00
The total applicant share, including existing equipment and previous grants is, $27,497.00.The purchase of 6 computers, a server and monitors by the school district flex fund totals $8,747.00. $500 is budgeted for wiring, jacks and lab setup. The purpose of this purchase is to complete the CAD/GIS lab and increase the number of computers to 10. ArcGIS software (Free to the school) and Autodesk Design academy will be installed on the computers. This expansion allows for student and adult education training.

Expenditures include the **Pacific Steel donation of $250.00** worth of steel to mount the base station on the building or tower. Jeff Crews is going to allow us to enter into a long term loan agreement for $4,000 worth of Dell Axioms and Blue tooth hand held GPS.

The school is also providing in kind equipment which includes a wide format Canon IP655 printer ($2,450) purchased with a grant from North Central Montana RC& D. The Selbys Donated $10,000 Centimeter Accurate GPS station will be part of this project.

*Note: The new radios will allow us to continue to operate the equipment. The federal government has changed the broadcast requirements for radios and the schools radio needs to meet different requirements which the new base station will provide*.

**MLIAC**- Totals $43,132.00 which purchases a Leica Rover and base station. The Leica quote of $29,839 for the base station and rover reflects a 30% educational discount. This number includes the purchase of a community permanent base station with rover which will be used for construction training, community training and school to work because the accuracy is within one centimeter.

Additional purchases are; 3 Mobil mapper 10 ($3,585.00), 20 Garmin's ($8,000.00), 20 Micro SD cards ($1,000), The Garmin's will be used primarily in the lower grades due to their ease of use. Garmin's have TOPO (Topographic Maps) installed on them. It is important to have technology in student's hands and get them excited about Technology. The Mobil Mapper 10s will be used for training on ARC Pad and for higher accuracy work. The 4 main CAD computers will receive RAM ($208.00) upgrades in order to run 3-d software.

**Other (Software)**

**The MLIAC share** for software is $5,765.00 and will purchase TOPO maps, parcel maps, and Autodesk Design Academy (for 10 Seats) this reflects an educational discount. The additional 10 sets of Design academy complement the existing lab and allows students from other labs to log on to the server and use the application.

**Applicant Share**

The educational discount is ESRI ArcPad and ArcGIS approximate value of $ 11,840.00 was arrived by calculating the library quote of $185.00. This is FREE to the educational community but neither to the county nor city. The county and city will purchase their own.

**Long-term sustainability-**

The School will maintain the subscription costs to ensure CAD updates into the future. The subscription cost for Autodesk design academy is $257.00 for 20 seats. This ensures updates and new versions on a yearly basis.

**Printing and Reporting –** An estimation of $300.00 for color printing of reports and full color posters. The journalism class runs print operations. The base cost for full color 2x3 foot posters is $10.00 each.

Budget Summary-on the next page.

# Applicant budget summary
## ***(See the attached excel spreadsheet for clarification)

| Category | MLIA SHARE | Applicant | Other | Total |
|---|---|---|---|---|
| a. Personell | **$ 4,240.00** | $ 6,800.00 | | **$ 11,040.00** |
| a.1 Fringe Benefits | | | | **$ -** |
| b.Travel | **$ 1,039.86** | | | **$ 1,039.86** |
| c. Equipment | **$ 43,132.00** | $ 27,497.00 | | **$ 70,629.00** |
| d. Supplies | **$ 300.00** | | $ 250.00 | **$ 550.00** |
| e.Contractual-Training | **$ 5,000.00** | $ 1,000.00 | | **$ 6,000.00** |
| f. Other (Software) | **$ 5,765.50** | $ 11,840.00 | | **$ 17,605.50** |
| g. Cash Hard match | | | $ 7,000.00 | **$ 7,000.00** |
| | **$ 59,477.36** | **$ 47,137.00** | **$ 7,250.00** | **$ 113,864.36** |

# Project Partner budget summary (provide a separate budget summary for each partner (including subcontracts).

| Category | Partner 1 ( CJI) | Partner 2 (City) | Partner 3 (County) | Partner 4 (Jeff Crews) | Pacific Steel | John Pfister (mliac) | Selbys (purchase) | In Kind | Grant Writer/Gail Shatkus | MLIAC | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| a. Personell | **$ 11,800.00** | | | | | | | | **$ 2,000.00** | **$ 2,240.00** | $ 16,040.00 |
| a.1 Fringe Benefits | | | | | | | | | | | $ - |
| b.Travel | | | | $ 436.40 | | $ 703.46 | | | | | $ 1,139.86 |
| c. Equipment | **$ 1,641.50** | | $ 2,300.00 | $ 4,000.00 | | | | **$ 12,450.00** | | **$ 43,132.00** | $ 63,523.50 |
| d. Supplies | **$ 300.00** | | | | $ 250.00 | | | | | | $ 550.00 |
| e.Contractual-Training | | | | $ 3,000.00 | | | $ 2,000.00 | | | | $ 5,000.00 |
| f. Other & (Software) | | | $ 740.00 | | | | $ 645.00 | $ 11,100.00 | | **$ 8,126.00** | $ 20,611.00 |
| g. Cash Hard match | | $ 3,500.00 | $ 3,500.00 | | | | | | | | $ 7,000.00 |
| | **$ 13,741.50** | **$ 3,500.00** | **$ 6,540.00** | **$ 7,436.40** | **$ 250.00** | **$ 703.46** | **$ 2,645.00** | **$ 23,550.00** | **$ 2,000.00** | **$ 53,498.00** | **$ 113,864.36** |

# STEP 6 – Statements of Support

**See the attached statements of support from the Liberty County Commissioners, Chester-Joplin-Inverness School Board, and the City of Chester.**

# STEP 7 – Renewable Grant Accountability Narrative

**Software and computers-**

The school will budget for the yearly software subscription costs and maintain the licenses. The county extension service will be maintain the city and county data until which time the city can purchase their own software to maintain data that applies to the city. The only other possible software purchase could be Carlson Engineering Suite.

The county and school will place the computers on the inventory list and schedule them for updates and replacements on an ongoing maintenance schedule.

**Base Station and GPS Units**

The community base station will be situated in the most optimal location to meet the requirements of a CORS station (Continuously Operating Reference Station) placement. While this community base station will not immediately meet CORS requirements, working to establish the CORS will increase accuracy of any survey in the region. The community partners will meet to determine the viability of such a project.

The base station and GPS units will save the county, city and school monies which can then be budgeted to maintain the equipment and purchase additional rovers.

GPS units for lower grades should not have to be upgraded unless he technology changes. Higher accuracy hand-held GPS units may be identified as a need in the near future.

**Student to work program-**

The student to work programs serve two purposes and they are to have students developing relationships through service to the community and training students and adults to use technology for the greater good.

The development of data layers marking city and county assets will assist with marking the inventory and location of critical infrastructure. This data will save time and monies when there is a repair to be made during bad weather. Example: Finding a water shut off valve when there is two feet of snow on the ground.

**Carpentry Program-**

The Carpentry program uses the Centimeter Accurate GPS unit to stake out building corners and learn about cut and fill and drainage. The Computer Aided Drafting lab is used to generate working drawings of buildings, slabs, and to map out the cemetery.

The carpentry students, cemetery board, county, and now Eagle Scout prepared, leveled and build forms for a slab to place an information center that will hold the maps and information about the cemetery.

**Independent study** – Computer Aided Drafting Program-
The student is currently converting existing drawings into an AutoCAD file. These drawings are part of an ongoing project to identify all graves and location. We are hoping to use the centimeter accurate GPS to locate the new visitors building on the map of the site. The new Centimeter Accurate GPS is projected to be used to locate all existing graves.

**Liberty County Cemetery and Volunteers**
Volunteers have located and identified all of the graves in the Catholic Section of the Cemetery and are proceeding to the remaining county cemetery. There are other cemeteries located in the county that will be mapped.The Centimeter Accurate GPS is projected to be used to locate all existing graves.

Volunteers have already created a web site for the cemetery.

**Project Completion-**
The existing project of purchasing and installing GPS/GIS Base station, rover, hand helds, software, and computers is easily completed within one year. Teachers will have a minimum of 6 documented units where GPS is used in the class room. Meeting the projected time lines could be temporarily delayed due to weather, the availability of professional trainers and the school schedule. Exact dates cannot be determined until the grant is awarded.

**Reporting**
The partnership will collaboratively generate the quarterly reports documenting projects and accountability. The reports will be distributed through the school administration to the MLIA Council.

**The Next Step**

Due to current expressed interest in this project, additional equipment and training is projected to expand the project. Including MLIAC and the existing partnership will be determined at the midpoint of this grant cycle.

**CORS (Continuously Operating Reference Station) Base Station** The county, city and school will evaluate the cost and determine whether to partner with MLIAC for additional funds. If a CORS station is established, additional state and national partnerships will be sought (in addition to MLIAC).

Thank you for your consideration on this project.
**GIS-GPS Community Partnerships through Education, Training and Real World Projects with Students, "Finding Our Way"**