

## 2023 MINE MAP GRANT DETAIL BUDGET FORM EXAMPLE

Here is an example Detail Budget Form and explanation to help the applicants plan for the correct funding to complete their project goals. This example shows “Example University” applying for funding in all four Project Categories: Scanning & Cataloging, Georeferencing, Vectorizing, and 3-D Modeling. However, if an applicant is only applying for one or two categories, they would simply leave the pages of the categories they are not applying for blank.

It may be easier to plan just one semester or year at a time, then multiply your numbers by the number of semesters or years you wish to participate in the project. Remember all work must be completed by 6/30/2026. In this example, we will determine what resources and work can be completed during one year, then multiple those numbers by three years.

We downloaded the Excel version of the form, so the form will auto-calculate many of the values for us. You may use a paper copy, but please check your math, any application that has incomplete or incorrect calculations in the Detail Budget Form may be rejected. In the Excel form, only the fields highlighted in yellow can edited, the remaining fields will auto-calculate.

Remember these times are estimates/averages, and actual costs may vary. The MMG Program is a reimbursement for actual funds spent, so if you under-budget or over-budget this will be reflected in the amount of work completed/deliverables submitted to the DEP, and may be a consideration in future grant awards. **Please use estimates that you believe your organization can actually accomplish.** Organizations with more experience georeferencing historic maps and interpreting mine maps may be able to complete tasks faster than these example estimates, while organizations new to these tasks may take longer.

A copy of the Detailed Budget Form we fill out in this example is at the back of this document.

### Determine Type of Staff Available for Project

The first page is the “Salary Info” page, we will enter the Salaries and Benefits per hour of each of our employee types. Remember these rates should be an anticipated average rate over the next 3 years, so take future raises into consideration. Example University has the following staff that will work on this project:

- The Professor who will act as the principal investigator and oversee the project, we filled in their salary and benefits per hour under the Manager row.
- A Lab Manager to run the day-to-day operations of the project, who meets the education and experience requirements stated in the application to perform quality control work of the GIS tasks. We filled in their salary and benefits per hour under the Technicians row.
- Four undergraduate interns that will work on this project as work-studies.
- Two graduate interns that will work on the more complex GIS aspects of this project.
- Another professor from the mining engineer program that will be available to help train the staff in understanding and interpreting the mine maps (\*Preference Points). We filled in his/her salary and benefits per hour under the custom fill row we will call “Mining Engineer”.

Also on this page, we indicate the **Indirect Cost Rate** of Salary and Benefits for the university at **45%**.

## Fixed Number of Administrative and Training Hours:

In our example, the **Manager** will be budgeted a full day (8 hours) once per year for business meetings, plus 3 hours per month for additional administrative work, plus provide 12 hours per year in training. This is spread out across all four Project Categories.

$$(8 \text{ hours} + (3 \text{ hours} \times 12 \text{ months})) \times 3 \text{ years} = 132 \text{ Administrative Hours}$$
$$132 \text{ hours} / 4 \text{ project categories} = 33 \text{ Administrative Hours per Category}$$

$$12 \text{ hours} \times 3 \text{ years} = 36 \text{ Training Hours}$$
$$36 \text{ hours} / 4 \text{ project categories} = 9 \text{ Training Hours per Category}$$

The **Mining Engineer** will be budgeted for a 2-hour training presentation each semester for 3 years, to help other employees interpret maps, mostly during Cataloging, so these hours are added to the Scanning & Cataloging category.

$$2 \text{ hours} \times 3 \text{ semesters} \times 3 \text{ years} = 18 \text{ Training Hours in Scanning \& Cataloging}$$

The **Technician** will be budgeted for a full day (8 hours) once per month for preparing reports and invoices and 8 hours per month for communications with grantor, time keeping, and equipment maintenance. This is spread out across all four Project Categories.

$$(8 \text{ hours} + 8 \text{ hours}) \times 12 \text{ months} \times 3 \text{ years} = 576 \text{ Administrative Hours}$$
$$576 \text{ hours} / 4 \text{ project categories} = 144 \text{ Administrative Hours per Category}$$

The **Technician** will be budgeted to give 40 hours of training to undergrad interns and 40 hours of training to grad interns each year spread out in the different project categories as needed.

$$(40 \text{ hours} + 40 \text{ hours}) \times 3 \text{ years} = 240 \text{ Training Hours}$$
$$240 \text{ hours} / 4 \text{ project categories} = 60 \text{ Training Hours per Category}$$

Each **Intern** will be budgeted to receive an average of 20 hours over a year to be trained in the different categories that particular intern will be working (e.g. they may receive 12 hours of map interpreting and scanning training in the fall semester, 6 hours of georeferencing training in the spring, and a 2-hour refresher training in the summer). Since undergrad and grad interns will be working in only three categories respectively and staff turnover with replacement training needs are unpredictable, these hours will be spread out across the Project Categories they work in.

$$20 \text{ hours} \times 4 \text{ undergrad interns} \times 3 \text{ years} = 240 \text{ Training Hours}$$
$$240 \text{ hours} / 3 \text{ project categories} = 80 \text{ Training Hours per Category}$$

$$20 \text{ hours} \times 2 \text{ grad interns} \times 3 \text{ years} = 120 \text{ Training Hours}$$
$$120 \text{ hours} / 3 \text{ project categories} = 40 \text{ Training Hours per Category}$$

We will enter these fixed times on each of the four Project Category worksheets.

## Map Processing Hours in Each Project Category:

For this example, we will figure out how many hours each employee type will be available for each Project Category. We will first determine how many hours of each employee type has available, then determine how much work output can be accomplished.

*Alternatively, you can figure out how much work you would like to complete, then determine how much staff you need to hire, but that methodology is not covered in this example.*

### A. Available Time of Each Employee Type

Each **undergraduate intern** can work 10 hours per week for the 15 weeks of Spring and 15 weeks of Fall semesters and 40 hours per week over the 12 weeks of summer, taking all breaks off.

$$(10 \text{ hours} \times (15 \text{ weeks} + 15 \text{ weeks}) + (40 \text{ hours} \times 12 \text{ weeks})) \times 3 \text{ years} \times 4 \text{ interns} = 9,360 \text{ Hours}$$
$$9,360 \text{ Hours} - 80 \text{ Training Hours} = \mathbf{9,280 \text{ Available Hours}}$$

Each **graduate intern** can work 25 hours per week for the 15 weeks of Spring and 15 weeks of Fall semesters and 40 hours per week over the 12 weeks of summer, taking all breaks off.

$$(25 \text{ hours} \times (15 \text{ weeks} + 15 \text{ weeks}) + (40 \text{ hours} \times 12 \text{ weeks})) \times 3 \text{ years} \times 2 \text{ interns} = \mathbf{7,380 \text{ Hours}}$$
$$7,380 \text{ Hours} - 40 \text{ Training Hours} = \mathbf{7,340 \text{ Available Hours}}$$

The **Technician** can work 40 hours per week for 48 weeks a year (assumes 4 weeks paid time off, which should be addressed in benefits and not in salary hours). 816 hours are already budgeted for training and administrative time. However, the Technician does have other job duties and responsibilities to their organization, so this should be looked at as a maximum and leave time for those other duties.

$$40 \text{ hours} \times 48 \text{ weeks} \times 3 \text{ years} = 5,760 \text{ Hours}$$
$$5,760 \text{ Hours} - 240 \text{ Training Hours} - 576 \text{ Administrative Hours} = \mathbf{4,944 \text{ Max Available Hours}}$$

## B. Processing Time of Each Task by Employee Type

We will use the suggested times to estimate our work output. *Please use realistic higher or lower times depending on your organization's and staff's experience for your budget.*

The average Scanning Hours per Map (0.75 hours total) will be budgeted as follows:

- 0.25 Hours: Map Scanning by Undergrad Interns
- 0.25 Hours: Map Cataloging by Undergrad Interns
- 0.25 Hours: Q/C Processing by the Technician

The average Georeferencing Hours per Map (0.25 hours per map to determine if georeferencable, and 75% of those maps will take an average 1.5 hours to georeference and Q/C) will be budgeted as follows:

- 0.25 Hours: Map Evaluation by Undergrad or Grad Interns
- 1.50 Hours: Georeferencing by Undergrad Interns
- 1.00 Hours: Georeferencing by Grad Interns
- 0.25 Hours: Q/C Processing by the Technician

*(In this example, Grad can georeference faster than Undergrad, and if they georeference the same amount of maps the overall average will be the suggested 1.25 Hours, but it's ok if they don't end up with the same amount.)*

The average Vectorizing Hours per 7.5' Quad Spatial Extent Equivalent per coal seam (300 hours total) will be budgeted as follows:

- 100 Hours: Map Evaluation (Determining the "best" map to be vectorized) by Grad Interns
- 35 Hours: Map Compilation (organizing maps and building a Mosaic dataset) by Grad Interns
- 135 Hours: Map Vectorizing by Undergrad Interns
- 30 Hours: Q/C Processing by the Technician

The average 3-D Modeling Hours per 7.5' Quad Spatial Extent Equivalent per coal seam (60 hours total) will be budgeted as follows:

- 40 Hours: Data Preparation (quality reviewing) by Grad Interns
- 10 Hours: 3-D Data Processing (interpolating coal seam elevations and creating 3-D vector data) by Grad Interns
- 5 Hours: Q/C Processing by the Technician
- 5 Hours: 3-D Model Visualization Creation by the Technician

### C. Determining the Amount of Map Processing by Category with Available Work-hour Pools

Now, all we have to do is determine how much work we want to do in each category. We can enter in these maps or spatial extents to be processed on each Project Category tab and look at the Summary page to see how that is affecting the total hours of each employee type to make sure we are not going over our available hours.

We will start with the Vectorizing Project Category since it is the most time consuming. We would like to vectorize an area in the eastern part of the Bituminous Coal Field where 4 coal seams are predominant; Upper Freeport, Lower Freeport, Upper Kittanning, and Lower Kittanning seams. We would like to set a goal of completing an area within a boundary of a 7.5' Quadrangle (~56 square miles) each semester. We will use the breakdown of times and which employee type would perform which task from the previous page and apply to our goal and enter these values into the Vectoring tab of our spreadsheet:

100 Map Evaluation Hours X 4 coal seams X 9 semesters = 3,600 Hours  
35 Map Compilation Hours X 4 coal seams X 9 semesters = 1,260 Hours  
135 Map Vectorizing Hours X 4 coal seams X 9 semesters = 4,860 Hours  
30 Q/C Processing Hours X 4 coal seams X 9 semesters = 1,080 Hours  
56 sq mi X 9 semesters = 504 sq mi

Next, we will complete the 3-D Modeling Project Category. We would like to model each 7.5' Quadrangle that we generated vector data for, but we will need the first semester to build initial data, so we will only budget for 8 semesters. We will use the breakdown of times and which employee type would perform which task from the previous page and apply to our goal and enter these values into the 3-D Modeling tab of our spreadsheet:

40 Data Preparation Hours X 4 coal seams X 8 semesters = 1,280 Hours  
10 Data Processing Hours X 4 coal seams X 8 semesters = 320 Hours  
5 Q/C Processing Hours X 4 coal seams X 8 semesters = 160 Hours  
5 Model Visualization Creation Hours X 4 coal seams X 8 semesters = 160 Hours  
56 sq mi X 8 semesters = 448 sq mi

Next, we will complete the Scanning Project Category. After consulting with the DEP to determine the limited availability of map inventories that need scanned, we identified approximately 1000 maps from the DEP New Stanton Office that will need scanned, but will scan maps from any repository the DEP deems necessary. We will enter the times per map for each employee type determined on the previous page, then enter to total number of maps into the Scanning tab of our spreadsheet.

Next, we will complete the Georeferencing Project Category. After consulting with the DEP to determine the availability of map inventories, we determined that there are tens of thousands of maps that need georeferenced spread out through multiple collections, so we will accept any available inventory from the DEP. We will first enter the hours per map for each employee type determined on the previous page.

We want to set the number of Maps to Evaluate and number of Maps to Georeference so we use up all the remaining hours available for our **Graduate Interns**. The Summary tab indicates we have so far assigned 6,580 hours out of the 7,340 Available Hours we determined above.

$$7,340 \text{ Available Hours} - 6,580 \text{ Assigned Hours} = 760 \text{ Hours}$$

To express Y number of maps can be processed in 760 Hours if 100% of maps take 0.25 hours to Evaluate and 75% of maps can then be georeferenced in an additional 1 hour, we will use this expression.

$$(Y \times 0.25 \text{ Hours}) + 0.75 (Y \times 1 \text{ Hour}) = 760 \text{ Hours}$$

Y = **760 Maps** (to be Evaluated)

$$75\% \text{ of } 760 \text{ Maps will be georeferenced} = \mathbf{570 \text{ Maps}}$$

We will do the same for the **Undergraduate Interns**. The Summary tab indicates we have so far assigned 5,600 hours out of the 9,280 Available Hours we determined above.

$$9,280 \text{ Available Hours} - 5,600 \text{ Assigned Hours} = 3,680 \text{ Hours}$$

To express Y number of maps can be processed in 3,680 Hours if 100% of maps take 0.25 hours to Evaluate and 75% of maps can then be georeferenced in an additional 1.5 hour, we will use this expression.

$$(Y \times 0.25 \text{ Hours}) + 0.75 (Y \times 1.5 \text{ Hour}) = 3,680 \text{ Hours}$$

Y = **2,676 Maps** (rounded down, to be Evaluated)

$$75\% \text{ of } 2,676 \text{ Maps will be georeferenced} = \mathbf{2,007 \text{ Maps}}$$

The **Technician** will perform Q/C Process on all 2,577 maps the interns will georeference.

$$570 \text{ Maps} + 2,007 \text{ Maps} = \mathbf{2,577 \text{ Maps}}$$

We will enter all these values on the Georeferencing tab of our spreadsheet for each employee category, and also the total number of maps to evaluate and total number of maps to georeference in the tab's header.

$$760 \text{ Maps} + 2,676 \text{ Maps} = \mathbf{3,436 \text{ Maps to Evaluate}}$$

$$570 \text{ Maps} + 2,007 \text{ Maps} = \mathbf{2,577 \text{ Maps to Georeference}}$$

## **Equipment and Travel Expenses**

For **Equipment** needs, Example University already has a scanner (\*Preference Points), but will need new computers capable to perform the grant work. An itemized budget will be entered on the Equipment tab of our spreadsheet for 7 dual monitor workstations licensed with ArcGIS pro software.

For **Travel** needs, no overnight accommodations are anticipated, but mileage reimbursement for business meetings and transportation of maps will be needed. We are 25 miles from a DEP office and plan to visit for meetings and to pick up maps 4 times a year. We will use the current federal rate (\$0.655 per mile), but that is subject to change.

$$25 \text{ miles} \times 2 \text{ (roundtrip)} \times 4 \text{ visits} \times 3 \text{ years} = 600 \text{ miles}$$

Distance and the current rate will be entered on the Travel tab of our spreadsheet.

## **Summary**

We now check the Summary page. We will independently double check the calculations in each field to make sure the excel formulas are correct before we submit our application.

**It is the grant applicant's responsibility to make sure the calculations are correct!**

We will also verify that our grant request does not exceed the Administrative percent limit (10%) and Equipment percent limit (20%) of the total request.



GRANTEE:

**SALARIES, BENEFITS, & INDIRECT COSTS INFORMATION**

Employee Type	Wages per Hour	Benefit Costs per Hour	Direct Costs per Hour	Indirect Costs per Hour	Total Extended Costs per Hour
Manager	\$50.00	\$12.00	\$62.00	\$27.90	\$89.90
Supervisors			\$0.00	\$0.00	\$0.00
Technicians	\$25.00	\$10.00	\$35.00	\$15.75	\$50.75
Interns - Undergraduate	\$8.00	\$0.00	\$8.00	\$3.60	\$11.60
Interns - Graduate	\$15.00	\$5.00	\$20.00	\$9.00	\$29.00
Mining Engineer	\$60.00	\$12.00	\$72.00	\$32.40	\$104.40
N/A			\$0.00	\$0.00	\$0.00
N/A			\$0.00	\$0.00	\$0.00
N/A			\$0.00	\$0.00	\$0.00

Indirect Cost Rate =  (Enter Percentage as a Decimal)

**INSTRUCTIONS**

Values can only be entered into fields highlighted in yellow. Enter all 'Wages per Hour' and 'Benefit Costs per Hour' for each employee type and the Indirect Cost Rate on this page. Anticipate the average wages over the grant period. On subsequent pages, enter estimated time and target number of items to be completed in each Project Category. Enter Equipment Cost and Travel Expenses on relative pages. Summary sheet and all other fields will be calculated and auto-populated with spreadsheet formulas, however it is the Applicant's responsibility to check the accuracy of each field. Applications with with incorrect calculations in their budget documents may be rejected. See the Detailed Budget Instructions provided at [www.paMSI.org/MMG.html](http://www.paMSI.org/MMG.html) for further information.

NOTE: Indirect Cost Rate can not exceed 45%.



**GRANTEE: EXAMPLE UNIVERSITY**

**Project Category: Scanning & Cataloging**

**Specify Number of Maps to be Processed:**

**Specify Preferred Map Collection(s)<sup>3</sup>:**

**Work Description:** Scanning mine maps and cataloging in PHUMMIS database.

**Suggested Processing Time:** 0.75 hours per map.

Grantee Employee Type	Hours Per Map Worked <sup>1</sup>			Number of Maps <sup>2</sup>	Total Map Processing Hours	Training Hours	Administrative Hours	Total Hours	Total Direct Cost
	Map Scanning	Map Cataloging	Q/C Processing						
Manager					0.00	9.00	33.00	42.00	\$2,604.00
Supervisors					0.00			0.00	\$0.00
Technicians			0.25	1000	250.00	60.00	144.00	454.00	\$15,890.00
Interns - Undergraduate	0.25	0.25		1000	500.00	80.00		580.00	\$4,640.00
Interns - Graduate					0.00			0.00	\$0.00
Mining Engineer					0.00	18.00		18.00	\$1,296.00
N/A					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
<b>Totals:</b>					<b>750.00</b>	<b>167.00</b>	<b>177.00</b>	<b>1094.00</b>	<b>\$24,430.00</b>

**Indirect Cost Rate:**  **Indirect Cost:**

**Total Extended Cost with Indirects:**

**Estimated Total Cost per Map Processed:**

**INSTRUCTIONS**

<sup>1</sup>Enter all times in 15 minute (0.25 hour) increments on a per map basis.

<sup>2</sup>Enter amount of maps that each employee type will work with. Total of this column may exceed total number of maps processed as an Intern may scan one map, but a Technician cataloged it.

<sup>3</sup>Applicant may request to work with a specific map collection, but DEP will assigned actual maps to be worked with depending on available inventories of maps. If Applicant has their own map collection or control of a map collection they are requesting funds to process, specify here.

Enter all times in 15 minute (0.25 hour) increments. Use the Map Scanning work type only for time directly involving the scanning of maps. Use the Cataloging work type only for time directly involving the recording of map metadata and entering it into PHUMMIS. Use the Quality Control (Q/C) Processing work type only for time reviewing and correcting the Map Scanning and Cataloging work of others. Use the Training work type only for time giving or receiving training on how to perform Map Scanning and Cataloging work. Use the Administrative work type only for time of direct management, supervision, and other costs associated with a Project Category. Examples of Administrative work include; invoicing, reporting, general communications between the grantee and DEP, time keeping, and equipment calibration and cleaning.

**MINE MAP GRANT DETAIL BUDGET FORM**

**GRANTEE: EXAMPLE UNIVERSITY**

**Project Category: Georeferencing**

**Specify # of Maps to be Evaluated:**  **Specify # of Maps to be Georeferenced:**   
**Specify Preferred Map Collection(s)<sup>3</sup>:**

**Work Description:**

Evaluating mine maps to determine if it is adequate for georeferencing, georeferencing digital map image in GIS, and updating PHUMMIS database.

**Suggested Processing Time:** 0.25 hours per map to evaluated if it could be georeferenced. Suggested budgeting of 75% of evaluated maps can be georeferenced. 1.5 hours per map to georeference.

Grantee Employee Type	Hours Per Map Worked <sup>1</sup>			Number of Maps Evaluated <sup>2</sup>	Number of Maps Georeferenced <sup>2</sup>	Total Map Processing Hours	Training Hours	Administrative Hours	Total Hours	Total Direct Cost
	Map Evaluation	Georeferencing	Q/C Processing							
Manager						0.00	9.00	33.00	42.00	\$2,604.00
Supervisors						0.00			0.00	\$0.00
Technicians			0.25		2577	644.25	60.00	144.00	848.25	\$29,688.75
Interns - Undergraduate	0.25	1.50		2676	2007	3679.50	80.00		3759.50	\$30,076.00
Interns - Graduate	0.25	1.00		760	570	760.00	40.00		800.00	\$16,000.00
Mining Engineer						0.00			0.00	\$0.00
N/A						0.00			0.00	\$0.00
N/A						0.00			0.00	\$0.00
N/A						0.00			0.00	\$0.00
<b>Totals:</b>						<b>5083.75</b>	<b>189.00</b>	<b>177.00</b>	<b>5449.75</b>	<b>\$78,368.75</b>

**Indirect Cost Rate:**  **Indirect Cost:**   
**Total Extended Cost with Indirects:**   
**Estimated Total Cost per Map Processed (Georeferenced):**

**INSTRUCTIONS**

<sup>1</sup>Enter all times in 15 minute (0.25 hour) increments on a per map basis.

<sup>2</sup>Enter amount of maps that each employee type will work with. Total of this column may exceed total number of maps processed as an Intern may georeference one map, but a Technician performed quality control on it.

<sup>3</sup> Applicant may request to work with a specific map collection, but DEP will assigned actual maps to be worked with depending on available inventories of maps. If Applicant has their own map collection or control of a map collection they are requesting funds to process, specify here.

Enter all times in 15 minute (0.25 hour) increments. Use the Map Evaluation work type only for time reviewing maps to determine whether they have enough surface features on them in order to be georeferenced. Use the Georeferencing work type only for time directly georeferencing the mine maps. Use the Quality Control (Q/C) Processing work type only for time reviewing and correcting the Georeferencing work of others. Use the Training work type only for time giving or receiving training on how to perform Georeferencing work. Use the Administrative work type only for time of management, supervision and other costs associated with a Project Category. Examples of Administrative work include; invoicing, reporting, general communications between the grantee and DEP, time keeping, and equipment calibration and cleaning. Note: Computing time of computers while a person is not interfacing with the computer (e.g. using software to compress TIFFs to MrSIDs) is non-billable time.

**MINE MAP GRANT DETAIL BUDGET FORM**

**GRANTEE: EXAMPLE UNIVERSITY**

**Project Category: Vectorizing**

**Specify Spatial Extent to be Processed<sup>2</sup>:** Nine 7.5' Quads in the eastern Bituminous Coal Field

**Estimated Square Miles of Spatial Extent:** 504

**# of Predominate Coal Seams in Spatial Extent:** 4

**Work Description:** Determining the "best" maps in a spatial extent to use for vectorization, vectorizing features on georeferenced mine maps, performing quality control, and updating PHUMMIS database.

**Suggested Processing Time:** 300 total hours per spatial extent equivalent of a 7.5' Quadrangles (~56 squared miles) per predominate coal seam. Suggested budgeting of 45% of the time to evaluate and compile which maps are "best" for a given area (eliminating duplicate mapping), 45% of the time to vectorize features, and 10% performing quality control.

	Total Hours over Grant Period Worked <sup>1</sup>				Total Map Processing Hours	Training Hours	Administrative Hours	Total Hours	Total Direct Cost
	Map Evaluation	Map Compilation (e.g. Build Mosaic)	Map Vectorizing	Q/C Processing					
<b>Employee Type</b>									
Manager					0.00	9.00	33.00	42.00	\$2,604.00
Supervisors					0.00			0.00	\$0.00
Technicians				1080.00	1080.00	60.00	144.00	1284.00	\$44,940.00
Interns - Undergraduate			4860.00		4860.00	80.00		4940.00	\$39,520.00
Interns - Graduate	3600.00	1260.00			4860.00	40.00		4900.00	\$98,000.00
Mining Engineer					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
<b>Totals:</b>					<b>10800.00</b>	<b>189.00</b>	<b>177.00</b>	<b>11166.00</b>	<b>\$185,064.00</b>

**Indirect Cost Rate:** 0.45

**Indirect Cost:** \$83,278.80

**Total Extended Cost with Indirects:** \$268,342.80

**Estimated Total Cost per 7.5' Quadrangles spatial extent equivalent (~56 sq miles) per seam:** \$7,453.97

**INSTRUCTIONS**

<sup>1</sup>Enter all times in 15 minute (0.25 hour) increments for the entire length of the grant period.

<sup>2</sup>Applicant may request to work within a specific spatial extent, but DEP will assigned actual spatial extent to be worked with depending on available inventories of maps.

Enter all times in 15 minute (0.25 hour) increments. Use the Map Evaluation work type only for time reviewing maps in a given spatial extent and choosing the "best" ones to be vectorized. Use the Map Compilation work type only for time organizing the "best" chosen maps and preparing for their vectorization in a GIS (e.g. the time to build a mosaic dataset and adjust each maps viewable footprint in GIS). Use the Vectorizing work type only for time directly vectorizing features on the mine maps. Use the Quality Control (Q/C) Processing work type only for time reviewing and correcting the Vectorizing work of others. Use the Training work type only for time giving or receiving training on how to perform Vectorizing work. Use the Administrative work type only for time of management, supervision and other costs associated with a Project Category. Examples of Administrative work include; invoicing, reporting, general communications between the grantee and DEP, time keeping, and equipment calibration and cleaning.

**MINE MAP GRANT DETAIL BUDGET FORM**

**GRANTEE: EXAMPLE UNIVERSITY**

**Project Category: 3-D Modeling**

**Specify Spatial Extent to be Processed<sup>2</sup>:** Eight 7.5' Quads in the eastern Bituminous Coal Field

**Estimated Square Miles of Spatial Extent:** 448

**# of Predominant Coal Seams in Spatial Extent:** 4

**Work Description:** Create 3-D models of mine workings and coal seams using the vector data of mining features (point elevations and mining extents) captured from georeferenced mine maps.

**Suggested Processing Time:** 60 total hours per spatial extent equivalent of a 7.5' Quadrangles (~56 squared miles) per predominate coal seam. The majority of this time is expected to be used in performing quality control to ensure coal seam elevation model is accurate and hydrologically correct.

Total Hours over Grant Period  
Worked<sup>1</sup>

Employee Type	Vector Data Preparation	Vector Data Processing	Q/C Processing	Model Visualization Creation	Total Map Processing Hours	Training Hours	Administrative Hours	Total Hours	Total Direct Cost
Manager					0.00	9.00	33.00	42.00	\$2,604.00
Supervisors					0.00			0.00	\$0.00
Technicians			160.00	160.00	320.00	60.00	144.00	524.00	\$18,340.00
Interns - Undergraduate					0.00			0.00	\$0.00
Interns - Graduate	1280.00	320.00			1600.00	40.00		1640.00	\$32,800.00
Mining Engineer					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
N/A					0.00			0.00	\$0.00
<b>Totals:</b>					<b>1920.00</b>	<b>109.00</b>	<b>177.00</b>	<b>2206.00</b>	<b>\$53,744.00</b>

**Indirect Cost Rate:** 0.45

**Indirect Cost:** \$24,184.80

**Total Extended Cost with Indirects:** \$77,928.80

**Estimated Total Cost per 7.5' Quadrangles spatial extent equivalent (~56 sq miles) per seam:** \$2,435.28

**INSTRUCTIONS**

<sup>1</sup>Enter all times in 15 minute (0.25 hour) increments for the entire length of the grant period.

<sup>2</sup>Applicant may request to work within a specific spatial extent, but DEP will assigned actual spatial extent to be worked with depending on available inventories of maps.

Enter all times in 15 minute (0.25 hour) increments. Use the Vector Data Preparation work type only for time gathering and pre-processing vector data. Use the Vector Data Processing work type only for time processing the data into 3-D models. Use the Quality Control (Q/C) Processing work type only for time reviewing and correcting the Modeling work of others. Use the Model Visualization Creation work type only for time directly creating visualizations of QC'ed models for use on public information websites. Use the Training work type only for time giving or receiving training on how to perform Vectorizing work. Use the Administrative work type only for time of management, supervision and other costs associated with a Project Category. Examples of Administrative work include; invoicing, reporting, general communications between the grantee and DEP, time keeping, and equipment calibration and cleaning.

**GRANTEE: EXAMPLE UNIVERSITY**

**Project Category: Equipment, Supplies, Materials**

**Work Description:** Examples of items most typically purchased are scanners, computer, software, electronic storage devices, office supplies and service/maintenance agreements for equipment.

<b>Equipment, Supplies, Materials (Items Over \$5,000 each)</b>		<b>Cost</b>
1		
2		
3		
4		
5		
6		
7		
8		
Total of items over \$5,000:		\$0.00

<b>Equipment, Supplies, Materials (Items Under \$5,000 each)</b>		<b>Cost</b>
1	Desktop Computers w/ Windows 10 @ \$1800 each X 7	\$12,600.00
2	LED 23 inch Monitors @ \$200 each X 14	\$2,800.00
3	ArcGIS Pro v3.0, software license @ \$1400 each X 7	\$9,800.00
4	ArcGIS software maintenance @ \$400 X 2 additional years X 7	\$5,600.00
5		
6		
7		
8		
Total of items under \$5,000:		\$30,800.00

<b>Grand Total:</b>		<b>\$30,800.00</b>
---------------------	--	--------------------

**INSTRUCTIONS**

List all equipment that cost \$5,000 or more per unit and all equipment, supplies and materials that cost less than \$5,000 per unit separately. Combined cost of equipment, materials and supplies may not exceed 20 percent of the total grant request amount.



**MINE MAP GRANT DETAIL BUDGET FORM**

**GRANTEE: EXAMPLE UNIVERSITY**

**Project Category: Travel Reimbursement**

**Work Description:** Applicants should plan appropriately for the cost of traveling to business meetings and map/ equipment transport relative to Mine Map Grant work.

**Mileage Reimbursement**

Destination	Miles Traveled	Reimbursement Rate	Total Cost
DEP Offices	600.0	\$0.6550	\$393.00
			\$0.00
			\$0.00
			\$0.00
<b>Totals:</b>			<b>\$393.00</b>

**Hotel and Subsistence**

Destination	Hotel Costs per Day	Subsistence Costs per Day	#of Nights	# of Travelers	Total Cost
					\$0.00
					\$0.00
					\$0.00
					\$0.00
<b>Totals:</b>					<b>\$0.00</b>

<b>Total Travel Costs:</b>	<b>\$393.00</b>
----------------------------	-----------------

**INSTRUCTIONS**

Travel expenses incurred under the MMG are reimbursed according to the provisions of the Commonwealth Travel Manual. Only the travel cost of traveling to business meetings and map/equipment transportation related to the MMG will be covered. All travel costs must be pre-approved by DEP before travel occurs, cost inclusion in this Budget Detail Form of the MMG Application does not constitute pre-approval.

**NOTE:** The Mine Map Grant Program will no longer cover the cost of conference attendance fees.



**MINE MAP GRANT DETAIL BUDGET SUMMARY**

**GRANTEE: EXAMPLE UNIVERSITY**

EXPENSE CATEGORY	Scanning Mine Maps	Georeference Mine Maps	Vectorize Mine Maps	3D Modeling Mine Maps	Total
Items Proposed to be Processed <sup>3</sup>	1000	2577	36	32	
Map Processing Salaries and Benefits	\$12,750.00	\$67,184.75	\$173,880.00	\$43,200.00	<b>\$297,014.75</b>
Training <sup>1</sup>	\$4,594.00	\$4,098.00	\$4,098.00	\$3,458.00	<b>\$16,248.00</b>
Administrative <sup>1</sup>	\$7,086.00	\$7,086.00	\$7,086.00	\$7,086.00	<b>\$28,344.00</b>
Direct Cost	\$24,430.00	\$78,368.75	\$185,064.00	\$53,744.00	<b>\$341,606.75</b>
Indirect Cost	\$10,993.50	\$35,265.94	\$83,278.80	\$24,184.80	<b>\$153,723.04</b>
Extended Cost	\$35,423.50	\$113,634.69	\$268,342.80	\$77,928.80	<b>\$495,329.79</b>
Cost Per Item	<b>\$35.4235</b>	<b>\$44.0957</b>	<b>\$7,453.97</b>	<b>2435.275</b>	

Equipment, Supplies, and Materials <sup>2</sup>	\$30,800.00
Travel Reimbursement	\$393.00

Indirect Rate:

**TOTAL AMOUNT OF GRANT REQUEST:**

<sup>1</sup>Total Administrative Cost (including Training) may not exceed 10 percent of the total amount of the grant request.

Total Administrative & Training Cost:  Percent:

<sup>2</sup>Equipment, Supplies, and Materials Cost may not exceed 20 percent of the total amount of the grant request.

Equipment Cost:  Percent:

<sup>3</sup>For Vectorize and 3D Modeling Mine Maps, Items refer to the approximate spatial extent of a 7.5' Quadrangle or 56 square miles per coal seam.

Employee Type	Total Hours
Manager	168.00
Supervisors	0.00
Technicians	3110.25
Interns - Undergraduate	9279.50
Interns - Graduate	7340.00
Mining Engineer	18.00
N/A	0.00
N/A	0.00
N/A	0.00