

Project Narrative

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Introduction

The Washington Employment Security Department (ESD) is submitting this proposal in partnership with the Washington Education Research and Data Center (ERDC). ESD is the State Workforce Agency (SWA). ESD administers the State's Unemployment Insurance program as well as other workforce programs including Workforce Investment Opportunity Act (WIOA) Title I, Wagner-Peyser Act, and Trade Adjustment Assistance, and also collects, analyzes, and disseminates numerous reports of job-related data about Washington and its regions. The mission of ERDC, based in the State Office of Financial Management (OFM) is to develop longitudinal information spanning the preschool-to-career ("P-20/Workforce" or "P-20W") experiences of Washington residents in order to facilitate analyses, provide meaningful reporting, and collaborate on research.¹ ESD is a statutory partner of ERDC.

ERDC manages a comprehensive P-20W data system that incorporates education data from pre-school through graduate school, workforce training, apprenticeship, and employment data.

Work proposed here complements the work that Washington will be proposing under the U.S. Department of Education Request for Applications (NCES 15-01) and work that is currently funded through a nearly-completed Round 2 WDQI grant.

¹ Revised Code of Washington (RCW) 43.41.400 authorizes the creation of ERDC within OFM and states that the ERDC "shall be considered an authorized representative of the State educational agencies ... under applicable Federal and State statutes ..."

1) Statement of Need

Launch Point: Washington’s workforce longitudinal database is comprehensive, but still evolving, particularly in providing business intelligence services to customers. We consider our system to be a partially-developed workforce longitudinal database.

Capacity and Objectives

i. Creating or expanding workforce longitudinal data systems

Researchers at ERDC have been using the education and workforce longitudinal database in recent months to respond to research needs and information requests for data. It has become clear that even though the warehouse contains several sources of data linked together, extracting data from the warehouse was quite complex, requiring highly developed technical skills to build queries combining several tables. Consistent with the industry standards, smaller “data marts” were created around common categories and analysis datasets instead of using the much larger and more complex data warehouse. This made it easier to retrieve data and to join data from several categorical data marts. Data marts allow creation of cohorts in a subject area, as well as the identification of outcome measures associated with the particular category of data. The skills to continue to create and merge datasets have been developed, and our objective now is to create data marts and datasets focusing on workforce outcomes and workforce training participants. We propose to also create a data mart to improve the process of providing data to our Workforce Training Board to support the eligible training provider list performance measures

ii. Improving the quality of workforce data

As program delivery and data collection systems evolve, it's important to understand the changes from systematic and programmatic perspective. To be useful as indicators or for research, definitions and completeness of data across various systems and time must be analyzed to ensure the meaning is consistent. Such a simple variable as race is collected differently by almost every data source, and, in many cases, changes over time. We propose to perform quality review of key workforce and education data elements to help understand the constraints, accuracy, and completeness of the data as input into research and potential metrics. Definitions of data may change, be inconsistent across systems or not be implemented consistently. This work will help to document this.

Another proposed improvement is to apply the methodology developed by the U.S. Census Bureau to develop statewide Quarterly Workforce Indicators (QWI) to supplement wage outcomes. This would permit the use of employment dynamics measures such as turnover, new hires and separation as outcome variables in assessment and evaluation studies and in wage metrics generally.

iii. Delivering or expanding capacity to match

The current P-20W data warehouse has millions of identities linked together through time and across systems. However, several research requests begin with a cohort that is not directly identifiable in the P-20W system and/or it may require additional data not contained in the database. To create the necessary analytical

dataset, a cumbersome process of linking external people through the identity-matching process, and linking external attributes or program data must occur. As this continues to be a large part of the work of ERDC staff, automating the process will significantly improve the integration of education and workforce people and program data, and reduce manual efforts to create data files as input to reports and studies.

iv. Using data for analysis

All deliverables proposed here will support analytical uses of data that will help policymakers and practitioners understand the performance of workforce and education programs. Deliverables 1 (Analytical data marts for researchers) and 3 (Data quality and completeness) will create datasets and documentation in support of data analysis by ERDC and external analysts. Deliverable 2 (Standardized process to build research datasets for external cohorts) will enable the efficient analysis of external cohorts not identifiable from the existing data warehouse. Deliverable 4 (Additional employment outcome measures) will allow sophisticated measures to be incorporated into research datasets for both ERDC and external use. Deliverables 6 (Research on labor supply), 5 (Retrospective research study), and 7 (Metrics for evaluating education staff and providers) are analytical studies which will be of interest to policymakers in a variety of areas. See Section 2: Project Deliverables beginning on page 7 for details.

v. Producing/disseminating workforce performance information

Production and dissemination of workforce performance information will indirectly benefit from the work described above. By streamlining and enhancing metrics related to performance outcomes by training provider and workforce development program, additional features will be available when integrated into the existing delivery systems.

vi. Creating user-friendly portals

Creating user-friendly portals and enhancing existing portals by adding workforce information is a goal of ERDC. We expect that several of the metrics developed with this grant funding can be incorporated into the current High School Feedback Reports and Earnings for Graduates (postsecondary) reports

State Longitudinal Education Data System (SLDS) Status

Washington's ERDC manages a comprehensive P-20W statewide longitudinal education and workforce data system that incorporates early learning participants, K-12 student, staff, courses, and finances, and public Washington 2-year and 4-year institution enrollment and completions information combined with individual-level workforce data including UI claimants, UI Wage records, and workforce services. The Washington P-20W data system includes:

- A fully-functioning data warehouse that supports identity-matching and standard P-20W reports and products for high schools and postsecondary institutions;

- Established processes for data sharing and reviews, data request procedures, and data use protocols that assure data owners that individuals' privacy is maintained;
- A well-developed culture of P-20W data use among all constituents.
- A set of online dashboards and feedback reports, including "Earnings for Graduates," which displays earnings from one to five years after receipt of a degree from one of the state's public universities or colleges.

Sustainability

ERDC funding comes from the State general fund and is appropriated by the State legislature on a biennial basis. Each biennium since its creation in 2007, ERDC has received increased funding as new uses and efficiencies of the centralized P-20W data system have been identified. The uses have increased demand for P-20W information, and efficiencies of a centralized data system have reduced agencies' needs for contracting out for similar work.

A Memorandum of Understanding (MOU) outlining agreed-upon responsibilities and principles for sharing and using P-20W education and workforce data has been signed by all ERDC partners currently contributing data to the P-20W system (Attachment D). Data-sharing agreements (DSAs) are in place between ESD and ERDC (Attachment E) allowing ERDC to receive ESD data. Multi-party data-sharing agreements are required when individual-level (de-identified) workforce data is provided to a requestor.

2) Project Deliverables

There are seven deliverables proposed for this application.

Deliverable 1: Analytical data marts for researchers

Analysis data marts and data cubes will be created, focusing on workforce cohort creation and workforce outcomes integrated other cohorts. The cubes will be used to perform data validation of data in the warehouse as well as provide easier access to linked education and workforce data and outcomes. The target user will be staff creating datasets for customers and researchers. Data marts will be based on existing data and data structures. For each data mart, one cube will be created primarily using that data mart. Additional cubes will combine data from several data marts, aimed to meet the needs of specific research projects and reports. Cubes produced under this application include 1) Wages and employment; 2) Employment outcomes connected with enrollments; 3) Employment outcomes connected to achievements; and enrollments, and 4) Achievements, employment, and wages to support the Eligible Training Provider list.

Each of the cubes/marts also will include characteristics of the person and of the particular outcome. The data will be based on existing data and structure of the current data warehouse with the addition of program participation details. (No changes to database structure will be necessary.)

Deliverable 2: Standardized process to build research datasets for external cohorts

We will develop a standardized process that allows us to build research datasets for a cohort of people external to the data warehouse with the ability to link identities and research variables from within the warehouse. This will improve the capacity to link workforce,

education and other sectors data for specific data needs without needing to fully integrate external data into the data warehouse.

An example of an external cohort is set of participants in a workforce program which has not contributed program participant data to the P-20W data warehouse, perhaps because a data-sharing agreement was recently put into place or perhaps because ERDC does not have permission to store the data in the data warehouse environment. Even though many of the external program participants also participate in education and/or employment, linking them is not possible without bringing in their identities as an external source.

An example of a P-20W data warehouse cohort that must be matched with external data is a cohort can be identified through a combination of education and employment data from the warehouse but must be associated with public welfare status, which is not an element stored in the P-20W data warehouse.

Deliverable 3: Data quality and completeness

This deliverable will be documentation about key workforce data elements, including the availability of the data over time and geography, changes to the definitions of variables throughout time, or inconsistent definitions caused by various implementation strategies. This deliverable will also review other workforce data that may help in future research, such as skills information about college courses.

Deliverable 4: Additional employment outcome measures

Moving beyond wage outcomes, this deliverable will add metrics around new hires, separations, turnover, tenure, and beginning salary to wage outcomes for cohorts. It will use

methodologies consistent with U.S. Census Bureau Local Employment Household Dynamics program Quarterly Workforce Indicators. The measures will be included in the analysis cubes developed as Deliverable 1 as well.

Deliverable 5: Retrospective research study

This retrospective study of high school, workforce and post-secondary success ties measures of success and failure to prior behaviors and activities. For example, high school graduation would be correlated to a variety of factors ranging from high school performance, middle school performance, elementary school performance, kindergarten test scores and participation in the state's Early Childhood Education and Assistance Program (ECEAP). The cohort structure for this study would start with year 2000 ECEAP participants (the first year for which ERDC has data) with the follow-up period running through the last year for which workforce data is available (currently 2013). The study will analyze risk factors for more negative outcomes such as dropping out of high school, unemployment or incarceration. It will also focus on protective factors that are associated with more positive outcomes such as high school graduation, post-secondary degrees or high earnings.

Deliverable 6: Research on labor supply

With the addition of Wage Record Interchange System (WRIS 2), several questions around labor supply become more viable. Employment growth arises from either the birth of new employers or the growth and expansion of existing employers. In either case, new employees will be required. What is the source of these new workers? Do they come from employment in other states (WRIS2), are they recent graduates (ERDC P-20W), or do they

come from other in-state employers (P-20W)? A better understanding of worker job to job flows will help state policy makers develop workforce policy as well as assist the state labor exchange in matching job seekers to new opportunities.

A related issue is what happens to employees when a large employer leaves an area or significantly reduces its workforce? Using data from WRIS2, the P-20W employment data and the P-20W education data, we can discover whether or not the displaced workers find other employment in-state or out-of-state, as well as their earnings; or whether or not they enroll in a job training or education program. This study will also reveal information about the dynamics of declining industries. How do and how should workers respond when their human capital evaporates due to technological change or changes in economic conditions?

Deliverable 7: Metrics for evaluating education staff and providers

Early learning and K-12 often ask questions about their providers and teachers. Do they have other jobs? Where do they go when they leave? What is their skill-set worth in the private sector? This study would create a set of metrics that could be used to help evaluate workers and their involvement in the workforce during and after an engagement. It will also include other metrics to compare salaries, including cost-of-living adjustments.

3) Project Design

1. Database Design, Data Quality Assurances, and Proposed Uses

Personal identifier The Social Security Number (SSN) is used as the unique personal identifier for individuals in all ESD workforce data systems. For the P-20W data system as a whole, SSN is one of many possible identifiers for an individual. There is no single

identifier used throughout education, however. To link records for one individual across many education sources plus employment, each of the identifiers associated with an individual (SSN, college student ID, K-12 student ID) is linked to a “P-20 ID” created by ERDC for internal use within the P-20W data system. Generally, users of the P-20W data system do not have (or need) access to personally-identifiable information (PII). There are processes in place to “re-attach” PII to records, when required. For many workforce-oriented requests, reattachment of SSN will be necessary. ERDC has been maintaining linked cross-sector data using this approach since the initial development of the P-20W data system. At this point in time over six million records pertaining to students are linked for analysis using this approach.

Upon receipt, an individual-level data record being incorporated into the P-20W data system is run through an identity-matching process which either assigns an existing P-20 ID or creates a new P-20 ID for the person represented. This automated² process, which incorporates both deterministic and probabilistic matching algorithms, utilizes as much information as is available, but relies heavily on SSN, name, and date of birth. This process is done in a limited access area, before loading data into the longitudinal data system. Once the matching takes place, the data files are loaded into the database, using

² A high percentage of the linkages are accomplished automatically, but there is case management involved when ambiguities exist among identifying elements.

the P-20 ID as the identifier and not the SSN or other PII. For research purposes, the SSN is not accessible. Crosswalks between the P-20 ID and PII are stored in locations that are physically separate from the data warehouse in an area with highly restricted access.

Generally, ERDC staff provide two types of data to requestors, public-use data and restricted-use data:

- **Public-Use Data** is data that is aggregated and contains no individual-level data (unit records). The data is in a table format acceptable for publication purposes and does not require a data-sharing agreement.
- **Restricted-Use Data** is data at the individual (unit-record) level. Even when de-identified, individual-level data may contain sufficient information, when matched with other information, to allow a reasonable person to identify an individual. A data-sharing agreement with the ERDC is required before receiving a restricted-use data set.

Data quality measures Data quality assurances include performing a data profiling check of data upon receipt, and also working with the data owners to establish field-level, record-level, and data set-level data validations upon initial loading of the data. Any exceptions are reviewed by the database administrator and, where necessary, the data owner. Data validation also occurs when populating research data marts. For workforce data, emphasis is placed on quarter-to-quarter comparisons, record counts, and data totals to confirm that the complete set was loaded, and is consistent with previous data. Data validation is also done against the data owners' original system when appropriate. This is

a collaborative process, where the warehouse serves as the access point, but the quality of data within it is validated by the data owner. An internal data quality and monitoring report tracks the data throughout the process, and monitors key elements, such as record counts, data values, and availability of data. The data readiness process for the data includes business and technical stewards meeting to agree on the best method of transporting data and also to establish the set of business rules to apply. The rules are documented, and implemented into automated data loading processes with exception reports generated. The data stewards (business knowledge leads) and data custodian (Information Technology systems lead) have been established for all source systems contributing data to the P-20W data system..

Washington's P-20W database model was developed locally, specifically to support data from all sectors with minimal database maintenance. It also maintains the characteristics provided by a source system, and does not employ a "golden record" approach. For example, when using high school graduates as a cohort, the race and gender characteristics would be those provided by the high school. However, we also maintain those characteristics provided by each data source, and each time period.

Data is stored data in normalized research database by category. For example, all enrollments from all sources are stored in the ENROLLMENTS table. There is also an ENROLLMENTS CHARACTERISTICS table, and also a person characteristics table. Using this model, no data changes are required to include program enrollment and characteristics for the workforce programs or participants.

For analysis, there are currently data marts around enrollments and achievements. Analysis cubes for each of these data marts also exist, and a cube containing both enrollment and achievement data in support of the High School Feedback Report also exists. Currently, researchers write queries against the normalized database to extract data to fulfill data needs. The longitudinal warehouse is designed for research and evaluation, not daily operations.

For this project, additional data mart tables will be created from the normalized database. The anticipated structures of those include dimension tables that are shared across most data marts. They include DIM_SourceSystem, Dim-Token, Dim_DataCollectionType, Dim_OrganizationCharacteristics, DIM_PersonCharacteristics, DIM_YearTerm, DIM_Date, DIM_Organization, and DIM_AttributeType.

One dimension table, DIM_Wage, will be added, including fields for wage type code (1 character code that describes what type of wage record it is), wage type title (character field describing the wage type), wage amount, wage hours, effective begin date, effective end date, most recent indicator. The wage amount and wage hours are integer, leading into various metrics. The rest of the fields are used to relate the DIM tables together. It is expected that DIM_Wage table and the linkages will be joined with existing Enrollment and Achievement tables as well. The majority of the work involves developing and testing the business logic to populate the analysis datasets, that are

created on the fly based on the dimensions, enrollment and achievement facts, and the newly requested DIM_Wage table

2. Scope of Longitudinal Workforce Data

Work under this grant will add program data for all workforce programs administered by ESD. These include WIOA Title I, Adult Education and Literacy, Title I of the Rehabilitation Act as amended, Wagner-Peyser Act, TAA and TRA program data. All data for UI Wage data, UI Benefits and the people receiving services have already been integrated into the longitudinal warehouse. Only the program information that provided those services will be added. Federal Employment Data Exchange System (FEDES) and WRIS2 will be accessible, but managed separately due to constraints on their use. The workforce longitudinal data is currently linked to education data, including early learning, K-12, apprenticeships, GED[®], and Washington public higher education. The scope for this grant is to bring information about the program and the enrollment dates by the individuals only, as the identity matching has already been performed. The biggest barriers expected are identifying which data elements to bring in and capturing the changes in the program eligibility that may have impacted the data. An additional challenge is finding the best and most stable source for this data, minimizing the amount of rework associated with changes to data feeds in the future.

3. Integration of Efforts with State Education Authorities

State education agencies along with ESD are P-20W partners via statutory relationship with ERDC. ESD has contributed UI wage and UI claimant data to the

P-20W data system. Historically, ESD has shared data with the State Board for Community and Technical Colleges for the analysis of workforce training programs offered by their colleges. Determination of placement in the workforce for secondary Career and Technical Education program completers has been accomplished through linking of education agency information with UI wage data from ESD.

Activities under this proposal will improve the data linking capabilities from both education and workforce by creating the process to link data that has not been incorporated into the warehouse, as well as creating tools for the analysts to access the data directly after it has been linked. This will improve access to the data for ongoing reporting requirements as well as ad-hoc analysis between education and workforce data.

4. Inter- and Intra-State agency partnerships

Through its relationship with ERDC, ESD is a partner with the education agencies in the state and all other state agencies using workforce information contained in the State's P-20W data system. The P-20W data warehouse contains information from several State agencies not classified as P-20W agencies in statute. These include Department of Labor & Industries (State Apprenticeship Agency) and Department of Corrections (adult inmates).

Washington, Oregon, and Idaho routinely exchange UI wage data information for federal Perkins reporting. Washington continues to participate in Multistate Longitudinal Data Exchange, a project led by the Western Interstate Commission for Higher Education.

5. Integration of State-based Wage Data Matching Systems

Integration of state-based wage data into the P-20W longitudinal data system has been accomplished through the Round 2 WDQI grant.

6. Confidentiality

All state employees in Washington are covered by Executive Order 00-03 (Governor Gary Locke, April 2000) addressing public records privacy protections. All ERDC staff are informed of procedures that ensure secure storage and transfer of data. It is a requirement for anyone with access to ESD data to sign a Notice of Non-Disclosure. ERDC staff are required to sign a set of similar forms provided by each agency contributing identifiable data to the P-20W data system. Both ESD and ERDC limits access to identifiable data to a small number of staff and use de-identified data whenever possible.

An ERDC data-sharing agreement (DSA) is required for the distribution of an individual-level P-20W dataset, even if the data are de-identified. Each DSA includes an extensive Data Security section that describes requirements for storage of and access to the dataset. Since inadvertent disclosure of personal information can occur when cell sizes represent small populations, ERDC DSAs direct users of ERDC-created datasets to the guidelines specified in the Institute of Education Sciences SLDS Technical Brief 3³

³ Institute of Education Sciences, SLDS Technical Brief 3, Statistical Methods for Protecting Personally Identifiable Information in Aggregate Reporting (NCES 2011-603)
<<http://nces.ed.gov/pubs2011/2011603.pdf>>

when publishing aggregate information.

Each ERDC DSA is associated with a Statement of Confidentiality and Non-Disclosure that is signed by each individual having access to ERDC data and that individual's supervisor.

7. Data-Sharing Agreements

Each ERDC DSA specifies an agreement administrator and a technical administrator from each participating organization, the purpose, definitions, period of agreement, description of data to be shared, data transmission, data security, data confidentiality, use of data, disposition of data, on-site oversight and records maintenance, indemnification, amendments and alterations, order of precedence of applicable laws, termination, and severability. Along with the DSA is a Certification of Data Disposition that is returned to ERDC when the data disposition requirements of the DSA have been met. An ERDC Sample DSA is included as Attachment F.

8. Planned Reports/Deliverables

The project deliverables are described in detail in Section 2, beginning on page 7. Development of analytical data marts (Deliverable 1) will allow extensive research and analysis products to be developed by ERDC staff as well as external researchers not familiar with the underlying structure of the P-20W data warehouse. The development of a standardized process to build research datasets involving external cohorts (e.g., public assistance clients or training program participants) described as Deliverable 2 will also

make P-20W data available to a broader group of users and will allow long-term employment information to be included in outcomes analyses for those programs.

Deliverable 3 (Data quality and completeness) is concerned with both data quality and with communicating the content of databases. The dissemination of the information from this deliverable will take the form of data codebooks, available on line and on the ERDC internal network. These codebooks will document not only the availability of the data in the data warehouse, but also the quality of the data, in terms of descriptive statistics (means, medians, missing and counts) and any available indicators of accuracy.

ERDC already publishes postsecondary employment outcomes in an online reporting platform called “Earnings for Graduates.” The development of QWI measures (Deliverable 4) will allow enhanced employment information to be provided to prospective students and counselors. The measures will also enhance the research-oriented data marts described earlier.

Deliverables 5, 6, and 7 address a variety of research topics of interest to policy makers and will each result in reports posted on ESD and/or ERDC websites and presented at conferences. Questions addressed include:

- What are the risk factors for more negative outcomes such as dropping out of high school or unemployment or incarceration? What are the protective factors associated with more positive results such as high school graduation, postsecondary degrees or high earnings?

- What is the source of new workers in Washington? Do they come from employment in other states (WRIS2)? Are they recent graduates? Or do they come from other in-state employers?
- Do school teachers or early learning providers have other jobs? Where do they go when they leave? What is their skill-set worth in the private sector?

4) Organizational, Administrative, and Fiscal Capacity

The current ERDC P-20W Database Manager (who oversees all components of the SLDS including workforce components) has over 20 years of experience working with large, complex administrative data systems. In addition, ERDC currently employs analysts with a mix of specialties, including economics, all of whom will contribute in-kind as advisors to the work proposed here.

The project will be staffed by a project manager, a business analyst, education data analysts, and economic analysts. The expertise of current ESD and ERDC staff will be utilized in advisory roles. Project descriptions for all staff to be hired with grant funds are included in the Attachment G.

i. Project manager

A project manager will oversee the activities proposed in this application. The project manager is responsible for managing the project's scope, schedule, budget and quality; communicating regularly with stakeholders; identifying and mitigating risks and bringing resolution to issues; and facilitating the success of the project. The project manager is expected to have prior successful experience managing a project of similar scope to that

proposed here. The current ERDC P-20 Database Manager will contribute to the success of this project in an in-kind capacity.

ii. Data analysts

An experienced Business Analyst (Information Technology Specialist series) will develop the requirements for the implementation of the enhancements to the UI Wage data and the development of the self-service employment reporting module application.

Economic and education data analysts will serve as subject-matter experts. They will also be responsible for conducting the research and analytical studies.

iii. Identification and qualifications of proposed staff positions

The qualifications for the positions responsible for planning, implementing and conducting longitudinal research analysis (Economic Analyst or Education Data Analyst) include a graduate degree and significant experience in analyzing large, complex data sets. Detailed position descriptions are provided in Attachment G.

iv. Contributions of staff members; applicability of confidentiality laws

All state employees are covered by Executive Order 00-03 (Governor Gary Locke, April 2000) addressing public records privacy protections. All staff will be informed of procedures that ensure secure storage and transfer of data. It is a requirement for anyone with access to ESD data to sign a Notice of Non-Disclosure. A copy of this form is included in the ESD-ERDC DSA (Attachment E). ERDC staff are required to sign a set of similar forms provided by each agency contributing identifiable data to the P-20W data system. Both ESD and ERDC limit access to identifiable data to a small number of

staff and use de-identified data whenever possible. Researchers and analysts involved in the research studies will be working with de-identified data sets.

v. Employing entities for staff members

All staff members will be employed by either ESD or ERDC. An economic analyst and an IT specialist will be employees of ESD. The project manager, the business analyst, and education data analysts will be employed by ERDC.

5) Budget and Budget Justification

Personnel: \$265,287

The Project Manager will oversee the project, including mandatory reporting, project timelines and schedules, and monitoring. Work will be more concentrated in the first year, with a reduced role as the project transitions from data loading and reports to research projects.

The Business Analyst will be responsible for developing and documenting requirements for data completeness and integrity as it relates to each of the deliverables.

The Economic Analyst's primary role will be to work with the data, identify cases where the data and research could be impacted by data integrity across systems, and identify issues that may impact research or performance metrics. The Economic Analyst will also be responsible for performing a portion of the defined research.

Project management will be part of each deliverable. There will be start-up activities, such as developing the project charter, communication plans, and detailed budget and timeline.

Fringe Benefits: \$92,850

This calculation is based on the number of FTEs and the fringe benefit rate. Our rate of 35% is for the full package of fringe benefits.

Travel: \$7,000

This cost includes attendance and participation at three national SLDS/WDQI national conferences throughout the grant period for one staff.

Equipment: \$0**Supplies: \$0****Contractual: \$720,000**

Contracted amount covers the salaries, benefits, travel, and supplies for work performed by ERDC on their portion of the deliverables. This will be performed through an interagency agreement consistent with state contracting practices. ERDC anticipates a subcontract with the state IT provider. Department of Enterprise Services (DES), to perform some of the activities associated with the data mart development. An estimate of \$100,000 is targeted toward the DES portion of that development.

Construction: \$0**Other: \$40,768**

Cost includes the basic goods and services package for each FTE.

Indirect Charges: \$74,095

TOTAL: \$1,200,000

ERDC will be providing in-kind the data warehouse manager and staff expertise necessary to understand the data elements and extract data for research studies or metric development. ERDC will include these items in their daily agile check-in meetings, which will raise the visibility of projects throughout the grant period.