



**DEPARTMENT OF COMMERCE  
LABOR AND ECONOMIC ANALYSIS DIVISION (LEAD)**

**PLAN FOR THE TRANSFER OF  
THE COMMON FOLLOW-UP SYSTEM (CFS)  
TO THE GOVERNMENT DATA ANALYTICS CENTER (GDAC)  
FEBRUARY 1, 2015**

<b>CITATION OF LAW OR RESOLUTION:</b>	S.L.2014-100
<b>SECTION NUMBER:</b>	Section 15.6 (c)
<b>DUE DATE:</b>	February 1, 2015
<b>SUBMISSION DATE:</b>	February 1, 2015

**RECEIVING ENTITIES:**

Governor Pat McCrory  
Mr. Chris Estes, State Chief Information Officer  
Senator Andrew C. Brock, Co-Chair,  
Joint Legislative Oversight Committee on Information Technology  
Representative Jason Saine, Co-Chair,  
Joint Legislative Oversight Committee on Information Technology  
Fiscal Research Division

**SUBMITTING ENTITY:**

The North Carolina Department of Commerce, Labor and Economic Analysis Division

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**EXECUTIVE SUMMARY**

As required under Session Law-2014-100, Section 15.6(c), this report, prepared by the N.C. Department of Commerce's Labor and Economic Analysis Division (LEAD), outlines the plan for the transfer of the information and required capabilities of the Common Follow-up System (CFS) to the Government Data Analytics Center (GDAC). In preparing the plan, LEAD staff met several times with the GDAC Director and staff and provided information on the goals, objectives and business requirements for the CFS. The GDAC staff provided input, technical assistance and feedback on the proposed plan. The following report provides an overview of the plan including business needs, technology requirements and project timeline.

The North Carolina Department of Commerce's Labor and Economic Analysis Division (LEAD) is charged with the operation of a Common Follow-up Information Management System (CFS). Legislation governing the CFS, G.S. §§ 96-30 – 96-35, charges the LEAD with operating a system that tracks the performance of current and former participants of the state's job training, education and placement programs and with evaluating the impact of these programs.

As defined under G.S. § 96-32, the system shall provide for the automated collection, organization, dissemination, and analysis of data obtained from State-funded programs that provide job training and education and job placement services to program participants. The data and information collected from State agencies to support the system is identified as confidential, not open for general public inspection, and must be maintained and disseminated in a manner that protects the identity of individual persons from general public disclosure. Based on data collected under CFS, LEAD is responsible for evaluating the effectiveness of job training, education and placement programs and reporting to the North Carolina General Assembly on both system operations and the findings of its evaluation of the education, employment and training programs.

During the 2012 Session, the North Carolina Legislature enacted Session Law 2012-131. The law required the Department of Commerce to improve and strengthen the CFS and to further utilize data from CFS in the development of performance measures for North Carolina's Workforce Development System. In addition, Session Law 2014-100 requires the Department of Commerce to develop a plan for the transfer of the information and capabilities of the CFS to the Government Data Analytics Center (GDAC) within the Office of Information Technology Services.

As part of the efforts to improve the CFS, the North Carolina Department of Commerce has been undertaking several initiatives. These include enhancing the technology processes for system processing and storage, enhancing data integrity, expanding the data collected and maintained in the system, updating system documentation regarding agency and programmatic information, enhancing system outputs and increasing collaboration with the participating agencies. As part of its efforts to improve the CFS, the Department of Commerce applied for and received a grant through the U.S. Department of Labor's Workforce Data Quality Initiative (WDQI).

Part of the goal of the CFS technology improvements was to utilize both state and federal resources to improve, strengthen and transform the CFS into an efficient, integrated longitudinal relational database structure and to ensure that the system is flexible enough to grow to future needs. Furthermore the Department of Commerce wishes to develop this enhanced and efficient technology infrastructure for the CFS within the Government Data Analytics Center.

## **CURRENT SYSTEM OPERATIONS**

Each year, the participating agencies provide data files containing information on individuals participating in their education, employment and training programs to the CFS. This information includes detailed unit level data that is defined as confidential under G.S. § 96-32. At the present time, the following entities provide information to the CFS:

- NC Department of Public Instruction provides information regarding individuals who are enrolled Public High School education and training programs (including Career and Technical Education).
- NC Department of Public Safety's Division of Adult Correction provides information regarding individuals who are receiving offender services.

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- NC Department of Commerce
  - Division of Workforce Solutions provides information regarding individuals who are receiving services through the Wagner-Peyser program, Veteran's Employment program, Migrant and Seasonal Farmworker program, WIA Title I programs, Trade Act programs and Registered Apprenticeship program.
- NC Department of Health and Human Services
  - Division of Services for the Blind provides information regarding individuals who are participating in vocational and rehabilitative programs.
  - Division of Social Services provides information regarding individuals who are participating in the Supplemental Nutrition Assistance Program and Temporary Assistance for Needy Families Employment and Training Services.
  - Division of Vocational Rehabilitation Services provides information regarding individuals who are participating in Vocational Rehabilitation programs.
- NC Community College System provides information regarding individuals who are enrolled in education and training programs and services operated by its 58 colleges; and
- The University of North Carolina General Administration provides information regarding individuals who are participating in educational programs offered through its 17 institutions.

In addition to the information that is provided by the education, workforce development and training entities, the Department of Commerce's Division of Employment Security (DES) provides Unemployment Insurance wage record, claimant and benefit payment information and the Labor and Economic Analysis Division (LEAD) provides employer and industry related information.

Data from each of the agencies is put through a series of edit checking processes and cleaned agency supplied data are loaded to two primary data files: the Program file and the Client file. Quarterly Unemployment Insurance wage record data are loaded to a historical wage history file. Monthly Unemployment Insurance claims and benefit payment data are loaded to historical data files. Quarterly employer and industry information are loaded to a

historical employer industry file. Analyses are completed by merging and compiling information across each of these separate data files.

As defined under G.S. § 96-32, LEAD is also responsible for identifying additional workforce development programs that should be required to report information to the CFS and working with those entities to incorporate their data into the system. LEAD is currently working with staff from state agencies to further facilitate their compliance with G.S. 96-33 and to include their information into the CFS.

## **PROJECT PURPOSE**

The CFS contains an extensive, rich and diverse set of data; however the information technology utilized to store, retrieve and analyze the data has become severely dated and does not provide efficient processing of data or facilitate the use of advanced analytics. Over the years, the data files contained in the system have become extremely large and inefficient for analyses due to structural limitations, changes in agency and programmatic coverage, changes in agency organizational structures, changes in agency source information systems and the aging of the information technology utilized to collect, load, maintain and process the data. In addition, while the education, employment and training agencies provide information in the same data structure, the information contained in the data files encompass a diverse set of information regarding agencies, institutions, programs, services, activities and participants.

The system currently contains over 148 million programmatic related records on over 9 million individuals dating back to the mid 1990's, available historical wage and employment information dates back to the early 1990's and includes over 382 million records and employer related information dates back to the early 1990's and contains information on over 700,000 employers. The CFS was originally maintained on the state's mainframe. Data was downloaded to local servers for analyses. Due to the need for improved data loading, expanded and enhanced storage capacity and enhanced analytical capabilities, LEAD needs to migrate current CFS data from both mainframe and server locations to a data warehouse repository structured to automate data transformation and load processes and facilitate reporting and analytics on large volumes of data across disparate data bases.

The overall goal of the CFS technology enhancement effort is to build a relational data structure that will help to improve the efficiency of the system in terms of collection, editing, loading, processing, analytics and the development of useful and meaningful

outputs. The migration of historical CFS data as well as the development of new data edit, load, storage and processing will provide enhanced capacity for accommodating the large and diverse sets of data and provide enhanced efficiency in editing, quality checking, processing, extraction and analysis of data. The goal is to achieve a technology solution within the GDAC environment that will enable the Department of Commerce to fulfill both statutory and grant objectives in an efficient and effective manner.

## **BUSINESS NEED**

The Department of Commerce will meet statutory, grant and business objectives through transforming CFS into a fully operational, comprehensive and longitudinal information system. Specific objectives include:

- Develop an enhanced and efficient technology infrastructure to support the CFS data collection, reporting and analytical needs within the Government Data Analytics Center;
- Upgrade CFS capacity by migrating data to an efficient and scalable relational database structure on a server-based platform;
- Develop new data edit, load, storage and processing for ongoing and future data submittals into a new relational database environment containing tables and other flexible data structures;
- Expand the education and workforce longitudinal data contained in the CFS, including adding additional data sources as well as additional information from existing sources;
- Develop, implement and operationalize efficiencies in data edit and loading functions and data storage infrastructure that are efficient and scalable to operational changes in contributor organizational structure, operations and information systems;
- Improve the data quality and breadth of information contained in the CFS;
- Expand the capacity of CFS to match and analyze information across workforce and education data sources;
- Design, develop and implement additional analysis that will help policymakers and practitioners measure the performance of workforce and education programs;

- Develop a web-based reporting system for disseminating performance and reporting output. Part of this need has been accomplished through the development of the North Carolina Tool for Online Workforce and Education Reporting (NCTOWER). The NCTOWER project was previously approved by OITS and launched via the web at [www.nctower.com](http://www.nctower.com). The application of advanced analytics will allow LEAD to expand the information that is delivered through NCTOWER.

## **BUSINESS OBJECTIVES**

The Department of Commerce's LEAD seeks to comply with North Carolina General Statute §§ 96-30-96-35, Session Law 2012-131, Session Law 2014-100 and federal grant requirements. Thus, LEAD's business objectives are to:

- Develop an enhanced and efficient technology infrastructure to support the CFS data collection, research, reporting, analytical and evaluative needs within the Government Data Analytics Center;
- Develop and implement an enhanced Common Follow-up System on a new platform, that will provide new functions to automate data loading, data error checking, data analysis and outcome reporting;
- Develop and implement an enhanced Common Follow-up System on a new platform that will facilitate the collection of data files and tables from system contributors.
- Develop and implement data edit and loading functions and storage infrastructure that are efficient and scalable to operational changes in contributor organizational structure, operations and information systems;
- Draft and adopt procedures and guidelines for the development and implementation of the enhanced CFS;
- Develop standardized data definitions and implement the use of these definitions across system contributors;
- Develop an efficient technology infrastructure that will enhance LEAD's capacity to apply analytics and report on the effectiveness of job training, education and placement programs;
- Develop an efficient technology infrastructure that will enhance LEAD's capacity to work in collaboration with the NC Works Commission ("Commission on Workforce Development") to develop common performance measures across workforce programs.

## **PROJECT DESCRIPTION**

This project is to enhance and transform the Common Follow-up System, including carrying out a system re-design; helping to support the expansion of longitudinal data; improving the quality and breadth of information; expanding the capacity of CFS to match and analyze workforce and education data; expanding a web-based reporting system for disseminating performance and outcome information; **and facilitating** analysis that will help inform policymakers and practitioners regarding workforce and educational program operation and performance. The goal is to develop the redesigned Common Follow-up System within the Government Data Analytics Center.

## **Project Objectives**

### **1. Data Migration**

Both State and federal WDQI grant funds will be utilized to migrate historical data from existing mainframe and server locations to a server based platform within the GDAC environment.

### **2. Integration of a new Data Server(s)**

Both State and federal WDQI grant funds will be utilized to integrate a new hosted server solution within the GDAC environment to house and administrate historical and ongoing data delivered by all CFS contributors.

### **3. Development New Data Schema Logic**

Both State and federal WDQI grant funds will be utilized to facilitate the work with GDAC to develop a new data infrastructure including a new relational data base structure.

### **4. Implement New CFS**

Both State and federal WDQI grant funds will be utilized to develop automation of data delivery, data error checking, loading and processing within the GDAC environment.



## **Requirements**

In order to meet the defined objectives of the CFS enhancement project, the following list provides the project requirements that are needed in order to achieve success:

- Develop an enhanced and efficient technology infrastructure for the CFS within the Government Data Analytics Center.
- Develop, implement, and maintain a common follow-up information management system for tracking the performance measures related to current and former participants in State job training, education, and placement programs.
- Develop, implement and maintain CFS solution that is in compliance with statutory, legal and governance policies regarding data use and confidentiality.
- Draft and adopt procedures and guidelines for the development and implementation of the enhanced CFS.
- Develop standardized data definitions and implement the use of these definitions across system contributors;
- Develop an enhanced CFS infrastructure that is scalable to operational changes in contributor organizational structure, operations and information systems;
- Develop an enhanced and efficient technology infrastructure that will facilitate LEAD's capacity to evaluate the effectiveness of job training, education and placement programs.
- Develop an enhanced and efficient technology infrastructure that will facilitate LEAD's capacity to work in collaboration with the NC Works Commission ("Commission on Workforce Development") to develop common performance measures across workforce programs.
- Develop an enhanced CFS that will be tested in a simulated environment prior to deployment.
- Develop an enhanced CFS that must be implemented without disruption to current and ongoing operations.

## **Project Team**

The overall project management includes a Project Sponsor, Department of Commerce Chief Legal Counsel and Chief of Staff, Mr. John Hoomani; Acting LEAD Director, Ms. Jaqueline Keener; GDAC Director, Mr. John Correllus; GDAC Solutions Development Program Manager, Ms. Carol Burroughs; OITS Contract Project Manager, Mr. Bernard Washington; LEAD CFS Project Business Manager, Dr. Elizabeth McGrath and a Core Project Team comprised of Department of Commerce staff, OITS resources, GDAC staff resources and GDAC Vendor Contracted resources (SAS). In addition, there is a group of CFS stakeholders from the contributing agencies and other legislative and governmental entities and committees that will contribute to and advise the project regarding, data governance, system requirements, data migration and business processes. The project will be managed to the ITS/EPMO workflow, including deliverables required for signoff at each phase.

The Department of Commerce has contracted a Project Manager through the Office of Information Technology Solutions (OITS). The Project Manager is responsible for managing project tasks, scheduling, and communication regarding the CFS Enhancement Project. The Project Manager will coordinate all resource requirements through the Acting LEAD Director, Ms. Jacqueline Keener; the OITS Service Portfolio Management Office and the GDAC Director, Mr. John Correllus. The Acting LEAD Director, Ms. Jacqueline Keener will coordinate all project requirements and resources with the Project Sponsor, Department of Commerce General Counsel and Chief of Staff, Mr. John Hoomani as well as with the Department of Commerce Chief Information Officer, Mr. Michael King. The Government Data Analytics Center (GDAC) will provide the technology solutions for the development and deployment of the CFS enhancement project. The GDAC Director, Mr. John Correllus will be responsible for overseeing, managing and implementing the GDAC resources for the CFS enhancement project. The Office of Information Technology Solutions Project Management Office (OITS-PMO) will provide the oversight, monitoring and approval for all technology related aspects of the project. Furthermore, they will ensure that all best practices for the project management process are followed.

## **Project Deliverables**

The following solution deliverables must be met upon the successful completion of the CFS Enhancement project.

- Design, build and implement a new CFS relational server based architecture within the GDAC environment.
- Migration of historical data to a new relational server based architecture.
- Fully automated (ETL) data editing, load, storage and processing for ongoing and future data submittals into the defined relational database environment.
- Automated data delivery, editing and loading of data contributor submissions.
- Secured access to the GDAC CFS hosted environment via terminal server with access to SAS tools through which the relational database can be accessed by LEAD staff to run queries, create intermediate working tables, and provide record level and summary data extract capability back to LEAD's local environment.
- Fully deployed CFS solution onto a client-server based platform.
- Fully deployed CFS solution that complies with statutory, legal and governance policies regarding data use and confidentiality.
- A segmented data model where CFS information and tables are restricted to approved users under defined data governance rules.

Additional deliverables to be implemented as part of the project solution delivery include the following:

LEAD will provide the following:

- LEAD will work with data contributors to provide table layouts for all current and proposed data files.
- LEAD will work with data contributors to provide data dictionaries for all current and proposed data files.
- LEAD will work with data contributors to provide business rules associated with edits, lookup criteria and source to target mapping to tables for ETL development.

GDAC will provide the following:

- Recommendations for improving proposed table layouts.
- Database Schema detailing data elements, relationships, inputs and outputs mapped to Standard Operating Procedures.
- A segmented data model where CFS information and tables are restricted to approved users under defined data governance rules.
- A relational database reflecting the agreed upon tables, populated with data migrated from the source data files provided by LEAD.
- An environment, with secure logon access, through which the relational database can be accessed by LEAD staff to run queries, create intermediate working tables, and extract record-level or summary data back to their workstations for further analysis.
- A developed relational data base structure including tables for each data source and/or contributor.

CFS staff and GDAC will collaborate on developing the following:

- Develop ETL (including code) for loading existing and proposed data files into relational database tables, based on the agreed upon table layouts and data edit procedures.
- Process for edit check reporting, review, and approval for ETL.
- Business Requirements Documentation
- Data Element Definitions will be developed, created, documented and utilized to develop the overarching data schema and architecture.

## **Project Timeline**

The LEAD staff and GDAC staff have been meeting, developing and reviewing a proposed project timeline for the implementation of the new CFS within the GDAC environment. The following timeline outlines the proposed schedule of high level tasks to be completed. LEAD and GDAC staff will continue to refine the timeline as the project progresses.

<b>Proposed CFS Enhancement Project Timeline</b>	
<b>Project Milestone</b>	<b>Target Date (mm/dd/yyyy)</b>
Project Initiation	10/27/2014
Project Charter Approval	02/06/2015
Project Gate 1 Approval	02/16/2015
Business and Technical Requirements Approved	04/28/2015
Complete Data Architecture Design	05/12/2015
Data and Platform Migration	05/21/2015
Complete Software Development	08/13/2015
Complete Solution Simulation and Testing	09/25/2015
Deploy Solution	10/12/2015
Project Complete Sign-off	10/15/2015
Project Closure	11/15/2015

## **Project Budget**

The Department of Commerce intends to utilize both state appropriated funds and federal WDQI grant funds to carry out the development of the new infrastructure and transfer of information from the CFS into the GDAC. The GDAC staff is currently working with the GDAC Vendor Contractor (SAS) to define the number of hours, staff resources and technology resources needed to complete the project.