Enterprise Data Governance (EDG) Initiative Quarterly Report

As Required by Rider 216

Article II, HHSC, 2018-19

General Appropriations Act

September 2019
Table of Contents

1. Overview .................................................................................................................. 1

2. Plan and Strategy ........................................................................................................ 2
   2.1. Detailed Plan ........................................................................................................ 2
   2.2. Detailed Strategy ............................................................................................... 6

3. Accomplishments ....................................................................................................... 12
   3.1. Accomplishments and Risks by Activity Track ............................................... 12

4. Expenditures .............................................................................................................. 18
   4.1. Schedule of Expenditures and Actual Expenditures ...................................... 18
   4.2. Year-to-Date Expenditures ............................................................................ 20

5. Status ......................................................................................................................... 23

Appendix A. Glossary .................................................................................................... 1
1. Overview

The Health and Human Services Commission (HHSC) submits this report to the Legislative Budget Board and the Office of the Governor, State of Texas, as stipulated in Rider 216 of the 2018-19 General Appropriations Act (Article II, HHSC, 85th Legislature) regarding the development of an enterprise data governance program for health information:

“Enterprise Data Governance (EDG). Included in the amounts appropriated above in Strategy L.1.2, Information Technology (IT) Oversight & Program Support, is $6,740,700 in All Funds ($920,175 in General Revenue) in fiscal year 2018 and $6,420,700 in All Funds ($888,175 in General Revenue) in fiscal year 2019 for development and implementation of the Enterprise Data Governance project.

HHSC shall submit quarterly reports to the Legislative Budget Board and the Governor reflecting actual expenditures, cost savings, and accomplishments implementing the Enterprise Data Governance project. The report shall include a detailed plan for the project, a proposed schedule of expenditures, and the status of implementation for a comprehensive Medicaid focused Enterprise Master Data Management System, Metadata Repository, and Information Management Program. Additionally, the report shall include detailed strategies developed and implemented by HHSC to restrict the Enterprise Data Governance project to those items presented and approved by the Eighty-fifth Legislature, 2017.”
2. Plan and Strategy

2.1. Detailed Plan

The EDG project is operating on an approved implementation advance planning (IAPD) document through 2022, with annual gateway approvals from the Centers for Medicare and Medicaid Services (CMS). The EDG team identified, and CMS approved, five project tracks to implement the overall Medicaid-focused EDG solution. Each track is composed of a set of phases. All five tracks will persist beyond the biennium.

Below are the project plans and approach details for each of the five EDG project tracks:

- Data and information management track (DIM)
- Data quality and standards track (DQS)
- Metadata and reference data management track (MRDM)
- Data architecture track
- Data and information controls track (DIC)

**Data and Information Management Track**

The purpose of the DIM track is to implement an enterprise master data management (MDM) system for use across the Health and Human Services (HHS) system.

Key functions of the MDM system are as follows:

- **Data Acquisition:** This capability acquires data from various sources containing similar data sets.
- **Data Standardization:** This capability ensures that master data records conform to the data standards adopted by the EDG Council.
- **Data Mastering and Data Governance:** Data mastering includes data matching, merging, and retaining relevant information from various systems to form a single version of a matched record. Identity resolution across source systems requires data governance—the activity of an organizational structure that guides the alignment and implementation of enterprise data management policies and processes.
• **Data Publishing:** Master records need to be integrated with HHS systems and data-driven business processes. The data publishing capability allows for the integration of golden records (single well-defined version of all the data entities within the enterprise) as needed by existing processes in HHS.

**Overall Solution**

Implement a Medicaid-focused MDM system. MDM is the organization, management, and distribution of adjudicated high-quality information that is widely used in the organization. The DIM track encompasses the implementation of a Medicaid-focused HHS system that manages data and information for internal use. Primary among these is the system that creates and manages mastered domain data, the HHS insights platform.

Use the MDM layer as a hub to measure, manage, and increase data quality in critical HHS data systems.

**Data Quality and Standards Track**

The quantitative measurement of data quality is imperative to making improvements. The DQS track ensures that the HHS system can measure the data quality within key HHS systems and make recommendations to improve data quality through the creation and application of data standards. Continuous monitoring of data quality within mastered data domains is an integral part of the EDG program.

**Overall Solution:**

EDG’s data-quality process includes the following key components:

- Data profiling
- Data remediation
- Data monitoring

Collectively, the key components of the data-quality process are cyclical and will have to be repeated when profiling and remediating data quality issues for any given system.

DQS will include profiling data sets to identify data anomalies and issues that may adversely affect business processes. The DQS track is divided into four phases to ensure the measurement of data quality for all Medicaid systems. Systems that were prioritized on the Medicaid Information Technology and Architecture (MITA)
roadmap will be added to each DQS phase, and each phase will deliver key capabilities for these systems.

**Metadata and Reference Data Management Track**

Metadata refers to the data within the HHS system that provides information about data and information elements. Systems typically use reference data (such as county codes, region codes, and International Classification of Diseases (ICD)-10 codes) for context.

Metadata and reference data for systems within HHS are generally inconsistent and do not conform to any HHS data-management standards. This lack of metadata and reference data standards often becomes evident during data integration or data consolidation, and results in poor data quality in reports and poor system alignment.

The MRDM track alleviates the challenges arising from different standards, definitions, and reference codes by:

- collecting information from different systems;
- storing that information in a centralized repository (a metadata repository and reference data management repository); and
- governing the creation, use, and maintenance of such data using EDG policies and processes.

Metadata management activity falls into three broad categories:

**Collect:** The collection of metadata/reference data from transactional systems includes the capture of changes to existing metadata/reference data. During the implementation phase of the project, HHS intends to collect all relevant business and technical data, and reference data.

**Govern:** Governance is the activity in which data stewards will analyze the collected metadata/reference data to identify discrepancies and recommend standards for adoption. The EDG Council determines the priority given to metadata/reference data domains required by Medicaid systems and CMS-approved Medicaid projects on the MITA roadmap.

**Store/Publish:** This activity allows the storage and publication of metadata/reference data sets. Storage serves the important function of a “hub” for metadata/reference data domains. Project scope includes implementing the solutions that ensure the EDG Council can govern reference data using a single interface.
Overall Solution

Implement a data asset repository (DAR) to collect comprehensive data-asset information across HHS (as mandated by Sunset Advisory Commission report, July 2015, Issue 7). A data asset is any kind of information that contains valuable records. It can be a database, a document, or any type of information managed as a single set. Large HHS systems generally comprise multiple types of data assets, which are usually migrated as a logical set, when systems are modernized or replaced. Ensure ease of accessibility and updated access for HHS data subject matter experts to the DAR. Ensure data assets, technical, and business metadata are widely available, searchable, and viewable in a browser. Where possible, technical and business metadata created within other tracks should be linked to quality metadata.

In addition, implement a technical metadata repository to create visibility of HHS system-data models and provide search capabilities within system entities and attributes.

Data Architecture Track

Data architecture is a key EDG competency that is beneficial in identifying and maintaining data and information assets within the HHS system. The primary goal of data architecture is to ensure key Medicaid-focused data domains are identified, defined, and managed appropriately within the HHS system. Additionally, this track is responsible for creating and maintaining a logical data architecture that aligns with the Texas HHS business architecture as referenced through the MITA framework. As a result, activity within this track aligns closely with MITA to identify improvements in data architecture that will affect business processes.

Overall Solution

Develop and implement data governance processes to increase HHS competence and maturity in enterprise information management. Integrate governed HHS reference data and data quality metrics into MDM tools as the project deploys in HHS under the guidance of EDG Council and EDG Steering Committee. Implement reference data standards for HHS that data stewards, who must be able to explain the utility of data beyond their program area, can use. Data analysts and business interface designers can employ reference data mapped to the HHS system standard to standardize analytic output. Operational system architects and portfolio managers can use the same reference standards to provide long-term HHS system alignment and interoperability goals to their operational systems as they are maintained or replaced.
Data and Information Controls Track (DIC)

The DIC track of the EDG program serves two basic purposes. First, it helps in managing the EDG program by clearly understanding the increased efficiencies associated with the program through the identification, definition, creation, and implementation of various controls and metrics required. Further, it helps in identifying and monitoring various data controls like data security and data access for key data domains identified as part of the EDG program.

Overall Solution

Leverage the decision structure of the EDG Council to prioritize the creation of widely accepted data-quality metrics. Utilize existing workgroups to adopt access and publication standards. Inform EDG Council of version roadmap options for implemented applications.

2.2. Detailed Strategy

This section details the strategies developed and implemented by the HHS system under the five identified project tracks.

Data and Information Management Track (DIM)

Previously Delivered (fiscal year 2016-17):

- Designed and implemented release 1 and release 2 of the HHS Insights platform, creating tools and processes that provide the capability to identify, resolve, and harmonize critical provider and member identities across multiple HHS systems. HHS insights platform is the name of HHS system’s MDM platform.
- Created policies, processes, and standards to establish master data records and manage mastered identity data within member and provider data domains.
Expected Outcomes (fiscal year 2018-19):

(See Section 3 for accomplishments linked to this track).

- Create measurement tools, define processes, and ensure that people (data stewards) are coordinated for management of provider and member master data.
- Improve data quality of provider and member identity and critical attribution, with price of non-conformance valued directly within business processes that depend on the attribution.
- Increase visibility of providers and members as they enter, exit, and move between agency programs.

Data Quality and Standards Track (DQS)

Previously Delivered (fiscal year 2016-17):

- Data profiling of eight HHS data sources within data acquisition processes for the HHS Insights Platform, which allows automated measurement of critical data quality by source. The eight data sources are:
  - Texas Integrated Eligibility Redesign System
  - NorthSTAR
  - Compass21
  - MAXIMUS
  - NE Provider
  - Vendor Drug Program
  - Client Assignment and Registration System Operational Data Store
  - Premiums Payable System
- Defined identity exception processes and training content for use by subject matter experts, and future data stewards, in order to allow manual decisions regarding unresolved identity duplication.

Expected Outcomes (fiscal year 2018-19):

(See Section 3 for accomplishments linked to this track).

Increasing HHS data quality requires tools, processes, and human resources—all working together. The MDM tools implemented in previous phases are operational. During federal fiscal year 2019, new data-quality processes (with the exception of management and data quality measurement) will leverage MDM tools. Existing business processes to perform data quality and metadata management tasks will
utilize embedded data stewards, using the capabilities now available on the HHS insights platform. The EDG Council will publish a set of data-quality metrics and standards to provide guidance to HHS system data stewards in this biennium.

- Select and adopt critical data-quality metrics for provider attribution, member attribution, and operational source data quality (EDG program staff to propose list for adoption by the EDG Council). These could include (but are not limited to):
  - Percentage of data assets by departmental area with no identified business owner.
  - Trended measures of identity data quality (e.g. percentage of members by program with unresolvable physical addresses).
  - Trending of managed care encounters (by managed care organization (MCO), by service type) with known defects.
- In conjunction with identified data stewards (embedded within Center for Analytics and Decision Support, Medicaid/Children’s Health Insurance Program, and Access and Eligibility Services) design dashboards within the HHS insights platform that are capable of tracking and trending critical data-quality metrics with defined relationships to business goals.

**Metadata and Reference Data Management Track (MRDM)**

**Previously Delivered (fiscal year 2016-17):**

- Initial implementation of DAR was published for data entry and browsing via Microsoft SharePoint.
- Initial implementation of HHS metadata repository to store and browse technical metadata and HHS system data model (within informatica metadata manager).
- Technical system metadata and updated data models for 27 major HHS systems readily available via a single, trusted location in the HHS metadata repository.
- Change management processes and policies defined with the EDG Council’s support to establish an effective change management framework to collect source system metadata changes to support the continuous updating of the HHS metadata manager and DAR by data asset owners and subject matter experts.
Expected Outcomes (fiscal year 2018-19):

(See Section 3 for accomplishments linked to this track).

- During fiscal year 2019, the EDG Steering Committee will refactor the EDG Council to reflect the major organizational changes within HHS that have taken place between August 2016 and September 2017. In particular, the EDG Council will have representation on all HHS IT governance councils, and will be creating project-oriented, cross-functional workgroups to address issues of data management and data quality.

- High completion rate of fully described HHS data assets by agency and departments as measured and tracked by DAR scorecards on SharePoint. (Sunset Report Issue 7 specifically mandates this data asset management.)

- Acquire technical system metadata and updated data models for all major HHS systems to be held at a trusted and secure location.

- Implement change control processes to govern reference data collection from source systems within HHS, and update or replace system metadata at appropriate times in development lifecycles. (This will require communication and coordination between the EDG Council and HHS IT staff.)

- Refresh and enhance the technical metadata from all major HHSC Medicaid source systems.

Data Architecture Track

Previously Delivered (fiscal year 2016-17):

In previous phases during fiscal year 2016-17, the EDG project identified, and the EDG Council approved, two critical data domains largely based on their impact on MITA—member and provider. The EDG team, in collaboration with the EDG Council and HHS subject matter experts, has previously completed various EDG activities for each of these domains. These include:

- Providing an easily understood definition for both member and provider data domains.
- Identifying attributes that will help uniquely identify Medicaid member and provider records across disparate systems within HHS.
- Collecting metadata and related reference data (for 27 HHS systems) for member and provider domains.
Expected Outcomes (fiscal year 2018-19):

(See Section 3 for accomplishments linked to this track).

- Re-charter a cross-functional EDG Council and create data governance workgroups. The EDG Steering Committee may invite state agency partners outside the HHS system that share major data exchange processes with the HHS system (e.g. Department of Family and Protective Services for foster care processes in Medicaid) as ex officio participants in the EDG Council.
- Create policies and procedures for governed reference data and governed master data.
- Publish governed reference values within HHS insights (the MDM hub discussed within DIM on page 5).
- Establish data stewardship as a practice within HHS business processes.
- Identify low utility, duplicate, or irrelevant data interfaces and exchanges.
- Identify high-value, trusted interfaces and exchanges, and promote their re-use.
- Create and maintain a logical data architecture that aligns with the HHS business architecture as referenced through the MITA framework. As a result, data architecture within EDG will work very closely with the MITA team to identify business processes that data architecture will affect.
- Develop the EDG program in partnership with the new IT governance model to determine critical areas of the HHS information architecture as related to previous MITA information architecture deliverables, including the 2015 state self-assessment.
- Create enterprise conceptual and logical enterprise models for identity and reference data in these domains using the established definitions of “member” and “provider”, as well as previously collected system metadata.
- EDG Council working groups will use additional standards for technical architecture documentation to further establish data management alignment across IT governance processes. These include data modeling and data dictionary standards, change management notification, and data stewardship reporting processes.
- The EDG Council will adopt recommendations for uses of published member and provider “best version of the truth” records to an Oracle repository. Once implemented, this repository will allow data analysts and system operations subject matter experts’ mass access to mastered records. HHS envisions this data structure and/or services architecture as the foundation for subsequent HHS projects that will enable HHS system analytics. Data exchange processes can use this repository as a key component to improve data quality of member and provider identity and attribution within existing HHS operational systems.
Data and Information Controls Track

Previously Delivered (fiscal year 2016-17):

Not applicable. This track began in federal fiscal year 2018.

Expected Outcomes (fiscal year 2018-19):

(See Section 3 for accomplishments linked to this track).

- The EDG Council will engage in a partnership-planning model with IT Governance, the Office of the Chief Technology Officer—and others within the Office of the Chief Information Officer, to define critical metrics of success for the EDG program.

Additionally, the EDG Council will adopt policies and procedures that govern:

- Access to the HHS master data repository (MDR) and associated metadata repositories. The HHS MDR and associated metadata repositories were previously developed and implemented in other tracks and will be expanded throughout fiscal year 2018-19.
- Adoption of reference code standards for analytic use.
- Authorization of standard reference values (previously adopted) for use in standardization of HHS system analytics. (This creates standards that will specify several fundamental requirements for a future HHS system analytic strategy.)
- Update of the Informatica tools to use reference data management (RDM) data-governance workflow capabilities (which are available within Informatica 10.3.)
3. **Accomplishments**

Accomplishments for the EDG project reported below are within the defined categories of activities associated with that project.

### 3.1. Accomplishments and Risks by Activity Track

**Data and Information Management Track (DIM)**

**Accomplishments:**

- Profiled and managed provider data sources using data profiling and data scorecard tools on six incoming provider interface files (from the enrollment broker), Compass 21 (from TMHP), NE Provider, and other provider sources acquired for master data integration.

- Completed profiling member data in the Texas Integrated Eligibility Redesign System (TIERS) and the Client Assignment and Registration (CARE) system.

- Established a framework for data stewardship to be used in training HHS data stewards. This includes specific tools and processes to be employed by operational data stewards in business areas. Data stewards profile and manage provider data sources as master records, which are stored in the MDM solution.

**Risks:**

- *Delay in establishment of a re-chartered EDG Council may delay data stewardship training and socialization processes.* The EDG Executive Steering Committee has been meeting and is near charter adoption. However, the EDG Council, where most data governance workgroup activity will occur, has not yet been re-configured. Ideally, data stewards would work directly with business processes to define and remediate non-conforming data attributes. The data stewards working within the EDG program are ready to train partners in the business areas that are identified by the EDG Council. However, delay in re-chartering the EDG Council will likely delay the start beyond the next quarter. Prior to EDG Council re-chartering, the EDG core team will prepare a proposal for implementation of data stewardship processes in specific
program areas in order to foster early business adoption. This will include a job description template, will highlight benefits of implementing data quality processes in business areas, and will begin socialization of identified data stewards (using new tools and processes).

- *Delay in IT/EDG partnership planning activity.* The EDG program has not begun engaging in a partnership planning model with IT Governance, the Office of the Chief Technology Officer, and others within the Office of the Chief Information Officer to define critical metrics of success for EDG (beyond the program’s already established business use cases). The onboarding of a new CIO and CTO in fiscal year 2019 may trigger changes in existing IT Governance processes; and the EDG Council must be available to help coordinate data-management processes. This activity is unlikely to be completed in this fiscal year but is likely to redefine duties and responsibilities under Circular 049, Office of the Chief Data Officer. *Planned Mitigation:* In advance of the EDG Council re-chartering, the EDG Executive Steering Committee, the Chief Data and Analytics Officer, and staff from the Office of the CIO can begin a new draft of Circular 049 to ensure that duties and responsibilities are congruent with any planned changes to the HHS IT Governance model.

**Data Quality and Standards Track (DQS)**

**Accomplishments:**

- Developed a prototype using the Business Objects Universe tool to measure data-quality improvement trends in the MDM system over time.

- Completed implementation in five sprints focused on infrastructure development for data quality measurements, application development in MDM, and resolution of quality issues in provider attribution data.

**Risks:**

- *Delay in the establishment of the EDG Council may delay identification of business requirements related to data-quality definition.* The EDG Executive Steering Committee has been meeting and is near charter adoption. However, the EDG Council, where most data governance workgroup activity will occur, has not yet been re-chartered. Ideally, data stewards would work directly within business processes to identify and remediate data-quality issues. Data stewards working within the EDG program are prepared to train partners in business areas that are identified by the EDG Council. However, delay in chartering the EDG
Council will likely delay the start beyond the next quarter. 

*Planned Mitigation:* In advance of EDG Council re-chartering, the EDG core team plans to help business partners develop data-quality requirements and use existing data quality tools and processes. Prior to EDG Council re-chartering, the EDG core team will prepare a proposal for implementation of data stewardship processes in specific program areas in order to foster early business adoption. This will include a job description template, will highlight benefits of implementing data quality processes in business areas, and will begin socialization of identified data stewards (using new tools and processes). The EDG core team has previously identified analysts in business areas who can be important contributors to data quality measurement and data management improvement. Some of these analysts are already doing some data management tasks. The EDG core team will partner with early adopters to increase their data management capability with standard tools.

**Metadata and Reference Data Management Track (MRDM)**

Accomplishments:

- The EDG program adopted a maturity framework to score the metadata maturity of a given data asset. This framework will result in a dashboard of measures related to metadata maturity, to provide standards maturity goals. In future quarters, this dashboard will help direct the EDG Council to target HHS human resources needed to improve metadata within those data assets most closely linked to strategic priorities.

- The Metadata Repository supports discovery and user-directed browsing of HHS metadata and data models in a single standard user-interface. In this quarter, the EDG program added or enhanced technical and business metadata from the following major systems:
  - Long Term Care (LTC) Claims Management System (CMS)
  - System of Contract Operation and Reporting (SCOR)
  - Provider Management Database (PMDB)
  - HHS Enterprise Administrative Record Tracking (HEART)

- The DAR supports discovery and user-directed browsing of HHS data assets for all users via SharePoint. In this quarter, the EDG program added the following three major assets to the DAR:
  - Community Health Clinic Locator (CHCL)
  - Medical Transportation System (MTP)
Clinical Management for Behavioral Health Services (CMBHS)

Risks:

- Delay in EDG Council formation is delaying user adoption of implemented tools. Metadata repository and metadata browsing are important capabilities that enable analytic and operational understanding of data assets. They are also foundational for well-designed analytic architectures. The EDG team should be reliant on a regularly functioning EDG Council to direct onboarding and training to areas of greatest expected benefit.

**Planned Mitigation:** Several CADS users have been on-boarded to use these tools, but they are relevant to many other business and IT processes also. This on-boarding will be expanded to all CADS SMEs involved in analytics processes in the next reporting period. Training and on-boarding will then be offered to any other HHS analytics units (outside CADS) who also need access to agency metadata. Outreach materials and processes for activities related to onboarding have been created and are ready for use.

**Data Architecture Track (DA)**

Accomplishments:

- The EDG team has implemented a published master provider data structure. This provides an initial “best version of the truth” record set to an Oracle repository. Data exchange processes can now use this data as a key component to improve provider data quality in operational and analytic systems. Official adoption and further development of published master provider data awaits EDG Council activity in future quarters.

- The EDG team completed participation in business process meetings associated with the MITA State Self-Assessment and partnered with the data architects in the HHS Office of the CTO in formation of a data management strategy for the MITA Information Architecture plan.

**Risks:** Delay in EDG Council re-factoring may delay full adoption of data architecture plans: Many of the EDG team work-products that have been developed (including strategic plans, conceptual and logical models, proposed data management processes, data control standards, etc.) are awaiting adoption by an operative EDG Council. Although the EDG Executive Steering Committee has been formed and is nearing charter adoption, the workgroups within the
EDG Council may not form soon enough to officially adopt these work products within fiscal 2019.

*Planned Mitigation:* The EDG team will finalize all work-products that require adoption, vet these with the Chief Data and Analytics Officer and others in the Office of Performance, and propose a priority ranking for discussion and adoption that the EDG Council may act upon as soon as it is chartered.
Data and Information Controls Track (DIC)

Accomplishments:

- Upgraded all Informatica environments to version 10.3 to provide increased data governance workflow and reference data capabilities.
- Provisioned the initial set of data quality, Provider Master Data repository and HHS Metadata Repository users via the HHS enterprise portal.

Risks:

Member master data processes: Much progress has been made in publishing mastered provider data for HHS use. However, publication of mastered member records will be more complex. Obstacles include high data volume and high rates of change for member records. Business value for master member data remains high and is linked to the PMAS initiative for a future analytic architecture.

Planned Mitigation: The EDG core team will meet with Access and Eligibility Services and the PMAS planning team to vet proposed requirements for retention of member master history. Sprints in the next quarter and in 2020 are being planned to segment member history, to dispose of MDM exception backlogs where appropriate, and to widen member attribution to support existing member data analytic use cases.
4. Expenditures

4.1. Schedule of Expenditures and Actual Expenditures

The table below provides the schedule of expenditures (forecast), actual expenditures (expended), and remaining balance for the fiscal year 2018-19 biennium.

Rider 216 - Quarterly Reporting - EDG

For the FY2019 4th Quarter

Capital Expenditures as of July 31, 2019
### Table 1 - Enterprise Data Governance

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### Table 2 - Enterprise Data Governance Appropriated Funds

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<td>Total</td>
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4.2. Year-to-Date Expenditures

The table below provides year-to-date budget and expenditures for EDG initiatives.

Year-to-Date Budget & Expenditures

Budget and Expenditures as of *July 31, 2019*

**Table 3 - Adjusted Appropriated Funds with MOF**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Revenue</td>
<td>$318,257</td>
<td>$2,601,088</td>
<td>$207,894</td>
<td>$10,352,835</td>
<td>$4,263,565</td>
<td>$6,297,166</td>
<td>$920,175</td>
<td>$888,175</td>
</tr>
<tr>
<td>Federal Funds</td>
<td>$2,853,399</td>
<td>$16,928,199</td>
<td>$1,719,440</td>
<td>$44,351,851</td>
<td>$31,247,878</td>
<td>$36,224,116</td>
<td>$5,820,525</td>
<td>$5,532,525</td>
</tr>
<tr>
<td>Total</td>
<td>$3,171,656</td>
<td>$19,529,287</td>
<td>$1,927,334</td>
<td>$54,704,686</td>
<td>$35,511,443</td>
<td>$42,521,282</td>
<td>$6,740,700</td>
<td>$6,420,700</td>
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</table>
### Table 4 - Expenditures by LBB OOE

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>2001 - Professional Fees and Services</td>
<td>$1,098,798</td>
<td>$574,463</td>
<td>$1,054,886</td>
<td>$3,064,902</td>
<td>$4,213,606</td>
<td>$2,619,899</td>
<td>$1,797,032</td>
<td>$2,404,662</td>
</tr>
<tr>
<td>2003 - Consumable Supplies</td>
<td>-</td>
<td>-</td>
<td>$68</td>
<td>$53</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2004 - Utilities</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$34,890</td>
<td>$35,262</td>
<td>$26,643</td>
</tr>
<tr>
<td>2007 - Rent - Machine and Other</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$2,545,405</td>
<td>$832,773</td>
<td>$51,695</td>
</tr>
<tr>
<td>2009 - Other Operating Expense</td>
<td>$</td>
<td>-</td>
<td>$788</td>
<td>$88,917</td>
<td>$678,415</td>
<td>$53,476</td>
<td>$3,810,236</td>
<td>$2,201,827</td>
</tr>
<tr>
<td>5000 - Capital Expenditures</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$5,500,000</td>
<td>-</td>
<td>$</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>$1,098,798</strong></td>
<td><strong>$575,251</strong></td>
<td><strong>$1,143,871</strong></td>
<td><strong>$9,243,370</strong></td>
<td><strong>$4,267,082</strong></td>
<td><strong>$5,200,193</strong></td>
<td><strong>$2,665,067</strong></td>
<td><strong>$2,483,000</strong></td>
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</tbody>
</table>

### Table 5 - MOF on Expenditures

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>EDG - General Revenue</td>
<td>109,880</td>
<td>57,643</td>
<td>127,769</td>
<td>1,851,120</td>
<td>456,845</td>
<td>789,440</td>
<td>463,240</td>
<td>317,014</td>
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<tr>
<td>EDG - Federal Funds</td>
<td>988,918</td>
<td>517,608</td>
<td>1,016,102</td>
<td>7,392,249</td>
<td>3,810,236</td>
<td>4,410,753</td>
<td>2,201,827</td>
<td>2,165,986</td>
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<tr>
<td><strong>sub-total EDG</strong></td>
<td><strong>1,098,798</strong></td>
<td><strong>575,251</strong></td>
<td><strong>1,143,871</strong></td>
<td><strong>9,243,370</strong></td>
<td><strong>4,267,082</strong></td>
<td><strong>5,200,193</strong></td>
<td><strong>2,665,067</strong></td>
<td><strong>2,483,000</strong></td>
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</table>
### Table 6 - Outstanding Encumbrances

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>General Revenue</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$23,426</td>
<td>$264,724</td>
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<tr>
<td>Federal Funds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$653</td>
<td>$1,315,408</td>
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<tr>
<td>Total</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$24,079</td>
<td>$1,580,132</td>
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### Table 7 - Informational Dollars (non-capital)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>General Revenue</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$113</td>
<td>$ -</td>
<td>411</td>
<td>2,303</td>
<td>-</td>
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<tr>
<td>Federal Funds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$1,021</td>
<td>$ -</td>
<td>411</td>
<td>13,125</td>
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<tr>
<td>Total</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$1,135</td>
<td>$ -</td>
<td>822</td>
<td>15,428</td>
<td>-</td>
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</tbody>
</table>
## 5. Status

### Table 8 - EDG Implementation Phase

<table>
<thead>
<tr>
<th>Project Milestones</th>
<th>Planned Start Date mm/dd/yyyy</th>
<th>Actual Start Date mm/dd/yyyy</th>
<th>Planned Finish Date mm/dd/yyyy</th>
<th>Actual Finish Date mm/dd/yyyy</th>
<th>Percentage Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDG Implementation Phase:</td>
<td>04/06/2015</td>
<td>08/20/2015</td>
<td>03/31/2022</td>
<td>-</td>
<td>61%</td>
</tr>
</tbody>
</table>
### Table 9 - Medicaid Focused Enterprise Master Data Management System

<table>
<thead>
<tr>
<th>Project Milestones</th>
<th>Planned Start Date mm/dd/yyyy</th>
<th>Actual Start Date mm/dd/yyyy</th>
<th>Planned Finish Date mm/dd/yyyy</th>
<th>Actual Finish Date mm/dd/yyyy</th>
<th>Percentage Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data and information management Phase 1 – EMDM member/provider select systems with limited capabilities</td>
<td>04/06/2015</td>
<td>08/20/2015</td>
<td>08/31/2016</td>
<td>08/31/2016</td>
<td>100%</td>
</tr>
<tr>
<td>Data quality and data standards Phase 1 – metric definition, implement solution, and profiling</td>
<td>04/06/2015</td>
<td>08/20/2015</td>
<td>08/31/2016</td>
<td>08/31/2016</td>
<td>100%</td>
</tr>
<tr>
<td>Data and information management Phases 2-4</td>
<td>05/01/2016</td>
<td>09/22/2016</td>
<td>03/31/2022</td>
<td>-</td>
<td>57%</td>
</tr>
<tr>
<td>Data quality and data standards Phases 2-4</td>
<td>07/01/2017</td>
<td>09/22/2016</td>
<td>03/31/2022</td>
<td>-</td>
<td>55%</td>
</tr>
<tr>
<td>Project Milestones</td>
<td>Planned Start Date mm/dd/yyyy</td>
<td>Actual Start Date mm/dd/yyyy</td>
<td>Planned Finish Date mm/dd/yyyy</td>
<td>Actual Finish Date mm/dd/yyyy</td>
<td>Percentage Complete</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------</td>
<td>-------------------------------</td>
<td>--------------------------------</td>
<td>-------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Metadata management phase 1 – collect and publish metadata for various systems</td>
<td>04/06/2015</td>
<td>08/20/2015</td>
<td>02/28/2017</td>
<td>02/28/2017</td>
<td>100%</td>
</tr>
<tr>
<td>Metadata management phase 2 – implement change control process</td>
<td>05/04/2015</td>
<td>10/15/2015</td>
<td>02/28/2017</td>
<td>02/28/2017</td>
<td>100%</td>
</tr>
<tr>
<td>Reference data management phase 3</td>
<td>01/01/2018</td>
<td>10/01/2018</td>
<td>09/29/2020</td>
<td>-</td>
<td>42%</td>
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</tbody>
</table>
## Table 11 - Information Management Program

<table>
<thead>
<tr>
<th>Project Milestones</th>
<th>Planned Start Date mm/dd/yyyy</th>
<th>Actual Start Date mm/dd/yyyy</th>
<th>Planned Finish Date mm/dd/yyyy</th>
<th>Actual Finish Date mm/dd/yyyy</th>
<th>Percentage Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data architecture phase 1</td>
<td>01/01/2017</td>
<td>07/16/2018</td>
<td>07/13/2020</td>
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<td>52%</td>
</tr>
<tr>
<td>Data and information control phase 1</td>
<td>03/04/2019</td>
<td>03/04/2019</td>
<td>03/31/2020</td>
<td>-</td>
<td>38%</td>
</tr>
<tr>
<td>Data architecture phase 2</td>
<td>04/02/2020</td>
<td>-</td>
<td>03/31/2022</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>Data and information control phase 2</td>
<td>04/04/2019</td>
<td>04/04/2019</td>
<td>03/31/2022</td>
<td>-</td>
<td>11%</td>
</tr>
</tbody>
</table>
## Appendix A. Glossary

<table>
<thead>
<tr>
<th>Term/Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY</td>
<td>Assessment Year</td>
</tr>
<tr>
<td>CMS</td>
<td>Centers for Medicare and Medicaid Services</td>
</tr>
<tr>
<td>DAR</td>
<td>Data Asset Repository</td>
</tr>
<tr>
<td>DIC</td>
<td>Data and Information Controls</td>
</tr>
<tr>
<td>DIM</td>
<td>Data and Information Management</td>
</tr>
<tr>
<td>DQS</td>
<td>Data Quality and Standards</td>
</tr>
<tr>
<td>EDG</td>
<td>Enterprise Data Governance</td>
</tr>
<tr>
<td>EMDM</td>
<td>Enterprise Master Data Management</td>
</tr>
<tr>
<td>FY</td>
<td>Fiscal Year</td>
</tr>
<tr>
<td>HHS</td>
<td>Health and Human Services</td>
</tr>
<tr>
<td>HHSC</td>
<td>Health and Human Services Commission</td>
</tr>
<tr>
<td>IAPD</td>
<td>Implementation Advance Planning Document</td>
</tr>
<tr>
<td>IAPD-U</td>
<td>Implementation Advance Planning Document Update (Federal)</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>LBB</td>
<td>Legislative Budget Board</td>
</tr>
<tr>
<td>MDM</td>
<td>Master Data Management</td>
</tr>
<tr>
<td>MITA</td>
<td>Medicaid Information Technology and Architecture</td>
</tr>
<tr>
<td>MRDM</td>
<td>Metadata and Reference Data Management</td>
</tr>
<tr>
<td>RDM</td>
<td>Reference Data Management</td>
</tr>
</tbody>
</table>