

# OCAAT Qlik® Reports Design

**Provided to:**

**CalSAWS Consortium**

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**Cambria**  
Solutions 

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## Documents Revision Table

Version	Date	Author	Rationale
1.0	08/02/2020	Cambria Solutions	Original submission of the draft reporting design using Qlik®.
2.0	08/05/2020	Cambria Solutions	Revisions based on Consortium feedback
3.0	08/06/2020	Cambria Solutions	Revisions based on Consortium feedback.

# 1 Works Cited and References

## Citations

The following work has been cited in this document:

- [1] Qlik, "Accessibility," Qlik Technologies Inc., [Online]. Available: <https://www.qlik.com/us/trust/accessibility>. [Accessed 05 08 2020].

## References

Below are references and citations to tools, technologies, products, and services that are referenced in this document. These tools are not owned by Cambria Solutions and are referenced to provide context and detail necessary for this document.

**Table 1: Reference Information**

ID	Reference	Reference Source
1.	Qlik®/Qlik Sense®	<a href="https://www.qlik.com/us/">https://www.qlik.com/us/</a>
2.	ForgeRock®	<a href="https://www.forgerock.com/">https://www.forgerock.com/</a>
3.	AWS	<a href="https://aws.amazon.com/">https://aws.amazon.com/</a>
4.	Amazon Aurora	<a href="https://aws.amazon.com/rds/aurora/">https://aws.amazon.com/rds/aurora/</a>
5.	Amazon S3 buckets	<a href="https://docs.aws.amazon.com/AmazonS3/latest/dev/UsingBucket.html">https://docs.aws.amazon.com/AmazonS3/latest/dev/UsingBucket.html</a>
6.	Microsoft® Excel®	<a href="https://www.microsoft.com/en-us/microsoft-365/excel">https://www.microsoft.com/en-us/microsoft-365/excel</a>
7.	Adobe Acrobat PDF	<a href="https://acrobat.adobe.com/us/en/acrobat/features.html">https://acrobat.adobe.com/us/en/acrobat/features.html</a>

## 2 Qlik® Reports Design

To meet the Counties reporting needs, the Cambria team has completed a Proof of Concept and decided to utilize the CalSAWS enterprise reporting solution, Qlik®. This document describes the functional and system design for developing and implementing OCAT reports using Qlik Sense®.

Cambria agrees to work with Consortium on any updates needed to the RACI at no cost to implement OCAT's Qlik® reports.

Cambria will develop reports that allow the users to perform the following:

- ▶ View aggregate and detail report, including client-level information with a hyperlink/link back to OCAT
- ▶ Filter by County, Region, or Office
- ▶ Print Adobe Acrobat PDFs and export data to Microsoft® Excel® (and save as CSV)

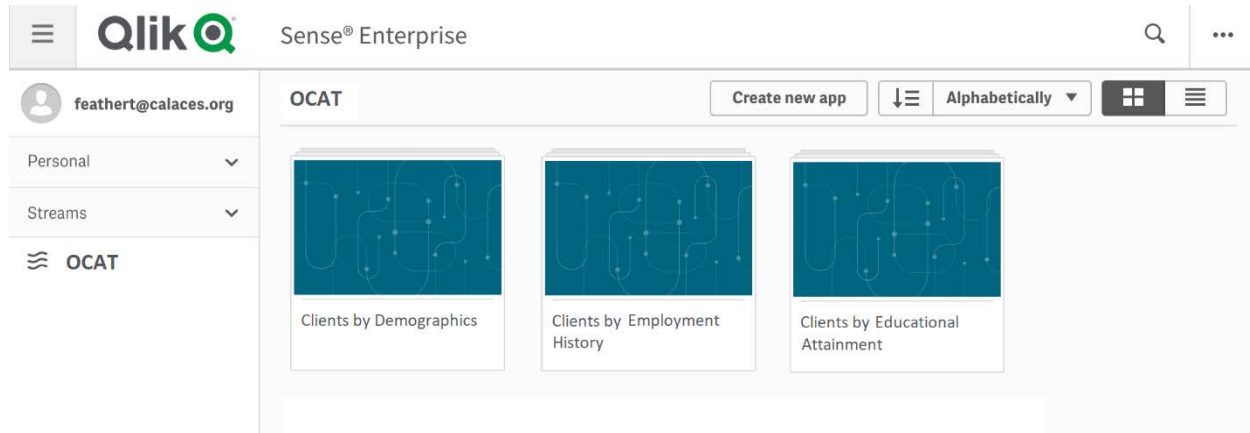
### 2.1 Functional Design

Cambria agrees that the use of Qlik® does not change the report requirements. Cambria will implement Qlik® reporting functionality for OCAT. However, Qlik® will not be used for the data extract solution.

There are 13 reports that will be developed in Qlik®, including the dashboard. This section provides information on the types of reports that will be available to users.

Users will be able to access the OCAT reports by selecting the Reports button on the global navigation bar in OCAT. A new window will open taking the user to the OCAT Stream in their Qlik® Hub, as seen in the figure below. The OCAT Stream will display reports based on the user's role and access in OCAT.

**Figure 1: OCAT Stream in Qlik®**



The following table displays the reports that will be available to users in Qlik®, resulting from design sessions with Counties. Users will be able to drill down in the aggregate reports to view Client-level detail information such as CIN, Case Number, Interview ID, and related interview information. The Qlik Report Specifications for these reports are included in Appendix A: Qlik Report Specifications, and provide descriptions for the elements for each report.

**Table 2: OCAT Reports in Qlik®:**

Name	Client Drilldown?	Client Linking?	Role
<b>Aggregate Reports</b>			
Clients by Demographics	Yes	Yes	All users
Clients by Educational Attainment	Yes	Yes	All users
Clients by Employment History	Yes	Yes	All users
Dashboard	Yes	Yes	All users
Participants by Barrier – Abuse	Yes	Yes	All users

Participants by Barrier – Health	Yes	Yes	All users
Participants by Barrier – Legal	Yes	Yes	All users
<b>Detail Reports</b>			
Administrative Report		No	Administrator
Appraisal Aging		Yes	All users
Appraisal Cancellation		Yes	All users
Appraisal Referral		Yes	All users
Appraisal Workload		Yes	All users
Audit Log Report		No	Administrator
Database Extract		No	Users with access to extract

OCAT is responsible for providing via ForgeRock APIs, the Consortium's Identity Provider Platform vendor with the authentication and authorization metadata to be used by Qlik®. Cambria is responsible for mapping the OCAT roles in Qlik to ensure the appropriate level of report access to users. The data elements required for user integration to the Qlik® reporting platform are:

- ▶ User Role – The user role determines the types of reports that can be accessed.
- ▶ County – The user's county restricts the user's access to information for their county. Statewide users can access information by county, or run statewide reports.

These user profile elements are included in the OCAT user provisioning pages and will be stored in ForgeRock® so that Qlik® can apply the correct privileges when accessing the Qlik® Hub (Landing page). OCAT stores an object for every user that is created via the ForgeRock API, Cambria is responsible for keeping a local representation of the

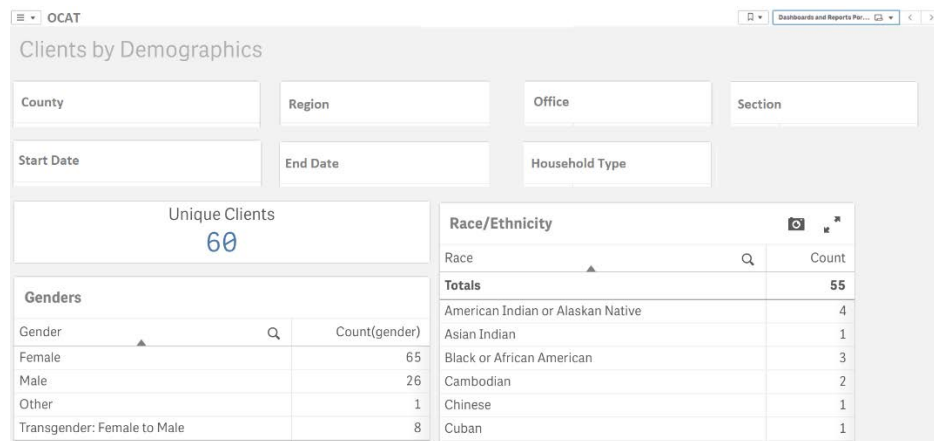
user and role and for sending these to ForgeRock. The user profile elements are listed in Appendix A: Qlik Report Specifications.

Once in the Qlik® Hub, the user will click on a report and based on their role and county, will be able to view data for their associated county or have the ability to select a county if they are statewide user.

In addition to the County filter, each report will have filters to allow users to view data at the Region, Office, and Section level. Aggregate reports, such as the mockup in the figure below, will include the Household Type filter as well. To view client-level details, users will navigate to a sheet within the report. The client-level details for each aggregate report are also defined in Appendix A: Qlik® Report Specifications.

The following figure shows a preliminary OCAT report developed in QlikSense®. Although general refinements are expected to be implemented, the assumption is that this example will be used as the template to design and develop the remaining OCAT reports.

**Figure 2: Report Mockup**



Within the Qlik® application, users will be able to print in Adobe Acrobat PDF format and export data to Excel and CSV formats.

### 2.1.1 ADA Compliance

Per the Qlik® website: Qlik Sense® Enterprise and Qlik Sense® Cloud have keyboard navigation, screen reader support, and chart-to-table flipping capabilities. Qlik aims to



meet accessibility regulations by applying the standards of WCAG 2.0 Level AA and Section 508 of the Rehabilitation Act [1].

Cambria will apply the above mentioned Qlik® ADA capabilities and standards to the OCAT reports, including:

- ▶ Color contrast
- ▶ Keyboard-only navigation, including ability to navigate and select filter options
- ▶ Screen reader can read all information in reports, filters, filter options, and tables
- ▶ Validate text and fields can be zoomed to 200% without overlapping

## 2.2 Infrastructure Design

Adding the Qlik Sense® reports service hosted in the CalSAWS AWS to the OCAT application requires some changes to the OCAT AWS infrastructure. The basis of the infrastructure design is to create a private connection between the Qlik Sense® Virtual Private Cloud (VPC) and the OCAT data VPC to enable OCAT to replicate the Amazon Aurora database to the CalSAWS Data Lake. This connection is similar in design to the connections used between CalSAWS and OCAT for private interfaces.

To enable the private connection to the OCAT data store, these OCAT infrastructure and data services are needed:

- ▶ AWS Network Load Balancer
- ▶ AWS OCAT VPC Endpoint Service
- ▶ AWS Database Service Account

The network load balancer and endpoint service are used to create a private connection between the OCAT data VPC and CalSAWS Qlik® VPC. The endpoint service is created by OCAT and the CalSAWS account subscribes to the service from the Qlik® VPC. Once the connection is established, OCAT will replicate the tables into the CalSAWS data lake (in its current identical design and layout).

These infrastructure components will be used to support the OCAT environments in Table 3: Qlik® Dependencies

with each environment using separate infrastructure contained in its AWS account.

### 2.2.1 CalSAWS Design and Implementation

Cambria will include the design details in deliverable #14, as defined in the amendment:

<b>14</b>	<b>OCAT Reports Design</b>  CONTRACTOR shall provide to CONSORTIUM an OCAT Reports Design document that addresses the designs, extract types, and functions for all reports.  Contractor shall submit the OCAT Reports Design document within the timeframe specified in the revised Schedule contained in Attachment 1.
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## 2.2.2 OCAT Environments

The table below defines OCAT Qlik Sense® environments, and other necessary provisioning and the provision due dates in support of OCAT's reporting implementation.

**Table 3: Qlik® Dependencies**

	OCAT Environment	Qlik® Environment Provisioned	Public Internet Access Provisioned	Endpoint Request & DB Connector	Qlik® SAML Configuration	Comments
1.	Sandbox	08/07/20	08/07/20	08/07/20	08/10/20	Architecture environment
2.	Dev*	07/28/20	08/07/20	08/07/20	08/10/20	Needed for navigation & development of reports
3.	Test (SIT)	08/07/20	08/07/20	08/07/20	08/14/20	Completed reports are released to SIT for testing
4.	Staging	08/14/20	08/14/20	08/14/20	08/19/20	System tested reports are released to Staging for performance testing

	OCAT Environment	Qlik® Environment Provisioned	Public Internet Access Provisioned	Endpoint Request & DB Connector	Qlik® SAML Configuration	Comments
5.	UAT	08/14/20	08/14/20	08/14/20	08/14/20	Allow access during pre-UAT reports
6.	Training	09/14/20	09/14/20	09/14/20	09/14/20	To validate prior to training
7.	Production	09/14/20	09/14/20	09/14/20	09/14/20	To validate prior to DR

\*Dev is complete except for the Qlik SAML Configuration and the Internet Endpoint

### 2.2.3 RACI Matrix

The following is the RACI matrix in support of the reporting solution.

**Table 4: RACI Matrix**

Cambria Qlik Reports RACI									
Vendor/Service	Task	Accenture/Qlik	Accenture/FR	Cambria	Consortium Security	Henk Keukenkamp	Laura Chavez	Luz Esparza	QA
Cambria/OCAT Reports	Ensure security, availability (uptime) and accuracy of OCAT to support reports.	I	I	R	C	A	I	I	I
	Replicate data to the CalSAWS enterprise data warehouse to support enterprise reporting	I	I	R	I	A	I	I	I
	Ensure secure, stable connection from OCAT to Qlik.	I	I	R	C	A	I	I	I
	Build and maintain reports in Qlik	I	I	R	I	A	I	I	I
	Administer reports in Qlik (copy, share, assign, migrate files; create and schedule Qlik jobs; publish across environments)	I	I	R	I	A	I	I	I
	Maintain Service Level Agreements as per Contract	I	I	R	I	A	I	I	I

Cambria Qlik Reports RACI									
Vendor/ Service	Task	Accenture/Qlik	Accenture/FR	Cambria	Consortium Security	Henk Keukenkamp	Laura Chavez	Luz Esparza	QA
	Connect to the CalSAWS data warehouse and replicate the AWS Aurora data in the Data Lake	I	I	R	C	A	I	I	I
Accenture/ Enterprise Qlik Platform	Consume and support data replication from OCAT in AWS Aurora format.	R	I	I	C	I	I	A	I
	Maintain Qlik Enterprise Platform	R	I	I	I	I	I	A	I
	Tracking and Reporting of Qlik vendor software security scans.	R	I	I	C	I	I	A	I
	Provide reliable infrastructure/platform of Qlik environments to Cambria for OCAT reports.	R	I	C	C	I	I	A	I
	Perform Infrastructure/Platform patching and upgrades, and coordination with Cambria to minimize negative impact to Cambria	R	I	C	C	I	I	A	I
	Maintain Service Level Agreements as per Contract	R	I	I	I	I	I	A	I
Accenture/ Enterprise IAM (ForgeRock) Platform	Design, develop, implement and maintain enterprise ForgeRock platform	I	R	I	C	I	I	A	I
	Perform platform software security scans, reports and remediation	I	R	I	C	I	I	A	I
	Provide reliable ForgeRock environment(s) and Authentication and Authorization integration to Cambria to support OCAT Qlik reports	R	I	C	C	I	I	A	I
	Perform Infrastructure/Platform patching and upgrades, and coordination with Cambria to minimize negative impact to Cambria	I	R	I	C	I	I	A	I
	Provide SAML integration between OCAT and Qlik	I	R	I	C	I	I	A	I
	Maintain Service Level Agreements as per Contract	I	R	I	I	I	I	A	I
Responsible, Accountable, Consulted, Informed (RACI) Definitions									
Responsible	Who is completing the task.								

Cambria Qlik Reports RACI									
Vendor/ Service	Task	Accenture/Qlik	Accenture/FR	Cambria	Consortium Security	Henk Keukenkamp	Laura Chavez	Luz Esparza	QA
Accountable	Who is making decisions and taking actions on the task(s).								
Consulted	Who will be communicated with regarding decisions and tasks.								
Informed	Who will be updated on decisions and actions during the project.								
Definition Source	<a href="https://proB3:K29ject-management.com/understanding-responsibility-assignment-matrix-raci-matrix/">https://proB3:K29ject-management.com/understanding-responsibility-assignment-matrix-raci-matrix/</a>								

## 2.3 Assumptions

This section documents the assumptions considered in implementing Qlik® as the reporting tool. Further clarifications to the requested work may be discovered and confirmed while performing the integration with Qlik®. As new assumptions or clarifications are identified, these items will be raised to the Consortium project management and technical stakeholders.

- ▶ Qlik® environments and access will be provisioned as outlined in Table 3: Qlik® Dependencies
- ▶ Cambria is not responsible for the Qlik enterprise solution and delays in provisioning the OCAT needed environments will delay the ability to develop, test, and implement Qlik.
- ▶ The Consortium will provide ForgeRock® and Qlik support to facilitate the implementation of the OCAT reporting solution.
- ▶ OCAT training materials will be updated to reflect the Qlik® UI and features. The Consortium will provide Qlik® training materials that have been produced for Qlik® CalSAWS enterprise for Cambria to use as a starting point.
- ▶ Qlik Sense® exports natively to Microsoft® Excel®. The Excel output can then be saved as a CSV file.

- ▶ Data extracts will be exported to CSV.
- ▶ Qlik is not utilized for the data extract function.
- ▶ OCAT will use the CalSAWS Qlik® report deployment process. Qlik® reports will be deployed independently from the OCAT application. Cambria will provide a release schedule for OCAT reports.
- ▶ The OCAT Qlik® dashboard and reports are not integrated with CalSAWS Qlik® dashboards/reports. Users will not be able to navigate from the OCAT reports to other areas in Qlik®.
- ▶ Cambria is not responsible for the Qlik® Platform service levels.
- ▶ OCAT will replicate data into the CalSAWS Enterprise Data Warehouse solution.
- ▶ The Enterprise Data Warehouse (Data Lake) can store the data structure and views in the same format as AWS Aurora to minimize efforts.
- ▶ Qlik will not be used for the OCAT data extract. This was decided in a meeting with the Consortium and has been removed from this document.

## 2.4 Reporting Requirements

The requirements associated with the Reports and Dashboard are listed below and also on the Requirements tab of the Qlik® Report Specifications. Note, this is the complete list of reporting requirements for OCAT and also includes the data extract; however, Qlik will not be used for the data extract.

**Table 5: Reporting Requirements**

Req ID	Requirement	Approach
5.2.	OCAT shall be Americans with Disability (ADA) compliant and shall identify mandatory fields with asterisks or other visual design element, such as colors and fonts.	<p>User will be able to:</p> <ul style="list-style-type: none"> <li>- Navigate the screen with keyboard</li> <li>- Utilize the filters with a keyboard</li> <li>- Screen Reader read the page, filters, filter selections</li> </ul>

Req ID	Requirement	Approach
		<ul style="list-style-type: none"> <li>- Data in the table is read via the screen reader</li> <li>- Data can be exported to excel (keyboard navigation)</li> </ul>
5.39.	<p>Dashboards and Reports Module:</p> <p>OCAT shall include Business Intelligence (BI) solution that presents caseload information and key performance indicators in summary and in details in live dashboards and reports, which provide aggregated data and enables drill downs to further details from statewide, region wide, multiple county, countywide, district-wide, office, and business unit views to specific case manager views, as well as provide hyperlinks to the respective cases in OCAT, based on the level of access of the user.</p>	<ul style="list-style-type: none"> <li>- Met with Counties and created specifications for reports &amp; dashboards, reflected in this document.</li> <li>- 7 Reports have aggregate data</li> <li>- Drill Down to further details is met by additional sheets in the Qlik® Report for all aggregate reports which provides report details for each report.</li> <li>- All reports have filters for County, Region, Office, and Section (per design from design sessions with Counties)</li> <li>- All Detail Reports that have client data have a link to the Client's Interview List Page by clicking on the Client's name</li> </ul>
5.39.1.	<p>OCAT shall generate and display the following categories of information:</p> <p>a) Aggregated information about client population demographics employment and interests, education, and barriers.</p> <p>b) Enables information-based programming and the factors necessary for informed referral decisions and recommendations.</p>	<p>The report specifications were outlined in collaboration with the Counties are defined in the GDD</p>
5.39.2.	<p>OCAT shall capture, at minimum, the data elements as delineated in Appendix C-Tab 4 OCAT Questionnaire Rules Reports.</p>	<p>This is met in the Questionnaire</p>

Req ID	Requirement	Approach
5.39.3.	OCAT BI solution shall enable sorting, filtering, expanding, and collapsing of dashboard and report data online.	The solution allows sorting of all columns. All reports allow filtering by County, Region, Office, and Section
5.39.4.	OCAT BI solution shall enable exporting of any dashboard or report to Microsoft Excel, Adobe Acrobat, and Comma-Separated Values (CSV) file formats.	<p>Proposed Solution will allow exporting in Excel (save to CSV) for all reports</p> <p>PDF print is available for all Reports. Since detail reports can be very large in size, both with row and column count, recommend these reports are extracted.</p> <p>Per discussions with the counties, detail extract information is necessary for business operations.</p>
5.39.5.	<p>OCAT shall provide a data extract of all data tables as follows:</p> <p>a) County level data on a monthly basis to each County</p> <p>b) Consolidated fifty-eight (58) County data on a quarterly basis to CDSS</p>	<p>Data will be stored in the modernized OCAT database with county reference table information so that county level data can be efficiently extracted.</p> <p>Scheduled reports will be designed, developed, and implemented to provide monthly data available to each County, and quarterly data available CDSS.</p>
5.39.6.	OCAT shall have summary and trend analyses through reports and dashboard of clients' demographics, barriers, skills, and other work readiness determinants identified in the questionnaire.	The report specifications were outlined in collaboration with the Counties are defined in the GDD
5.39.7.	OCAT shall have real-time data in the reports and dashboard.	The data is available in the Reporting solution in real-time, and is not loaded in via a batch process
5.39.8.	OCAT shall include in reports and a dashboard the data from cases for which an ASR has been generated.	Data from interviews with generated ASR's will be available in reports and dashboards. The intention of the Dashboard is to contain information on



Req ID	Requirement	Approach
		completed ASR's only. The General Design Document will outline the specifications related to each report and dashboard module. Not all reports are in the dashboard.
5.39.9.	OCAT shall have an at-a-glance view of the data available at their level in the hierarchy (e.g., Case Managers view, Supervisor view, county view, State view etc.).	OCAT will allow users to see data in reports and dashboards as defined in the report and dashboard specifications. Detailed reports will reflect hierarchy access, but in some cases aggregate counts may allow users to see data outside of their hierarchy.
5.39.10.	OCAT dashboard shall include month-to-date, the number of cases for which an ASR has been generated for a user's organizational unit.	The report specifications were outlined in collaboration with the Counties are defined in the GDD
5.39.11.	OCAT dashboard shall include data of case counts and percentages by Individual user, Unit, Office, County, and State levels based on authorized level of access of the user.	The report specifications were outlined in collaboration with the Counties are defined in the GDD
5.39.12.	OCAT shall include in the dashboard the following graphs:  a) Clients by Type of Benefits Received  b) Clients Demographics by Race/Ethnicity  c) Clients by Type of Referral Recommended  d) Clients by Type of Potential Barriers	The report specifications were outlined in collaboration with the Counties are defined in the GDD

Req ID	Requirement	Approach
	e) Distribution of Clients by Number of Potential Barriers	
5.39.13.	<p>OCAT shall the include the following standard reports, as described in Appendix A:</p> <ul style="list-style-type: none"> <li>a) Clients by Demographics</li> <li>b) Clients by Educational Attainment</li> <li>c) Clients by Employment History and Career Interests</li> <li>d) Clients by Potential Barriers - Legal, Housing, and Transportation</li> <li>e) Clients by Potential Barriers - Health and Substance Use</li> <li>f) Clients by Potential Barriers - Child Care, Domestic Abuse, and Well-Being</li> </ul>	<p>The report specifications were outlined in collaboration with the Counties are defined in the GDD</p>
5.39.14.	<p>OCAT shall provide a page where user can select, report, date range, household type, format and report level.</p>	<p>The Qlik® Hub will have reports (called apps) listed for users based on their roles</p> <p>Once a user selects a report, they will have the ability to filter by household type, date range (in addition to the filters: County, Region, Office, and Section mentioned above)</p>
5.39.15.	<p>OCAT shall define the four (4) household types, as follows:</p> <ul style="list-style-type: none"> <li>a) All households</li> <li>b) Two-parent household: any household with two parents, and one or more children (regardless of the ages of the child(ren))</li> </ul>	<p>The report specifications were outlined in collaboration with the Counties are defined in the GDD. This filter is available on the Aggregate Reports</p>

Req ID	Requirement	Approach
	<p>c) Single parent, no children under six (6): any household with only one parent and where all children in the household are at least six (6) years of age.</p> <p>d) Single parent, one or more children under six (6): any household with only one parent and one or more children under six (6) years of age; (e.g. household with a five (5) and ten (10) year-old.)</p>	
5.39.16.	OCAT will include, at minimum, five (5) additional reports to be determined during the design, development phase.	The OCAT team designed and defined 5 additional reports in the GDD specifications resulting from design-sessions with the Counties

## 2.5 Appendix A: Qlik Report Specifications

The Qlik Report Specifications are attached as a separate appendix document.