Washington Health Care Authority (HCA)
Division of Behavioral Health and Recovery (DBHR)
Behavioral Health Service Delivery Guide (BHSDG) Project

Deliverable 5. BHSDG High-Level Roadmap

August 23, 2023

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Project Overview

Project Background

- The Health Care Authority (HCA) is required by statute to develop and publish a web-based Behavioral Health Service Delivery Guide (BHSDG) to provide information to the public and providers about where behavioral health services are available in the state by December 1, 2023.
- Information necessary for the development of the BHSDG is currently fragmented across HCA and other State of Washington (State) departments, such as the Department of Health (DOH).

Work Performed

BerryDunn engaged HCA and other key interested parties in project activities to gather and assess the information provided in this Roadmap. BerryDunn performed the following high-level activities:

- Requested and reviewed background documentation and other materials provided by the HCA core project team
- Planned and facilitated five discovery sessions to collect information from individuals with programmatic and technical expertise across HCA and other State agencies, as well as individuals with lived experience
- Planned and conducted three visioning sessions with HCA leadership to develop the project vision and measurable goals
- Facilitated 14 additional ad hoc discussions (e.g., Problem Gambling, Tribal, Analytics, Research, and Measurement [ARMs], Recovery Readiness Assessment Tool, etc.)

Work Performed, Continued

- Developed a decision matrix with criteria to help HCA determine which technology solution(s) are potentially viable alternatives for the BHSDG and which rank the highest based on the established criteria
- Developed a decision tree to help HCA leadership determine which technology solution and tool to use to build the BHSDG
- Developed and finalized requirements for the BHSDG using information learned from the discovery sessions, visioning session, and ad hoc discussions
- Developed and finalized an architectural design of the future BHSDG
- Developed an architectural design of the minimum viable product for Phase I of the BHSDG
- Gathered current data sources and began to normalize the data
- Conducted follow-up discussions regarding additional data sources, as needed

Work Performed – Visioning Sessions

What impact will the Behavioral Health Services Delivery Guide have on providers, family members, and individuals seeking services?

BerryDunn engaged HCA leadership to conduct three visioning sessions. The purpose of the visioning sessions was to develop the vision and goals for the future BHSDG.

To develop vision, BerryDunn:

- Conducted a word cloud exercise for HCA leadership to answer, “What impact will the BHSDG have on providers, family members, and individuals seeking services?”
- Conducted breakout groups for HCA leaders in each group to develop a draft vision
- Developed a draft vision from the breakout group discussions
- Sent the draft vision to HCA leadership for review and feedback

Work Performed – Visioning Sessions, Continued

- Conducted a group brainstorm discussion on measures that would demonstrate the achievement of the vision
- Sent the draft goals to HCA leadership for review and feedback, and incorporated edits

Project Vision and Goals

The vision and goals resulting from the visioning sessions are included below.

VISION:

An easy-to-use interoperable system for anyone to find behavioral health services (licensed and unlicensed) across the continuum of care (lifespan, prevention, treatment, recovery, problem gambling, support services) that promotes patient access to care from leveraging various data sources, using FHIR*-based APIs** that include bed capacity, ages served, and other characteristics.

Goal 1 Increase accessibility to behavioral health services/providers

Goal 2 Improve customer service and user experience

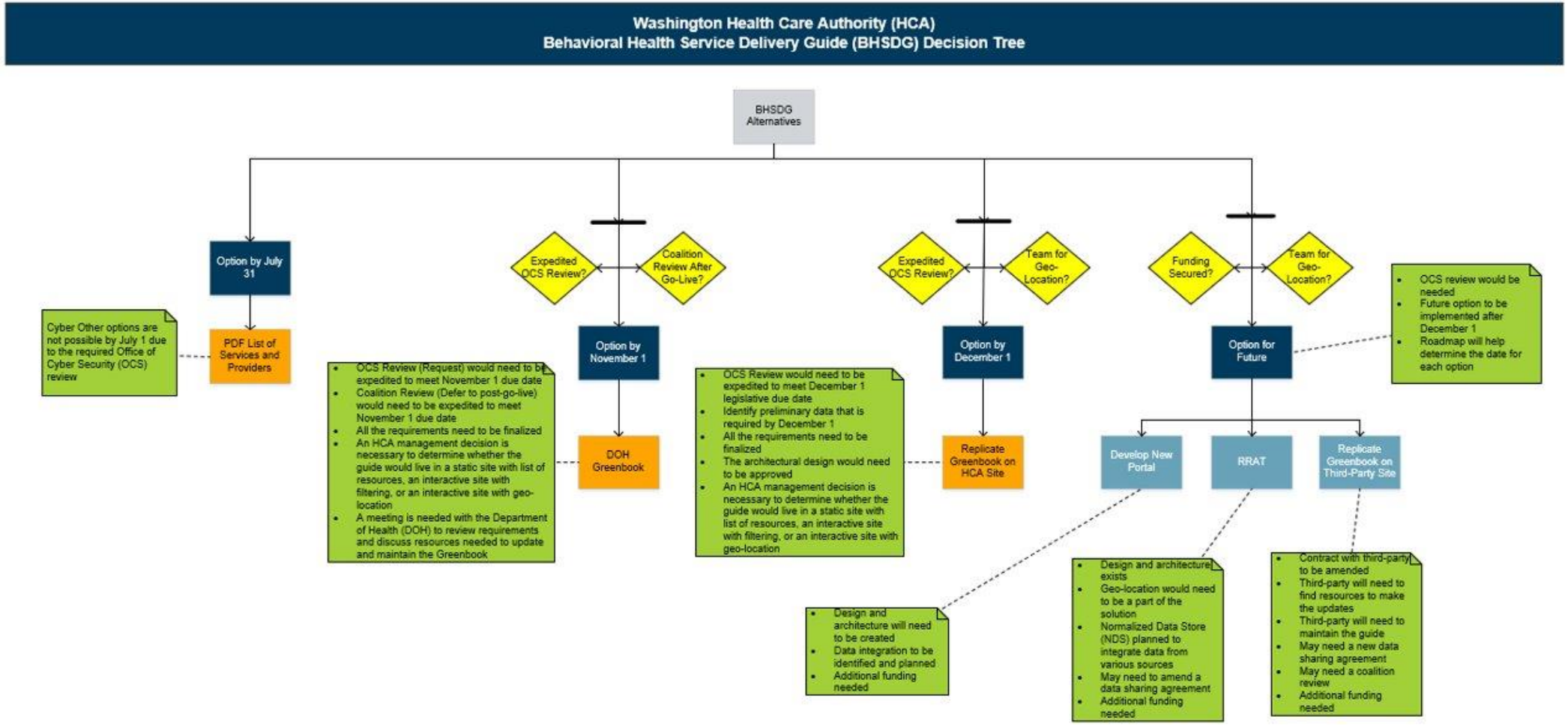
Goal 3 Improve data/information storage to increase use of available behavioral health services

FHIR– Fast Healthcare Interoperability Resources

**API – Application Programming Interface

Decision Tree

The decision tree was developed to accompany the decision matrix to help HCA leadership decide which platform to use to build the BHSDG.



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Project Constraints

Overview of Project Constraints

Constraints are known as facts over which there is limited or no control. Constraints can affect the scope, direction, planning, and implementation of a project. The following constraints influenced the development of the BHSDG.

Constraints	
Timeline	The initial due date for delivery of the BHSDG was June 30, 2023. Meeting this initial date was a challenge due to the need for an unanticipated number of discovery sessions to gain an understanding of the current environment (e.g., data, technology) and the desired future state, and to develop the BHSDG requirements. Additional limitations included HCA leader and staff availability, and data availability and quality.
Documentation	Documentation regarding the current technical and data environment was limited, requiring BerryDunn to facilitate an unanticipated number of discovery sessions with HCA and other key interested parties to gather information.
Requirements	BerryDunn and HCA spent greater time than planned in discovery and visioning sessions gathering and identifying the requirements for the BHSDG. Please see Slide 5 for details on the number sessions. Due to competing priorities, HCA leaders and staff required longer than planned for in the project schedule to review and provide feedback on the requirements.
Office of Cyber Security (OCS) Review	A new interface for automated data exchange must meet requirements for security design and review by the OCS. OCS reported that it could take more than five months before a review could begin due to a backlog of review items.

Overview of Project Constraints, Continued

Constraints	
Data Challenges	Identifying and receiving the data for the BHSDG was a challenge. • Identifying points of contact for the primary owner of data sources required multiple meetings. • Due to HCA's competing priorities, receipt of data from primary data sources was not always timely. • BerryDunn received different sets of data for DOH-licensed providers from different sources, and the data sets did not match. • BerryDunn did not receive the data dictionaries for the data that was provided for the BHSDG.
Limited HCA Leader and Staff Availability	HCA leader and staff availability to participate in the project was limited due to competing priorities.
BHSDG Hosting Environment	BerryDunn conducted several ad hoc sessions to identify a hosting environment for the BHSDG; however, HCA leadership did not identify the environment to host the BHSDG in a timely manner, which impacted BerryDunn's ability to develop the interactive BHSDG due to time and budget constraints.
Data Normalization	BerryDunn was able to complete the data formatting and deduplication; however, HCA has not identified the hosting environment database to upload the data for the BHSDG.

Overview of Project Constraints, Continued

Constraints	
Data Validation	HCA provided data for the BHSDG in Microsoft (MS) Excel and links to directory websites. BerryDunn attempted to validate the accuracy of the data to the extent feasible, but given the time constraints, the large volume of data, and the manual work needed to confirm the accuracy of the data not all data was validated. .
Key Decisions	HCA leaders required time to make key decisions, such as what the desired format (e.g., Adobe PDF vs. interactive tool) for the initial BHSDG should be and the technology solution to use to develop the BHSDG (e.g., HCA servers vs. third-party site, Power BI vs. Tableau).
Technology Solution and Tool	• HCA leadership was uncertain of the available technology solution alternatives to use to support development and ongoing maintenance of the BHSDG. • The HCA team was undecided on the hosting of the BHSDG (e.g., to host the interactive BHSDG in-house, with a third party, or elsewhere). • A technology solution similar to the BHSDG did not exist withing HCA's environment to use as the starting point for the interactive BHSDG, increasing the time required to develop the BHSDG.
Near Real-Time Data	Provider systems must be ready for the near real-time interfaces. These system interfaces must go through OCS' security review and the Secure Access Washington (SAW) system for authentication requests and approval.

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Current Environment

Overview of DBHR's Current Environment

The table below provides a list of tools and databases that are available in the current environment. BerryDunn conducted discovery sessions to learn more about each tool and database to complete a high-level assessment.

	Current Environment/Tools
DOH Greenbook	The “Greenbook” is a DOH behavioral health tool that lists all the licensed behavioral health providers. The providers are listed by county and include mental health, substance use disorder, and problem gambling treatment.
Medications for Opioid Use Disorder (MOUD) Locator	The MOUD Locator is a tool to help people diagnosed with an opioid use disorder (OUD) locate MOUD services, which includes providing Food and Drug Administration (FDA)-approved drugs, counseling, and behavioral therapies, all simultaneously.
Washington Recovery Helpline	The Washington Recovery Helpline is a statewide telephone service that provides information, referrals, online educational resources, emotional support, crisis support, and referral to a treatment line funded by HCA/the Division of Behavioral Health and Recovery (DBHR) for prevention of substance abuse, mental health challenges, and problem gambling.
ProviderOne Provider Directory	ProviderOne is an electronic system that social service providers and social service medical providers use for claim management.

Overview of DBHR's Current Environment, Continued

Current Environment/Tools	
ARM Dashboard (Tableau)	The ARM dashboard suite consists of several reporting dashboards that link to public ARM data products. The ARM dashboard suite also consists of a group of dashboards known as the "Healthier Washington Dashboard," which is specific to Initiative 1 of the Medicaid Transformation Project. The HCA ARM Unit's dashboards focus on Apple Health (Medicaid) enrollees' usage of health services.
Recovery Readiness Asset Tool (RRAT)	The RRAT is a robust resource database that is in the process of being developed by a third-party vendor. Once completed, the RRAT will provide information on, and direct individuals to, community-based treatment and recovery support services.

Project Decisions

DBHR and other internal interested parties made the following decisions that directly impacted the BHSDG and the Roadmap.

ID	Name	Description
1.	Alternative Options	HCA leadership decided that a high-level review of available technology alternatives to help determine fit would be helpful for BerryDunn to develop. This helped HCA leadership decide which alternative to use to build the BHSDG.
2.	Decision Matrix	HCA leadership determined that a decision matrix would be helpful for BerryDunn to develop to help HCA leadership evaluate the alternatives, understand the time and resources needed for fulfillment of the alternatives given the constraints, and decide on which option to use.
3.	Hosting Technology Solution	Based on the decision tree (see Slide 10) and the decision matrix, HCA leadership decided to host the BHSDG on the HCA servers.
4.	Power BI for User Interface (UI)	Internal interested parties decided to use the MS Power BI tool for the UI.
5.	Requirements Identified for Phase 1	DBHR and internal interested parties reviewed the requirements and identified the subset of requirements that are targeted for Phase 1 of the interactive BHSDG.
6.	Requirements Identified for Future Phases	DBHR and select HCA internal interested parties reviewed the requirements for accuracy and completeness. DBHR determined the phase for implementation of each requirement.

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BHSDG Requirements

BHSDG Requirements*

The table below includes a high-level overview of the BHSDG requirements—developed through the visioning, discovery, and ad hoc sessions with DBHR and other interested parties—including the rationale for prioritization.

Phase	Requirement	Prioritization Rationale
Phase 1	Phase 1 contains the minimum viable product (MVP) requirements. These requirements include: • Basic security compliance. • Data from licensed and non-licensed providers. • Americans with Disabilities Act (ADA) compliance. • Behavioral health provider data for the continuum of care including, but not limited to, prevention, early intervention, crisis, recovery, and support services. • Data filtering on the interactive BHSDG to help individuals identify the most relevant data related to their search.	The data elements identified for Phase 1 are the key components that are aligned with the project vision for the BHSDG and can be gathered in the compressed timeline. Security compliance and ADA compliance are required before the BHSDG can be published. These requirements were added to Phase 1 deployment as the MVP of the BHSDG.

*HCA developed 15 General and Technical requirements and 56 Functional requirements

BHSDG Requirements, Continued

Phase	Requirement	Prioritization Rationale
Phase 2	Phase 2 contains requirements for which additional data from various sources must be gathered, and includes updating the interactive BHSDG on a schedule. These requirements include: • List of provider facilities accepting clients. • List of provider facilities with bed details. • List of provider facilities with types of services offered. • List of provider facilities with the gender-specific treatments. • Staff resources to respond to user queries and escalations.	Phase 2 includes the requirements that would be completed in the next six months after implementation of the MVP. These requirements will need additional time to implement as HCA needs to establish data interfaces with the providers to gather the required data in the agreed upon format and frequency. These interfaces may need OCS team review, which also requires additional time.

BHSDG Requirements, Continued

Phase	Requirement	Prioritization Rationale
Phase 3	Phase 3 requirements of the BHSDG involve technology platform updates and near real-time interfaces with the BHSDG—in compliance with OCS. These requirements include: • Upgrade technology, to include a chatbot for user interaction. • Maintain the list of provider facilities accepting clients. • Maintain the list of provider facilities with bed availability. • Maintain the list of provider facilities with types of services offered. • Maintain the list of all the health insurance types accepted by each facility.	Phase 3 will be the last phase in the deployment process. To achieve HCA's long-term vision for the BHSDG, HCA will need additional resources and time, and extensive review and approval from the OCS team. As part of Phase 3, additional technology and automation will also be implemented, including technology approvals for chatbots and data interfaces with other systems (e.g., 988 system). HCA must wait for some of those systems to be operational before it can exchange near real-time.

BHSDG Requirements, Continued

Phase	Requirement	Prioritization Rationale
Phase 3, Continued	• Maintain the list of provider facilities with the gender-specific treatments. • Staff resources to respond to user queries and chatbot escalations. • Establish a data interface with additional source systems for automatic data transfer.	

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BHSDG Data

BHSDG Data

The table below includes the data that BerryDunn received to include in the BHSDG.

ID	Name	Description
1.	Early Support for Infants and Toddlers (ESIT) Data	This data provides contacts for various counties. This includes the referral contacts, ESIT provider agencies, county lead agencies, and statewide provider agencies.
2.	Recovery Data	This data includes Recovery Homes—Recovery Cafes, Recovery Homes, the Oxford Recovery Homes—operating in various counties. The data also includes syringe exchange programs (SEPs) operating in various counties through local health departments, community-based organizations, or tribal entities.
3.	RNP Providers Data	This data contains service providers, including the following services: recovery support, medications for opioid use disorder, law enforcement assisted diversion programs, syringe service programs, and naloxone distribution.
4.	DOH Greenbook Data	This data includes contact information for licensed or certified behavioral health service providers in each county and the services they are certified to provide.

BHSDG Data

ID	Name	Description
5.	Tribal Behavioral Health and Prevention Data	This data contains the behavioral health prevention contacts specifically for services for Native Americans in Washington. Discussions with tribal partners are needed to collect additional data regarding behavioral health services for Native Americans.
6.	Problem Gambling Data	This data contains the list of all contracted problem gambling agencies and certified gambling counselor providers along with their contact information.
7.	Foundational Community Supports (FCS) Data	This data contains the FCS - supportive housing details and Project for Assistance in Transition from Homelessness (PATH) housing details.

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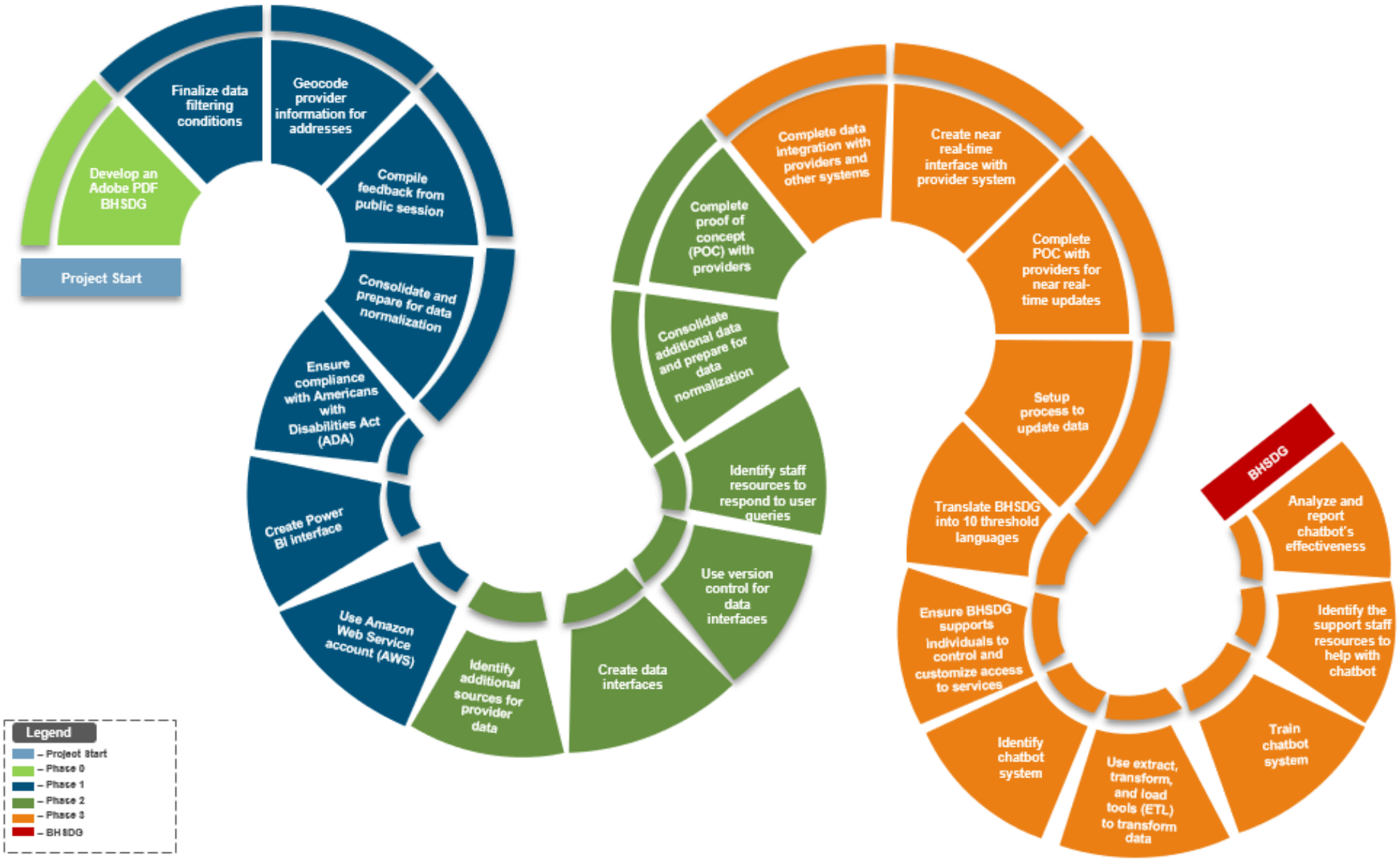
BHSDG Roadmap

Roadmap Diagram



This diagram represents a roadmap of the phases for the BHSDG's implementation.

Roadmap Steps

To develop and implement an interactive BHSDG with geocoding functionality, HCA and BerryDunn have identified the following steps to complete each phase of implementation. Due to the project constraints (Slides 11-14), BerryDunn and HCA determined that BerryDunn would develop the first BHSDG as an Adobe PDF.

Phase	Description	Owner
Phase 0	Develop the Adobe PDF BHSDG. • Compile the data received from HCA. • Develop an outline of the BHSDG. • Add data into the BHSDG outline. • Review draft of the BHSDG in each weekly BHSDG project meeting for feedback. • Determine whether to develop the BHSDG in Adobe InDesign and confirm HCA's ability to update in Adobe InDesign. ▪ HCA decided to move forward with the BHSDG in Adobe InDesign. • Conduct a public comment session to share Phase 0 product and explain the process to work toward the final future design (see Slide 51 for the Future Architecture Diagram). • Update the Outreach and Intervention Services category in each county to include sub-headers for each type of service in the category (i.e., Law Enforcement Assisted Diversion Programs [LEAD], RNP, SEP).	• BerryDunn • DBHR

Roadmap Risks

In completing Phase 0, BerryDunn identified the following risks and future mitigation strategies for HCA to consider.

Risk	Description	Future Risk Mitigation
Data Quality	The data BerryDunn received from HCA and HCA's interested parties is in MS Excel and statis websites, and an automated method to update the data does not currently exist. Since the data captures the provider information at a point in time, there is a risk that the data is no longer accurate.	Without an automated method to update the data, HCA will need to regularly request updates from each non-licensed provider and receive the updated licensed provider data from the DOH. This data will need to be manually verified and updated.

Roadmap Steps

Phase	Description	Proposed Owner
Phase 1	Gather behavioral health provider data from ProviderOne system ◢ Examine the current taxonomy in ProviderOne with experienced staff to identify the taxonomy for the Behavioral Health providers and collect the necessary data.	◢ DBHR
Phase 1	Finalize the data filtering conditions for the BHSDG. ◢ Data filtering is the process of choosing a smaller part of the data set and using that subset for viewing based on user input. ◢ Finalize the layout of the BHSDG and the UI. ◢ Filter the data on the visual BHSDG to help individuals identify the most relevant data related to their search. ◢ Identify the type of data that needs to be filtered for each of the providers and the services provided. ◢ Identify the format and the conditions for filtering the data for the individuals using the BHSDG. ◢ Validate the filtering conditions for the data. ◢ Provide option for printing the formatted filtered data as required.	◢ DBHR

Roadmap Steps, Continued

Phase	Description	Proposed Owner
Phase 1	Geocode the provider information for the addresses to be displayed. • Identify the resource for helping with geocoding. • Identify the data for geocoding. • Correct the address to be used for geocoding. • Complete the process for the geocoding. • Fix the geocoding errors if any. • Identify the address changes for geocoding. • Update the geocoding changes. • Mark these address changes for update next time the system refreshes.	• DBHR • Enterprise and Strategy Services (ETS)

Roadmap Steps, Continued

Phase	Description	Proposed Owner
Phase 1	Collect and compile feedback from public session. • Conduct a public session for the BHDSG feedback and suggestions. • During the public comments and review session, review all the comments and feedback received. Group them according to their common themes, concerns, and suggestions. • Analyze and evaluate feedback to determine its scope and impact. Assess whether the suggestions and feedback are aligned with the project goals and if further clarification is needed. • Organize feedback into phases. Prioritize the topics based on their potential impact, alignment with project goals, and resources required for implementing these into different phases of the BHDSG. • Conduct follow-up meetings or discussions with key interested parties as required. • Provide interested parties with information regarding any changes implemented as a result of their feedback.	• DBHR • ETS

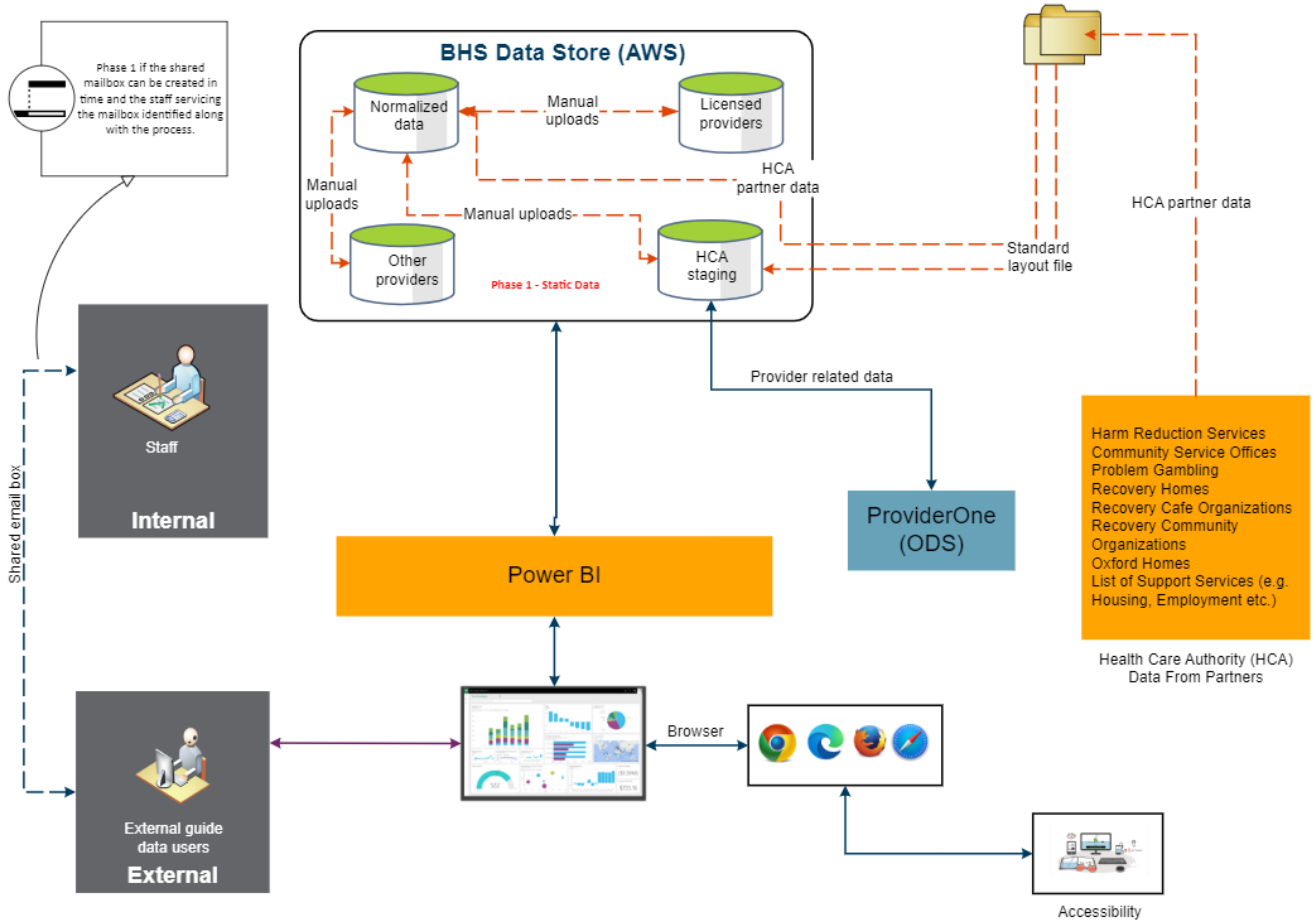
Roadmap Steps, Continued

Phase	Description	Proposed Owner
Phase 1	Consolidate and prepare the data for normalization. • Gather data and combine and store varied data in a single data repository for the BHSDG. • Identify duplicate data and de-duplicate data. • Use standard naming convention across the BHSDG. • Conduct a quality review of the data. • Identify the database on the hosting platform where the BHSDG data would reside. • Normalize the data for the BHSDG. The data normalization process ensures all data values appear similar across all fields and records, simplifying data finding, grouping, and analyzing to reduce data redundancy and improve data integrity. • Create a Data Dictionary and Entity Relationship Diagram (ERD) for all the tables for easier data maintenance.	• ETS
Phase 1	Ensure the BHSDG is complaint with ADA Section 508 standards of and Web Content Accessibility Guidelines (WCAG) 2.1. • Use the State approved ADA compliance tool to perform ADA compliance review. • Develop the ADA complaint BHSDG.	• ETS

Roadmap Steps, Continued

Phase	Description	Proposed Owner
Phase 1	Create Power BI interface. MS Power BI is an interactive data visualization software product developed by MS with a primary focus on business intelligence. • Create the Power BI model based on the data filtering conditions. • Fix the geocoding errors if any. • Incorporate the geocoding updates. • Finalize the Power BI model. • Conduct quality test of the model to help ensure all the filtering conditions work as intended. • Get the Power BI model ready for deployment on the Amazon Web Service (AWS) servers.	• ETS
Phase 1	Use the AWS account to host the services on HCA servers for public consumption. • Access the Power BI server on the hosting platform to upload the Power BI model. • Upload the updated data into the hosting provider database system. • Work with the IT Architecture Expert (Architecture team) to deploy the Power BI model to the HCA hosting environment. • Test the model from the browser to make sure users see all the options on the UI.	• ETS

Conceptual BHSDG Diagram - Phase 1 MVP



Roadmap Risks

BerryDunn identified the following risks and mitigation strategies for HCA to consider while implementing Phase 1.

Risk	Description	Future Risk Mitigation
Data Quality	HCA's provider data is currently documented in MS Office systems (e.g., Word, Excel, Notepad, etc.), and there is not currently an automated method to update the data. Since the data captures the provider information at the point in time, there is a risk that the data becomes obsolete/is not longer accurate by the time it is published.	Without an automated method to update the data, HCA will need to regularly request updates from each non-licensed provider and receive the updated licensed provider data from the DOH. This data will need to be manually verified and updated.

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 2	Identify additional data sources for provider data. • Identify the data sources for licensed and non-licensed provider data. • Create the data interface for requesting the data. Data interfaces are sets of rules, protocols, and methods that allow different software components or systems to exchange data with each other. It enables communication and interaction between different components or systems, so they can exchange information and collaborate. • Identify the frequency of the data update. • Identify how this data will be used.	• ETS • DBHR

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 2	Create data interface. Creating a data interface involves designing a structured way for data to be exchanged, accessed, and manipulated between systems consisting of the following steps: • Define the purpose and goals of the data interface. • Finalize the data representation format (e.g., JavaScript Object Notation [JSON], Extensible Markup Language [XML], Comma Separated Values [CSV], or custom data structures). • Data Validation and Error Handling – Ensure that the data being processed through the interface is formatted correctly and adheres to any constraints. Integrate error handling mechanisms to gracefully handle issues such as invalid data and connectivity issues. • Security – Use authentication and authorization mechanisms to control access to the interface. All interfaces must be approved by security and request access through the SAW system. • Documentation – Document the data interface, including the data format, supported methods, usage instructions, and any other relevant information. • Test the Interface – Perform extensive testing of the data interface to ensure its correctness, efficiency, and reliability with both valid and invalid data.	• ETS • DBHR

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 2	◢ Use version control for the data interface. Having versioning in place will help maintain backward compatibility and facilitate smooth transitions to newer versions as the interface evolves. ◢ Monitor the performance and usage patterns of the data interface once it has been implemented. Improve efficiency by optimizing the interface as needed.	◢ ETS ◢ DBHR
Phase 2	Identify staff resources to respond to user inquiries and escalations. ◢ Identify the staff resources who will be responding to user queries and escalations. ◢ Create a shared mailbox that will be shared by resources responding to user queries and escalations. ◢ Create a process for the user escalation response and tracking. ◢ A staff resource can respond to user queries as they are sent via the user interface.	◢ DBHR

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 2	Consolidate the additional data and prepare the data for normalization. • Gathering data and combine and store varied data in a single data repository for the BHSDG. • Identify duplicate data and remove duplicates. • Use standard naming convention across the BHSDG. The main purpose of standard naming convention is to keep the data organized, add consistency, and maintain the data quality. • Conduct a quality review of the data. • Update the database on the hosting platform where the BHSDG resides with the updated data. • Normalize the data for the BHSDG. The **data normalization** process ensures all data values appear similar across all fields and records, simplifying data finding, grouping, and analyzing to reduce data redundancy and improve data integrity. • Update the data dictionary and ERD for all the updated tables for easier data maintenance.	• ETS

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 2	Complete a proof of concept (POC) with the providers requesting data. • POC is primarily intended to validate the feasibility of the data interface. As a result, informed decisions can be made regarding future development and enhancement of the data interface. • Define the outline of the objectives of the data interface and the POC scope. • Identify what specific functionalities or data interactions will be tested and what success criteria will be used to evaluate the POC's success. • Identify data sources and formats along with design interface components. Implement the data interface; test and debug the interface as required. • Measure the performance of the data interface and perform any improvements and refinements to the data interface as needed. • Validate and verify the data to match the required data. • Request the data dictionary for all the non-licensed provider data.	• ETS • DBHR

Roadmap Risks

BerryDunn identified the following risks and mitigation strategies for HCA to consider while implementing Phase 2.

Risk	Description	Future Risk Mitigation
Staff Resources	HCA needs to identify the staff who will be responsible for managing consumer inquiries and escalations. There is a risk that HCA will not have the staff resources at the time of Phase 2 implementation, which will impact HCA's ability to respond to consumers.	Prior to implementation of Phase 2, HCA will identify the staff assigned to manage consumer inquiries and escalations or will secure the funding needed to hire the staff resources.
Approval for Automation	To automatically receive the data from the providers through data integration, HCA may need to receive the OCS's review the design of the interfaces. There is a risk that this review could delay the completion of Phase 2 implementation.	HCA may need to collaborate with OCS to discuss options to expedite the review process. OCS may have pre-approved design patterns that HCA can use for the integrations.

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	Complete data integration with providers and other systems (e.g., 211 system, 988 system, etc.). • Identify the external systems the BHSDG must interface with in near real-time. • Identify if the external system is ready for the near real-time data interface. • Conduct OCS security design and review of the data interface. • Create the data interface for requesting the data. Data interfaces are sets of rules, protocols, and methods that allow different software components or systems to exchange data with each other. It enables communication and interaction between different components or systems, so they can exchange information and collaborate. • Identify the frequency of the data exchange. • Create a schedule for processing the files.	• ETS
Phase 3	Create near real-time interfaces with the provider systems to gather the following information: • List of provider facilities accepting clients. • List of provider facilities with bed availability. • List of provider facilities with types of services offered. • List of provider facilities with any gender-specific services offered. • List of all the health insurance types accepted by each facility.	• ETS

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	Complete a POC with the providers for near real-time updates. • POC is primarily intended to validate the feasibility of the data interface. As a result, informed decisions can be made regarding future development and enhancement of the data interface. • Define the outline of the objectives of the data interface and the POC scope. • Identify what specific functionalities or data interactions will be tested and what success criteria will be used to evaluate the POC's success. • Identify data sources and formats along with design data interface components. Implement the data interface and test and debug the interface, as required. • Measure the performance of the data interface and complete any improvements and refinements to the data interface, as needed. • Validate and verify the data to match the required data. • Request the data dictionary for all the POC provider data.	• ETS • DBHR

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	Set up a process to update the data in the BHSDG regularly. • Identify the resources to maintain the data for the BHSDG. • Gather all the updates from various systems. • Identify and track the data and column changes by comparing the updated data received with the existing data. • Create a scheduler for the updates. • The BHSDG data update scheduler should run on a given schedule to check for any updates. • Run the data through the normalization process (as referenced on Slide 38) if there are new columns added.	• ETS

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	Translate the BHSDG into 10 threshold languages. • Identify a team of professional translators fluent in the target languages and culture, subject matter experts familiar with behavioral health. • Prepare the content and help ensure the content is accurate. • Translate the content accurately and review with experts in behavioral health terminology. • Identify the cultural nuances and adapt the content as needed. • Translation team review the translated content with behavioral health experts. • Adapt the original images, charts, or other visual elements from the BHDSG as appropriate for the target language and culture. • Ensure the translated documents are available in accessible formats for both printed and digital versions. • Plan for regular updates with the translation team in alignment with the maintenance schedule.	• ETS

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	Ensure the BHSDG supports individuals to control and customize access to the BHSDG's services. • Users should be able to log in and save their sessions. • Users should be able to customize their preferences and save. • Customizations should be easy to use and update. • Encourage users to rate the BHSDG (e.g., five stars, very helpful, etc.) and provide feedback.	• ETS
Phase 3	Identify the chatbot system to be used for chat support. • Identify available chatbot systems that can be integrated with the BHSDG and shortlist from the list. • Conduct OCS security design and review of the chatbot systems to identify the recommended chatbot system. • Procure the chatbot system.	• ETS

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	• Use extract, transform, and load (ETL) tools (e.g., AWS Glue, Informatica) to transform the data, as required. Data transformation is the process of transforming raw data into a format that is suitable for modeling and analysis. Converting data into a specific format simplifies data usage and retrieval. • Use the process defined in Slide 43 to update the data as required, so the latest data is available for the users. • Use the Power BI model to refresh the BHSDG data. • Users will receive updated data after the data update process is complete.	• ETS

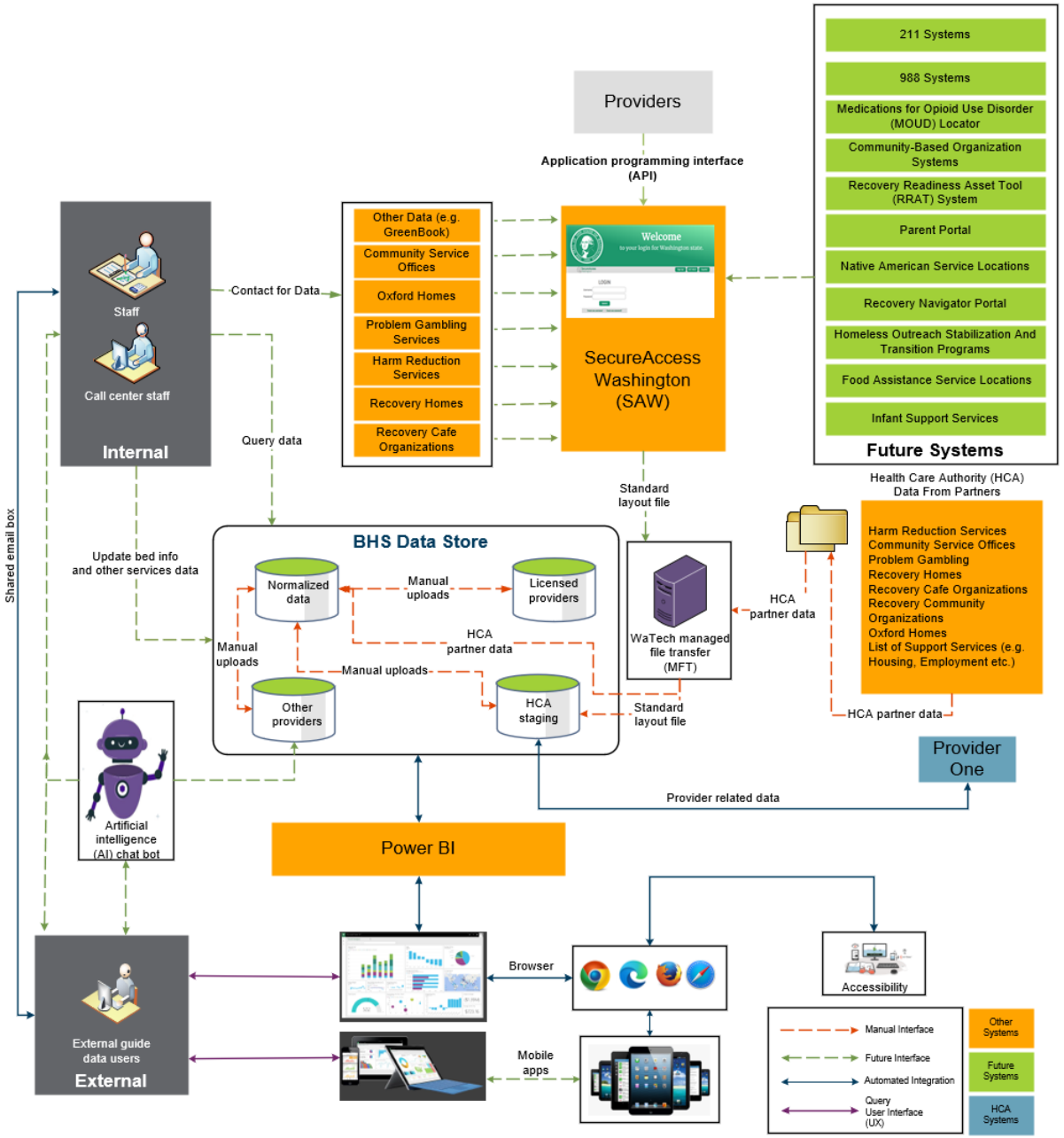
Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	Train the chatbot system. Training the chatbot is necessary to map out the user flow in order to implement a decision tree-based chatbot when training the chatbot. Chatbots can be trained more efficiently and easily if the end goal is understood. Chatbots are designed to provide relevant information to users in response to their queries. Users are guided along a specific path defined by the development team. • Define chatbots' specific use case that is approved for the BHSDG. • Conduct OCS security design and review of the chatbot system. • Design the chatbot decision tree flow for the users to follow. • Use the built-in tools to further train the chatbot. • Deploy the chatbot on the BHSDG webpage. • Use the chatbot to interact with the users.	• ETS
Phase 3	Identify the staff resources to support the chatbot. • Escalate the questions to the support staff if the chatbot is unable to answer. • Escalate questions to the support staff if requested by the user. • Track all the chatbot usage (types of requests and responses including escalations) for analytics.	• ETS

Roadmap Steps, Continued

Phase	Step Description	Proposed Owner
Phase 3	Analyze and report chatbot's effectiveness. To improve the customer experience on the BHSDG website and to understand the audience better, chatbot analytics can be a valuable tool. With the data the chatbot generates, management can gain insight into the customer's journey and experience. • Track and monitor the chatbot usage to assess effectiveness of the chatbot. • Understand the customer's satisfaction with insight into customer sentiment, pain points, and areas of questions. • Measure return on investments (ROI) and costs. Tracking the development costs, chatbot platform subscription fees, and additional support costs can help determine chatbot's ROI. • Analyze number of chatbot requests over the week and their response times. • Analyze the number of escalations to the users by chatbot (i.e., when chatbot failed to answer the user questions) and take steps to minimize the escalations. • Identify the filtering conditions (referenced on Slide 30) most frequently used by users. • Analyze the data and use it to create the auto-complete function for the user selections as they type their search. • Provide management reporting on the BHSDG usage and statistics.	• ETS

Proposed Phase 3 BHSDG Diagram



Roadmap Risks

BerryDunn identified the following risks and mitigation strategies for HCA to consider while implementing Phase 3.

Risk	Description	Future Risk Mitigation
Approval for Automation	To automatically receive the data from providers through data integration, OCS may need to review the design of the interfaces. There is a risk that this review could delay the completion of Phase 3 implementation.	HCA may need to collaborate with OCS to discuss options to expedite the review process. OCS may have pre-approved design patterns that HCA can use for the integrations.
Data from External Sources	To automatically receive the data from providers through data integration, OCS may need to review the design of the interfaces. There is a risk that this review could delay the completion of Phase 3 implementation.	HCA may need to collaborate with OCS to discuss options to expedite the review process. OCS may have pre-approved design patterns that HCA can use for the integrations.
Data Quality	HCA has automation to more efficiently update the data in the BHSDG; however, HCA needs to determine the ideal frequency to update the data. If this decision has not been made before the implementation of Phase 3, the data updates from the provider/source system will not be reflected, and the BHSDG will be out of date.	HCA will identify the ideal frequency for data updates during the development of the automated interfaces.

Roadmap Risks, Continued

Risk	Description	Future Risk Mitigation
Chatbot Selection	HCA leadership has a desire for individuals to ask questions while using the BHSDG. To implement this, HCA needs to identify a chatbot that meets the needs of the project vision. There is a risk that identifying the correct chatbot will take more time than anticipated, which will delay the implementation of the chatbot. In addition, once the chatbot is selected, it will need to be reviewed and approved by OCS, which can further delay the implementation of the chatbot.	HCA can begin identifying possible chatbot systems and secure funding during Phase 1. HCA can identify the top three chatbot systems.
Chatbot and Personal Health Information/Personally Identifiable Information	The chatbot will include personal health information/personally identifiable information from the individuals using the system, and OCS will need to review and approve the chatbot options. There is a risk that the OCS review and approval process will delay the implementation of the chatbot.	HCA can include strict requirements for proper handling of PHI/PII in the chatbot systems that are identified.

Roadmap Risks, Continued

Risk	Description	Future Risk Mitigation
Chatbot Training	In order to gain maximum ROI, the chatbot must be trained to accurately provide the relevant information in response to the user inquiries. If the chatbot is not trained correctly, there is a risk that many of the inquiries will be escalated to HCA staff monitoring the chatbot.	HCA should define all the process flows that a user can use to identify services when navigating the BHSDG. HCA should develop the process that the user will use to navigate through the BHSDG. HCA can use the process flow to train the chatbot.
Chatbot Maintenance	HCA will need to have designated staff resources to maintain the chatbot. If HCA does not identify designated staff resources to maintain the chatbot, there is a risk that the system will not function effectively.	HCA will identify a primary and secondary staff resource to maintain the chatbot.

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BHSDG Maintenance and Other Related Costs

BHSDG Maintenance and Related Costs

The table below provides a list of costs that DBHR may incur in maintaining and enhancing the interactive BHSDG and the supporting technology platform.

ID	Name	Description
1.	Hosting and Platform Costs	Costs related to hosting the interactive BHSDG on the DBHR-approved hosting platform for the users to consume.
2.	Geocoding Provider Addresses	Costs related to geocoding provider addresses for easy location display on the map. Geocoding refers to the conversion of a place description, such as an address, into a location on the earth's surface by using the latitude and longitude of the address.
3.	Data Storage Costs	Costs related to data storage for the hosting platform database. The cloud hosting platform will also require additional resources to maintain the data.
4.	Staff Resources	Costs for staff resources to be available to respond to user questions and escalations. Costs for staff resources to update and maintain the data from the providers as required. Cost for staff resources to update and maintain the BHDSG translations into the 10 threshold languages.
5.	Resource to Maintain the Chatbot	Costs for staff resources to train and maintain the interactive chatbot.

BHSDG Maintenance and Related Costs, Continued

ID	Name	Description
6.	BHSDG Maintenance and Updates	Costs for additional resources to maintain and update data collected from different sources. HCA will need to determine the ideal frequency to keep source data and the BHSDG's tables in sync. It is necessary to format the data and update it in respective tables so that the interactive BHSDG can be refreshed with the updated data.
7.	Technology Updates	Costs for resources to support technology updates (e.g., hosting environment upgrades) to comply with the DBHR architecture and other security requirements.
8.	Near Real-Time Interfaces	Costs for additional resources to implement any near real-time interfaces with the BHSDG data sources and comply with security and compliance requirements.
9.	Additional Technology and Tools	Costs for additional technology or tools to enhance the interactive BHSDG, such as a chatbot.

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Next Steps

Next Steps

Next steps to begin building and implementing Phase 1 of the interactive BHSDG on HCA servers include:

- Update the BHSDG PDF to incorporate sub-headers under the Outreach and Intervention Service section
- Identify additional data sources for non-licensed and licensed providers, if necessary
  - Identify the desired data
  - Identify the frequency of the data sharing
  - Complete data sharing agreement(s), if necessary
  - Consolidate the data and complete data normalization
- Identify data filtering conditions
- Complete geocoding
- Create a Power BI model locally
- Conduct a public comment session
- Incorporate revisions, if needed
- Deploy on the HCA website

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Appendix

Appendix A: Acronyms and Terms

Appendix A includes a list of acronyms and terms used in this high-level roadmap.

Acronym/Term	Definition	Acronym/Term	Definition
ADA	Americans with Disabilities Act	FHIR	Fast Healthcare Interoperability Resources
API	Application Programming Interface	HCA	Health Care Authority
ARMS	Analytics, Research, and Measurement	JSON	JavaScript Object Notation
AWS	Amazon Web Services	LEAD	Law Enforcement Assisted Diversion Programs
BHSDG	Behavioral Health Service Delivery Guide	MOUD	Medications for Opioid Use Disorder
CSV	Comma Separated Values	MVP	Minimum Viable Product
DBHR	Division of Behavioral Health and Recovery	OCS	Office of Cyber Security
DOH	Department of Health	OUD	Opioid Use Disorder
ERD	Entity Relationship Diagram	PATH	Project for Assistance in Transition from Homelessness
ESIT	Early Support for Infants and Toddlers	POC	Proof of Concept
ETL	Extract, Transform, and Load	RNP	Recovery Navigator Program
ETS	Enterprise and Strategy Services	ROI	Return On Investment
FCS	Foundational Community Supports	RRAT	Recovery Readiness Asset Tool
FDA	Food and Drug Administration	SAW	Secure Access Washington

Appendix A: Acronyms and Terms, Continued

Acronym/Term	Definition	Acronym/Term	Definition
SEP	Syringe Exchange Program	UI	User Interface
State	State of Washington	XML	Extensible Markup Language