

Proposal for Phase II of the Environmental Dashboard *Central Wasatch Commission*

Prepared by:
Dr. Phoebe B. McNeally and Dr. James R. Ehleringer
University of Utah
March 3, 2020

The University of Utah, specifically the DIGIT Lab and the Ehleringer Lab, propose to implement the findings of Phase I of the Central Wasatch Commission's (CWC) Environmental Dashboard project to build an online Environmental Dashboard.

The objectives of Phase I were to finalize the Environmental Dashboard Framework and indicators, and achieve group consensus among local technical experts, the CWC leadership and Environmental Dashboard Steering Committee regarding the underlying structure of the online Environmental Dashboard. The outcome of a series of technical charrettes with local experts resulted in significant changes to the Environmental Dashboard Framework and indicators as initially developed by the Brendle Group. Based upon the finalized and agreed upon Environmental Dashboard Framework and indicators, the project team has developed technical road maps for each of the 5 elements that will serve as the basis for Phase II. The overview of the Dashboard and road maps are illustrated in Figures 1-6.

Using the agreed upon Framework, the project team in Phase II will develop an information-based online platform that will allow audiences ranging from the general public to land managers to policy makers to technical users to learn about the Central Wasatch. The Environmental Dashboard will consist of three main types of web pages: 1) educational, 2) maps, graphs, and charts, and 3) links to reports. The Dashboard will not provide a score or judgement value for areas as was originally scoped under the Mountain Accord. Instead, users will be presented information, data, and trends when available that will allow them to draw conclusions based on scientific data. Thresholds will be shown where consensus among the scientific community is available.

The Environmental Dashboard will be developed using the Esri suite of online applications including ArcGIS Hub and Operations Dashboard for ArcGIS. Developing the application using Esri software technologies allows the Dashboard to leverage existing data services and an extensive library of pre-built templates. It also facilitates the seamless connection to numerous geospatial services and data already being hosted by local, county, state governments, and non-profit organizations.

The project team also proposes changing the original CWC study area boundary to a more relevant boundary for the Environmental Dashboard. The proposed boundary uses hydrologic unit boundaries for the North, East and South boundaries. For the West boundary, the team proposes using the Provo Level of Lake Bonneville (approx. 5000'), which is generally agreed upon as being the current wildland-urban interface. Figure 7 provides a map of the proposed boundary. This proposed boundary is jurisdictionally independent, watershed driven, and scientifically based, making it a more appropriate boundary for the Environmental Dashboard.

The development of an online, living Dashboard that will be accessible to all requires the following tasks in Phase II:

Phase II Tasks:

1. Data Inventory/Preparation
 - a. Online data sources
 - b. Siloed data sources
 - c. Data sources needing conversion to useable digital formats
 - d. Data assessment/validation
 - e. Technical expert review and feedback
2. Data Management
 - a. Database design for non “live” sources
 - b. Live source service management
 - c. Maintenance and update plan development
 - i. Provide all maintenance details in MS Word document
 - d. Ensure all technical metadata is embedded in GIS data and available to dashboard users
3. Metric Calculations
 - a. Develop methodology for metric evaluation
 - b. Review and revise based on technical expert feedback
 - c. Apply methodology to process metrics
 - d. Review and revise based on technical expert feedback
4. Metric Communications
 - a. Design of visual metric products (maps, graphs, trend lines, pictures)
 - b. Creation of narrative content
 - c. Review and revise based on technical expert feedback
5. Dashboard Development
 - a. Storyboarding session with Esri
 - i. Define user requirements
 - ii. Determine overall hierarchy of information and look-feel of dashboard
 - b. Configuration of preliminary dashboard
 - c. Incorporating narrative content
 - d. Creating, populating, and linking all the webpages
 - e. Beta testing
 - f. Feedback
 - g. Revisions
6. Communications/Outreach
 - a. CWC Staff
 - i. Monthly conference calls
 - ii. 4 to 5 in-person reviews
 - b. CWC Environmental Dashboard Steering Committee
 - i. Quarterly email updates
 - ii. 2-3 in-person updates
 - c. CWC Commissioners
 - i. Monthly email updates
 - ii. 4-5 in-person updates
 - d. Technical Experts
 - i. 4-5 meetings, combination of in-person and online
 - e. Public
 - i. 2 in-person meetings
 1. On the Wasatch Front
 2. On the Wasatch Back

Schedule for Phase II (Assuming a March 15, 2020 start date):

1. Data and metric methodologies completed by **July 15, 2020**
2. Storyboarding session with Esri completed by **September 1, 2020**
3. Beta Environmental Dashboard completed by **October 15, 2020**
4. Public engagement meetings completed by **November 30, 2020**
5. Environmental Dashboard presented for final approval completed by **March 15, 2021**

Deliverables:

The following is a list of deliverables for Phase II:

1. Database of non-live data sources and derived metrics
2. Methodology report for derived metrics
3. Online, interactive Environmental Dashboard developed in Esri's suite of online applications
4. Maintenance and update plan

Costs:

The costs associated with performing these **Phase II** tasks are outlined in the table below.

Task	Hours	Cost
1. Data Inventory & Preparation	244 hours	\$18,240
2. Data Management	96 hours	\$8,900
3. Metric Calculations	460 hours	\$33,960
4. Metric Communications	334 hours	\$25,000
5. Dashboard Development	430 hours	\$33,830
6. Communications /Outreach	379 hours	\$40,350
Totals	1943 hours	\$160,280
	Indirect Cost (10%)	\$16,028
	Overall Total Cost	\$176,308

Note: The CWC shall be responsible for all Esri licensing costs that are required to host the final Environmental Dashboard. The University of Utah shall be responsible only for the development of the Dashboard and is not committing to any application or data hosting as part of this contract.

Figure 1: Overview of the Elements of the Environmental Dashboard. Estimated number of associated web pages are shown within the yellow stars.

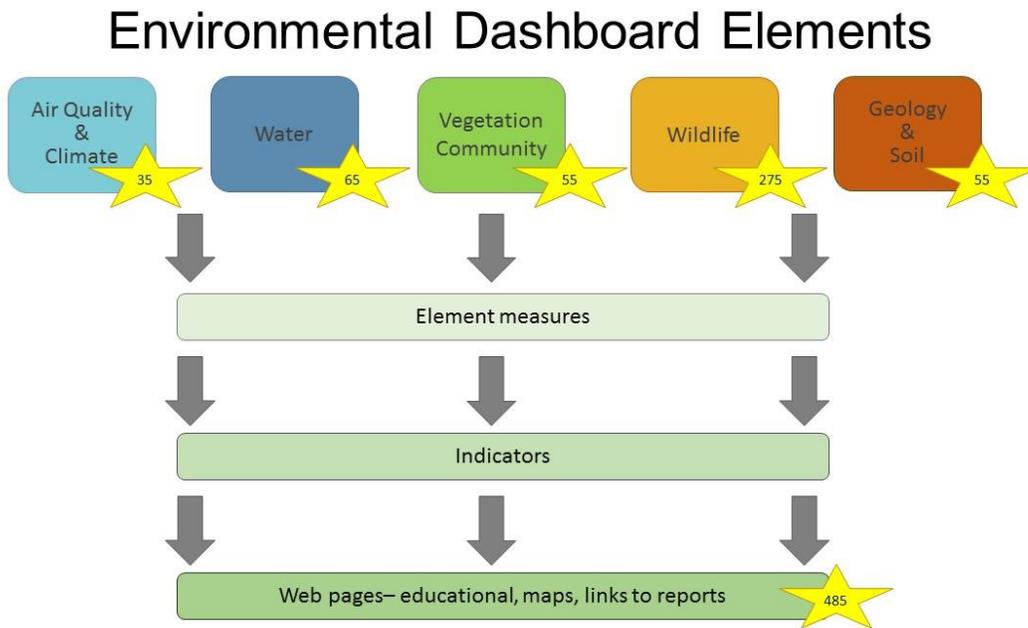


Figure 2: Road Map for the Air Quality & Climate Element

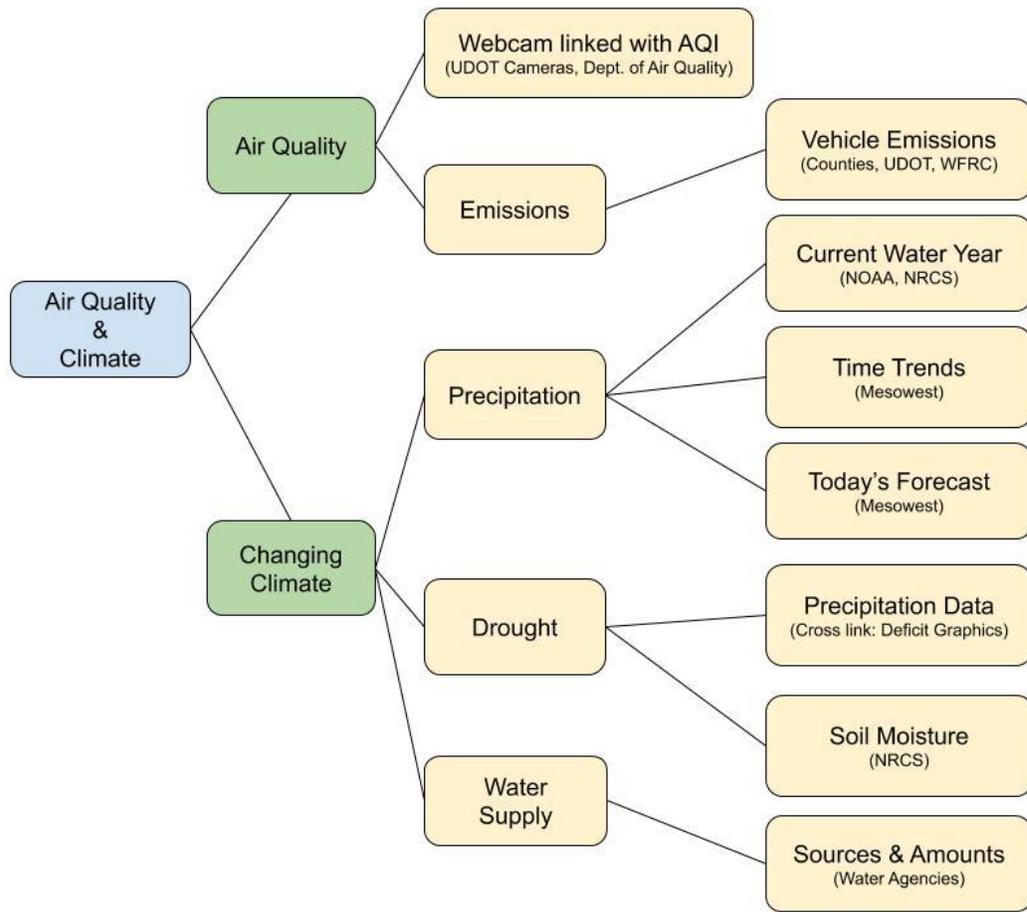


Figure 3: Road Map for the Water Element

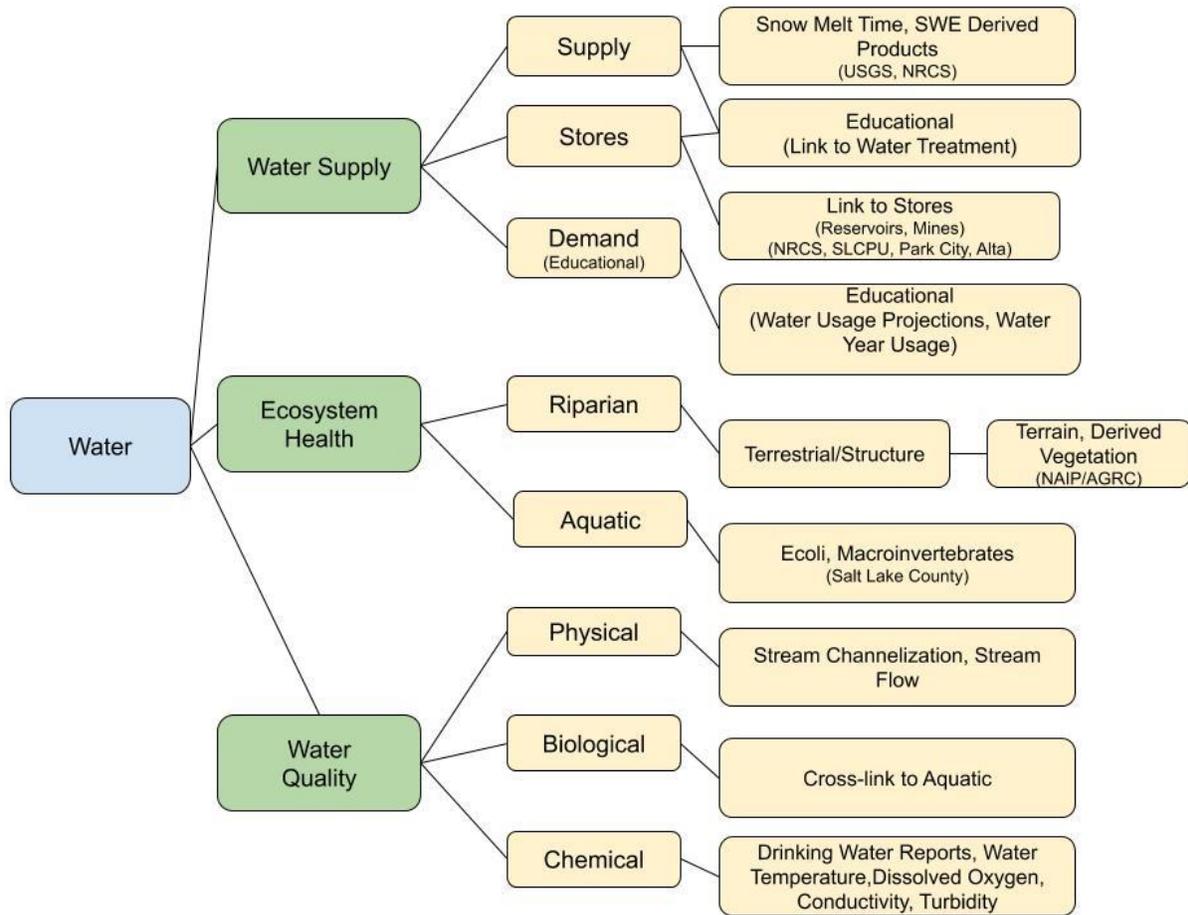


Figure 4: Road Map for Vegetation Communities

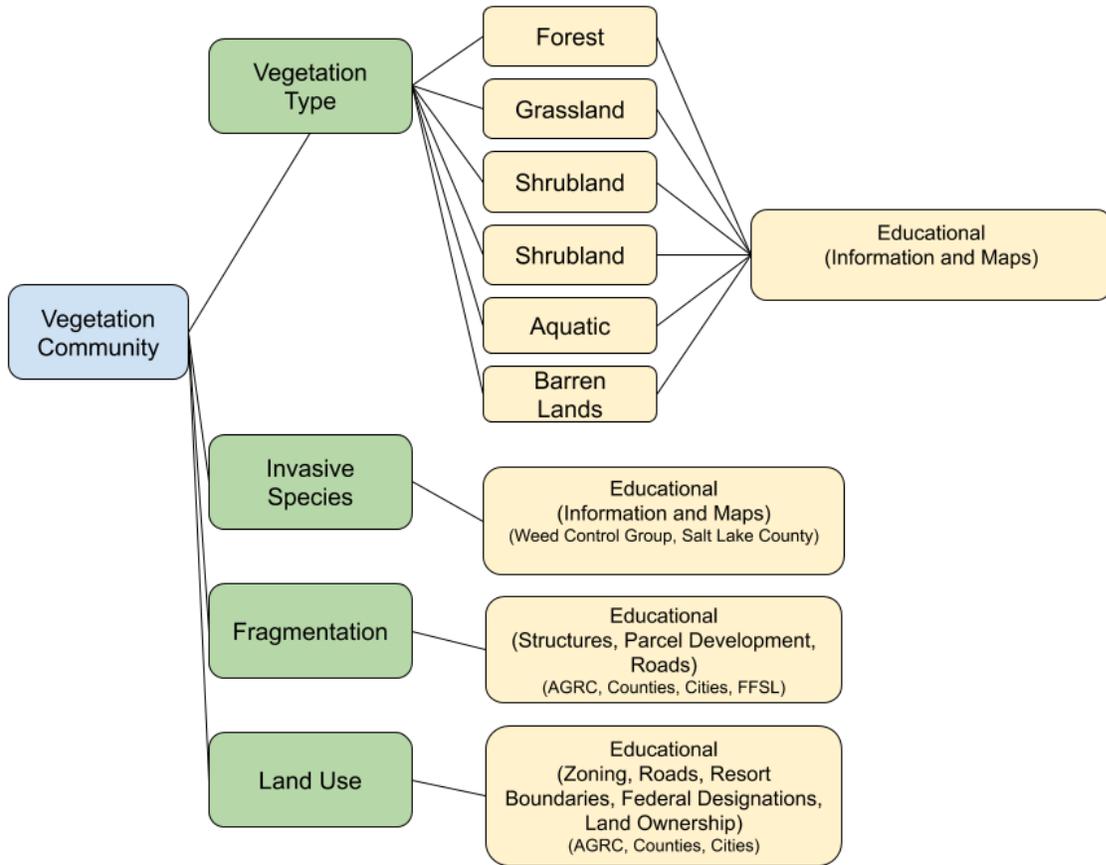


Figure 5: Road Map for Wildlife

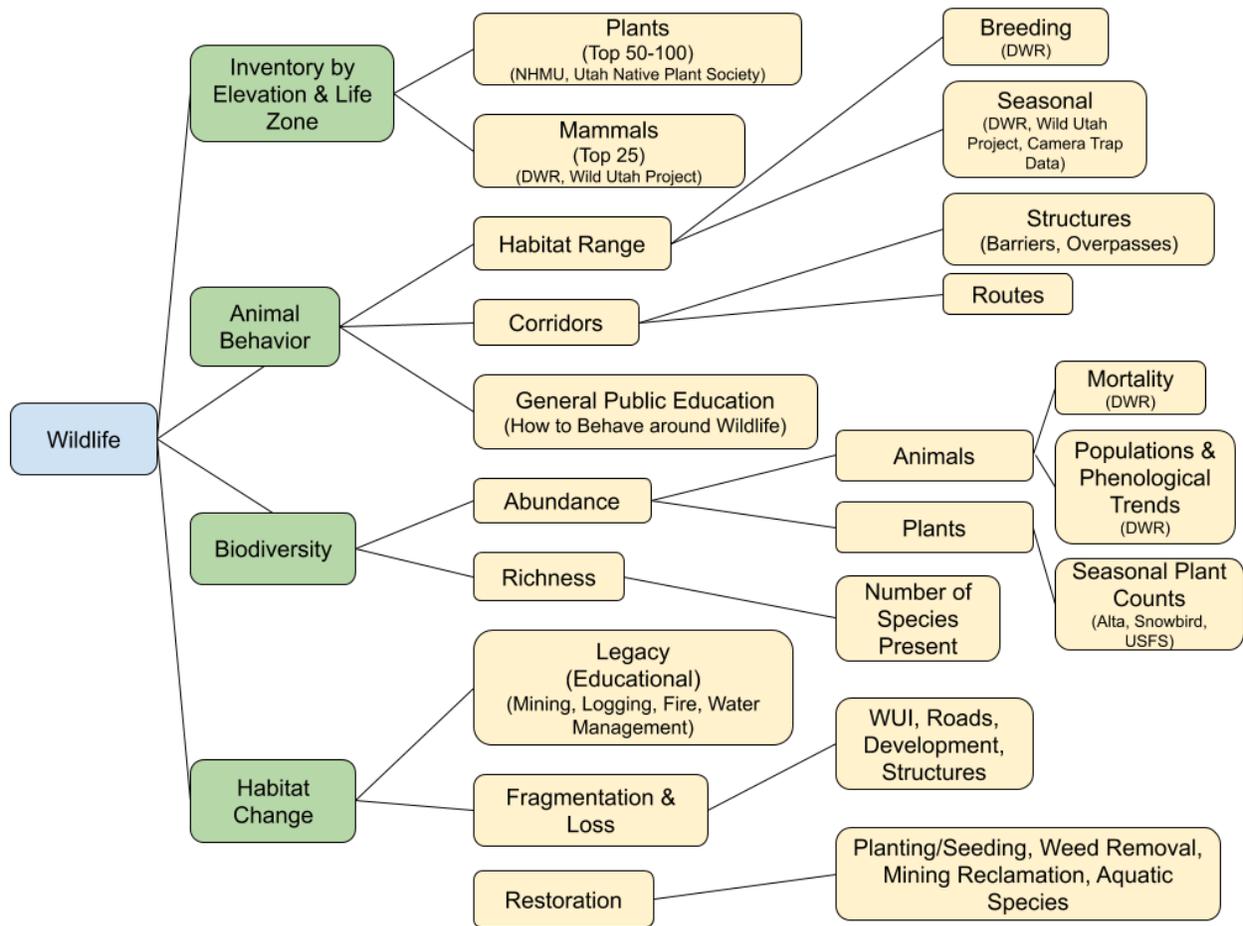


Figure 6: Road Map for Geology & Soils

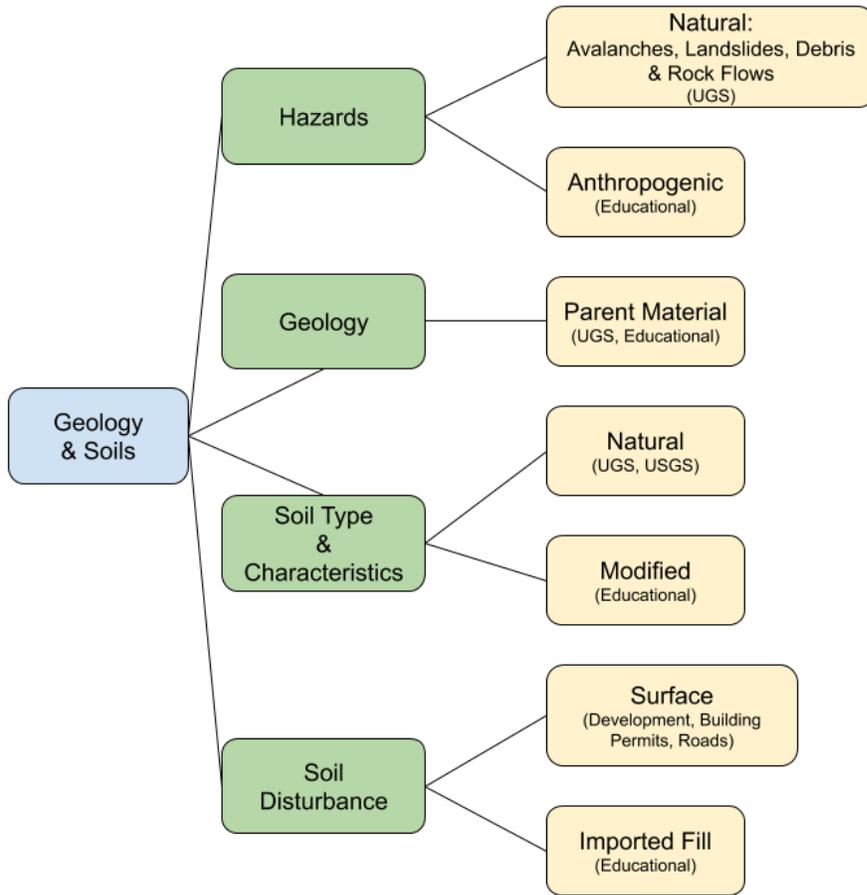


Figure 7: Proposed Study Area Boundary for the Environmental Dashboard

