

## Environment System Group

Following are vision and goals and draft metrics for the Environment System Group. The vision and goals are based on existing studies, input from land, ecosystem and water sub-groups (two meetings with each sub-group), and input from the Environment System Group (two meetings and polling). The metrics are based on input from the land, ecosystem and water sub-groups (two meetings) and input from the Environment System Group (one meeting). Please come to the meeting on July 22<sup>nd</sup> prepared to discuss the metrics. The objective of the meeting is to reach substantial agreement (or at least consent) on metrics.

## Environment System Vision Statement

The Central Wasatch is a natural ecosystem that is conserved, protected, and restored such that it is healthy, functional and resilient for current and future generations.

## Environment Goals, Metrics and Targets

	Measurement Unit	Target
<b>An Ideal Central Wasatch Environment Would:</b>		
<b>Goal 1: Protect, maintain and improve watershed health, water supply, and water quality.</b>		
Metric 1: Degree of impairment or improvement to watersheds	Watershed Score	
Metric 2: Protect existing and future water supply sources	Acres	No loss (x acres)
<b>Goal 2: Protect and improve air quality for protection of public health, environmental health, and scenic visibility.</b>		
Metric 1: Reduction in vehicle miles traveled in project area (compared to existing condition)	% change	
<b>Goal 3: Protect and restore functioning and connected aquatic and terrestrial habitats and ecosystems.</b>		
Metric 1: Degree of impact in core areas and connectivity areas (direct effects)	% impacted	
Metric 2: Degree of fragmentation of corridors connecting core areas	# of contiguous core areas	
<b>Goal 4: Preserve additional lands to avoid loss of critical conservation values, and restore existing degraded lands.</b>		
Metric 1: Additional acres of land with conservation values (Watershed (W), Scenic (S), Historic/Cultural (H), Wildlife/Ecological (E), Connectivity (C))	Acres	
Metric 2: Restored acres of land with conservation values (Watershed (W), Scenic (S), Historic/Cultural (H), Wildlife/Ecological (E), Connectivity (C))	Acres	
<b>Goal 5: Mitigate the severity of climate change and develop adaptive capacity to reduce vulnerabilities to local climate change impacts.</b>		
Metric 1: Net reduction of greenhouse gas emissions	% change	
Metric 2: Extent that climate change vulnerabilities have been assessed and addressed	Policy	

	<i>Measurement Unit</i>	<i>Target</i>
<b>Goal 6: Develop legal, regulatory, financial and integrated governance structures that provide long-term and sustainable support for achieving the environment system goals</b>		
Metric 1: Amount of funding to support adaptive management strategies to protect, maintain and improve environment system	Policy	
Metric 2: Positive/neutral/negative impact to legal, regulatory, financial and governance structures (e.g., Does proposed action set new precedence re. existing ordinance? Would it result in additional stress to agency resources?)	Policy	

### Narrative description of Vision, Goals and Metrics

This narrative includes background information and additional details on vision, goals and metrics including:

- Rationale
- Intent
- Clarification
- Assumptions

#### **Vision Statement**

- Written from the viewpoint of someone in 2040, looking both backward and forward
- *Natural system*: mainly focused on the mountainous area, does not apply to the areas that have already been developed/urbanized as of today (2014/2015). Although the system has been impacted—it is managed, conserved, and restored such that one would consider it more natural than not.
- *Ecosystem*: includes land, water, air, and the life it sustains (flora and fauna). View sheds are also considered an important part of the environment system.
- *Conserved, protected, and restored ...for current and future generations*: this implies stewardship by the community, agencies and political leaders.
- *Resilient*: the ecosystem is functioning such that it can resist and recover quickly from human-caused or natural disturbances.

#### **Goals:**

- There is overlap between the goals (e.g., protecting lands with conservation values (Goal 4) will also protect watershed health (Goal 1) and ecosystems (Goal 3), and mitigate severity and vulnerabilities to climate change (Goal 5).

**Goal 1: Protect, maintain and improve watershed health, water supply, and water quality.**

- Reasoning for goal:
  - Protection, maintenance, and improvement of watershed health, water supply, and water quality have a vast reach that is pivotal within the Environmental, Economy, and Recreation system groups.
  - Protection of the watershed health and improvement of its resiliency is imperative - once natural watershed functions have been degraded, restoration to their current or pre-developed state is not possible.
  - Poorly functioning watersheds have cascading effects on water supply, water quality, aquatic and terrestrial ecosystem health, and other important study area attributes.
  - The municipal water supply provided by the watersheds within the project area is critical to the public health and economic health of the region, and cannot be replaced through development of new supplies or purchases from other sources.
  - As population increases in the Wasatch Front and Wasatch Back areas and as climate change effects become more pronounced, the pressure to maximize the productivity and preserve the water quality from local watersheds for potable water supplies will increase.
  - The word “maintain” was purposefully selected instead of “manage” because “manage” implies the condition could get worse.
  - Some parts of the watershed are currently not functioning adequately and need to be improved.
- **Metric 1: Degree of impairment or improvement to watersheds**
  - The degree of impairment and/or improvement of watersheds will be evaluated utilizing a combination of watershed condition and functionality metrics, protection and improvement zones, and qualitative evaluation.
  - Identification of protection zones and improvement zones will be completed graphically.
    - Display levels of desired watershed and groundwater recharge protection areas. The protection level mirrors its relative importance and risk to the health of the watershed or quality and supply of water if disturbed. The levels of protection may include:
      - Areas where no disturbance can be tolerated,
      - Areas where disturbance must be mitigated, and
      - Areas where disturbance should be minimized.
    - Display levels of desired improvement zones where management or improvement of a current condition is warranted. These improvement zones may have several levels as well (e.g., high priority, medium priority, low priority).
  - Together the protection zone and improvement zone maps will allow for comparison of potential impacts of the combined scenarios and identification of related resource improvement opportunities in project area watersheds.
  - Assumptions

- Three studies/sets of data are available to evaluate watershed health (USFS, UDEQ UCASE, and SLCO SFI) and assist in the identification of protection and improvement zones within the project area. None of these studies has been applied comprehensively to the entire study area.
- A “toolkit approach” will be adopted in which the most appropriate data or past study will be used to develop idealized system objectives and assess the impacts of the combined scenarios.
- Objective and standardized criteria will be developed for evaluation of the different combined scenarios to assure an unbiased, defensible outcome, to the extent possible. However, professional judgment and qualitative evaluation will be required to apply the criteria to specific combined scenarios when information and data are not available.
- Criteria will be different for the Wasatch Front and the Wasatch Back as well as for the mountainous regions versus the valley regions (upper and lower reaches).
- **Metric 2: Protect existing and future water supply sources**
  - Could include surface and groundwater
  - Could include potential infiltration galleries or reservoirs

**Goal 2: Protect and improve air quality for protection of public health, environmental health, and scenic visibility.**

- Reduction of greenhouse gas emissions are covered in Goal #5
- **Metric 1: Reduction in vehicle miles traveled in project area (compared to existing condition)**
  - Transportation System Group is also using reduction in vehicle miles traveled as a metric—the Environment System Group will use their data

**Goal 3: Protect and restore functioning and connected aquatic and terrestrial habitats and ecosystems.**

- This goal incorporates several important components:
  - Both ecosystems and habitats for individual species will be protected and restored. Important considerations when identifying areas to be protected and restored include:
    - Sufficient size (the group prefers large intact areas minimally reduced from current/historical extent)
    - Condition (want them to be in good to excellent condition, i.e. dominated by the proper suite of native species with minimal amounts of non-native species).
    - Ecosystem function (the biological and physical processes that occur within an ecosystem, such as nutrient and water cycling, pollination). This is also important but difficult to measure using available information, so we will assume that if large intact areas are maintained in good condition, they are also functioning properly.

- Connectivity- ecosystems and habitats need to be connected to allow species to move freely. Alternations to the landscape such as urban areas and roads can create barriers to animal movements. Connectivity is also important for maintaining resilience as it allows species to move to new areas if disturbance results in loss of habitat.
- **Metric 1: Degree of impacts in core areas and connectivity areas**
  - Metric measures the degree (both scope/size and intensity) of human disturbance in both core and connectivity areas.
  - Different types of disturbances will have different levels of intensity (i.e. train or road has higher intensity impacts than trail) and each will be assigned an impact rating.
  - Distance from disturbance to core area important- the closer the disturbance, the greater the impact. Either core areas or disturbances will be buffered and then the distance from the buffer to the core area or connectivity area can be measured.
  - Core areas and connectivity areas will be identified in the next subgroup meeting using the group's professional judgment and the best available information collected for the Mountain Accord Process.
- **Metric 2: Degree of fragmentation (or # of fragments) of corridors connecting core areas**
  - Metric measures the amount of fragmentation resulting from human disturbance that occurs in connectivity areas.
  - The group understands that fragmentation occurs differently for different species and ecosystem function. Measuring the number of fragments of core areas and connectivity areas gives a relative measure of fragmentation across the landscape, which may have different effects on different species.
  - Assumes that as the amount of fragmentation increases, the functionality of ecosystems and habitats decreases.

**Goal 4: Preserve additional lands to avoid loss of critical conservation values, and restore existing degraded lands.**

- The intent of this goal is to protect land to the maximum extent possible.
- Conservation values presented are taken in part from Utah Open Lands Conservation Easements Criteria.
  - Based upon Internal Revenue Service Code, 26 USC §170(h)--Qualified conservation contribution
  - Scenic – Property that is valuable to the community as open space due to its proximity to developing areas, or its impact on a view corridor. Established by its visibility from a major roadway; in some instances correlated with an actual vehicle count.
  - Historic or Cultural –Property that is valuable to a community because of its historical or cultural value or its proximity to an historically significant area. This can even apply to a land use pattern; however, if this is the only criteria being used, National Register Designation is preferred.
  - Wildlife or Ecological – Property that contains endangered, threatened, or ecologically significant species, or natural systems. This often includes wetlands and migration corridors, critical habitat as identified by the division of natural resources; however, added to this criteria is that the area be of significant size to insure that, should the property be surrounded by development, the wildlife values can be protected.
- Lands are protected to different levels in the Project Area.
  - Open space is defined herein as city, county, non-profit, or privately owned land encumbered by a conservation easement or a deed restriction.

- The level and term of protection and the manner in which condemnation occur are different for a conservation easement and deed restriction.
- Open space on the basemap excludes lands that may have zoning or development restrictions in sensitive areas (i.e., riparian habitat, steep slopes, and ridgelines), as well as city/county parks.
- **Metric 1: Additional acres of land with conservation values (Watershed (Ws), Scenic (S), Historic/Cultural (H), Wildlife(WI), and Ecological (E), Connectivity (C))**
  - “Additional acres” of land refers to protecting lands which are currently not afforded protection.
  - Conservation values were identified by the Land sub-group as the best indicator of land worth
  - Connectivity refers to land connectivity to other protected lands as well as habitat connectivity.
- **Metric 2: Restore acres of land with conservation values (Watershed (Ws), Scenic (S), Historic/Cultural (H), Wildlife(WI), and Ecological (E), Connectivity (C))**
  - “Complete” restoration is not assumed as this can evolve over time and standards can change (i.e. EPA Requirements).
  - Examples of lands for restoration include: weed infested parcels, stream banks, historic mine waste/tailings, etc.
  - Connectivity refers to land connectivity to other protected lands as well as habitat connectivity.

**Goal 5: Mitigate the severity of climate change and develop adaptive capacity to reduce vulnerabilities to local climate change impacts**

- This goal has two parts (mitigation and adaptation):
  - Mitigate the severity of climate change—intent is that Mountain Accord will result in proposed actions within the project area that either do not contribute to climate change or minimize the contribution to climate change (it is understood that Mountain Accord will not have a measurable influence on global climate change)
  - Develop adaptive capacity to reduce vulnerabilities to local climate change impacts—intent is to be prepared for climate change through sound adaptation strategies
- **Metric 1: Net reduction of greenhouse gas emissions (mitigation)**
  - Could be accomplished with energy efficiencies and/or ecological protection/restoration
  - Hypothetical examples:
    - Policy metric - renewable energy required to offset proposed energy use from transportation or development
    - Spatial metric - Protect or restore acres of forest (to act as a carbon sink)
- **Metric 2: Extent that climate change vulnerabilities have been assessed and addressed (adaptation)**
  - Hypothetical examples:
    - Policy metric – agencies required to identify risks and actions to reduce vulnerabilities to those risks
    - Spatial metric – Protect future water storage areas identified in existing studies

**Goal 6: Develop legal, regulatory, financial and governance structures that provide long-term and sustainable support for achieving the environment system goals**

- Policy goal intended to support all other environment system goals; two main components:
  - Funding: additional funding is needed to support proposed changes that affect the environment system; agencies are already strapped to manage existing uses
  - Governance: proposed actions from Mountain Accord could affect existing legal, regulatory, financial and governance structures (e.g., set a precedent that would make it more difficult to enforce existing protections, or increase litigation)
- **Metric 1: Amount of funding to support adaptive management strategies to protect, maintain and improve environment system**
  - Hypothetical examples:
    - Policy metric – ongoing funding mechanism to protect additional lands or conduct additional studies (e.g., to evaluate impact from proposed actions to environment system)
- **Metric 2: Impact to legal, regulatory, financial and governance structures**
  - The intent is to evaluate how an action from another system group would impact the legal, regulatory, financial, and governance structures relevant to the environment system; a placeholder or a reactive metric
  - A proposed action from another system group could potentially set precedence for an existing ordinance or result in additional stress to agency resources
  - Measured on a relative sliding scale (major negative impact, minor negative impact, neutral, minor positive impact, major positive impact) based on professional judgment
  - Hypothetical example:
    - If another group proposed to allow transferring water rights from the valley up to the canyons, it could result in a negative impact (new precedent, litigation, additional work for management agencies, etc.)

**Mountain Accord Glossary of Select Terms**

**Metric:** Evaluation criteria used to measure how well proposed actions (design and policy ideas) address goals for Phase 1. Metrics can be quantitative or qualitative and will be used to rate various options for the Idealized Systems and Combined Scenarios. When selecting metrics, these are some questions to consider:

- Are these metrics the best ways to measure success in achieving the goals?
- Can the metrics be measured in Phase 1 (will there be adequate data or information, and will they fit within schedule and budget constraints)?
- Will Mountain Accord actions, policies or decisions cause a meaningful and measurable change in the metric?

**Open Space:** City, county, non-profit, or privately owned land encumbered by a conservation easement or a deed restriction; excludes lands that may have zoning or development restrictions in sensitive areas (i.e., riparian habitat, steep slopes, and ridgelines), as well as city/county parks.

**Resilient:** The ecosystem is functioning such that it can resist and recover quickly from human-caused or natural disturbances.

**Target:** The desired future (typically 2040) level of performance for a given metric. Targets are not mandatory, but will be identified where feasible and useful. Where targets are not identified, proposed actions will be rated by their relative performance on a given metric.

**Vision:** A statement that articulates, in a broad sense, a shared description of the desired long-term future state. It is inspirational and reflective of the communities' values and highest desires

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