

Idealized Environment System

Problem Statement

Mountain Accord presents a valuable opportunity to protect, maintain, and improve the environment system of the Central Wasatch. Past conservation efforts and ongoing land management have helped protect critical watersheds and ecosystems. However, stressors threaten the future health of the environment. Critical drinking water sources continue to need strong protection, especially as population growth continues to increase demand. Climate change, additional development, and increased human activity in the watershed threaten to degrade watershed health, water supply, and water quality, as well as affect ecosystem function through fragmentation and habitat loss. Some environmental functions in the Central Wasatch have been degraded due to development, recreation use, erosion, invasive weeds, and historic mining contamination. Mountain Accord provides a platform to address threats, restore degraded areas, and protect resources by holistically evaluating and addressing environmental, recreation, transportation, and economic issues and goals.

Idealized System Development

The idealized environment system was developed based on input from the Environment System Group, the best available data, and professional judgment. Some environmental resources are not well documented or understood, such as specific areas with high ecological value and specific wildlife migratory routes in relation to roads. Additional data will be needed in Phase 2 to further define and evaluate the proposed actions.

Key Considerations

- There are varying opinions on how to increase protection on federal lands. While some individuals or groups prefer to have as many acres of designated wilderness or other congressionally designated protected lands as possible, others prefer administrative or U.S. Forest Service Forest Plan changes (or possibly a mix).
- Areas dedicated to special uses — such as areas within the ski resorts and riparian areas along road corridors — are also important for conservation. These areas should be managed to protect sensitive resources and resource values (e.g., the headwaters of Little Cottonwood Creek at Alta). Climate change impacts the region's water cycle and ecosystem, with cascading impacts throughout the economy, built environment, and public health. Mitigation strategies should interrelate with and occur within the economic, recreation, and transportation systems.
- Public health and well-being is a primary driver for the proposed actions of the Environment System Group.

Idealized System Maps

The following summarizes how key information provided on the corresponding environment system maps was derived.

Lands with Ecosystem Conservation Values:

- Terrestrial habitat includes all land more than 1/8 mile from current development and major roads. Current data and scientific understanding are insufficient to identify areas of critical importance; however, habitat function is generally higher in areas not adjacent to development and roads. While all undeveloped lands provide ecosystem services, protecting large, unfragmented areas improves ecosystem function, provides habitat connectivity, and reduces vulnerability to threats such as invasive weeds and climate change.
- Aquatic habitat includes areas within 50 meters of streams, springs, and wetlands within the study area to capture unmapped riparian areas and wetlands. Wetlands and riparian areas are not widely distributed within the study area but provide disproportionately high ecosystem services. A comprehensive inventory of all wetlands and riparian areas has not been conducted in the study area, and existing data are known to underrepresent these important habitats.
- Large landscape linkages provide corridors for wildlife and represent important habitat connectivity areas. Aquatic and riparian connectivity areas provide corridors for a wide range of species, including habitat for migratory birds. Mountain passes may be important for large mammal movement. Not all locations of wildlife connectivity areas are known or shown on the map.

Lands with Water Conservation Values:

- Protected watersheds include existing and future municipal watersheds, source water protection areas, and the tunnel source water protection area for the Spiro, Judge, and Ontario Tunnels (the Ontario Tunnel protection area is not shown on the map).
- Groundwater Zone 4 Protection is the area within a 15-year groundwater time of travel to a public drinking water well.

Protected Areas:

- Federal lands considered for additional protection include U.S. Forest Service Inventoried Roadless Areas and other areas within municipal watersheds. Although not shown on the map, the goal is to also protect additional private land with conservation values. The Executive Board will be contemplating a comprehensive, coordinated approach to achieve this goal.

Restoration Areas:

- Impaired waters include streams listed on the Utah Division of Water Quality 303(d) list; these streams do not meet their beneficial uses as defined by the federal and state Clean Water Acts.
- Soils with environmental concerns include Superfund sites, historic mining contamination areas, and areas with naturally occurring phosphorous-rich soils. Some of these areas are currently undergoing environmental cleanup.

- Invasive plant concentrations include areas where invasive weeds are known to occur such as along roads, trails, lower elevations in ski areas, developed areas, and the wildland/urban interface.

Climate Change:

- The Baseline Greenhouse Gas Emissions map identifies the emissions intensity within the region, building off recognized greenhouse gas (ghg) accounting protocol and completed emissions inventories for Park City, Summit County, Salt Lake City, and Town of Alta (see appendix).
- Climate science experts participated in the environment system sub-group meetings to help interpret baseline conditions and determine how to represent dynamic climate change impacts on the map or through administrative policies and actions within the environment system narrative.

Appendix

See the attached appendix for the Baseline Greenhouse Gas Emissions map and the metrics scorecard for the environment system. Interactive maps can be found online at <http://mountainaccord.com/meetings-and-documents/interactive-maps/>.

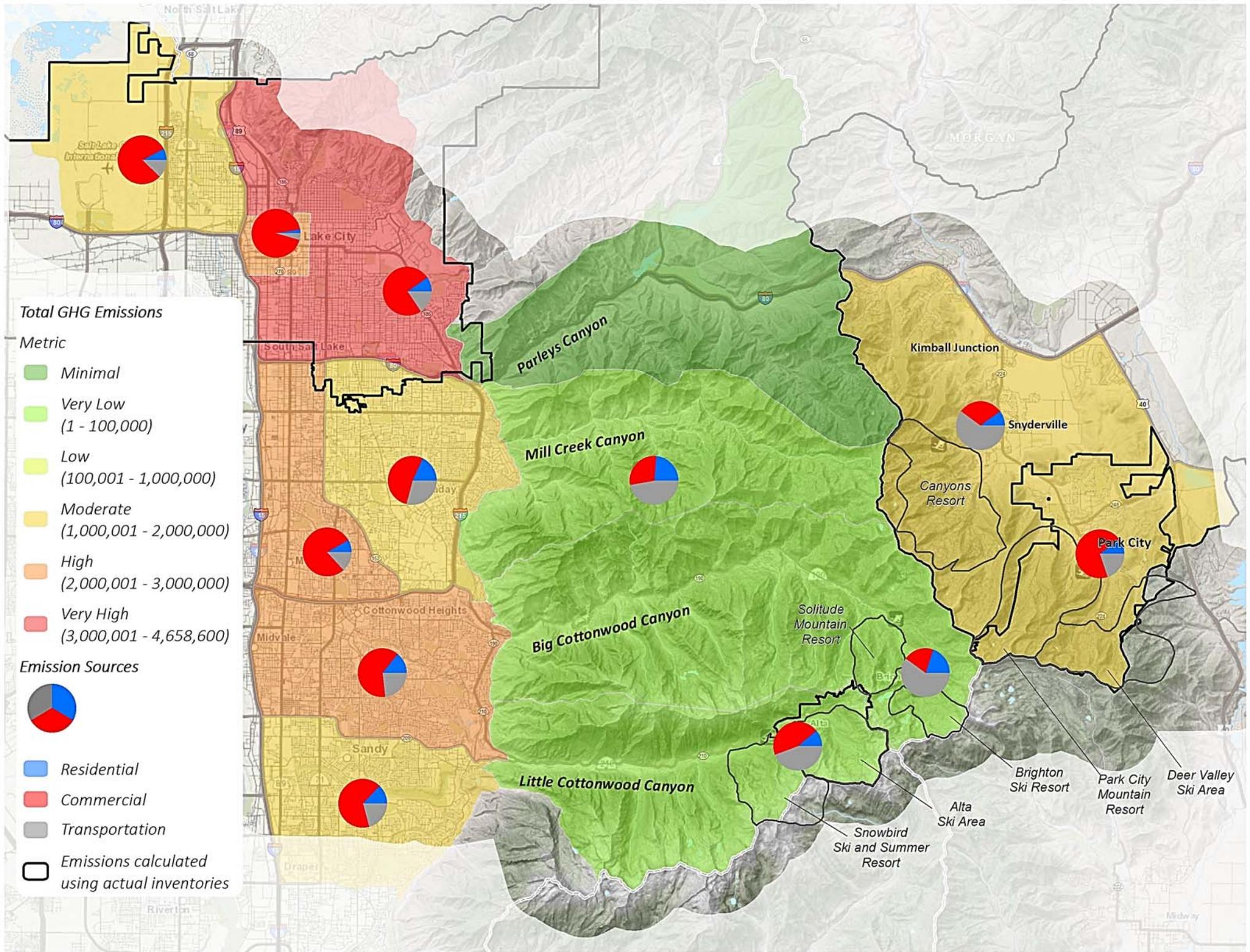
Proposed Actions

Proposed Action*	Goals Served**					
	1	2	3	4	5	6
Preserve private lands with conservation values while respecting private property rights (see Lands with Conservation Values map)	X		X	X	X	
<i>Intent:</i> Limit additional development on sensitive lands and provide connection to other lands currently afforded protection. Provide ongoing maintenance necessary to maintain conservation values (e.g., providing such assurances as funding to enable ongoing maintenance). Accomplished through a variety of mechanisms — including purchase, conservation easement, land exchange, protective zoning, and transfer of development rights. The appropriate mechanism will depend on factors such as willingness of the property owner, available funding, and local land use authorities.						
Preserve conservation values on federal lands through more protective administrative rules and/or legislation (see Protected Areas map)	X		X	X	X	
<i>Intent:</i> Identify opportunities to change the designation of federal lands to preserve wilderness quality and prevent future degradation by activities that could potentially be permitted under the current management designations. Accomplished through changes to the U.S. Forest Service Forest Plan or legislation (such as Wilderness or other types of congressional designation).						
Preserve conservation values on federal lands through local land management prescriptions or designations (see Protected Areas map)	X		X	X	X	
<i>Intent:</i> Provide additional natural resource management and protection within special use permit areas (e.g., ski resorts).						

Proposed Action*	Goals Served**					
	1	2	3	4	5	6
Protect streams and restore impaired streams (see Lands with Conservation Values map and Restoration Areas map)	X		X	X	X	
<i>Intent:</i> Identify restoration projects to positively influence water quality, stream banks and riparian ecosystem function. Protect high-quality, high-functioning streams from degradation. Minimize impacts of proposed actions to watershed health, water quality, and water quantity.						
Restore or otherwise mitigate impacts relating to soils with environmental concerns (see Restoration Areas map)	X		X	X		
<i>Intent:</i> Identify restoration projects to remediate problematic soils that contribute to water and habitat degradation. Storm water exposure to problematic soils, either naturally occurring or due to historic mining, can cause negative impacts to water quality. Minimize impacts of proposed actions to areas with problematic soils.						
Restore native habitat and mitigate invasive weeds (see Restoration Areas map)	X		X	X	X	
<i>Intent:</i> Identify restoration projects in important areas with known weed infestations. Invasive weeds generally occur along roads, trails, the wildland/urban interface, lower elevations in ski areas, and other areas adjacent to development. Managing weeds in these areas and restoring native habitats is an important strategy for watershed health, mitigating habitat loss, and reducing weed spread to areas that are currently weed-free. Restoring native habitats would further invigorate watershed health and ecosystem function.						
Establish integrated governance structure with appropriate authority, funding, and personnel to implement land protection and restoration actions	X	X	X	X	X	X
<i>Intent:</i> Create a formally established structure to streamline coordination between overlapping jurisdictions and ensure that all jurisdictions are working together toward a common goal. The intent is not to create another layer of jurisdiction or to strip any jurisdiction of authority.						
Identify and protect key wildlife corridors and minimize fragmentation			X			
<i>Intent:</i> Develop methods for protecting existing and restoring lost connectivity in key areas to sustain wildlife populations and landscape-scale connectivity for the long-term. High-use transportation corridors and development fragment wildlife habitat and can bisect critical migration routes. Extra efforts should be put into conserving high-value habitats including riparian areas, wetlands, and alpine meadows.						

Proposed Action*	Goals Served**					
	1	2	3	4	5	6
Ensure no net increase in greenhouse gas (ghg) emissions and minimize climate change impacts through preparedness planning and action	X	X	X	X	X	X
<i>Intent:</i> Mitigate the region’s contribution to global climate change, while preparing for current and future local climate change impacts. No net increase in ghg emissions would require capping emissions at current levels and mitigating emissions growth through materials and energy efficiency and transitioning to lower-carbon energy supplies. Preparing for climate change requires ongoing climate change characterization in the region, risk assessments that evaluate environmental impacts and adaptive capacities throughout the system, and associated action plans and collaborative partnerships to prepare for highest risk vulnerabilities — thereby increasing the overall resilience or “climate-proofing” of the system. Climate change adaptation plans should identify the potential risks or vulnerabilities to the system from climate change, as well as potential mitigation strategies or actions.						
Obtain funding for land conservation and ongoing land stewardship	X	X	X		X	
<i>Intent:</i> Establish new, and support existing, ongoing funding sources to support land preservation and restoration activities, as well as ongoing maintenance of those lands.						
Support thoughtful transportation choices that protect, and do not degrade, the environment	X	X	X		X	
<i>Intent:</i> Support transportation/transit choices to facilitate access to the mountain regions of the project area that support and improve environmental conditions. Transportation choices should not degrade environmental conditions, and should support the environment system goals. Impacts from induced use and development should be limited through transportation choices; transportation choices should support a transportation system that concentrates use at appropriate locations where use can be managed (for example, parking currently serves to limit use and thereby minimize impacts).						
Minimize emissions of air pollutants that impact public health, environmental health, and scenic visibility		X			X	
<i>Intent:</i> Support actions that reduce vehicle miles traveled and increase fuel efficiency. Incentivize green building and clean energy. Increase attention to the issue of regional haze and make a strong commitment to existing plans that address haze.						
Identify key indicators, obtain baseline data, and develop ongoing monitoring and adaptive management plan	X		X	X	X	
<i>Intent:</i> A monitoring and adaptive management plan should be developed to track key resources and potential impacts from proposed actions over time. Once proposed actions are identified, more specific information will need to be gathered to identify important resources, assess their condition, and establish strategies to mitigate impacts and maintain or improve resource conditions. Data gaps identified include the following: wetlands, invasive species occurrences, habitat condition assessment, and wildlife connectivity corridors.						

Proposed Action*	Goals Served**					
	1	2	3	4	5	6
<p><i>*The intent of Mountain Accord is not to take over responsibility of existing agencies (e.g., U.S. Environmental Protection Agency, Utah Department of Environmental Quality) and programs, but rather to work collaboratively with them.</i></p> <p>**Environment System Goals:</p> <ol style="list-style-type: none"> 1. <i>Protect, maintain and improve watershed health, water supply, and water quality</i> 2. <i>Protect and improve air quality for protection of public health, environmental health, and scenic visibility</i> 3. <i>Protect and restore functioning and connected aquatic and terrestrial habitats and ecosystems</i> 4. <i>Preserve additional lands to avoid loss of critical conservation values, and restore existing degraded lands</i> 5. <i>Mitigate the severity of climate change and develop adaptive capacity to reduce vulnerabilities to local climate change impacts</i> 6. <i>Develop legal, regulatory, financial and integrated governance structures that provide long-term and sustainable support for achieving the environment system goals</i> 						



Total GHG Emissions

Metric

- Minimal
- Very Low (1 - 100,000)
- Low (100,001 - 1,000,000)
- Moderate (1,000,001 - 2,000,000)
- High (2,000,001 - 3,000,000)
- Very High (3,000,001 - 4,658,600)

Emission Sources

- Residential
- Commercial
- Transportation

Emissions calculated using actual inventories

Parleys Canyon

Mill Creek Canyon

Big Cottonwood Canyon

Little Cottonwood Canyon

Kimball Junction

Snyderville

Canyons Resort

Park City

Solitude Mountain Resort

Brighton Ski Resort

Park City Mountain Resort

Deer Valley Ski Area

Snowbird Ski and Summer Resort

Alta Ski Area

Lake City

South Salt Lake

Sandy

Midvale

Cottonwood Heights

Sandy

Draper

North Salt Lake

MORGAN

Riverton

Midway

Environment

Metric	Units	Existing Conditions	Idealized Scenario
<i>Goal 1: Protect, maintain and improve watershed health, water supply, and water quality.</i>			
1. Degree of impairment or improvement to watersheds	Qualitative	○	●
2. Protection of existing and future water supply sources	Qualitative	○	●
<i>Goal 2: Protect and improve air quality for the purpose of public health, environmental health, and scenic visibility.</i>			
3. Reduction in health-related air pollutant emissions	VMT	○	●
<i>Goal 3: Protect and restore functioning and connected aquatic and terrestrial habitats and ecosystems.</i>			
4. Degree of impact or improvement in core areas and connectivity areas (direct effects)*	Percentage protected or disturbed	○	●
<i>Goal 4: Preserve additional lands to avoid loss of critical conservation values, and restore existing degraded lands.</i>			
5. Additional acres of land with conservation values	Acres protected	○	●
6. Restored acres of land with conservation values	Acres restored	○	●
<i>Goal 5: Mitigate the severity of climate change and develop adaptive capacity to reduce vulnerabilities to local climate change impacts.</i>			
7. Net reduction of greenhouse gases	Percentage change in GHG	○	●
<i>Goal 6: Develop legal, regulatory, financial and integrated governance structures that provide long-term and sustainable support for achieving the environment system goals.</i>			



 Worse <<< >>> Better

**Impacts or improvements to areas of critical importance (e.g., aquatic habitats, wetlands, alpine meadows, and wildlife migratory corridors) can have disproportionately high effects on wildlife when compared to the amount of habitat affected.*