



# GRAND COUNTY GENERAL PLAN 2030

*"Adventurous Small Town Spirit"*

## SECTION NINE: MUNICIPAL UTILITIES AND SERVICES/INFRASTRUCTURE

### 1. OVERVIEW WATER, WASTEWATER, AND INFRASTRUCTURE

Residential, commercial and industrial growth often results in an increased demand for municipal services and infrastructure. This includes firefighting, police and emergency response; water, sewer and garbage collection; street construction, repair and cleaning; transit; high speed internet; and recreation and parks programs and services.

As already emphasized in this Plan, all of the goals in the different sections support each other and should be implemented together to achieve the overall vision which is: *Balance - As a small and diverse community we collaborate with our partners to create resilient educational and economic opportunities for residents while balancing social and environmental values.*

A key focus of the *Grand County Strategic Plan* is *Value 1 - Sustainability - We encourage sustainable development that promotes resource conservation and preservation and takes into account ecological constraints.*

The provision of infrastructure and services ensures a vibrant and secure community. Municipal services and infrastructure influence public health and safety through the provision of:

- Safe drinking water;
- Safe roadways and bridges;
- Proper solid and liquid waste disposal and collection; and
- High speed internet, fiber and/or public WiFi – Reference Schedule 16.35 for high speed internet build out plans.

These programs and facilities are paid for by developers through impact fees and the taxpayer either through tax dollars or direct user fees. The County should continue to find ways to keep those costs reasonable. Regional cooperation in the delivery of some municipal services has potential to reduce costs and improve services to residents.

All sections in this element will be updated when master plans are considered and adopted for stormwater, sanitary sewer, water, transportation, and high speed internet.

A number of agencies, special districts and state licensed providers support the sewer and water systems in the County. A decision making chart identifies the key partners and highlights the need for an integrated approach to infrastructure, and regional land use planning. See Schedule 16.8.

A number of onsite package sewage and water systems (local and regional) and distribution systems including irrigation water are identified in Schedules 16.3-7.

There are a number of special service districts that manage delivery. Decision making and reporting structure should be developed to ensure integration with land use decisions and entitlements. The Decision making



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section begins to identify those gaps, but the full public engagement strategy will prescribe various methods of improving those relationships. Groups that are part of this infrastructure process include:

1. Grand Water & Sewer Service Agency (GWSSA) ; Interlocal Agency comprised of the following:
  - i. Grand County Special Service Water District;
  - ii. Grand County Water Conservancy Board; and
  - iii. Spanish Valley Water and Sewer Improvement District.
2. Grand County Special Service Water District;
3. Grand County Water Conservancy Board;
4. Spanish Valley Water and Sewer Improvement District; and
5. Thompson Springs Special Service Water District Board.

Each Special Service District has legal authority for servicing decisions within their planning areas. The districts are listed in the decision making flow in Section 1.

The *Southeast Utah Health Department* monitors, permits and inspects on-site sewage and water systems and assists in licensing sewer and water package systems. Infrastructure coordination with development options are important to this Plan. The Health Department is digitizing much of their data and the County will be coordinating mapping and text to better demonstrate development options. The Health Department is involved in toxic spill and clean-up efforts.

The *Moab Area Watershed Partnership* gives guidance to the local, regional and state decision makers and has published a Comprehensive Watershed Master Plan – 2014. The master plan is updated on a regular basis by both state, regional and local stakeholders. Their mandate underpins key land use decisions in this Plan and helps forecast future impacts and capacities of both the built and natural environments. The preamble to the plan identifies its scope as follows:

*Water quality is an important issue that affects all people within a watershed. Resolving water quality issues will require locals making and implementing local solutions. This Watershed Management Plan (WMP) for Spanish and Castle Valley is a planning tool for developing local solutions.*

*Although a WMP is required for project funding through the EPA 319 program, this WMP was written to support the mission of the MAWP which is "The Moab Area Watershed Partnership is a collaboration of diverse stakeholders who share knowledge and develop, and facilitate implementation of, a holistic watershed plan that conserves and enhances water quality and quantity in the Mill Creek (including Pack Creek) and Castle Creek watersheds."*

*This WMP and the MAWP go beyond addressing the total maximum daily load issues of the EPA 319 program and will support local solutions to the various water quality and quantity issues in Spanish and Castle Valley.*

**Section 1** of the WMP identifies and defines MAWP and the watershed boundaries it focuses on. It also identifies in detail the partnership goals, the planning process and the desired uses of the plan. More importantly, it stresses the value of stakeholder participation: "A successful water quality management plan relies as much on voluntary stakeholder participation and buy-in as on the rigor of technical analysis."

**Section 2** of the WMP is a characterization of the two watersheds. The Section describes in depth the hydrology and topography of Spanish and Castle Valley watersheds and the six sub- watersheds. The section



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*also includes a detailed analysis of climate, vegetation, soils, wildlife, demographic trends, water rights, and land uses. These sub-sections are important to the stakeholders because they recognize the connections between uplands and water quality.*

*Anthropogenic influences on uplands and riparian areas can impact water quality and opportunities are available to improve water quality by improving upland and riparian land uses and conditions.*

***Section 3** provides a comprehensive compilation of water quality data that have been collected in the watersheds and a detailed analysis of the chemical and physical water quality issues in the watershed. The analysis indicates that water quality issues are not widespread. They are different in different sub-watersheds and the analysis identifies stream segments where improvements would be most beneficial. The section also includes a detailed compilation of groundwater quality resources because the stakeholders recognize the close connection between groundwater and surface water resources in these watersheds. The communities in these watersheds are dependent on the groundwater resources and improvements in groundwater quality are not only beneficial to the community, they are beneficial to surface water quality also.*

***Section 4 and 5** meld the three previous sections into a set of resources concerns and opportunities to address those concerns. The process described in Section 1 used the characteristics described in Sections 2 to address the water quality concerns in Section 3. The specific concerns listed in Section 4 are addressed by several broad project types and policies in Section 5 that the MAWP supports.*

*Before and during the WMP development, MAWP members recognized there isn't one solution to the water quality issues in our watersheds. The issues, concerns and remedies are inter-related and changes to water quality will only be realized through a combination of improvement projects.*

### **Goal:**

Invest in building and maintaining infrastructural facilities/services in a comprehensive, sustainable and innovative manner. The subdivision and development of land should not be permitted without the provision of full services and utilities (public works) in a LOS 1 area. These services include:

- a. Sanitary sewage disposal;
- b. Water supply; and
- c. Roadways; and
- d. *May also include:*
  - i. Stormwater management;
  - ii. Electrical power, natural gas, telephone, fiber, and cable television service; and
  - iii. Transit service.

### **Policies:**

- i. Participate in planning to upgrade the capacity of existing electrical infrastructure in the Spanish Valley, Castle Valley, Cisco, and along the I-70 corridor;
- ii. Support and participate in planning for locally produced sustainable energy and its local consumption and transport;
- iii. Share digital data between stakeholders to focus mutual mapping layers;
- iv. Implement greywater recycling systems in all potable water permits and land use applications;



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- v. Maintain the watershed areas designated in Schedules 16.26-30 so that they are not impaired by development by improved design standards;
- vi. Complete an assessment (lifecycle) of the County's infrastructure, which identifies needs, evaluates solutions, and prioritizes long-term sustainable strategies for improving infrastructure and performance on existing and future land use;
- vii. Develop a Capital Improvement Plan for expenditures such as roads, highways, water and sewer facilities and public buildings to be integrated with land use, financial and corporate business plans;
- viii. Extend infrastructure and services to areas in an orderly, logical, efficient and cost effective manner consistent with this Plan;
- ix. Develop cost estimates that include capital and operating needs;
- x. Do not extend services outside the County without an annexation strategy, and do not annex unless accompanied by a strategy for extending services and allocation costs;
- xi. Pursue when possible innovative technologies that minimize cost and environmental impacts including "green" technologies like rain gardens, rain water retention, gray water recycling, non-potable water use for irrigation and stormwater discharge organic filtering;
- xii. Develop a high speed internet system with fiber and local access to Wi-Fi;
- xiii. Plan for infrastructure impacts from flood and other disasters through development and recovery plans;
- xiv. Pursue increased bandwidth cell towers to provide adequate service in all areas of the County; and
- xv. Pursue when possible innovative technologies that minimize cost and environmental impacts.

## 2. WATER

The following excerpt from the *Watershed Management Plan (WMP)* characterizes the importance of water to Grand County:

*Water quality is an important issue that affects all people within a watershed. Resolving water quality issues will require local people making and implementing local solutions. This Watershed Management Plan (WMP) for Spanish and Castle Valley is a planning tool for developing local solutions.*

*Although a WMP is required for project funding through the EPA 319 program, this WMP was written to support the mission of the MAWP which is "The Moab Area Watershed Partnership is a collaboration of diverse stakeholders who share knowledge and develop, and facilitate implementation of, a holistic watershed plan that conserves and enhances water quality and quantity in the Mill Creek (including Pack Creek) and Castle Creek watersheds."*

*This WMP and the MAWP go beyond addressing the total maximum daily load issues of the EPA 319 program and will support local solutions to the various water quality and quantity issues in Spanish and Castle Valley.*

We rely on water for everything from drinking to agriculture, industry and recreation. It is important to balance consumption with supply. Rivers, creeks, wetlands, lakes and groundwater have ecological



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functions within the entire region.

Conserving water helps preserve water quality and quantity and reduces costs linked to municipal pumping and treatment. This increases funding available for infrastructure renewal or replacement in other areas.

The Opportunities and Constraints maps (Schedules 16.4) delineate the drinking water source protection zones referenced in water source protection plans approved under the State of Utah's Drinking Water Source Protection program.

The purpose of this state-local government cooperative program is to protect public drinking water systems from accidental contamination. Goals and strategies regarding the protection of drinking water call for LUC and Zoning Map amendments to implement approved water source protection plans. See Schedule 16.4 for water source protection zones.

The Town of Castle Valley, although it is a public water provider charged with administering water rights in the town boundaries, is dependent on private groundwater wells. As a result, the town does not currently qualify for source water protection under the state's Drinking Water Source Protection Program.

### **Goal:**

Protect the County's water quality and supply by continuing to update the overlay protection zones, monitoring safe yield limits, and developing regulatory incentives and constraints.

### **Policies:**

- i. Participate in the Moab Area Watershed Partnership to work on comprehensive watershed planning and restoration and water source protection best practices;
- ii. Increase water conservation in agricultural and residential areas by encouraging secondary water systems for irrigation in new residential subdivisions;
- iii. Work in partnership with all municipalities, water districts and public water suppliers that govern land use in their drinking watersheds to enact agreements for long-term watershed management;
- iv. Monitor regional water quality and quantity both within aquifers and watersheds, collecting data for annual reporting and calibration of development plans;
- v. Evaluate water capacities, distribution, and treatment and within a regional context project various growth management scenarios;
- vi. Pursue federal and/or state funding for the USGS Glen Canyon Aquifer water budget study that is already approved by Congress;
- vii. Support Cisco's, Castle Valley's and Thompson Springs' efforts to find funding for water quantity studies;
- viii. Consider adopting an incentive-based water conservation program for residential and non-residential land uses;
- ix. Continue to map and delineate each aquifer and protection and impact zones for inclusion in development regulations;
- x. Protect against contamination of the Glen Canyon and Castle Valley aquifers by hazardous materials with land use standards and procedures that align with state and federal water-quality regulations designed to mobilize state and federal water-quality enforcement;
- xi. Encourage water conservation through public education, water conservation regulations and policies



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and other programs;

- xii. Regularly report and adjust growth scenarios to match projected water shortfalls;
- xiii. Require all developments to pay their share for the provision of water service through development impact fees or local improvements;
- xiv. Only extend water services to developing areas in an orderly, logical, efficient, and cost effective manner that is consistent with the Plan;
- xv. Continue to maintain the water quality and capacity to meet the needs of residents, businesses and industries; and
- xvi. Develop water conservation strategies through demand side policies and regulations.

### 3. WASTEWATER

Wastewater is considered a growth service as the provision of a network of piping and pumps increase rezoning and subdivision potential for urban levels of development. The distribution network for liquid waste is under the authority of GWSSA. That system depends on the central treatment plant in the City of Moab.

An interlocal agreement between GWSSA and the City ensures long term protection and contracts for system stability. The current system meets all UPDES permit and licensing requirements and has no current liabilities.

#### **Goal:**

The County in partnership with GWSSA and the SE Utah Health Department should continue to provide wastewater management services and additional sewage treatment to current users, and develop managed growth scenarios for urban and rural levels of service.

#### **Policies:**

- i. Require all developments to pay their share for the provision of sanitary sewer service through impact fees or local improvements;
- ii. Develop long term strategies for infrastructure stability considering resiliency and adaptation measures;
- iii. Continue to extend sanitary sewer services to developing areas in an orderly, logical, efficient, and cost-effective manner and that is consistent with the Plan and urban service areas; and
- iv. Consider septage recycling, composting and fuel conversion levels of service.

### 4. STORMWATER MANAGEMENT

Stormwater management involves managing the quantity and quality of stormwater runoff. The quantity and quality of runoff in an urban area is affected by many factors such as the amount of impervious surfaces (e.g. buildings and roads), erosion, vegetation, etc. It is important to manage stormwater runoff because pollutants in the runoff can adversely affect public health and the environment (water quality). From the Spanish Valley Stormwater Master Plan 2011:

*The Spanish Valley has several historic drainage ways that flow from the hills on each side of the valley to Pack Creek. Some of these drainage ways have been altered or removed over the years due to road construction, development and/or farming. Excess storm water has caused*



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*areas of localized flooding due to these changes in the natural drainage ways. In the past, this flooding has not caused significant damage due to the nature of the agricultural area.*

*However, the construction of homes in some of these areas has increased the risk of significant damage due to flooding. In addition, the U.S. Environmental Protection Agency (EPA) passed federal stormwater regulations in 1990 that mandated that municipalities change their traditional stormwater runoff management techniques.*

*Historically, stormwater management techniques have been comprised of facilities that would control the quantity of runoff to prevent flooding. The new regulations require certain municipalities to also address the impacts that storm water runoff would have on the water quality of the receiving waters.*

*The future possibility that Grand County may be required to comply with EPA regulations requires that stormwater plans and improvements include the ability to meet present and potential future water quality regulations. The EPA is currently drafting proposals that would amend the 1990 regulations and cause stormwater to be managed for each drainage basin instead of each municipality.*

*The purpose of this study is to prepare a valley-wide Storm Drain Master Plan using standardized analytical procedures. This makes it possible to develop a list of drainage improvements that could be used as the foundation for a drainage needs plan. The improvements identified in this study will help protect areas in the valley from floods in the future.*

*This Storm Drain Master Plan recognizes that, with the uncertainty of predicting how growth and development will take place, planning for the future is a continuing process and not an end result.*

*The drainage improvements presented in this report have incorporated all existing storm drain facilities and the facilities recommended in the Spanish Valley Flood Plain Delineation report dated November 1995. It proposes preservation and/or re-creation of basic historic storm water routing paths and conveyance facilities where practical. Guidelines for quantifying and routing storm runoff are given along with proposed locations and sizing of facilities.*

Stormwater management is important for controlling flooding. The stormwater management system consists of a combined County and City of Moab systems for both utilities (below ground) and surface.

The City of Moab completed a 2017 stormwater master plan which highlights the watershed and drainage channels as follows:

*The City of Moab discharges storm runoff into three different natural drainages which generally flow from southeast to northwest:*

*The **Colorado River** is the largest natural drainage in the study area and is the final outlet for all storm runoff from the City. The Colorado River runs from northeast to southwest on the far west side of the City.*



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**Mill Creek** originates in the La Sal Mountains east of Moab and terminates where it meets the Colorado River.

**Pack Creek** originates in the La Sal Mountains east of Moab and terminates where it meets Mill Creek.

*As part of this master plan, efforts were made to survey the storm drainage facilities in Moab.*

*The City of Moab has over 18 miles of buried storm drain conveyances with a wide range of sizes from 72 inches to less than 12 inches. The City has an estimated 724 inlets that introduce runoff into the storm drains. The storm drain system also relies on natural drainages, roadside swales, and curb and gutters to convey runoff to the Colorado River.*

*Data compiled in the system inventory consist of locations, descriptions, elevations, and measure down depths at each point, as well as location, shape, offset, type, and size for each conveyance. The collection and conveyance system with associated pipe diameters can be seen in Schedules 16.25.*

*The City selected design storm frequencies of 10-year (10% chance of being equaled or exceed in any given year) and 100-year (1% chance of being equaled or exceeded in any given year) for this study.*

*The criteria selected by the City corresponds with storm drainage design criteria for Grand County. Criteria include:*

- *10-year design capacity for the initial drainage system. The initial drainage system includes inlets, laterals, minor trunk lines, gutters, and roadside ditches;*
- *100-year capacity where flooding of homes may occur;*
- *100-year capacity on major detention/retention, culverts and major conveyance facilities (limited to storm drain hydraulic capacities of the upstream initial drainage system.*

The 2011 County master plan limitations should be noted:

*...intended to be used as a planning document for recommended drainage improvements on a valley-wide level. The hydrologic and hydraulic analyses presented in this study are based on broad assumptions and large scale analysis techniques.*

Stormwater management should incorporate onsite detention to minimize the construction of large downstream and other piped utilities.

### **Goal:**

Manage stormwater runoff to protect public health and environment, and develop funding mechanisms to reduce stormwater impacts based on sound master planning principles, strategies, best practices and capital investment

### **Policies:**

- i. Adopt the design standards and criteria per the Grand County Design Criteria for Drainage



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Studies Within Spanish Valley;

- ii. Protect historic drainage ways and use these waterways as the stormwater conveyance facilities, with improvements as outlined in the Moab Storm water master plan as it overlaps with Grand County master planning such as the Spanish Valley Storm water master plan – see Schedules 16.25, Appendix E, and 16.25 A;
- iii. Establish funding mechanisms including impact fees for projects, ongoing operations and maintenance costs;
- iv. Re-evaluate specific projects for impacts and adjust the list as necessary;
- v. Model the Pack Creek Water shed for impacts and projects;
- vi. Update hydraulic and storm event data to better identify a list of improvement projects;
- vii. Pursue innovative designs and best practices for stormwater management and ensure their reasonable incorporation into site plan design. Some examples include:
  - a. Bioswales;
  - b. Slope stabilization and erosion control;
  - c. Constructed wetlands; and
  - d. Detention/retention ponds;
- ii. Require all developments to pay their share for the provision of stormwater services through offsite levies or local improvements;
- iii. Minimize impervious surface on major developments through the incorporation of landscaping and the provision of pervious surfaces to minimize runoff and allow for water infiltration into the ground; and
- iv. Encourage businesses and industries to establish best management practices to provide control measures for spill control and minimize pollutant discharge (see Appendix 17.3).