

SAN JUAN COUNTY

Spanish Valley Area Plan



Adopted April 17, 2018



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TABLE OF CONTENTS

ACKNOWLEDGMENTS

1.0	INTRODUCTION & BACKGROUND	1
	PURPOSE AND FOCUS OF THE SAN JUAN COUNTY SPANISH VALLEY AREA PLAN.....	2
	HISTORY OF THE SPANISH VALLEY.....	2
	CHANGES & OPPORTUNITIES IN THE SPANISH VALLEY.....	5
	ORGANIZATION OF THE AREA PLAN DOCUMENT.....	5
	PUBLIC ENGAGEMENT.....	6
	Advisory Committee.....	6
	San Juan County Commission Briefing - Purpose of the Project.....	6
	Stakeholder Interviews.....	6
	Public Scoping Meeting.....	7
	Plan Alternatives Workshop.....	7
	San Juan County Commission Briefing - Plan Process and Preliminary Alternatives.....	8
	Draft Plan Workshop (Steering Committee, Planning Commission, County Commission).....	8
	Draft Plan Open House.....	8
	SUMMARY OF INPUT AND DIRECTION.....	8
2.0	EXISTING CONDITIONS & ANALYSIS.....	14
	INTRODUCTION.....	15
	PHYSICAL ENVIRONMENT CONDITIONS.....	15
	Geology and Landform.....	15
	Precipitation and Groundwater Recharge.....	15
	Surface Water, Drainage and Stormwater Management.....	15
	Open and Sensitive Lands.....	16
	Land Use and Ownership.....	17
	Zoning.....	17
	Water and Sewer Infrastructure.....	21
	Roads and Transportation.....	21
	Commercial Market Potential.....	22
	LAND SUITABILITY ANALYSIS.....	23
3.0	SPANISH VALLEY AREA PLAN.....	26
	INTRODUCTION.....	27
	LAND USE PLAN.....	27
	Private Land Areas.....	29
	Central Development Areas.....	29
	Perimeter Development Areas.....	29
	Flex Development Areas.....	30
	Highway Commercial Areas.....	30

TABLE OF CONTENTS

KEY ISSUES.....	30
Residential.....	30
Community/Neighborhood Centers.....	31
Parks, Recreation, Open Space and Trails.....	32
Other Key Uses and Features of the Area Plan.....	32
PHASING.....	33
Phase 1.....	33
Phase 2.....	33
Phase 3.....	34
Phase 4.....	34
Phase 5.....	34
Phase 6.....	34
Flex Phase A.....	34
Flex Phase B.....	34
Flex Phase C.....	34
4.0 GUIDELINES AND ORDINANCES.....	37
INTRODUCTION.....	38
KEY PRINCIPLES TO BE CONSIDERED WHEN DEVELOPING GUIDELINES AND ORDINANCES FOR THE SPANISH VALLEY.....	38
OTHER CONSIDERATIONS WHEN DEVELOPING GUIDELINES AND ORDINANCES FOR THE SPANISH VALLEY.....	39
APPENDICES	
A - PUBLIC INVOLVEMENT NOTES.....	44
B - VISUAL PREFERENCE SURVEY.....	53
C - PRELIMINARY ALTERNATIVE CONCEPT DIAGRAMS.....	65
D - SPANISH VALLEY STORM DRAINAGE MEMO (2018).....	68
E - SPANISH VALLEY WATER AND SEWER MASTER PLAN (2017).....	78
F - SAN JUAN SPANISH VALLEY SSD 40-YEAR WATER RIGHT PLAN-WATER RIGHT: 09-2349 (NOV 2017).....	83
G - US 191 CORRIDOR PRESERVATION STUDY.....	93
H - SAN JUAN COUNTY SPANISH VALLEY COMMERCIAL DEVELOPMENT ANALYSIS (2017).....	111
I - SAN JUAN COUNTY WELL PROTECTION ORDINANCE.....	114
J - KNOWN WELLS & CONCENTRIC PROTECTION ZONES.....	115
K - AIRPORTS AND LAND USE - AN INTRODUCTION FOR LOCAL LEADERS.....	116
L - COMPATIBLE LAND USE PLANNING FOR AIRPORTS.....	122

1.0

INTRODUCTION & BACKGROUND

PURPOSE AND FOCUS OF THE SAN JUAN COUNTY SPANISH VALLEY AREA PLAN

The *San Juan County Spanish Valley Area Plan* is an official document intended to guide future development in the San Juan County portion of the Spanish Valley. Once adopted, the plan will be incorporated as a chapter of the San Juan County General Plan.

A comprehensive planning process was used to establish a long-term planning vision for the area. The process identified specific guiding principles and planning goals to guide future growth, while addressing other aspects related to land use, transportation, quality of life, public services and infrastructure. Although the exact time frame for implementation is unclear, it is anticipated that full realization of the plan will take several decades.

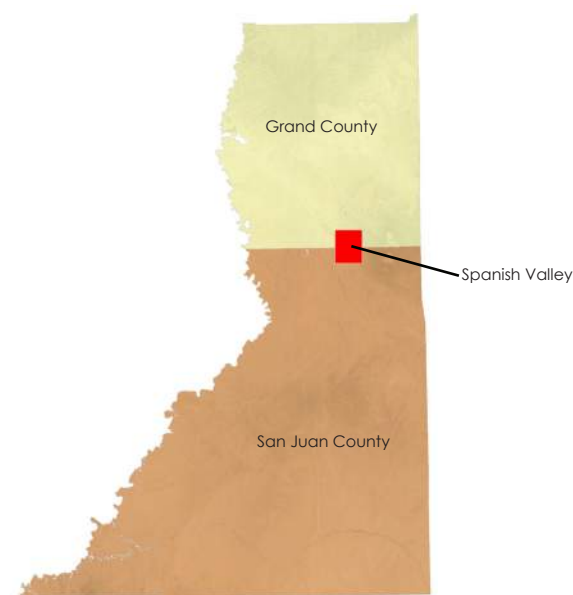
HISTORY OF THE SPANISH VALLEY

The San Juan County portion of the Spanish Valley (The Study Area) is a picturesque valley surrounded by high red sandstone mesas and cliffs. The valley is located at an average elevation of 4,300 feet. Pack Creek flows through Spanish Valley from the southern perimeter of the Study Area, continuing north - northwestward through the Spanish Valley toward its confluence with the Colorado River. Water flow is intermittent.



1.0 INTRODUCTION & BACKGROUND

The San Juan portion of the Spanish Valley is approximately six miles long and 2.5 miles wide, encompassing 15-square miles of land. In comparison, the entire Spanish Valley is approximately fifteen miles long and three miles wide. Only the southern third of the Spanish Valley lies within San Juan County, and it is the least populated segment. The Spanish Valley is more regularly identified as the valley that lies south of the city of Moab. The majority of the valley, and the majority of the population living in it, are within Grand County.



Evidence suggests that the area and surrounding country was inhabited by ancient native groups as early as 10,000 years ago. Mormon missionaries attempted to settle the area in 1855, but the mission was abandoned after only a few months. For the next two decades the area was used intermittently by trappers, prospectors and cattlemen, with no permanent settlement until the 1870's with the arrival of Mormon settlers. Growth was slow and focused primarily in the Moab area. The economy was based on farming and ranching, with small mining operations established in the 1890's. The railroad soon followed.

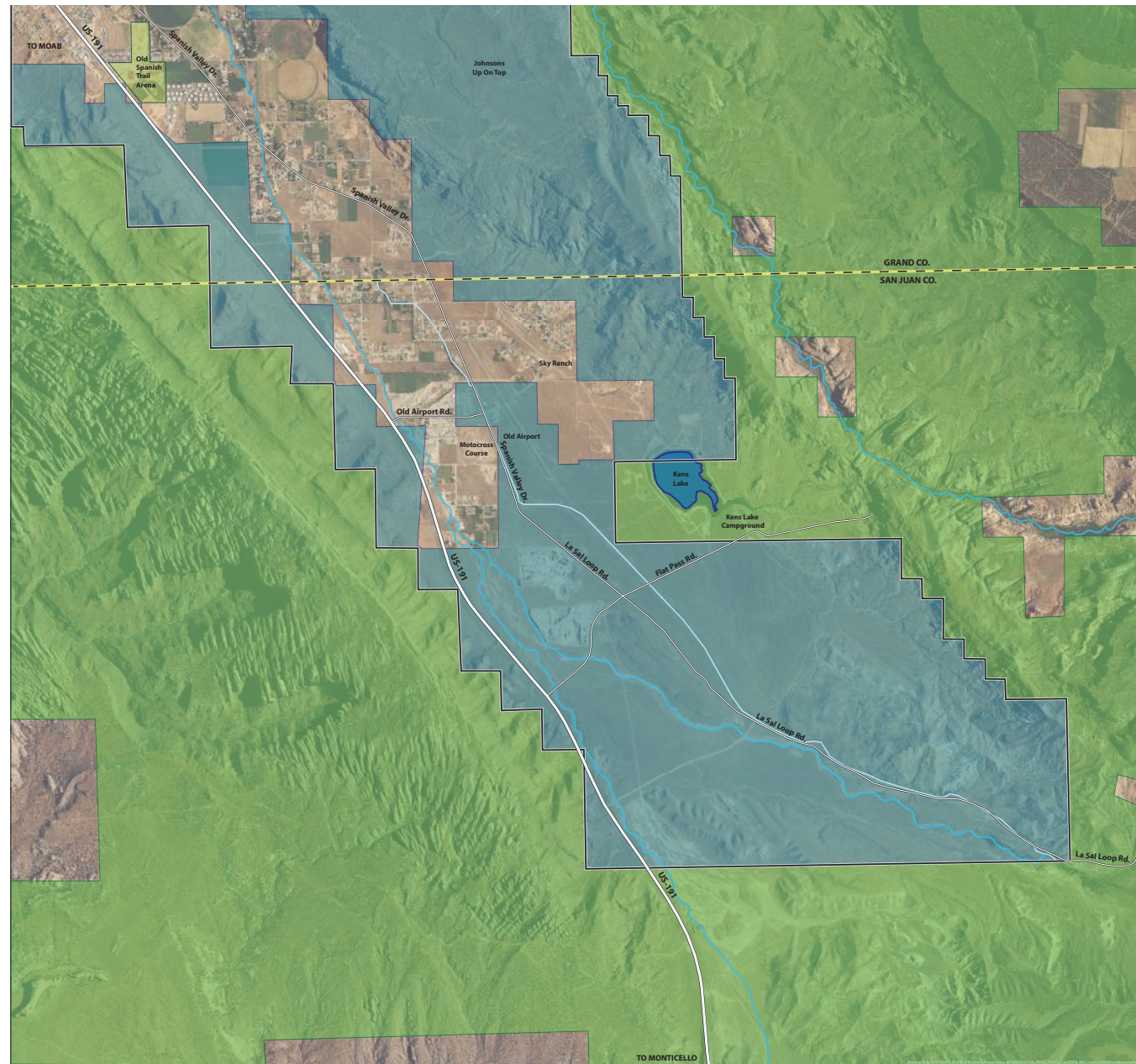
The discovery of uranium in 1952 signaled an era of mineral extraction in the region, swelling the local population from 3,000 to nearly 10,000 residents in less than three years. Potash, salt mining and milling operations added to the local economy until 1983, when uranium mining was discontinued and nearly all mining and milling operations soon after ceased. The region soon emerged as a popular tourist destination due to its close proximity to Arches National Park, Canyonlands National Park, Dead Horse Point State Park, the Colorado River and other regional parks and lands. More recently the area has become a popular destination for recreational and competitive mountain bikers, river runners, hikers, off-roaders and outdoor adventure seekers. Ken's Lake and Faux Falls are recreation attractions located in the Study Area.

The northern quarter of the Study Area is privately owned, with the remainder owned and operated by the State (SITLA) and the Bureau of Land Management. The privately owned lands are a census-designated place (CDP) with an estimated 2015 population of 500.

SPANISH VALLEY STUDY AREA

1.0

INTRODUCTION & BACKGROUND



Legend

- BLM Land
- SITLA Land
- County Boundary

0 0.25 0.5 1 Miles ▲ NORTH



Faux Falls



Ken's Lake

Fifty-miles to the south of the Study Area is Monticello, which is the nearest San Juan County town as well as the county seat. It is the second most populous city in the county with approximately 2,000 residents. While it is relatively far-removed from the Study Area, Monticello has emerged as a bedroom community to Moab, due to the lack of affordable housing options in the region.

CHANGES & OPPORTUNITIES IN THE SPANISH VALLEY

In contrast to the Grand County portion of the Spanish Valley, growth in the Study Area has been constrained and slow to take root. Many residents have moved here in search of a more rural lifestyle. The area is generally more affordable, but the lack of a culinary water and sewer system, minimalistic zoning and development control, and the lack of planning and development review has constrained growth.

But things are changing

The Spanish Valley area is receiving increasing growth pressure. Planning and the establishment of better infrastructure for the area is now a top priority for the county. A study was recently completed to analyze the needs and costs of providing water and sewer systems for current residents and the future population. A stand-alone water system was determined to be the best alternative to provide culinary water to residents in the Study Area. A combined sewer system with Grand Water & Sewer Service Agency (GWSSA) and Moab City sewer was selected as the best alternative to treat waste water. Both systems are currently under design.

ORGANIZATION OF THE AREA PLAN

The *San Juan County Spanish Valley Area Plan* establishes and analyzes existing conditions, assesses planning issues and ideas, identifies growth and development principles, and presents a future vision for growth and development in the Study Area, including Land Use and Phasing plans. The plan is divided into the four chapters as listed below:

1. Introduction & Background
2. Existing Conditions & Analysis
3. Spanish Valley Area Plan
4. Guidelines & Ordinance Concepts

Once the plan is adopted, development guidelines and ordinance concepts will be further refined, resulting in new rules and regulations that will direct future growth. It is critical that the new rules are responsive to the needs of the Study Area and the resources available in San Juan County.

PUBLIC ENGAGEMENT

Identifying planning issues and ideas was an essential initial step in the planning process, helping to ensure that the plan accurately addresses anticipated needs and encapsulates the future vision for the area by residents, landowners and stakeholders. As summarized below and detailed in Appendix A, a thorough public involvement process was utilized to capture the pulse of the community. The process incorporated multiple opportunities for the public to provide comments, identify issues and provide feedback throughout the planning process.

Advisory Committee

An Advisory Committee was established during the early stages of the project to review progress and to provide guidance as the plan was formulated. Members of the committee included representatives of San Juan County, Grand Sewer and Water Service Agency, local land owners and developers, SITLA, business leaders and residents.

The Advisory Committee met on four occasions at the following stages:

1. During a Kickoff Meeting in the early stages of the project;
2. Prior to the Public Scoping Meetings;
3. Following the Public Workshop held as part of reviewing Alternative Planning Concepts. It should be noted that the Steering Committee expressed significant concern over the preservation of large tracts of open space as illustrated in both alternatives that were presented. The committee suggested that a more metered approach be considered as the draft plan was developed.
4. Prior to a Public Open House Meeting in February 2018 as part of a Draft Plan Workshop held in Monticello. The meeting was also attended by members of the San Juan County Commission, San Juan County Planning Commission and key county staff.

San Juan County Commission Briefing

Landmark Design presented an overview of the planning approach to the San Juan County Commission on August 14, 2017 in Monticello during a regularly-scheduled meeting. The briefing provided an overview of the process and intents of the planning study. Commissioners provided general direction and visions for the study. It was noted that the commissioners envision that a new community will result through this effort, which will be established through county efforts and eventually become an independent municipality.

Stakeholder Interviews

To get a pulse for the needs and issues of residents and experts, nine interviews were conducted with residents, neighborhood groups and agencies during a three -day period (September 18-20, 2017). Interviews were held with representatives of six families living in a local subdivision; individual interviews with five local families; a meeting with UDOT officials to better understand transportation and highway access needs, and courtesy meetings with SITLA and Grand County planning staff. The discussions identified general concerns and visions, most of which were aligned with input received during the scoping meetings. Discussions with UDOT officials resulted in a clarification of intersection and driveway access standards, and the results of recently completed studies affecting transportation planning in the area.

Public Scoping Meeting

Two public scoping meetings were held on September 20, 2017, providing an opportunity for Landmark Design staff to listen to concerns and aspirations for the area, identify issues related to growth and development, and understand the visions and desires for the area. The meetings were lightly attended, with only twenty people signing in (see summary of Input and Direction received at the conclusion of this chapter for details).

Plan Alternatives Workshop

Two public workshops were held on November 7 and 8, 2017 to provide members of the public the opportunity to review and refine preliminary planning ideas and concepts, which were developed by Landmark Design staff. Each session began with a review of existing conditions and an analysis of opportunities, followed by a presentation of preliminary concepts. The workshops also included (1) **a visual preference survey** to help verify preferred uses, (2) a presentation of **preliminary planning principles** to verify the conceptual framework of the plan, and (3) small group break-out sessions to verify opportunities and constraints. 39 people signed into the workshops. The comments and input received were compiled, summarized and analyzed by the planning team, and reviewed as part of creating a preferred planning concept (see copies of the visual preference survey results in Appendix B and the Preliminary Alternative Concepts in Appendix C).

Top images by category - visual preference survey:



Community



Parks, Open Space & Trails



Residential



Roads



Highway/Commercial

San Juan County Planning Commission Briefing on Preliminary Planning Alternatives

The San Juan County Planning Commission was briefed on the preliminary plan alternatives as well as general input provided by the public during the workshops. The planning commission expressed some concern that the concepts focus on preserving large swaths of open space, but otherwise expressed support for the general direction provided.

Draft Plan Open House

Once a preferred planning direction emerged, a Draft Plan was developed by the planning team. A public open house meeting was held on February 13, 2017 to receive public input prior to plan finalization and adoption. The meeting began with a presentation of key plan ideas and concepts and was followed by group discussions and opportunity to explore the plan and comment. A copy of the draft plan was also posted on the project web page.

Project Web Page & Media Coordination

In order to provide easy access to planning information and to increase public involvement opportunities, the Spanish Valley Area Plan web page was established and hosted on the Landmark Design website (www.lidi-ut.com/spanishvalley.html). The web page provided an electronic venue for noticing important meetings and events, reviewing draft plans as they were developed, and for receiving public feedback and input. As of early February 2018, the site had received 663 visits, 534 unique page views, and the average length of time visiting was nearly five minutes.

Public notices and invitations to the various meetings and workshops were prepared by the planning team, placed on the project website and linked to the San Juan County website. Meeting notices were also placed on the San Juan County website, and distributed as printed flyers and by email.

SUMMARY OF INPUT AND DIRECTION RECEIVED

The comments, issues and ideas expressed through the public engagement process were broad and varied. All input was documented, summarized and analyzed, then compared with input from the steering committee. Existing studies and reports were also reviewed and assessed. An important outcome of this process was the emergence of a clear picture of what is desired for the future, which was eventually translated and verified as guiding principles for directing future growth and development.

The following are the ideas and issues that emerged during the scoping meetings:

Community and Area Character

- Want a place that is quiet and dark at night – not a lot of traffic and street lights like Moab.
 - Incorporate these elements into new zoning ordinances
- Plan spaces for churches, schools, and other community spaces; places that are close to where people live (to be walkable)
- Equestrian and other livestock uses - need to accommodate (ranching is part of the heritage of the area – continue to allow people to have livestock)
- Not too city-like or suburban; like the rural-ness (having space/elbow room)
- Visual restrictions in zoning – e.g. no junk yards as entering the area/valley
- Likes 1 acre lots; space between neighbors
- Density will bring more “lights” – compromise night sky
- Would like to see kids be able to live here
- Community feel – need to develop not just along Hwy 191; look at Spanish Valley Road – make it have a community feel

- The primary reason for living here is the relative isolation and distance from tourists and tourism impacts.
- The area is quiet and relatively affordable.
- Would like to see parks, schools, trails, fire and safety and similar public uses and services.
- Would like it to be a place with no hotels and over-night visitors (Airbnb) or similar tourist-based uses.
- The neighborhood has a wide range of lifestyles and living conditions (families with kids, retirees, etc.), although it is getting too expensive for many to live here.
- Want the area to be its own place, not an extension of Moab. Do not want the area to be a city, and it should not have a discernible downtown like Moab. However, the area should have a destination to meet and come together, possibly centered around a park.
- The area should be more aligned with creating a community for its residents and less about accommodating the needs of tourists.
- The area should have a separate vibe than Moab. It should be a nice place to live, but not a "well to do" community. The Spanish Valley/Moab relationship is comparable to Eagle to Vail Colorado, or Bellevue/Hailey to Ketchum/Sun Valley Idaho. An affordable community where most residents will work and shop in Moab.
- The area should have discernible neighborhoods, but not like Moab.
- The eclectic design and land use structure is generally OK, although future buildings should be required to fit in better with the landscape. If a Walmart or other big box uses are located here, they should fit in like those found in St. George and Cedar City.
- Both moved to the area to get away from Moab. The ability to have a larger property and the affordable price of land was a major reason both moved here, although the quiet lifestyle and dark skies are what keeps them here.
- There is no doubt that more people are coming, and it is critical to figure out a model to accommodate them. Many existing residents don't want more growth and want to preserve the area as it is now, although they have no right to expect that. Need to figure out how to accommodate a lot more growth.
- Views, viewsheds and preservation of the landscape should be considered when developing the area.
- The area isn't sure who or what they are. Would like to see the area remain primarily a bedroom community to Moab, with some industry and jobs as well.
- It is difficult to get good and dependable residents for service jobs, and in some cases foreigners from China and similar locations are brought in for those purposes.
- Not afraid of growth like many neighbors

Land Use and Planning

- Currently they have incompatible land use and very little regulation; needs to be some regulation and buffering between uses
- Commercial – prefer mom and pop shops over big box
- Some smaller lots (1/2 acre) okay – it's needed
- SITLA needs to agree to and comply with the master plan
- Look at Pack Creek and how it fits in with this plan
- Height limits because of fire resources/restrictions? *Not an issue (everything can be served)*
- Height uses would change based on land use
- Completion of La Sal loop could change the area dramatically
- Future, more detailed, studies need to occur and need to look at how much those studies will cost (how much will it cost to do this plan?)
- Small commercial away from Hwy 191 but still on well-traveled roads for visibility (maybe Spanish Valley Road?)
- RV/tiny houses are in issue in Grand County; put where it should go not where it is convenient
- Locating all "transient" (e.g. temporary housing and low-income renters) uses together might not be a good idea

1.0 INTRODUCTION & BACKGROUND

- Gravel pits are important to growth; keep development away from
- SITLA – like to see mixed income/type of housing; bike trails; find a future use for gravel pits – when mined out
- Find best place for next gravel pit (SITLA – 30-year pit lifespan)
- 1,000 ft. commercial highway – liked to see pushed forward; too large, would like to see more area for residential development
- Incompatible uses – the 1,000 ft. commercial rule really needs to change so commercial uses aren't next or in the middle of residential areas (We are about 10 years behind)
- Grow from a community commercial center around Spanish Valley Rd. out
- Put gas stations, Walmart on Hwy; locate smaller commercial internally
- Learn from mistakes that Moab has made
- Would like better buffers between residential and commercial/industrial uses. The lack of control in San Juan County has resulted in some incompatible land uses being located together. However, most moved here specifically because the area is in San Juan County, which has limited input and control.
- Don't see a need for stores or services that one can walk to; don't mind driving to Moab and beyond for basic needs.
- Most believe that Moab will still be the commercial and social core of the area. However, this will be less true as areas further to the south develop as they are so much further away.
- There is an opportunity to be smarter and better-planned than Moab, particularly through the design and location of utilities and infrastructure (water, sewer and roads are key).
- The area should be dominated by single-family residential, although there is room for a wider range of types and densities, including cluster. Some residents indicated they would like higher density residential located near commercial and industrial uses, while others believe it is important to integrate such uses within the overall layout.
- Building heights should be relatively low, no higher than 3-stories.
- Colorado Outward Bound is generating a lot of traffic and light pollution. This is an example of "dumb" planning within the 1,000-foot commercial strip along the highway.
- Existing zoning which requires one-acre minimum lot size and 1,000-foot commercial development strip along the highway both poor control models (unwise), particularly now that water and sewer are available.
- The area should have some smaller retail and grocery uses, and the Spanish Valley Road should become the Main Street of the area.
- Many people want to build small homes on their properties that they can rent out or subdivide and sell – they don't think this is a good idea for permanent residents, and don't like the idea of too many "overnighters" in the area.
- San Juan County has discussed converting the old airport into residences, although nothing has happened.
- They have been personally impacted by poor land use decisions. An unfavorable use was allowed to be constructed immediately adjacent, which has impacted their ability to sell the property.
- Would be comfortable with the area becoming a residential enclave. High prices have impacted many in the community, and many have become "priced out".
- Retail in Moab has always struggled, requiring residents to drive to Grand Junction for reasonably-priced items and better selection. The development of a Wal-Mart could improve access to goods, although it would likely result in the loss of 3-4 local stores and businesses.
- Envisions the area to be primarily a residential community, with limited commercial to serve local needs.
- Provided a copy of the Draft San Juan County Spanish Valley I-O Infill Overlay Zone – thinks it makes some sense, certainly a step toward providing better control of development. Keeps commercial separate from residential uses, which is a big problem, particularly within the 1,000-foot highway zone.
- Would like to see some smaller corner stores and similar uses, but no gas stations as they tend to be a major impact on residences.
- The area needs some commercial, particularly along the highway.

Transportation

- Currently no connectivity to Moab. Need better transportation plan; in particular, need bike routes
- Don't want service employees far from city, but probably will occur here – consider transportation system
- Need some good cross valley access – Spanish Valley is over used, and speed limit keeps getting lowered
- Need to require commercial development to improve roads (otherwise won't happen until county does it/too late)
- Transportation needs to look at and incorporate good signage
- Road standards – pavement requirements to get good quality
- New roads to limit traffic volumes to current residential neighborhoods to keep current developed areas quiet and provide opportunity for other uses on properties to be developed.
- Grocery store, Walmart – All of this will come eventually, want it in the right places
- Hwy 191 to Spanish Valley Rd. (2nd key road) doesn't have a good connection now
- We have space and flexibility now – so now is the time to plan (get the bike paths in now)
- Lack of acceleration/deceleration lanes at highway is a big problem. Left turns off the highway into the area can be a death trap, particularly with fast-moving trucks and semis trying to keep us speed as they climb up roadway.
- UDOT - It will be a long time before a 4-lane highway is installed south from the county line. Focus is completing 4-lanes from county line to Moab.
- UDOT - A copy of the existing corridor agreement was provided, which was approved by both counties and Moab in 2015. Any changes would require approval by all parties. Addresses segment from Millcreek Road to city. Addresses existing access to private properties by inclusion of frontage road system. Was completed prior to the existing water/sewer agreement and corresponding growth implications. San Juan County hasn't really followed the plan, with roads implemented contrary to the agreement.
- UDOT – key standards to consider include:
 - No driveways closer than 1,000 ft. apart
 - Minimum one-mile between controlled intersections (acceleration/deceleration lanes for now)
 - If traffic increases, the distance between intersections can increase as part of decreasing speed, like Moab situation. However, the fact that there will be limited development on the west side of the highway indicates that the highway will be different here than when it passes through the middle of the city in Moab.
 - Lighting – all intersections require lights, according to standards. Improvements to address preservation of night skies would be a betterment.

Parks, Open Space, Trails & Recreation

- Work with BLM on anything regarding Kens Lake; had a recreation plan at one time.
- Kens Lake – likes to see the growth; need to improve access and traffic so the impact to neighborhood/area isn't as great
- Parks – Places of respite in the summer; can the county keep them up/afford it? (need to ask)
- Kens Lake – BLM is looking at planning for bigger recreation facilities
 - Some years Ken's Lake is dry; can it be a sustainable draw?
 - Most of the recreation happens outside of the valley; probably won't be a huge draw within
- Drainages and water ways should be maintained as trail systems and used to delineate neighborhoods and land use areas.
- Community gathering locations are important but should have a rural focus that builds upon the opportunities found here. Kens Lake, parks and greenways should be the place where people come together.

Environmental

- Flood plains are a concern; County needs stricter regulations (people are building where they shouldn't)
- Retention ponds are really important particularly as you develop new roads/put new pavement in
- Kens Lake – development around should be carefully considered (has leaked in past)
- Floodwaters – a big concern
- Has FEMA been involved? People have lost properties in Grand County because in flood plain. We should plan around the flood plains
- Preservation of night skies is a critical concept. Moab has lost the ability to see stars and is unlikely to be able to regain it even if they can reverse existing light spillover.
- Flood waters flow down west cliffs during heavy rains, which impact the west side of the highway and Pack Creek. Need check dams, avoid development on the west side of the highway.
- Need to take a careful look at storm water, the role of drainages and ravines, etc. as development plans are made.
- Preservation of night sky is a critical issue and concern.

Housing

- Affordable housing - where should it go?
- School districts will have to be thought about; currently the area is being served by Grand County
- Look at financing and having enough to provide services (schools)
- Affordable housing – keeping this area residential and then have a good transportation system to Moab (plenty of jobs there now – but are seasonal and part-time)
- Employee housing is a huge issue. Some accommodations are being made by employees now, but more is needed
- Affordable housing – should be looked at carefully; regulation is important for balancing
- Affordable housing should be part of each development; not pushed just into one area
- Low-income and affordable housing is a critical issue that will be a big part of the future. Many believe that residents are hung up on maintaining and increasing their property value rather than maintaining the area as a good place to live.

Government Services and Regulatory

- Jones and DeMille plans are assumed – easements need to be acquired, etc.
- School districts will have to be thought about; currently the area is being served by Grand County
- Look at financing and having enough to provide services (schools)
- Could have a big problem with grandfathering – where smaller lots have already been approved
- Fire District – need to consider so insurance rates don't go up (insurance rates go up if population increases in a service area)
- Business sneaks in (e.g. RV/tiny houses) on a former residential lot; unsafe conditions and unregulated
- Schools – are we planning for them? (Reach out to school district to establish needs)
- Look at guidelines for development to preserve what we like – e.g. night sky
- The area has no continuity or real structure, no standards. Would like to have more, but not too much like in Moab. Striking a balance between free choice and too much control is a primary issue.
- Moab has a real problem with Airbnb uses proliferating, and this is emerging to be an issue in the Spanish Valley as well. Should look at what Moab is doing and apply similar solutions when codes are developed.
- Both appreciate the flexibility San Juan County provides for development, although they are worried about increasing traffic, the proliferation of overnight-rentals and similar uses and the impact of development on the quiet life/dark skies.
- They are concerned that services are nearly non-existent (they won't even grade the roads), even though they pay taxes

1.0 INTRODUCTION & BACKGROUND

in San Juan County. Since the Spanish Valley is far from Monticello, they believe that the county doesn't care what goes on here; the Spanish Valley is low on the list of priority for the county.

- San Juan County and Grand County do not get along, and don't want anything to do with the other. They are surprised that San Juan County is backing this planning effort, particularly since they are so disengaged, don't maintain the roads and don't have any ordinances that work at present.
- They believe that San Juan County doesn't care about the Spanish Valley, and that the area is on the bottom of the list when it comes to maintenance, etc. They are out of sight/out of mind. Can't believe things will change and get better in the future.
- Despite access to water and sewer, don't see things improving in the future. They feel stuck with the poor conditions that exist.
- Pessimistic that San Juan County has any interest doing something so far from Monticello.
- Motel tax has been used to promote tourism up to this point. However, there are some who think that since tourism is thriving, the tax should be used for improving police and other services, which are stretched thin by the tourists. This is a contentious issue.
- Despite all of the issues, bringing water and sewer to the area is a good idea.
- San Juan County doesn't care about the Spanish Valley – out of sight, out of mind.
- The use of CC&R's and other development control tools would help.
- The Spanish Valley is the stepchild of San Juan County. Roads here are the last to get maintained and fixed.
- Building inspection used to be easy but has gotten more difficult since the county hired the same inspector used by Grand County.
- One-acre lots are too large for most people to handle. Some residents are worried that the water will be fluoridated and/or chlorinated.
- Concerned about the water source and quality. Will it be adequately tested and controlled?

2.0

EXISTING CONDITIONS & ANALYSIS

INTRODUCTION

Needs and desires in the Spanish Valley are more complex today than they were in the past. This is reflected by demands for affordable housing options, improved planning, better use of water and land resources, more amenities and services, and a better quality of life. When the Spanish Valley Area Plan is adopted and implemented, residents and stakeholders expect new development that is well coordinated, and growth that is responsive to the setting, environment and history of the valley and San Juan County.

As presented in the following pages, a clear understanding of existing conditions and opportunities is essential for determining the best way to accommodate future development and to direct growth in the valley.

PHYSICAL ENVIRONMENT CONDITIONS

Geology and Landform

The Spanish Valley is a northwest-southeast trending valley that merges with the Colorado River south of Moab. The main geologic features in the area are the Glen Canyon Group sandstones and the La Sal Mountains. The Glen Canyon Group form the steep walls on both sides of the Spanish Valley, as well as the mesas and dendritic canyons for which the area is famous.

Precipitation and Groundwater Recharge

Average annual precipitation in the Spanish Valley area averages 15 inches annually. Most of the precipitation is lost to evapotranspiration, with only 0.25 inches infiltrating down and recharging the groundwater. Summer precipitation is usually in the form of thunderstorms, which are localized, intense, and short-lived. Winter precipitation is less localized, less intense, and of longer duration. The gradual melting of winter snow allows more time for precipitation to infiltrate and recharge the groundwater, especially during spring melting of the winter snowpack at higher altitudes.

The main source of groundwater recharge in the Spanish Valley occurs in the La Sal Mountains to the east. The slopes of the mountains are covered in areas by talus, which readily absorbs snowmelt runoff and precipitation. Several springs discharge from the sides of Spanish Valley, especially from the eastern side.

Surface Water, Drainage and Stormwater Management

The following is a summary assessment for the management of surface water, drainage and stormwater in the Study Area prepared by Hansen, Allen & Luce, Inc Engineers. See Appendix D for a copy of the full memo.



La Sal Mountains from Spanish Valley



Cliffs in Spanish Valley

Storm water runoff is a difficult resource to manage. Streams can erode in one section while depositing in another. Stream courses can also change alignment and cross section dramatically with a single storm runoff event. Land development compounds the problem, creating a need for a drainage system capable of handling nuisance water, protecting development from damage, and protecting downstream waters from adverse quality and quantity impacts.

Pack Creek flows through the study area and conveys storm runoff to Mill Creek, which flows to the Colorado River. Pack Creek is a critical resource for the study area, providing a natural storm drainage outlet for Spanish Valley. Careful storm drainage planning is needed to assure that Pack Creek is not adversely impacted by development.

The major storm drainage system in newly developing residential areas or business districts should generally be designed for the 100-year event with the objective of preventing major damage and loss of life. This does not mean that storm drain pipe systems should be designed for the 100-year event. It means that the combination of storm sewers and channelized surface flow should be designed together to accommodate the flood event.

Construction activities that disturb more than an acre of land must be authorized under the Utah Pollutant Discharge Elimination System (UPDES). Owners and contractors are required to obtain a Storm Water Permit. Construction activities that disturb more than one acre are required to file a notice of intent and to prepare and follow a storm water pollution prevention plan for construction activities.

An approach that can be used for long term storm water management is **Low Impact Development (LID)**. LID techniques minimize the directly connected impervious area and infiltrate runoff from impervious areas near the source of the runoff, emphasizing conservation and use of on-site natural features and constructed swales to protect water quality. LID practices are especially helpful in areas of high soils permeability and low slopes.



Urban LID Example



LID Drainage Corridor



Standard Solution - Storm Drain

Inherent in development is the increase of impervious area as roads, driveways, sidewalks, parking lots, and homes are constructed. Storm runoff from impervious areas can exceed ten times the runoff from natural areas. LID practices can help mitigate the effects of increased impervious areas by providing opportunities for infiltration near the source of the runoff. For example, in areas of suitable soils the runoff from sidewalks and homes can be infiltrated prior to running off into the storm drain collection system. Stormwater detention basins are an effective means of reducing downstream runoff peak flow effects. Detention basins should be designed to reduce peak storm runoff flows to at or below historic runoff peaks.

Open and Sensitive Lands

The Spanish Valley is surrounded by large areas of open land that contribute to the broad views and unique vistas found here. As indicated through the public process, open space and natural areas are highly valued, and should be protected and preserved to the greatest degree possible. Such areas are also important as wildlife habitat and as places to engage in outdoor activities and recreation.

Ken's Lake is managed by the Bureau of Land Management (BLM), a Federal land management agency. The area includes a campground with more than three miles of hiking trails. Fishing in the reservoir is popular, although boating is limited to non-motorized craft. Short family-friendly hikes provide views of the Moab Valley, Faux Falls and Ken's Lake. Beyond the Study Area much of land is managed by the BLM.

Land Use and Ownership

The Study Area encompasses more than 6,000-acres of land, of which nearly 750-acres are privately owned. Approximately 550-acres of land controlled by the **BLM** surrounds Ken's Lake, providing a direct link to extensive BLM holdings to the east. The remaining acreage is owned and managed by the State Institutional Trust Lands Administration (SITLA).

SITLA is a state agency that manages Utah's 3.4 million acres of trust lands. Unlike Federal public lands held in public domain, trust lands are parcels of land held in trust to support twelve state institutions, primarily the statewide K-12 public education system. SITLA is constitutionally mandated to generate revenue from trust lands to build and grow permanent endowments for these institutions. The trust lands were designated by Congress in 1896.

Approximately 40% of the privately-owned area in the northern reaches of the Study Area is currently developed with homes and businesses, the latter concentrated along the eastern edge of US-191. Existing residential development is dominated by large lot, single-family residences. **Sky Ranch** is a private airfield located in a large lot residential subdivision in the eastern extents of the privately-owned district. The facility has generated significant public concern in recent months, primarily over concerns related to safety and noise.

Ken's Lake is an artificial reservoir located primarily on BLM land on the east edge of the Study Area. The area includes campgrounds and a trail system that are managed for public use by the BLM. The remaining lands are owned and managed by SITLA and are primarily undeveloped and vacant. A gravel extraction operation west of Ken's Lake is the primary active use in this portion of the Study Area.

Zoning

The Study Area is currently controlled by two zones in the San Juan County Zoning Ordinance. The **Controlled District Highway (CD-h)** extends 1,000 feet along both sides of US-191 for the length of the roadway, permitting a range of commercial uses considered appropriate for a roadway setting. Examples include restaurants, motels, automobile sales and service, and mobile home parks. The remainder of the Study Area is zoned **Agricultural (A-1)**, which is intended to promote and preserve conditions favorable to agriculture and maintenance of greenbelt open spaces. This zone also permits single-family residences, ranches and cabins. Two-family residences are permitted as a conditional use, and additional single-family units may be approved on a case-by-case basis for the use of employees and family members. The lack of a culinary water and sewer system and the reliance on private wells and septic systems has resulted in the application of a one-acre minimum lot size for primary residential uses.

Once this General Plan has been adopted, new development guidelines and ordinances will be developed to ensure the Area Plan is implemented as envisioned.



Hikers at Faux Falls

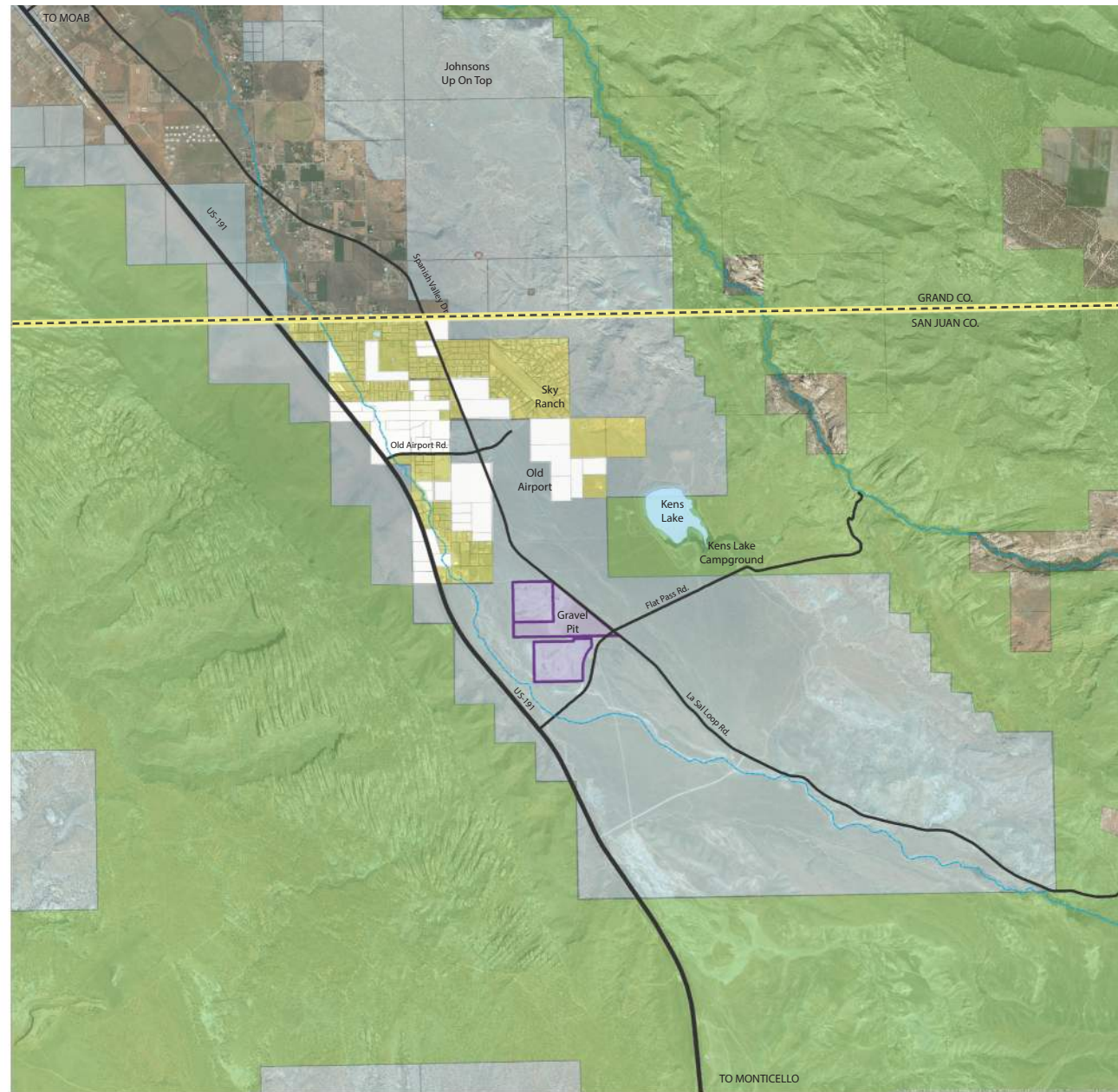


Gravel Pit

EXISTING LAND USE

2.0

EXISTING CONDITIONS & ANALYSIS



Legend

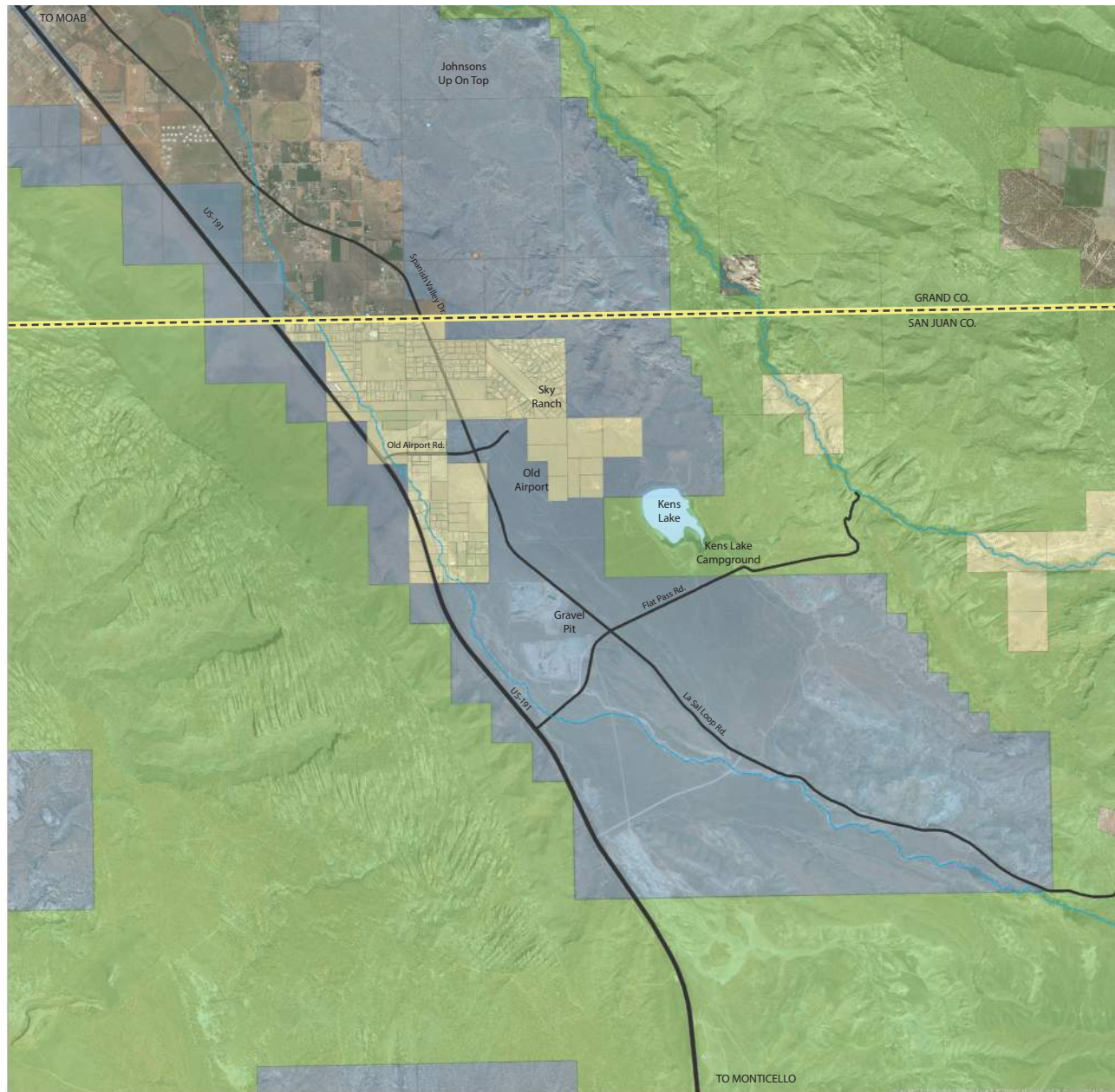
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|--------------------------|-------------------------------|-----------------------------|--------------------------|
| Developed Land - Private | Underdeveloped Land - Private | Underdeveloped Land - SITLA | Gravel Contracts - SITLA |
| BLM Land | County Boundary | | |



EXISTING LAND OWNERSHIP

2.0

EXISTING CONDITIONS & ANALYSIS



Legend



Private Land in San Juan Co.



BLM Land



SITLA Land



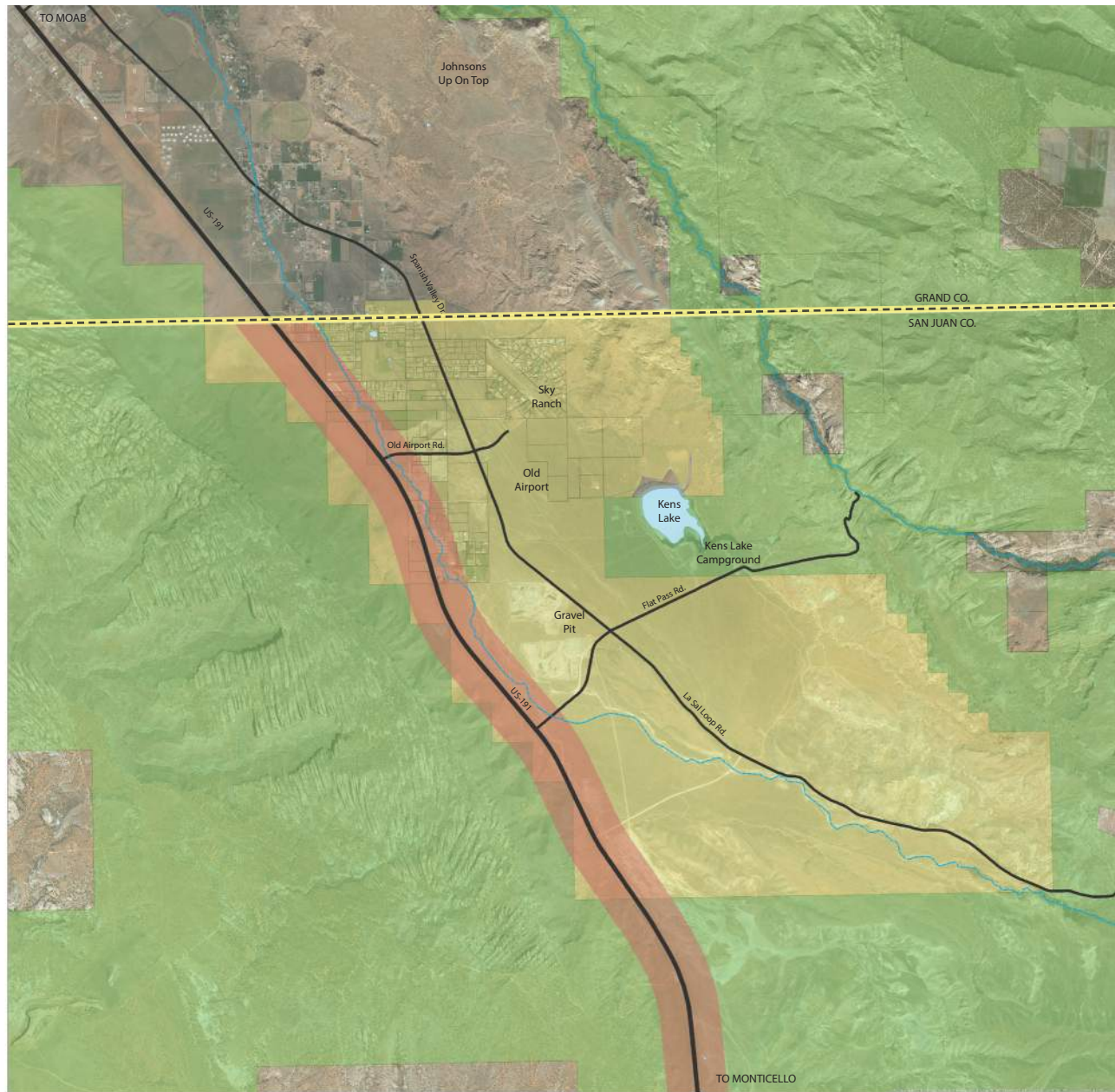
County Boundary



EXISTING ZONING

2.0

EXISTING CONDITIONS & ANALYSIS



Legend



Residential / Agricultural.



Highway Commercial



BLM Land



County Boundary



Water and Sewer Infrastructure

Development in the Spanish Valley has been traditionally limited to the use of individual water wells and septic systems. The lack of culinary water and sewer systems has many practical and environmental shortcomings. The existing systems lack the ability to provide sufficient fire protection, are expensive, and limit growth, resulting in inefficient and sprawling development patterns.

To address increasing development pressure and demands, San Juan County contracted Jones & DeMille Engineering to prepare two key studies to address long-term water and sewer needs:

- *Spanish Valley Water and Sewer Master Plan (2017)*¹
- *San Juan Spanish Valley SSD 40-year Water Right Plan – Water Right: 09-2349 (2017)*²

To summarize, the *Water and Sewer Master Plan* evaluated the condition of existing private wells and septic systems, future growth, and culinary water/sewer system alternatives. Growth projections were calculated for the private land areas, indicating that 229 **Equivalent Residential Connections** (ERCs) are required to meet the needs of existing households. The total number of ERCs required to meet needs in 2035 was estimated at approximately 1,400. The municipal water system will initially use one or two wells to supply water to the area. As Spanish Valley grows and expands, new wells or springs will need to be developed to supply water to new growth in the valley.

The *Water Rights Plan* projected beneficial water use of water right 09-2349 over a 40-year period (2017-2057), determining how much water the San Juan Spanish Valley SSD will have to manage and how much water will be required by developers before granting project approval. Currently, the SSD owns water right 09-2349, which allow the district to divert 5,000-acre feet per year or an average daily use of approximately 4.47 million gallons. It is projected that residential water use will take about half of the total amount of water used initially. By the end of the 40-year period, Spanish Valley will use the entirety of their current water right and have a deficit, which will require the SSD to procure additional water rights or shares to meet additional water needs.

Roads and Transportation

Primary access to San Juan County portion of the Spanish valley is provided by **US-191**, a two-lane, north-south state highway that traces the western edges of the Study Area. According to discussions with UDOT, it will be a long time before the highway is converted into a four-lane route from the San Juan - Grand County line southward, particularly since the current focus is on completing four-lanes from the county line north into Moab. A corridor agreement was approved in 2015 by San Juan County, Grand County and Moab, which addresses how to improve existing access to private properties through the inclusion of a frontage road system (see Appendix G). The agreement was completed prior to the current water/sewer agreement and corresponding growth implications.

Key UDOT standards to consider when planning the area follow:

¹ See Appendix E for detailed report.

² See Appendix F for detailed report.



Highway Intersection

- No driveways closer than 1,000 feet apart;
- One-mile minimum distance between controlled intersections³
- If traffic increases, the distance between intersections can decrease as part of decreasing speed, similar to Moab.

Spanish Valley Road/LaSal Loop Road is a county roadway that bifurcates the Study Area from north to south. The two-lane roadway is part of the **La Sal Mountain Loop Road Scenic Backway**, which begins on US-191, six miles south of Moab, and winds easterly over the La Sal Mountains through Castle Valley, ending at Upper Colorado River Scenic Byway U-128 and Moab to the west. The roadway is a popular drive and bikeway, providing spectacular scenery ranging from the forested heights of the La Sal Mountains to expansive views of the red rock landscape below. It is also an important roadway for the Study Area, providing a direct link with Moab to the north.



La Sal Loop Road

Other existing roads include Flat Pass Road, a county roadway that provides a link from US-191 and LaSal Loop Road to Kens Lake and other attractions in the vicinity and Old Airport Road.

A series of paved, unpaved and graded roads serve as the local road system servicing the various residential and commercial properties in the northern extents of the Study Area.

Commercial Market Potential

A primary objective of this plan is to determine the appropriate amount of commercial land in the Spanish Valley area necessary to support local and regional needs, as well as to generate jobs and provide a level of economic independence. According to an analysis by Lewis, Young, Robertson & Buningham (LYRB) in October 2017⁴, Spanish Valley's remote location, limited interstate access and rural population will make it challenging to attract larger distribution and business centers. Lower population levels and continued sales leakage will result in less commercial acreage within the community. However, if the county allows for greater densities, resulting in an increase in buying power and capture rates, the area could see higher levels of commercial development.

Methods to promote commercial development in the area include:

- Allowing for more residential development and population growth;
- Providing development incentives;
- Promoting niche markets that will capture sales from surrounding communities; and
- Promoting other types of commercial development (industrial, tech, office, etc.).

³ There are four existing or identified roadways that provide access between US-191 and the Spanish Valley at present, including Old Airport Road and Flat Pass Road. These roads are spaced approximately one-mile apart, which is the minimum distance according to UDOT standards.

⁴ See Appendix H for a copy of the complete report.

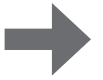
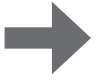
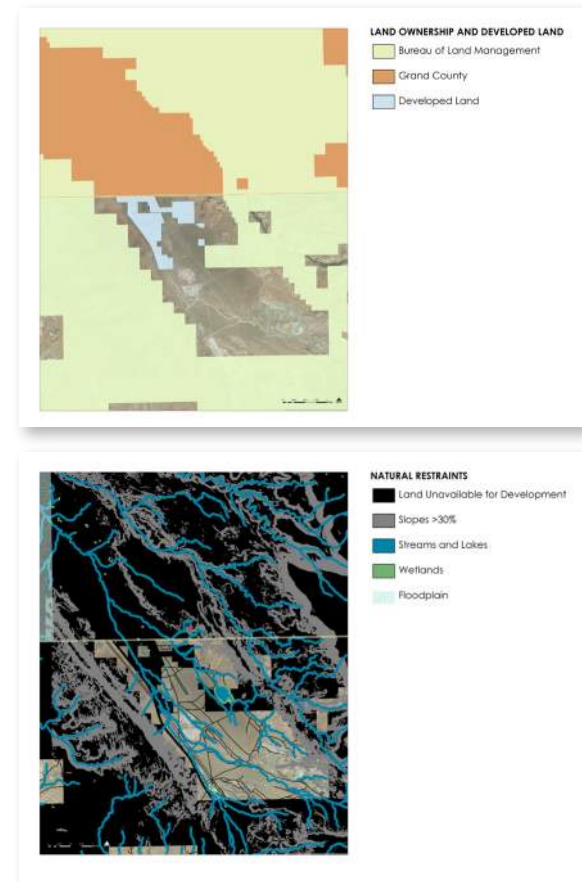
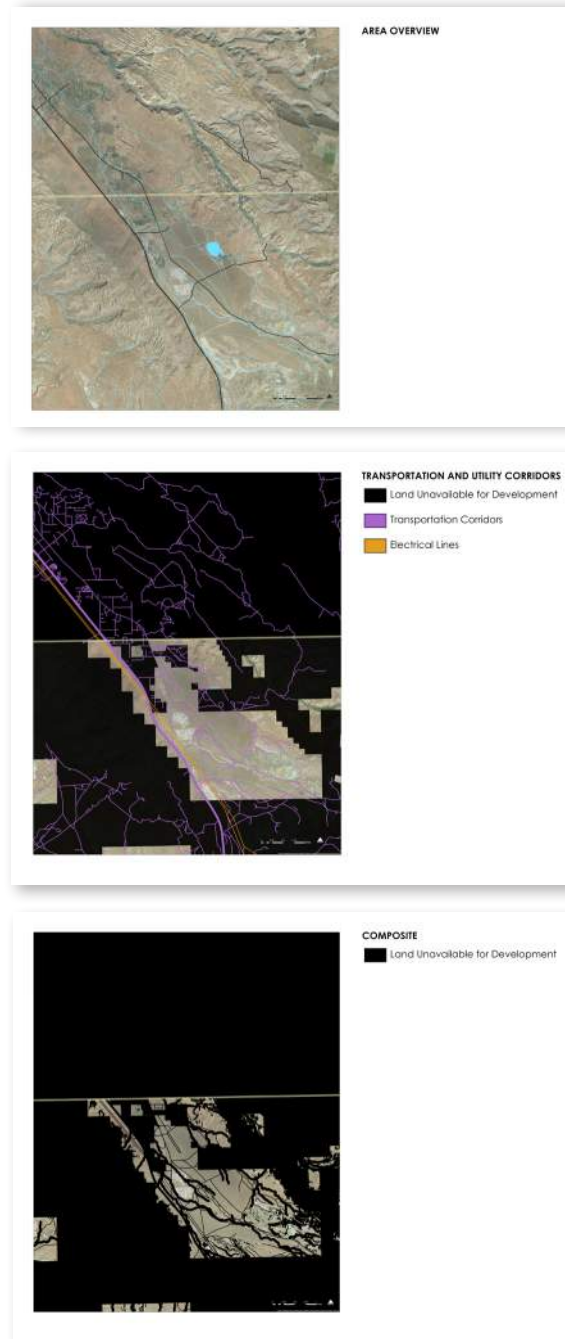
LAND SUITABILITY ANALYSIS

The Study Area is large, encompassing a range of natural and man-made conditions that impact the utility for development and growth. As illustrated in the accompanying diagrams, an overlay process was used to highlight areas with the greatest suitability for development. The overlays addressed several conditions:

- **Developed Land** – removed due to limited development opportunities;
- **Transportation and Electrical Corridors** – eliminated because existing functions are assumed to be maintained;
- **Federal Lands** - removed due to protected land status; and
- **Critical and Sensitive Lands** - water bodies, streams, shorelands, wetlands, floodplains, and steep slopes unsuitable for development were removed.

This process resulted in a composite map that highlights the land most suitable for future development, which served as the basis for land use concepts that were eventually explored (see Chapter 3).

OVERLAY PROCESS



2.0

EXISTING CONDITIONS
& ANALYSIS

LAND MOST SUITABLE
FOR FUTURE DEVELOPMENT

2.0

EXISTING CONDITIONS
& ANALYSIS



3.0

SPANISH VALLEY
AREA PLAN

INTRODUCTION

The Spanish Valley has developed slowly. Key factors contributing to this place include the valley's distant location from Moab, and the lack of water, sewer and other services. The area is known as a place to get away from urban life, where control and interference is limited. It is a place where you can still watch the stars at night, with open valley views that are delineated by steep cliffs and bluffs at the edges. The area has been developed with a hands-off approach and a focus on meeting individual needs. The result is a place with a general lack of planning foresight, and no clear community vision.

But things are changing

Development pressure is high and there are few locations in Moab or Grand County to accommodate growth. Instead of being an affordable place to get away from Moab, the study area is emerging as a community to itself, with a unique character, charm and allure. This is supported by desires for better housing, better planning, better use of water and land, more amenities and services, and a better quality of life. The public expects a more sustainable planning and development approach. They envision a community that is better served by San Juan County, yet which maintains ties to the commercial hubs of Moab and Grand County. They envision a place that is responsive to the setting, environment and history of the valley, where evenings under the stars are not lost in the haste to develop.

In order to adequately address these complex demands, growth and development need to be better organized and implemented.

As presented in the following pages, a new land use vision has been identified for the Spanish Valley. It is based on a process of listening, consideration of past directions and future needs, the establishment of guiding planning principles, and careful consideration of core issues and ideas. The land use vision begins by improving the development pattern in the private property areas in the northern reaches of the Study Area, continuing south in a contiguous manner that promotes the formation of a unified community.

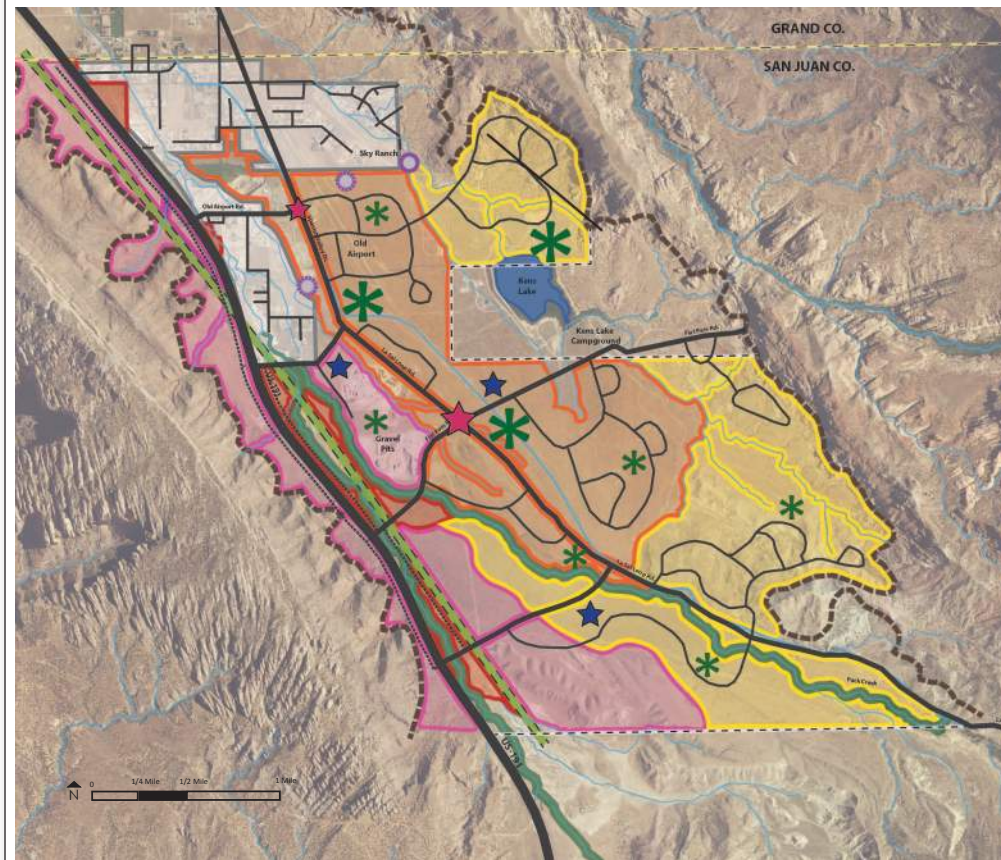
LAND USE PLAN

As illustrated in the accompanying Land Use Plan and described below, the Study Area is organized into five types of Growth and Development Areas. The layout of the zones is rational and coordinated, reflecting the unique conditions and opportunities of the site and the needs of a well-planned community.

Spanish Valley Area Plan Guiding Principles

- 1 Preserve Spanish Valley's night sky and quiet rural-setting through the use of zoning ordinances.
- 2 Keep housing in Spanish Valley diverse (a mixture of types and densities) and affordable.
- 3 Create a non-tourism centered community that is distinctly different than Moab, yet still maintains its current close ties.
- 4 Encourage and support business development and job generation through the location of well-situated business development zones adjacent to the highway.
- 5 Create a strong community feel by carefully integrating community and civic places throughout the area.
- 6 Carefully consider the natural environment—particularly floodplains and waterways—when planning the Spanish Valley area.
- 7 Revise existing zoning ordinances to require well organized development and compatible land uses. Incorporate appropriate land use buffers where required.
- 8 Revise existing zoning ordinances to encourage compatible uses being located together and/or the incorporation of appropriate buffers.
- 9 Locate a small commercial center—comprised of small, local businesses—in a central location and bigger, more regional-type commercial uses near Highway 191.
- 10 Develop a well-connected transportation system with safe access from Highway 191 and which incorporates multiple modes of transit (shuttle/bus, bicycle, walking, etc.).

San Juan County Spanish Valley Area Plan



LAND USE

Description

The San Juan County Spanish Valley Area Plan provides a rational land use and growth strategy that builds upon the key principles identified through the public input process and the direction of county officials.

Accordingly, there are five types of potential Growth and Development Areas, each with unique opportunities and considerations, as follow:

Private Land Areas

This area consists of both developed and undeveloped land that is owned by numerous private parties. Since the area has been inconsistently planned, the focus is on meeting the following needs:

- Establishing a rational and coordinated system of road and storm water conveyance systems
- Providing transitions between existing and future incompatible uses
- Facilitating limited subdivision and densification where opportunities exist
- Ensuring that future development follows a new system of guidelines that promote safe, coordinated growth and development

Central Development Areas

Located in the center of the valley, these are the flattest and easiest-to-develop areas. They are suitable for a wide range of development, including residential, civic, institutional and parks/open space uses. They also support limited development of local commerce and community services. The large tracts of contiguous land are primarily under single ownership, which promotes the application of coordinated development strategies.

Perimeter Development Areas

Located on the east and south edges of the valley, these areas are relatively distant from existing growth areas. The application of coordinated strategies and models for lower-density development should be applied.

Highway Commercial Areas

Regional commercial uses and needs are supported along the highway near major intersections. Direct access from the highway should be limited to promote movement.

Flex Development Areas

These areas provide unique opportunities to create an economic base for the valley, due in large part to their location near the highway, yet buffered from nearby neighborhoods. A flexible development approach should be considered to allow market developments and opportunities to be addressed.

Legend

- BLM/STLA Property Boundary
- Steep Cliffs Delineating Valley
- Lakes/Reservoirs
- Major Drainage
- Minor Drainage
- US-191
- Primary Road
- Secondary Road
- Frontage Road
- Power Corridors
- New Culinary Water Well
- Future Culinary Water Well (known)
- ✱ Regional Park
- ✱ Community Park
- ★ Schools
- ★ Neighborhood Center
- Private Land Area - focus on infill limited subdivision of acre + lots, and logical road/circulation linkages (700 acres)
- Central Neighborhood Development Areas (1450 acres)
- Perimeter Neighborhood Development Areas (1750 acres)
- Flex Development Areas - market-driven business/commercial/residential development (1075 acres)
- Highway Commercial Areas (200 acres)



3.0

SPANISH VALLEY
AREA PLAN

Private Land Areas (700 Acres)

These areas encompass both developed and undeveloped land, nearly all of which is privately owned. There has been little planning direction in this area in the past, resulting in an inefficient and helter-skelter pattern of development.

Efforts should focus on improving the layout of the existing neighborhoods, linking them with a coordinated road and infrastructure system that facilitates infill development. Key steps for meeting this vision include:

- Connecting a municipal water and sewer system to all existing and future homes and uses in the area;
- Implementing a system of roads and storm water drainage system standards that is unified and efficient;
- Providing transitions and buffers between incompatible land uses;
- Facilitating limited subdivision and densification where opportunities exist and which are consistent with established patterns and directions of growth; and
- Ensuring that guidelines and ordinances are adjusted so the area is safe, coordinated and interconnected.



Examples of existing residences - private land areas

Central Development Areas (1,450 Acres)

Located in the center of the valley, these are the flattest, least sensitive and easiest-to-develop sites in the Study Area. They are suitable for a wide range of residential development in addition to civic, educational, institutional and park/open space uses. These are the preferred areas for locating mixed-use neighborhood centers, where local commercial and civic services will be provided. The large tracts of contiguous land are primarily under single ownership, which promotes the use of coordinated development strategies to encourage creative design and development.

Perimeter Development Areas (1,750 Acres)

Located on the east and south edges of the valley, these areas are relatively isolated, located in the foothills and topographically challenged edges of the valley. They are proposed primarily for long-term development, assuming adequate water and sewer resources are found to serve them. These areas should be designed in an efficient, affordable and coordinated manner, focusing on lower-density residential uses, recreational resorts and similar uses.



Examples of lower density development suitable for topographically-challenged sites

Flex Development Areas (1,075 Acres)

These areas provide opportunities to establish an economic base for the valley. Located in close proximity to US-191, they are well-located to capitalize on highway traffic and highway access opportunities. These areas should be buffered from nearby residential neighborhoods, incorporating a flexible development approach that allows a range of business, distribution, highway commercial and specialty residential uses in response to market opportunities and conditions.

Highway Commercial Areas (200 Acres)

These areas take advantage of the location along US-191, providing sites for a range of highway-based commercial uses to meet community and regional needs. The earmarked acreage is considered sufficient for meeting long-term needs.

KEY USES

The following is a list of key uses envisioned for the area.

Residential

A full range of residential uses and types is envisioned for the area. The Central Development Area should be designed with the greatest diversity of residential uses, while the Perimeter Development Areas should focus on large lot and destination residential uses.

Densities may be higher in the Central Development Areas (4-5 units per acre on average), while the Perimeter Development Areas will focus more on single-family, large lot, specialty residential and ranch-type uses that are more appropriate for the challenging terrain (1-2 units per acre on average). The projected number of residential equivalents (housing units), population, and development assumptions are summarized in the table at the end of this chapter.



The range of housing types should be broad to meet existing and future needs

Examples of appropriate residential types include the following:

- Single Family and two-family homes;
- Mother-in-law units and accessory residential units on larger lots;
- Multi-family limited by height (3 – 4 stories max) and density (15 units/acre);
- Townhomes and row houses (3 stories maximum);
- Ranchettes and large lot estates (20-acre minimum), carefully-sited on topographically-challenged and sensitive sites;
- Residential resorts, sited in topographically-challenged sites.

Additional residential uses and types should be considered, depending on specific needs and opportunities that arise.

Community/Neighborhood Centers

Two neighborhood centers are proposed to meet the commercial, institutional, civic, and cultural/recreational needs of the community. The centers will also function as key community destinations, and will be places to meet and engage in local events and activities. Typical uses include:

- Local stores and corner shops
- Local mail box/post office
- Cafe, ice cream store, coffee shop, sports shops, etc.
- Restaurants
- Social hall/ community meeting space
- Civic/government offices
- Library/media center
- Day Care
- Farmer's markets and local events
- Trail connections

Major goods and services will be provided at commercial areas slated for development along US-191, in or outside of the Moab region.



Centers should be places to gather, meet and conduct daily business

Parks, Recreation, Open Space and Trails

An interconnected open space system is supported, linking the various neighborhoods with trails, parks, schools and recreation sites. The community should cooperate with the school district and adjacent communities to ensure duplication of park services and amenities is avoided.

A full-range of parks should be provided to meet the long-term needs of the community. Minimum level of service and distribution standards for parks should be codified in the development guidelines and ordinances:

- **Regional Parks** (15+ acres) provide amenities that serve the region, including restrooms, sports fields, open play areas, play grounds and specialty draws such as sports park, rodeo grounds and similar facilities. They should be coordinated with nearby school fields and school recreation facilities to avoid duplication of services and amenities.
- **Community Parks** (10+ acres) Includes open play and sports fields as basic features to meet the needs of the community.
- **Neighborhood Parks** (2 to 5 acres) are focused on open play areas, playgrounds and similar amenities that meet the needs of the surrounding neighborhood. Typical amenities include a restroom, pavilions, playgrounds, sports fields and un-programmed space.
- **Local Parks** (1 to 2 acres) meet the need of adjacent and nearby residents. Typical amenities include a small shelter, a playground and a focal play feature.



A full range of developed parks, natural open spaces and trails should be provided

- **Natural Open Spaces, Drainage Corridors and Off-street Trail Corridors**

Other Key Uses and Features of the Area Plan

- The major road system consists of **four east/west roads** linking development areas to US-191 and Spanish Valley Drive/La Sal Loop Road. A full range of collector and local roads should also be included, laid out in response to the natural topography and the valley landscape.
- Designation of a **smaller Neighborhood Center** at the Old Airport Road/Spanish Valley Drive intersection, and a **larger Neighborhood Center** near the intersection of Flat Pass road and LaSal Loop Road. Both centers should include a full-range of community, commercial, civic, institutional and cultural uses and services.
- Establishment of an **interconnected system of trails**, including off-street facilities located in the open space corridors, and on-street bike lanes located along the edges of the road system. Together, these provide active transportation connections between the neighborhoods, local destinations and regional sites. Spanish Valley Drive/LaSal Loop Road should be developed as the north-south "spine" of the on-street system.

- **Conversion of existing gravel pits** along Flat Pass Road into a recreational neighborhood or business development zone. Regardless of the final use, the area should be well-buffered from surrounding residential uses. The site is near Ken's Lake and Pack Creek Corridor, promoting a design that is focused on the establishment of a unique recreational district.
- Regional **commercial, business development and specialty residential** uses are distributed along US-191 as part of a flexible, mixed use development model. Access should be provided primarily from east/west roadways and highway frontage roads.
- The various Development Districts should encompass a **wide range of residential uses and types** to meet the full range of socio-economic and life-cycle needs of the Study Area. Densities should be higher in Central Development Areas, with lower-density/larger lot development focused in the outlying Perimeter Development Areas.
- Three **school sites** have been conceptually located to meet the anticipated needs for elementary, middle and high schools. Specific sites should be identified with the participation of school district officials prior to development to ensure needs are met.
- Major and minor **streams and washes** should be incorporated into the community structure as part of a Low-Impact Development (LID) approach where appropriate. These systems should be coordinated with the regional park, open space and trails system.
- Existing and proposed wells to service the new culinary water system are illustrated in the land use map. **Well-protection zones** should be demarcated and codified to ensure critical water sources are protected from development and other impacts. Appendix I contains a copy of the San Juan County Well Protection Ordinance that will apply in this area. Appendix J illustrates the location of known wells and the concentric protection zones for each. To summarize, no development is permitted in Zone 1; Zone 2 and 3 do not allow septic or underground fuel storage tanks, but otherwise permit development; Zone 4 permits most types of development.
- **Sky Ranch** is a private airfield located in the northern reaches of the Study Area. Since San Juan County does not have specific ordinances in place to ensure the operation of such facilities are safe and the impacts on surrounding uses is understood, Federal Aviation Administration (FAA) rules should apply (see Appendices K and L for additional information).

PHASING

Residential development should be implemented sequentially from north to south as part of a rational extension of municipal water and sewer services (Phases 1-6).

Extension of water and sewer services should be more flexible in Highway Commercial and Flex Development Areas (Phases A-C) in order to support business, commercial development, job generation and specialty residential development.

Phase 1 - 700 Acres

Existing and undeveloped private land area. Residential infill and densification is supported, assuming minimum lot size, setback and similar site development guidelines are established.

Phase 2 - 950 Acres

Primarily residential neighborhood. The bulk of land in single ownership (SITLA) supports a coordinated design and development approach, with higher density in the Central Neighborhood Development zone. Includes a small neighborhood center, two regional parks and a community park as primary amenities/destinations.

Phase 3 - 525 Acres

Central Neighborhood Development area under single ownership (SITLA) supports implementation of **coordinated design and development principles**. Includes part of a small Neighborhood Center, a regional park, a community park and schools as primary amenities/destinations.

Phase 4 - 675 Acres

Primarily a **residential neighborhood with some highway commercial** along highway. Single ownership (SITLA) supports coordinated design and development, with higher density in the Central Neighborhood Development zone. Includes part of a neighborhood center, a community park and Pack Creek as primary amenities/draws. Vehicular access to highway commercial to be provided primarily by frontage roads running parallel to the highway and from adjacent east/west primary roads.

Phase 5 - 775 Acres

Primarily a residential neighborhood. Single ownership (SITLA) supports coordinated design and development as part of lower-density, Perimeter Neighborhood Development principles. Includes a community park as the primary amenity/draw.

Phase 6 - 400 Acres

Primarily residential neighborhood. Single ownership (SITLA) supports coordinated design and development, with lower-density in the Perimeter Neighborhood Development zone. Includes schools, a community park and Pack Creek as the primary amenities/draws.

Flex Phase A - 600 Acres

Business, commercial and residential development to be considered, depending on market interest and demand. Vehicular access to be provided by frontage roads running parallel to the highway. Detailed master plan to be submitted and approved before development and extension of water/sewer services.

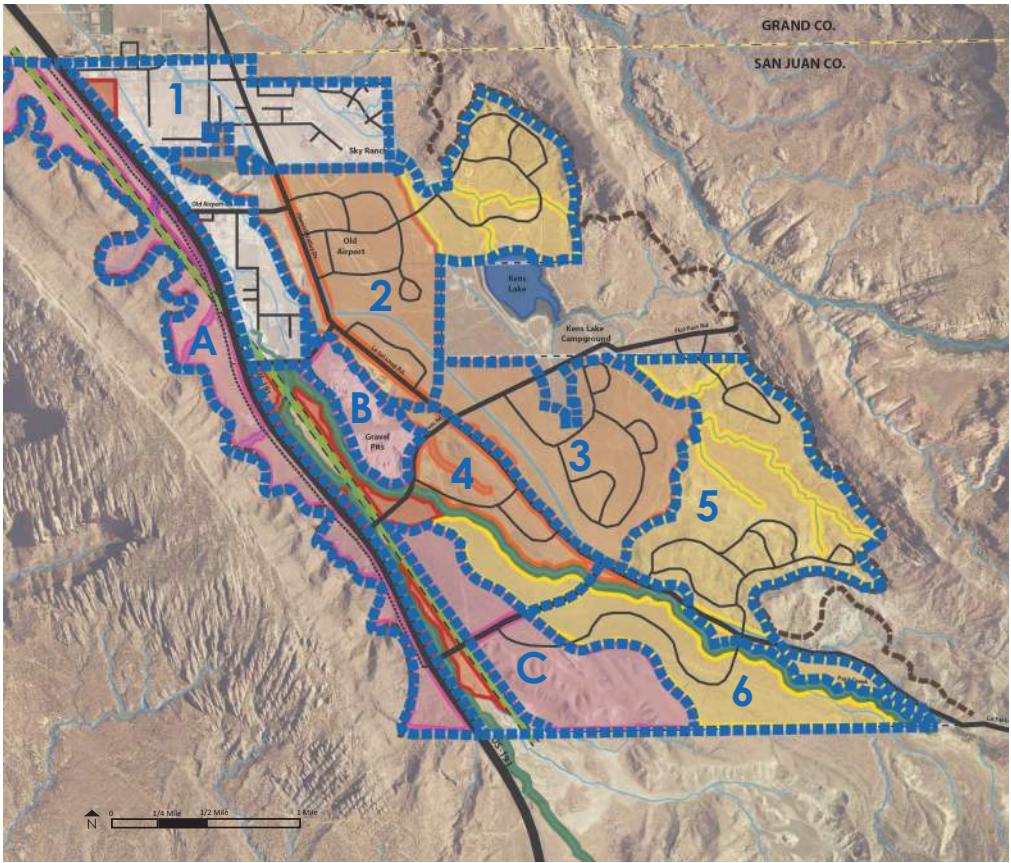
Flex Phase B - 150 Acres

Business, commercial, residential and recreation development to be considered for existing gravel pit site, depending on market interest and demand. Detailed master plan to be submitted and approved before development and extension of water/sewer services.

Flex Phase C - 400 Acres

Business, commercial and specialty residential development to be considered, depending on market interest and demand. Vehicular access to be provided by frontage roads running parallel to the highway and along east/west Primary Road. Detailed master plan to be submitted and approved before development and extension of water/sewer services.

San Juan County Spanish Valley Area Plan



PHASING

- Description**
- Phasing Concept**
Development phasing should be coordinated with the provision and extension of water and sewer service, which is currently planned to take place in a north to south direction from the county border. Existing and undeveloped land in the northern extent of the study area should be prioritized, and extend southward in a methodical and contiguous fashion. Some latitude should be provided for the service of flex Phases to facilitate the development of commercial, business, institutional and similar services, assuming water and sewer facilities are available.
- Phase 1 – 700 acres**
Existing and undeveloped private land area.
- Phase 2 – 950 acres**
Primarily residential neighborhood. Bulk of land in single ownership (SITLA) supports coordinated design and development, with higher density in the Central Neighborhood Development zone. Supports application of coordinated design and development principles. Includes a small neighborhood center, two regional parks and a community park as primary amenities/destinations.
- Phase 3 – 525 acres**
Central Neighborhood Development under single ownership (SITLA) supports implementation of coordinated design and development principles. Includes part of a small Neighborhood Center, a regional park, a community park and schools as primary amenities/destinations.
- Phase 4 – 675 acres**
Primarily residential neighborhood, with some highway commercial along highway. Single ownership (SITLA) supports coordinated design and development, with higher density in the Central Neighborhood Development zone. Includes part of a neighborhood center, a community park and Pack Creek as primary amenities/draws. Vehicular access to highway commercial be provided primarily by service roads running parallel to the highway and from adjacent east/west running primary road system.
- Phase 5 – 775 acres**
Primarily residential neighborhood. Single ownership (SITLA) supports coordinated design and development as part of lower-density Perimeter Neighborhood Development principles. Includes a community park as the primary amenity/draw.
- Phase 6 – 400 acres**
Primarily residential neighborhood. Single ownership (SITLA) supports coordinated design and development, with higher density in the Central Neighborhood Development zone. Includes schools, a community park and Pack Creek as the primary amenities/draws.
- Flex Phase A – 600 acres**
Business, commercial and residential development to be considered, depending on market interest and demand. Vehicular access to be provided by service roads running parallel to the highway. Detailed master plan to be submitted and approved before development and extension of water/sewer services.
- Flex Phase B – 150 acres**
Business, commercial, residential and recreation development to be considered for existing gravel pit site, depending on market interest and demand. Detailed master plan to be submitted and approved before development and extension of water/sewer services.
- Flex Phase C – 400 acres**
Business, commercial and residential development to be considered, depending on market interest and demand. Vehicular access to be provided by service roads running parallel to the highway and along east/west Primary Road. Detailed master plan to be submitted and approved before development and extension of water/sewer services.

- Legend**
- Private Land Area - focus on infill limited subdivision of acre + lot, and logical road/circulation linkages (750 acres)
 - Central Neighborhood Development Areas (1400 acres)
 - Perimeter Neighborhood Development Areas (1750 acres)
 - Flex Development Areas - market-driven business/commercial/residential development (1075 acres)
 - Highway Commercial Areas (200 acres)
 - BLM/SITLA Property Boundary
 - Steep Cliffs Delineating Valley
 - Lakes/Reservoirs
 - Major Drainage
 - Minor Drainage
 - US-191
 - Primary Road
 - Secondary Road
 - Frontage Road
 - Power Corridors



SUMMARY OF LAND USE PHASING ASSUMPTIONS

PHASE	ACRES	DEVELOPED ACRES	UNDEVELOPED ACRES	DEVELOPMENT ASSUMPTIONS	IMPLEMENTATION TIMING	RESIDENTIAL EQUIVALENTS	PROJECTED POPULATION (2.5 AVG HOUSEHOLD SIZE)	WATER SUPPLY
1	700	420	280	Approximately 60% of area is currently developed, of which it is assumed 50% will be subdivided and developed or an additional residential unit will be developed on larger sites. Assumes 30% of land area dedicated to roads, infrastructure, utilities, and civic/commercial uses. Net average density = 2 units/acre.	SHORT-TERM 0 TO 10 YEARS	$280 \times 0.7 \times 2$ $+ 200 \times .5$ $= 392 + 100$ $= \mathbf{490}$	492×2.5 $= \mathbf{1,230}$	EXISTING 5,000 ACRE FEET*
2	950	0	950	Assumes 30% of undeveloped sites dedicated to roads, infrastructure, utilities and civic uses. Net density = 3 units/acre.	SHORT-TERM 0 TO 10 YEARS	$950 \times .7 \times 3$ $= \mathbf{1,995}$	1995×2.5 $= \mathbf{4,990}$	EXISTING 5,000 ACRE FEET* AND ADDITIONAL RESOURCES YET TO BE CONFIRMED
3	525	0	525	Assumes 30% of undeveloped sites dedicated to roads, infrastructure, utilities and civic uses. Net density = 4 units/acre.	SHORT-TERM 0 TO 10 YEARS	$525 \times .7 \times 4$ $= \mathbf{1,020}$	$1,020 \times 2.5$ $= \mathbf{2,550}$	ADDITIONAL RESOURCES YET TO BE CONFIRMED
4	675	0	675	Assumes 20% of undeveloped sites dedicated to roads, infrastructure, utilities and civic uses. Net density = 3 units/acre.	MEDIUM-TERM 10 TO 20 YEARS	$675 \times .7 \times 3$ $= \mathbf{1,420}$	$1,420 \times 2.5$ $= \mathbf{3,550}$	ADDITIONAL RESOURCES YET TO BE CONFIRMED
5	775	0	775	Assumes 20% of undeveloped sites dedicated to roads, infrastructure, utilities and civic uses. Net density = 1 unit per 5 acres.	LONG-TERM 20+ YEARS	$775 \times .7 / 5$ $= \mathbf{110}$	464×2.5 $= \mathbf{275}$	ADDITIONAL RESOURCES YET TO BE CONFIRMED
6	400	0	400	Assumes 20% of undeveloped sites dedicated to roads, infrastructure, utilities and civic uses. Net density = 1 unit per 5 acres.	LONG-TERM 20+ YEARS	$400 \times .7 / 5$ $= \mathbf{60}$	60×2.5 $= \mathbf{150}$	ADDITIONAL RESOURCES YET TO BE CONFIRMED
A	600	0	600	Assumes 50% of undeveloped sites dedicated to roads, infrastructure, sensitive lands, utilities, etc. Assumes 10% of total dedicated to residential uses at 10 units per acre	LONG-TERM 20+ YEARS	$30 \times .5 \times 10$ $= \mathbf{150}$	150×2.5 $= \mathbf{375}$	EXISTING 5,000 ACRE FEET AND ADDITIONAL RESOURCES YET TO BE CONFIRMED
B	150	0	150	Assumes 50% of undeveloped sites dedicated to roads, infrastructure, open space, utilities, etc. Assumes 10% of total dedicated to residential uses at 10 units per acre	SHORT-TO-LONG-TERM 0 TO 20+ YEARS	$15 \times .5 \times 10$ $= \mathbf{75}$	75×2.5 $= \mathbf{225}$	ADDITIONAL RESOURCES YET TO BE CONFIRMED
C	400	0	400	Assumes 30% of undeveloped sites dedicated to roads, infrastructure, utilities, etc. Assumes 25% of total dedicated to residential uses at 3 units per acre	LONG-TERM 20+ YEARS	$100 \times .7 \times 3$ $= \mathbf{210}$	150×2.5 $= \mathbf{525}$	ADDITIONAL RESOURCES YET TO BE CONFIRMED
	4,775	420	4,355	N/A	N/A	5,530	13,870	N/A

*According to The San Juan Spanish Valley SSD 40-Year Water Right Plan - Water Right: 09-2345, the San Juan Spanish Valley SSD Water Right allows the district to deliver 5,000 acre-feet of water per year, or an average daily use of 4,463, 696 gallons.

4.0

GUIDELINES AND ORDINANCES

INTRODUCTION

As indicated in Chapter 2, development control in the Spanish Valley is very limited. The Study Area is controlled by two zones in the San Juan County Zoning Ordinance. The **Controlled District Highway (CD-h)** zone permits uses considered appropriate for a highway setting. Typical uses include restaurants, motels, automobile sales and service and mobile home parks. The ordinance indicates that no commercial or industrial building can be erected within 25-feet of a residential building or residential district boundary. There are no coverage limitations and few other controls.

The remainder of the Study Area is zoned **Agricultural (A-1)**, which permits agricultural uses, single-family residences, ranches and cabins. Two-family residences are permitted as a conditional use, and additional single-family units on a single lot may be approved on a case-by-case basis for the use of employees and family members. The minimum lot size is one-acre and minimum lot width is 330 feet. Front and rear yards must be at least 25 feet and side yards at least 15 feet. Building height is limited to 2.5 stories or 25 feet.

Roads and utilities are poorly planned and implemented, often in violation of established regulations. The size of subdivisions is determined in large part by access to water and sewer systems. This has resulted in a proliferation of small subdivisions utilizing shared water wells and individual septic systems. There has been limited development control and building inspection in the past, resulting in inconsistent and unsafe development norms. However, the situation recently improved with the hiring of a part-time building inspector.

To address such shortcomings, new development guidelines and ordinances are necessary to facilitate the type of development envisioned. The guidelines and ordinances should:

- Meet the needs of the Spanish Valley, providing clear direction and flexibility when required;
- Address the specific needs and requirements of the various development districts; and
- Meet the capacities of San Juan County, which has limited resources and manpower.

Many models are feasible for these purposes, some better suited to the Spanish Valley. Examples to be considered include:

- Modifying existing guidelines and ordinances;
- Creating new zones and guidelines specifically crafted to meet the needs of the Spanish Valley; and
- Utilizing Development Agreements and similar tools to negotiate specific projects.

KEY PRINCIPLES TO BE CONSIDERED WHEN DEVELOPING GUIDELINES AND ORDINANCES FOR THE SPANISH VALLEY

1. The needs of the partially-developed Private Development Areas will be significantly different than the undeveloped areas to the south. The application of separate guidelines and ordinances for both areas should be considered.
2. The use of simple, easy-to-understand and workable standards that address the poorly connected structure and unsafe conditions in the Private Development Areas should be addressed.
3. Guidelines and ordinances for the rest of the Study Area should encourage coordinated development of large tracts of land under single ownership. They should be easy to understand and promote good planning and creative design.
4. Rules should be established that clarify the extension of services from north to south for residential districts, with exceptions

4.0 GUIDELINES AND ORDINANCES

for business and commercial districts near Highway-191.

5. Guidelines should establish that the Highway Commercial Areas and Flex-Development Areas are the primary locations of large-scale commercial development, that access should be provided by frontage roads or from east-west entry roads, that the list of possible uses should be broad, and that heavy industrial uses should be prohibited.
6. Guidelines should be developed to improve the appearance of uses along the highway, particularly at major intersections, which will become the main gateways into Spanish Valley.
7. Access from US-191 should meet UDOT standards.
8. Buffers and land use transitions should be applied between incompatible land uses.
 - State highway
 - Primary roads
 - Secondary roads
 - Local roads
 - Frontage roads
 - Alleys/trails (both on and off-road)
 - Bicycle lanes
9. A functional roadway classification system should be developed for the area, including standard road sections and details. An example of a typical hierarchy follows:
10. Identification of a functional trail system for the area, including on-road and fully-separated/ off-road systems. The on-road system should be composed of Primary Routes (Spanish Valley Drive/LaSal Loop Road) and Secondary Routes.
11. Establish stormwater drainage standards, including the use of Low-Impact Development (LID) systems is encouraged.
12. Discouragement of strip development and encouragement of the establishment of centers, nodes and of destinations.
13. Clarification of minimum park and open space standards and types. Open space corridors should be encouraged for the location of stormwater detention facilities, trails, parks and to link neighborhoods to public lands.
14. Specific guidelines should be developed that ensure dark skies are preserved.
15. Specific guidelines should be developed that preserve key viewsheds and sensitive lands.

OTHER CONSIDERATIONS WHEN DEVELOPING GUIDELINES AND ORDINANCES FOR THE SPANISH VALLEY

The following is a list of additional questions and ideas to be considered as new guidelines and ordinances are developed. These transcend preconceived notions of what new development should look like and how it can fit with the surroundings.

Region and Setting

- Where did the original settlers build?

4.0 GUIDELINES AND ORDINANCES

- What architectural features were distinctive?
- What building materials were used?
- How wide do the streets need to be to accommodate traffic and movement?
- What role do public spaces, parks and open space play in the life of the community?
- What building types, setbacks and heights are appropriate?
- How do these elements work together to support the character of the community?
- How does the Spanish Valley of the future express the streams, washes, landforms and cliffs found in the area?

Historic Traditions

- Are there historical development patterns that will help create a great place to live?
- Are there traditional land use patterns that should be expressed?
- Are there significant views or features such as cliffs, rock outcrops and ridgelines that help define the area?
- Are there sensitive natural areas or high hazard areas (steep slopes or flood zones, for example) where development should be discouraged?

Centers, Destinations and Neighborhoods

- Are there gathering places such as public squares and parks in the region that should be emulated? Should public places be within walking distance of home?
- What is the relationship between buildings and streets? How far are they set back? Do houses have large front yards? Do buildings face the street? Are the public spaces inviting? Are yards large or small? Where are things stored on the property?
- Does the area have a variety of housing types (single family, multifamily, apartments)? Are there residential neighborhoods or subdivisions that should serve as models? What makes these neighborhoods desirable?
- Should clustered development and conservation subdivision standards be used to encourage good utilization of land?

Natural Setting

- Where does the Spanish Valley get its water? Is demand increasing? Is water reused? What kind of plants are native? Should trees be planted along streets? In parks?
- What is the native plant palette? Can native plants be salvaged and replanted? What kind of wildlife is in the area? Where is critical habitat located? Do road standards respect the landscape and minimize environmental impacts? Are wildfires a threat? Is development discouraged in those areas?
- Are there prominent ridgelines that help define the area's character?

- What was the development pattern of older ranches and homesteads?
- Where are buildings typically located? In valleys? Toes of slopes?

Architecture/Design

- Is there a traditional or vernacular architectural style in the region? What defines that style (height, roof pitch, color, detailing, etc.)? What is the historic size of lots? How big are houses or buildings on those lots?
- What traditional building materials are used in the area?
- What is the maximum height of buildings in the area?
- Are there historic buildings worthy of protection? Can they be integrated into new development?

Site Design

- How are buildings oriented to take advantage of the sun or shade?
- What is the relationship between main structures and accessory buildings on a site?
- Is there native vegetation on the site? Can it be preserved?
- What materials were used historically for fencing? Are residential lots in older neighborhoods fenced to provide privacy or security? Are front yards open or fenced?
- Is street lighting provided at present? Is it possible to provide lighting that doesn't affect the dark skies?
- Are there crime/security issues to justify bright night lighting?
- Has sufficient space been reserved for neighborhood centers?
- Should minimum and maximum building heights and sizes be required?

Streets/Access

- How wide should streets be? What are the traditional street patterns in the region?
- Should streets be adjusted to terrain and topographical constraints?
- Should streets take advantage of distant views?
- Are dead end streets acceptable?
- Should streets be designed to accommodate multiple modes of transportation, such as buses and bikes?

APPENDICES

APPENDIX A

San Juan County Spanish Valley Area Plan

KICK-OFF MEETING

MONDAY, AUGUST 14, 2017, 1 P.M.; SITLA OFFICE, MOAB, UTAH

ATTENDEES:

Kelly Pehrson	San Juan County
Walter Bird	San Juan County
Bryan Torgerson	SITLA
Frank Darcey	San Juan Spanish Valley - Special Services District
Mike Bynum	San Juan Spanish Valley - Special Services District
Jerry McNeely	San Juan County
Mark Vlasic	Landmark Design
Jenny Hale	Landmark Design

Public Scoping/Visioning Meetings

Potential Meeting Locations: *LeGrand Johnson Office Building*

Grand County Water & Sewer Service Agency Building
(3025 Spanish Trail Road, Moab)

- Two meetings: One around noon and another in the evening; Many people work in the evening. Preferred meeting date: Tuesday, September 19th.
- In the past, they have used voting ballot addresses and mailed out meeting information. The mailer should be sent San Juan County residents. Others are welcome. The mailer should be clear that we want to solicit input.
- A positive opening activity/icebreaker (e.g. a visual preference survey) would be helpful at this meeting

Scoping Session

- The Spanish Valley area used to be called "Poverty Flats";
- New development is selling for \$300,000-\$400,000; Moab is a destination center and this area should be considered part of "Moab"—a potential name could be "Moab South" (this term would make it easy for people to bump into it, as it would be with the other Moab information when they do a google search for "Moab")
- It's important to have a full range of housing, not just low income
- Shouldn't be just residential but also should have commercial (that can be supported the +/- 20,000 residents) and industries (not "industrial"...but something like IT or light industrial)
- Recreational attractions (rec centers, etc.)—to enhance the quality of life—should also be included; People really like Kens Lake—should make the lake into more of an amenity

- Having the right mix of short-term rentals vs. full-time residential is a huge issue here
- USU Campus – When it converts to a 4-year campus, there will be a need for student housing/apartments.
- Huge need for apartment and mixed use
- Currently growth is limited because services end (at the Grand Co. line)
- Roads need to be planned early in the process (how do we connect to Mt. Peale, etc); The cost of adding a turn lane at a new access point is very costly (+/- \$700,000) and it makes it difficult to develop
- UDOT has a long-term plan to have a 4-lane highway through Moab but it hasn't happened—funding for roads in rural Utah is slow to come
- Need to work with Jones & DeMille to get sewer and water information. This will help determine where roads go
- Blue Hill—Light industrial could occur here (where it would be hidden from view); Light industrial could include maintenance yards for government agencies
- Need to reach out Spanish Valley residents—get their differing viewpoints
 - There seem to be three major groups: 1) Those who are 'old school'/didn't like Grand County policies and moved to get away from them; 2) Those who have no other place to live (affordability); and 3) New group/new development
 - Potential ways to reach residents were discussed (door-to-door, neighborhood meetings, etc.); It was determined that the best way would probably be focused interviews
- This plan could be a marketing opportunity; Could be used to sell the ideas to developers (would be nice to get them involved as soon as possible)
- San Juan County just hired an economic director (Natalie Randall)—starts August 21st. Marketing Spanish Valley would be part of her job
- Kelly would like to see the number of websites minimized—there is currently also one for the Spanish Valley Special Services District (spanishvalleywater.org)

Action Items:

- Kelly will get Landmark a list of additional potential Advisory Committee members
- Kelly will arrange 12+ residents to visit
- Landmark Design to set up a meeting/interview with UDOT
- Landmark Design to set up a meeting with Grand County's planner, Zacariah

Next Advisory Committee Meeting—Sept. 18-20 (exact day/time TBD)

APPENDIX A

San Juan County Spanish Valley Area Plan

PUBLIC SCOPING MEETINGS HELD AT GRAND WATER & SEWER SERVICE AGENCY,
3025 EAST SPANISH TRAIL ROAD, MOAB
SEPTEMBER 20, 2017

SCOPING MEETING 1 - 10:30 AM to Noon

11 people signed in as attendees. Landmark Design staff facilitated discussions. The following are verbatim comments as recorded.

- Quiet and dark – not a lot of traffic and street lights. Moab has lost this; Spanish Valley has and wants to keep
 - Incorporate these elements into zoning ordinances
- Currently they have incompatible land use and very little regulation; needs to be some regulation and buffering between uses
- Plan spaces for churches, schools, and other community spaces; places that are close to where people live (to be walkable)
- Jones and DeMille plans are current just assumed – easements need to be acquired, etc.
- Rentals are a concern; it would be nice to have ordinances and limit these uses to certain area to minimize impacts (noise, traffic, etc.)
- Currently limited connectivity to Moab. Need better transportation plan; in particular, need bike routes
- Flood plains are a concern; County needs stricter regulations (people are building where they shouldn't)
- Retention ponds are really important particularly as you develop new roads/put new pavement in
- Equestrian and other livestock uses - need to accommodate (ranching is part of the heritage of the area – continue to allow people to have)
- School districts will have to be thought about; currently the area is being served by Grand County
- Look at financing and having enough to provide services (schools)
- Commercial – prefer mom and pop shops over big box
- Not too city-like or suburban; like the rural-ness (having space/"elbow room")
- Some smaller lots (1/2 acre) okay – it's needed
- Affordable housing - where should it go?
- Could have a big problem with grandfathering – where smaller lots have already been approved
- SITLA needs to agree to and comply with the master plan
- Look at Pack Creek and how it fits in with this plan

- Fire District – need to consider so insurance rates don't go up (insurance rates go up if population increases in a service area)
- Height limits because of fire resources/restrictions? Not an issue (everything can be served)
- Don't want service employees far from city, but probably will occur here – consider transportation system
- Height uses would change based on land use
- Need some good cross valley access – Spanish Valley is over used and speed limit keeps getting lowered
- Ken's Lake – development around should be carefully considered (has leaked in past)
- Work with BLM on anything regarding Ken's Lake; had a recreation plan at one time
- Ken's Lake – likes to see the growth; need to improve access and traffic so the impact to neighborhood/area isn't as great
- Completion of La Sal loop could change the area dramatically
- Future, more detailed, studies need to occur and need to look at how much those studies will cost (how much will it cost to do this plan?)
- Need to require commercial development to improve roads (otherwise won't happen until county does it/too late)
- Small commercial away from Hwy 191 but still on well-traveled roads for visibility (maybe Spanish Valley Road?)
- Visual restrictions in zoning – e.g. no junk yards as entering the area/valley
- RV/tiny houses are in issue in Grand County; put where it should go not where it is convenient
- Locating all "transient" (e.g. temporary housing and low-income renters) uses together might not be a good idea
- Business sneaks in (e.g. RV/tiny houses) on a former residential lot; unsafe conditions and unregulated
- Transportation needs to look at and incorporate good signage
- Road standards – pavement requirements to get good quality
- Affordable housing – keeping this area residential and then have a good transportation system to Moab (plenty of jobs there now – but are seasonal and part-time)
- Employee housing is a huge issue. Some accommodations are being made by employees now, but more is needed
- New roads to limit traffic volumes to current residential neighborhoods to keep current developed areas quiet and provide opportunity for other uses on properties to be developed.

SCOPING MEETING 2 6:00PM to 7:30PM

9 people signed in as attendees. Landmark Design staff facilitated discussions. The following are verbatim comments as recorded.

- Likes 1 acre lots; space between neighbors
- Density will bring more “lights” – compromise night sky
- Gravel pits are important to growth; keep development away from
- SITLA – like to see mixed income/type of housing; bike trails; find a future use for gravel pits – when mined out
- Find best place for next gravel pit (SITLA – 30 year pit lifespan)
- Floodwaters – a big concern
- Has FEMA been involved? People have lost properties in Grand County because in flood plain. We should plan around the flood plains
- 1,000 ft. commercial highway – liked to see pushed forward; too large, would like to see more area for residential development
- Schools – are we planning for them? (Reach out to school district to establish needs)
- Grocery store, Walmart – all of this will come eventually, want it in the right places
- Affordable housing – should be looked at carefully; regulation is important for balancing
- Would like to see kids be able to live here
- Hwy 191 to Spanish Valley Road (2nd key road) doesn’t have a good connection now
- Parks – places of respite in the summer; can the county keep them up/afford it? (need to ask)
- Ken’s Lake – BLM is looking at planning for bigger recreation facilities
 - Some years Ken’s Lake is dry; can it be a sustainable draw?
 - Most of the recreation happens outside of the valley; probably won’t be a huge draw within
- Incompatible uses – the 1,000-ft. commercial rule really needs to change so commercial uses aren’t next or in the middle of residential areas (we are about 10 years behind)
- Community feel – need to develop not just along Hwy 191; look at Spanish Valley Road – make it have a community feel
- We have space and flexibility now – so now is the time to plan (get the bike paths in now)
- Grow from a community commercial center around Spanish Valley Road out
- Put gas stations, Walmart on highway; locate smaller commercial internally
- Affordable housing should be part of each development; not pushed just into one area
- Look at guidelines for development to preserve what we like – e.g. night sky
- Learn from mistakes that Moab has made

APPENDIX A

San Juan County Spanish Valley Area Plan

RESIDENT, LANDOWNER AND STAKEHOLDER INTERVIEWS
HELD IN MOAB, UTAH
SEPTEMBER 18-20, 2017

INTERVIEW 1 – Representatives of Six Families from Sunny Acres lane HOA

September 18, 2017 – 7:00PM

Background

Group interview of neighbors from Sunny Acres Lane (Estrella Estates), a newer (+/- 11-year old) subdivision. Approximately six homes/families represented. The subdivision is controlled by an HOA, which provides limited design and maintenance guidelines. The homes are located primarily just south of the county line and west of Spanish Valley Road, although some are within Grand County on Luna Circle. Most move here from Moab, although some came directly from SLC and Colorado. Most of the homes located on one-acre lots, the minimum size required by San Juan County when septic/wells are utilized.

Comments/Issues/Ideas

- The primary reason for living here is the relative isolation and distance from tourists and tourism impacts.
- The area is quiet and affordable.
- Preservation of night skies is a critical concept. Moab has lost the ability to see stars, and is unlikely to be able to regain it even if they can reverse existing light spillover.
- Would like better buffers between residential and commercial/industrial uses. The lack of control in San Juan County has resulted in some incompatible land uses being located together. However, most moved here specifically because the area is in San Juan County, which has limited input and control.
- Would like to see parks, schools, trails, fire and safety and similar public uses and services.
- Would like it to be a place with no hotels and over-night visitors (Air B&B) or similar tourist-based uses.
- Don't see a need for stores or services that one can walk to; don't mind driving to Moab and beyond for basic needs.
- The neighborhood has a wide range of lifestyles and living conditions (families with kids, retirees, etc.), although it is getting too expensive for many to live here.
- The area has no continuity or real structure, no standards. Would like to have more, but not too much like in Moab. Striking a balance between free choice and too much control is a primary issue.

- Want the area to be its own place, not an extension of Moab. Do not want the area to be a city, and it should not have a discernible downtown like Moab. However, the area should have a destination to meet and come together, possibly centered around a park.
- Most believe that Moab will still be the commercial and social core of the area. However, this will be less true as areas further to the south develop as they are so much further away.
- There is an opportunity to be smarter and better-planned than Moab, particularly through the design and location of utilities and infrastructure (water, sewer and roads are key).
- The area should be more aligned with creating a community for its residents and less about accommodating the needs of tourists.
- The area should have a separate vibe than Moab. It should be a nice place to live, but not a "well to do" community. The Spanish Valley/Moab relationship is comparable to Eagle to Vail Colorado, or Bellevue/Hailey to Ketchum/Sun Valley Idaho. An affordable community where most residents will work and shop in Moab.
- The city should have discernible neighborhoods, but not like Moab.
- The area should be dominated by single-family residential, although there is room for a wider range of types and densities, including cluster. Some residents indicated they would like higher density residential located near commercial and industrial uses, while others believe it is important to integrate such uses within the overall layout.
- The eclectic design and land use structure is generally OK, although future buildings should be required to fit in better with the landscape. If a Walmart or other big box uses are located here, they should fit in like those found in St. George and Cedar City.
- Low-income and affordable housing is a critical issue that will be a big part of the future. Many believe that residents are hung up on maintaining and increasing their property value rather than maintaining the area as a good place to live.
- Moab has a real problem with Air B&B uses proliferating, and this is emerging to be an issue in the Spanish Valley as well. Should look at what Moab is doing and apply similar solutions when codes are developed.
- Building heights should be relatively low, no higher than 3-stories.
- One member indicated that the BLM is in the process of negotiating a site for a new Wal-Mart (others say this is not true/not part of BLM's role/mandate).

INTERVIEW 2 – Mike Bynum and Shik (son-in-law who lives immediately to the north of Bynum). Bynum is member of the advisory committee.
shik@bzyez.com, 303.547.6919, 50 South ranch Trail, Mab, 84532

September 19, 2017 – 1:20PM

Background

Mr. Bynum owns a ranch that is the furthest south in the valley (west of Ken's Lake, near the highway. The ranch is +/- 11-acres in extent, and includes eight horses. Bynum has planted the

APPENDIX A

property with lots of trees, which create a green oasis while also serving as a buffer against nearby incompatible uses.

Shik's 2.5-acre property (which includes about a one-acre meadow) lies directly north of the ranch. He has several children, who run across a meadow to grandpa's house/ranch. The ranch serves as a park for the kids, and as a place for employee parties, etc. (Bynum owns restaurants, motels and other uses in Moab).

Bynum grew up in Moab but moved to Boulder Colorado for several years before returning to Moab. His children are all grown. Shik moved to Grand County about 10-years ago before moving to his current place 4-5 years ago. Shik would like to have more flexibility to subdivide his property and/or develop additional residences and rental uses on his site.

Comments/Issues/Ideas

- Both moved to the area to get away from Moab. The ability to have a larger property and the affordable price of land was a major reason both moved here, although the quiet lifestyle and dark skies are what keeps them here.
- Both appreciate the flexibility San Juan County provides for development, although they are worried about increasing traffic, the proliferation of overnight-rentals and similar uses and the impact of development on the quiet life/dark skies.
- They are concerned that services are nearly non-existent (they won't even grade the roads), even though they pay taxes in San Juan County. Since the Spanish Valley is far from Monticello, they believe that the county doesn't care what goes on here; the Spanish Valley is low on the list of priority for the county.
- Colorado Outward Bound located adjacent to the properties, and is generating a lot of traffic and light pollution. This is an example of "dumb" planning within the 1,000-foot commercial strip along the highway.
- There is no doubt that more people are coming, and it is critical to figure out a model to accommodate them. Many existing residents don't want more growth and want to preserve the area as it is now, although they have no right to expect that. Need to figure out how to accommodate a lot more growth.
- Existing zoning which requires one-acre minimum lot size and 1,000-foot commercial development strip along the highway both poor control models (dumb), particularly now that water and sewer are available.
- The area should have some smaller retail and grocery uses, and the Spanish Valley Road should become the Main Street of the area.
- Views, viewsheds and preservation of the landscape should be considered when developing the area.
- Drainages and water ways should be maintained as trail systems and used to delineate neighborhoods and land use areas.
- Community gathering locations are important, but should have a rural focus that builds upon the opportunities found here. Ken's lake, parks and greenways should be the place where people come together.

INTERVIEW 3 - Ken and Janice Knight, jknight@frontiernet.net 33 Merriam Court, Moab

September 19, 2017 – 3:40 PM

Background

Ken is originally from Ogden, Janice is from Little America, Wyoming. They have moved 52-times over their life together. Moved to Moab eleven years ago, renting a condominium. Moved to current property 10 years ago. Merriam Court is a cul-de-sac for five homes with a shared well that is located about a half-mile south of the county border. It is accessed directly from the highway. The roadway was originally designed to extend further to the west and provide access to homes on the other side of a drainage, but it was decided to close the roadway so they didn't need to put in a more extensive water system. It takes them 10 minutes to get into Moab, while hose living just to the east need at least 20 minutes via Spanish Valley Road. They are retired, although a granddaughter who attends USU in Logan lives with them during the summer.

Comments/Issues/Ideas

- The five homes are all manufactured homes, each located on lots around one-acre.
- Many people want to build small homes on their properties that they can rent out or subdivide and sell – they don't think this is a good idea for permanent residents, and don't like the idea of too many "overnighters" in the area.
- San Juan county has discussed converting the airport into residences, although nothing has happened.
- San Juan County and Grand County don not get along, and don't want anything to do with the other. They are surprised that San Juan county is backing this planning effort, particularly since they are so disengaged, don't maintain the roads and don't have any ordinances that work at present.
- They believe that San Juan county doesn't care about the Spanish Valley, and that the area is on the bottom of the list when it comes to maintenance, etc. They are out of sight/out of mind. Can't believe things will change and get better in the future.
- Despite access to water and sewer, don't see things improving in the future. They feel stuck with the poor conditions that exist.
- They have been personally impacted by poor land use decisions. A gravel pit was allowed to be constructed immediately adjacent, which has impacted their ability to sell the property.
- Pessimistic that San Juan county has any interest doing something so far from Monticello. San Juan County is driven by Mormon history from the south (Bluff) and focus on Monticello; Moab is more diverse.
- Would be comfortable with the area becoming a residential enclave. High prices have impacted many in the community, and many have become "priced out".
- Motel tax has been used to promote tourism up to this point. However, there are some who think that since tourism is thriving, the tax should be used for improving police and other services, which are stretched thin by the tourists. This is a contentious issue.

APPENDIX A

- The area isn't sure who or what they are. Would like to see the area remain primarily a bedroom community to Moab, with some industry and jobs as well.
- Retail in Moab has always struggled, requiring residents to drive to Grand Junction for reasonably-priced items and better selection. The development of a Wal-Mart could improve access to goods, although it would likely result in the loss of 3-4 local stores and businesses.
- It is difficult to get good and dependable residents for service jobs, and in some cases foreigners from China and similar locations are brought in for those purposes.
- Despite all of the issues, bringing water and sewer to the area is a good idea.

INTERVIEW 4 – Carmella Galley, 16 Merriam Court, 435.260.9018 (cell); 435.259.5121 (work)

September 19, 2017 – 4:30 PM

Background

Works for Moab City in Administration office. Originally from New York City. Moved to Virgin Isles, back to New York, to Florida before moving to Beaver. Moved to Moab area in 2006, originally living in a trailer at the Grand Oasis for six months before moving here. Own a manufactured home located on a one-acre lot with husband Jeff Galley. Like other residents, have septic and shared well.

Comments/Issues/Ideas

- Envisions the area to be primarily a residential community, with limited commercial to serve local needs.
- San Juan County doesn't care about the Spanish Valley – out of sight, out of mind.
- Provided a copy of the Draft San Juan County Spanish Valley I-O Infill Overlay Zone – thinks it makes some sense, certainly a step toward providing better control of development. Keeps commercial separate from residential uses, which is a big problem, particularly within the 1,000-foot highway zone.
- Would like to see some smaller corner stores and similar uses, but no gas stations as they tend to be a major impact on residences.
- Flood waters flow down west cliffs during heavy rains, which impact the west side of the highway and Pack Creek. Need check dams, avoid development on the west side of the highway.
- Need to take a careful look at storm water, the role of drainages and ravines, etc. As development plans are made.
- Lack of acceleration/deceleration lanes at highway is a big problem. Left turns off the highway into the area can be a death trap, particularly with fast-moving trucks and semis trying to keep us speed as they climb up roadway.
- Preservation of high sky is a critical issue and concern.
- The use of CC&R's and other development control would help.

INTERVIEW 5 – Jared Shumway, resident on Mt. Peale Street (about one mile south of county line along the east edge of the valley), 435.260.9018 (cell); 435.259.5121 (work)

September 20, 2017 – 12:15 PM

Background

Works in Moab, has lived here for several years.

Comments/Issues/Ideas

- Not afraid of growth like many neighbors
- The area needs some commercial, particularly along the highway.
- The Spanish Valley is the stepchild of San Juan county. Roads here are the last to get maintained and fixed.
- Building inspection used to be easy but has gotten more difficult since the county hired the same inspector used by Grand County.
- One-acre lots are too large for most people to handle. Some residents are worried that the water will be fluoridated and/or chlorinated.
- Concerned about the water source and quality. Will it be adequately tested and controlled?

INTERVIEW 6 - Meeting with UDOT representatives Kurt McFarlane, Region 4 Permits Officer (Price); Jeff Bunker, Region 4 Permits Engineer (Richfield). Held at SITLA Conference Room in Moab City Center building.

September 19, 2017 – 2:30 PM

Note:

Invite to next Advisory Committee Meeting and Open House Meetings

- It will be a long time before a 4-lane highway is installed south from the county line. Focus is completing 4-lanes from county line to Moab.
- A copy of the existing corridor agreement was provided, which was approved by both counties and Moab in 2015. Any changes would require approval by all parties. Addresses segment from Millcreek Road to city. Addresses existing access to private properties by inclusion of frontage road system. Was completed prior to the existing water/sewer agreement and corresponding growth implications. San Juan County hasn't really followed the plan, with roads implemented contrary to the agreement.
- Key UDOT standards to consider include:
 - No driveways closer than 1,000' apart
 - Minimum one-mile between controlled intersections (acceleration/deceleration lanes for now)

- If traffic increases, the distance between intersections can increase as part of decreasing speed, like Moab situation. However, the fact that there will be limited development on the west side of the highway indicates that the highway will be different here than when it passes through the middle of the city in Moab.
- Lighting – all intersections require lights, according to standards. Improvements to address preservation of night skies would be a betterment.

INTERVIEW 6 - Meeting with Zacharia Levine, Grand County Community Development Director

September 20, 2017 – 2:30 PM

Courtesy meeting with focus on applicability of housing plan for the planning area.

Mr. Levine stressed that the planning effort should take a regional approach and embrace the fact that Moab will continue to be the economic driver of the region. The Spanish Valley is part of a drainage system that flows into Moab and eventually to the Colorado River, which should be considered as part of development scenarios.

Current focus of low-income housing improvements is on Moab, as it doesn't make sense to spread housing far and wide. Access to urban services is part of good housing for the underserved.

Believes that the Spanish Valley Road provides a unique road biking experience due to the connection with Castle Valley loop, so inclusion of bike lanes is a no brainer. The distance to Spanish valley and topography will likely require the use of e-bikes to be realistic commuting route. Is excited that San Juan County is leading this effort, and would like to explore opportunities for improved joint planning activities. Would like to have opportunities to take part on a more formal basis, but also understands that this may impact the process. Wonders if County Commissioners could be invited to attend meetings, and whether advisory committee meetings are open to the public.

APPENDIX A

Alternative Workshop Notes – November 7 & 8, 2017

Public Workshop – November 7, 2017 6 PM

- Water retention – pay close attention to – as development occurs
- Not enough contiguous open space in the plan; phase to keep maximum amount open space (especially south of Ken's Lake)

Public Workshop – November 8, 2017 10:30 AM

- Open space – should be more useable; not just a “weed patch”

Plan Committee – November 8, 2017 1 PM

- West Side of highway:
 - Limited pockets connected by frontage roads; roads can be well integrated especially for uses that don't need highway access/presence (storage units, hotels, truck stops, etc.) – possibly single loaded
- Frontage roads on both sides
- East side development: Expensive to develop; installation of swales/drainage ways, as indicated in Option 1. Helps keep costs in check
- Draft plan: similar to structure and can with examples of road systems.
- Pod-by-pod development is the likely scenario.

Public Scoping – November 8, 2017 7 PM

- Frustrated that Co. zoning is too broad and not enforced. So much that needs to be fixed. Would like to “steal” from this project to use in other areas (Bluff, etc).
- Stuck on overnight residents, 1,000 commercial zone, etc. Will use our ideas
- Local commercial – how limited is it?
- Reaction to concepts:
 - Too much open space
 - Too detailed?
 - Need to think outside of the box
 - Employment: yes, as long as it isn't in the middle of a residential area.
 - Envision light commercial/defer to Moab

November 7, 2017 Preliminary Concept Notes

Group 1 – Concept A: 45/55

- Bike paths along major roads
- Neighborhood commercial
- Bike path along Pack Creek
- Trash collection mandatory and free (built into property tax at incorporation)
- Where does the trash go?
- Commercial should remain close to Grand County
- Leave soil in tact
- Private land on west side needs to be addressed
- Sports fields should be artificial turf
- Proposed lake should be used for storm water retention (use storm water as an amenity)
- Highway was built as a “dam”, water flows to low point and heads to river
- Contact Moab City Engineering Department to learn more about how soils act
- Kens Lake – 30% loss of water

Group 1 – Concept B: 55/45

- No notes...

Group 2 – Concept A: 45/55

- Need to investigate and analyze on the site level
 - Engineer first
- Like higher density and more open space = affordability
- Accommodating ATV's and farm with own roads

Group 2 – Concept B: 55/45

- No notes...

Group 3 – Concept A: 45/55

- Add more density to existing built areas – in exchange for more open space
- Doesn't care if rest has commercial development if “prime” open space is kept open
- Introduce agriculture into the area - keep open space in case of catastrophe – this may be difficult because of existing development patterns
- Proposed Lake – no water to do it
- Affordability is very important; okay with mobile homes and tiny houses to accomplish this
- Vegetation is important; keeps temperatures down as development uses run off/water to water plants (green infrastructure)
 - The vista is also important – no trees

- Kens Lake has leakage
- Horse trail along the east boundary of proposed plan area

Group 3 – Concept B: 55/45

- Park near intersection of La Sal Loop Road and Flat Pass Road is too close to public land
- Maybe have a park closer to the highway?

November 8, 2017 Preliminary Concept Notes

Group 1 – Concept A: 45/55

- Contractors need lumber stores to make development more affordable/feasible
- What kind of aircrafts will be flown in?
- Prefers to leave open, would probably leave if the area develops
-

Group 2 – Concept B: 55/45

-

Group 2 – Concept A: 45/55

- Commercial – keep small with rural feeling
- As traffic increases, the road needs to be improved
- Prefers the more organic and rural feel/look
- Don't want to lose the rural feel – looking out at horse pasture, the La Sals, etc.
- ATV recreation should be limited – less noise in area – off loading areas
- As growth happens, schools need to be carefully considered. Money needs to go to the right places to support.
- Don't want to see two story or higher – decreases views

Group 2 – Concept B: 55/45

- No notes...

VISUAL PREFERENCE SURVEY
DESCRIPTION OF PROCESS,
SUMMARY ANALYSIS,
& SAMPLE RESPONSE SHEET

A Visual Preference Survey was held as part of the Alternatives Workshop to better understand the preferred looks of places and uses envisioned for the Spanish Valley community of the future. Forty-two people participated, scoring 83 random images in the following five categories:

- **Community**
- **Parks, Open Space & Trails**
- **Residential**
- **Roads**
- **Highway/Commercial**

Not surprising, images in the **Parks, Open Space & Trails** category were rated the highest and those in the **Highway/Commercial** category were rated the lowest. More than anything else, this illustrates that the two categories are on the opposite end of the visual spectrum, one of which inherently evokes a positive response. It can also be inferred that members of the public place high value on parks, recreation and open space, and do not find large, highway-oriented uses and setting attractive or desirable.

A better sense of what is visually preferred is achieved when images are scored within each category.

Images of nature, community markets and schools were liked the most the **Community** category, while retail stores and small local businesses and buildings were rated the lowest.

In the **Parks, Open Space & Trails** category, trails for biking/hiking and natural water features received the highest scores, while golf courses, sports fields and formal parks received low scores. This can be attributed to a variety of factors, including the sense that green lawns and artificial fields do not belong in the area, or concern that maintaining such uses requires high amounts of maintenance and water.

High scores in the **Residential** category favored homes with traditional and rustic appearances and scales, indicating support for what is known and expected. Images of higher density housing and different types of residential, unusual architecture and tiny houses received low scores, indicating a suspicion of multi-family and new types housing.

Roads that are simply graded or composed of dirt scored the highest, particularly those set in attractive open space settings. Wide residential roads received low scores, particularly those with no trees. Images of bike lanes and well-designed signage were generally highly-rated, and images of highways were disliked in general.

The **Highway Commercial** images that received the highest scores included gas stations, IFA/country store types, and similar uses. The lowest ranked images included large warehouses, chain motels and hotels and 4x4 shops.

Summary Analysis

The results of the Visual Preference Survey indicate that the incorporation of parks, open space and trails is supported, and that well-designed homes and buildings that fit in with the setting and history of the area are anticipated. Uses which support tourism and non-local businesses and chains were highly-disliked, as were over-sized roads and by inference, infrastructure.

Spanish Valley Area Plan

Visual Preference Survey – November 7, 2017, 6:00 p.m.

Photo	Score	Comments	Photo	Score	Comments
	-3	+3		-3	+3
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54					

APPENDIX B

VISUAL PREFERENCE SURVEY COMMENTS

APPENDIX B

NOTES

Spanish Valley Area Plan

ALTERNATIVES WORKSHOP

November 7, 2017 at 6:00pm and November 8, 2017 at 10:30am
Meeting Room at Grand Water & Sewer Service Agency

39 members of the public signed in

The meeting began with introductions and a summary of plan alternatives, which was followed by a Visual Preference Survey.

Visual Preference Survey (42 people participated)

Participants were shown a series of 83 slides, each of which was displayed for 10 seconds, followed by a blank slide, which gave people the time to score each image and write a comment if desired. The images included examples of community-related concepts, parks, open space & trails, residential areas, roads, and highway corridors. Images were scored on a range from -3 (intensely dislike) to +3 (really like), and participants could comment on each image as well. Comments for each slide follow.



- 1
- Too expensive
 - Aesthetically pleasing
 - Already a visitor's center in Moab



- 4
- Rustic and rural look is good
 - More modern would be nice
 - Too expensive
 - Keep the cowboys employed



- 2
- Too commercial and modern
 - Too bright - no neon/structure lighting
 - Needed on this end of the valley for economic growth



- 5
- Cheesy, too old
 - Depends on location
 - No nightly rentals - too "Moab"



- 3
- Need a good concert venue
 - Seems to fit
 - Modern looking, not natural



- 6
- Appropriate
 - Maintains nature
 - No need, it already exists



Landmark Design
LANDSCAPE ARCHITECTURE & PLANNING

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Salt Lake City, Utah 84101
801.474.3300
www.lidi-ut.com



- 7
- Fits environment!
 - Modern and simple
 - Need the density
 - No Rim Village or nightly rental
 - Moab sprawl - NO



- 10
- Doesn't fit Spanish Valley
 - Super cute Main Street feel
 - Need commercial out here



- 13
- Needed
 - Too suburban unless on highway



- 8
- EYESORE
 - Too generic
 - Need the density
 - Actually affordable



- 11
- Where would the water come from?
 - Playing areas are important
 - Maybe if there was a school in Spanish Valley



- 14
- Yes! This captures the area
 - Integrated into transportation system, bike lanes needed
 - More shoulder needed
 - Already everywhere!



- 9
- A little large for commercial unless on the highway
 - Too bright
 - Doesn't fit environment
 - Not necessary



- 12
- Good concept, awful colors
 - Too small, apartments better
 - Doesn't fit in



- 15
- YES! Very modern and fits the environment
 - What is it?
 - Downcast lights needed

VISUAL PREFERENCE SURVEY COMMENTS

APPENDIX B



- 16
- Rural in character, fits environment
 - Affordable housing needed
 - Too crowded



- 19
- No water for it!
 - No golf course, too much water
 - Maintain the integrity of the environment
 - Add housing with it



- 22
- Industrial look, not unique
 - Awful!
 - Good concept, bad look



- 17
- Too urban
 - Pretty but not necessary
 - Doesn't fit in
 - Water features are too wasteful



- 20
- Trails are good
 - Already all over the valley



- 23
- Already have a field not being used
 - No water for it!
 - Bright light bad for light pollution
 - No school in Spanish Valley



- 18
- Beautiful view
 - Unlikely with current light pollution
 - Dark sky = important
 - We already have that



- 21
- Good architecture
 - Simple and subtle



- 24
- Affordable
 - Lacks visual appeal and natural vegetation
 - No! Can do affordable without ugly



- 25
- Great style, but NOT for overnight rentals
 - Cookie cutter
 - Open space would be needed



- 28
- Economic driver
 - Bad roof color



- 31
- Only on the highway
 - Too bright for night skies
 - Needed



- 26
- Open space is good
 - We already have open space!
 - Nice creek trail
 - Waste of water



- 29
- Single story neighborhood commercial needed
 - Walking district YES!
 - More than needed
 - Garish color scheme



- 32
- Gravel road, not paved
 - Charming, but not for high traffic
 - Transportation is important
 - Open space is a plus



- 27
- Too tall and boxy
 - Apartment needed for density
 - Doesn't really fit environment
 - Maybe in the right location



- 30
- Doesn't fit Spanish Valley character
 - Single story neighborhood commercial is good
 - Main street feel



- 33
- On highways only
 - Need jobs
 - Necessary but ugly

VISUAL PREFERENCE SURVEY COMMENTS

APPENDIX B



34

- Where's the water?
- Outdoors!
- Needs more funding for management



37

- Needed, get with the times
- Need jobs
- Not near any residency
- No!
- Practical!



40

- Not enough water
- Useful if there was a school in Spanish Valley



35

- NOT rural, too commercial
- Good concept, doesn't match outdoor feel
- Outdoor shopping for independent businesses needed



38

- Doesn't fit Spanish Valley character
- Housing needed, but different style
- Less lawn



41

- Road too wide
- Suburban, not rural
- Would like to see more condensed housing
- More curves



36

- Horrible!
- Necessary but ugly
- Too commercial
- Only on the highway



39



42

- Through neighborhoods??
- No open space! Utilize the land!



43

- Ugly, NO!
- Horrible colors
- Commercial needed
- Only along the highway



46

- Appropriate if controlled
- On trails only
- NO - sound and noise pollution
- Need trail system



49

- Great for community
- Great if it is a walk/bike path, not a road too
- Recreation/trails are good but there is no open space



44

- Ugly but needed
- Only near the highway
- If done tastefully
- Boring



47

- Great concept
- Houses NOT overnight rentals
- Bright and tacky, too modern
- Should do density with apartments



50

- No straight roads
- Need bike lanes
- Need density
- Open sky is good



45

- Western architecture good
- Only along highway
- Needed
- Keep in Moab
- Would be better if it wasn't a chain



48

- Great style
- Affordable housing!
- Need density and more vegetation
- Nice balance of color and form



51

- Bike lanes are needed
- Green color not good, too bright
- Bike lanes need signs

VISUAL PREFERENCE SURVEY COMMENTS

APPENDIX B

 52 • Yes we need a school • Don't need another school • If needed	 53 • Nice neighborhood feel • Needed • Sidewalk too small	 54 • Festivals = good • Impossible due to rate/need • Community gathering place is great	 61 • Love this! • Smaller attractive houses • Sensitive to local setting • Good size of lot	 62 • Ugly, not cared for • Looks neglected	 63 • We need business space • Needed • Too industrial • By the highway
 55 • No golf course! • Golf yes, open space no • Too much water use	 56 • Nice neighborhood • Absolutely! • Sprawl is bad • Good trees	 57 • Nice style • No overnight rentals • Density with open space! • Maybe in the appropriate location	 64 • How clean is the water? • Fun but uses too much water • If planned by developer	 65 • No overnight rentals! • Ugly but density needed	 66 • Not appropriate • Too hot • Farm/produce stand/farmers market would be great
 58 • Campground NOT overnight rental • Don't want overnight tourists • Not out here!	 59 • No more hotels • Too bright and commercial • Needed but ugly • Enough in Moab	 60 • In neighborhoods - pocket parks • Green is too bright and a shade structure is needed • Great area for families	 67 • Already plenty in town • Better in Moab • Nice commercial space	 68 • Ugly but needed • Walmart with good design • Please! • NO!	 69 • Doesn't fit environment • Yuck, tired • Lovely, but can't fake the historic feel

VISUAL PREFERENCE SURVEY COMMENTS

APPENDIX B

 70 • Ugly, boxy • Need density to achieve affordability • Nice style	 71 • Street is too wide • Too sprawled, waste of space • Infrastructure is good	 72 • Ugly but jobs are needed • In industrial zone • NO • Needed
 73 • Not in Spanish Valley • Keep tourism in Moab	 74 • Waste of water • Good if a resort is wanted • Too high scale	 75 • No strip malls • Too bright, poor color choice • Necessary
 76 • No open space, but pretty	 77 • Ugly but needed • No	 78 • RV park for residents NOT tourists • Too inefficient for real housing

 79	 80 • Tiny houses for resident not tourists • No - Cookie cutter and too much lawn • Yes	 81 • Along the highway • Ugly but needed • In industrial zone • Too risky with ground waste
 82 • Housing is needed • Cookie cutter development • If mixed with higher density • Looks like LA/Vegas neighborhood	 83	

VISUAL PREFERENCE SURVEY

RESULTS
TOP AND BOTTOM THREE
OVERALL

Overall Visual Preference Results



Top 1 (#18)



Top 2 (#6)



Top 3 (#49)



Bottom 1 (#59)



Bottom 2 (#72)



Bottom 3 (#43)

APPENDIX B

VISUAL PREFERENCE SURVEY

RESULTS
TOP AND BOTTOM THREE
BY CATEGORY

COMMUNITY

Community Visual Preference Results



Top 1 (#18)



Top 2 (#54)



Top 3 (#52)



Bottom 1 (#2)



Bottom 2 (#73)



Bottom 3 (#63)

APPENDIX B

VISUAL PREFERENCE SURVEY

RESULTS
TOP AND BOTTOM THREE
BY CATEGORY

PARKS, OPEN SPACE
AND TRAILS

Parks, Open Space and Trails Visual Preference Results



Top 1 (#49)



Top 2 (#34)



Top 3 (#20)



Bottom 1 (#19)



Bottom 2 (#40)



Bottom 3 (#23)

APPENDIX B

VISUAL PREFERENCE SURVEY

RESULTS
TOP AND BOTTOM THREE
BY CATEGORY

RESIDENTIAL

Residential Visual Preference Results



Top 1 (#4)



Top 2 (#61)



Top 3 (#16)



Bottom 1 (#27)



Bottom 2 (#5)



Bottom 3 (#12)

APPENDIX B

VISUAL PREFERENCE SURVEY

RESULTS
TOP AND BOTTOM THREE
BY CATEGORY

ROADS

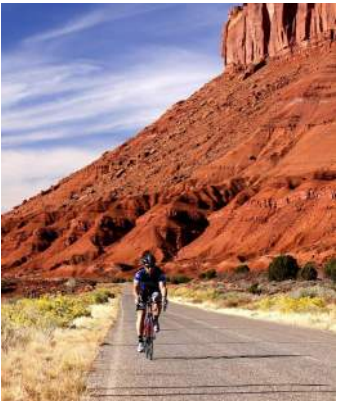
Roads Visual Preference Results



Top 1 (#6)



Top 2 (#50)



Top 3 (#14)



Bottom 1 (#71)



Bottom 2 (#62)



Bottom 3 (#41)

APPENDIX B

VISUAL PREFERENCE SURVEY

RESULTS TOP AND BOTTOM THREE BY CATEGORY

HIGHWAY COMMERCIAL

Highway Visual Preference Results



Top 1 (#75)



Top 2 (#31)



Top 3 (#81)



Bottom 1 (#59)



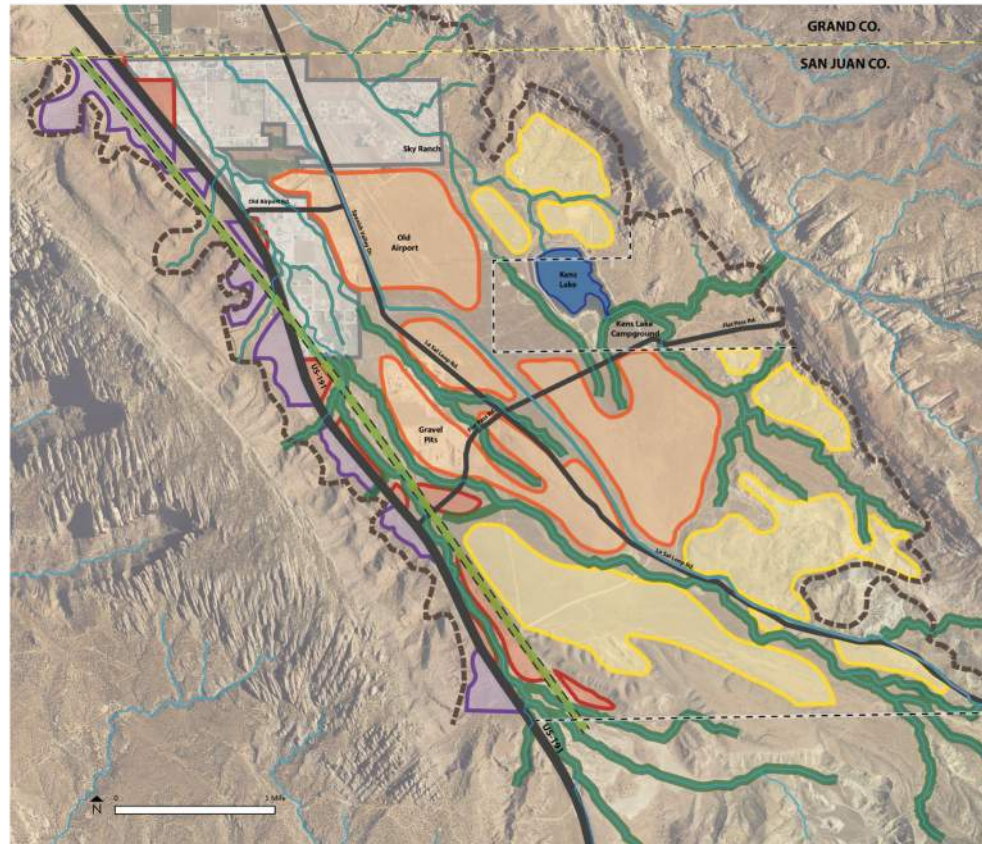
Bottom 2 (#72)



Bottom 3 (#43)

APPENDIX B

Structure Plan



Spanish Valley Area Plan - Preliminary Concepts
November 7-8, 2017

Description

The Structure Plan provides a rational growth strategy that builds upon the key principles identified through the public process.

To summarize, drainageways, water bodies, regional power corridors, other sensitive land and unbuildable sites (primarily federally-owned public land) form Conservation Areas that are excluded from growth and development forming the regional open space system of the valley. The areas which remain are Growth and Development Areas.

There are five types of potential Growth and Development Areas, each with unique opportunities and considerations:

Private Land District

This area consists of both developed and undeveloped land that is privately-owned. Since the area has not been well-planned, the focus should be on addressing the following needs:

- Establishing a rational and coordinated system of roads
- Providing buffers and other transitions between existing and future incompatible uses
- Facilitating limited subdivision and densification where opportunities exist
- Ensuring that future development follows specific guidelines and ordinances to promote coordinated growth and development

Central Growth and Development Areas

Located in the center of the valley along Spanish Valley Drive/Lo Sal Loop Road, these are the flattest and easiest-to-develop areas. They are suitable for a wide range of development, including residential, civic, institutional and parks/open space uses, in addition to limited areas for local commerce and community needs. The large tracts of contiguous land are primarily under single ownership, which promotes the establishment of coordinated, conservation-oriented development strategies and models.

Perimeter Development Districts

Located on the east and south edges of the valley, these areas are steeper and less conducive to development. The relatively distant location of these areas from regional roads and infrastructure support a more sensitive, lower-density and long-term development approach. The application of coordinated, conservation-oriented development strategies and models, and phased development should be applied.

Highway Commercial Opportunity Areas

Regional commercial uses and needs are supported along the highway in areas removed from environmental constraints and sensitive land. Direct access from the highway should be discouraged.

West Highway Edge

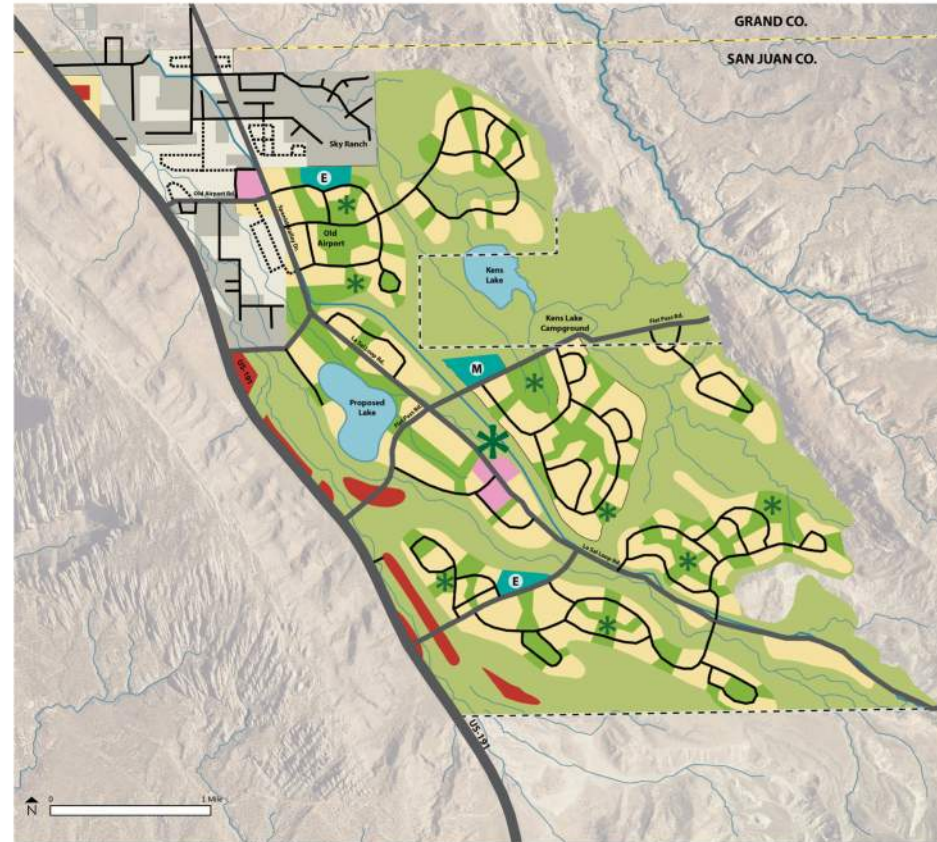
Located between the west highway edge and the base of fat and steep cliffs to the west, these areas are impacted by heavy storm water flows, rockfall and similar environmental impacts. Limited commercial development is envisioned.

Legend

- | | |
|---|--|
| Private/Developed - Focus on infill and logical road/circulation linkages | BLM/STLA Property Boundary |
| Growth and Development Areas | Steep Cliffs Delineating Valley |
| Perimeter Districts | Lakes/Reservoirs |
| Highway Commercial Opportunity Zones | 400' Riparian Open Space Corridor |
| Highway West Edge - Associated with defining walls, likely heavily impacted by drainage from walls above; maintain as open space. | Washes, Drainageways, Canals and Streams |
| | Major Roads |
| | Power Corridors |



Concept A: 45/55



Spanish Valley Area Plan - Preliminary Concepts
November 7-8, 2017

Description

Consisting of 45% developable land and 55% open space, this concept builds upon the Guiding Principles and interprets the Structure Plan to form a place that is balanced and comfortable. The following are key defining features:

- Build upon the regional open space system identified in the Structure Plan, extending the open space system into the various residential districts to form a fully integrated open space community.
- Utilize four east-west primary roads to tie the residential districts to US-191 and Spanish Valley Drive, a full range of collector and local roads will complete the vehicular circulation system. Sited out in response to the natural topography and valley landscape.
- The northwest corner of Old Airport Road/Spanish Valley Drive is a designated Neighborhood Center to meet the immediate need for community commercial and retail uses.
- A second Neighborhood Center is located on the west side of La Jolla Loop Road, south of Flat Pass Road intersection, the center provides a full range of community commercial, civic, institutional and cultural uses and services, as well as a large regional park.
- A range of smaller local, neighborhood and community parks are located within the various development districts, providing park and recreation opportunities close to home.
- A range of trails are located in the open space corridors, providing direct links between the various neighborhoods. Roadside bicycle routes and paths are located along the primary roads and along key collector/local roads, providing a generous and integrated system of on and off-road trails.
- The two gravel pits along Flat Pass Road could be converted into a recreational lake or similar feature, with recreational residential and small-scale commercial uses along the shore, that site is linked to Kams Lake and the generous regional open space system, resulting in a large recreational district for the area.
- Regional commercial uses are distributed along Highway 191, primarily in proximity to the east-west primary roads. It is assumed that traffic will utilize the east-west road system to the greatest degree possible, linked by bridge roads as required.
- The various Development Districts will encompass a wide range of residential uses and types. Densities should be higher in areas near Spanish Valley Drive, with larger lot development focused in the outlying neighborhoods. Since this concept includes a higher level of open space provision, slightly higher density residential models and forms will be required.
- Sites for two elementary and one middle school are well distributed throughout the valley to meet long-term needs.
- Unless otherwise specified, the full range of uses is allowed in all areas. Each neighborhood/district will be defined by larger densities and percentages of uses. This will encourage flexible implementation.

KEY USES

Residential

Unless otherwise specified, a full range of uses and types is allowed in each area. These include:

- Single family, mother-in-law units, multi-family limited by height (3 stories max) and density (15 units/acre); apartments or condos; guest houses and short-term rentals; recreational destinations; boardwalks and row houses; 3 stories maximum; ranchettes; large lot estates; 20-acre minimum, carefully sited on topographically and sensitive sites.

HIGHWAY COMMERCIAL AND SERVICES

Highway-based commercial, storage and distribution facilities to meet the needs of the community and region. Dedicated acreage reflects the probable long-term need.

COMMUNITY COMMERCIAL AND SERVICES

Uses to meet the commercial, institutional, civic, and cultural/recreational needs of the community. Designed as Neighborhood Center and distribution. These are the place to meet and hang out. Typical uses include:

- Local shops and corner shops
- Local mail/bookstore/office
- Café, ice cream store, coffee shop, sports shops, etc.
- Restaurants
- Social/Neighborhood Community Meeting Space
- Civic/Government Offices
- Library/Media Center

PARKS, RECREATION, OPEN SPACE AND TRAILS

Utilize open space system in the neighborhoods. Provide full-range of parks, adjusted to neighborhood and natural conditions. Typical park types include:

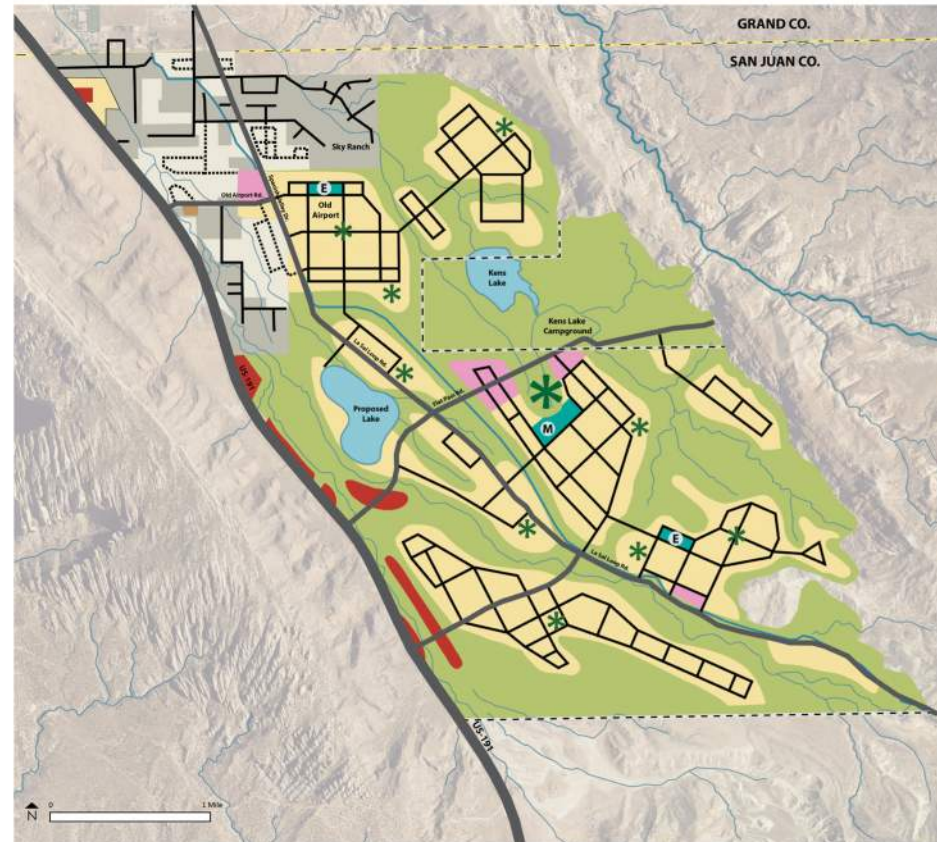
- Town or neighborhood square < 1 acre typ.
- Mini-park/neighborhood common 1 to 2 acres typ.
- Neighborhood Park (small) 2 to 3 acres typ., focused on open play areas and meeting needs of the local neighborhood
- Neighborhood Park (large) 5 to 10 acres typ., includes open play and sports fields as basic features
- Regional Park - 10 to 100+ acres typ., provides amenities to serve the region, including specialty drives such as sports park, rodeo grounds, an aquatic center, etc.
- Fully-integrated Regional and Local Open Space system

Legend

- | | |
|---|--|
| Developed Land | Lakes/Reservoirs |
| Developed Land - Opportunity for Infill | Regional Park |
| Residential | Community/Neighborhood Local Park |
| Highway Commercial | Washes, Drainageways, Canals and Streams |
| Neighborhood Center | Major Roads |
| Middle School | Neighborhood Roads |
| Elementary School | Proposed Infill Roads |
| Neighborhood Greenways | Bureau of Land Management Boundary |
| Open Space | |



Concept B: 55/45



Spanish Valley Area Plan - Preliminary Concepts
November 7-8, 2017

Description

As the title indicates, this concept consists of 55% developable land and 45% open space. The concept builds upon the Guiding Principles and refines the Structure Plan to create a plan that is balanced and context-sensitive. The following are key defining features:

- Builds upon the regional open space system identified in the Structure Plan, which links the various development districts into a unique conservation community.
- Utilizes three east-west primary roads to link the residential-dominant districts to US-191 and Spanish Valley Drive, a Salt Loop Road. A full range of collector and local roads complete the vehicular circulation system, laid out according to a grid system.
- The northwest corner of Old Airport Road/Spanish Valley Drive is a neighborhood Center suitable to meet the immediate need for community commercial and other uses.
- Flat Pass Road between Salt Loop Road and Keno's Lake is converted into Main Street in the longer term. This area will have adequate space for a second Neighborhood Center providing community commercial, civic, institutional and cultural uses and services, as well as a large regional park.
- A range of smaller local, neighborhood and community parks are located within the various development districts, providing park and recreation opportunities close to home.
- A range of trails are located in the open space corridors, linking the districts for bike and walking traffic. Roadside bicycle routes and paths are located along the primary roads and along key collector/local roads, providing a generous and interconnected system of on and off-road trails.
- The two gravel pits along Flat Pass Road could be converted into a recreational lake or similar feature, with recreational residential and small-scale commercial uses along the edges. The site is linked to Keno's Lake and the generous regional open space system, resulting in a large recreational district for the area.
- Regional commercial uses and needs are provided along Highway 191, primarily in proximity to the east-west primary roads. It is assumed that access will be from the main intersections, linked by frontage roads as feasible.
- The development districts use focused on a wide range of residential uses and types. Densities should be higher in areas near Spanish Valley Drive, with larger lot development focused in the outlying neighborhoods.
- Sites for two elementary and one middle school are located to meet long-term needs.
- Unless otherwise specified, the full range of uses is allowed in all areas. Each neighborhood/district will be defined by target densities and percentages of uses. This will encourage flexible implementation.

KEY USES:

Residential

Unless otherwise specified, a full range of uses and types is allowed in each area. These include:

- Single family, medium to low density, multi-family, townhomes, and density (13 units/acre); apartments or condos; guest houses and short-term rentals; recreational destinations; townhomes and row houses; 3-story medium ranches - large lot estates, 20-acre minimum, carefully sited on topographically and sensitive sites.

Highway Commercial and Services

Highway-based commercial, storage and distribution facilities to meet the needs of the community and region. Dedicated acreage reflects probable long-term need.

Community Commercial and Services

Uses to meet the commercial, institutional, civic, and cultural/recreational needs of the community. Designed as Neighborhood Centers and distributions - these are the place to meet and hang out. Typical uses include:

- Local shops and corner shops
- Local mail/bookstore office
- Café, ice cream shop, coffee shop, sports shops, etc.
- Restaurants
- Local Hall/Community Meeting Space
- Civic/Government Offices
- Library/Media Center

Parks, Recreation, Open Space and Trails

Utilize open space system to link neighborhoods. Provide full range of parks, adjusted to neighborhood and natural conditions. Typical park types include:

- Town or neighborhood square < 1 acre typ.
- Mini-park/neighborhood common 1 to 2 acres typ.
- Neighborhood Park (small) 2 to 5 acres typ. Includes open play area and meeting needs of the local neighborhood
- Neighborhood Park (large) 5 to 10 acres typ. Includes open play and sports fields as basic features
- Regional Park - 10 to 100+ acres typ. provides amenities to serve the region, including specialty draws such as sports park, rodeo grounds, an aquatics center, etc.
- Regional Open Space system

Legend

- Developed Land
- Developed Land - Opportunity for Infill
- Residential
- Highway Commercial
- Neighborhood Center
- Middle School
- Elementary School
- Open Space
- Lakes/Reservoirs
- Regional Park
- Community/Neighborhood Local Park
- Washes, Drainageways, Canals and Streams
- Major Roads
- Neighborhood Roads
- Proposed Infill Roads
- Bureau of Land Management Boundary

SPANISH VALLEY STORM DRAINAGE MEMO

APPENDIX D



MEMORANDUM



DATE: January 11, 2018

TO: Mark Vlasic, PLA, ASLA, AICP; President
Landmark Design Inc.
850 S. 400 W., Studio 104
Salt Lake City, Utah 84101

FROM: Greg Poole, P.E. *Greg Poole*
Hansen, Allen & Luce, Inc. (HAL)
859 West So. Jordan Pkwy – Suite 200
South Jordan, Utah 84095

SUBJECT: San Juan County - Spanish Valley General Plan – Storm Drainage

PROJECT NO.: 344.02.500

INTRODUCTION

Landmark Design Inc. is currently completing a general plan for Spanish Valley. HAL has been requested to assist by providing general drainage design criteria and recommendations to assist in the planning.

Storm water runoff is a difficult resource to manage. Storm water flows are dependent on many complex time and spatially varied factors. Even a natural undeveloped drainage system is not static. Streams can erode in one section while depositing in another. Stream courses can also change alignment and cross section dramatically with just one storm runoff event. Land development compounds the problem and creates a need for a drainage system with the basic goals of managing nuisance water, protecting development from damage, and protecting downstream waters from adverse quality and quantity impacts.

Recommendations and information to be considered in storm drainage planning for the Spanish Valley area are presented in four sections: Pack Creek, Drainage Criteria, Spanish Valley Runoff Characteristics, and Summary of Development Drainage Planning Recommendations.

PACK CREEK

Pack Creek flows through the study area and conveys storm runoff to Mill Creek which flows to the Colorado River. The tributary drainage area to Pack Creek at the Grand County - San Juan County line is shown on Figure 1. Stream Stats¹ predictions for peak flood flows for various return periods are provided on Table 1. Pack Creek is a critical resource for the study area and provides a natural storm drainage outlet for Spanish Valley. Careful storm drainage planning is needed to assure that Pack Creek is not adversely impacted by development.

¹ Kenney, T.A., Wilkowske, C. D., and Wright, S.J., 2007, Methods for Estimating Magnitude and Frequency of Peak Flows for natural streams in Utah: U.S. Geological Survey Scientific Investigations Report 2007-5158 <https://streamstats.usgs.gov/ss/>

Page 1 of 9

We recommend that floodplain delineation for Pack Creek be completed through Spanish Valley. The Pack Creek floodplain should be managed consistent with practices promulgated by the Federal Emergency Management Agency (FEMA).



FIGURE 1 – PACK CREEK TRIBUTARY AREA

TABLE 1
Pack Creek Predicted Peak Flood Flowrates At The County Line
(43.8 square miles tributary area and 7520 feet mean basin elevation)

RETURN PERIOD ²	*PREDICTED PEAK STORM RUNOFF FLOWRATE (CFS)
2-YEAR	239
10-YEAR	906
50-YEAR	2,020
100-YEAR	2,770
500-YEAR	4,510

*These predictions are based on regional regression equations. Standard error of prediction for these estimates varies from 60% for the 100-year value to 108% for the 2-year value.

DRAINAGE CRITERIA

"Every urban area has two drainage systems, whether or not they are actually planned for and designed. One is the minor or primary system, which is designed to provide public convenience and to accommodate relatively moderate frequent flows. The other is the major system, which

² Return period is defined as the reciprocal of the probability of the event being equaled or exceeded. For example a 100-year flood event has a 1% probability of being equaled or exceeded in any given year.

LANDMARK DESIGN Inc Page 2 of 9 Spanish Valley - Storm Drainage 344.02.500

APPENDIX D

carries more water and operates when the rate or volume of runoff exceeds the capacity of the minor system. Both systems should be carefully considered.³ The minor storm drainage system is also referred to as the initial storm drainage system.

The initial storm drainage system is sometimes referred to as the convenience system in that the initial system is designed to "reduce street maintenance costs, to provide protection against regularly recurring damage from storm runoff (of a 10-year recurrence interval or less), to help create an orderly urban system, and to provide convenience to the urban residents."⁴ Storm drain pipe systems are generally considered part of the initial storm drainage system. In conjunction with the initial storm drainage system, provisions should be made to avoid major property damage or loss of life from a major storm event. Such provisions are considered to comprise the major storm drainage system.

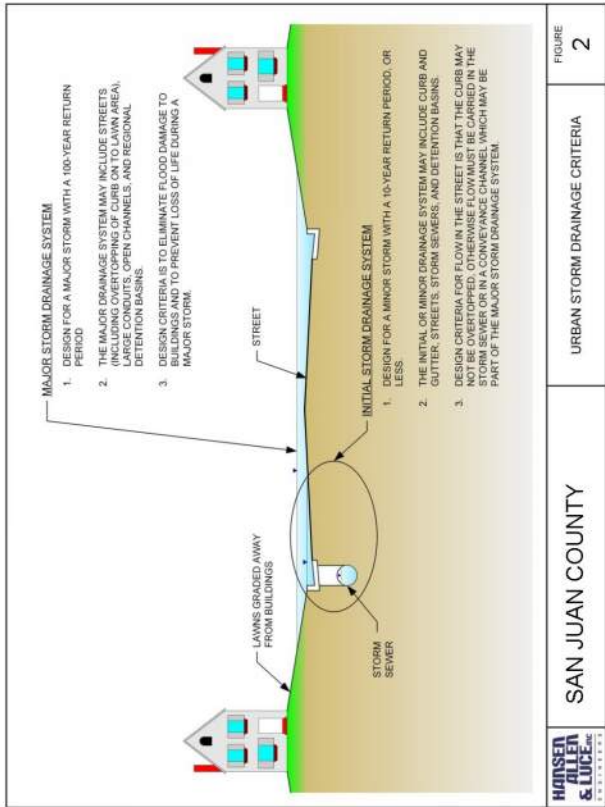
The major storm drainage system in newly developing residential areas or business districts should generally be designed for the 100-year event with the objective to eliminate major damage to edifices (homes, buildings, etc.) and to prevent loss of life. This does not mean that storm drain pipe systems, which are considered part of the initial storm drainage system, should be designed for the 100-year event. It means that the combination of storm sewers and channelized surface flow, which may include using part of the grassed frontage area of a home as part of a 100-year channel (see Figure 2), should be designed to accommodate the 100-year event thereby preventing damage to the edifice. There appears to be general agreement among most major flood control agencies that in the design of the major storm drainage system for residential areas the 1-percent storm (100-year return period) should be used, except in the design of water impoundment structures that exceed a specified capacity.

As water impoundment structures increase in volume and embankment height, the potential for property damage and loss of life increases if the impoundment fails. Selection of a design storm and other design criteria for large impoundment structures should include an evaluation of the risks associated with failure of the impoundment. If failure of the impoundment could result in loss of life or major property damage, the spillway and outlet works for the impoundment should be designed for the 500-year event or the Probable Maximum Flood. Design requirements and other regulations for water impoundments are presented in *State of Utah Statutes and Administrative Rules for Dam Safety*, (UAC, 2005).

We recommend that San Juan County consider selecting the 10-year storm event for the design of the initial storm drainage system and the 100-year storm event for design of the major storm drainage system.

³ ASCE Manual of Practice No. 77 "Design and Construction of Urban Stormwater Management Systems" 1992. (see p. 47).

⁴ "Urban Storm Drainage Criteria Manual" Urban Drainage and Flood Control District, 2016



APPENDIX D

Design Rainstorm

The National Oceanic and Atmospheric Administration (NOAA) have published web based point precipitation frequency estimates for Utah⁵. This is the recommended source for design rainfall depths. Precipitation depth duration frequency estimates for an example selected location in the Spanish Valley study area is provided in the appendix.

In order to use the depth duration frequency information provided by NOAA, the design storm precipitation depth needs to be distributed through time. Use of modern storm water runoff modeling methods (such as the HECHMS Corps of Engineers model) to design storm water management facilities requires the use of a design storm distribution. The design storm distribution provides the pattern for the temporal distribution of the rainfall within the design storm.

The National Resource Conservation Service (NRCS) recommends⁶ use of the NOAA Atlas 14 precipitation-frequency data to develop design storm distributions. "These rainfall distributions are based on the 5-minute through 24-hour rainfall depths for a specific return period." These distributions are replacing the legacy SCS⁷ storm distributions. An example of a distribution developed for Spanish Valley is included in the appendix.

Storm Water Quality Management

Construction activities that disturb one or more acres of land must be authorized under the Utah Pollutant Discharge Elimination System (UPDES). Owners and general contractors are required to obtain a Storm Water Permit. Construction activities that disturb more than an acre (or are part of a common plan of development that disturbs more than an acre) are required to file a notice of intent and to prepare and follow a storm water pollution prevention plan for construction activities.

As required by the Clean Water Act and directed by EPA, Utah Division of Water Quality (DWQ) has prepared a permit program to control pollutants in municipal storm water runoff. DWQ currently has a list of about 90 Utah communities which are required to apply for a permit for storm water discharges under what is referred to as the UPDES Phase II general storm water permit. Currently the communities of San Juan County are not required to submit for permit for storm water discharges. It is not known when or if communities of San Juan County will be required to comply with the municipal storm water discharge permit requirements. Nevertheless, it is recommended that San Juan County adopt storm water quality best management practices to help protect downstream water resources.

The UPDES Phase II general storm water permit⁸ requires that the permitted community implement six minimum control measures. These measures focus on controlling pollutants at the source.

⁵ NOAA Atlas 14 https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ut

⁶ National Resource Conservation Service, "Design Rainfall Distributions Based on NOAA Atlas 14 Rainfall Depths and Durations" by William Merkel, Helen Moody, and Quan Quan, NRCS 2015,

⁷ SCS Soil Conservation Service, the agency name has been changed to Natural Resource Conservation Service. The legacy distributions are included in SCS Technical Release 55 "Urban Hydrology for Small Watersheds", revised 1986.

⁸ Utah Division of Water Quality, Utah Pollutant Discharge Elimination System (UPDES) General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s). <https://deg.utah.gov/Permits/water/updes/stormwatermun.htm>

1. Public Education and Outreach on Storm Water Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Long Term Storm Water Management in New Development and Redevelopment
6. Pollution Prevention and Good Housekeeping for Municipal Operations

A key concept in the control of storm water runoff pollutants is the control of the pollutants at the source. An approach which can be used for long term storm water management is to implement Low Impact Development (LID) practices.

Key practices for LID include minimizing the directly connected impervious area and infiltrating runoff from impervious areas near the source of the runoff. LID emphasizes conservation and use of on-site natural features and constructed swales to protect water quality. LID practices are especially helpful in areas of high soils permeability and low slopes.

Storm Water Runoff Management

Inherent in development is the increase of impervious area as roads, driveways, sidewalks, parking lots, and homes are constructed. Storm runoff from impervious areas can exceed ten times the runoff from natural areas. LID practices can help to mitigate the effects of increased impervious areas by providing opportunities for infiltration near the source of the runoff. For example, in areas of suitable soils the runoff from sidewalks and homes can be infiltrated prior to running off into the storm drain collection system. Stormwater detention basins are an effective means of reducing downstream runoff peak flow effects. Detention basins should be designed to reduce peak storm runoff flows to at or below historic runoff peaks. As a minimum, we recommend that detention be provided to control peak storm runoff releases to historic discharges in the 2-year, 10-year, and 100-year design storm events.

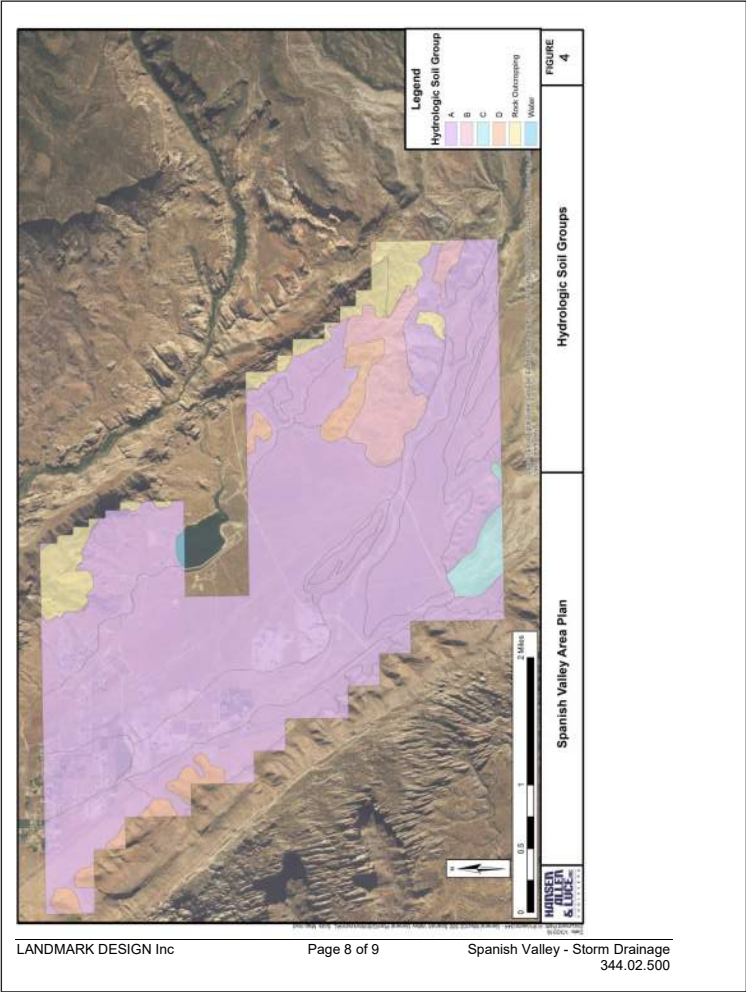
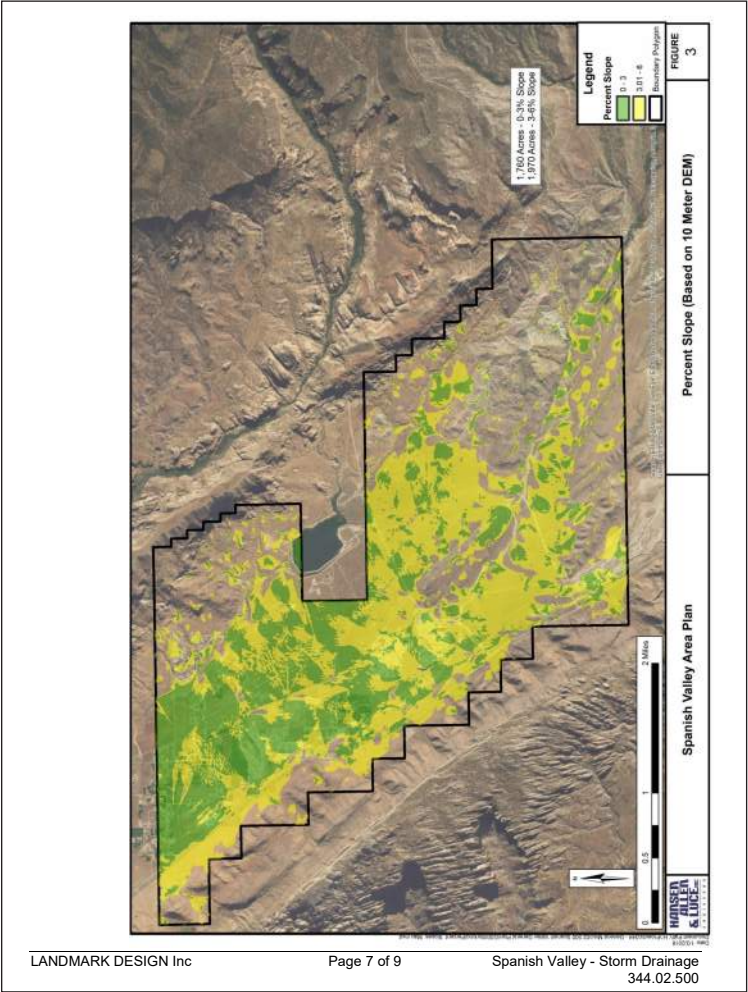
SPANISH VALLEY STUDY AREA RUNOFF CHARACTERISTICS

Much of the Spanish Valley study area includes soils and topography which are conducive to LID methods. Mapping of ground slopes between 0 to 3% and 3 to 6% slopes are shown on Figure 3. Mapping of soils by Hydrologic Soil Group are shown on Figure 4. Hydrologic soil groups⁹ A and B are soils with high to moderate infiltration rates and are conducive to LID methods. Hydrologic Soil Group D soils are the least conducive to LID methods due to very slow infiltration rates.

⁹ Natural Resources Conservation Service, Web Soil Survey, 2017

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

APPENDIX D



SPANISH VALLEY STORM DRAINAGE MEMO

SUMMARY OF DEVELOPMENT DRAINAGE PLANNING REQUIRMENTS

Careful planning and implementation are needed to successfully manage storm water in Spanish Valley. Following is a summary of recommendations.

- Pack Creek serves as the storm runoff outlet from Spanish Valley and is tributary to Mill Creek which flows to the Colorado River. Potential development impacts on storm water quality and quantity should be mitigated. It is recommended that mitigation of storm water effects be planned and implemented as close to the source of the change as possible. It is recommended that the flood plain associated with Pack Creek be delineated and that FEMA guidelines for flood plain management be implemented.
- We recommend that the minor drainage system (storm drains and roadside conveyances) be designed for the 10-year storm runoff event (event with a 10% chance of being equaled or exceeded in any given year) to control nuisance flooding.
- Design the major drainage system to convey the 100-year event (event with a 1% chance of being equaled or exceeded in any given year) with the objective of protecting homes from flooding.
- Utilize the NOAA Atlas 14 web based point precipitation frequency estimates to define the design rainfall depths.
- Use the NRCS methods for defining the design rainfall distribution based on the NOAA Atlas 14 precipitation-frequency data.
- Plan and implement as appropriate low impact development (LID) methods to assist with controlling storm water quality and quantity effects at or near the source of runoff.
- Provide detention, including swales, to reduce peak storm runoff flows for the 2-year, 10-year, and 100-year events back to historic (pre-development) values.

APPENDIX

- NOAA 14 POINT PRECIPITATION-FREQUENCY ESTIMATE FOR SELECTED LOCATION
- NRCS DESIGN STORM DISTRIBUTION BASED ON NOAA 14

APPENDIX D

LANDMARK DESIGN Inc

Page 9 of 9

Spanish Valley - Storm Drainage
344.02.500



NOAA Atlas 14, Volume 1, Version 5
Location name: Moab, Utah, USA*
Latitude: 38.4658°, Longitude: -109.4237°
Elevation: 5211.91 ft**
* source: ESRI Maps
** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hixler, Kazungu Maitika, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypanuk, Dale Unruh, Fenglin Yan, Michael Yetkin, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchocan

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.118 (0.104-0.138)	0.151 (0.136-0.178)	0.205 (0.183-0.242)	0.253 (0.228-0.303)	0.328 (0.295-0.399)	0.394 (0.352-0.488)	0.471 (0.419-0.601)	0.562 (0.493-0.739)	0.701 (0.604-0.969)	0.827 (0.701-1.20)
10-min	0.179 (0.158-0.210)	0.230 (0.207-0.271)	0.312 (0.278-0.368)	0.386 (0.347-0.461)	0.500 (0.448-0.607)	0.600 (0.536-0.742)	0.717 (0.637-0.914)	0.854 (0.751-1.13)	1.07 (0.919-1.48)	1.26 (1.07-1.82)
15-min	0.222 (0.195-0.260)	0.285 (0.257-0.336)	0.386 (0.345-0.456)	0.478 (0.431-0.572)	0.620 (0.556-0.753)	0.743 (0.664-0.920)	0.889 (0.790-1.13)	1.06 (0.930-1.39)	1.32 (1.14-1.83)	1.56 (1.32-2.26)
30-min	0.299 (0.263-0.350)	0.384 (0.346-0.452)	0.520 (0.464-0.614)	0.644 (0.580-0.770)	0.834 (0.749-1.01)	1.00 (0.895-1.24)	1.20 (1.07-1.53)	1.43 (1.25-1.88)	1.78 (1.53-2.46)	2.10 (1.78-3.05)
60-min	0.370 (0.326-0.433)	0.475 (0.428-0.559)	0.643 (0.575-0.780)	0.797 (0.718-0.953)	1.03 (0.927-1.25)	1.24 (1.11-1.53)	1.48 (1.32-1.89)	1.77 (1.55-2.32)	2.20 (1.90-3.05)	2.60 (2.20-3.77)
2-hr	0.459 (0.410-0.528)	0.578 (0.511-0.663)	0.773 (0.684-0.886)	0.950 (0.833-1.08)	1.24 (1.07-1.42)	1.51 (1.27-1.73)	1.83 (1.50-2.11)	2.21 (1.76-2.59)	2.82 (2.15-3.38)	3.40 (2.51-4.15)
3-hr	0.511 (0.459-0.576)	0.640 (0.571-0.724)	0.830 (0.741-0.933)	1.00 (0.891-1.13)	1.29 (1.13-1.45)	1.55 (1.34-1.76)	1.87 (1.58-2.13)	2.25 (1.85-2.59)	2.87 (2.28-3.42)	3.45 (2.65-4.19)
6-hr	0.639 (0.582-0.707)	0.793 (0.720-0.878)	1.00 (0.911-1.10)	1.18 (1.07-1.31)	1.46 (1.31-1.62)	1.70 (1.51-1.89)	1.98 (1.73-2.23)	2.37 (2.03-2.69)	3.00 (2.49-3.45)	3.57 (2.90-4.24)
12-hr	0.793 (0.723-0.872)	0.985 (0.900-1.09)	1.22 (1.12-1.35)	1.43 (1.30-1.57)	1.72 (1.55-1.90)	1.96 (1.76-2.17)	2.23 (1.97-2.48)	2.53 (2.21-2.84)	3.14 (2.69-3.58)	3.72 (3.14-4.28)
24-hr	0.998 (0.912-1.10)	1.24 (1.13-1.36)	1.55 (1.41-1.70)	1.81 (1.64-2.00)	2.18 (1.95-2.42)	2.48 (2.19-2.79)	2.81 (2.45-3.20)	3.16 (2.70-3.67)	3.66 (3.05-4.37)	4.08 (3.31-5.00)
2-day	1.12 (1.10-1.32)	1.39 (1.27-1.52)	1.72 (1.57-1.89)	2.01 (1.81-2.20)	2.41 (2.15-2.67)	2.74 (2.41-3.09)	3.10 (2.68-3.53)	3.48 (2.95-4.05)	4.03 (3.32-4.86)	4.49 (3.60-6.00)
3-day	1.21 (1.10-1.32)	1.50 (1.37-1.65)	1.87 (1.70-2.05)	2.18 (1.97-2.40)	2.63 (2.35-2.92)	2.99 (2.64-3.30)	3.39 (2.93-3.86)	3.81 (3.23-4.43)	4.42 (3.64-5.32)	4.92 (3.96-6.11)
4-day	1.29 (1.19-1.42)	1.61 (1.47-1.77)	2.02 (1.84-2.22)	2.36 (2.13-2.59)	2.85 (2.54-3.17)	3.24 (2.86-3.64)	3.67 (3.19-4.19)	4.13 (3.51-4.92)	4.80 (3.96-5.77)	5.35 (4.31-6.63)
7-day	1.50 (1.37-1.65)	1.87 (1.71-2.05)	2.35 (2.13-2.57)	2.74 (2.47-3.01)	3.29 (2.94-3.65)	3.74 (3.30-4.19)	4.22 (3.68-4.81)	4.74 (4.03-5.50)	5.47 (4.52-6.56)	6.07 (4.90-7.51)
10-day	1.68 (1.54-1.84)	2.09 (1.92-2.29)	2.62 (2.39-2.86)	3.05 (2.77-3.35)	3.66 (3.29-4.05)	4.15 (3.68-4.63)	4.67 (4.08-5.29)	5.22 (4.49-6.01)	6.03 (5.04-7.15)	6.69 (5.46-8.15)
20-day	2.16 (2.41-2.87)	2.70 (2.46-2.97)	3.35 (3.04-3.68)	3.86 (3.49-4.25)	4.56 (4.08-5.06)	5.10 (4.52-5.70)	5.65 (4.95-6.41)	6.22 (5.36-7.15)	6.99 (5.90-8.22)	7.60 (6.30-9.10)
30-day	2.63 (2.41-2.87)	3.28 (3.00-3.58)	4.04 (3.68-4.41)	4.64 (4.21-5.08)	5.44 (4.90-6.01)	6.06 (5.41-6.74)	6.69 (5.90-7.52)	7.33 (6.37-8.37)	8.20 (6.97-9.55)	8.86 (7.42-10.5)
45-day	3.21 (2.93-3.50)	4.00 (3.66-4.37)	4.91 (4.48-5.36)	5.63 (5.13-6.16)	6.59 (5.94-7.27)	7.31 (6.54-8.13)	8.05 (7.11-9.04)	8.80 (7.67-10.0)	9.80 (8.38-11.4)	10.6 (8.90-12.5)
60-day	3.80 (3.47-4.15)	4.73 (4.32-5.16)	5.77 (5.25-6.30)	6.57 (5.95-7.19)	7.61 (6.85-8.36)	8.38 (7.49-9.28)	9.16 (8.11-10.2)	9.92 (8.70-11.2)	10.9 (9.42-12.6)	11.7 (9.93-13.6)

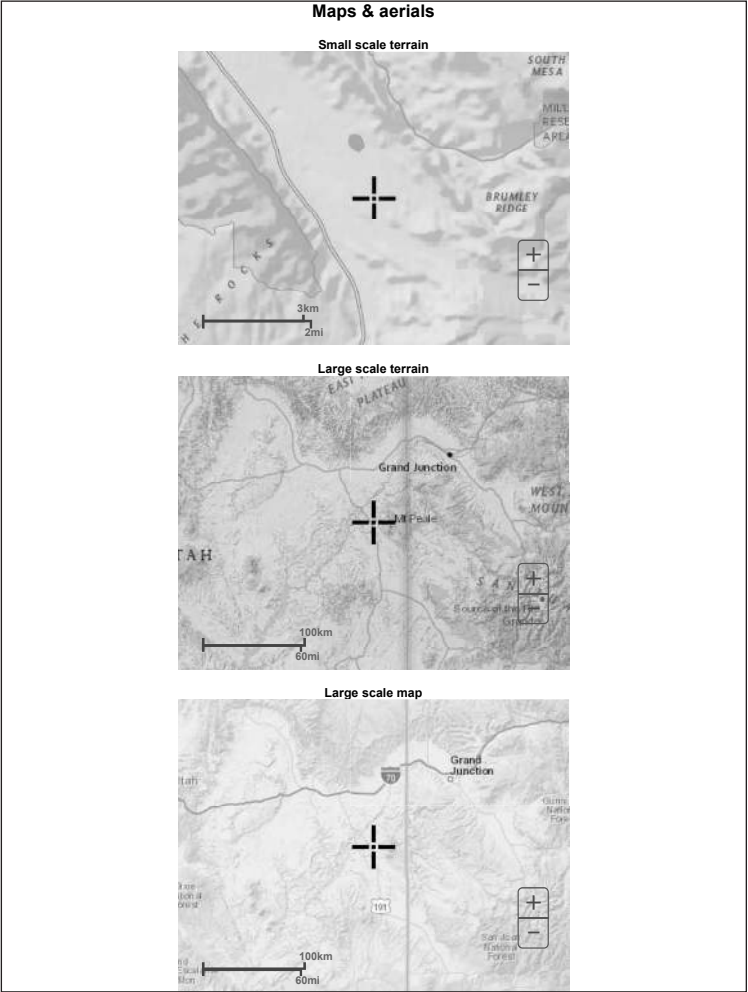
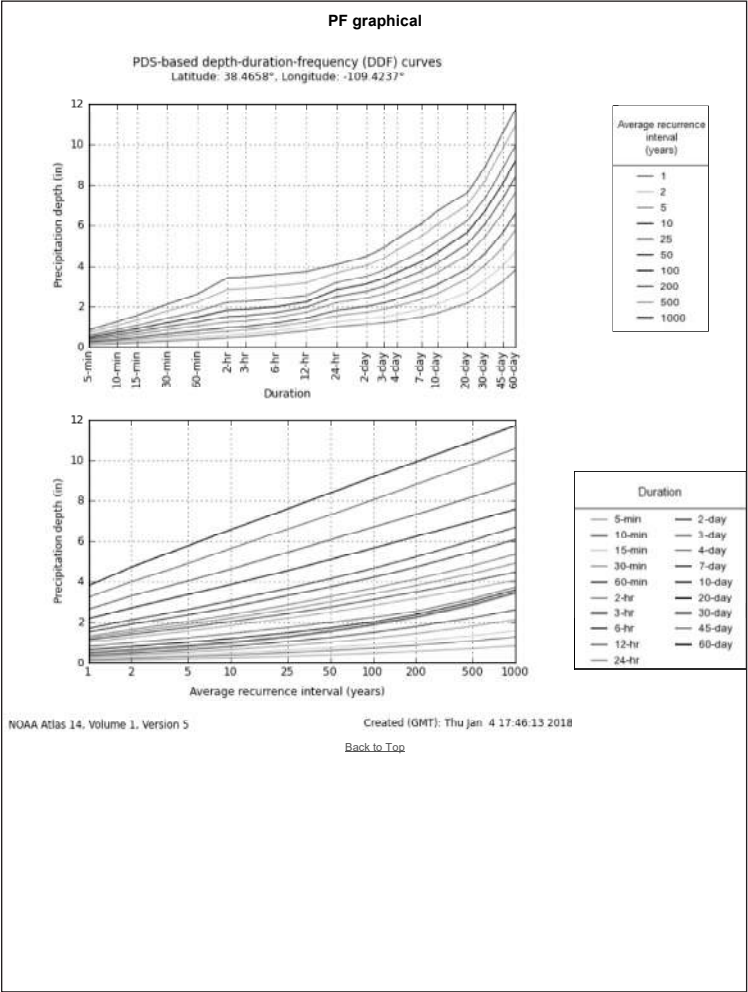
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

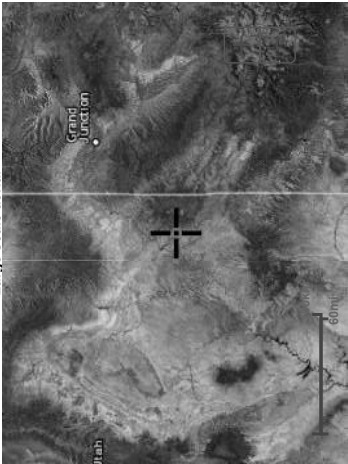
[Back to Top](#)

APPENDIX D



APPENDIX D

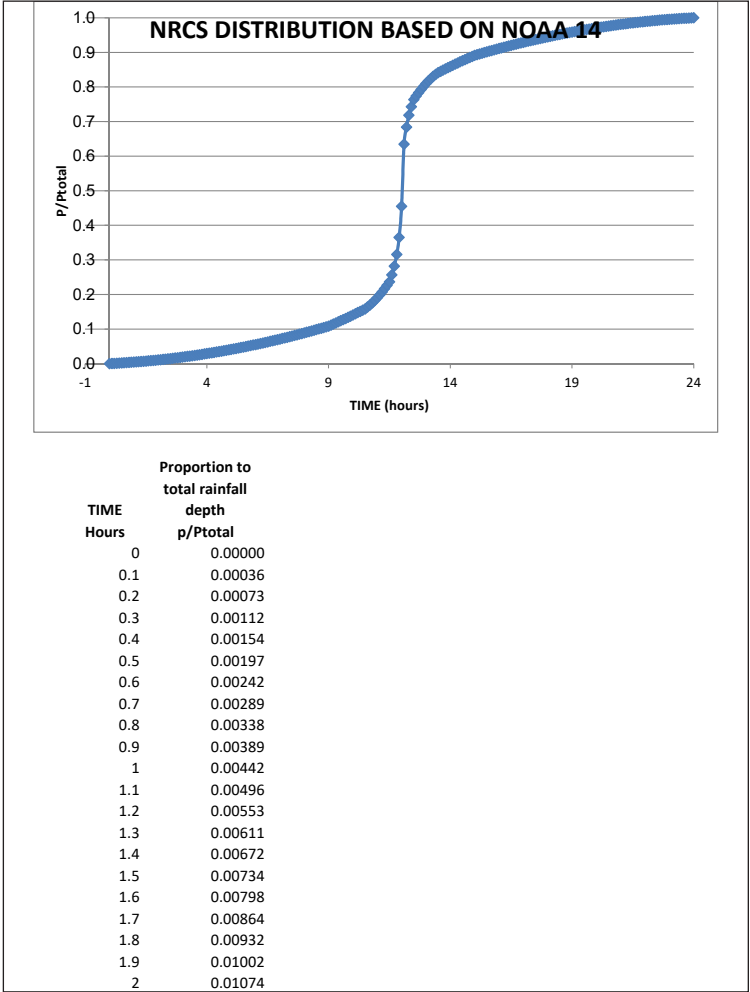
Large scale aerial



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National Water Center
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Questions?: HDSC.Questions@noaa.gov

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SPANISH VALLEY STORM
DRAINAGE MEMO

APPENDIX D

TIME	Proportion to total rainfall depth
2.1	0.01148
2.2	0.01224
2.3	0.01301
2.4	0.01381
2.5	0.01462
2.6	0.01546
2.7	0.01631
2.8	0.01718
2.9	0.01807
3	0.01898
3.1	0.01991
3.2	0.02086
3.3	0.02182
3.4	0.02281
3.5	0.02382
3.6	0.02484
3.7	0.02588
3.8	0.02695
3.9	0.02803
4	0.02913
4.1	0.03025
4.2	0.03139
4.3	0.03255
4.4	0.03372
4.5	0.03492
4.6	0.03614
4.7	0.03737
4.8	0.03862
4.9	0.03990
5	0.04119
5.1	0.04250
5.2	0.04383
5.3	0.04518
5.4	0.04655
5.5	0.04794
5.6	0.04934
5.7	0.05077
5.8	0.05221
5.9	0.05368
6	0.05516
6.1	0.05666
6.2	0.05818
6.3	0.05972
6.4	0.06128

TIME	Proportion to total rainfall depth
6.5	0.06286
6.6	0.06446
6.7	0.06608
6.8	0.06771
6.9	0.06937
7	0.07104
7.1	0.07274
7.2	0.07445
7.3	0.07618
7.4	0.07793
7.5	0.07970
7.6	0.08149
7.7	0.08330
7.8	0.08512
7.9	0.08697
8	0.08884
8.1	0.09072
8.2	0.09262
8.3	0.09455
8.4	0.09649
8.5	0.09845
8.6	0.10043
8.7	0.10243
8.8	0.10445
8.9	0.10648
9	0.10854
9.1	0.11158
9.2	0.11466
9.3	0.11778
9.4	0.12094
9.5	0.12414
9.6	0.12738
9.7	0.13066
9.8	0.13398
9.9	0.13735
10	0.14075
10.1	0.14419
10.2	0.14767
10.3	0.15120
10.4	0.15476
10.5	0.15836
10.6	0.16363
10.7	0.16947
10.8	0.17587

SPANISH VALLEY STORM
DRAINAGE MEMO

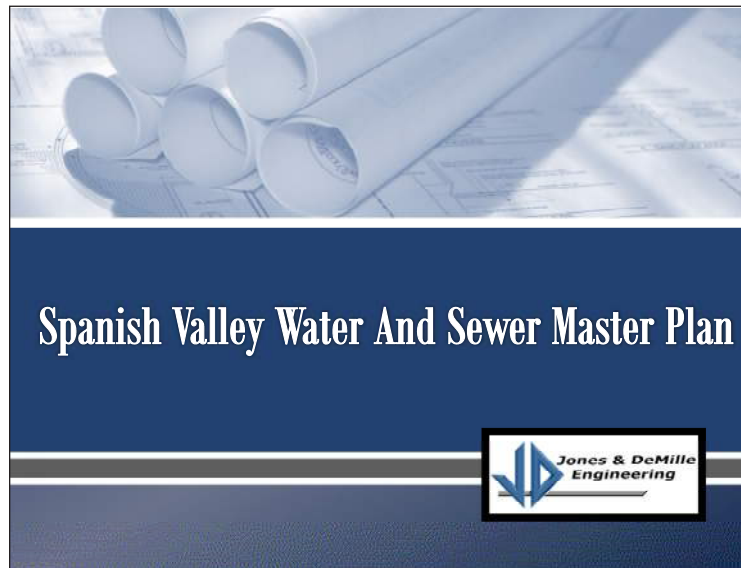
APPENDIX D

TIME	Proportion to total rainfall depth
10.9	0.18285
11	0.19039
11.1	0.19851
11.2	0.20719
11.3	0.21644
11.4	0.22626
11.5	0.23665
11.6	0.25683
11.7	0.28170
11.8	0.31601
11.9	0.36512
12	0.45480
12.1	0.63488
12.2	0.68399
12.3	0.71830
12.4	0.74317
12.5	0.76335
12.6	0.77374
12.7	0.78356
12.8	0.79281
12.9	0.80149
13	0.80961
13.1	0.81715
13.2	0.82413
13.3	0.83053
13.4	0.83637
13.5	0.84164
13.6	0.84524
13.7	0.84880
13.8	0.85233
13.9	0.85581
14	0.85925
14.1	0.86265
14.2	0.86602
14.3	0.86934
14.4	0.87262
14.5	0.87586
14.6	0.87906
14.7	0.88222
14.8	0.88534
14.9	0.88842
15	0.89146
15.1	0.89352
15.2	0.89555

TIME	Proportion to total rainfall depth
15.3	0.89757
15.4	0.89957
15.5	0.90155
15.6	0.90351
15.7	0.90545
15.8	0.90738
15.9	0.90928
16	0.91116
16.1	0.91303
16.2	0.91488
16.3	0.91670
16.4	0.91851
16.5	0.92030
16.6	0.92207
16.7	0.92382
16.8	0.92555
16.9	0.92726
17	0.92896
17.1	0.93063
17.2	0.93229
17.3	0.93392
17.4	0.93554
17.5	0.93714
17.6	0.93872
17.7	0.94028
17.8	0.94182
17.9	0.94334
18	0.94484
18.1	0.94632
18.2	0.94779
18.3	0.94923
18.4	0.95066
18.5	0.95206
18.6	0.95345
18.7	0.95482
18.8	0.95617
18.9	0.95750
19	0.95881
19.1	0.96010
19.2	0.96138
19.3	0.96263
19.4	0.96386
19.5	0.96508
19.6	0.96628

APPENDIX D

TIME	Proportion to total rainfall
	depth
19.7	0.96745
19.8	0.96861
19.9	0.96975
20	0.97087
20.1	0.97197
20.2	0.97305
20.3	0.97412
20.4	0.97516
20.5	0.97618
20.6	0.97719
20.7	0.97818
20.8	0.97914
20.9	0.98009
21	0.98102
21.1	0.98193
21.2	0.98282
21.3	0.98369
21.4	0.98454
21.5	0.98538
21.6	0.98619
21.7	0.98699
21.8	0.98776
21.9	0.98852
22	0.98926
22.1	0.98998
22.2	0.99068
22.3	0.99136
22.4	0.99202
22.5	0.99266
22.6	0.99328
22.7	0.99389
22.8	0.99447
22.9	0.99504
23	0.99558
23.1	0.99611
23.2	0.99662
23.3	0.99711
23.4	0.99758
23.5	0.99803
23.6	0.99846
23.7	0.99888
23.8	0.99927
23.9	0.99964
24	1.00000



Purpose & Need

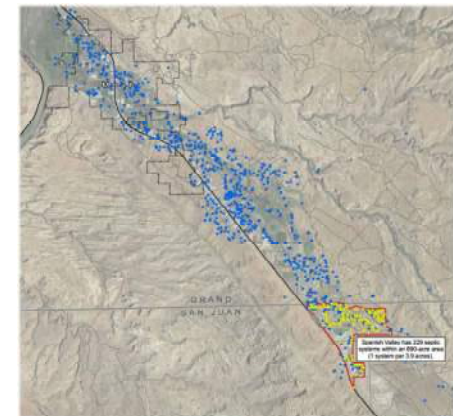
San Juan Spanish Valley Sewer Service District (SSD) hired Jones and DeMille Engineering to evaluate:

- Existing Condition of Water and Wastewater Systems (Wells & Septic)
- Future Growth (Proactive vs. Reactive)
- Culinary Water System Alternatives
- Sanitary Sewer System Alternatives

Existing Conditions

- Individual Water Wells
 - Do not provide sufficient fire protection
 - Costly (high maintenance)
 - Limits growth
 - Limited water right availability
- Individual Septic Systems
 - Limits residential development to 1-acre per resident
 - High concentration for small area

Underground Wells / Septic Systems



Future Growth

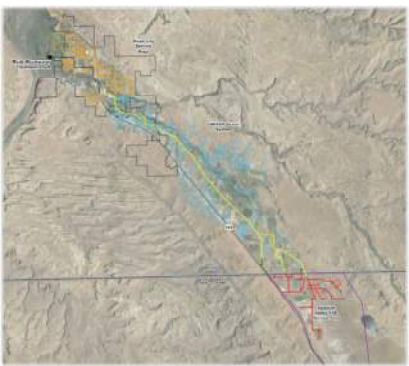
POPULATION PROJECTIONS FOR THE STUDY AREA - SPANISH VALLEY, SAN JUAN COUNTY, UTAH			
PROJECTIONS AT CONSTANT 2.0% ANNUAL GROWTH RATE			
YEAR	2015	2025	2035
POPULATION (Persons)**	575	701	854
EQUIVALENT RESIDENTIAL CONNECTIONS (ERC)*	229	279	340
EQUIVALENT RESIDENTIAL CONNECTIONS (ERC) at 6% growth	229	417	760

Selected Alternative (Culinary Water)



- Stand Alone System
- Significantly Lower Cost
- NO Impact Fee to GWSSA

Selected Alternative (Sanitary Sewer)



- Combined System with Moab and Grand Water & Sewer Service Agency (GWSSA)
- Lower O&M cost
- Lower capital cost
- Shared cost for treatment plant

Selected Alternative (Sanitary Sewer)



Cost Estimates

System	Construction	Land & Capacity	Professional Services	TOTAL
Culinary Water	\$4,510,000	\$30,000	\$560,000	\$5,100,000
Sanitary Sewer	\$3,600,000	\$950,000	\$450,000	\$5,000,000

% of MAGI (\$31,922)

- WATER** - The State of Utah recommends that an affordable water bill be no more than 1.75% of the community's median adjusted gross income (MAGI). The maximum affordable water bill for the SSD based on 1.75% of the SSD's MAGI is **\$45.63** per month.
- SEWER** - The State of Utah recommends that an affordable sewer bill be no more than 1.40% of the community's median adjusted gross income (MAGI). The maximum affordable sewer bill for the SSD based on 1.40% of the SSD's MAGI is **\$36.51** per month.
- Needed **80% Grant** 20% Loan to ensure SSD could charge no more than these rates.

Funding

- State, Federal and Private sources of money for public infrastructure projects:
 - Utah Permanent Community Impact Board (CIB)
 - Utah Division of Drinking Water (DDW)
 - Utah Department of Water Quality (DWQ)
 - USDA Rural Development
 - Private Loans and bonding
- Those that offer some form of grant money have a calculation to determine how much grant to give.
- DWQ, CIB, DDW use a percentage of the Median Adjusted Gross Income (MAGI) as an indication of what's affordable.

Funding Package (Culinary Water)

Table 1: Funding Authorized	Amount	Rate	Term	Annual Payment
UDDW Principal Forgiveness (grant)	\$765,000	N/A	N/A	\$0
UDDW Loan	\$1,785,000	0%	30	\$59,500
CIB Grant	\$1,912,000	N/A	N/A	\$0
CIB Loan	\$638,000	2.50%	30	\$30,500
Total	\$5,100,000		Total	\$90,000

Table 2: User Fee Summary	2017	2018	2019	2020
User Fee at 1.75% of MAGI	\$46.50	\$47.00	\$47.50	\$48.00
Total Estimated Water System Users	230	235	240	245
Annual User Fee Payments	\$128,340	\$129,720	\$131,100	\$132,480

53% Grant 47% loan

Funding Package (Sanitary Sewer)

Table 5: Spanish Valley Funding Authorized	Amount	Rate	Term	Annual Payment
UWQB Principal Forgiveness (grant)	\$1,547,000	N/A	N/A	\$0
UWQB Loan	\$968,000	0%	30	\$32,267 (varies)
CIB Grant	\$1,750,000	N/A	N/A	\$0
CIB Loan	\$750,000	0.00%	30	\$25,000
Total	\$5,015,000		Total	\$57,267

Table 6: User Fee Summary	2017	2018	2019	2020
User Fee at 1.40% of MAGI	\$37.50	\$38.00	\$38.50	\$39.00
Total Estimated Water System Users	230	235	240	245
Annual User Fee Payments	\$103,500	\$104,880	\$106,260	\$107,640

66% Grant 34% loan

O&M Budget (Water)

Table 4: 4 Year Budget Projections	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected
1. Beginning Cash on Hand	\$0.00	\$11,610.84	\$22,351.69	\$32,222.53
2. Cash Receipts:				
a. Metered Water Revenue	\$128,340.00	\$129,720.00	\$131,100.00	\$132,480.00
b. Total Water Revenues (2a)	\$128,340.00	\$129,720.00	\$131,100.00	\$132,480.00
c. Impact Fees	\$18,500.00	\$18,500.00	\$18,500.00	\$18,500.00
d. Total Cash Revenues (2b + 2c)	\$146,840.00	\$148,220.00	\$149,600.00	\$150,980.00
e. Transfers in/Additional Rev Needed	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00
f. Total Cash Receipts (2d + 2e)	\$186,840.00	\$188,220.00	\$189,600.00	\$190,980.00
g. Total Cash Available (1+3)	\$186,840.00	\$199,830.84	\$211,951.69	\$223,202.53
3. Operating Expenses				
a. Salaries and wages	\$25,000.00	\$26,000.00	\$27,000.00	\$28,000.00
b. Purchased Power	\$20,000.00	\$21,000.00	\$22,000.00	\$23,000.00
c. Materials and Supplies	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
d. Contractual Services - Engineering	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00
e. Transportation Expenses	\$2,250.00	\$2,500.00	\$2,750.00	\$3,000.00
f. Insurance	\$500.00	\$500.00	\$500.00	\$500.00
g. Miscellaneous	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
h. Total Cash O&M Expenses (3a thru 3g)	\$70,250.00	\$72,500.00	\$74,750.00	\$77,000.00
i. Total O&M Expenditures (3h)	\$70,250.00	\$72,500.00	\$74,750.00	\$77,000.00
j. Loan Principal/Capital Lease Payments	\$89,982.13	\$89,982.13	\$89,982.13	\$89,982.13
k. Debt Service Reserve Fund Payment	\$14,997.02	\$14,997.02	\$14,997.02	\$14,997.02
l. Total Cash Paid Out (3i + 3j)	\$175,229.16	\$177,479.16	\$179,729.16	\$181,979.16
m. Ending Cash Position (4 + 6)	\$11,610.84	\$22,351.69	\$32,222.53	\$41,223.37
n. End of Year Operating Cash (3 - 6)	\$11,610.84	\$10,740.84	\$9,870.84	\$8,980.84
4. End of Year Reserves:				
a. Debt Service Reserve	\$14,997.02	\$14,997.02	\$14,997.02	\$14,997.02
Total Reserves	\$14,997.02	\$14,997.02	\$14,997.02	\$14,997.02

O&M Budget (Sewer)

Table 9: 4 Year Budget Projections	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected
1. Beginning Cash on Hand	\$0.00	\$16,722.24	\$28,141.35	\$36,778.54
2. Cash Receipts:				
a. Metered Water Revenue	\$103,500.00	\$104,880.00	\$106,260.00	\$107,640.00
b. Total Water Revenues (2a)	\$103,500.00	\$104,880.00	\$106,260.00	\$107,640.00
c. Impact Fees	\$13,150.00	\$13,150.00	\$13,150.00	\$13,150.00
d. Total Cash Revenues (2b + 2c)	\$116,650.00	\$118,030.00	\$119,410.00	\$120,790.00
e. Transfers in/Additional Rev Needed	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00
f. Total Cash Receipts (2d + 2e)	\$131,650.00	\$133,030.00	\$134,410.00	\$135,790.00
g. Total Cash Available (1+3)	\$131,650.00	\$149,762.24	\$162,551.35	\$169,968.54
3. Operating Expenses				
a. Salaries and wages	\$20,000.00	\$21,000.00	\$22,000.00	\$23,000.00
b. Materials and Supplies	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
c. Contractual Services - Engineering, Accounting, O&M	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00
d. Transportation Expenses	\$2,250.00	\$2,500.00	\$2,750.00	\$3,000.00
e. Insurance	\$500.00	\$500.00	\$500.00	\$500.00
f. Wastewater User Fee (\$1.00/ERC)	\$12,863.46	\$15,963.24	\$18,560.00	\$16,993.24
g. Wastewater Collection User Fee (\$4.12/ERC)	\$11,178.00	\$11,638.40	\$12,098.40	\$12,171.60
h. WWSA Collection User Fee (\$1.00/ERC)	\$13,800.00	\$14,100.00	\$14,400.00	\$14,700.00
i. Miscellaneous	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
j. Total Cash O&M Expenses (3a thru 3i)	\$78,080.46	\$83,179.64	\$85,748.40	\$87,864.84
k. Replacement Expenses	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
l. Total O&M Expenditures (3j+3k)	\$83,080.46	\$88,179.64	\$90,748.40	\$92,864.84
m. Loan Principal/Capital Lease Payments	\$45,076.44	\$46,463.98	\$47,841.32	\$49,232.64
n. Debt Service Reserve Fund Payment	\$6,763.34	\$6,969.32	\$7,177.32	\$7,384.92
o. Total Cash Paid Out (3l + 3m + 3n)	\$134,920.24	\$141,612.94	\$145,772.32	\$149,482.32
p. Ending Cash Position (4 + 6)	\$16,722.24	\$28,141.35	\$36,778.54	\$43,886.16
q. End of Year Operating Cash (3 - 6)	\$16,722.24	\$11,418.11	\$8,637.10	\$6,307.60
4. End of Year Reserves:				
a. Debt Service Reserve	\$6,763.34	\$6,969.32	\$7,177.32	\$7,384.92
Total Reserves	\$6,763.34	\$6,969.32	\$7,177.32	\$7,384.92

SITLA Partnership

- A Funding Package of 80% Grant and 20% Loan Needed
- San Juan County was able to obtain 60% Grant and 40% Loan.
- In order to make the 80% grant and 20% loan, \$2,000,000 worth of sewer and water connections were sold to the School Institutional Trust Lands Administration (SITLA).

APPENDIX E

Impact Fees

• Culinary Water System

Table 3: Impact Fee Component	System Cost	Potential Number of Connections	Cost / Connection
Source	\$591,600	935	\$630
Storage	\$739,500	800	\$920
Distribution	\$3,768,900	1750	\$2,150
Total Water Impact Fee			\$3,700

• Sanitary Sewer System

Table 8: Impact Fee Component	System Cost	Potential Number of Connections	Cost / Connection
SSD Sewer Collection	\$5,000,000	1900	\$2,630
GWSSA Sewer Collection	N/A	N/A	\$1,953
Moab Sewer Collection	N/A	N/A	\$542
Moab Sewer Treatment	N/A	N/A	\$610
Total Sewer Impact Fee			\$5,735

What Is It Going To Cost Me?

- Existing Homes/Businesses in the Valley
 - Impact Fees: Waived
 - Connection Fees: Owner's Responsibility: San Juan County Loan Program
- | | |
|------------------------------------|------------|
| Septic System Abandonment | \$1,000 |
| Sewer Service Connection to R/W | \$2,000 |
| Total Per Connection | \$3,000 |
| 10 Year Loan from San Juan County | \$25/month |
| Total for System (230 connections) | \$690,000 |
- Monthly User Fee
- Platted Lots up to 230 Connections
 - Impact Fees: Waived
 - Connection Fees: Owners Responsibility
 - Monthly User Fee even if not in use
 - Future Connections above 230
 - Impact Fees: Water \$3,700; Sewer \$5,735
 - Connection Fees: TBD, estimated to be \$2,000 for both water and sewer
 - Monthly User Fee when connection is made

Schedule Moving Forward

- SJSVSSD Board Approval: Spring of 2017
- Engineering Design, Permitting: Spring of 2017
- Bidding and Construction of Water System: Late 2017
- Bidding and Construction of Sewer System: Early 2018

FAQ's

- Will I be required to connect to the system?
 - The SSD is required to have 230 connections so they can financially afford the system. We are hopeful that a great majority of residents will elect to connect because of the benefits. If 230 current residents and platted lots do not connect, then developers will be offered the connections with impact fees waived. If the SSD is still short, then they will be required to have existing residents to connect.
- What will happen with my existing well?
 - Each home owner will be allowed to keep their existing well and water right and use it for irrigation, etc.
- Who will operate the system?
 - SJSVSSD will operate the system either through their own operator or a contract with GWSSA.
- When will I have to start paying water and sewer bills?
 - As soon as the system is completely operational.
- Will I be able to split my 1+ acre lot?
 - The County is planning on rezoning the entire SV area. Many areas zoned for 1 acre lots will be zoned for a higher density (quarter acre and half acre lots). Additional master planning with public input will take place via the San Juan County Planning Commission over the next few months.

APPENDIX F

FIGURES

Figure 1. Spanish Valley	3
Figure 2 Arches National Park Visitors	4
Figure 3 Canyonlands National Park Visitors	4
Figure 4 Nibley City Development	5
Figure 5. Developable Area - Spanish Valley.....	6
Figure 6. Irrigated Crop Consumptive Use Zones	9

TABLES

Table 1. Residential Annual Growth	6
Table 2. Commercial Annual Growth.....	7
Table 3. Source Demand for Indoor Use.....	8
Table 4. Source Demand for Irrigation.....	9
Table 5. Source Demand for Individual Establishments	10
Table 6. Residential Water Use.....	10
Table 7. Agricultural Water Use.....	11
Table 8. Commercial Water Use	11
Table 9. Industrial Water Use	12
Table 10. Total Water Use	12

1. INTRODUCTION

The San Juan Spanish Valley SSD is a local district located in northern San Juan County, Figure 1. Spanish Valley has a population of about 500. Spanish Valley is near several major visitor attractions, Arches National Park, Canyonlands National Park, the Colorado and Green Rivers. The San Juan Spanish Valley SSD was created for the purpose of serving the residents, helping in conserving and developing water for multiple uses and developing a municipal water system for the area of Spanish Valley.

San Juan Spanish Valley SSD has contracted with Jones & DeMille Engineering to produce this 40 Year Water Right Plan. This plan will project the beneficial water use of water right 09-2349 through a 40-year period. The Plan period will only evaluate the next 40 years and will need updates as required to make water right decisions for all future development. This Plan will answer how much water right the San Juan Spanish Valley SSD will have to manage and how much water right is required from a developer before any individual new project approval.



Figure 1. Spanish Valley

APPENDIX F

1.1. PROJECTED GROWTH RATES

For the next 40 years, the Utah Governor's Office of Management and Budget (GOMB) projects that San Juan County will experience an annual growth rate of 0.3%. However, it is reasonable to expect that Spanish Valley will develop and grow faster than what the GOMB projects for the rest of the county.

There are several indicators that Spanish Valley will develop quite rapidly in the near future. One such indicator is that tourism in Moab, Arches National Park, and Canyonlands is increasing greatly. As tourism increases, the need for more restaurants, hotels, and other tourism related infrastructure increases, as well as the need for more housing to accommodate new employees and residents. Arches National Park and Canyonlands National Park have experienced a tremendous increase in the number of visitors over the last few years. The attractiveness for less expensive development places Spanish Valley in a favorable position for future development to accommodate increasing tourism.

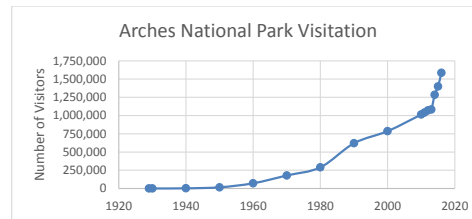


Figure 2 Arches National Park Visitors¹

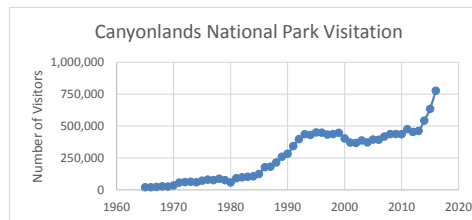


Figure 3 Canyonlands National Park Visitors²

¹ <https://www.nps.gov/arch/learn/management/statistics.htm>

² <https://www.nps.gov/cany/learn/management/statistics.htm>

Another indicator for higher growth for Spanish Valley is the planned construction of the culinary water and sanitary sewer system in 2018. Similar cities have experienced a large growth related to a low cost of development and after a sewer or water system was constructed; one such city is Nibley City, Utah. Nibley City experienced a large increase in population shortly after the city had a sewer system construction. Nibley was primary rural and much of the land within the city was open pastures prior to 2000. When the sewer system was under construction many developers came to Nibley to build single family homes because of the relatively low cost to develop. Nibley City experienced an almost 13% annual growth rate per year between 2000 and 2005, almost doubling the population.³

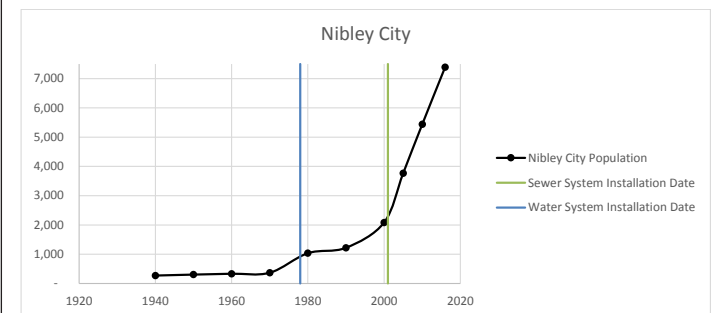


Figure 4 Nibley City Development

Based on increasing tourism, and large development occurring during and after the construction of the water and sewer systems, Spanish Valley may experience a similar, if not greater, boost in development.

1.1.1. DEVELOPMENT CAPACITY

The development capacity of Spanish Valley is related to the amount of area that can be developed. The amount of developable area is based mainly on terrain conditions. Areas that are hilly, steep, or that contain washes are not considered part of this developable area. Other excluded areas are LeGrand Johnson's mining pit, Ken's Lake, and the BLM campground south of Ken's Lake. The developable area was chosen using Google Earth imagery, Figure 5. In Spanish Valley there are about 4,000 acres that can be developed.

³ <http://population.us/ut/nibley/>

APPENDIX F



Figure 5. Developable Area - Spanish Valley

1.1.2. RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL GROWTH

To reflect the short-term surge in growth, the residential annual growth rate is patterned similar to Nibley City's historical growth rate is expected to be as high as 13% until 2025. From that point on, the annual growth will then decline to a steady growth rate. The projected population and number of equivalent residential connections (ERC's), based on an average 2.8 people per home, can be seen in Table 1.

Table 1. Residential Annual Growth

Year	2017	2018	2025	2030	2040	2050	2055	2057
Residential Annual Growth	-	1%	13%	8%	8%	5%	2%	2%
Population	500	503	1,184	1,740	3,757	6,120	6,757	7,030
Number of ERC's	179	180	423	621	1,342	2,186	2,413	2,511

Commercial growth is usually slower than or lags residential growth and therefore will have a different growth rate.. Spanish Valley currently has two RV parks with 17 pads total, a seven-cabin resort and 34 office buildings. Most likely, the majority of future commercial growth in Spanish Valley will be RV parks, hotels, motels, restaurants, and office/business establishment as seen in Table 2.

Table 2. Commercial Annual Growth

	2017	2018	2025	2030	2040	2050	2055	2057
Commercial Annual Growth		1%	10%	6%	4%	1%	1%	1%
RV Parks (Total Number of Pads)	17	18	36	49	73	81	86	88
Motels/Hotels (Total Number of Rooms)	7	8	16	22	33	37	39	40
Restaurants	0	0	1	2	3	4	5	6
Offices	34	35	69	93	138	153	161	165

Lastly, Spanish Valley's water right allows for surface water to be diverted from the Green River. Nearby is a large potash mine which uses water from the Green River for its evaporation beds. A likely industry to use this part of Spanish Valley's water right is mining. Industrial growth is more likely to occur later and is very likely to occur within the next 40 years.

2. CURRENT/PROJECTED FUTURE WATER REQUIREMENTS

2.1. CURRENT WATER RIGHTS & SHARES

Currently, San Juan Spanish Valley SSD owns water right 09-2349, which allows the district to divert 5,000 ac-ft. of water per year or an average daily use of 4,463,696 gallons. The district does not have any irrigation shares at this time.

2.2. CURRENT WATER USE & FUTURE WATER REQUIREMENTS

Spanish Valley is in development and will be receiving a municipal water distribution system. The system in development will initially use one or two wells to supply water to the area. As Spanish Valley grows and expands, new wells or springs will need to be developed to supply water to new growth in the south end of the valley.

APPENDIX F

To best estimate water use for Spanish Valley the following assumptions have been made and are based on engineering judgement and Utah Code.

1. For conservative purposes, residential water use will be based on the Peak Day Demand of 800 gallons per day per connection, see Table 3.
2. Agricultural use is based on 0.1 irrigated acres per connection, see Figure 6 and Table 4.
 - a. Spanish Valley is in Map Zone 5 and therefore irrigation use is 4.52 gallons per minute per irrigated acre as the peak day demand.
3. Any industry that uses Spanish Valley's water right is assumed to use three cubic feet per second or about 1,938,571 gallons per day.
4. All offices or building establishment, present and future, do not or will not have a cafeteria, see Table 5.
5. All new restaurants will be ordinary (not 24-hour and have an average of 72 seats, see Table 5.

Table 3. Source Demand for Indoor Use⁴

TABLE 510-1		
Source Demand for Indoor Use		
Type of Connection	Peak Day Demand	Average Yearly Demand
Year-round use		
Residential	800 gpd/conn	146,000 gal./conn (400 gal./conn)
Equivalent Residential Connection (ERC)	800 gpd/ERC	146,000 gal./ERC (400 gal./ERC)
Hotel, Motel, and Resort	150 gpd/unit	54,750 gal./unit
RV Park	100 gpd/pad	36,500 gal./pad

⁴ <https://rules.utah.gov/publicat/code/r309/r309-510.htm>
San Juan Spanish Valley SSD 40-Year Water Right Plan Water
Right: 09-2349

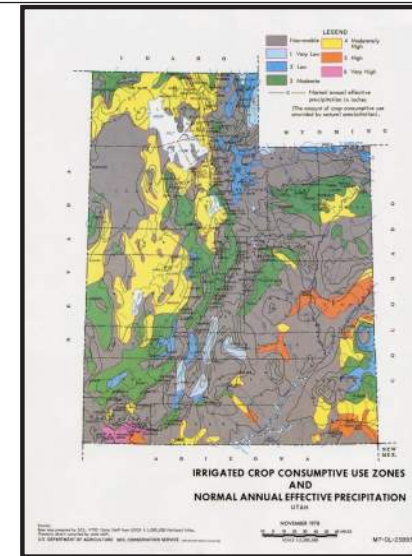


Figure 6. Irrigated Crop Consumptive Use Zones⁵

Table 4. Source Demand for Irrigation⁶

TABLE 510-3	
Source Demand for Irrigation	
Map Zone	Peak Day Demand (gpm/irrigated acre)
1	2.26
2	2.80
3	3.39
4	3.96
5	4.52
6	4.90

⁵ https://deq.utah.gov/Topics/Water/Irrigation/images/irrigation_map_2322x3240.gif

⁶ <https://rules.utah.gov/publicat/code/r309/r309-510.htm>
San Juan Spanish Valley SSD 40-Year Water Right Plan Water
Right: 09-2349

APPENDIX F

Table 5. Source Demand for Individual Establishments⁷

TABLE 510-2	
Source Demand for Indoor Use	
Type of Establishment	Peak Day Demand (gpd)
Office Buildings and Business Establishments, per shift, per employee	
a. with cafeteria	25
b. with no cafeteria	15
Restaurants	
a. ordinary restaurants (not 24-hour service)	35 per seat
b. 24-hour service	50 per seat
c. single service customer utensils only	2 per customer
d. or, per customer served (includes toilet and kitchen wastes)	10 per customer served

3. SUMMARY

Residential water use takes about half of the total amount of water used initially. As mentioned in the assumptions, 800 gallons per connection was used as a conservative approach, and not to under estimate and have Spanish Valley run out of water sooner than expected. Table 6 shows residential water use through the 40-year period.

Table 6. Residential Water Use

	2017	2018	2025	2030	2040	2050	2055	2057
Population	500	503	1,184	1,740	3,757	6,120	6,757	7,030
Number of ERC's	179	180	423	621	1,342	2,186	2,413	2,511
Residential Water Use (gallons)	142,857	143,714	338,286	497,143	1,073,429	1,748,571	1,930,571	2,008,571

⁷ <https://rules.utah.gov/publicat/code/r309/r309-510.htm>
San Juan Spanish Valley SSD 40-Year Water Right Plan Water
Right: 09-2349

The total agricultural use was calculated with the following equation:

$$Ag. Water Use = 4.53 \frac{gal}{min * irrigated acres} * 60 \frac{min}{hr} * 24 \frac{hr}{day} * 0.1 \frac{irrigated acres}{ERC} * \# of ERC's$$

Agricultural water use also makes up about half of the total water use initially. Table 7 shows agricultural water use through the 40-year period.

Table 7. Agricultural Water Use

	2017	2018	2025	2030	2040	2050	2055	2057
Irrigated Acres	18	18	42	62	134	219	241	251
Agricultural Water Use (gallons)	116,229	116,926	275,229	404,475	873,341	1,422,638	1,570,713	1,634,174

Commercial water use was calculated by taking the type of business and multiplying the number of units by the respected source demand. Table 8 shows commercial water use through the 40-year period.

Table 8. Commercial Water Use

	2017	2018	2025	2030	2040	2050	2055	2057
RV Park Water Use	1,700	1,800	3,600	4,900	7,300	8,100	8,600	8,800
Motels/Hotels Water Use	1,050	1,200	2,400	3,300	4,950	5,550	5,850	6,000
Restaurants Water Use (72 seats per restaurant)	-	-	2,520	5,040	7,560	10,080	12,600	15,120
Office/Business Establishment Water Use (gallons)	1,020	1,050	2,070	2,790	4,140	4,590	4,830	4,950
Total Commercial Water Use (gallons)	3,770	4,050	10,590	16,030	23,950	28,320	31,880	34,870

APPENDIX F

Industrial water use for the 40-year period can be seen in Table 9. Again, as mentioned in the assumptions, industrial use has been converted from 3 cubic feet per second to gallons per day

Table 9. Industrial Water Use

	2017	2018	2025	2030	2040	2050	2055	2057
Industrial Water Use (gallons)	0	0	0	0	1,938,571	1,938,571	1,938,571	1,938,571

The combined water use for the year period can be seen in Table 10.

Table 10. Total Water Use

	2017	2018	2025	2030	2040	2050	2055	2057
Residential Water Use (gallons)	142,857	143,714	338,286	497,143	1,073,429	1,748,571	1,930,571	2,008,571
Agricultural Water Use (gallons)	116,229	116,926	275,229	404,475	873,341	1,422,638	1,570,713	1,634,174
Total Commercial Water Use (gallons)	3,770	4,050	10,590	16,030	23,950	28,320	31,880	34,870
Industrial Water Use (gallons)	0	0	0	0	1,938,571	1,938,571	1,938,571	1,938,571
Total Water Use (gallons)	262,856	264,690	624,105	917,648	3,909,291	5,138,100	5,471,736	5,616,186
Current Average Daily Available Water (gallons)	4,463,712	4,463,712	4,463,712	4,463,712	4,463,712	4,463,712	4,463,712	4,463,712
Surplus/Deficit	4,200,856	4,199,021	3,839,607	3,546,063	554,420	-674,389	-1,008,024	-1,152,475

By the end of the 40-year period, Spanish Valley will use the entirety of their current water right and have a deficit, as seen in the red highlighted cells of Table 10. To ensure that there is sufficient water for development past the 40-year period, the district should procure additional water rights or shares.

APPENDIX A. BOARD MEMBER INFORMATION

San Juan Spanish Valley SSD Board Members

Name	Position	Term Expires
Frank Darcey	Chairman	
William Johnston	Vice Chair	
Kerry Behanin	Board Member	
Jared Shumway	Board Member	
Mike Bynum	Board Member	12/13/2020

Contact Information:

San Juan Spanish Valley SSD
117 South Main
Monticello, UT 84535

SAN JUAN SPANISH VALLEY
SSD 40-YEAR WATER RIGHT
PLAN-WATER RIGHT: 09-2349

APPENDIX B. WATER RIGHT INFORMATION

San Juan Spanish Valley SSD 40-Year Water Right Plan Water
Right: 09-2349

Page B-1

Jones & DeMille Engineering
Project #: 1503-060

APPENDIX F

10/13/2017 WRPRINT (09-2349)

Utah.gov Services Agencies Search all of Utah.gov >

Utah Division of Water Rights

Select Related Information

(WARNING: Water Rights makes NO claims as to the accuracy of this data.) RUN DATE: 10/13/2017

WATER RIGHT: 09-2349 APPLICATION/CLAIM NO.: A377880 CERT. NO.:
CHANGES: A377880 (Filed: 04/27/2011) Approved

NAME: San Juan Spanish Valley Special Service District
ADDR: c/o Kelly Pehrson
117 South Main, #282
Monticello, UT 84335

DATES, ETC.

LAND OWNED BY APPLICANT? No COUNTY TAX ID:
FILED: 07/22/1967/PRIORITY: 09/27/2017 PUB BEGIN: PUB ENDED: NEWSPAPER:
Protested: [No] HEARING HLD: SE ACTION: [Approved] ActionDate:08/25/1967/PROOF DUE: 08/31/2017
EXTENSION: 09/27/2017/ELEC/PROOF: [No] ELEC/PROOF: CERT/AMC: LAP, ETC: LAPS LETTER:09/15/2017
HIGH LETTER: [RENEWATE: RECON REQ: TYPE: []] HIGH DATE: 08/25/2017
PD BOOK: [09:] MAP: [] PUB DATE: []

*TYPE -- DOCUMENT -- STATUS
Type of Right: Application to Appropriate Source of Info: Application to Segregate Status: Approved

LOCATION OF WATER RIGHT** (Points of Diversion: Click on Location to access PLAT Program.)*****MAP VIEW *****

PLUM: 5800.0 acre-feet
SOURCE: San Juan River and Cottonwood Wash
COUNTY: San Juan COMMON DESCRIPTION: Near Bluff, UT

POINTS OF DIVERSION -- SURFACE:
(1) S 2308 FT W 3128 FT FROM SE COR. Sec 33, T 40S, R 21E, SLBM. Source: San Juan River
Diverting Works: Pumping Station
(2) S 708 FT E AND FT FROM NW COR. Sec 36, T 40S, R 21E, SLBM. Source: San Juan River
Diverting Works: Pumping Station
(3) S 2308 FT W 300 FT FROM NW COR. Sec 27, T 40S, R 22E, SLBM. Source: San Juan River
Diverting Works: Pumping Station
(4) N 3685 FT W 3485 FT FROM NW COR. Sec 38, T 40S, R 22E, SLBM. Source: Cottonwood Wash
Diverting Works: Pumping Station

Stream Alt Required?: No

USES OF WATER RIGHT***** EU -- Equivalent Livestock Unit (cow, horse, etc.) ***** EDU -- Equivalent Domestic Unit of 2 Family
(The Beneficial Use Amount is the quantity of Use that this Water Right contributes to the Group Total.)

WATER USE GROUP NO.: 614121. Water Rights Appurtenant to the following use(s):
EU-2327/APZ, 2349(APP)

RECREATION: Fishing, boating, water sports and fish culture PERIOD OF USE: 01/01 TO 12/31
Acre Feet Contributed by this Right for this Use: 5800.0

##PLACE OF USE: ***** NORTH WEST QUARTER ***** NORTH EAST QUARTER ***** SOUTH WEST QUARTER ***** SOUTH EAST QUARTER *****
* NW NE SW SE * NW NE SW SE * NW NE SW SE * NW NE SW SE *
Sec 11 T 38S R 24E SLBM *X X X X *X X X X X *X X X X *X X X X *
Sec 12 T 38S R 24E SLBM *X X X X *X X X X X X X X X X X X X X *
Sec 38 T 38S R 24E SLBM *X X X X *X X X X X X X X X X X X X X *

Storage from 01/01 to 12/31, inclusive, in Unnamed with a maximum capacity of 250000.000 acre-feet, located in:
Height of Dam: 80 NORTH-WEST NORTH-EAST SOUTH-WEST SOUTH-EAST
Area Impounded: 1400.00 NW NE SW SE NW NE SW SE NW NE SW SE NW NE SW SE
Sec 13 T 38S R 24E SLBM * X: X: X: X: * X: X: X: X: * X: X: X: X: * X: X: X: X: *
Sec 19 T 38S R 24E SLBM * X: X: X: X: * X: X: X: X: * X: X: X: X: * X: X: X: X: *
Sec 30 T 38S R 24E SLBM * X: X: X: X: * X: X: X: X: * X: X: X: X: * X: X: X: X: *

Small Dam Required?: No

OTHER COMMENTS*****
As of December 5, 2013, the priority date and/or filing date have
administratively changed to reflect that of the original right

SEGREGATION HISTORY*****
This Right was Segregated from 09-2349, with Appl#: A377880, Approval Date: 08/25/1967 under which Proof is to be submitted.
This Right as originally filed:

PLUM IN QUANTITY IN -----W A T E R U S E S-----
CFS ACRE-Feet IRRIGATED STOCK DOMESTIC MUNICIPAL MINING POWER OTHER
5800.0 ACREAGE (ELUS) (FAMILIES) (*) ACRE-Feet 5800.0

NAME: The Nature Conservancy NAME:
ADDR: c/o Wendy Roden Crocker, Attorney ADDR:
281 South Main Street, Suite 1800

https://www.waterrights.utah.gov/cblapps/wrprint.exe?wrrnum=09-2349

1/2

SAN JUAN SPANISH VALLEY
SSD 40-YEAR WATER RIGHT
PLAN-WATER RIGHT: 09-2349

APPENDIX F

10/13/2017 W R P R I N T (09-2349)

Salt Lake City, UT 84111
TYPE: EXT (08/18/2012)
RCVD: 09/25/2012

TYPE:
RCVD:

APPLICATIONS FOR EXTENDING OF TIME WITHIN WHICH TO SUBMIT PROGS

FILED: 02/27/2002 PUB BEGAN: 03/27/2002 PUB ENDED: [NEWSPAPER: The San Juan Record
ProtestEnd:04/23/2002] PROTESTED: [No] HEARING HLD: [SE ACTION: [Approved]] ActionDate:05/17/2002] PROOF DUE: 08/31/2007

FILED: 07/31/2007 PUB BEGAN: 08/15/2007 PUB ENDED: [NEWSPAPER: The San Juan Record
ProtestEnd:09/11/2007] PROTESTED: [No] HEARING HLD: / / 5 0] SE ACTION: [Approved]] ActionDate:12/24/2007] PROOF DUE: 08/31/2012

FILED: 08/18/2012 PUB BEGAN: 08/29/2012 PUB ENDED: 09/05/2012] NEWSPAPER: The San Juan Record
ProtestEnd:09/25/2012] PROTESTED: [Yes] HEARING HLD: [SE ACTION: [Approved]] ActionDate:08/08/2013] PROOF DUE: 08/31/2017

FILED: 09/27/2017 PUB BEGAN: [PUB ENDED: [NEWSPAPER:
ProtestEnd: [] PROTESTED: [No] HEARING HLD: [SE ACTION: []] ActionDate: [] PROOF DUE: []

***** B D O F D A T A *****

Utah Division of Water Rights | 1504 West North Temple Suite 200, P.O. Box 146390, Salt Lake City, Utah 84114-6390 | 801-538-7240
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<https://www.waterrights.utah.gov/cblapps/wrprint.exe?wmum=09-2349>

2/2

10/13/2017 CH P R I N T (a37400)

Utah.gov Services Agencies
Utah Division of Water Rights

Select Related Information

***** WARNING: water Rights makes NO claim as to the accuracy of this data. ***** RUN DATE: 10/13/2017 Page 1

CHANGE: **837400** WATER RIGHT: **09-2349** CMT: NO. AMENDATORY? No COUNTY Tax ID#:
BASE WATER RIGHTS: **09-2349**
RIGHT EVIDENCED BY: **09-2349(A37788a)**, a portion of **09-438(A37788)**
COMMENTS: Point of Diversion [X], Place of Use [X], Nature of Use [X], Reservoir Storage [].

NAME: San Juan Spanish Valley Special Service District
ADDR: 117 South Main #282
RD Box 9
Monticello, UT 84505
COUNTY: KANE

DATES, ETC. *****

FILED: 04/27/2011] PROTESTED: 04/27/2011] ADV BEGAN: 05/26/2011] ADV ENDED: 06/02/2011] NEWSPAPER: The Times-Independent
Impair-Design[NO]] IMP NOTICE:
Water Rights which the State Engineer has Identified may Experience Quantity Impairment:

ProtestEnd:06/22/2011] PROTESTED: [Newsp Hld:08/08/2011] SE ACTION: [Approved]] ActionDate:08/08/2012] PROOF DUE:
EXTENSION: [ELEC/PROOF: []] ELEC/PROOF: []] ELEC/PROOF: []] ELEC/PROOF: []] ELEC/PROOF: []] ELEC/PROOF: []]
HIGH LETTER: [] HIGH LETTER: [] HIGH LETTER: [] HIGH LETTER: [] HIGH LETTER: [] HIGH LETTER: []
*STATUS LINE:*****

Status: Approved

FILED: 1000.0 acre-feet	FILED: 1000.0 acre-feet
SOURCE: San Juan River and Cottonwood Wash	SOURCE: Underground water wells (24) & Colorado River
COUNTY: San Juan	COUNTY: San Juan COR DESC: South part of Spanish Valley
The San Juan Spanish Valley Special Service District is filing this change application to transfer water from the San Juan River near Bluff, westward to the Colorado River near Hob and proposed well located in the southern portion of Spanish Valley and the Kane Spring drainage. This change application is changing the point of diversion of an approved yet undeveloped Application to Appropriate Water within the upper Colorado River basin of Utah. The applicant believes that this application complies with the statutory criteria and the State Engineer's administrative policies for such a change application. The water under this application will supply municipal water to the service area of the San Juan Spanish Valley Special Service District.	
As set forth in the change application, water will be developed first from ground water in Spanish Valley, second from ground water in the Kane Spring area and third from the Colorado River. The Special Service District recognizes that there are prior water rights in the proposed water sources and will respect those water rights as the project is developed. The Applicant will develop ground water using an adaptive management approach to ensure that the safe yield of the ground-water system is not exceeded and existing water rights are not impaired.	
The water covered by this Change Application is for 780 acres of the area bounded and the related evaporation issues. 780 acres x 3.578 acre-feet (Lake Evaporation rate for the Mexican Hat station in the Dr. Mill Study, page 257, which is 42.93 inches). For water Right Number 09-438 (A37788) the recreation uses have a total diversion limitation of 18,000 acre-feet and 5000 acre-feet of depletion (LAMB acre x 3.578 acre-feet/acre). Using this same ratio, this Change Application has an annual diversion allowance of 5,000 acre-feet and depletion limitation of 2303 acre-feet. See the Segregation Application for additional detail and explanatory of the diversion and depletion quantification of water Right Number 09-438.	
The hereafter place of use is in both Grand and San Juan Counties.	

<https://www.waterrights.utah.gov/cblapps/chprint.exe?chnum=a37400>

1/3

92 April 17, 2018

2/33/3

U.S. 191 Corridor Preservation Study

Milepost 112 – 123.4 Prepared for Utah Department of Transportation



InterPlan Project Number 150405
November 4, 2015

Table of Contents

Introduction	2
Background	2
Description of U.S. 191	2
Existing Conditions.....	3
Land Use	3
Capacity and Traffic Volumes.....	3
Existing Access Management Categories	3
Safety Analysis	5
Future Conditions.....	7
Land Use	7
Traffic Volumes.....	7
Future Street Network.....	7
Access Management.....	8
What is Access Management?	8
Study Process	9
Public Participations Efforts	9
Corridor Access Management Plan.....	11
Signal Control Plan	11
Access Corridor Control Plan	12
Next Steps: Corridor Agreement.....	13
About InterPlan:	13

APPENDIX G

Introduction

Background

The Utah Department of Transportation (UDOT) is concerned about access management along State Route U.S. 191. To assist UDOT in its current and long range transportation planning, InterPlan was hired to conduct an access management study along the corridor, in coordination with Grand County, San Juan County, and Moab City (hereinafter referred to as "the participating entities") and to determine the location of future signals, street accesses, and driveway accesses. The study area includes U.S. 191 from milepost (MP) 112 to 123.4. The goal of this study is for the participating entities to enter into a corridor agreement for U.S. 191. This agreement will give the participating entities a better tool to manage this corridor in the future. The study utilizes principles found in the Transportation Research Board's (TRB) Access Management Manual, UDOT's R930-6 Access Management, and the American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets, latest editions.

Description of U.S. 191

The U.S. 191 study area is 11.4 miles long, directly south of Moab City. This portion of U.S. 191 is a two lane rural highway with intermittent passing lanes. The speed limit in the northern portion of the corridor is 55 miles per hour (mph), rising to 65 mph at approximately MP 121.2. Along the study corridor land uses vary from commercial and light industrial to residential and vacant land. Development and development pressures are generally more intense on the north end of the corridor.

Existing Conditions

Land Use

Land use along the corridor varies greatly. Most of the developed portions are to the north in Grand County with some development occurring in the northernmost portion of San Juan County. Development is primarily low intensity commercial and industrial uses with some residential. Larger residential areas are accessed from the corridor via collector roads. Additionally, to the south various recreational resources are accessed from the corridor, including some popular recreational trails.

Capacity and Traffic Volumes

Along the study corridor, U.S. 191 is a two-lane highway with intermittent passing lanes. The capacity along the facility varies, from 11,500 vehicles at level of service (LOS) C at the rural south end to 25,500 vehicles at LOS D at the urban northern end. LOS is defined as how well a road operates based on levels A through F. Level A represents the best operating conditions and level F the worst. Annual average daily traffic (AADT) currently peaks in the study area at a volume of 13,295 at the northern end of the corridor. This represents approximately 69 percent of capacity. Table 1 shows historical AADTs for the segments of the study area.

Table 1: Historical Annual Average Daily Traffic

Begin Milepost	End Milepost	Description	Annual Average Daily Traffic		
			2013	2012	2011
103.45	117.89	Spanish Valley to La Sal Loop Road	4,260	4,225	4,215
117.89	123.19	La Sal Loop Road to Millcreek Drive	6,455	6,370	6,350
123.19	124.48	Millcreek Drive to 400 East	13,295	13,125	13,085

Existing Access Management Categories

UDOT Administrative Rule R930-6, *Accommodation of Utilities and the Control and Protection of State Highway Rights of Way*, establishes the access management policies for state roads. According to R930-6, access to U.S. 191 in the study area is defined as Category 2 – System Priority Rural from the southern extent of the study area to just south of Lemon Lane and Category 4 – Regional Rural from just south of Lemon Lane to the north end of the study limits. As shown in the following table, Category 2 minimum signal spacing is 5,280 feet, minimum street spacing is 1,000 feet, and minimum driveway spacing is 1,000 feet. Category 4 minimum signal spacing is 2,640 feet, minimum street spacing is 660 feet, and minimum driveway spacing is 500 feet.

APPENDIX G

Table 2: Rule R930-6 Access Management Standards

State Highway Access Management Standards							
Category		Minimum Signal Spacing (feet)	Minimum Street Spacing (feet)	Minimum Access Spacing (feet)	Minimum Interchange to Crossroad Access Spacing (feet)		
					To 1 st Right-In Right-out	To 1 st Intersection	From last Right-In Right-out
1	I	Interstate/Freeway Standards Apply					
2	S-R	5,280	1,000	1,000	1,320	1,320	1,320
3	S-U	2,640	No Unsignalized Access Permitted		1,320	1,320	1,320
4	R-R	2,640	660	500	660	1,320	500
5	R-PU	2,640	660	350	660	1,320	500
6	R-U	1,320	350	200	500	1320	500
7	C-R	1,320	300	150	Not Applicable		
8	C-U	1,320	300	150			
9	O	1,320	300	150			

Source: UDOT Administrative Rule R930-6, August 2013 Edition

Currently, U.S. 191 does not meet the UDOT access management standards along both the Category 2 and Category 4 sections within the study area. Access management standards were adopted with pre-existing deficiencies. The Administrative Rule requires permission for access or a modification to access from UDOT if it is a new access, a change of land use type, or a change of intensity of land use. Pre-existing deficiencies are not affected by the rule unless or until development is proposed, thus triggering UDOT approval.

The table below shows the existing U.S. 191 access management compliance throughout the study area. Although the access management standards were adopted after deficiencies such as driveways existed, UDOT can still work with developers and property owners to limit future driveways to meet UDOT access management standards.

Table 3: Existing Access Compliance

	All Segments		Northbound		Southbound	
	Driveway	Street	Driveway	Street	Driveway	Street
Category 2	37%	60%	22%	50%	64%	100%
Category 4	4%	71%	6%	75%	3%	67%
All Categories	16%	65%	13%	58%	21%	77%

4

Measurement of Spacing

In Section 3.0, Definitions of UDOT's Administrative Rule R930-6, specifications are given on how to measure the spacing of signals, streets, and private accesses/driveways and are set forth as follows:

1. Signal Spacing – "Signal spacing is measured from the centerline of the existing or future signalized intersection cross street to the centerline of the next existing or future signalized intersection cross street."
2. Street Spacing – "Street spacing is measured as the distance from leaving point of tangent to receiving point of tangent."
3. Access Spacing – "Access is measured as the distance from the inside point of curvature of the radius of an intersection or driveway to the inside point of curvature of the next intersection or driveway radius."
4. Driveway Spacing – "means the distance between adjacent driveways on the side of the roadway as measured from the near edge."

In order to determine the number of signals, streets, and accesses/driveways along U.S. 191, an aerial map of the study area was used along with on-site inspection of the roadway. The project technical advisory committee also provided input. The table below shows the number of existing signals, streets, and accesses/driveways along U.S. 191.

Table 4: Existing Access, U.S. 191, MP 112 to MP 123.4

Number of Traffic Signals	Number of Streets	Number of Accesses/Driveways
0	34	110

Existing access points along the corridor are displayed in exhibits one through six in the appendix.

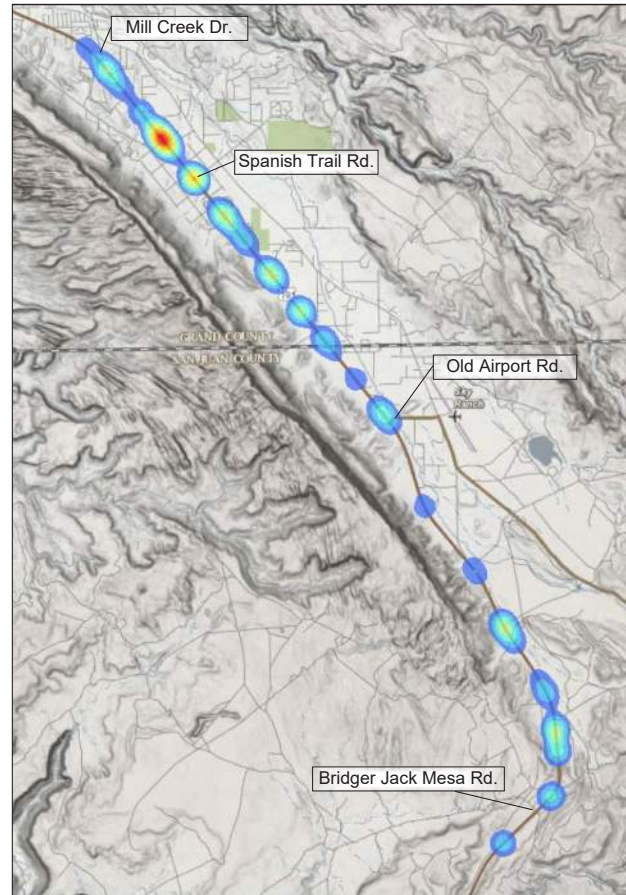
Safety Analysis

There were a total of 107 crashes on U.S. 191 within the study area from 2009 to 2013. Of these, 32 involved wild animal collision, comprising 30 percent of the total. Eleven crashes were severe, including three pedestrian, two DUI's, two no seatbelts, one drowsy driver, one weather related, and one speed related crash. Figure 1 below depicts a heat map, which displays crash activity concentrations. Crashes occur more frequently to the north of the study area, particularly at the intersections of San Jose Road and Spanish Trail Road.

5

APPENDIX G

Figure 1: U.S. 191 Crash Heat Map 2009 – 2013



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6

Future Conditions

Land Use

Existing land use patterns are expected to continue, spreading into existing vacant developable land. The most notable known change in the future is the Utah State University (USU) campus that is expected to be located just west of the corridor near milepost 123 at the north end of the study limits. In addition to the campus, supporting housing and retail development is anticipated in the surrounding areas. These developments will likely change the dynamic of traffic patterns along the U.S. 191 corridor.

Traffic Volumes

Using the Utah Statewide Travel Model, future 2040 traffic conditions were forecasted. Although significant increases are projected with daily volumes peaking at 18,170, this growth is more than accommodated by the capacity of existing and planned infrastructure. It is important to note that these volumes do not reflect tourist peak season conditions and do not account for the new USU campus. The table below shows the existing and future traffic volumes.

Table 5: Forecasted 2040 Traffic Volumes

Begin Milepost	End Milepost	Description	Annual Average Daily Traffic	
			2013	2040
103.45	117.89	Spanish Valley to LaSal Loop Road	4,260	11,200
117.89	123.19	LaSal Loop Road to Millcreek Drive	6,455	11,200
123.19	124.48	Millcreek Drive to 400 East	13,295	18,170

Future Street Network

The street network surrounding the study corridor should be expected to change in the future. The anticipated changes include the realignment of Millcreek Drive and new roadway connections to the west to provide access to the future USU campus. These anticipated changes are shown in exhibits one through six in the appendix.

7

APPENDIX G

Access Management

What is Access Management?

Access management is a way of preserving the safe performance of the road for the flow of traffic at posted speeds by controlling driveway and cross street access to that roadway. Access management on Utah's state roads is administered by UDOT through the Utah Administrative Rule R930-6. Access management maintains the longer term functionality of a state road that is critical to the maintenance of a quality transportation system. Specifically, access management limits the number of traffic signals, intersections and access points so that traffic flows at the speed and capacity designed for the road classification.

Importance of Access Management

Access management is necessary to achieve public safety on Utah's roadways. Through access management techniques, accident rate reduction is typically achieved, while modest improvements in capacity and travel speeds can also occur. Starting with the design of a roadway, engineers plan for limited access along the roadway in order to limit performance reduction. With many intersections, traffic signals and driveways, the potential for congestion is increased along with the potential for a decline in automobile speed that often causes delays. Goals of access management include:

1. Reduction in traffic conflicts and accidents
2. Reduced traffic congestion and increased mobility
3. Preservation of traffic capacity and level of service
4. Improved economic benefits to business
5. Potential reduction in air pollution from vehicle exhaust

According to the National Cooperative Highway Research Program's (NCHRP) Report 420 *Impacts of Access Management Techniques* there are numerous access management techniques than can be used to preserve the intended performance of a roadway. These techniques range from adopting policies to designing roadway features. One known policy technique will be the corridor agreement that is proposed to be signed between the participating entities. This agreement provides specific policy direction on the spacing of future traffic signals, location of streets, and driveway access spacing with an overall goal of limiting the number of access points along a particular roadway. According to UDOT's Administrative Rule R930.6, a corridor agreement supersedes other access category designations and becomes the governing rule on permitting future driveways. Similar corridor agreements have been created in all four UDOT Regions.

8

Study Process

Public Participations Efforts

InterPlan completed the following tasks in order to provide UDOT with an access management plan:

1. Organized a technical advisory committee (TAC) to work with the consultant team to provide local knowledge and subject matter expertise.
2. Collected existing conditions data and reviewed pertinent data regarding relevant future planning efforts.
3. Conducted two public open houses with the TAC on August 18, 2015 and September 30, 2015.

Technical Advisory Committee

As mentioned earlier, a TAC was formed to provide local knowledge and subject matter expertise in the development of the access management plan and the corridor agreement between the participating entities. The TAC was charged with the responsibility for reviewing the technical analysis completed by the consultant team and considering public input before moving forward with a preferred access management alternative.



9

Table 6: Technical Advisory Committee Members

Name	Organization
Troy Torgersen	UDOT
Robert Dowell	UDOT
Dale Stapley	UDOT
Rhett Arnell	UDOT
Anne Ogden	UDOT
Bill Jackson	Grand County
Zacharia Levine	Grand County
Scott Christensen	San Juan County
Jeff Foster	Moab City
Phillip Bowman	Moab City
Elise Erler	SITLA
Rock Smith	BLM
Vern Keeslar	InterPlan
Kai Tohinaka	InterPlan
Michael Baker	InterPlan

Public Open Houses

Two public open houses were held with the general public along the corridor on August 18, 2015 and September 30, 2015. Both open houses were noticed through an advertisement in the Moab Times Independent. At the meetings, participants were informed of the status of the project through slideshow presentations and they were invited to an open discussion with the consultant team and staff over large study area maps. Participants were also invited to submit comments through a comment form (see Appendix for comment forms and comments from both public meetings).



Corridor Access Management Plan

Signal Control Plan

Planning the future signalization for the study corridor was an iterative process where multiple scenarios were considered and reviewed. The signalization recommendations were determined through a review of existing conditions, TAC recommendations, and public comment. The identified potential future signal locations are described below:

1. Old Spanish Trail Arena (MP 120.6)
This road acts as primary access for the Old Spanish Trail Arena, as well as agricultural uses to the east. Increasing usage of the developing arena may warrant a signal in the future.
2. Spanish Trail Road (MP 121.5)
Located at approximately 121.5, Spanish Trail Road extends northeast, acting as a major collector road to Spanish Valley Drive. The intersection extends to the southwest directly into a RV park.
3. Millcreek Drive (MP 123.2)
Located at the very northern portion of the study corridor at approximately MP 123.2, the junction of U.S. 191 and Millcreek Drive currently operates as two separate one way T intersections. There are currently plans to redesign this intersection as a single T intersection located slightly to the north of its current location. Millcreek Drive will access development to the north and east of U.S. 191 and acts as an alternative route to U.S. 191 to the north.

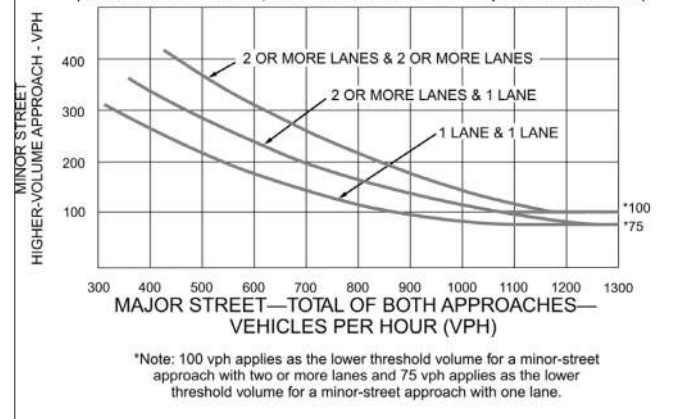
In the future, signals may be installed if signal warrants are met. The *Manual on Uniform Traffic Control Devices* (MUTCD) is the national standard for all traffic control devices on all public roads open to public travel in accordance with 23 U.S.C. 109(d) and 402(a). The MUTCD states that the need for a traffic control signal shall include an analysis of the applicability of any of nine standard warrants based on a study of the existing operation and safety. These warrants are:

Table 7: Traffic Control Signal Warrants

MUTCD Traffic Control Signal Warrants	
Warrant 1: Eight-Hour Vehicular Volume	Warrant 6: Coordinated Signal System
Warrant 2: Four-Hour Vehicular Volume	Warrant 7: Crash Experience
Warrant 3: Peak Hour	Warrant 8: Roadway Network
Warrant 4: Pedestrian Volume	Warrant 9: Intersection Near at-grade Railroad Crossing
Warrant 5: School Crossing	

The peak hour warrant is often the most likely leading indicator of a need for a traffic signal, and is easiest to estimate. In addition, where cross traffic is concentrated at a few major points, the peak hour warrant is met sooner than where cross traffic might be dispersed over a larger number of smaller intersecting streets.

Figure 2: Warrant 3, Peak Hour
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 mph ON MAJOR STREET)



Source: Manual on Uniform Traffic Control Devices, US Department of Transportation, December 2000.

Access Corridor Control Plan

Existing accesses along U.S. 191 were reviewed and analyzed with input from the TAC and the public to identify opportunities to increase compliance with the UDOT access management categories. Possible future changes to increase compliance include: street realignments, driveway consolidation, driveway closures, and construction of frontage roads. Exhibits one through six in the appendix display the identified possible future changes.

When compared to Table 3, Table 8 below shows the improvement in access spacing compliance if all identified changes are implemented. It is important to note that all existing accesses are established and legal and that UDOT can only implement these improvements if there is a change in the type of land use, a change in intensity of land use, or in cooperation with the land owner.

Table 8: Potential Future Access Compliance

	All Segments		East Side		West Side	
	Driveway	Street	Driveway	Street	Driveway	Street
Category 2	63%	79%	43%	71%	100%	100%
Category 4	38%	88%	37%	100%	100%	85%
All Categories	49%	83%	40%	83%	61%	85%

Next Steps: Corridor Agreement

The next steps include all four jurisdictions signing the corridor agreement and having Grand County, San Juan County, and Moab City adopt the corridor agreement as part of their transportation master plans and proceed with implementation by coordinating with UDOT.

About InterPlan:

InterPlan is a Utah owned and operated company located in Midvale, Utah and dedicated to transportation planning and traffic engineering services. The firm was founded on the concept of providing high quality technical work, attention to client needs, and open and honest communication.

InterPlan

 Transportation Planning | 7719 South Main Street
 Midvale, Utah 84047
 801-307-3400

Appendix

1. Technical Advisory Committee Meeting Agendas for July 16, August 19, and September 30, 2015
2. Public Comments Forms for August 19, and September 30, 2015
3. Moab Times Public Meeting Advertisements of August 19, and September 30, 2015
4. Public Comments dated August 5, August 11, August 14, August 19, September 24, and October 1, 2015
5. Exhibits 1-6

U.S. 191 Corridor Preservation Study Technical Advisory Committee Meeting Agenda

Date: Thursday, July 16, 2015
Time: 1:00 p.m. to 3:00 p.m.
Place: Conference Room - Moab City Office, 217 East Center Street, Moab City

Technical Advisory Committee (TAC)

Troy Toregersen, UDOT Region 4
Bill Jackson, Grand County
Scott Christensen, San Juan County
Jeff Foster, Moab City
Elise Erler, SITLA
Beth Ransel, BLM
Vern Keeslar, InterPlan
Kai Tohinaka, InterPlan
Michael Baker, InterPlan

Agenda

1. Introduction
 - a. TAC Introductions
 - b. Purpose of corridor study
 - c. Access management principles
2. Existing Conditions
 - a. UDOT access spacing standards
 - b. Existing access compliance
3. Public Engagement
 - a. Future TAC and Public Meetings
 - August 11 – Review existing conditions
 - September 9 – Review recommendations
 - b. Stakeholder list
 - c. Meeting notice

APPENDIX G

**U.S. 191 Corridor Preservation Study
Technical Advisory Committee Meeting Agenda**

Date: Wednesday, August 19, 2015
Time: 2:00 p.m. to 4:00 p.m.
Place: The Grand Center, 182 North 500 West, Moab, Utah

Technical Advisory Committee (TAC)

Troy Toregersen, UDOT
Robert Dowell, UDOT
Dale Stapley, UDOT
Daryle Friant, UDOT
Rhett Arnell, UDOT
Anne Ogden, UDOT
Bill Jackson, Grand County
Zacharia Levine, Grand County
Scott Christensen, San Juan County
Jeff Foster, Moab City
Eric Johanson, Moab City
Elise Erler, SITLA
Brian Torgerson, SITLA
Beth Ransel, BLM
Rock Smith, BLM
Vern Keeslar, InterPlan
Kai Tohinaka, InterPlan
Michael Baker, InterPlan

Agenda

1. Introduction
 - a. TAC introductions
 - b. Study update
2. Existing Conditions
 - a. Identified private driveways, private roads, and public roads
3. Future Conditions
 - a. Identified private driveways that could be closed or consolidated
 - b. Identified private/public roads that could be consolidated, realigned, or constructed

4. Public Engagement
 - a. Future TAC and Public Meetings
 - September 30 – Review recommendations
 - b. Meeting notice – Advertised in the Moab Times-Independent on August 6 & 13, 2015. Requested to be on the websites of Grand County, San Juan County, and Moab City. Requested to be on Community Calendar website.

APPENDIX G

**U.S. 191 Corridor Preservation Study
Technical Advisory Committee Meeting Agenda**

Date: Wednesday, September 30, 2015

Time: 2:00 p.m. to 4:00 p.m.

Place: The Grand Center, 182 North 500 West, Moab, Utah

Technical Advisory Committee (TAC)

Troy Toregersen, UDOT

Robert Dowell, UDOT

Dale Stapley, UDOT

Daryle Friant, UDOT

Rhett Arnell, UDOT

Anne Ogden, UDOT

Bill Jackson, Grand County

Zacharia Levine, Grand County

Scott Christensen, San Juan County

Jeff Foster, Moab City

Eric Johanson, Moab City

Elise Erler, SITLA

Brian Torgerson, SITLA

Beth Ransel, BLM

Rock Smith, BLM

Vern Keeslar, InterPlan

Kai Tohinaka, InterPlan

Michael Baker, InterPlan

Agenda

1. Introduction
 - a. TAC introductions
 - b. Study update
2. Future Conditions
 - a. Identified private driveways that could be closed or consolidated
 - b. Identified private/public roads that could be consolidated, realigned, or constructed
3. Story Board Review
 - a. Information for public to be placed on website of Grand County, Moab City, San Juan County, UDOT, and InterPlan.

4. Public Meeting for September 30, 2015
 - a. Show presentation
 - b. Allow for review of Corridor Preservation Plan
 - c. Allow for written public comments
5. Next Steps
 - a. Consider new comments from public meeting
 - b. Write a draft Corridor Agreement
 - c. Send to Grand County, Moab City, San Juan County, and UDOT for review

APPENDIX G

U.S. 191 Corridor Preservation Study
Public Meeting, August 19, 2015
Public Comment Form

1. What are your comments about the public meeting held tonight?
2. Is there adequate private access to the properties fronting U.S. 191?
Circle No or Yes. Please explain.
3. Is there adequate public street access for properties not fronting U.S. 191?
Circle No or Yes. Please explain.
4. Are there traffic signals needed on U.S. 191 in the study area?
Circle No or Yes. If yes, please indicate where and why.
5. Please provide any additional comments you have about the U.S. 191 Corridor Preservation Study.

Please submit all comment forms at the public meeting or by August 31, 2015 to Vern Keeslar, InterPlan Planning Manager, by email at vern@interplanco.com or by mail at 7719 South Main Street, Midvale, Utah 84047.



U.S. 191 Corridor Preservation Study
Public Meeting, September 30, 2015
Public Comment Form

1. How did you hear about tonight's public meeting?
2. What are your comments about the public meeting held tonight?
3. In the proposed plan, will there be adequate private access to the properties fronting U.S. 191? Circle No or Yes. Please explain.
4. In the proposed plan, will there be adequate public street access for properties not fronting U.S. 191? Circle No or Yes. Please explain.
5. In the proposed plan, are the future traffic signals located where they will be needed? Circle No or Yes. If yes, please indicate where and why.
6. Please provide any additional comments you have about the U.S. 191 Corridor Preservation Study.

Please submit all comment forms at the public meeting or by October 7, 2015 to Vern Keeslar, InterPlan Planning Manager, by email at vern@interplanco.com or by mail at 7719 South Main Street, Midvale, Utah 84047.



APPENDIX G



PUBLIC MEETING

Attention Property Owners along US-191

The Utah Department of Transportation (UDOT) seeks public comment on the US-191 Corridor Preservation Study. This project spans 11.5 miles from approximately Sage Drive in Moab to Bridger Jack Mesa Road, 1.5 miles north of the Kane Springs Rest Area in San Juan County.

To improve safety along the corridor, the study will guide the placement of future public streets and private driveways on US-191.

Please join us for a public meeting to learn more about this study and to review the existing conditions!

DATE: Wednesday, August 19, 2015

WHEN: 6:00 - 8:00 PM

**WHERE: The Grand Center
182 North 500 West in Moab**

If you have any comments, questions,
or suggestions please contact:
Vern Keeslar, InterPlan Planning Manager.
801-307-3400 or vern@interplanco.com



PUBLIC MEETING

Attention Property Owners along US-191

The Utah Department of Transportation (UDOT) seeks public comment on the US-191 Corridor Preservation Study. This project spans 11.5 miles from approximately Sage Drive in Moab to Bridger Jack Mesa Road, 1.5 miles north of the Kane Springs Rest Area in San Juan County.

To improve safety along the corridor, the study will guide the placement of future public streets and private driveways on US-191.

Please join us for our second public meeting to learn more about this study and to review possible changes!

DATE: Wednesday, September 30, 2015

WHEN: 6:00 - 8:00 PM

**WHERE: The Grand Center
182 North 500 West in Moab**

If you have any comments, questions,
or suggestions please contact:
Vern Keeslar, InterPlan Planning Manager.
801-307-3400 or vern@interplanco.com

APPENDIX G

Vern Keeslar

From: Kara Dohrenwend <kara@reveg.org>
Sent: Wednesday, August 05, 2015 10:53 AM
To: vern@interplanco.com
Subject: Hwy 191 through Moab

Hello Mr Keeslar

I just saw a flier publicizing the US-191 corridor preservation study for a public meeting on August 19th. I will be out of town most of the month so I unfortunately will miss that meeting. I do not have property in that stretch of 191, however I would like to suggest a bike path (not a lane but a path) be considered for part of the ROW on the Spanish Valley Drive side of the highway. This community desperately needs a safe path for pedestrians and bicycles from the turn off to Ken's Lake to at least Mill Creek Drive. My understanding is that the UDOT ROW is very wide through this section. Locating a two way bike path set at least 50 to 100 feet off the highway could be a good way of keeping pedestrians and bicycles off the highway itself.

I know there have been several pedestrian/high speed vehicle accidents (one resulting in death of a child) in the past 10 years. I had the misfortune to be right behind a vehicle that hit a pedestrian a few years ago. There is more slow speed traffic along this corridor than may be apparent.

I appreciate your consideration of this comment, and would be happy to provide more detail or answer any questions. I can be reached at this email address, or by phone at 435-220-0003

Thank you!

Kara Dohrenwend
Wildland Scapes LLC
P.O. Box 672
Moab Utah 84532

1

Vern Keeslar

From: Don <don@canyonvoyages.com>
Sent: Tuesday, August 11, 2015 11:33 AM
To: vern@interplanco.com
Subject: Aug. 19th Moab Meeting

Vern,

I will not be able to make your upcoming Access Management meeting in Moab. I own a warehouse at 1521 S. Hwy 191 within the project area. We rely on the current driveway/apron for access. We do not anticipate any changes in use in the future. Also, there is another apron to the North providing access to a dirt extension of Arnel Lane. We have granted an easement for this road to cross the corner of our property but have no other involvement. Please keep me on the property owners list and forward any information from this meeting and any future meetings.

Thank you,

Don Oblak

Don Oblak
Canyon Voyages Adventure Co.
435-259-0007
email: don@canyonvoyages.com
website: <http://canyonvoyages.com/>

Living well requires an adventurous spirit!

1

APPENDIX G

Vern Keeslar

From: Kris Hurlburt <kehrlbrt@hotmail.com>
Sent: Friday, August 14, 2015 6:07 PM
To: vern@interplanco.com
Subject: Community meeting in Moab

Hi Vern:

I am the president of the Bridger Jack Property Owner's Association. We are very happy to have a chance to provide input regarding safety along Highway 191. Things sure are changing with a marked and prolonged increase in tourism and commercial traffic.

While a number of residents plan on attending I am putting together a list of their observations and potential solutions to improve safety around MP 112 on Highway 191. Some will provide input directly to you but we thought it would be helpful and efficient to get some consensus amongst our membership to present at the meeting.

The input so far is quite good. I think UDOT will be pleased with some of the observations and recommendations. The residents are the ones who travel the 11.5 miles all year so they know that stretch of road better than most anyone.

Thank you again for holding this meeting. We will see you and/or your colleagues on the 19th. Please contact me if you have any questions. I know it's always a challenge to put on a community meeting without knowing who might attend. So far six or seven from BJM have said they will be there.

Kris Hurlburt
435.260.8824

Sent from my iPad=

1

Vern Keeslar

From: Jeff Hennier <jhhennier@gmail.com>
Sent: Friday, August 14, 2015 1:37 PM
To: vern@interplanco.com
Subject: Public comment on the US-191 Corridor

Hello Vern - I own property in the Bridger Jack Mesa subdivision that is accessed from US-191 in San Juan County.

I respectfully offer the comment that safety for the ingress and egress to BJM Road would be considerably improved if UDOT would install turn lanes at the intersection. The current conditions present a driving hazard to those using the road and to those passers-by/visitors who are not aware the road is present until they are very close to the road.

Thanks,

Jeff Hennier
393 E 100 S

Moab, UT 84532
cell 415.497.2918

1

APPENDIX G

HIGHWAY 191 SAFETY ISSUES – MP112 – 124 for UDOT Community Meeting August 19, 2015

Bridger Jack Mesa Property Owners' Association is comprised of owners of the 40 lots comprising the subdivision. The Subdivision was established in the early 1990s. The developer turned the Property Owners' Association over to the members over twenty years ago and has no interests in the subdivision. The only access to the subdivision for residents, propane trucks, construction vehicles, delivery trucks, etc. is via Bridger Jack Trail. Major gas pipelines run through the subdivision and these companies have a perpetual easement. At times there are vehicles associated with repairs, maintenance and improvement to the pipeline using the road as well. It is known that well over 1000 commercial trucks per day travel over this section of Hwy 191. Local traffic has increased considerably and the amount of tourist related traffic has exploded. The addition of BFE on Black Ridge Road has increased the number of off road vehicles on this stretch of highway. The emerging event schedule for concerts at BFE is also expanding.

These concerns result from a consensus reached by members of the of the Bridger Jack Mesa Property Owners' Association and are presented to UDOT in the spirit of improving safety along this corridor:

1. Drivers may be unaware of the road turning onto Bridger Jack Trail it is unmarked from both north and south. In addition there is other signage that may distract drivers from noticing BJT.

Solutions: Comprehensive and consistent signage along the stretch between Blue Hill Road and Kane Creek Canyon; and signage indicating an intersection is coming up would increase drivers' awareness of potential slowing or emerging vehicles. Lower speed limit.

2. After cresting Blue Hill, southbound traffic begins to sort itself out by merging into one lane and accelerating. Almost immediately there are two intersections – one at Pritchett Canyon/Black Ridge Road, and Bridger Jack Trail. The signage for Bridger Jack Trail does not exist as it does at the other intersection so drivers may be unaware that vehicles may be slowing, turning, or entering the highway. The same phenomena occurs northbound as vehicles exit Kane Creek Canyon, merge into one lane, and accelerate. If there is on-coming traffic a vehicle turning left onto Bridger Jack Trail needs to stop at the pinch point.

Solutions: Signage, lower speed limit, extend two lanes northbound to the double lanes at Blue Hill.

3. Most traffic turning into Bridger Jack Trail approaches from the north. There is nowhere to slow down just as traffic has accelerated to 65 mph.

Solutions: Extend turn lane, reduce speed limit.

4. The short turn lane into Bridger Jack Mesa Subdivision is not marked. Frequently drivers are using that as a pullout and parking strip from both the north and south; and even a place to stop for breakfast. At least one trucker selected that space to pull over and sleep. This makes it even more dangerous to turn onto Bridger Jack Trail and limits visibility for both entering and emerging traffic.

Solutions: Mark turnout lane with signage and striping (turn lane indicators, no parking signs, etc.).

5. The stretch of Hwy 191 along Bridger Jack Mesa incorporates a passing lane used both for northbound and southbound traffic. Northbound vehicles pull up out of the canyon and try to get ahead of slower vehicles as everyone is merging into one lane. Southbound vehicles, or those cresting Blue Hills, merge into one lane and accelerate downhill, often attempting to pass before the canyon. Visibility can also be limited by vehicles and by the sign warning southbound traffic of the upcoming canyon. The risk of a head-on collision seems high on this stretch.

Solution: Make the stretch of road between Blue Hill and Kane Creek Canyon a no-passing zone. Reduce speed limit. Move SB sign so it is not interfering in visibility of emerging traffic from Bridger Jack Trail and northbound traffic.

Thanks,
LARRY HURLBURT, BJM POA
435.260.3324 President
Kane Creek Canyon

Vern Keeslar

From: Constance Jones <jonesconstancem@gmail.com>
Sent: Wednesday, August 19, 2015 11:46 AM
To: vern@interplanco.com
Subject: Public comment on Hwy 191

We are unable to attend your session tonight due to work schedule with our small seasonal business. Realize there are a multitude of issues with this important transportation artery. Safety should be the number one concern. Roadside attractions such as Hole in the Rock with adjacent Rest Area and Wilson Arch roadside attraction between Moab and Canyonlands Needles District should have better signage warning travellers with flashing solar powered CAUTION light. "CONGESTED AREA AHEAD" SLOW DOWN! A very dangerous situation exists in these locations. Also question the sanity of having a Jeep teathered to top of cliff above Hole-in-Rock to garner attention (and a distraction for drivers taking eyes off blind intersection--where some even suddenly pulling over and taking photos); it could come crashing down in middle of highway! Many times we encounter people walking on blind side of road from rest area to tourist attraction. Also a brain-rattling bump across the entire west side of southbound lane approaching Rest Area on north side of Hole-in-the-Rock should be addressed--it is so bad, drivers swerve into oncoming lane of traffic to avoid it. More damaged surface with large potholes in same southbound lane near entrance to attraction. A 45 or even 50mph near approaches to these heavy traffic areas will save lives, fuel and reduce noise pollution especially in Wilson Arch Resort Community. Entering and exiting our small development at Wilson Arch without turning lanes off of S. Hwy191 is also very dangerous. Law enforcement could be writing lots of tickets in all of these locations! Thank you for your time and thoughtful consideration. Respectfully, Larry & Constance Jones, Canyonlands Shuttle, Moab UT. (435-210-4757) wk (435-686-2586) hm

APPENDIX G

Vern Keeslar

Subject: FW: FW: Contact Form Chamber Website

----- Forwarded message -----

From: **Dale Stapley** <dstapley@utah.gov>
Date: Thursday, September 24, 2015
Subject: Fwd: FW: Contact Form Chamber Website
To: "Dowell, Robert" <rdowell@utah.gov>, Anne Ogden <anneogden@utah.gov>, "Amell, Rhett" <ramell@utah.gov>

FYI

----- Forwarded message -----

From: **Jodie Hugentobler** <jodie@moabchamber.com>
Date: Thu, Sep 24, 2015 at 9:51 AM
Subject: FW: Contact Form Chamber Website
To: dstapley@utah.gov

Dale,
FYI attached is a comment from a recent Moab visitor.

Jodie Hugentobler
Executive Director
Moab Chamber of Commerce

Name: Bev Sitter
Business Name:
Phone:
Email: Bev.sitter@gmail.com

Questions/Comments: Why do you permit semi trailer trucks to pass through the Main Street of your town? The noise is deafening and deters from the ambiance of Moab. I counted at least 20 to 30 semi trailer trucks passing through Moab during my lunch. At 8:10 am in Canyonland RV park I heard the air breaks of a semi trailer. Last night we followed a 'stinky' cattle trailer through the Main Street. We were here 9 years ago and we did not see any semi trailers. What has happened to Moab?? This definitely will affect my decision to come back to Moab. Other travellers have said the same thing to us.

1

Vern Keeslar

From: Thomas Moreau <moabmoreaus@gmail.com>
Sent: Thursday, October 01, 2015 10:13 AM
To: vern@interplanco.com
Subject: Hwy 191 Corridor Preservation Study - Public Comment Form Answers

1. I saw a little ad in the Times Independent.
2. My greatest concern is the eventual multi-car pile up that will occur at the top of Blue Hill. Southbound traffic is rushing to finish their passing as the hill and passing lane ends, northbound traffic is making similar passes of the traffic they couldn't get around coming up the curvy hill after Hole N the Rock. Then, where it all comes together at the top of Blue Hill, you have F-350's pulling fifth wheels, pulling trailers, turning onto Black Ridge at 2 mph. This needs to be fixed and I don't even know how you can do that. Until this is fixed maybe some signage? I don't know ... do something though, that is my plea.
3. Yes? Not aware of even how much private property there is fronting 191.
4. ? Never saw the plan, showed up late to the meeting
5. Yes. Eventually a light will be needed at Spanish Trail Rd. It's years off.
6. There was a huge crash in front of the Arena a couple years ago, that was a result of an RV pulling out slowly into raging traffic on 191 (see number 2). You should look at that.

Bikes: Spring and fall bring large numbers of touring cyclists to this stretch of highway. Any improvement should include an ample shoulder right of the rumble strip for cyclists. Highway 313 going up to The Knoll is an excellent example of what I would call an 'ample shoulder' or what you may call deceleration lane.

Regarding corridor preservation: On the west side of the highway, close to Blue Hill (the southern most two miles of this study area), there are old, historic road grades on the low hills. Please preserve the old grades and the hand stacked rocks that create them. It is my hope that in the future a mountain bike trail is constructed parallel to this entire study area (a continuation of the Pipe Dream Trail) and that trail will use these grades.

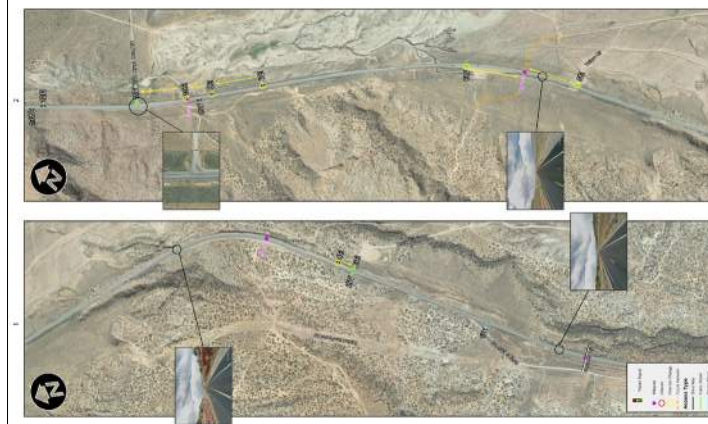
On the east side on the highway, at the bottom of Blue Hill, camping on busy town weekends is beginning to get out of control. Every year more and more campers learn about the 'free for all' camping at that turn. This should be considered by whomever 'owns' this land, SITLA?

Lastly, thanks for taking the time to accept public comment. I am glad I can voice my opinions on this road that I am so intimate with. I drive this road five days a week, 48 weeks a year. I've been up and down this stretch of road over four thousand times in my tenure as a FedEx Express driver in Moab, Utah. It's a bit off topic but I would also like to express my gratitude to the highway crews that plow the snow in the winter. From Blanding to Moab, I am always impressed with the job the snowplow drivers do once they get out.

Regards,
Thomas Moreau
399 McGill Ave.
Moab, UT 84532
435-260-0841

1

Appendix 5: Exhibits 1-6



APPENDIX G



APPENDIX G

SAN JUAN COUNTY SPANISH VALLEY COMMERCIAL DEVELOPMENT ANALYSIS

APPENDIX H

A primary objective of the County is to determine the appropriate amount of commercial zoning within the Spanish Valley area. Important demographics to help evaluate this objective include income, population growth, historic taxable sales, and estimated new growth.

CURRENT POPULATION

An analysis of absolute population growth shows that the State of Utah increased by 287,332 persons from 2010 through 2016. San Juan County increased by 2,149 persons. The U.S. Census Bureau released a report in March of 2017 indicating San Juan County was the fastest growing county in the nation. Analysts and researchers are unclear why this area of the State is growing so rapidly. Plausible explanations may be the migration of retirement age populations to this area or causes related to Native American reservations.¹

HISTORIC POPULATION

Year	State of Utah	San Juan County	San Juan County % Increase
1930	507,847	3,496	
1940	550,310	4,712	35%
1950	688,862	5,315	13%
1960	890,627	9,040	70%
1970	1,059,273	9,606	6%
1980	1,461,037	12,253	28%
1990	1,722,850	12,621	3%
2000	2,233,169	14,413	14%
2010	2,763,885	14,746	2%
2011	2,816,124	14,787	0%
2012	2,855,782	14,900	1%
2013	2,902,663	14,988	1%
2014	2,941,836	15,208	1%
2015	2,990,632	15,707	3%
2016	3,051,217	16,895	8%

INCOME

The median household income in San Juan County grew at an average annual growth rate (AAGR) of 1.1 percent from \$37,259 in 2010 to \$39,305 in 2015. San Juan County's median household income is the lowest of the reported counties shown below.

MEDIAN HOUSEHOLD INCOME

	2010	2011	2012	2013	2014	2015	AAGR
Carbon County	45,244	47,585	47,214	44,594	47,340	47,894	1.1%
Duchesne	53,196	54,973	57,945	61,386	61,976	63,149	3.5%
Emery	51,205	48,745	51,819	52,070	49,709	54,086	1.1%
Grand	39,726	41,410	42,702	42,368	43,344	44,858	2.5%
San Juan	37,259	37,444	38,329	40,327	40,590	39,305	1.1%
Sanpete	39,999	45,231	43,921	45,338	44,644	46,929	3.3%
Sevier	44,830	43,190	45,243	49,877	48,622	48,711	1.7%
State of Utah	54,740	55,802	57,067	59,715	60,943	62,961	2.8%

HISTORIC TAXABLE SALES

From 2011 through 2016, the total taxable sales declined by an average of five percent. Similar negative trends followed in Duchesne, and Emery Counties, while Sanpete and Sevier Counties have experienced moderate growth. In 2016, the taxable sales per capita in San Juan County was \$8,385, compared to a high of \$18,242 in Duchesne County.

¹ Desert News: Census: San Juan County is fastest-growing County in U.S. March 22, 2017.

HISTORIC TAXABLE SALES²

County	2011	2012	2013	2014	2015	2016	AAGR
Carbon	\$464,569,547	\$420,241,827	\$403,785,813	\$425,403,859	\$390,804,326	\$360,387,090 ³	-5.0%
Duchesne	627,063,475	830,653,352	876,928,271	895,913,545	443,918,766	370,995,622	-10.0%
Emery	178,424,977	142,028,799	127,809,115	139,494,735	127,773,695	135,545,450	-5.3%
San Juan	206,027,506	205,590,060	212,742,058	184,912,573	151,021,609	156,864,460	-5.3%
Sanpete	196,008,757	209,445,513	211,196,094	228,872,677	237,736,955	246,590,766	4.7%
Sevier	316,777,743	323,362,439	347,301,587	376,568,422	366,563,162	365,140,224	2.9%
Grand	279,397,816	310,201,592	336,290,362	390,269,774	367,744,486	389,675,738	6.9%

HISTORIC TAXABLE SALES PER CAPITA

County	2011	2012	2013	2014	2015	2016	AAGR
Carbon	\$21,781	\$19,784	\$19,288	\$20,592	\$19,129	\$17,667	-4.1%
Duchesne	33,579	43,712	43,825	44,221	21,362	18,242	-11.5%
Emery	16,262	13,007	11,903	13,129	12,343	13,268	-4.0%
Grand	30,163	33,305	36,036	41,430	38,738	40,680	6.2%
San Juan	13,933	13,798	14,194	12,159	9,615	9,285	-7.8%
Sanpete	6,997	7,481	7,494	8,068	8,254	8,385	3.7%
Sevier	15,181	15,609	16,679	18,086	17,505	17,169	2.5%

SALES GAP ANALYSIS

A sales gap (aka "leakage") analysis is conducted in order to identify economic development opportunities for a community by evaluating the total purchases made by residents inside and outside the community (hence, the term "leakage" for sales lost outside the community). This type of analysis first identifies sales within the State of Utah for each major North American Industry Classification System (NAICS) code category and then calculates the average sales per capita in each category. Per capita sales in the community are compared to average per capita sales statewide in order to estimate what portion of resident purchases are being made within the community, and what amount is leaving the community. Communities with a lower per capita sales figure compared to the State average are experiencing "leakage", whereas communities with a higher ratio are "capturing" higher taxable sales.

COMPARABLE COUNTIES BY SECTOR

A comparison of capture rates by detailed sector illustrates San Juan County has several areas of leakage.

- ❑ Build. Material, Garden Equip. & Supplies Dealers
- ❑ Clothing & Clothing Accessories Stores
- ❑ Electronics & Appliance Stores
- ❑ Food & Beverage Stores
- ❑ Furniture & Home Furnishings Stores
- ❑ General Merchandise Stores
- ❑ Health & Personal Care Stores
- ❑ Miscellaneous Retail Trade
- ❑ Motor Vehicle & Parts Dealers
- ❑ Sporting Goods, Hobby, Music & Book Stores
- ❑ Wholesale Trade-Durable Goods
- ❑ Wholesale Trade-Electronic Markets
- ❑ Agriculture, Forestry, Fishing & Hunting
- ❑ Manufacturing
- ❑ Administrative and Support Services
- ❑ Food Services & Drinking Places
- ❑ Management of Companies & Enterprises
- ❑ Other Services-Except Public Administration
- ❑ Professional, Scientific, & Technical Services
- ❑ Real Estate, Rental, & Leasing

² Sales Tax Commission: Calendar Year Taxable Sales

³ 2016 taxable sales reported by the State Tax Commission as of May 1, 2017. This figure includes two months of late filers. Pursuant to Utah Code 59-1-403, categories with fewer than 10 sales tax outlets are reported as approximate figures based on data published by the Utah State Tax Commission.

SAN JUAN COUNTY SPANISH VALLEY COMMERCIAL DEVELOPMENT ANALYSIS

APPENDIX H

The overall leakage is likely due to proximity to other markets, specifically Moab. Many of the retail, industry and service categories are provided in Moab, north of San Juan County.

COMPARABLE RETAIL CAPTURE RATES

	Carbon	Sanpete	Sevier	Duchesne	San Juan	Emery	Grand
Build. Material, Garden Equip. & Supplies Dealers	69%	85%	193%	28%	50%	33%	85%
Clothing & Clothing Accessories Stores	24%	10%	58%	6%	5%	7%	149%
Electronics & Appliance Stores	57%	35%	15%	9%	5%	11%	49%
Food & Beverage Stores	126%	77%	100%	165%	67%	71%	152%
Furniture & Home Furnishings Stores	14%	18%	52%	16%	4%	11%	126%
Gasoline Stations	137%	118%	217%	181%	255%	562%	2,056%
General Merchandise Stores	176%	104%	161%	18%	25%	12%	51%
Health & Personal Care Stores	20%	16%	30%	14%	21%	18%	823%
Miscellaneous Retail Trade	53%	22%	41%	194%	39%	53%	322%
Motor Vehicle & Parts Dealers	163%	52%	94%	66%	13%	39%	116%
Non-store Retailers	101%	57%	109%	111%	80%	176%	130%
Sporting Goods, Hobby, Music, & Book Stores	41%	58%	33%	10%	11%	15%	340%
Wholesale Trade-Durable Goods	117%	31%	112%	167%	39%	40%	112%
Wholesale Trade-Electronic Markets	37%	112%	55%	464%	39%	550%	98%
Wholesale Trade-Nondurable Goods	209%	66%	186%	168%	168%	23%	172%

COMPARABLE INDUSTRY CAPTURE RATES

	Carbon	Sanpete	Sevier	Duchesne	San Juan	Emery	Grand
Agriculture, Forestry, Fishing & Hunting	0%	226%	385%	425%	7%	567%	0%
Construction	94%	68%	58%	189%	208%	144%	199%
Information	98%	78%	97%	185%	97%	114%	200%
Manufacturing	104%	122%	83%	223%	67%	292%	258%
Mining, Quarrying, & Oil & Gas Extraction	588%	3%	528%	806%	746%	376%	46%
Transportation & Warehousing	237%	1%	190%	97%	540%	94%	2,144%
Utilities	176%	104%	161%	18%	25%	12%	283%

COMPARABLE SERVICES CAPTURE RATE

	Carbon	Sanpete	Sevier	Duchesne	San Juan	Emery	Grand
Accommodation	60%	19%	137%	22%	432%	237%	3,195%
Admin., Support & Waste Manag. & Remed. Services	77%	7%	56%	49%	47%	16%	148%
Arts, Entertainment, and Recreation	41%	28%	18%	18%	147%	32%	757%
Educational Services	44%	113%	27%	22%	89%	11%	228%
Finance & Insurance	72%	64%	48%	207%	544%	17%	368%
Food Services & Drinking Places	81%	47%	100%	45%	41%	50%	504%
Health Care & Social Assistance	211%	68%	225%	233%	128%	57%	222%
Management Of Companies & Enterprises	5%	299%	1517%	4%	0%	0%	0%
Other Services-Except Public Administration	138%	110%	191%	120%	39%	132%	115%
Professional, Scientific, & Technical Services	44%	31%	26%	23%	18%	35%	91%
Public Administration	441%	281%	36%	50%	194%	149%	16%
Real Estate, Rental, & Leasing	57%	16%	306%	190%	59%	24%	470%

The total capture rate for San Juan County is estimated at 79 percent of the State Income adjusted average. This indicates that relative to the State per capita spending, the County is capturing \$0.79 on the dollar in taxable sales, with residents traveling outside the County for many goods and services.

continue to see development in Mining, Quarrying, and Oil and Gas Extraction.

While the County has discussed the potential expansion of distribution and warehouse opportunities, the County's ability to stimulate this type of development may be limited by population and competition from adjacent markets such as Moab. While markets are showing a trend toward expansion of distribution centers in order to keep pace with the growth of online shopping, competition for these facilities is intense.

Official retail sales numbers by the Census Bureau shows a steady growth in sales from Nonstore Retailers.⁴ Many communities across Utah and the Nation are in a race to capture this growth, with bids to attract retail giants like Amazon and Walmart. As online shoppers and retailers push for shorter and shorter delivery times, the driving factor for a competitive distribution site is proximity to large population centers and access to major transportation infrastructure. A good example of this is the 1.3 million-square-foot Amazon facility recently constructed in Kent, Washington. The Puget Sound Business Journal reported that General Manager Dave Graybeal indicated "Amazon builds based on demand and that customers want lower cost and quick delivery... the new Kent facility will put more products closer to customers and extend the delivery window to a true two-day delivery...seven day[s] a week".⁵ Additional examples include the expansion of Amazon, Hubbell, and Williams Sonoma into Braselton, Georgia, and the recent success of Salt Lake City, Utah, in attracting an 855,000-square-foot Amazon facility. While the town of Braselton has an estimated population of only 7,511 according to the U.S. Census (2015), its proximity to Interstate 85 allows for quick delivery to Atlanta 50 miles away. Similarly, the site in Salt Lake allows for easy access to I-15, I-80 and the Salt Lake International Airport, making the majority of Utah's population quickly accessible within two days.

Spanish Valley's remote location, limited interstate access and rural population will make it challenging to attract larger distribution centers. Lower population levels or continued sales leakage will result in less commercial acreage within the community. However, if the County allows for greater densities, resulting in an increase in buying power and capture rates, the area could see higher levels of commercial development. Methods to promote increased commercial development include:

- ❑ Allow for more residential development and population growth;
- ❑ Provide development incentives;
- ❑ Promote niche markets that will capture sales from surrounding communities; and
- ❑ Promote other types of commercial development (industrial, tech, office, etc.).

⁴ Source: 2015 Annual Retail Trade Report <https://www.census.gov/retail/index.html>

⁵ Source: Puget Sound Business Journal, "Amazon's new Kent fulfillment center to bring same-day delivery to Seattle", By Marcus R. Donner.

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APPENDIX H

SAN JUAN COUNTY WELL PROTECTION ORDINANCE

APPENDIX I

2017-01: Source Protection.

(1) Purpose. Establishment of a Source Protection Ordinance for San Juan Spanish Valley Special Service District, hereinafter "District".

(a) This section shall be known as the "San Juan Spanish Valley Special Service District Drinking Water Source Protection Ordinance".

(b) The purpose of this section is to ensure the provision of a safe and sanitary drinking water supply for the District by establishing drinking water source protection zones surrounding the wellheads and collection areas for all sources for the District water system and by the designation and regulation of property uses and conditions which may be maintained within such zones.

(2) The following definitions shall apply to this section:

(a) "Animal feeding operation" means a lot or facility where the following conditions occur:

(i) animals have been, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 23-month period;

(ii) crops, vegetation, forage growth or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

(iii) Two or more animal feeding operations under common ownership are considered to be a single feeding operation if they adjoin each other, if they use a common area, or if they use a common system for the disposal of wastes.

(b) "Animal units" means:

(i) the number of slaughter or feeder cattle; plus

(ii) the number of mature dairy cattle multiplied by 1.4; plus

(iii) the number of swine over weighing over 55 pounds multiplied by 0.4; plus

(iv) the number of sheep multiplied by 0.1; plus

(v) the number of horses multiplied by 2.0.

(c) A contamination control measure means a device or administrative control which is implemented to prevent discharges to the ground water. Spill protection is an example of a contamination control measure. Contamination control measures shall be compliant with the applicable design standards.

(d) "Extremely hazardous substance" means any substance identified in Section 302 (EHS) column of the "Title III List of Lists - Consolidated List of Chemicals Subject to Reporting Under SARA Title III" (EPA 560/4-91-011).

(e) "Land management strategies" are zoning and non-zoning controls which include, but are not limited to, the following: zoning and subdivision ordinances, site plan reviews, design and operating standards, source prohibitions, purchase of property and development rights, public education programs, ground-water monitoring, household hazardous waste collection programs, water conservation programs, memoranda of understanding, written contracts and agreements.

(f) "Pollution source" means a source of discharges of contaminants to ground water or potential discharges of the liquid forms of extremely hazardous substances which are stored in containers in excess of applicable threshold planning quantities as defined in SARA Title III. Examples of possible pollution sources include, but are not limited to, the following: storage facilities that store the liquid forms of extremely hazardous substances, septic tanks, drain fields, Class V underground injection wells, landfills, open dumps, landfilling of sludge and septage, manure piles, salt piles, pit privies and animal feeding operations with more than ten animal units.

(g) "Potential contamination source" means any facility or site which employs an activity or procedure which may potentially contaminate ground water. A pollution source is also a potential contamination source.

(h) "Regulatory agency" means any governmental agency with jurisdiction over hazardous waste.

(i) "Sanitary landfill" means a disposal site where solid wastes, including putrescible wastes, or hazardous wastes, are disposed of on land by placing earth cover thereon.

(j) "Septic tank" and "drain field system" mean a system which is comprised of a septic tank and a drain field which accepts domestic waste water from buildings or facilities for subsurface treatment and disposal. By their design, septic tank and drain field discharges cannot be controlled with control devices or control measures.

(k) "Wellhead" means the upper terminal of a well, including adapters, ports, seals, valves and other attachments.

(3) There are hereby established drinking water source protection zones to be known as Zones One, Two, Three and Four of the drinking water protection area, identified and described as follows:

(a) Zone One is the area within a 100-foot radius of the wellhead.

(b) Zone Two is the area within a 250-day ground water time of travel to the wellhead, the boundary of the aquifer or aquifers which supplies water to the ground water source, or the ground water divide, whichever is closer.

(c) Zone Three is the area within a 3-year ground water time of travel to the wellhead, the boundary of the aquifer or aquifers which supplies water to the ground water source, or the ground water divide, whichever is closer.

(d) Zone Four is the area within a 15-year ground water time of travel to the wellhead, the boundary of the aquifer or aquifers which supplies water to the ground water source, or the ground water divide, whichever is closer.

(4) The following land uses shall be permitted within drinking water source protection zones:

(a) Any land use permitted within existing agricultural, single family residential, multi-family residential and commercial districts so long as the land use conform to the rules and regulations of the regulatory agency with jurisdiction over hazardous waste.

(b) Any other open land use where any building located on the property is incidental and accessory to the primary open land use.

(5) The following land uses or conditions are prohibited within drinking water source protection zones, even if such use or condition may otherwise be ordinarily included as part of permitted land use under subsection (4):

(a) Zone One: The location of any uncontrolled potential contamination sources.

(b) Zone Two: The location of a pollution source unless its contaminated discharges can be controlled with controls compliant with design standards.

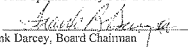
(c) Zone Three and Zone Four: No restrictions.

(6) The enforcement and penalties for violations of the policies and procedures for administration of the drinking water source protection zones established by this section, including without limitation those applicable to nonconforming uses, shall be the same as provided in the existing zoning ordinance of the District, as the same is now adopted and from time to time amended.

This ordinance shall become effective upon signing.

PASSED AND APPROVED this 21 day of February 2017.

San Juan Spanish Valley SSD Board

By: 
Frank Darcey, Board Chairman

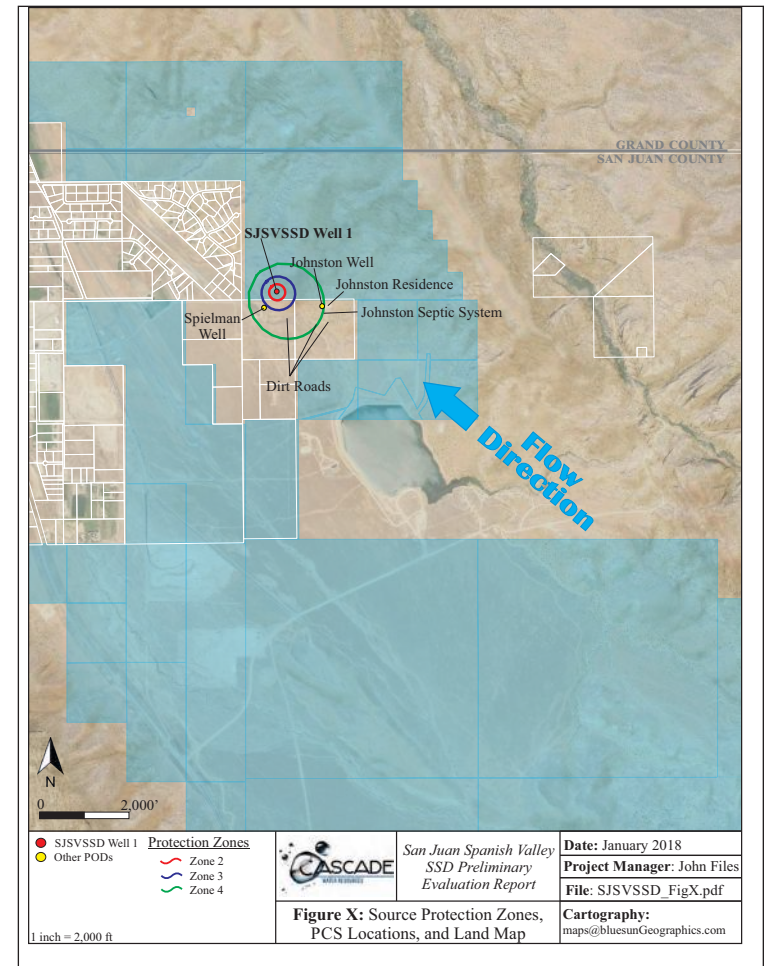
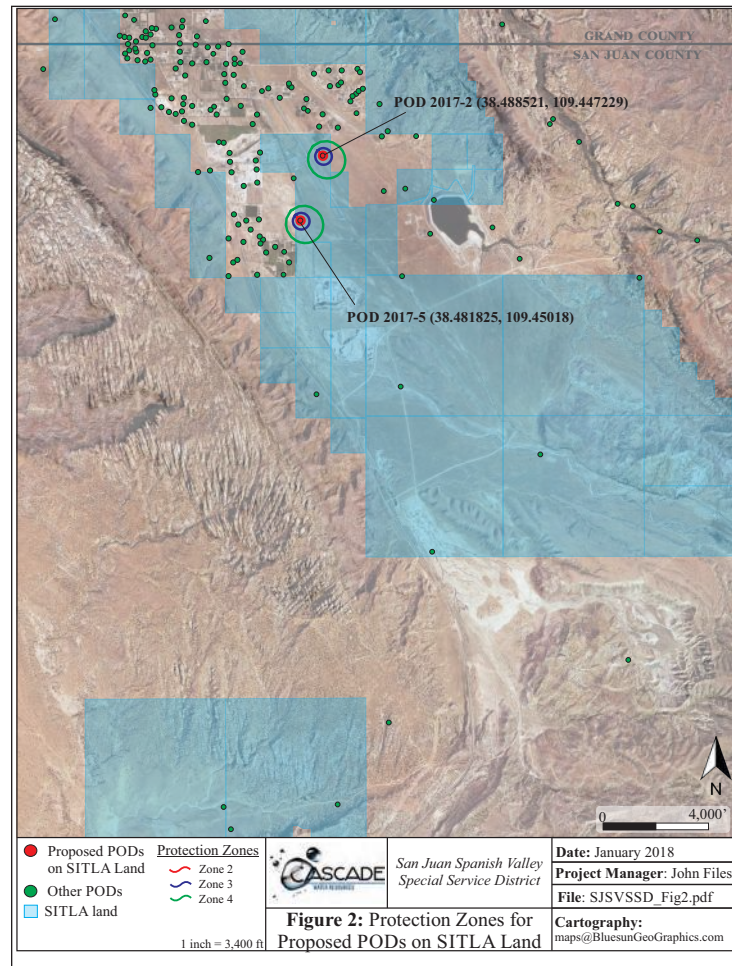
VOTING:

Mike Bynum- Yea	☐	Nay	☐	Abstain	☒
Lloyd Wilson- Yea	☒	Nay	☐		
Kerry Behumin- Yea	☒	Nay	☐		
John Johnston- Yea	☒	Nay	☐		
Frank Darcey- Yea	☒	Nay	☐		

ATTEST: 
Kelly Pehrson, San Juan County Administrator

KNOWN WELLS & CONCENTRIC PROTECTION ZONES

APPENDIX J



APPENDIX K



AIRPORTS & LAND USE

An airport can provide numerous benefits to a community, but only if the community can balance between various local interests. Imbalances between public and private interests can result in overregulation or underregulation that fuels conflict between airport operators, sponsors, and the public. Finding balance between these interests requires establishing adequate airport land use buffers that keep people and property safe while adopting appropriately flexible regulations that do not overwhelm or frustrate the community. Although maintaining the right balance will be challenging, this document can help communities navigate common pitfalls associated with land use planning around airports.

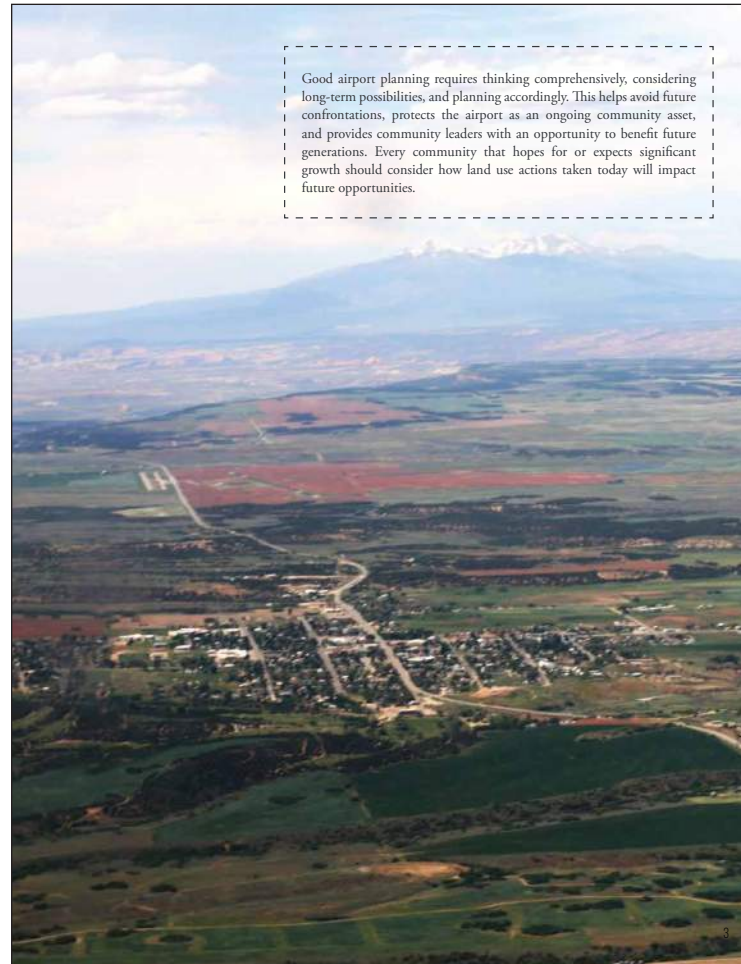
This document was expressly created with Utah's rural communities in mind—particularly those communities who already operate or want to operate an airport. It provides a brief introduction to key considerations that local leaders need to understand about land use planning for airports. These considerations are vital for maintaining the long-term benefits of operating an airport and mitigating burdens on the surrounding community. It draws upon the guidelines and best practices promoted by the U.S. Federal Aviation Administration (FAA), the Utah Department of Transportation Division of Aeronautics (UDOT), and leaders in the aviation and aeronautics industries.

IN UTAH
THERE ARE
46
AIRPORTS

85%
OF THOSE
ARE IN
RURAL
COUNTIES

LAND USE
AIRPORTS
RURAL ISSUE!

APPENDIX K



Airports are generally stable community institutions whose long-term viability is determined by decisions made decades in advance. As a result, good airport plans and land-use decisions require planning well into the future. Most airport master plans contain airport goals and plans for 20–25 years and are updated about every 10 years. When considering land use around an airport, a much longer view, even 50–100 years, is required to adequately protect both residents and the airport. This long-run approach is justified by the large amount of property needed to house and maintain an airport along with the potential for frustration between airports and landowners.

As a result, community leaders should understand what the community would like to become, what the community is likely to become, and how outside forces will affect the community's final outcome. These perspectives can then be applied to a community's unique airport situation.

Operationalizing a "long-term perspective" for your airport means assessing current conditions and long-term ambitions for the airport. Current conditions inform what should be done to protect residents and airport operations as they exist today. Assessing long-term ambition informs land use designations so that potential conflicts arising from airport expansion are prevented from occurring in the future.

To assist communities and counties as they consider land use regulation surrounding an airport, UDOT and the Mountainland Association of Governments (MAG) put together a reference guide called the *Compatible Land Use Guide for Utah Airports* (LUPG) for airport land use issues in Utah². LUPG lays out planning templates and considers how to address some common airport land use issues.

CURRENT CONDITIONS LONG-TERM AMBITIONS

Factors such as new technological advancements, tourism expansion, regional growth, or an influx of business operations in or near your community could alter the demand for airport use. These are important considerations for any airport. As communities consider the future of their airports, they should look at demographic trends, consider long-range economic development and growth goals and plans, and determine how the airport fits into community ambitions. This should be a community decision, with input from the community and advice from professionals in the airport and land use fields³.





Grant assurances are agreements entered into by an airport sponsor upon receiving federal or state assistance. FAA grant assurances 20 and 21 deal directly with land use and zoning ordinances and require airport sponsors to do what they can to maintain compatible uses around the airport (*see Appendix A*).

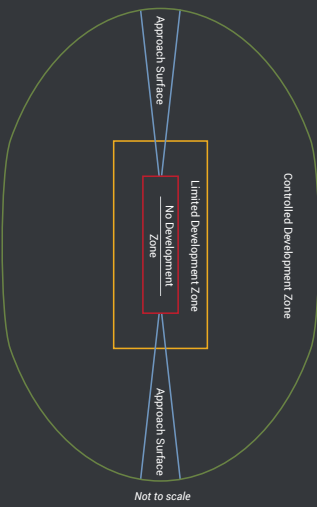
PLANNING TEMPLATES

LUPG defines three sizes of airports: small, medium, and large. Despite large differences in size and traffic, the same principles can be applied to manage land use around these different sizes of airports.

The graphic to the right is a general planning diagram of the areas impacted by the existence of an airport for current and future land use and contains recommendations from MAG and UDOT. These are not FAA requirements per se. They represent a planning framework that allows airports to meet FAA requirements and limits airport impact on residents through controlling specific uses. The templates on the following pages illustrate how this diagram is applied to an airport's current or planned size.

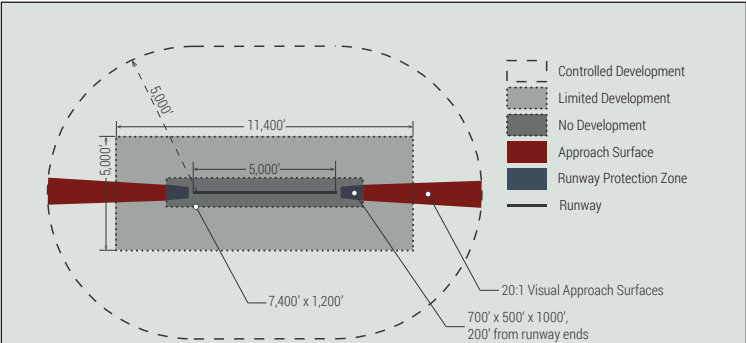
This document illustrates templates for small and medium sized airports, as large airports are uncommon and unlikely to develop in most rural areas.

NAME	DESCRIPTION
Controlled Development	The Controlled Development Zone sphere has relatively few regulations, primarily consisting of lighting and height.
Limited Development	The Limited Development Zone prohibits many kinds of uses while placing restrictions on others.
No Development	The No Development Zone only allows for airport-related building.
Approach Surfaces	Recommend no residential use to protect against noise and safety hazards.



Not to scale

APPENDIX K



Controlled Development
Limited Development
No Development
Approach Surface
Runway Protection Zone
Runway

5,000'
11,400'
5,000'
7,400' x 1,200'
20:1 Visual Approach Surfaces
700' x 500' x 1000', 200' from runway ends

SMALL AIRPORT TEMPLATE

For "small" airports (defined to the right), the areas illustrated above provide adequate regulations to keep operating at its current level. Regulating to these specifications limits safety concerns and the likelihood of conflict related to airport operations.

Specifically, FAA regulations and LUPG suggest that 500 feet on either side of the runway centerline be a "no development zone," where only structures used for maintenance of the airport and storage of aircraft should be allowed.

The "Limited Development Zone" should be the width of the airport's longest runway and extend 3,200 feet beyond the end of either runway. Residential uses in this zone should be prohibited to protect residents. However, commercial, industrial, and other uses are appropriate¹.

The 5,000 foot "Controlled Development Zone" should include restrictions on crops that attract birds, require buildings over 200 feet in height to register with the FAA, control lighting open to the sky, and limit residential development (or require disclosure statements about the location relative to the airport and associated hazards)¹. "Approach Surfaces" extend from the end of the runway to the end of the "Controlled Development Zone." These areas are the most impacted by safety concerns and noise nuisances.

SMALL AIRPORTS DEFINED

LUPG defines a small airport as:

- Runway less than 5,000 feet
- Less than 10,000 annual operations
- Visual approaches only
- Airport Reference Code (ARC) A-III-B-I
- Less than 20 based aircraft

Just because your community's airport currently fits this definition does not mean this is the correct planning model to use for your airport. Rather, (as noted above) leaders should consider what their airport could become in the near- and long-term, then determine if they should regulate the land to protect for the possibility of expansion in the future.

Depending on community aspirations and probable futures, it may be most appropriate to prepare for a medium or even large airport. Taking current property owners rights into account is vital; communities should discuss possibilities as a community and with the FAA.

APPENDIX K



Leaders should first consider the airport's current size, followed by the intended runway size (information on planned expansions in the next 15–25 years should be available in the airport master plan, while expansions in a longer time frame will require assessment from leaders). The estimated maximum airport size should be the guide on zone sizes and regulation. This ensures that when the airport does expand, it will not have significant negative impacts on residents.

Where expansion is not likely for decades, but leadership want to retain the possibility of expansion, interim uses can allow certain uses in the short term with assurances from landowners that the use will phase out over time. These protect plausible expansions and property owners' rights.

OVERLAY ZONING

Traditional zones can be adopted for each of these different areas (no development, limited development, controlled development, approach surfaces); however, overlay zones can simplify land use regulations for land owners and residents. Overlay zones are sets of additional standards or requirements that are applied over the top of current zoning (see Appendix C). Overlay zones allow leaders to maintain consistent zones, while ensuring requirements for specific areas are met before development can occur. Overlay zones are recommended in the case of airports for four primary reasons:

1. **Flexibility.** An overlay zone still allows the zoning underneath to change. It ensures that however the zoning changes, the overlay will still protect residents from potential negative impacts of the airport.

2. **Workload.** It reduces workload for those developing the zoning regulations. Rather than creating entirely new zones, overlay zones allow the appropriate requirements to be added onto the current zoning structure.

3. **Community Understanding.** While overlay zones could increase complexity initially, it is overall much simpler for land owners, and residents. It helps buyers to understand that they are purchasing a commercial zone with additional requirements rather than understanding multiple (unfamiliar) new zones.

4. **Political feasibility.** Because overlay zones are only applied to specific areas and maintain the underlying zoning, they can be more politically feasible than multiple new zones.

As leaders work with community members, landowners, and the airport board, they should look for the option that best meets community desires and airport needs.

COMPATIBLE LAND USES

Allowable uses in these zones do not encroach on height restrictions, prevent future safety hazards, reduce frustrations between citizens and the airport, and maintain long-term airport viability. In contrast, allowing incompatible uses increases frustrations between residents and the airport. These tensions typically increase as incompatible uses become more common and airport traffic increases. Land use around airports, even with limited development, can be threatened by incompatible uses. If the airport expands operations, conflict with residents is a common result³. See Appendix B for LUPG's list of compatible and non-compatible uses.

News articles from around the country highlight frustrations between incompatible uses surrounding airports and airport management³. Adequate buffers will protect both residents and continued airport use, preventing these conflicts before they happen.

PLANNING FOR LAND USE

WHO MANAGES PLANNING?

An airport sponsor is the city, county, company, or individual responsible for the airport. The airport's master plan is completed by the airport sponsor and establishes the airports intentions for the next 20–25 years. However, land use surrounding the airport is up to the municipalities and counties that have jurisdiction over the airport's current and potential area of influence (see maps pages 6–7). As a result, land use planning around an airport regularly involves more than one community and/or the county.

For municipalities where the area of airport influence, or controlled development zone (see map on pages 6–7), is wholly within a community's boundaries, the community or county planning commission makes recommendations to the legislative body who adopts, alters, or rejects the recommendations.

For airports with influence areas that cross jurisdictional boundaries, each community maintains zoning authority for the area within their boundaries. If communities determine to maintain zoning authority over their portion of the airport influence area, significant efforts to streamline and coordinate zoning regulations between entities is vital to avoid future conflict.

The Utah State Legislature has provided another alternative for cross-jurisdictional airports in the Airport Zoning Act⁴. This act provides leadership with the option to create a Joint Airport Zoning Board. The commission requires "two representatives appointed by each political subdivision participating in its creation," and provides the commission with authority to "adopt, administer, and enforce... airport zoning regulations for the airport hazard area."

There are benefits and drawbacks to joint boards. Relinquishing local control can help increase zoning consistency for all residents by streamlining regulation,

reducing political pressure on individual communities, and forcing communities to create mutually agreeable terms. In contrast, joint boards may delay rule creation, or frustrate the current planning commissions and landowners who are unfamiliar with the concept of an airport zoning board.

Ultimately, it is up to the airport sponsor and entities with jurisdiction in the airport hazard area to determine when and how to handle regulations around an airport. Communities should not wait for conflicts to arise before trying to address land use in the area. Rather, they should proactively create a cooperative approach that increases clarity for landowners and public officials.

PLANNING QUESTIONS

The following questions should help entities plan for an airport's future:

Current Zoning. Do current zones (or overlay zones) allow compatible uses while prohibiting incompatible uses?

Are zones more restrictive than necessary, potentially and unnecessarily reducing land values?

Current Plans. Consider the airport master plan. Are there intentions to extend the runway? Increase use? Expand facilities?

How will these planned changes impact the size of areas that need additional land use regulations?

How does the airport fit into current quality of life and economic development in the community?

Future Possibilities. Consider the next 50, 75, and 100 years. What are the ambitions and possibilities for the community?

How does the airport fit into the economic ambitions and possibilities of the community in this time frame?

What essential services does the airport provide? What expanded services are foreseen or hoped for?

How will decisions affect landowner rights over the same time period?



LAND USE TOOLS

LUPG provides information on a variety of tools that airport sponsors, joint airport zoning boards, and affected communities can use to protect airports and residents from negative impacts. These tools are either cooperative (working with landowners to achieve mutually acceptable arrangements) or unilateral (government taking action without consent from property owners).

COOPERATIVE

Fee-simple Acquisition. Airport sponsors should own all land used for runways, terminals, hangars, tie down areas, and other airport-only uses. Fee title acquisition entails purchasing the land and all associated development rights.

Note: At times, purchasing land outside of these areas, then reselling them with conditions attached can help mitigate future problems.

Avigation Easements. Avigation easements are rights to the use of airspace above property. These are typically cost effective and protect the airport, pilots, and citizens from dangerous development.

Transfer or Purchase of Development Rights and Density Transfers. Transferring development rights separates development rights from the physical property and allows that development to move to another location. This enables airport sponsors to protect the highest priority areas while maintaining property owner's rights to develop.

Real Estate Disclosure Statements. A real estate disclosure statements require sellers to notify potential buyers that overflight and noise impacts are likely to occur. These are typically attached to the warranty deed. Communities considering this mitigation tactic should require disclosures for areas that are likely to have an impact in the future.

Developer Incentives and Agreements. Incentives and agreements with developers can be used to limit density in a specific section of proposed development by trading it for higher density development in a zone further from the airport.

UNILATERAL

Zoning. Creating an overlay zone that prohibits incompatible uses protects airport users, current residents, and future residents from potential hazards and nuisances. Compatible and incompatible uses must be identified and defined in the community's land use code. The Land Use Planning Guide for Utah Airports provides recommended compatible uses for different overlay zones surrounding an airport (see Appendix B).

Interim Permits. Interim use permits allow uses for a set period of time to help protect the airports long-term development. This generally excludes any sort of residential or high-density uses. Interim uses require cooperation from landowners to work.

Note: Don't do conditional use permits.

Dedications and Extractions. Dedications are impact fees paid for with land, rather than cash. A developer may obtain a zone change for a specific area, and "pay" for the dedication by not developing in high sensitivity areas. Extractions are the same as dedications, except that the land cannot be substituted for cash—they are required land donations from the developer.

Eminent Domain. Eminent domain is the power to take private property for public use in exchange for fair compensation without the owner's consent. Eminent domain can also be conducted on landowners' future development rights. In all eminent domain cases, the government is required to (1) pay just compensation for the property and (2) demonstrate a need for the property for public use⁵.

Additional governmental tools exist. The best way to address issues is using a mix of available options that match community circumstances and culture, while reviewing airport planning best practices, current conditions, future aspirations, and then developing a plan that best meets community needs.

APPENDIX K

DRONES

Additional considerations exist for airports—particularly unmanned aircrafts. According to FAA rules, unmanned aircraft operators are required to register their drone with FAA, and must inform airport flight control if they intend to operate their drone within five miles of an airport¹. The State of Utah could be introducing additional regulations in current or future legislative sessions. Airport sponsors and surrounding cities should pay attention to these rules and ensure residents and visitors are informed to help keep pilots and residents safe.

Residents of small communities may question the importance of protecting small, rarely used airports, or be unable to fathom their tiny airport having long-term, major impacts on the quality of life for residents. When communities zone explicitly to protect an airport and residents, they are protecting future potential and community ambition. The impact of the airport may not be felt for decades, however the potential benefits to local economies is enormous.

Leaders working to protect their airports and residents should give special consideration to maximizing property use options for affected landowners. Application of a wide range of tools will help ensure landowners have input in their land's future and can optimize their land's uses. Airports provide opportunities and challenges to landowners; leadership should actively help landowners recognize the opportunities while mitigating the impacts. Communities should come together to determine the possibilities for their community and airport and take steps necessary to protect both into the future.

LANDOWNER IMPACTS & PROTECTING AIRPORTS

11

APPENDIX K

REFERENCES & ADDITIONAL RESOURCES

Significant portions of this document came from the *Compatible Land Use Planning Guide for Utah Airports* prepared by the Wasatch Front Regional Council and Utah Division of Aeronautics (part of the Utah Department of Transportation) in December 2000. UDOT and FAA both recommended this guide as a relevant, good thought process for airport land use. Many additional documents were reviewed for information on FAA requirements, best practices, and land-use challenges other communities have faced surrounding their airports. The remainder came from meetings and interviews with UDOT, FAA, and involved residents and leaders. The resources below can provide additional information for leaders.

1. According to Utah Department of Transportation Aeronautics Division. <https://www.udot.utah.gov/main/communities/gfns-200703070613563>.
2. Wasatch Front Regional Council, Mountainland Association of Governments, Utah Division of Aeronautics. "Compatible Land Use Planning Guide for Utah Airports." 2000. <https://www.udot.utah.gov/main/communities/gfns-200411180926131>
3. Friesen, Josh. The next step in aviation — Idaho drone company foresees major cargo hub in Pocatello. Nov. 24, 2016. Idaho State Journal. Accessed online. Dec. 1, 2016. http://idahostatejournal.com/members/the-next-step-in-aviation-idaho-drone-company-foresees-major/article_b88b1f46-5acc-5b70-bd97-2aab9d5d676e.html.
4. Federal Aviation Administration. "5190.6B Chapter 20: Compatible Land Use and Airspace Protection." 2009. https://www.faa.gov/airports/resources/publications/orders/compliance/5190_6/media/5190_6b_chap20.pdf.
5. Miller, Carin. Angry residents demand City Council fix flight school noise pollution. June 11, 2015. St. George News. Accessed online. Dec. 1, 2016. <http://www.stgeorgeutah.com/news/archive/2015/06/11/cmm-angry-residents-city-council-flight-school-noise-pollution/#.WECj1Jr1d4>.
- Di Caro, Martin. Jet Noise Is No Joke For Residents Burned By Report About Airport Complaints. Oct. 26, 2016. WAMU 88.5. Accessed online. Dec. 1, 2016. http://wamu.org/story/16/10/26/jet_noise_is_no_joke_for_residents_burned_by_report_on_airport_complaints/.
- Aguilar, John. Smaller airports in Denver metro area warily watch encroaching development. Sept. 22, 2016. The Denver Post. Accessed online. Dec. 1, 2016. <http://www.denverpost.com/2016/09/22/smaller-airports-denver-development/>.
- Bartholme, Ed. Moving in next to an airport and then complaining about the noise. Sept. 23, 2016. The Denver Post. Accessed online. Dec. 1, 2016. <http://www.denverpost.com/2016/09/23/moving-in-next-to-an-airport-and-then-complaining-about-the-noise/>.
- Emerson, Sandra. Pilots at Redlands Airport concerned over proposed development. July 9, 2015. Redlands Daily Facts. Accessed online. Dec. 1, 2016. <http://www.redlandsdailyfacts.com/business/20150709/pilots-at-redlands-airport-concerned-over-proposed-development>.
6. Utah State Code. Airport Zoning Act. 72-10-4 (403-406).
7. Utah State Property Rights Ombudsman. Transferable Development Rights. <http://propertyrights.utah.gov/transferable-development-rights/>.
8. Utah State Property Rights Ombudsman. Takings and Eminent Domain. <http://propertyrights.utah.gov/takings-and-eminent-domain/>.
9. Federal Aviation Administration. "Airspace Restrictions." Unmanned Aircraft Systems, Where to Fly. https://www.faa.gov/uas/where-to-fly/airspace_restrictions/.

ADDITIONAL RESOURCES

- Federal Aviation Administration. "Federal Aviation Regulation Part 77." <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=61302bd90d79271a583474ad2f9dc07e&rgn=div5&view=text&nodes=14:2.0.1.2.9&idno=14>.
- Federal Aviation Administration. "150/518c-48 "A Model Ordinance to Limit the Height of Objects Around Airports." 1987. https://www.faa.gov/documentLibrary/media/advisory_circular/150-5190-4A/150_5190_4A.pdf.
- Federal Aviation Administration. "Noise Control and Compatibility Planning for Airports." 1983. https://www.faa.gov/documentLibrary/media/advisory_circular/150-5020-1/150_5020_1.pdf.
- Federal Aviation Administration. "Obstruction Identification Surfaces." Federal Aviation Regulation Part 77. <https://www.ngs.noaa.gov/AERO/oispec.html>.

12

APPENDIX L

COMPATIBLE LAND USE PLANNING FOR AIRPORTS

Introduction & Background

"The development of land uses that are not compatible with airports and aircraft noise is a growing concern across the country. In addition to aircraft noise, there are other issues, such as safety and other environmental impacts to land uses around airports which need to be considered when addressing the overall issue of land use compatibility. Although several federal programs include noise standards or guidelines as part of their funding-eligibility and performance criteria, the primary responsibility for integrating airport considerations into the local land use planning process rests with local governments. The objectives of compatible land use planning are to encourage land uses that are generally considered to be incompatible with airports (such as residential, schools, and churches) to locate away from airports and to encourage land uses that are more compatible (such as industrial and commercial uses) to locate around airports." – *Land Use Compatibility and Airports, A Guide for Effective Land Use Planning, FAA.*

Implementing compatible land use plans or ordinances for airports can be a daunting task. Discussions at the Spring, 2017 UAOPA Conference indicated that many airport managers, Airport Board members, and local leaders may not be aware of existing resources available to support their efforts in developing and educating local decision-makers on compatible land use planning for their airports. The following listing of resources and suggested action items were compiled to support your efforts to develop and implement compatible land use plans and zoning for your airports. – *Armstrong Consultants, Inc.*

Tools & Resources

- **FAA Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) Website** (*FAA Notice Criteria Tool and FAA Form 7460-1, Notice of Proposed Construction Submittal site.*)
<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>
- **Compatible Land Use Planning Guide for Utah Airports**, Wasatch Front Regional Council, 2000 (*Background information and compatible land use templates for small, medium and large airports.*)
<https://www.udot.utah.gov/main/ucowner.gt?n=200411180926131>
- **FAA Compatible Land Use Planning Toolkit** (*Background information, guidance materials, example ordinances, communications tools and regulations*)
https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/planning_toolkit/
- **Airports & Land Use, An Introduction for Local Leaders**, Rural Planning Group, 2017 (*A concise guidebook including compatible land use templates for small and medium-sized airports.*)
<http://www.ruralplanning.org/assets/airport-land-use-guide--web.pdf>

Suggested Action Items

- 1) Make associated permitting and approval agencies (i.e. building department, planning & zoning, etc.) aware of the OE/AAA website for review of proposed structures in the vicinity of the airport.
- 2) Research local plans and ordinances to determine if Part 77 or Compatible Land Use Plans have been adopted for your airport.
- 3) If so, review existing land use plans and ordinances to ensure they reflect current conditions and planned airport development; and that they provide adequate protection of your airport. Specifically review maps, diagrams and exhibits to ensure they are consistent with the most recent drawings from your Airport Layout Plan/Airport Master Plan and update/revise exhibits as necessary.
- 4) Utilize available resources, including but not limited to those listed above, to develop or update Compatible Land Use Overlay/Airport Influence Area Maps for your airport.
- 5) Work with local controlling jurisdictions, both full-time staff and governing boards, to adopt Compatible Land Use and Height Restriction Overlay Plans/Ordinances for your airport.

10/20/2017