PLANNING COMMISSION AGENDA
Thursday, September 12, 2013
Morgan County Council Room
6:30 PM

PUBLIC NOTICE is hereby given that the Morgan County Planning Commission will meet at the above time and date at the Morgan County Courthouse, Council Chambers, 48 West Young St, Morgan, Utah. The agenda is as follows:

1. Call to order – prayer
2. Approval of agenda
3. Declaration of conflicts of interest
4. Public Comment

Legislative Items

5. Hearing: Creation of the Snowbasin Resort Special District (RSD-Snowbasin); rezone of Snowbasin property to RSD-Snowbasin; and review of the proposed Snowbasin Conceptual Land Use Plan.
6. Discussion/Decision: A text amendment to create the RSD-Snowbasin District in Morgan County Code.
7. Discussion/Decision: Proposed RSD-Snowbasin rezone.

Administrative Items

8. Discussion/Decision: Porter's Place Subdivision Amendment

9. Staff Report
10. Approval of minutes from August 22, 2013
11. Adjourn

Morgan County, in compliance with the Americans with Disabilities Act, provides accommodations and auxiliary communicative aids and services for all those citizens in need of assistance. Persons requesting these accommodations should call Keryl Squires at 801-845-4015, giving at least 24 hours notice prior to the meeting. A packet containing supporting materials is available for public review prior to the meeting at the Planning and Development Services Dept. and will also be provided at the meeting. Note: Effort will be made to follow the agenda as outlined, but agenda items may be discussed out of order as circumstances may require. If you are interested in a particular agenda item, attendance is suggested from the beginning of meeting.

Planning and Development Services

CONSULTANT PLANNER REPORT
September 5, 2013

To: Morgan County Planning Commission
Business Date – September 12, 2013
From: Bruce Parker, AICP, Planning and Development Services, LLC
Consultant Planner
Re: Snowbasin Resort Company Rezone – Resort Special District (RSD)

Application No.:	12.153
Applicant:	Snowbasin Resort Company
Project Location:	Trapper's Loop Road
Existing Zoning:	Multiple Use District (MU-160)
Acreage:	Approximately 8,140 acres
Request:	Rezone 8,140 acres from the existing Multiple Use District (MU-160) zoning designation to Resort Special District-Snowbasin (RSD-Snowbasin)

SUMMARY

Snowbasin Resort Company ("Snowbasin") is requesting that all Snowbasin property located in Morgan County be rezoned from MU-160 to RSD-Snowbasin. Snowbasin wishes to more fully develop the Snowbasin Resort to achieve a world-class four-season destination resort and provide additional recreational, residential, nonresidential uses and activities on the Snowbasin property.

The property owned by Snowbasin straddles the Morgan County-Weber County line. Consistent with Snowbasin's plans to create a world-class four season resort Weber County has already approved expansion plans for the resort, located in Weber County, under the terms of a development agreement. Snowbasin wants to now move forward and also provide a comprehensive approach to the planning and development of the Snowbasin property located in Morgan County.

An action to rezone Snowbasin's property (located in Morgan County) represents an amendment to Title 8, Morgan County Land Use Management Code, Morgan County Code of Ordinances ("Management Code"). Any amendments to Title 8 are a legislative action and require a recommendation from the Morgan County Planning Commission ("Planning Commission") and final decision by the Morgan County Council ("County Council").

The Planning Commission is provided clear guidance to consider the Snowbasin rezone application. Section 8-3-4(D) (Management Code) provides;

> "Planning Commission Review and Recommendation: ". . . . The planning commission may recommend approval, approval with modifications, or denial of the proposed amendment and shall submit its recommendation to the county council for review and decision. The planning commission shall recommend adoption of a proposed amendment only when the following findings are made:
>
> 1. The proposed amendment is in accordance with the county's general plan, goals, and policies of the county.
> 2. Changed or changing conditions make the proposed amendment reasonably necessary to carry out the purposes stated in this title."

The standards for Planning Commission consideration of the Snowbasin application, and recommendation to the County Council, are provided by Section 8-3-4(D), items 1 and 2 above.

The Snowbasin application is a significant matter for Morgan County. As the County Staff and Planning Consultant have considered the application it was determined fairly early that, if a rezone application were to be approved, proceeding to implement the goals of the County and purposes of the Management Code by way of a development agreement offered real advantages, including the clear articulation of the benefits and obligations of the County and the Snowbasin Owner.

The County Staff and Planning Consultant have now evaluated and considered the Snowbasin rezone application, and all materials provided in support. The County Staff and Planning Consultant are now respectfully recommending that the Planning Commission recommend approval of the proposed amendment (from MU-160 to RSD-Snowbasin) to the County Council, with findings and requirements.

BACKGROUND

The Snowbasin property is located adjacent to Trapper's Loop Road in the North-West area of Morgan County (Exhibit 1, Snowbasin Property Vicinity Map). The 8,140 acres of the Snowbasin property located in Morgan County are proposed to provide a combination of resort facilities, recreational opportunities, residential and non-residential uses, and open spaces. The Snowbasin Application materials include a conceptual land use plan for the property within Morgan County (Exhibit 2). The conceptual land use plan works to represent the vision of the Snowbasin Owner for the resort as well as identify the conceptual location of all proposed land uses, facilities and resort amenities. The application is supported by significant accompanying supplemental materials and information including a transportation study, fiscal impact analysis, infrastructure master plan, development and design standards, and a geotechnical report. The information and materials provided by Snowbasin associated with the zone amendment application are now provided as Exhibit materials to this Report. The Exhibits can be summarized as follows:

Exhibit 2: Snowbasin Concept Land Use Plan (also provided in Exhibit 3, Snowbasin Resort – Special District Application).

Exhibit 3: Snowbasin Resort – Special District Application. This Snowbasin Exhibit is a very important information piece and contains;

a. Application Introduction (and Snowbasin Owner Visions)
b. Conceptual Plan, including planning and design principles, site analysis evaluations, Conceptual Land Use Plan, and Snowbasin Development Summary. The Development Summary provides information on Development Areas C, D. E. and F including conceptual development/site configurations and use arrangements. Also provided are a Recreation Facilities Plan and Open Space and Trails Plan. The Application Appendix provides a Snowbasin Property legal description and proposed Design Standards being voluntarily presented by Snowbasin for application to the resort property. Provided as Appendix 3 is a Draft Development Agreement, offered by Snowbasin in October 2012 as a document from which to frame meaningful discussions with Morgan County related to long-term County and Snowbasin obligations, and responsibilities.

Exhibit 4: Provides the Snowbasin Resort – Special District Application Exhibits: Exhibit A, Transportation Study; Exhibit B, Fiscal Impact Analysis; Exhibit C, Infrastructure Master Plan; and Exhibit D, Geotech Report.

The Snowbasin Resort – Special District Application, including all accompanying exhibit materials were provided by Snowbasin responsive to the land use application requirements and to provide information to the Planning Commission and County Council necessary to consider compliance with adopted County goals, objectives, and policies.

At total build-out, and as proposed, the Snowbasin resort would provide 2,247 residential units, various support resort nonresidential uses including hotels, restaurants and other resort services. Approximately 6,600+ acres will be provided as open space and recreational areas including ski terrain, golf courses, and trails. Representatives of Snowbasin will be attending the September 12, 2013 Planning Commission meeting to further explain the Snowbasin application and respond to all Planning Commission member questions directed to the Snowbasin application.

ANALYSIS

Planning Commission Responsibility. Section 8-3-4(D) (Management Code) provides the application review and decision framework for the Planning Commission. The Management Code requires that the Planning Commission affirmatively determine that: (1) the amendment is in accord with the county's general plan; and (2) changed or changing conditions make the proposed amendment reasonably necessary. These two questions must be considered to allow the Planning Commission to recommend application approval, or approval with modifications, to the County Council. If the Planning Commission determines that either one, or both, of these standards are not met the Planning Commission must transmit a recommendation for denial to the County Council.

Morgan County General Plan. The Morgan County General Plan (adopted December 21, 2010) specifically addresses the Snowbasin property. The General Plan's Future Land Use Map identifies the Snowbasin property as suitable for a "Master Planned Community" (See Exhibit 4, Future Land Use Plan, Map 4, General Plan, p. 10). It is the intent of the Master Planned Community designation "to provide for planned developments and resorts that offer a mix of residential and non-residential land uses" (General Plan, pp. 12-13). This is exactly the land development scenario proposed by Snowbasin.

Several General Plan goals, objectives, and policies support the approval of the Snowbasin application. These include:

Goal 1/Objective 1: "Plan for orderly and sustainable growth. **Policies:**

1. Guide town-scale development to Morgan City, Mountain Green, master planned communities, or villages as shown on the Future Land Use Map. (General Plan, p.14).

5. Require large scale development, if remote from existing infrastructure, to be developed as a master planned community, and to provide adequate infrastructure and services for the development (Ibid.).

Additionally, the General Plan vision statement identifies that the "County strongly recommends that growth occur within or adjacent to corporate limits and villages, or be located within master-planned communities" (p.5). When these, and other, General Plan goals, objectives, and policies are considered in their totality the cumulative effect is to encourage developments within master-planned communities, as identified for the Snowbasin property by the General Plan's Future Land Use Plan.

Changed or Changing Conditions. In January 2011 the Weber County Commission approved the "Weber County Zoning Development Agreement" for that portion of Snowbasin located in Weber County. That Agreement facilitates additional Snowbasin development in Weber County. Further, the General Plan states that "there is an opportunity for the County to capture sales tax revenue from visitors to the Snowbasin and Pineview area resorts" (Ibid., p. 19). The actions of Weber County and the opportunity for additional revenue capture appear as changed conditions. The Planning Commission should consider if these, and other changes, raise to the level sufficient that a zoning change for the Snowbasin property is "reasonably necessary to carry out the purposes" of the Management Code (Section 8-3-4[D]).

The Planning Commission's decision on the zoning amendment from MU-160 to RSD-Snowbasin for the Snowbasin property is a threshold action. If the Planning Commission can recommend approval, or approval with modifications, to the County Council, then other decisions come into play. These include a concurrent recommendation for the necessary Management Code text change to amend Section 8-5-J to identify the Snowbasin property as being located within the RSD-Snowbasin zoning district. Of more importance however is the question of how best should the County proceed to implement the RSD-Snowbasin zone and achieve the purposes of the General Plan and Management Code?

RSD-SNOWBASIN ZONING DISTRICT IMPLEMENTATION

The Management Code provides for the possible creation and adoption of a development agreement as a Resort Special District – Snowbasin (RSD-Snowbasin) implementation strategy. Provided as Chapter 21 – Development Agreements, Section 8-21-1 provides that a "development agreement may only be approved, if in the opinion of the county council, such development agreement is found:

A. To recognize the nature of the subject property by tailoring development standards and requirements that provide a more desirable land use planning and regulatory scheme than would be possible under the county's existing land use ordinances; or

B. To advance the policies of the county." Either A or B must be found by the County Council for the County to enter into a development agreement.

In addition, Section 8-5J-2-E speaks specifically to development agreements and provides that the County Council may enter into a development agreement if the subject property:

1) Conforms to applicable provisions of the county's general plan.
2) Conforms to applicable provisions of the Management Code.
3) Will better preserve the property and neighborhood by integrated planning and design than would be possible under other zoning regulations.
4) Development of the property will contribute positively to the county's long term economic stability, and
5) The infrastructure plan will not be detrimental to the county's health, safety, and welfare.

The County Staff and Planning Consultant have now fully considered the requirements of Chapter 21 – Development Agreements, specifically Section 8-21-1 and Section 8-5J-2-E. After a complete evaluation, the County Staff and Planning Consultant have determined that both Section 8-21-1 (A and B) and Section 8-5J-2-E can be found to be met by a robust development agreement. While the review of all development agreement matters is the sole purview and responsibility of the County Council, the Planning Commission should be aware that a very viable implementation tool exists to achieve the purposes of the RSD-Snowbasin zone. A development agreement not only provides a mechanism to the County (and Snowbasin) to facilitate the crafting of necessary development standards and requirements to provide a desirable land use planning and regulatory scheme but also promotes and advances the goals and policies of the County.

RECOMMENDATION

The County Staff and Planning Consultant now respectfully recommend that the Planning Commission consider all information and materials provided by Snowbasin, County Staff, Planning Consultant, and all public comment received.

After full consideration, the County Staff and Planning Consultant respectfully recommend that the Planning Commission transmit a recommendation for approval to the County Council for the Snowbasin zoning district amendment from Multiple Use District (MU-160) to Resort Special District-Snowbasin (RSD-Snowbasin), accompanied by the required Management Code

text amendment identifying the Snowbasin property as Resort Special District-Snowbasin (RSD-Snowbasin).

This recommendation should be accompanied by the following findings and requirements to provide the necessary defensible basis for the Planning Commission's recommendation:

Findings.

1. As required by Section 8-3-4(D) (Management Code) the amendment is in accordance with the county's general plan, goals, and policies of the county; and changed or changing conditions make the proposed amendment reasonably necessary to carry out the purposes of the Management Code.
2. The zoning district amendment application materials, and the schematic development plan (concept plan), provided by Snowbasin;
   a. Conforms to applicable provisions of the county's general plan.
   b. Conforms to applicable provisions of the Management Code.
   c. Will better preserve the property and neighborhood by integrated planning and design than would be possible under other zoning regulations.
   d. Development of the property will contribute positively to the county's long term economic stability, and
   e. The infrastructure plan will not be detrimental to the county's health, safety, and welfare.

Requirements.

1. That the zoning amendment for the Snowbasin property, from MU-160 to RSD-Snowbasin, be implemented by the formulation and adoption, by the County Council, of a concurrent development agreement, such agreement specifically rezoning the Snowbasin property to "RSD-Snowbasin," and meeting all requirements of the Management Code, including Chapter 21.

MODEL MOTIONS

A Motion Recommending Approval – "I move we forward a recommendation of approval to the County Council for the Snowbasin zoning amendment application, Application #12.153, rezoning the 8,140 acre Snowbasin property from MU-160 to RSD-Snowbasin, based on the findings and requirements listed in the Consultant Planner Report, dated September 5, 2013, and as modified below:"

1. List any modifications.

A Motion Recommending Denial – "I move we forward a recommendation of denial to the County Council for the Snowbasin zoning amendment application, Application #12.153, based on the following findings:"

1. List findings.

ADDITIONAL INFORMATION

Exhibit 1: Snowbasin Property Vicinity Map
Exhibit 2: Snowbasin Concept Land Use Plan
Exhibit 3: Snowbasin Resort – Special District Application Materials
Exhibit 4: Snowbasin Resort – Special District Application Exhibits
Exhibit 5: General Plan Future Land Use Map

Exhibit 1: Snowbasin Property Vicinity Map

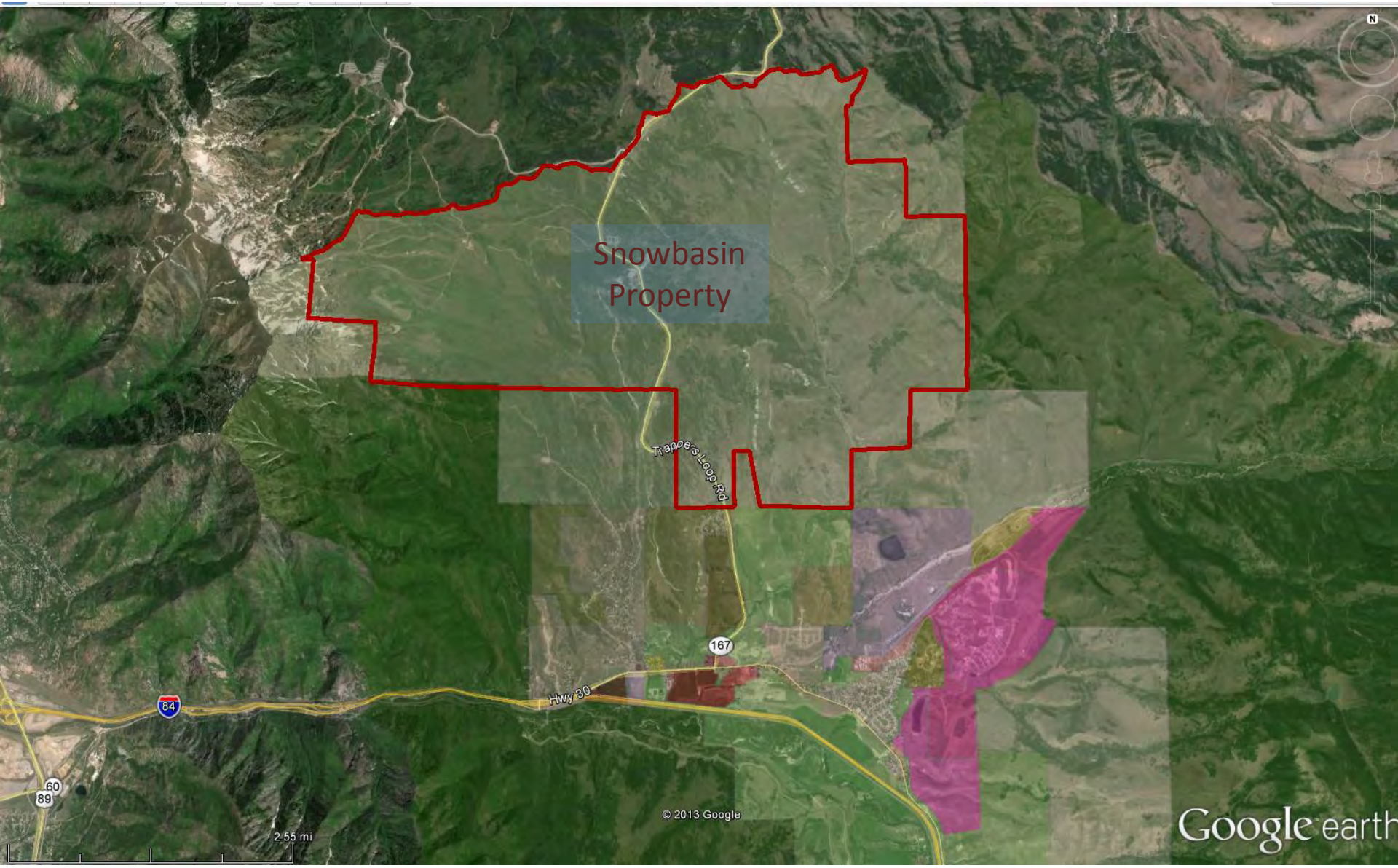
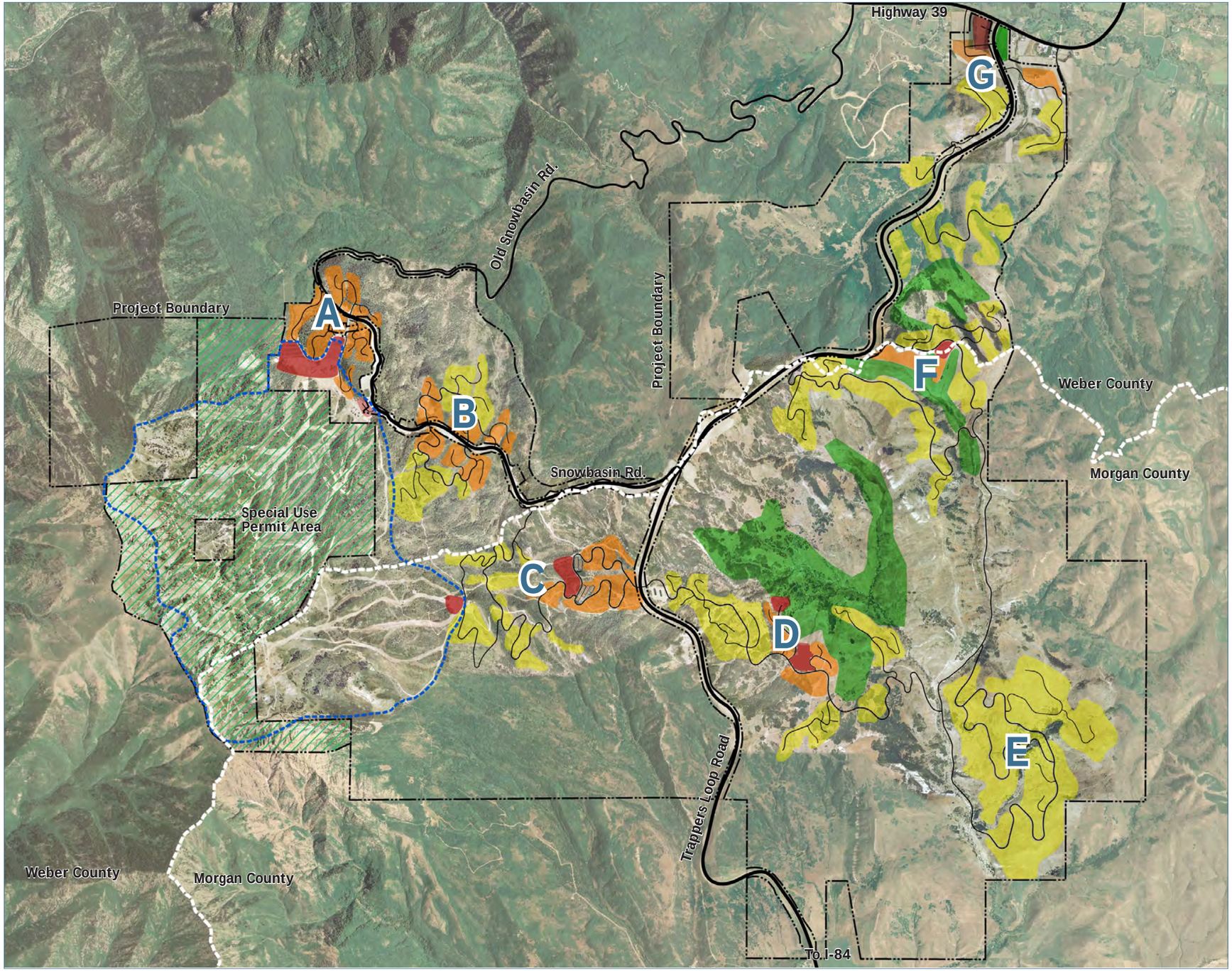


Exhibit 2: Snowbasin Concept Land Use Plan

Overall Conceptual Land Use Plan



- Snowbasin Project Boundary
- Snowbasin Ski Area Boundary
- USFS Special Use Permit Area
- Roads
- Parking Structure with Residential Above
- Single Family residential
- Multi-family residential
- Mixed-use development
- (Areas D and F) Golf and Golf Infrastructure
- (Area G) Community Park

NORTH

Drawing Not to Scale

Snowbasin Resort Special District Application

Morgan County, Utah

snowbasin

A SUN VALLEY RESORT

APPLICANT:
SNOWBASIN RESORT COMPANY
P.O. Box 10
1 Sun Valley Road
Sun Valley, ID 83353

PREPARED BY:
DESIGNWORKSHOP
1390 LAWRENCE STREET #200
DENVER, CO 80204

OCTOBER 11, 2012


snowbasin
snowbasin
SUN VALLEY RESORT
A SUN VALLEY RESORT
WELCOME
THANK YOU
WELCOME

Table of Contents

Resort Special District Application Requirements

Ordinance No. CO-11-17 requires certain information to be included in an application for an RSD zone. The table below notes where this information is located in this application and exhibits.

Requirement	*Where it's located in the Application*
Proposed zone name and legal description	Appendix 1
Proposed zone text which shall include:	
• Permitted, conditional and accessory uses	Page 34
• Proposed development standards, including:	
• Land use standards establishing mix of land use types, location and density	Page 31
• Lot standards establishing requirements for lot area and dimensions	Appendix 2, page 11
• Building setbacks standards for front, side and rear yards	Appendix 2, page 12
• Design standards addressing:	Appendix 2
• Building height	Appendix 2, page 13
• Building orientation	Appendix 2, page 14
• Common and private open space	Appendix 2, page 27
• Natural resource protection	Page 55
• Architectural design	Appendix 2, page 11
• Landscaping and buffering standards	Appendix 2, page 25
• Signage standards	Appendix 2, page 18
• Parking standards	Appendix 3, page 20
Conceptual Land Use Plan showing:	Page 25
• Location of proposed uses	Page 28
• Location, arrangement and configuration of open space	Page 56
Project-specific development agreement	Appendix 3
Project-specific transportation study	Exhibit A
Project specific fiscal impact analysis	Exhibit B
Infrastructure master plan which addresses:	Exhibit C
• Culinary and irrigation water	Exhibit C
• Sanitary sewer	Exhibit C
• Storm water	Exhibit C
• Electricity provision	Exhibit C
• Transportation plan, layout and proposed road cross sections	Exhibit A & C
• Natural gas	Exhibit C
• Renewable energy	Exhibit C

Introduction

PURPOSE OF APPLICATION

Morgan County created the Resort Special District (RSD) Zoning District in December 2011 (Ordinance No. CO-11-17). The Resort Special District (RSD) zone is to permit a compatible, master-planned mix of various types of residential and commercial land uses in combination with open space and recreational components on land that has characteristics that warrant customized development requirements. Although residential dwelling type and development size will vary from location to location, each development is intended to consist of well-designed, architecturally integrated structures which are appropriately landscaped and buffered from surrounding land uses.

The purpose of this application is to create the Snowbasin Special Resort District (S-SRD) that would include the approximate 8,100 acres at Snowbasin. The proposed Snowbasin Resort meets the RSD Ordinance requirements of 1,280 acres in size and designates over 60 percent of the land as open space. The 8,100 acres of the resort located in Morgan County are proposed to provide a combination of resort facilities, recreation, residential and open space. This application includes the proposed master plan for the entire resort area, including Morgan and Weber Counties as well as specific information for each development area located in Morgan County. Additionally, per Morgan County's Ordinance No. CO-11-17, this application includes a transportation study, fiscal impact study, infrastructure master plan, information detailing how the proposed S-SRD conforms to Morgan County's General Plan and a Development Agreement.

SNOWBASIN HISTORY

When Earl and Carol Holding purchased Snowbasin in 1984, they had a vision of a destination four-season resort. Now, 28 years later, the vision has been defined in a 50-year master plan that will guide future development of the resort.

Snowbasin ski area got its start in 1938, when members of the U.S. Forest Service (USFS) determined that the area had excellent conditions for skiing. The first ski tow lift was put in operation in 1939, and as word of the pristine powder spread, the area attracted more visitors. The ski area remained largely unchanged, with the exception of small improvements including a day lodge, access roads and ski runs and lifts, until the mid-1980s when Trappers Loop Road was constructed connecting Huntsville to Weber Canyon.

In 1995, Salt Lake City was awarded the 2002 Olympic Games and Snowbasin was chosen as the venue for the men's and women's downhill, Super G and combined races. In preparation for the Olympic Games, significant improvements were made to Snowbasin, including the ski runs off Mt. Ogden, the addition of day lodges including Earl's Lodge, John Paul Lodge, The Grizzly Center and Needles Lodge, additional parking for the Olympic visitors, and road improvements to access the resort. During Olympic venue construction, Snowbasin and the USFS considered the environment their first priority, protecting soil, water quality, wetlands, wildlife and aesthetic values. The 2002 Olympic Games were very successful and moved Snowbasin from Utah's best-kept secret to recognition as a world-renowned ski mountain. In 2004, Snowbasin took one more step toward the vision of becoming a four-season resort when it opened for its inaugural Summer Season.

More recently, the master plan for Snowbasin was updated in 2007 and discussions began with Morgan and Weber counties to rezone the approximate 12,000 acres at Snowbasin to allow for recreational, commercial and residential development. Due to the size and magnitude of the proposed Snowbasin Resort, both counties found it necessary to adopt ordinances that created new zoning categories for the development of resorts such as Snowbasin. An application was submitted to Weber County under the new Ogden Valley Destination and Recreation Resort Ordinance in 2010 and approval of the rezone was granted in 2011.

This application to Morgan County to rezone Snowbasin Resort as a Resort Special District under the County's newly adopted ordinance marks the final step in obtaining entitlements for the property to allow development to occur and Mr. and Mrs. Holding's vision of a four-season resort to continue to evolve.


JOHN PAUL
LODGE

Conceptual Plan

Context Map

Snowbasin Resort is approximately 45 miles from Salt Lake City International Airport. It is accessed from the south through the town of Mountain Green and Interstate 84 or from the north via Trappers Loop Road from Highway 39.

The Snowbasin Resort consists of approximately 12,000 acres in both Weber County and Morgan County. Snowbasin Resort owns approximately 3,800 acres in Weber County and 8,100 contiguous acres within Morgan County.

The Snowbasin property located in Morgan County is currently zoned MU-160 - Multiple Use District.

Context Map

- Morgan County
- Snowbasin Property
- Snowbasin Ski Area Boundary
- Ski resorts
- Major Road
- Cities
- Water
- Federal Land

NORTH

Exhibit 3: Snowbasin Resort – Special District Application Materials

Introduction

This section includes information regarding the master plan for Snowbasin Resort. In order to realize the vision of a destination four-season resort, careful consideration was given to the placement of residential, commercial and recreational uses with open space preservation and sustainability principles as the foundation. Comprehensive site analysis was completed before creating the concept plan. The attributes of the land were used to determine the location and density of proposed development. The planning and design principles, sustainability philosophies, and goals regarding potential water conservation, stormwater management, and energy and transportation reduction measures, are described in this section.

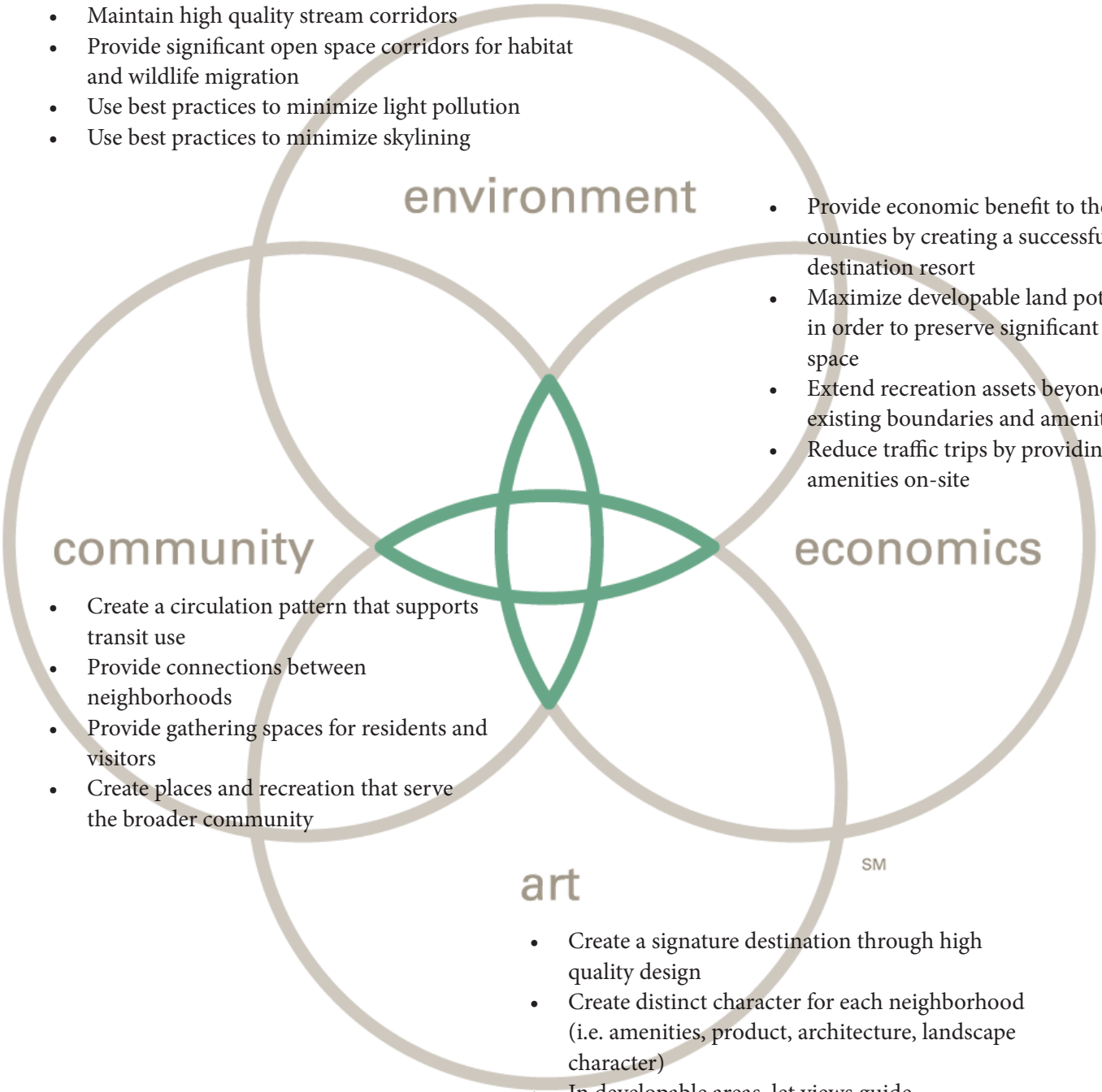
Although Snowbasin Resort spans two counties, the resort master plan was planned as one project to ensure compatibility and continuity between the two counties. As such, the master plan for the entire Snowbasin Resort is included in this application as well as detailed information regarding the planning areas located within Morgan County. An important aspect of any resort is recreation; this application includes the proposed recreational facilities plan and related amenities in each of the areas at Snowbasin Resort. As a result of detailed analysis of the attributes of the land at Snowbasin and careful placement of clustered development areas, 85 percent of the land has been designated as open space. The open space plan is included in this application and also shows the potential trail system within Morgan County and the Snowbasin Resort as a whole.

Planning and Design Principles

Due to the vast area of the resort property, proposed development has been arranged into separate planning areas denoted with a letter (Areas A through G). The following pages show the master plan for the entire Snowbasin property (Morgan and Weber Counties) followed by detailed plans for the property located within Morgan County. This master plan represents a 50-year buildout period and will be phased as market conditions allow. The design process for Snowbasin began with an in-depth site analysis process using geographic information system (GIS) to discern the most suitable areas for development. The development areas depicted in this application have been carefully cited to avoid steep slopes, geologic hazards and waterways.

The concept for each area within Morgan County is described on the development summary page. The Snowbasin Master Plan was prepared with respect to the land attributes and with overall sustainability in mind. The proposed plan creates a year-round resort consistent with Snowbasin's reputation for high quality, while taking advantage of the recreational and residential opportunities within the area and respecting the natural beauty, habitat and wildlife migration, view corridors and sensitive lands within the region. In doing so, the importance of the economic, community and aesthetic benefits were also taken into consideration and play an important part in the proposed plan.

- Let land attributes determine appropriate development
- Site buildings to take advantage of solar orientation
- Use Low Impact Development (LID) techniques for stormwater management
- Maintain high quality stream corridors
- Provide significant open space corridors for habitat and wildlife migration
- Use best practices to minimize light pollution
- Use best practices to minimize skylining



- Provide economic benefit to the counties by creating a successful destination resort
- Maximize developable land potential in order to preserve significant open space
- Extend recreation assets beyond its existing boundaries and amenities
- Reduce traffic trips by providing amenities on-site

- Create a circulation pattern that supports transit use
- Provide connections between neighborhoods
- Provide gathering spaces for residents and visitors
- Create places and recreation that serve the broader community

- Create a signature destination through high quality design
- Create distinct character for each neighborhood (i.e. amenities, product, architecture, landscape character)
- In developable areas, let views guide development patterns to reinforce the sense of place

SUSTAINABILITY

SUSTAINABILITY DEFINED

Snowbasin Resort will be built as a high-quality, year-round resort that is a sustainable model for mountain resort communities. Sustainable design, according to the World Commission on the Environment and Development, "meets the needs of the present without compromising the ability of future generations to meet their own needs." Dr. Warren Flint, sustainability expert, considers sustainable design practices to be techniques that balance economic, environmental and social considerations. In his words, "Sustainability means working to improve human quality of life without damaging or undermining society or the environment, now or in the future. In this way, economic desires become accountable to an ecological imperative to protect the biosphere, and a social equity imperative to create equal access to resources and maximize human well being." In this context, everything in the resort community falls under consideration – from the decisions about how to treat stormwater to the programming of Strawberry Village. The following narrative describes some of the strategies that will be used to achieve a strategic, sustainable community.

ECONOMIC SUSTAINABILITY

The proposed master plan for Snowbasin will provide economically viable development while protecting the natural environment and conserving natural resources. The addition of a second portal to the mountain and increased tourist visits to the hotels will increase the revenue Morgan County receives. Additionally the residential units in the area will increase the value of real estate in the area in addition to providing additional property tax revenue.

COMMUNITY SUSTAINABILITY

A community should have easy access to the amenities of an active lifestyle. The Snowbasin open-space program is a vital part of the planning approach for this community that embraces the need for personal well-being and for connections to the natural environment. But wellness goes beyond just wellness of the body and has many dimensions, including wellness of the mind, family, community and of the land.

In order to foster all areas of community stability, the proposed master plan for Snowbasin includes planned development to unite all of these elements, each benefiting the next. Wellness of the land is achieved by preserving the natural beauty and ecosystems of Snowbasin. An individual's interaction with the land fosters experience, growth, peace and peace of the mind. This then affects family and community well being and the benefits go full circle.

Variety is important to serve the wants and needs of a diverse community and ensure its sustainability. There will be a variety of dwelling types, price ranges and character at Snowbasin. A variety of architectural styles, sizes and forms creates community identity and establishes a place. There will also be varied options in commercial offerings; daily needs, shopping and visitor accommodations. Civic events and recreational opportunities will also serve a wide demographic and provide active and passive opportunities that range from skiing, mountain biking, people watching and golf, to music events and festivals.

Families, community residents, and individuals will benefit from the open space system that links the existing regional trail system to the additional amenities at Snowbasin in a network with proximity to all residents.

AESTHETIC INTEGRITY

By taking advantage of its scenic surroundings and the beauty of its sensitive lands, Snowbasin Resort will become known as one of the premier resort communities in the West. It is an art form to frame and direct attention to natural beauty and dramatic views. The natural setting of Snowbasin with its rugged mountains and long valley views are what make the setting so inspiring. The preservation of this aesthetic is critical to the long-term vision for Snowbasin Resort.

To ensure that the existing natural beauty is preserved, Snowbasin is setting a precedent of protecting approximately 85 percent of the land as open space. This means that there are places with uninhibited views of the majestic mountains and valleys throughout the development. High-quality materials and craftsmanship, which has long been a standard of Snowbasin Resort and the Holding family, will continue to be used to create enduring, beautiful and sustainable buildings.

ENVIRONMENTAL STEWARDSHIP

The land uses illustrated in the proposed master plan for Snowbasin have been carefully positioned based on attributes of the land. Drainage and wildlife corridors, steep slopes, landslide hazards and wetlands have been buffered and preserved from development. The areas identified for development are those that have the capacity to support construction, are physically accessible and add value to real estate development opportunities.

Approximately 85 percent of Snowbasin Resort property in Morgan County is being preserved as open space. These areas will retain their value and character as scenic amenities and recreational assets. Development areas are planned as compact neighborhoods to create a sense of place, establish identity and to preserve the natural character of the land. The large undeveloped tracts of open space allow for undisturbed habitat preservation, high quality stream corridors and wildlife migration zones through contiguous corridors connecting to the greater landscape.

Stewardship of the land will sustain the health of its natural systems, habitat and scenic value while the careful integration of a resort community will benefit future community residents, landowners and Morgan County. This symbiotic balance is the ultimate goal.

POTABLE WATER

The primary goal in providing a sustainable potable water system for Snowbasin is to reduce the water demand required for the development compared to a typical development. Snowbasin is committed to a sustainable potable water system and may use a combination of the following means to achieve this goal: Project-wide Covenants, Conditions and Restrictions (CC&R's) that require the use of water efficient plumbing and appliances for new residential construction; and potentially a tiered water rate system that will result in reduced rates for low water usage and higher rates for excessive water usage thus further encouraging water conservation.

IRRIGATION WATER

The Utah Division of Water Rights estimates that 67 percent of water use in residential areas is used for outside irrigation (Utah Division of Water Rights 2003). A large portion of this water is wasted due to runoff, evaporation and other factors. To reduce irrigation water demands, Snowbasin will limit the amount of irrigated area allowed for each land use. Native water-wise vegetation will be preserved or planted throughout the development except for certain areas of the resort village, golf courses and other recreational areas that have specific planting and irrigation needs. Smart irrigation systems, water efficient landscaping and the use of secondary water for irrigation are all strategies that will dramatically reduce irrigation water needs.

WASTEWATER

As water quality standards for wastewater effluent become more stringent and water resources become more scarce, many municipalities across the country and in Utah are turning towards water reuse. On-site wastewater treatment at Snowbasin will allow water reuse to be a feasible alternative to 100% discharge. Water reuse will primarily be feasible in the lower areas around the golf courses and treatment plants. The use of advanced wastewater treatment techniques and reuse are being explored for the project.

STORMWATER

New development inevitably causes an increase in impervious area resulting in greater stormwater water runoff that can alter the natural hydrology of receiving waters. Through the use of Low Impact Design and stormwater Best Management Practices (BMPs), pre-development stormwater runoff conditions can be simulated by allowing additional time for detention and pollutant removal prior to conveyance downstream. Vegetated swales, extended catch basins, oil/water separators and/or detention ponds may be used at Snowbasin to prevent downstream water quality degradation and minimize the effect of the impervious area.

GREEN BUILDING

Green building practices may be used at Snowbasin to ensure the construction and maintenance of buildings are sustainable. Green building incorporates energy efficiency, healthy living, and conscientious resource management. Because green building does not dictate a particular architectural style, a range of architectural styles can be used. The main focus of green building is to provide

benefits to the occupants and owners, such as lower operating and maintenance costs. Buildings at Snowbasin may incorporate U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) standards.

ENERGY

Renewable energy is derived from sources that are naturally replenished from natural resources. The use of innovative renewable energy systems at Snowbasin will be analyzed at each phase of development to take advantage of the latest developments in renewable energy. For example, solar and geothermal energy could potentially be utilized at Snowbasin (see below).

SOLAR ENERGY

Solar energy applications that could be utilized in some areas at Snowbasin include photovoltaic solar cells, heating and cooling air through use of solar chimneys, heating buildings directly through passive solar heating and daylighting building design, solar hot water, and space heating using solar-thermal panels.

GEOTHERMAL ENERGY

The geothermal energy system that would be most feasible at Snowbasin is the geothermal exchange heat pump. Heat pumps utilize the upper 10 feet of the Earth, which maintains an almost constant temperature of 50-60 degrees Fahrenheit. It is warmer than the air above the surface in the winter and cooler in the summer. Geothermal heat pumps use a ground heat exchanger and a pump unit to heat and cool buildings and heat water. They use less energy than conventional heating and cooling systems and are more efficient, saving energy, money and reducing air pollution. This application may be suitable for use at Snowbasin for individual residences or resort buildings.
National Renewable Energy Lab, http://www.nrel.gov/learning

TRANSPORTATION

Transportation sustainability is accomplished by limiting the demand on the roadway system; fewer vehicles means less congestion and less environmental impacts. The primary way to achieve this is by providing on-mountain accommodations that allow residents and guests to drive to the resort once and stay for multiple days instead of making daily trips. A second way is providing the supportive commercial uses within the resort that allow residents and guests to fulfill many of their trip purposes (such as dining, entertainment and resort-related shopping) on site, limiting the number of trips to Mountain Green, Huntsville or Ogden for those needs. A third is an internal shuttle system between each of the resort development areas that will enable guests to access the ski area bases without using their vehicle. This system could operate as an on-call system, a fixed route / fixed schedule system or hybrid system that offers fixed route service during the peak demand periods and on-call service during lower demand periods. Finally, a comprehensive system of pedestrian and bicycle trails at Snowbasin will promote alternate modes of travel by providing internal connections to each development area and connections between the mountain resort villages and the Valley.

SITE ANALYSIS

THE PLANNING PROCESS

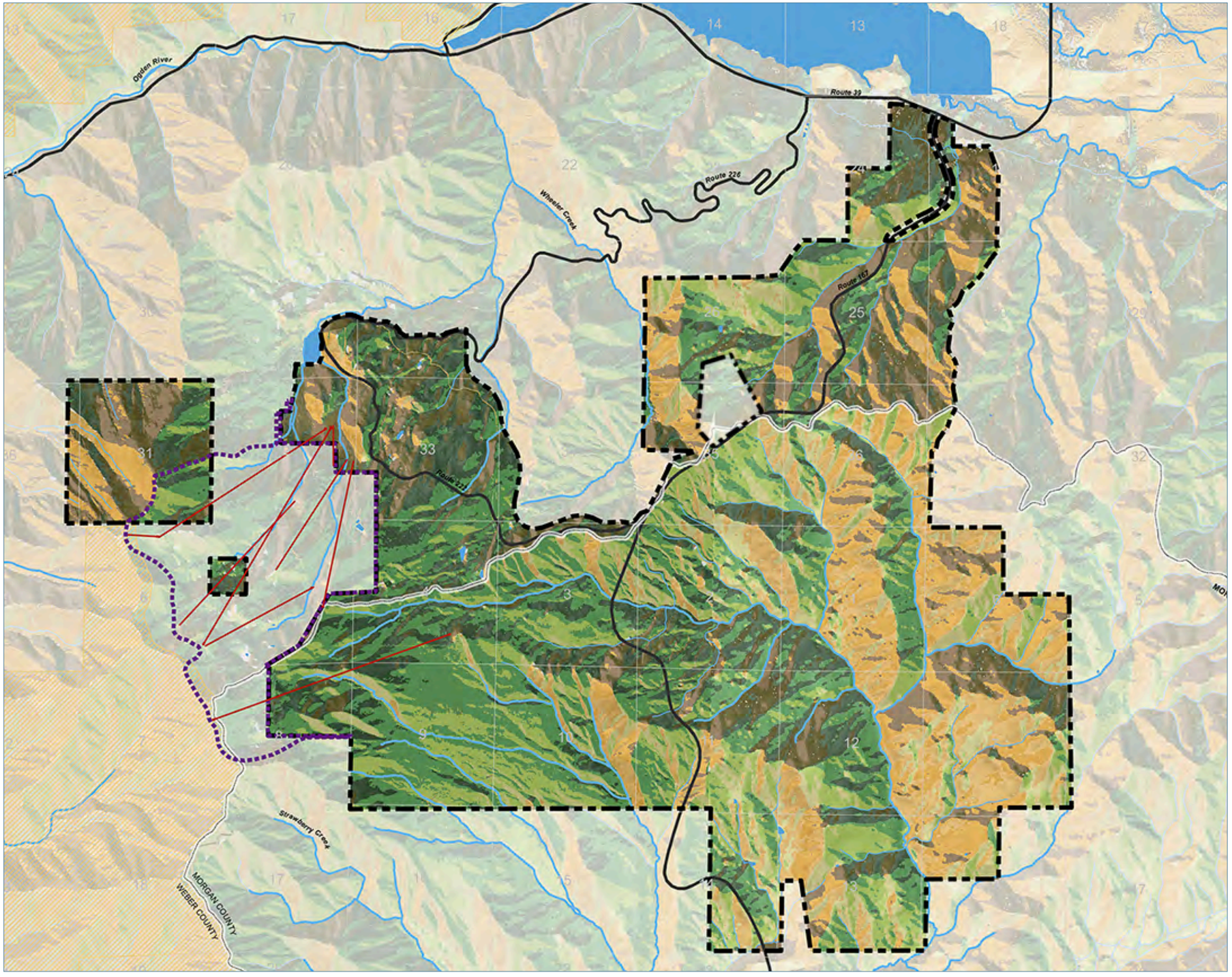
The planning process that began in 2007 to create a destination four-season resort looked at the Snowbasin property as a whole. A thorough analysis of the land was completed, revealing the developable areas and those that should be preserved for aesthetic or environmental reasons. Snowbasin's Master Plan recommends the development of only fifteen percent (15%) of the approximate 8,100 acres in Morgan County. This leaves an unprecedented amount of land for open space, preserving the environmental integrity and scenic splendor of the land. The proposed development at Snowbasin was prepared with many guiding principles as the foundation with respect for the land attributes and overall sustainability the primary focus.

Design Workshop conducted a detailed GIS analysis for the entire Snowbasin property. One map was created for each land attribute that was evaluated and then the feasibility for development was determined by weighing these attributes by their impact on development. The design concepts have been derived directly from these analysis maps.

Aspect

The Aspect analysis shows the direction that slopes are facing.

Much of the property proposed for development has slopes facing southeast to southwest, a favorable condition that yields good solar exposure.



Sinclair property boundary
Ski area boundary
Ski lift
Water
Road
US Forest Service Roadless Area

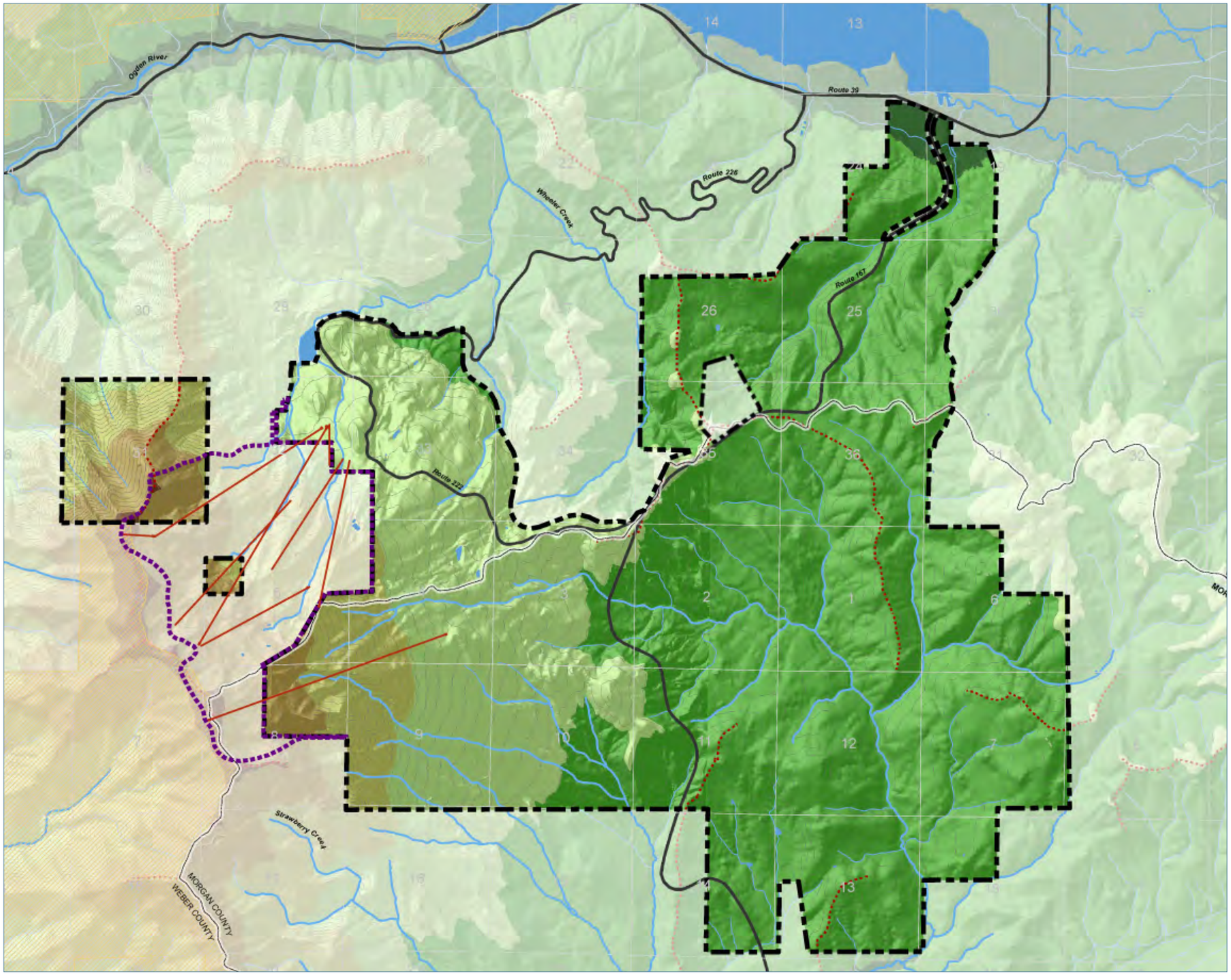
Aspect:
Flat
North
Northeast
East
Southeast
South
Southwest
West
Northwest
North

0 625 1,250 2,500 Feet
1 inch = 1200 feet

Date: June 1, 2007

Sources:
- Sinclair property boundary, ski area boundary, ski lift and detailed topographic (5ft and 10ft) information was received from Sinclair Oil in 2007.
- USFS boundary, county boundary, hydrology, transportatior and general topographic (30ft) information were obtained fro the Utah AGRC in 2007.
- Aspect analysis was performed by Design Workshop using ArcView 9.1 in 2007.

Elevation



The Elevation analysis shows a graduated color-coded elevation scale that illustrates topographic conditions. Major ridgelines are also identified.

Higher topography is generally in the mountains west of the site and the lowest elevations on site exist to the north near Huntsville.

- 100' contour
- Major Ridgelines
- Sinclair property boundary
- Ski area boundary
- Ski lift
- Water
- Road
- US Forest Service Roadless Area

Elevation:

- Less than 5,000
- 5,000 - 6,000
- 6,000 - 7,000
- 7,000 - 8,000
- 8,000 - 9,000
- Greater than 9,000

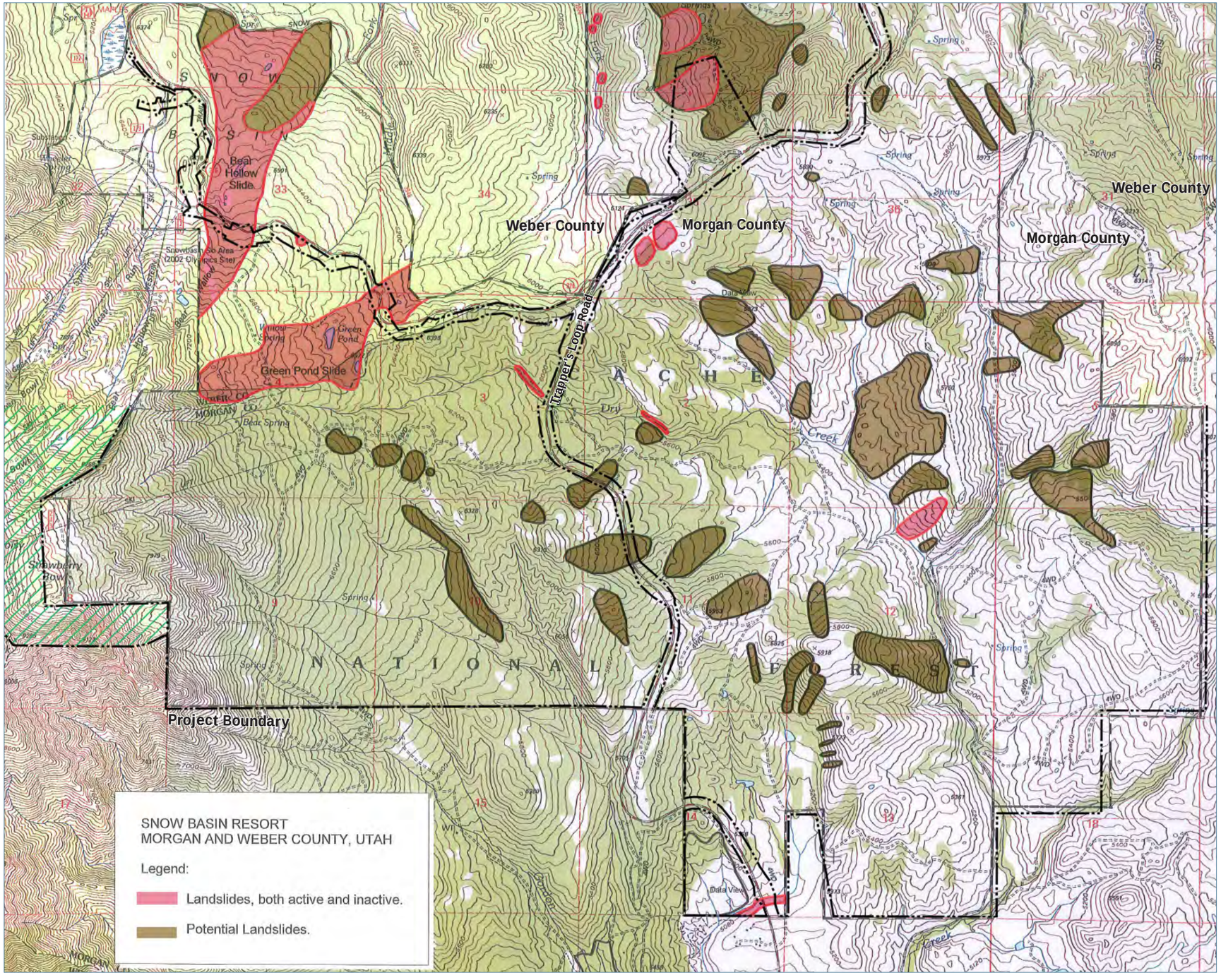
0 600 1,200 2,400 Feet

1 inch = 1200 feet

Date: June 1, 2007

Sources:
- Sinclair property boundary, ski area boundary, ski lift and detailed topographic (5ft and 10ft) information was received from Sinclair Oil in 2007.
- USFS boundary, county boundary, hydrology, transportation and general topographic (30ft) information were obtained from the Utah AGRC in 2007.

Geologic Hazards (South Portion)



A geologic hazard study was conducted to inform the proposed land use plan for Snowbasin Resort. Based on this information, development was sited to avoid potential geologic hazards to the greatest extent possible. This map shows the Geologic Hazards in Morgan County.

SNOW BASIN RESORT
MORGAN AND WEBER COUNTY, UTAH

Legend:

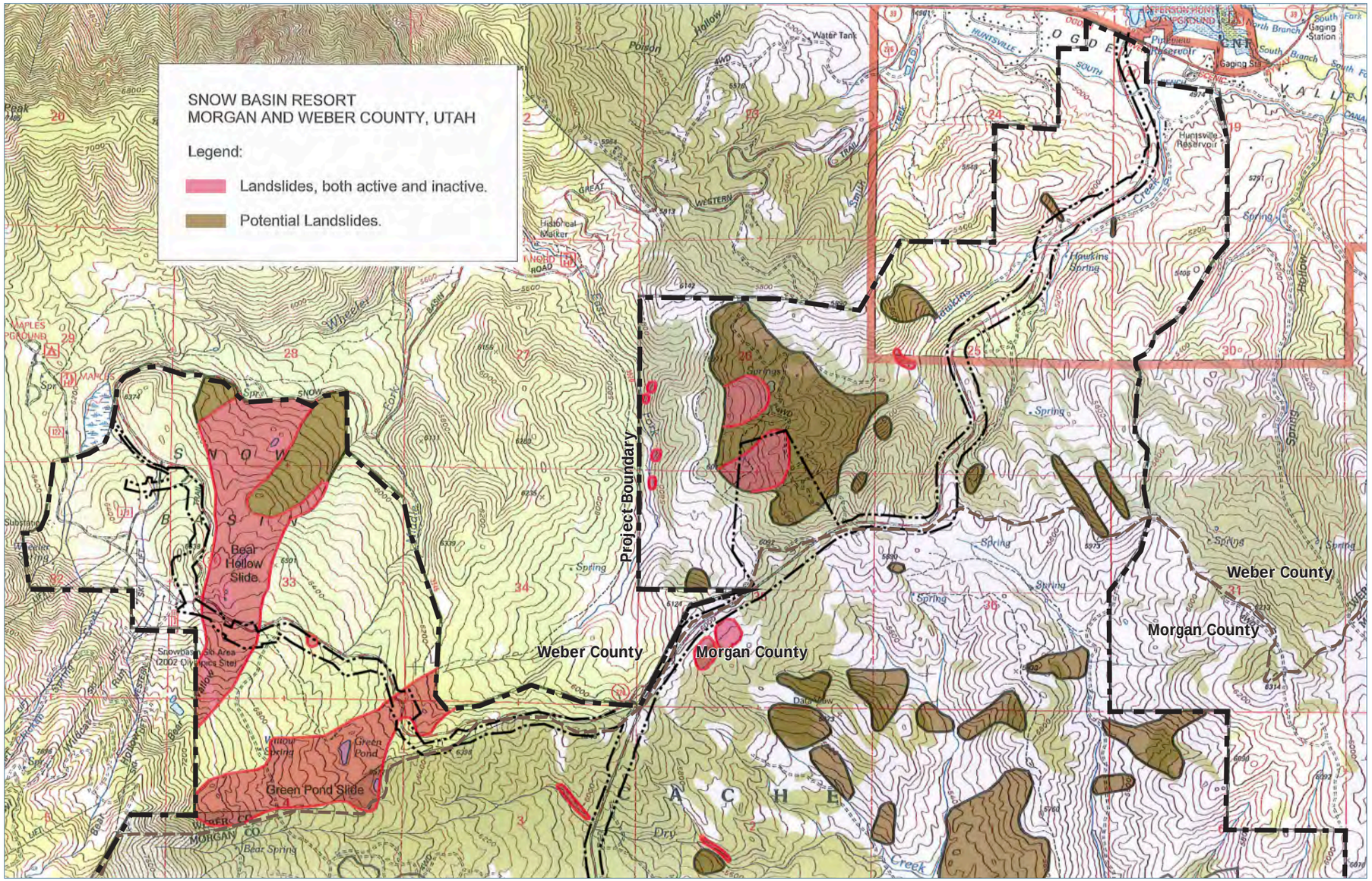
Landslides, both active and inactive.

Potential Landslides.

Mapped by AGEC Applied Geotechnical Engineering Consultants, Inc.

AGEC Applied GeoTech

Geologic Hazards (North Portion)



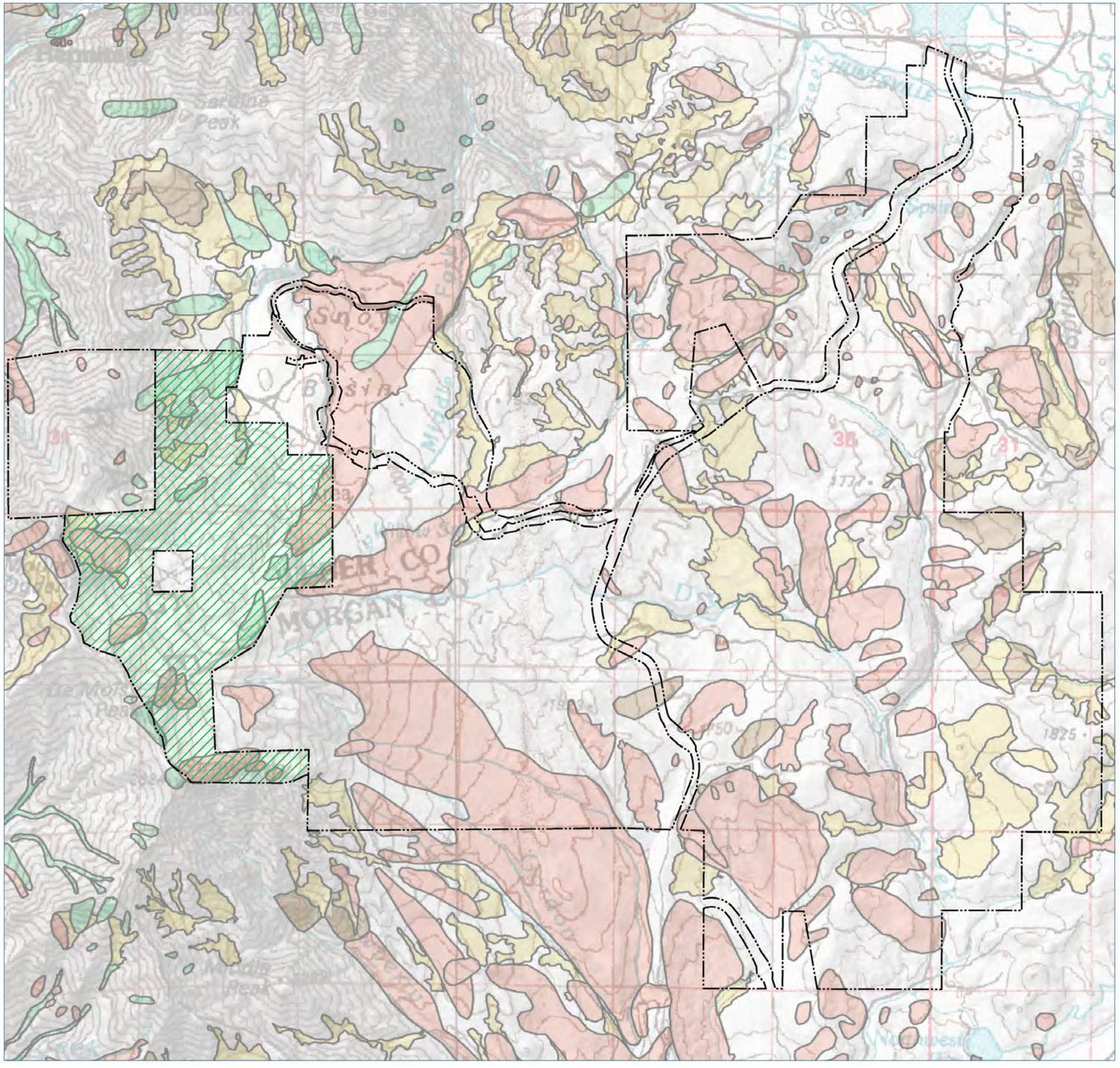
A geologic hazard study was conducted to inform the proposed land use plan for Snowbasin Resort. Based on this information, development was sited to avoid potential geologic hazards to the greatest extent possible.

SNOW BASIN RESORT
MORGAN AND WEBER COUNTY, UTAH
Legend:
Landslides, both active and inactive.
Potential Landslides.

Mapped by AGEC Applied Geotechnical Engineering Consultants, Inc.

AGEC Applied GeoTech

Utah Geologic Survey
Geologic Hazards



This 2010 UGS map was obtained from the Utah Geologic Survey website and shows the landslide type and locations located within the Snowbasin Resort property. Snowbasin also conducted an independent study of the geologic hazards, the resulting maps from the study are included on the previous two pages. Site specific geologic hazard studies will be conducted as roads and buildings are designed in Morgan County.

Explanation

🟥 **Deep or unclassified landslide** - Generally 10 feet (3 m) thick or more and shows characteristic landslide morphology. May include areas of complex or composite landsliding where landslide density is too great to show individual landslides separately. Also includes unclassified landslides (original source was not specific about landslide type).

🟩 **Shallow landslide** - Generally less than 10 feet (3 m) thick and shows characteristic landslide morphology. Includes mainly debris slides and debris flows. May include some composite landslides.

🟪 **Lateral spread and/or flow failure** - Liquefaction-induced landslides typically associated with earthquakes; generally occur on very gentle slopes or flat terrain.

🟨 **Landslide undifferentiated from talus and/or colluvial deposits** - May include deep or shallow landslides mapped with talus and/or colluvial deposits.

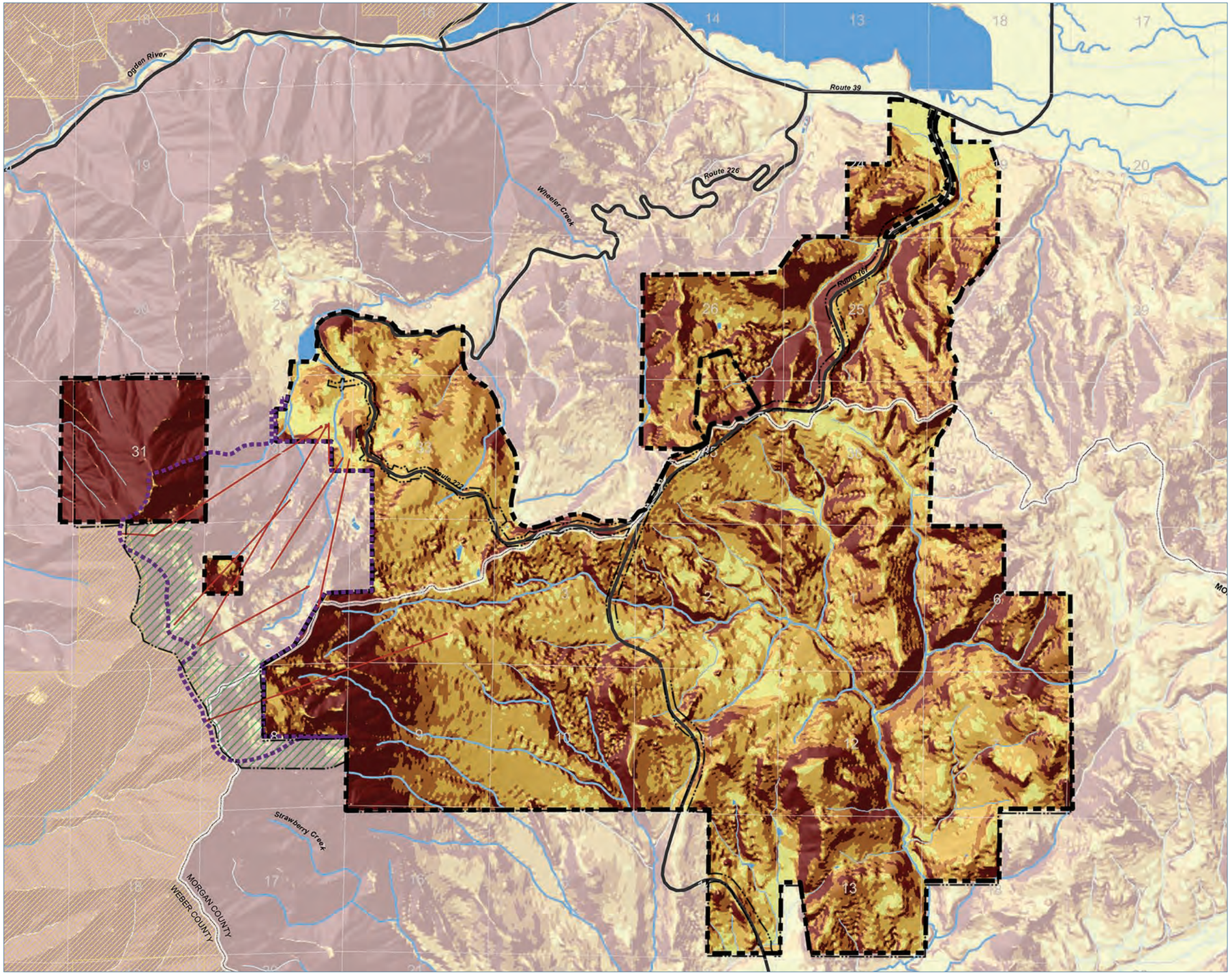
🟫 **Landslide and/or landslide undifferentiated from talus, colluvial, rock-fall, glacial, and soil-creep deposits** - May include deep or shallow landslides mapped with talus, colluvial, rock-fall, glacial, and/or soil-creep deposits; primarily mapped and compiled by Roger B. Colton, U.S. Geological Survey.

⬜ **Not classified** - Includes areas not mapped in the original studies compiled for this map, as well as mapped areas with no identified landsliding.

Landslide scarp - Landslide feature found near the head. Identified as the area where landslide material has moved downslope and away from the undisturbed ground. Hachures on down-dropped side.

— **Debris-flow travel path** - Identifies the path of a debris flow (shallow landslide).

Existing Topography/Slope



The Slope analysis illustrates that the land's topography varies from 0% to over 30%.

Although the county's previous MPDR Ordinance allowed for development on slopes up to 30%, the resort master plan only considered slopes less than 25% as developable.

Slope:		Weber County	Morgan County
	0 - 10%	421.64 ac	700.97 ac
	10 - 20%	1,545.56 ac	1,895.75 ac
	20 - 30%	1,011.20 ac	2,511.67 ac
	> 30%	1,301.33 ac	2,975.35 ac

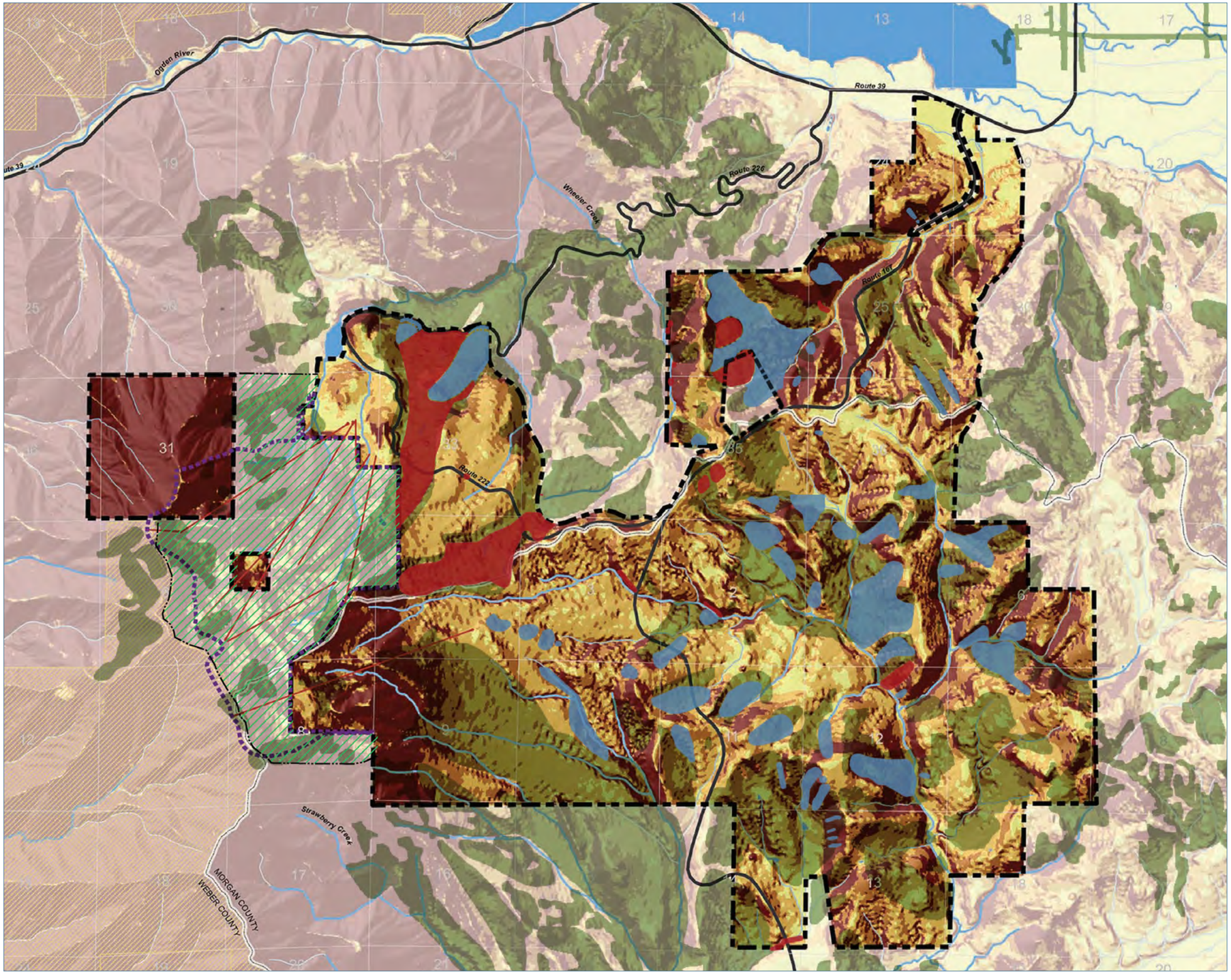
0 650 1,300 2,600 Feet

1 inch = 1200 feet

Date: June 1, 2007

Sources:
- Sinclair property boundary, ski area boundary, ski lift and detailed topographic (5ft and 10ft) information was received from Sinclair Oil in 2007.
- USFS boundary, county boundary, hydrology, transportatic and general topographic (30ft) information were obtained fr the Utah AGRC in 2007.
- Slope analysis was performed by Design Workshop using ArcView 9.1 in 2007.

Physical Constraints Summary Map



The physical constraints map is an overlay of the hydrologic conditions, slope map and both geologic hazard maps.

- Ski area boundary
- Ski lift
- Water
- Road
- US Forest Service Roadless Area

Slope:		Weber County	Morgan County
	0 - 10%	421.64 ac	700.97 ac
	10 - 20%	1,545.56 ac	1,895.75 ac
	20 - 30%	1,011.20 ac	2,511.67 ac
	> 30%	1,301.33 ac	2,975.35 ac

Landslide Hazard

- State Mapped Landslide Hazard
- Known active and inactive landslides per the 4/09 geotechnical report
- Potential Landslides per the 4/09 geotechnical report

0 650 1,300 2,600 Feet

1 inch = 1200 feet

Date: June 1, 2007

Sources:
- Sinclair property boundary, ski area boundary, ski lift and detailed topographic (5ft and 10ft) information was received from Sinclair Oil in 2007.
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Exhibit 3: Snowbasin Resort – Special District Application Materials

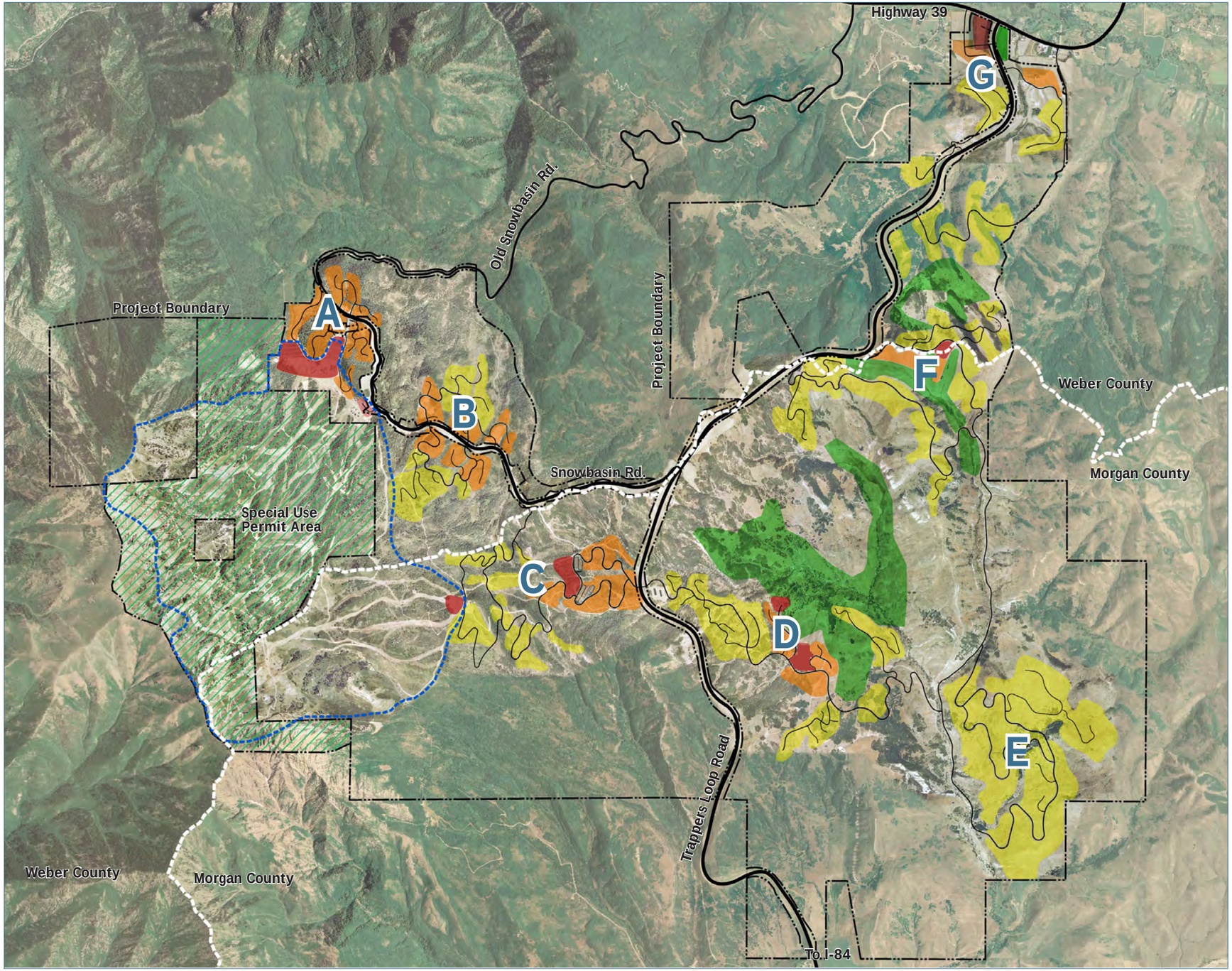
OVERALL CONCEPTUAL LAND USE PLAN

OVERALL CONCEPTUAL LAND USE PLAN

The conceptual land use plan serves as the resort master plan and illustrates areas determined to be the primary development zones based on an extensive site analysis process.

Each area within Morgan County is depicted in greater detail on the following pages.

Overall Conceptual Land Use Plan



- Snowbasin Project Boundary
- Snowbasin Ski Area Boundary
- USFS Special Use Permit Area
- Roads
- Parking Structure with Residential Above
- Single Family residential
- Multi-family residential
- Mixed-use development
- (Areas D and F) Golf and Golf Infrastructure
- (Area G) Community Park

NORTH

Drawing Not to Scale

Exhibit 3: Snowbasin Resort – Special District Application Materials

MORGAN COUNTY LAND USE PLAN

MORGAN COUNTY LAND USE PLAN

Four proposed development areas in Morgan County are shown. Each development area will form a cohesive neighborhood with a distinct character.

The proposed plan includes a second portal to the ski mountain located at the base of the Strawberry gondola (Area C – Strawberry Village). This second portal is envisioned to become a new village center, with one or more hotels, skier services, retail and a variety of restaurants. The village center will offer "beachside" views of the ski mountain as well as the spectacular views of the surrounding mountain ranges. The location has been carefully sited mid-way up the slope to minimize the visual impact from Trappers Loop Road, while providing convenient skier access from the south.

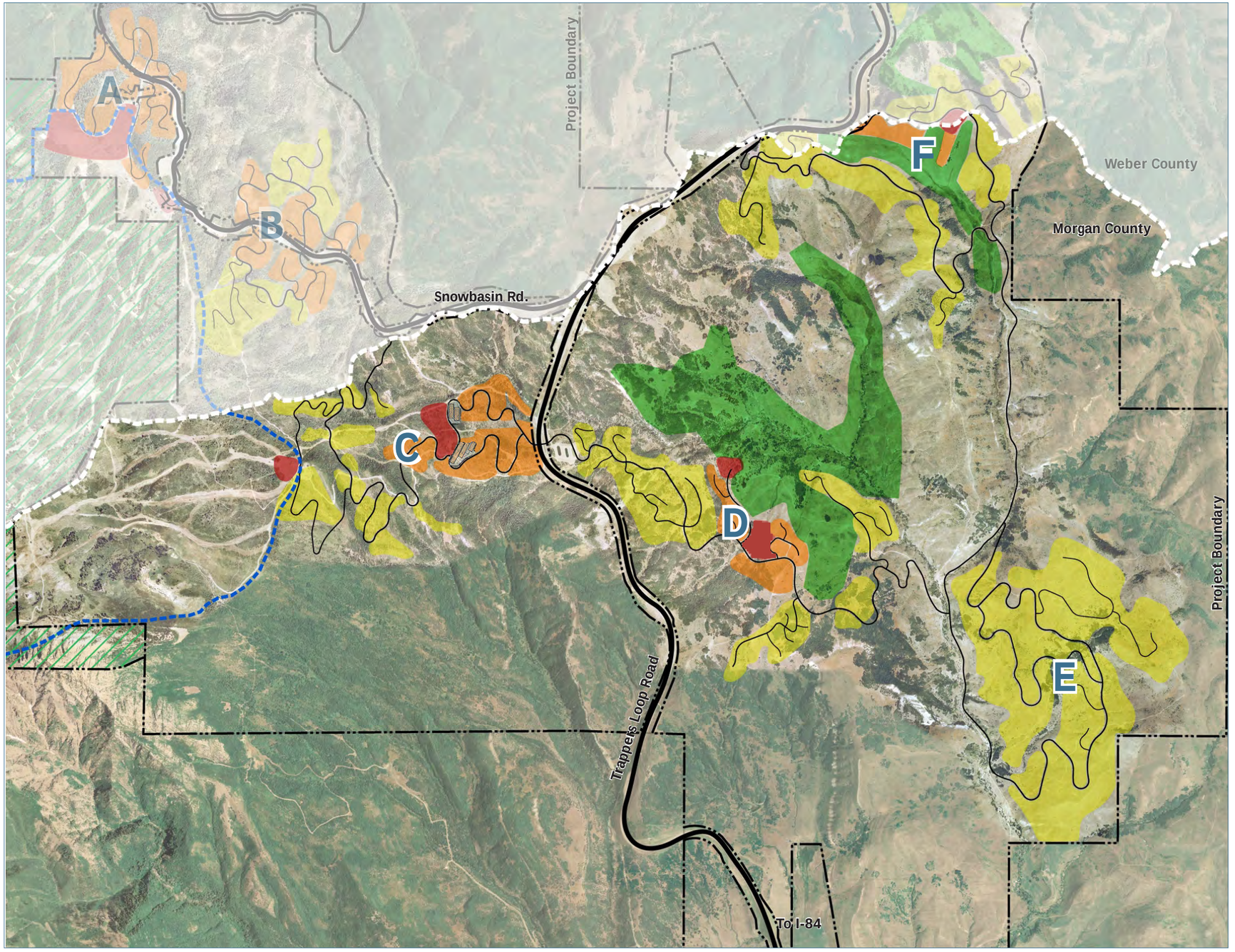
The gradually descending grades provide an opportunity for an expanded beginner terrain and possible ski school. The ski-in, ski-out neighborhoods surround the village and take advantage of the views, village ambiance, mountain access and trail connections. These neighborhoods are placed into the contours of the land and will feel harmonious with its natural beauty. A density gradient from village to open space creates a critical mass vital to village success, while scaling down to smaller buildings at the edges.

Area D – The Meadows provides an opportunity to offer four season resort activities and amenities to residents and visitors. This area has been identified as an optimal area for golf and the plan allows for two 18-hole golf courses with a clubhouse and retail to support the summer sport. Trails have been planned through the area to provide connectivity to the other areas within the resort and the greater regional trail systems. The area may include a boutique hotel, spa and support retail. Townhomes surround the mixed-use area to enhance the village feel and single family lots are planned near the golf course and moving away from the village to the open space.

Area E – The Meadows provides an opportunity for a residential community secluded from Trappers Loop Road. The single family homes will be connected to the resort via the multi-use trail system and take full advantage of the beautiful scenery and dramatic topography the area has to offer.

Area F – The Meadows is the northernmost neighborhood in Morgan County and extends to the north into Weber County. The portion in Morgan County includes nine holes of an 18- hole golf course. Single family homes are also planned for this area and are situated to take advantage of the spectacular views in all directions.

Morgan County Land Use Plan



MORGAN COUNTY DEVELOPMENT CHART		
Development Area	**Acres**	**Total Units**
Morgan County Total Land Area	**8,144**	
Area C - Strawberry Village	227	1,209
Area D - The Meadows Village	294	917
Area E - The Meadows	475	157
Area F - The Meadows	190	164
Morgan County Total Development	**1,186**	**2,447**
Morgan County Total Open Space	**6,958**	
Morgan County % of Open Space	**85%**	

- Snowbasin Project Boundary
- Snowbasin Ski Area Boundary
- USFS Special Use Permit Area
- Roads
- Parking Structure with Residential Above
- Single Family residential
- Multi-family residential
- Mixed-use development
- Golf and Golf Infrastructure

Drawing Not to Scale

NORTH

Exhibit 3: Snowbasin Resort – Special District Application Materials

SNOWBASIN DEVELOPMENT SUMMARY

Morgan County Land Uses with Proposed Area

USE	Permitted (P) Conditional (C)	Applicable to Area
Housing, Accommodations		
Single-Family Dwelling	P	C, D, E, F
Two-Family Dwelling	P	C, D, F
Three-Family Dwelling	P	C, D, F
Four-Family Dwelling	P	C, D, F
Multi-Family Dwelling	P	C, D, E, F
Recreation Lodge (multi-room lodge)	P	C, D
Lock-out Sleeping Room (max of two per dwelling unit)	P	C, D, F
Condominium Rental Apartment (condo-hotel)	P	C
Private Residence Club	P	C, D, F
Townhome	P	C, D, F
Timeshare / Fractional Ownership Unit	P	C, D, F
Nightly Rental of Single Family Dwellings	P	C, D, E, F
Hotel (in mixed-use area only)	P	C, D
Bed, Breakfast Facility	C	C, D, F
Accessory Apartments	C	C, D, E, F
Workforce Housing / Dormitory / Residence Hall	P	C
Hostel	P	C
Commercial Uses		
Bank/Financial Institution	P	C
Bakery	P	C, D, F
Drinking Establishment	P	C, D, F
Grocer / Neighborhood Market	P	C, D
Delicatessen	P	C, D, F
Boutique (gift, flower, antique, clothing, jewelry)	P	C, D, F
Automobile Self-Service Station	P	C
Conference / Education Center	P	C, D
Wellness Center (i.e., spa, fitness, etc.)	P	C, D
Art Gallery and Studios	P	C, D
Book Store	P	C
Beauty / Barber Shop	P	C, D
Short Term Vendor	P	C, D, F
Package Liquor Store	P	C
Restaurant; excluding drive-thru window	P	C, D, F
Sporting Goods / Clothing Store; including rental	P	C, D, F
Retail: General	P	C, D, F

USE	Permitted (P) Conditional (C)	Applicable to Area
Other Uses		
Arts Theater, Performance Facility / Auditorium / Amphitheater	P	C
Agriculture	P	C, D, E, F
Child Nursery (Daycare Center)	P	C, D, E, F
Church	P	C, D, E, F
Clinic, Dental or Medical	P	C
Community Center	P	C, D, E, F
Dude Ranch; including horse rental	P	F
Equestrian Center	P	F
Golf Course, Associated Facilities	P	D, F
Gun Club / Skeet / Sporting Clay	C	(TBD) C, D, E, F
Helistop	C	C
Home Occupation; with no visiting clientele	P	C, D, E, F
Home Occupation; with visiting clientele	C	C, D, F
Horses for Private Use	P	E, F
Ice Skating Rink	P	C
Trails (Nordic, hiking, biking, equestrian)	P	C, D, E, F
Laundromat	P	C
Museums	P	C
Nordic Center	P	C, D
General Office Space (not including administrative operation offices)	P	C
Office Supply / Shipping Service	P	C
Parking Facility (Parking Lots, Parking Structures)	P	C, D, F
Parks and Playgrounds	P	C, D, E, F
Pharmacy	P	C
Public Building	P	C, D, F
Public Utility Substation and Structure	C	C, D, E, F
Real Estate Office	P	C, D, F
Recreation Centers	P	C, D
Recreation Facility (Developed)	P	C
Ski Area and associated facilities	P	C
Ski Day Lodge and associated facilities	P	C
Small Wind Energy Systems	C	(TBD)
Solar Energy Installation	C	C, D, E, F
Telecommunications Tower	C	C, D, E, F
Transit Center / Stops	P	C, D, F
Yurt	P	C, D, F
Welcome / Information Center	P	C, D, F
Waste Water, Culinary Water Treatment Facility	C	(TBD) C, D, E
Water pumping plants and reservoirs	C	C, D, F
Accessory building or use customarily incidental to a permitted use	P	C, D, E, F

INTRODUCTION

The concept for each area within Morgan County is described on the development summary pages. Due to the vast area of the resort property, proposed development has been arranged into separate planning areas denoted with a letter (Areas A through G). The following pages show detailed plans for the property located within Morgan County (Areas C, D, E, F) as well as the Recreation Facilities Plan and the Open Space and Trail System Plan.

PERMITTED, CONDITIONAL AND ACCESSORY USES

Land Use Definitions

Housing & Accommodations

Dwelling – Any noncommercial building, or portion thereof, designed or used as the principal residence or sleeping place of one or more persons or families.

Single-Family Dwelling – A building containing only one dwelling unit.

Two-Family Dwelling – A building containing only two (2) dwelling units.

Three-Family Dwelling – A building containing only three (3) dwelling units.

Four-Family Dwelling – A building containing only four (4) dwelling units.

Multi-Family Dwelling – A building containing more than one (1) dwelling unit (DU).

Recreation Lodge (multi-room lodge) – A lodge constructed in a mountainous or forested location, which may include up to sixteen (16) guest sleeping rooms and facilities for guest meals, providing on-site winter and/or summer sports amenities and accessory uses.

Lock-out Sleeping Room (max of two per dwelling unit)– A sleeping room in a condominium dwelling unit or condominium rental apartment, which may be rented independently of the main unit for nightly rental by locking interior access.

Condominium Rental Apartment – A condominiumized building in which the units, when not occupied by the owner, operates similar to a hotel by renting units through a front desk, for transient occupancy.

Private Residence Club – A club (equity or non-equity) made up of members that typically pay a one-time upfront membership fee and annual dues in order to receive benefits and privileges.

Townhome - Dwelling units erected generally in a row, each unit being separated from the adjoining unit(s) by a party wall(s), each unit having its own access to the outside, and no unit located over another unit.

Timeshare / Fractional Ownership Unit –A small undivided fractional fee interest in real property by which the purchaser does not receive any right to use accommodations except as provided by contract, declaration, or other instrument defining a legal right.

Nightly Rental of Single Family Dwellings – Rental of single family homes by owner or management company on a nightly or weekly basis.

Hotel – An establishment that provides overnight accommodations and may include conference rooms, restaurants, bars, retails, spa and other guest services.

Bed & Breakfast Facility – A residential building that is owner occupied and contains nightly rental guest sleeping rooms. A business license is required.

Accessory Apartments – A housing unit which is self-contained but incorporated within an existing single-family dwelling structure which will not substantially alter the structure of appearance of the structure and meets the requirements and design standards in Morgan County Code - Section 8-6-33.

Workforce Housing / Dormitory / Residence Hall – A building with multi-occupant rooms often with shared bathrooms and dining facilities that is offered at a rent lower than market rates in the area. Most often used for resort and resort-related business employees.

Hostel – Nightly rental with multi-occupant rooms with shared bathrooms and dining facilities.

Commercial Uses

Bank/Financial Institution – An establishment for the custody, loan, exchange or issue of money, extension of credit and for facilitating transmission of funds.

Bakery – A place that sells baked goods.

Drinking Establishment – A place where beverages, including alcoholic, are sold.

Grocer / Neighborhood Market –Place where food, meats, produce, dairy and household supplies are sold.

Delicatessen – Place that sells ready-to-eat food products.

Boutique (gift, flower, antique, clothing, jewelry) – A shop that offers specialized services or products.

Automobile Self-Service Station – A place where gasoline or any other motor fuel for operating motor vehicles is offered for sale and dispensed by purchaser. May include a retail store.

Conference / Education Center – A facility for conducting personal, business and professional development through seminars, workshops, retreats. May be used for day use only or planned with overnight accommodations.

Wellness Center (i.e., spa, fitness, etc.) – Establishments that encourage good health and may include spas, gyms, health and wellness centers, rehabilitation clinics and sports training facilities.

Art Gallery and Studios – A place where works of art are exhibited or sold and/or the working place of an artist.

Book Store– A place where books, audio / video tapes are sold.

Beauty / Barber Shop – An establishment where hairdressing, haircuts, facials, manicures, etc. are done.

Short Term Vendor – The sale of goods and/or services from a cart, trailer, mobile store or kiosk.

Package Liquor Store – An establishment where liquor is purchased but not consumed.

Restaurant; excluding drive-thru window– An establishment whose primary business is the selling of unpackaged food to the consumer in a ready-to-consume state and customer eats foods while seated within building, includes outdoor cafes.

Sporting Goods / Clothing Store; including rental – An establishment where clothing and/or accessories for sports are sold or available for short-term rent.

Retail: General - Establishments that sell commodities or goods to the general public.

Other Uses

Arts Theater & Performance Facility / Auditorium / Amphitheater – A building or open area located outdoors where plays, concerts or other artistic acts can be performed for a paying or nonpaying audience.

Agriculture – The production of food through tilling the soil, raising crops, breeding and raising domestic animals and fowl.

Child Nursery (Daycare Center) – An establishment for the care and/or instruction of five (5) or more children, for compensation, other than family, not including a public school.

Church – A building and accessory buildings maintained and controlled by a duly recognized religious organization for worship and religious instruction.

Clinic, Dental or Medical – A building in which dentists, physicians and/or allied professional are associated for the conduct of their professions. Shall not include inpatient care or major surgery.

Community Center – A place used for and providing programs for a community association or the public.

Dude Ranch; including horse rental – A vacation resort offering activities (e.g. horseback riding)

Equestrian Center – An establishment that includes the boarding, training and riding of horses.

Golf Course & Associated Facilities – An area of land designed for a golf course with tees, fairways, putting greens, practice facilities and associated uses including clubhouse, restaurants, rentals, maintenance and storage.

Gun Club / Skeet / Sporting Clay – An establishment that offers target shooting and may include clay pigeons or other targets.

Helistop – An area designated for the take-off and landing of helicopters.

Home Occupation; with no visiting clientele – A business run within the proprietor's home that meets the requirements of Section 8-6-15 and does not include and/or require client visits.

Home Occupation; with visiting clientele – A business run within the proprietor's home that meets the requirements of Section 8-6-15 and does include and/or require client visits.

Horses for Private Use – Horses kept for personal use that will not be available for rent.

Ice Skating Rink – An area designed and maintained to allow individuals or groups to skate on ice; may include associated facilities including, ticket sales, skate rentals and food and beverage sales.

Trails (Nordic, hiking, biking, equestrian) – A path, hard or soft surfaced, intended for public use for recreation and/or alternative transportation methods.

Laundromat – An establishment with washers and dryers available for a fee for public use.

Museums – An institution devoted to the procurement, care, study and display of objects of lasting interest or value.

Nordic Center – An establishment from which the sport of cross country skiing may commence or end that may also sell passes and rent quipment.

General Office Space – A building, or portion thereof, used for administrative, clerical, computer or professional activities.

Office Supply / Shipping Service – An establishment that sells office supplies (i.e., paper, pencils, pens, etc.) and may offer package shipping services.

Parking Facility (Parking Lots, Parking Structures) – A building or open area, other than a street, used for the parking of more than four (4) automobiles.

Parks and Playgrounds – A playground or other area or open space providing opportunities for active or passive recreational or leisure activities.

Pharmacy – A place where medicines are dispensed.

Public Building – Building open to the general public.

Public Utility Substation and Structure – A station and in which electric current is transformed and/or building to support public utilities.

Real Estate Office – An office within which real estate sales, rentals or listings are transacted.

Recreation Centers – A building in which recreational activities are available including physical fitness exercise equipment, classes and instruction.

Recreation Facility (Developed) – A facility that provides opportunities for recreational activities, including swimming, basketball, golf, ice skating, skate park, playground, tubing hill, tennis, etc.

Ski Area and associated facilities – An area in which skiing (downhill, snowboarding, cross country, etc.) is accommodated together with required facilities such as ticket/pass sales, rentals and food and beverage services.

Ski Day Lodge and associated facilities – A building, generally located near a ski area, in which ticket/pass sales, restrooms, rentals and food and beverage services are available.

Small Wind Energy Systems – A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics which will be used primarily to reduce on-site consumption of utility power for an individual parcel.

Solar Energy Installation – The use of solar panels to generate energy from the sun.

Telecommunications Tower – Any tower or structure erected for the purpose of supporting one or more antennas designed to transmit or receive signals (e.g., telephonic, radio, television or microwave) and antennas or other devices affixed thereto.

Transit Center / Stops – A place where passengers are exchanged between vehicles and public transportation (i.e., buses).

Yurt – A circular domed tent.

Welcome / Information Center – A building located near a tourist destination that includes visitor information.

Waste Water & Culinary Water Treatment Facility – A structure or structures designed and maintained to treat, improve and/or upgrade the quality of wastewater.

Water pumping plants and reservoirs – Facilities and/or bodies of water used to pump water from one location to another.

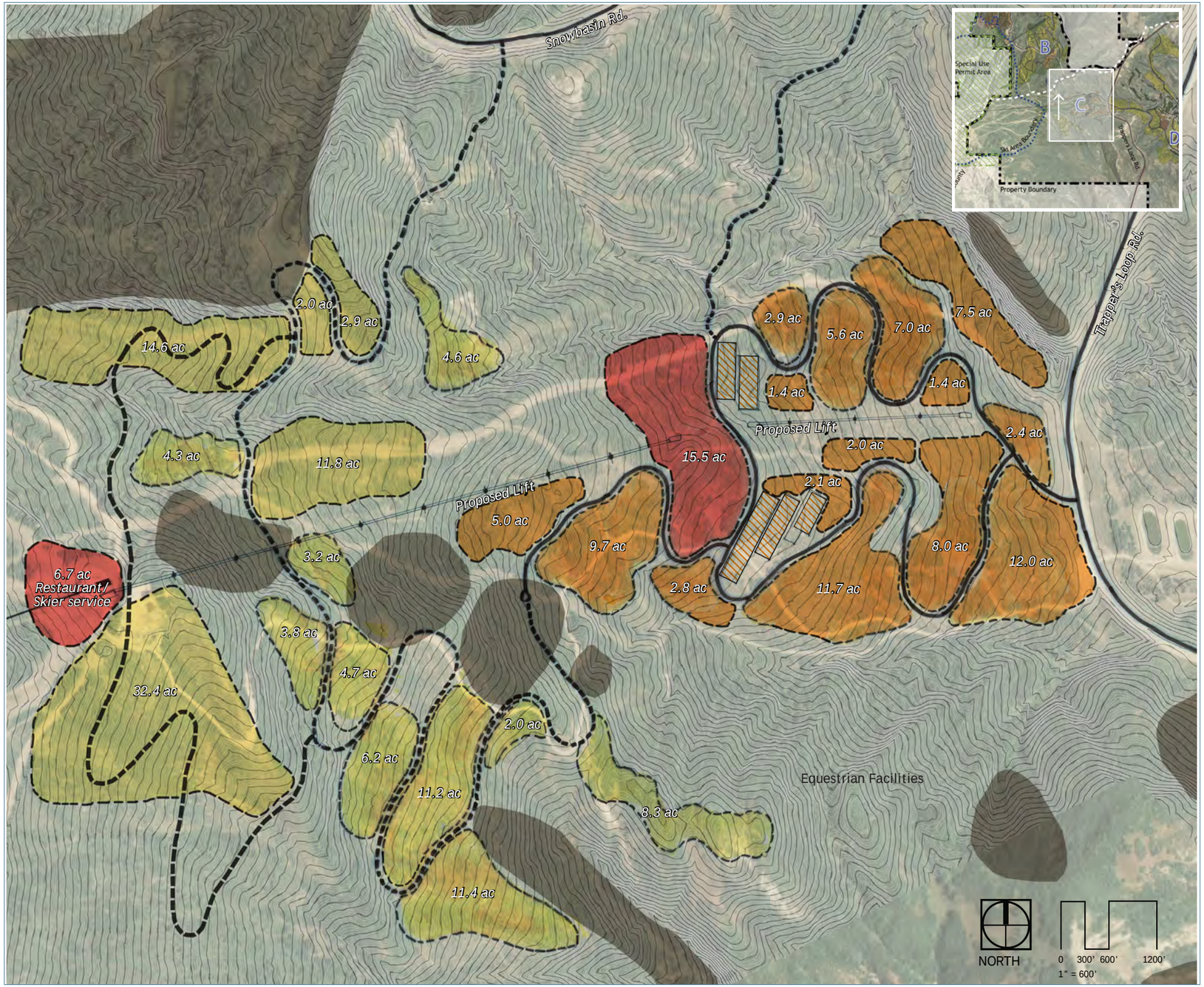
Accessory building or use customarily incidental to a permitted use – The use of land or structure customarily incidental and subordinate to the principal use of the land or structured and located on the same lot or parcel with the principal use.

AREA C - STRAWBERRY VILLAGE DEVELOPMENT SUMMARY

AREA C - STRAWBERRY VILLAGE

Strawberry Village (Area C) at the base of the existing Strawberry Gondola in Morgan County will become a new resort center. The adjacency to Trappers Loop Road offers a great place for the new portal to the mountain. The gradually descending grades provide an opportunity for much needed expanded beginner terrain. The village, located part way up the slope, minimizes the visual impact from Trappers Loop Road, while capturing the spectacular views and convenient skier access from the south. The ski-in, ski-out neighborhoods surround the village and take advantage of the views, village ambiance, mountain access and trail connections. These neighborhoods are placed into the contours of the land and will feel harmonious with its natural beauty.

Area C - Strawberry Village Development Summary



AREA C DEVELOPMENT CHART			
Development Area	**Acres**	**Avg. du/acre**	**Total Units**
Area C - Strawberry Village			
Single Family	123	1.5	185
Multi Family	82	8	652
Village Center	15.5	24	372
Restaurant/ Skier Service	6.7	N/A	N/A
Area C Developed Land Subtotal	**227**		**1,209**

Legend

- Single Family
- Parking Structure with Residential Above
- Townhomes
- Mixed Use
- Road
- Potential Road

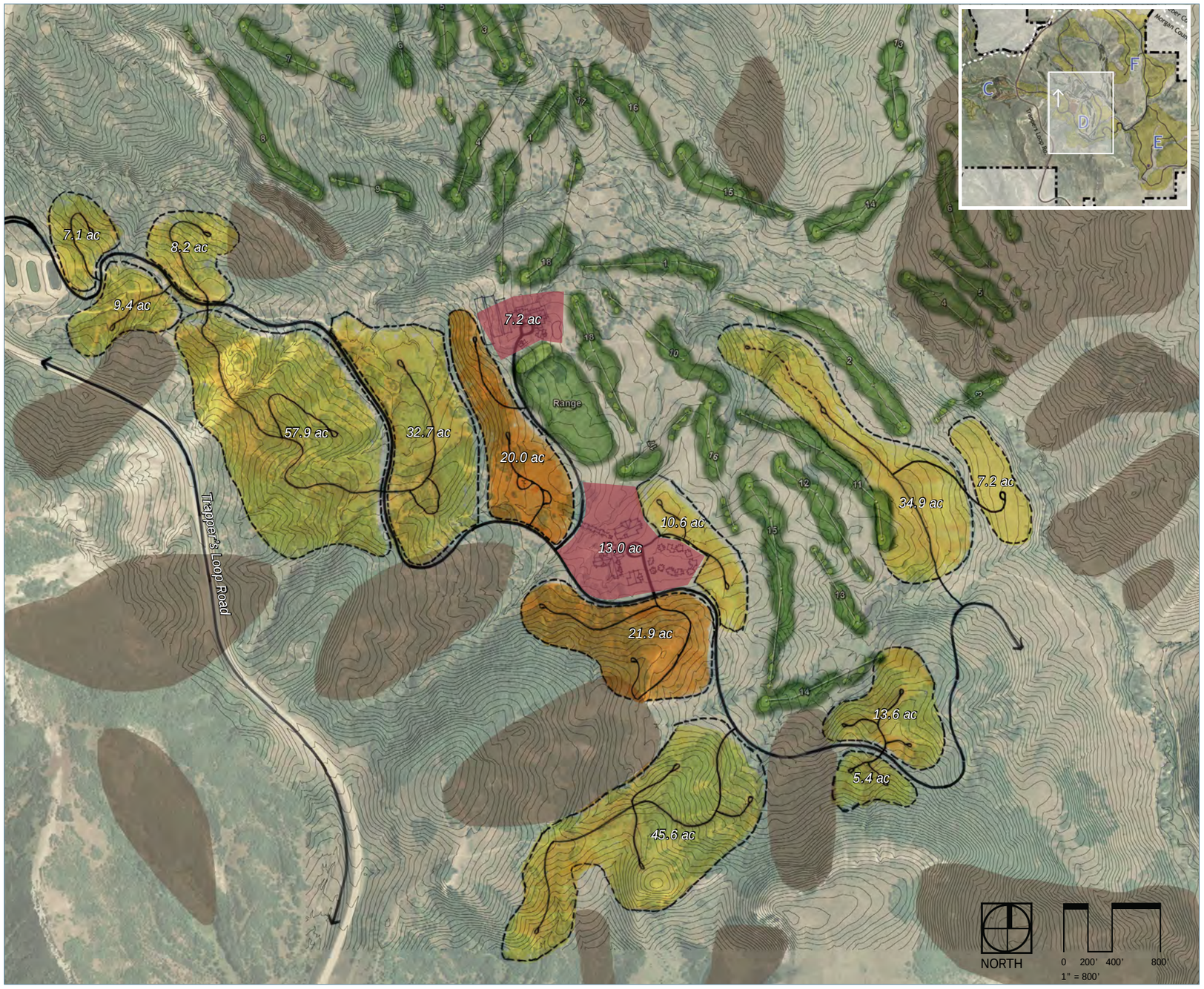
Exhibit 3: Snowbasin Resort – Special District Application Materials

AREA D - THE MEADOWS DEVELOPMENT SUMMARY

AREA D - THE MEADOWS

Area D is anchored by two 18-hole golf courses, clubhouse and potential boutique hotel. A variety of residential units are integrated with a resort-wide trail system and benefit from amazing distant views.

Area D - The Meadows Development Summary



AREA D DEVELOPMENT CHART			
Development Area	**Acres**	**Avg. du/acre**	**Total Units**
Single Family	222	1.0	260
Multi-Family	52	8	415
Mixed Use Village / Clubhouse	20	12	242
Area D Developed Land Total	**294**		**917**

Legend

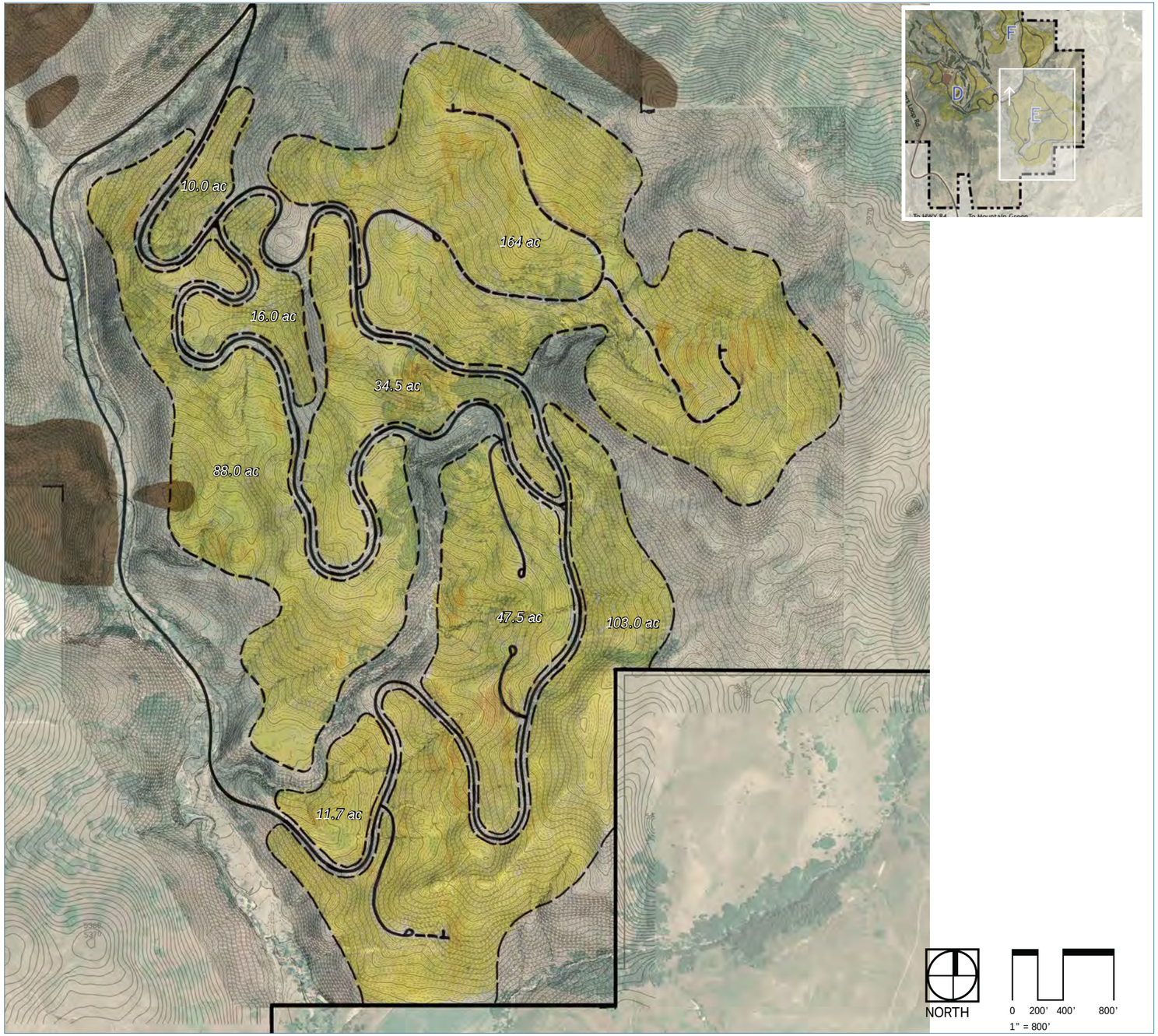
- Single Family
- Townhomes
- Mixed Use
- Road

Exhibit 3: Snowbasin Resort – Special District Application Materials

AREA E - THE MEADOWS DEVELOPMENT SUMMARY

AREA E - THE MEADOWS

Area E is a secluded geographically from Trappers Loop road. It is a large-lot residential community that takes advantage of the beautiful scenery and dramatic topography that the Snowbasin area has to offer.



Area E - The Meadows Development Summary

AREA E DEVELOPMENT CHART			
Development Area	**Acres**	**Avg. du/acre**	**Total Units**
Single Family	475	0.3	157
Area E Developed Land Total	**475**		**157**

- Roads
- Proposed Roads
- Geologic Hazard
- Single Family residential
- Multi-family residential
- Mixed-use development

Exhibit 3: Snowbasin Resort – Special District Application Materials

AREA F - THE MEADOWS DEVELOPMENT SUMMARY

AREA F - THE MEADOWS

Area F is the location of an 18-hole golf course integrated with single family lots and townhomes. This neighborhood is in both Morgan and Weber Counties and, therefore, the development and both counties may benefit from an inter-governmental agreement.

Area F - The Meadows Development Summary

AREA F DEVELOPMENT CHART			
Development Area	**Acres**	**Avg. du/acre**	**Total Units**
Morgan Co Single Family	167	0.2	38
Morgan Co Multi-Family	21	6	126
Morgan Co Clubhouse	2	N/A	N/A
Area F Morgan Co Developed Land Total	**190**		**164**

- Roads
- Proposed Roads
- Geologic Hazard
- Single Family residential
- Multi-family residential
- Mixed-use development
- Golf and Golf Infrastructure

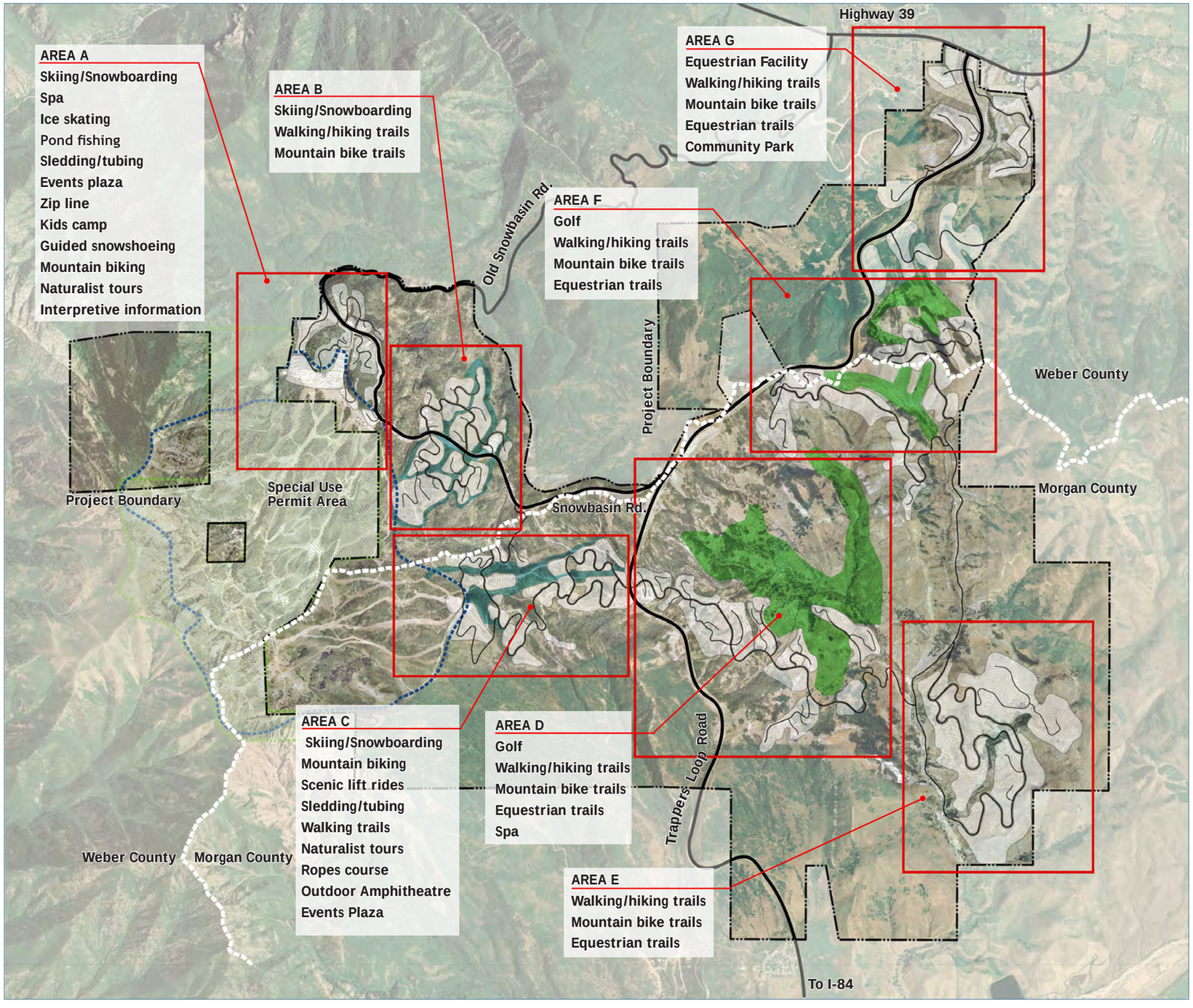
Exhibit 3: Snowbasin Resort – Special District Application Materials

RECREATION FACILITIES PLAN

RECREATION FACILITIES

The Snowbasin master plan offers a wide variety of recreational activities for its residents, visitors and the local community. Each area offers different amenities and activities based on the identity and needs of that particular community. For example, Area C offers predominately mountain-based amenities, while Areas D and F offer more quiet recreational activities including golf and trails. Multi-use trails meander throughout the entire property's open space and cater to walking, hiking, mountain biking, and equestrian uses.

Recreation Facilities Plan



- Project Boundary
- Roads
- Proposed Development Parcel
- County Line
- Proposed Skiing
- Proposed Golf

Drawing not to scale

Exhibit 3: Snowbasin Resort – Special District Application Materials

OPEN SPACE AND TRAIL SYSTEM

Open Space Management and Maintenance Plan

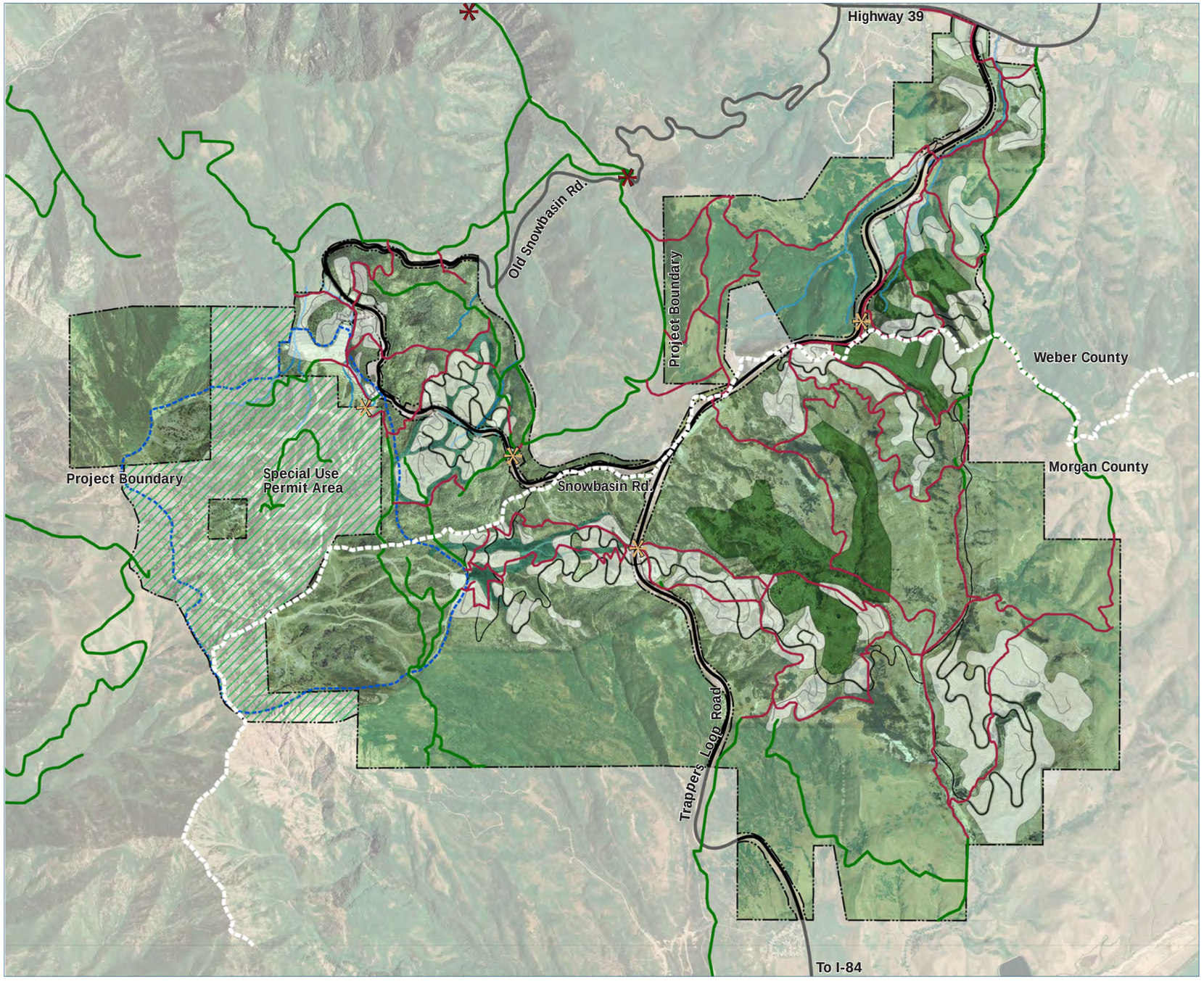
In Morgan County, approximately 85% of the owned property is being preserved as open space, which includes ski terrain owned by Snowbasin and golf courses. The character and beauty will remain and residents will benefit significantly from the buffer space, recreational assets and native character. Management and maintenance may be the responsibility of the Resort, the community owner association (COA) or a designated nonprofit. Determination will be made at the time of site plan approval for the adjacent planning area.

Trails

The Open Space & Trails System diagram illustrates the existing trails and proposed new trails within Snowbasin Resort. The proposed trails are based on analysis of GIS maps and may be moved or removed and/or new trails added during on-site analysis and discussions with Morgan County, Mountain Green, Department of Wildlife Resources, etc.

There will be a variety of trails that include multi-use trails, single-track for mountain biking and general use trails for walking and hiking. A priority has been placed on creating loops and connecting land use areas to increase non-motorized routes and cross community access. Emphasis was also placed on connections within the resort to the regional trails outside the resort boundary. Some of the trails may be maintained as private trails, maintained by Snowbasin, the COA, homeowner association (HOA) or similar entity. Some of the trails may be available for public use and may be dedicated to the public and maintained by the County or other quasi-public entity.

Open Space and Trail System



- Snowbasin Project Boundary
- Snowbasin Proposed Trailhead
- Existing Trailhead
- Open Space
- Development
- Golf Course
- Snowbasin Proposed Trails
- Existing Trails
- Roads

Drawing not to scale

Exhibit 3: Snowbasin Resort – Special District Application Materials

COMMUNITY VISION STATEMENT

The Snowbasin Resort master plan complements the vision statement outlined in the Morgan County General Plan as follows:

1. Morgan County attracts families with its quality of life, rural atmosphere, secure environment, and natural beauty. Residents have a wide range of employment, housing, and lifestyle choices. The County benefits from a balanced economy, livable wages, economic prosperity, and first-rate community services.

   The implementation of the Snowbasin Resort Master Plan will result in significant economic benefit to Morgan County. Sustainable practices have been utilized and will continue to ensure clean air and water, wildlife and natural beauty protection within Snowbasin. A variety of housing options are planned within the neighborhoods in Morgan County including single family, townhomes and condominiums. The amenities planned for Snowbasin Resort include a second portal to the mountain near the Strawberry gondola, clubhouses and golf courses that will offer a variety of employment opportunities as well as lifestyle choices for residents in Snowbasin and Morgan County.

2. Morgan County respects property rights and recognizes personal responsibility to the land and communities.

   For more than 25 years, Snowbasin has been a responsible steward of the nearly 12,000 acres.

3. Morgan County values its distinctive, natural landscapes for their beauty; solitude; recreational opportunities; and natural resources and will work to ensure their long-range conservation and preservation.

   Preserving the majestic natural beauty of the area is paramount in the Snowbasin Resort master plan. Approximately 85 percent of the land in Morgan County will be preserved as open space. Development will be clustered in neighborhoods, giving all residents and visitors the opportunity to enjoy the open space, views and natural beauty of the land.

4. Morgan County will safeguard water resources for future generations; will conserve and reuse water whenever possible; and will support development of additional sources of water.

   The Snowbasin Infrastructure Master Plan was completed with sustainability as the primary goal. The plan considers measures to reduce indoor and outdoor water usage project wide. Indoor water usage can be reduced by as much as 30% through the application of low flow fixtures and appliances. Outdoor water usage can be reduced by as much as 50% by using native species and climate controlled irrigation systems. Part of the Snowbasin master plan includes potentially irrigating the proposed golf courses with treated waste water effluent to further reduce the impact on the County's water resources. Snowbasin will work with Weber Basin Water Conservancy District and Morgan County to identify the additional sources of water needed to support the development.

5. Morgan County public policies support the viability of working and hobby farms, protection of high-value agricultural lands, and the conservation conserve of natural resources and rural character. Morgan County accommodates growth responsibly by integrating new development in a way that is respectful of the environment, supports County values, considers long-term sustainability, and uses available infrastructure. To help achieve this goal, the County requires growth to be within or adjacent to corporate limits and villages, or to be located within master-planned communities.

There are opportunities for agricultural use such as ranching on Snowbasin property to continue. The neighborhoods within the Snowbasin Resort master plan are designed to be respectful of the land and environment and are clustered to maintain a character that is appropriate for Morgan County.

LAND USE - GOALS, OBJECTIVES AND POLICIES

Goal 1: Manage and guide growth in a manner that promotes economic development and efficient use of services.

Goal 2: Require costs associated with new development to be borne by the developer.

Snowbasin Resort is a proposed master planned community with clustered neighborhoods to eliminate the need for new major roads and maximize the use of the proposed water and wastewater facilities while reducing storm runoff. The Infrastructure Master Plan, included as an exhibit to this Application, outlines the infrastructure required to serve the Snowbasin Resort Development in both Morgan and Weber counties. The resort will have significant commercial uses that will generate sales tax and other revenues to Morgan County, including a new base village portal to the mountain. This, combined with high property values, will result in revenues from the development far outweighing the costs.

ECONOMIC DEVELOPMENT - GOALS, OBJECTIVES AND POLICIES

Goal 1: Create new business and employment opportunities in Morgan County.

Goal 2: Encourage the preservation of adequate locations for employment land uses to meet long-term economic development needs.

Goal 3: Equitably allocate the provision of government services throughout the county, and balance the need for and provision of services with the burden of providing services.

Snowbasin Resort provides opportunities for considerable new businesses to be located within Morgan County. The proposed new portal to the mountain may include one or more hotels and approximately 60,000 to 90,000 square feet of retail and may include skier services, retail stores and restaurants. Plans for Area D include golf, clubhouse, golf services and a boutique hotel that may include a spa. The four-season appeal of Snowbasin Resort provides the opportunity for sales tax revenue throughout the year to Morgan County.

This potential for new businesses within Snowbasin Resort presents opportunities for increased sales tax revenue within Morgan County and a number of diverse employment opportunities including outdoor recreation, equipment rentals, tourism, retail hotel and restaurant personnel, ski pros, golf pros and management personnel.

HOUSING ELEMENT - GOALS, OBJECTIVES AND POLICIES

Goal 1: Provide a mix of housing types and options in Morgan County.

The master plan for Snowbasin Resort includes a wide array of housing types including large single family lots, clustered single family homes, townhomes and condominiums with a variety of price points. The neighborhoods have been carefully cited to avoid environmentally sensitive areas and will be of the quality for which the Snowbasin Resort Company is known.

TRANSPORTATION ELEMENT - GOALS, OBJECTIVES AND POLICIES

Goal 1: The existing county roadway system should be maintained and managed, and expansions should be made only to provide for orderly growth and meet compelling public interest needs.

Goal 2: Any new roads required by new development shall be constructed to County standards.

Goal 3: The existing railroad line may serve as a possible mode of regional transportation. Development patterns should facilitate future alternative transportation systems, if necessary.

Goal 4: Non-motorized transportation is an important alternative form of transportation and offers recreational opportunities, and should be made available in Morgan County.

Traffic studies done by Snowbasin's consultants indicate that current road rights of way will not need to be expanded to serve the build-out of Snowbasin Resort. The number of intersections along Trappers Loop Road has been kept to a minimum and upgrades for existing intersections are recommended by the transportation consultants. Additional secondary roads are proposed to service the new neighborhoods in Snowbasin Resort. (Refer to the Roadway and Parking Plan and the transportation study prepared by FHU Engineering included in the exhibits.)

The new roads included on the Roadway and Parking Plan will be constructed to Morgan County standards. Snowbasin's transportation consultants have established road sections for new roads required for the development from the County's standard Right of Way sections.

Snowbasin's sustainability initiatives support future alternative transportation systems including shuttles to and from the ski mountain and throughout the resort community. Non-motorized transportation is an important part of the plan for the resort. The Open Space and Trail Plan shows the extensive trail system that connects the neighborhoods within the Resort and to the regional trail system.

PUBLIC SERVICES AND FACILITIES - GOALS, OBJECTIVES AND POLICIES

Goal 1: Provide public facilities and services to meet the need of current and future residents.

Goal 2: To protect the long-term culinary water supply for Morgan County.

Goal 3: Maintain long-term financial sustainability for Morgan County.

Snowbasin has completed an infrastructure master plan to determine the water, wastewater, irrigation and dry utility needs of the Resort. The study, conducted by Stantec Engineering, is located in the Exhibits to this Application. In order to provide sufficient emergency services within the resort, Snowbasin has initiated conversations with Weber County to provide emergency services facilities within the resort boundaries. The Fire Chief and Sherriff in Weber County have expressed interest in coordinating with Morgan County regarding the location and provisions for these facilities.

Snowbasin understands the importance of the culinary water supply to Morgan County. This is manifested in several areas of the infrastructure master plan (i.e. the water quality discussions of the wastewater and stormwater sections of the report as well as the water reduction addressed in the sustainability portion of the Application. It is critical that a proposed development take the necessary steps to protect water quality for all users and limit usage to the amount of water that is replaceable through the hydrologic cycle. Protecting water quality will be achieved through the use of storm water Best Management Practices and appropriate waste water treatment plant design. To limit water usage, Snowbasin proposes to create a development that is based on water conservation as an ideal. Snowbasin has held preliminary discussions with Weber Basin Water Conservancy District to identify sustainable sources to meet the needs of the development.

Economic benefit far exceeds the cost of development at Snowbasin.

PARKS AND RECREATION - GOALS, OBJECTIVES AND POLICIES

Goal 1: Develop a system of natural open space areas that protect and conserve natural, physical and social resources.

Goal 2: Improve the quality, quantity and design of open space, park lands and trails.

Goal 3: Develop a safe, multi-use trail system that provides connectivity throughout the County and to recreational areas.

Snowbasin goes beyond these goals because it is a resort providing a wide variety of recreation in every season. Additionally, the master plan keeps approximately 85 percent of Snowbasin Resort property within Morgan County as open space, preserving viewsheds and allowing for wildlife corridors throughout the property.

In addition to preserving 85 percent of the resort property in Morgan County as open space, an extensive trail system within Snowbasin provides connectivity to the neighborhoods within the resort and to the regional trails outside the resort property boundaries. When Morgan County develops a trails master plan, Snowbasin Resort trails plan can be integrated to ensure connectivity to the trails within Morgan County and the existing system within Mountain Green.

ENVIRONMENT, NATURAL RESOURCES AND HISTORICAL PRESERVATION - GOALS, OBJECTIVES AND POLICIES

Goal 1: Include environmental stewardship as part of all decisions.

Goal 2: Protect the health, safety and welfare of Morgan County residents by directing growth away from hazardous areas and sensitive lands.

Goal 3: Conserve cultural resources within Morgan County.

Preparing the Snowbasin Resort master plan began with extensive geographic information studies (GIS) analysis of the existing conditions of the site including geologic hazards, slope analysis, viewsheds, wetlands, and wildlife habitat. A conservative planning approach was taken to ensure that all wetlands and riparian corridors, and flood plains were protected by buffers. Development was limited to slopes of less than twenty-five percent (25%) instead of the limit of thirty percent (30%) required by the MPDR ordinance. Additional soil and landslide studies by a local geologist were also completed and the 2010 UGS analysis reviewed.

The extensive GIS analysis provided a base by which development nodes were determined within the Snowbasin Resort. The plan was developed to respect the attributes of the land. Hazardous areas and sensitive lands have been left as open space and development areas planned for areas where damage to the scenic beauty of the areas would be diminished.

Archaeological, historical or cultural sites have not been identified within the Snowbasin Resort boundary.

PRINCIPALS

1. Maintain a Long-Term, Regional Perspective to Ensure Quality of Life for Future Generations.

The proposed master plan for Snowbasin provides benefits on a regional basis that will benefit the quality of life for future generations. The amenities located throughout Snowbasin, including a second portal to the mountain conveniently located for visitors coming from the south, hiking/biking trails throughout the resort that link to regional trails, additional diversified housing options and 85 percent of the property in Morgan County preserved as open space.

2. Guide Growth into Strategic Locations.

The Strawberry Gondola, located in Morgan County, provides the opportunity to expand the resort operations to the south into Morgan County. The master plan includes a village core at the base of Strawberry Gondola, which is a concentrated neighborhood and will include all the amenities of a base village. The master plan also includes new recreation-oriented activities including golf on the east side of Trappers Loop Road within a neighborhood of single and multi-family homes. The hiking, biking and equestrian trails throughout the resort provide additional recreational opportunities without unduly sacrificing the beauty of the natural surroundings.

3. Guide Growth into Efficient Patterns.

Use less water, and protect water resources for agriculture and economic and residential growth.

While Morgan's water supply is expected to keep pace with demand and is not a limiter of growth in the coming decades, water is a precious resource in the arid West and should be used with care. Water consumption must be managed to keep living costs manageable, enable economic growth, and maintain critical hydrologic functions.

To manage water consumption, Snowbasin intends to encourage or require use of low flow plumbing fixtures indoors and limit irrigated area outdoors. Additional measures include tiered water rates that encourage conservation, use of climate controlled irrigation systems, and reuse water for certain areas of the development.

Develop efficient infrastructure.

Envision Morgan participants want to grow in a manner that maximizes existing infrastructure, concentrates new infrastructure into efficient patterns, and minimizes long-term public costs to maintain roadways, sewer and other public services. This means that most growth should be concentrated in existing population centers, especially Morgan City and Mountain Green. Growth in outlying areas should be concentrated and clustered to minimize impacts.

Snowbasin understands the importance of building onto existing infrastructure. Much of Areas A, B, and C can be served by the existing potable water system at the resort. The existing Sanitary Sewer conveyance can also be used to service these areas. The project also understands the importance of clustering development areas. The land use plan illustrates the clustered development ideal as well as Snowbasin's commitment to open space preservation.

4. Conserve Open Lands for Future Generations.

The proposed master plan for Snowbasin preserves 85 percent of the land in Morgan County as open space. Extensive analysis was done before land planning began and informed the appropriate areas for development in order to preserve steep slopes (over 25 percent slope), viewsheds, stream corridors, wetlands, and wildlife habitat. The neighborhoods within Snowbasin Resort are clustered to preserve the maximum amount of open space and ensuring development occurs only in appropriate locations.

5. Focus Growth in Mixed-Use Neighborhoods and Communities

The proposed Snowbasin master plan was designed to develop neighborhoods within the resort area. The neighborhoods in Morgan County include three mixed-use communities that provide a variety of housing types, lodging, recreation and shopping/dining opportunities to residents and visitors of Snowbasin. The communities are designed to provide walkable access within the neighborhoods and the extensive trail system provides access between neighborhoods and the regional trail system via hiking, biking or horseback riding.

6. Create a Variety of Housing Options to Meet the needs of All Income Levels, Family Types, and Stages of Life.

The neighborhoods within Snowbasin provide a variety of housing types from townhomes to single family homes clustered close together and large lot single family homes. The variety of housing types allows for a variety of price points for the homes within Snowbasin.

7. Use Growth Tools that Allow for Real Estate Development While Permanently Preserving Open Lands.

The proposed Snowbasin master plan envisions clustered development in order to preserve open space within Morgan County. Extensive analysis and conservative planning allow for the preservation of steep slopes, wetlands, riparian corridors and wildlife habitat.

8. Expand Economic and Educational Opportunities. Seek Out, Embrace, and Invest in Opportunities for Economic Growth.

The second portal to the mountain at the base of Strawberry Gondola and the addition of golf in Morgan County provide the opportunity for increased employment in ski and golf operations, hotel, restaurant and retail personnel and management and maintenance positions. The increase in employment as well as the sale and value of real estate will increase and diversify the tax base for Morgan County.

9. Provide Recreational Opportunities for Residents and Tourists Alike.

The proposed Snowbasin Resort master plan offers a wide variety of recreational activities for residents, visitors and the local community. The Recreation Facilities Plan and the Open Space and Trails Plan outline the recreation opportunities that are proposed for the project area. Recreational opportunities in Morgan County include skiing/ snowboarding, scenic lift rides, sledding/ tubing, outdoor amphitheater, events plaza, golf as well as activities such as the potential for spas, naturalist tours and a ropes course. The hiking, biking and equestrian trails plan was developed to connect the neighborhoods within the resort and to the regional trials. The vast amount of open space within the resort in Morgan County provides a strong connection to nature and outdoor recreational opportunities.

Appendix 1:
Proposed Zone Name and Legal Description

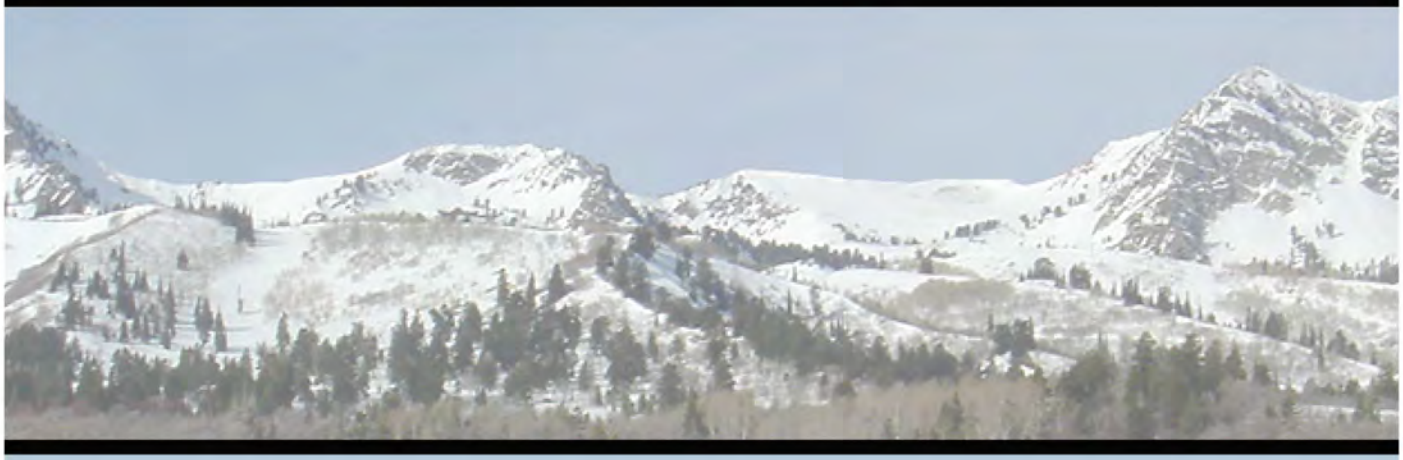
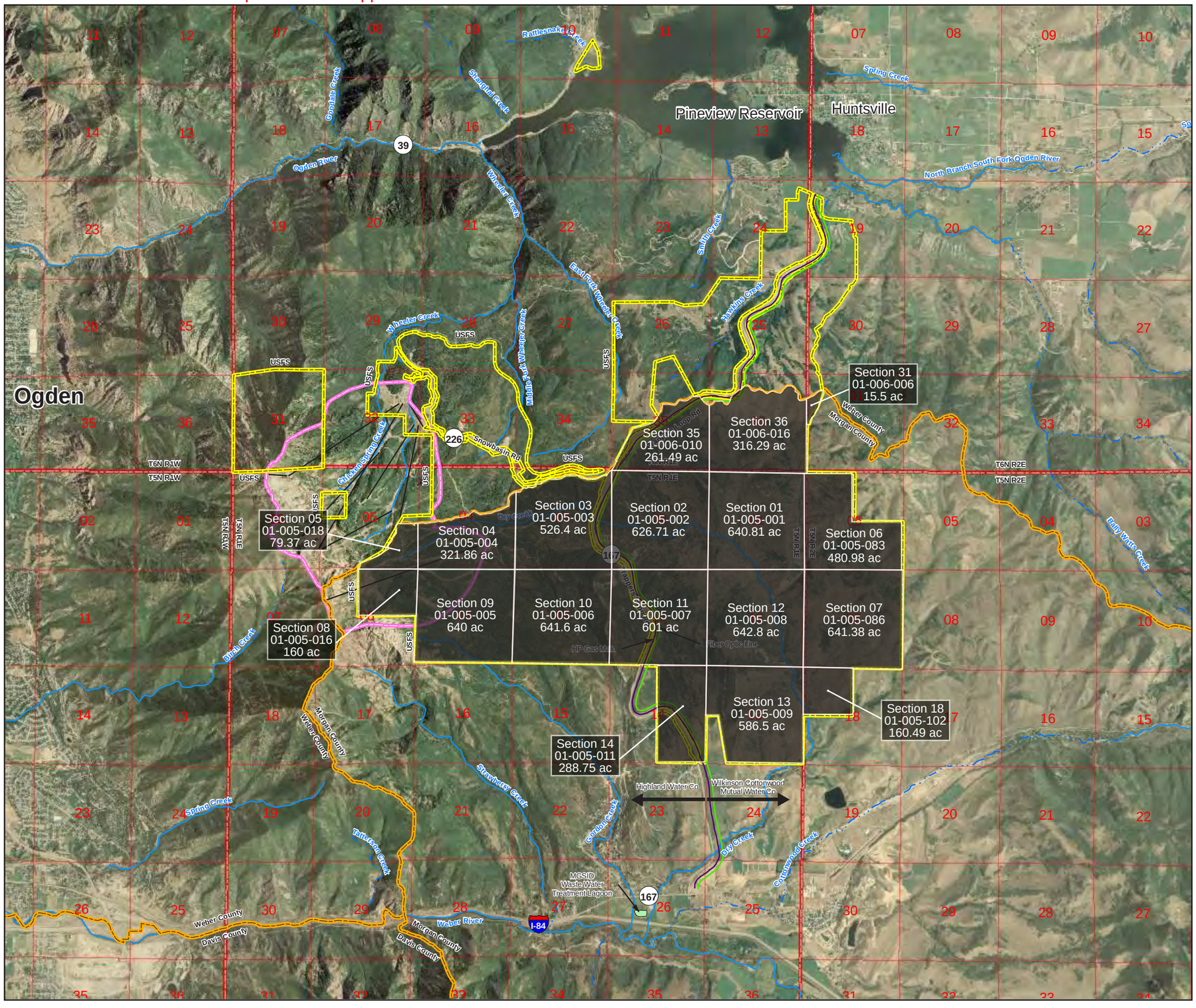


Exhibit 3: Snowbasin Resort – Special District Application Materials

SNOWBASIN PROPERTY/ OWNERSHIP MAP

PROPOSED ZONE NAME: SNOWBASIN RESORT



Legend

- Existing Ski Lifts
- Fiber Optic Line
- HP Gas Line
- Snowbasin Ski Boundary
- Snowbasin Property Boundary
- County Boundary
- Townships & Ranges
- Sections

0 0.5 1 2

1 in = 1 miles

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)

Exhibit 3: Snowbasin Resort – Special District Application Materials

When recorded mail to:
Scott K. Mayeda
Corporate Counsel
P.O. Box 30825
Salt Lake City, Utah 84130-0825

Parcel number(s):

GENERAL WARRANTY DEED

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, The Sinclair Companies, a Wyoming corporation, f.k.a. Sinclair Oil Corporation, a Wyoming corporation ("Grantor"), hereby conveys, assigns, transfers, and delivers, with WARRANTY COVENANTS, to Snowbasin Resort Company, a Wyoming corporation ("Grantee") the real property described on Exhibit A attached hereto together with all improvements, fixtures, easements, rights of way, water rights, mineral rights, and all other rights and privileges appurtenant thereto ("*Premises*"); to wit: Grantor hereby covenants with Grantee and its successors ("successor(s)" for purposes of this Agreement is defined as a successor in interest that is a subsidiary, parent, brother, sister, or other closely related entity to Grantee), that Grantor is lawfully seized in fee simple of the Premises; that it has a good right to convey; and that Grantor will forever warrant and defend all of the property so granted to Grantee and its successors, against every person lawfully claiming the same or any part thereof.

These WARRANTY COVENANTS are subject to all recorded or unrecorded easements, covenants and restrictions, roads or highways, conditions, rights of way and governmental or regulatory restrictions, questions of survey; all special taxes or special assessments, levied or assessed, and all installments of special taxes or special assessments, not due and payable as of the date hereof.

WITNESS the hand and seal of said Grantor this 22nd day of Feb., 2008.

Grantor
The Sinclair Companies f.k.a. Sinclair Oil Corporation, a Wyoming corporation

By _____
Its

STATE OF UTAH

COUNTY OF SALT LAKE

On the 22nd day of February, 2008, personally appeared before me Peter M. Johnson who, being duly sworn, did say that he is the Vice President of The Sinclair Companies, a Wyoming corporation, and that the foregoing instrument was signed on behalf of said corporation by authority of a resolution of its board of directors and said Peter M. Johnson acknowledged to me that said corporation duly executed the same.

Marilyn Byrd
NOTARY PUBLIC
My commission expires: 7/8/2011

MARILYN BYRD
NOTARY PUBLIC - STATE OF UTAH
550 EAST SOUTH TEMPLE
SALT LAKE CITY, UT 84102
My Comm. Exp. 07/08/2011

(Weber County Serial Number 20-043-0005)
(Morgan County Serial Number 01-005-003-01, 8.20 acres)

A parcel of land at Snowbasin Ski Resort situated in Sections 3 and 4, Township 5 North, Range 1 East; and also Sections 28, 29, 32, 33, 34, and 35, Township 6 North, Range 1 East, Salt Lake Meridian, Weber and Morgan Counties, Utah, more particularly described as follows:

Beginning at the southeast corner of Section 34, Township 6 North, Range 1 East, Salt Lake Meridian; thence N. 27°05'17"E., 468.09 feet, to a standard U.S. Forest Service (USFS) survey monument; thence S. 64°16'42"W., 166.67 feet, to a standard USFS survey monument; thence S. 38°21'49"W., 318.29 feet, to a standard USFS survey monument; thence S. 54°26'10"W., 168.62 feet, to a standard USFS survey monument; thence S. 89°28'38"W., 168.96 feet, to a standard USFS survey monument; thence N. 74°24'52"W., 65.14 feet, to a standard USFS survey monument; thence N. 83°48'34"W., 163.89 feet, to a standard USFS survey monument; thence S. 86°47'44" W., 516.67 feet, to a standard USFS survey monument; thence N. 88°14'30"W., 191.77 feet, to a standard USFS survey monument; thence N. 66°49'04"W., 192.73 feet, to a standard USFS survey monument; thence N. 61°48'03"W., 206.74 feet, to a standard USFS survey monument; thence N. 75°47'33"W., 381.60 feet, to a standard USFS survey monument; thence S. 83°41'50"W., 364.20 feet, to a standard USFS survey monument; thence S. 70°11'21"W., 1197.45 feet, to a standard USFS survey monument; thence S. 79°22'43"W, 345.30 feet, to a standard USFS survey monument; thence N. 73°48'14"W., 334.17 feet, to a standard USFS survey monument; thence N. 49°38'32"W., 334.17 feet, to a standard USFS survey monument; thence N. 25°28'50"W., 334.17 feet, to a standard USFS survey monument; thence N. 00°47'25"E., 355.40 feet, to a standard USFS survey monument; thence N. 10°59'50"E., 1161.11 feet, to a standard USFS survey monument; thence N. 02°17'25"W., 342.90 feet, to a standard USFS survey monument; thence N. 15°56'27"W., 375.43 feet, to a standard USFS survey monument; thence N. 29°50'57"W., 970.88 feet, to a standard USFS survey monument; thence N. 15°21'47"W., 399.23 feet, to a standard USFS survey monument; thence N. 00°52'38"W., 356.66 feet, to a standard USFS survey monument; thence N. 15°46'51"W., 311.76 feet, to a standard USFS survey monument; thence N. 29°32'39"W., 313.64 feet, to a standard USFS survey monument; thence N. 43°11'46"W., 298.49 feet, to a standard USFS survey monument; thence N. 57°44'26"W., 287.22 feet, to a standard USFS survey monument; thence N. 56°44'43"W., 349.98 feet, to a standard USFS survey monument; thence N. 39°59'11"W., 317.67 feet, to a standard USFS survey monument; thence N. 19°52'16"W., 304.52 feet, to a standard USFS survey monument; thence N. 00°14'07"E., 1306.80 feet, to a standard USFS survey monument; thence along the northerly, 100 foot right-of-way line of Utah State Route 226 thru the following courses:
Along the arc of a curve to the left having a radius of 1,637.68 feet and a central angle of 06°43'20" (chord bears: N. 78°31'18" W., 192.03 feet) 192.14 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 732.81 feet and a central angle of 46°36'37" (chord bears: S.74°48'44" W., 579.83 feet) 596.14 feet; thence S. 51°30'25"W., 101.22 feet; thence along the arc of a curve to the right having a radius of 198.36 feet and a central angle of 35°19'25" (chord bears: S. 69°10'07"W, 120.36 feet) 122.29 feet; thence S. 86°49'50"W., 45.00 feet; thence along the arc of a curve to the right having a radius of 78.33 feet and a central angle of 31°19'31" (chord bears: N. 77°30'25"W., 42.29 feet) 42.82 feet, to the point of a reverse curve; thence along the arc of a curve to the left having a radius of 639.24 feet and a central angle of 41°48'19" (chord bears: N. 82°44'49"W., 456.14 feet) 466.42 feet; thence S. 76°21'02"W., 74.95 feet; thence along the arc of a curve to the right having a radius of 1,054.97 feet and a central angle of 12°22'20" (chord bears: S. 82°32'12"W., 227.36 feet) 227.80 feet; thence S. 88°43'21"W., 523.95 feet; thence along the arc of a curve to the right having a radius of 181.79 feet and a central angle of 73°23'25" (chord bears: N. 54°34'56" W., 217.25 feet) 232.85 feet; thence N. 17°53'14"W., 93.90 feet; thence along the arc of a curve to the left having a radius of 297.64 feet and a central angle of 48°58'02" (chord bears N. 42°22'15"W., 246.71 feet) 254.38 feet; thence N.

66°51'15"W., 315.66 feet; thence along the arc of a curve to the left having a radius of 230.06 feet and a central angle of 40°57'43" (chord bears S. 87°20'08"W., 258.71 feet) 265.84 feet, to the point of a reverse curve; thence along the arc of a curve to the right having a radius of 105.78 feet and a central angle of 40°46'19" (chord bears S. 87°26'06"W., 73.69 feet) 75.27 feet, to the point of a compound curve; thence along the arc of a curve to the right having a radius of 280.88 feet and having a central angle of 16°44'29" (chord bears: N. 63°51'30"W., 81.78 feet) 82.07 feet, to the point of a reverse curve; thence along the arc of a curve to the left having a radius of 436.50 feet and a central angle of 46°44'50" (chord bears: N. 78°51'41"W., 346.34 feet) 356.14 feet; thence S. 77°45'54"W., 29.09 feet; thence along the arc of a curve to the right having a radius of 277.35 feet and a central angle of 35°52'29" (chord bears: N. 84°17'52"W., 170.84 feet) 173.66 feet; thence N. 66°21'37"W., 257.54 feet; thence along the arc of a curve to the left having a radius of 593.75 feet and a central angle of 13°06'27" (chord bears: N. 72°54'51"W., 135.54 feet) 135.83 feet to the point of a compound curve; thence along the arc of a curve to the left having a radius of 689.65 feet and a central angle of 24°28'54" (chord bears S. 88°17'28"W., 292.44 feet) 294.68 feet, and to the point of a compound curve; thence along the arc of a curve to the left having a radius of 2547.36 feet and a central angle of 03°44'30" (chord bears: S. 74°10'47"W., 166.33 feet) 166.36 feet; thence S. 72°18'31"W., 202.73 feet; thence along the arc of a curve to the left having a radius of 628.54 feet and a central angle of 23°19'57" (chord bears: S. 60°38'33"W., 254.20 feet) 255.96 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 1,748.83 feet and a central angle of 09°55'11" (chord bears: S. 44°00'59"W., 302.40 feet) 302.78 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 352.33 feet and a central angle of 40°31'40" (chord bears: S. 18°47'34"W., 244.05 feet) 249.22 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 787.21 feet and a central angle of 14°44'15" (chord bears: S. 08°50'24" E., 201.93 feet) 202.48 feet; thence S. 16°03'27"E., 168.06 feet, to a standard USFS survey monument; thence leaving said 100-foot, right-of-way line, S. 61°00'58"W., 39.82 feet, to a standard USFS survey monument; thence S. 10°27'16"W., 137.56 feet, to a standard SUSF survey monument; thence S. 03°01'48"E., 351.16 feet, to a standard USFS survey monument; thence S. 24°12'58"W., 302.00 feet, to a standard USFS survey monument; thence N. 89°43'52"W., 856.83 feet, to a railroad spike set in the centerline of the existing Maples Campground Road; thence along said centerline of road thru the following courses:

thence S. 14°36'38"W., 14.61 feet;
thence S. 06°25'35"E., 55.54 feet;
thence S. 00°01'14"E., 74.91 feet;
thence S. 05°46'45"W., 64.17 feet;
thence S. 12°40'46"W., 77.78 feet;
thence S. 05°40'31"W., 87.81 feet;
thence S. 01°49'57"W., 74.17 feet;
thence S. 06°46'19"E., 244.59 feet;
thence S. 02°02'02"E., 80.63 feet;
thence S. 06°38'09"W., 55.26 feet;
thence S. 13°15'45"W., 89.45 feet;
thence S. 15°47'55"W., 214.44 feet;
thence S. 09°32'26"W., 156.88 feet;
thence S. 12°45'32"W., 111.76 feet;
thence S. 17°33'56"W., 65.90 feet;
thence S. 14°59'32"W., 71.55 feet;
thence S. 10°25'50"W., 79.99 feet;
thence S. 07°17'09"W., 86.76 feet;
thence S. 06°34'44"W., 56.48 feet, to a railroad spike set in the centerline of said road;
thence leaving said centerline, N. 89°45'53"W., 344.04 feet, to a standard USFS survey monument;
thence S. 00°14'07"W., 1,183.89 feet, to a standard USFS survey monument;
thence S. 89°45'53"E., 2,042.19 feet, to a standard USFS survey monument;
thence S. 00°40'10"E., 1,067.86 feet, to a standard USFS survey monument;
thence S. 89°45'53"E., 1,506.67 feet, to a standard USFS survey monument;
thence S. 00°14'07"W., 4,392.10 feet, to a standard USFS survey monument;
thence N. 87°32'57"E., 2,833.40 feet, to a standard USFS survey monument;

thence N. 52°18'54"E., 1,855.65 feet, to a standard USFS survey monument;
thence N. 77°29'50"E., 1,391.68 feet, to a standard USFS survey monument;
thence N. 65°32'40"E., 1,553..50 feet, to a standard USFS survey monument;
thence S. 86°20'47"E., 1,619.61 feet, to a standard USFS survey monument;
thence N. 68°58'25"E., 1,192.41 feet, to the point of beginning.
Containing 1,377.60 acres more or less.

SUBJECT TO easements, rights of way, restrictions, and reservations of record, including, but not limited to the following:

1. Highway Easement Deed Weber/Morgan Counties, Project No. SP-1975(1)0 Trappers Loop – Snowbasin Road, dated March 30, 2000, by and between the United States of America, acting by and through the Department of Transportation, Federal Highway Administration, and the Utah Department of Transportation. Said Deed recorded April 20, 2000, as Entry No. 1701345, Book 2068, pages 920-934, Official Records, Weber County, Utah; also recorded April 20, 2000, as Entry No. 00082156, Book M0159, pages 00084-00098, Official Records, Morgan County, Utah.
2. Reservations contained in that certain Deed dated January 10, 1898, Book 33, page 221 of Official Records, wherein the Union Pacific Railway Company reserves the exclusive rights to prospect for coal and other minerals.
3. That certain Warranty Deed, dated October 31, 1940, by and between the Ogden Chamber of Commerce, Grantor, and the United States of America, Grantee, wherein said Warranty Deed excepts and reserves the mineral and mineral rights as shown in the Deed from the Union Pacific Railroad Company to the Utah light and Railway Company, dated February 15, 1910, recorded May 14, 1910, in Book 63 of Deeds, page 125. Said Warranty Deed of October 31, 1940, was recorded October 31, 1940, as Instrument No. 56087, Book 136 of Deeds, page 557, Official Records of Weber County, Utah. Affects the S ½ NE ¼, N ½ SE ¼ of Section 28, and all of Section 29, Township 6 North, Range 1 East, Salt Lake Meridian.
4. Reservations contained in that certain Deed, dated March 16, 1943, by and between Ogden City, a Municipal Corporation, Grantor, and the United States of America, Grantee, recorded April 8, 1943, as Instrument No. 74990, Book 173 of Deeds, page 144, Official Records, Weber County, Utah. Affects the NW ¼ NE ¼, W ½, S ½ SE ¼ of Section 28; and the S ½, NE ¼, N ½ NW ¼, N ½ S ½ NW ¼ of Section 32, Township 6 North, Range 1 East, Salt Lake Meridian.
5. That certain Quit Claim Deed, dated November 14, 1985, by and between Ogden City, a Municipal Corporation, Grantor, and the United States of America, Grantee, wherein Grantor reserves unto itself all water rights. Said land conveyed is to be used by the Grantee for public recreational and other U.S. Forest Service uses. Said Deed recorded November 26, 1985, as Instrument No. 954056, Book 1480, pages 915-916, Official Records, Weber County, Utah. Affects the S ½ S ½ NW ¼ of Section 32, Township 6 North, Range 1 East, Salt Lake Meridian.
6. That certain Warranty Deed, dated June 18, 1941, by and between Ogden Chamber of Commerce, Grantor, and the United States of America, Grantee, subject ot the rights of prospecting, mining, ingress, egress, and regress and ownership of minerals owned by the Union Pacific Railroad Company. Said Warranty Deed recorded June 19, 1941, as Instrument No. 61543, in Book 143 of Deeds, page 376, Official Records of Weber County, Utah. Affects the W ½ W ½ NW ¼, and the W ½ W ½ SW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

   Also, that certain Correction Warranty Deed, dated July 14, 1941, by and between the parties listed above, recorded July 26, 1941, as Instrument No. 62460, in Book 147 of Deeds, page 450, Official Records of Weber County, Utah. Affects the W ½ W ½ NW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

7. That certain Deed, dated July 21, 1944, by and between the Ogden Chamber of Commerce, Grantor, and the United States of America, Grantee, subject to reservations by the Union Pacific Railway Company of all coal and other minerals owned by the said Company and right of way for railroad purposes. Said Deed recorded August 4, 1944, as Instrument No. 85250, in Book 196 of Deeds, page 268, Official Records, Weber County, Utah. Affects the E ½, E ½ W ½, E ½ W ½ NW ¼, and the E ½ W ½ SW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

   Also subject to a reservation of an easement for a right of way for pole lines of the Grantor, its successors or assigns or licensees, as now constructed on the premises or as may be constructed hereafter, by Bargain and Sale Deed, dated September 23, 1943, by and between Utah Light and Traction Company, a Utah Corporation, Grantor, and Ogden Chamber of Commerce, a Corporation, Grantee. Said deed recorded in Book 181, page 602, Official Records of Weber County, Utah. Affects the E ½, E ½ W ½, E ½ W ½ NW ¼, and the E ½ W ½ SW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

8. Reservations contained in that certain Deed, dated June 29, 1945, by and between Ogden City, a Municipal Corporation, Grantor, and the United States of America, Grantee, recorded July 19, 1945, as Instrument No. 94381, in Book 214 of Deeds, pages 164-166, Official Records, Weber County, Utah. Affects a portion of the SW ¼ of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian; and also a portion within the N ½ of Section 3, and the N ½ of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian.

9. Quit Claim Deed executed by the Union Pacific Railroad Company, Grantor, to Union Pacific Land Resources Corporation, Grantee, dated April 1, 1971, recorded April 16, 1971, as Instrument No. 549081, in Book 963, pages 849-855 of Official Records, Weber County, Utah, wherein the Grantor excepts and reserves unto itself, its successors and assigns, its railroad operating rights of way, together with all its right, title, and interest in the lands upon which any such rights of way are located, and in and to any and all lands used or held for use in transportation service, other than the coal and iron and all other minerals and mineral rights underlying any such rights of way and lands; it being the intention of the Grantor to quitclaim unto the Grantee, its successors and assigns, all of the Grantor's right, title and interest in and to the coal and iron and all other minerals and mineral rights underlying said rights of way and lands used or held for use in transportation service (hereinabove excepted and reserved to the Grantor, its successors and assigns), together with the sole, exclusive and perpetual right to explore for, remove and dispose of said minerals by any means or methods suitable to the Grantee, its successors and assigns, but without entering upon or using the surface of said rights of way and lands hereby excepted and in such manner as not to damage the surface thereof hereby excepted or to interfere with the use thereof by the Grantor, its lessees, licensees, successors and assigns.

10. Contract between Weber Basin Water Conservancy District and Hill Air Force Base Nonappropriated Welfare Fund for the Sale and Use of Untreated Water dated May 18, 1964, recorded in Book 888, page 485 of Official Records.

ALSO SUBJECT TO:

1. Reserving to the United States a right-of-way thereon for ditches or canals constructed by the authority of the United States Act of August 30, 1890 (26 Stat. 391: 43 U.S.C. 845), as it pertains to those Public Domain Status lands.
2. Reserving to the United States the below-described exclusive public easements for non-motorized recreational trails and associated trailhead, parking facilities, and access roads as generally depicted on the map entitled "Snowbasin Land Exchange Federal Lands Conveyed to Private Ownership Wasatch-Cache National Forest, May 2000" attached hereto and made a part hereof as Exhibit B,

together with the right to construct, reconstruct, maintain the trails, and place appropriate signage.

(a) **Trail No. 3346 Middle Fork of Wheeler Creek.** Trail is approximately 2,650 feet in length and 10 feet wide (5 feet each side of the trail centerline), being .61 acre, more or less.

(b) **Trail No. 3320 East Fork of Wheeler Creek.** Trail is approximately 950 feet in length and 10 feet wide (5 feet each side of the trail centerline), being .22 acre, more or less.

(c) **Trail No. 3341 Green Pond Trail.** Trail is approximately 5,150 feet in length and 10 feet wide (5 feet each side of the trail centerline), being 1.18 acres, more or less.

(d) **Trail No. 2001.1 Great Western Trail (also known as the Skyline Trail).** Trail is approximately 4,250 feet in length and 33 feet wide (16.5 feet each side of the trail/road centerline), being 3.2 acres, more or less.

(e) **Maples Access Road.** Road is from future Snowbasin Olympic Loop Road to Maples Campground and parallels the Great Western Trail from the furthest northwest point of Snowbasin Olympic Loop Road. Road is 1,450'x33' or 1.09 acres, more or less (33 feet on eastern side of the road centerline).

(f) **Lower Existing Parking Lot as follows:**
One (1) handicapped parking stall: 1@ 15'x20'= 300 square ft.
Four (4) trailer parking stalls: 4@ 12'x40'= 1,920 square ft.
Fifteen (15) car parking stalls: 15@ 10'x20'=3,000 square ft.
Travelway: 1@ 20'x213'= 4,260 square ft.
Total: =10,000 square ft. (approx.)

(g) **Upper Existing Parking Lot as follows:**
One (1) handicapped parking stall: 1 @ 15'x20'=300 square ft.
Four (4) trailer parking stalls: 4 @ 12'x40'=1,920 square ft.
Fifteen (15) car parking stalls: 15 @ 10'x20'=3,000 square ft.
Travelway: 1 @ 20'x213'=4,260 square ft.
Total: =10,000 square feet (approx.)

3. Reserving to the United States two easements to construct, reconstruct, and maintain public trailheads on the existing old Snowbasin Road (Weber County Road No. 226), as generally depicted on the map entitled "Snowbasin Land Exchange Federal Lands Conveyed to Private Ownership Wasatch-Cache National Forest, May 2000," attached hereto and made a part hereof as Exhibit B.
4. Reserving to the United States two easements to construct, reconstruct, and maintain public turnouts on the Trapper's Loop-Snowbasin Road, SR 226, as depicted on the survey plats attached hereto and made a part hereof as Exhibit C.
5. Reserving to the United States a right-of-way for access for National Forest purposes, including but not limited to, public access and administrative uses, as generally depicted as the Snowbasin Olympic Loop Road on the map entitled "Snowbasin Land Exchange Federal Lands Conveyed to Private Ownership Wasatch-Cache National Forest, May 2000," attached hereto and made a part hereof as Exhibit B. Said road is approximately 5,280 feet long and 100 feet wide.

MORGAN COUNTY PROPERTY

All of Sections 1 (01-005-001, 640.81 acres), 2 (01-005-002, 626.71 acres), 9 (01-005-005, 640 acres), 10 (01-005-006, 641.60 acres), 11 (01-005-007, 601 acres) and 12 (01-005-008, 642.80 acres), Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-005-003, 526.40 acres) That part of the following parcel lying within Morgan County. All of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S.

Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 68°51'20" West 1183.9 feet along divide; thence North 86°27'35" West 1608.2 feet along divide; thence South 65°25'55" West 1542.6 feet along divide; thence South 73°41'51" West 1096.0 feet along divide; thence North along West boundary of Section 3, 1276.8 feet to the Northwest corner; thence East 5165 feet to Northeast corner of Section and place of beginning.

(01-005-004, 321.86 acres) That part of the following parcel lying within Morgan County. All of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South on Section line 1276.8 feet; thence South 73°42' West 276.00 feet; thence South 52°03' West 1685.5 feet; thence South 87°26' West 3575.0 feet; thence North along West boundary of Section 2550.8 feet to Northwest corner of section; thence East 5165 feet to the Northeast corner of Section and place of beginning.

(01-005-018, 79.37 acres) That part of the following parcel lying within Morgan County. All of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 2550.8 feet; thence South 87°26' West 820 feet to divide; thence along divide South 29°33'30" West 2221.1 feet; thence South 58°34' West 1460 feet to South boundary of Section; thence West 2120 feet to Southwest corner of Section; thence North 5280 feet to Northwest corner of Section; thence East 5280 feet to Northeast corner of Section and point of beginning.

All of Section 7 (01-005-086, 641.38 acres), and the Northwest Quarter of Section 18 (01-005-102, 160.49 acres), Township 5 North, Range 2 East of the Salt Lake Meridian, U.S. Survey.

(01-005-016, 160 acres) The Northeast Quarter of Section 8, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-005-009, 586.50 acres) All of Section 13, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Commencing at the Southwest corner of the Southwest Quarter of said Section 13 and running thence North 157 rods; thence East 43-1/2 rods; thence South 9°45' East 159.5 rods to Section line; thence West 70-1/2 rods to the point of beginning.

(01-005-011, 288.75 acres) The East half of Section 14, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-006-016, 316.29 acres) The South half of Section 36, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-006-010, 261.49 acres) That part of the following parcel lying within Morgan County. The South half of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Quarter corner of the West boundary of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence East 2368.4 feet to divide; thence along divide South 72°09'49" West 1308.8 feet; thence along divide South 26° 52' 35" West 2482.8 feet, to the Southwest corner of Section; thence North 2614 feet to Quarter Corner and the place of beginning.

WEBER COUNTY PROPERTY

(23-002-003, 6.75 acres) That part of the following parcel lying within Weber County. All of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 68°51'20" West 1183.9 feet along divide; thence North 86°27'35" West 1608.2 feet

along divide; thence South 65°25'55" West 1542.6 feet along divide; thence South 73°41'51" West 1090.0 feet along divide; thence North along West boundary of Section 3, 1276.8 feet to the Northwest corner; thence East 5165 feet to Northeast corner of Section and place of beginning.

(23-003-0002, 47.78 acres) That part of the following parcel lying within Weber County. All of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South on Section line 1276.8 feet; thence South 73°42' West 276.00 feet; thence South 52°03' West 1685.5 feet; thence South 87°26' West 3575.0 feet; thence North along West boundary of Section 2550.8 feet to Northwest corner of section; thence East 5165 feet to the Northeast corner of Section and place of beginning.

(23-004-0003, 27.45 acres) That part of the following parcel lying within Weber County. All of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 2550.8 feet; thence South 87°26' West 820 feet to divide; thence along divide South 29°33'30" West 2221.1 feet; thence South 58°34' West 1460 feet to South boundary of Section; thence West 2120 feet to Southwest corner of Section; thence North 5280 feet to Northwest corner of Section; thence East 5280 feet to Northeast corner of Section and point of beginning.

(20-044-0003, 13.95 acres) That part of the following parcel lying within Weber County. The South half of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Quarter corner of the West boundary of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence East 2368.4 feet to divide; thence along divide South 72°09'49" West 1308.8 feet; thence along divide South 26° 52' 35" West 2482.8 feet, to the Southwest corner of Section; thence North 2614 feet to Quarter Corner and the place of beginning.

TOGETHER WITH:

1. All rights now held by Grantor in said real property, specifically including all water rights, mineral rights, easements and rights-of-way, licenses, permits and privileges pertaining to said real property; and

2. All improvements, fixtures and personal property now located on such real property and owned by Grantor.

SUBJECT TO:

1. Taxes for the year 1984 now due and payable, but not delinquent, in the following amounts: #5-1,2,3,4 (Morgan County), $437.93; #5-5,6,7,8,9 (Morgan County), $598.38; #5-11 (Morgan County), $62.24; #5-86 (Morgan County), $124.80; #5-102 (Morgan County), $31.12; #23-004-0003 (Weber County), $86.25; #23-001-0004 (Weber County), $131.02; #20-044-0003 (Weber County), $233.86; and #20-044-0006 (Weber County), $262.04. (Taxes for the year 1983 and prior years paid).

2. This property is located within the boundaries of the Weber Basin Water Conservancy District and is subject to assessments levied by said district.

3. Reservation to United States of America reserving all mineral lands as shown on Patent recorded in Book F of Records, Page 576, in Book R of Records, Page 234, Book B of Records, Page 9, in Book L of Records, Page 7, in Book G of Records, Page 113, and in Book D of Records, Page 566, Records of Morgan County, Utah; and in Book 27 of Records, Page 502, Records of Weber County, Utah.

4. Reservation in Warranty Deed recorded in Book G of Records, Page 150, in Book G of Records, Page 146 and in Book F of Records, Page 52, Records of Morgan County,

Utah; and in Book 23 of Records, Page 221, Records of Weber County, Utah, as follows: "Reserving, however, to the Union Pacific Railway Co the exclusive right to prospect for coal and other minerals within the underlying said lands, and to mine for and remove the same if found, and for this purpose it shall have right of way over and across said lands and space necessary for the conduct of said business thereon without charge or liability for damage thereof."

5. Reservation in Patent of State of Utah, recorded in Book I of Records, Page 95, in Book I of Records, Page 96, in Book I of Records, Page 537, in Book J of Records, Page 244, in Book I of Records, Page 103, in Book K of Records, Page 20, in Book K of Records, Page 21, in Book J of Records, Page 125, in Book J of Records, Page 225, in Book 1032 of Records, Page 588, and in Book 1032 of Records, Page 590, as follows: "Subject to any easement or Right-of-Way of Public to use all such highways as may have been established according to law, over the same or any part thereof, and subject also to all rights of way for ditches, tunnels and telephone and transmission lines that may have been constructed by authority of the United States."

6. Subject to Reservation in deed from Union Pacific Railroad Company recorded in Book J, Page 245 and in Book J, Page 122 which reads as follows: First: All coal and other minerals. Second: The exclusive right to prospect in and upon said land for coal and other minerals therein, and to mine and remove all coal and other minerals found thereon by any one. Third: The right of ingress, egress, and regress upon said lands to prospect for, mine and remove any and all such coal and other minerals, and the right to use so much of said land as maybe convenient or necessary for the rights of way to and from such prospect places or mines and for the convenient and proper operation of such prospect places, mines, and for roads and approaches thereto or for the removal therefrom of coal, mineral, machinery or other material.

7. Reservation in Patent recorded in Book G of Deeds, Page 74, in Book G of Deeds, Page 422, in Book J of Deeds, Page 127, in Book J of Deeds, Page 129, in Book J of Deeds, Page 243 and in Book G of Deeds, Page 376, reserving to United States of America any vested and accrued water rights for mining, agricultural, manufacturing, etc. and subject to the right of a proprietor of a vein or lode to extract and remove his ore therefrom, should the same be found to penetrate or intersect the premises hereby granted.

8. Subject to any vested and accrued water rights for mining, agricultural, manufacturing or other purposes, and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by local customs, laws, and decisions of courts; and there is reserved from the land hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States, by Patent to State of Utah recorded in Book C of Records, Page 507 and in Book R of Records, Page 234, Records of Morgan County, Utah.

9. Subject to Application for Green Belt, as recorded in Book M-38, Page 272, Records of Morgan County, Utah. (Subject to roll-back on taxes).

10. Subject to rights of others which may have been established over and upon said land for development, conveyance and use of water arising from springs situated upon lands described in this report.

11. Subject to existing roads which have been established over said land and rights which the public may have established over said property in use of established roads.

12. Subject to the rights of SNOW BASIN LIMITED, by reason of that certain unrecorded Option to Purchas Agreement by and Between HONOLULU FEDERAL SAVINGS & LOAN, as Optioner, and SNOW BASIN LIMITED, as Optionee, dated March 1, 1982, and unless extended or exercised in accordance with its terms will expire on February 28, 1983, as disclosed by Notice of Interest dated August 19, 1982; recorded August 19, 1982 in Book M-37, Pages 161 to 164, Records of Morgan County, Utah; and recorded August 19, 1982 in Book 1407, Page 1458, Records of Weber County, Utah.

13. Excepting and reserving to the United States: Rights-of-Way over and across the lands for ditches and canals constructed by the authority of the United States as directed and required by the Act of Congress approved August 30, 1980, 26 Stat. 391; 43 U.S.C. 945., as reserved in Utah Indemnity Selection List No. 322, dated September 10, 1982, and recorded March 15, 1983 in Book M-39, Page 17, Records of Morgan County, Utah. (Affects the North half of the Southeast Quarter and the South half of the Northeast Quarter of Section 2, Township 5 North, Range 1 East, Salt Lake Base and Meridian).

14. There is a JUDGMENT, Case No. 26601; in which SNOW BASIN is named as Debtor; and STATE TAX COMMISSION is named as Creditor; Judgment in Amount of $14, 770.33 (unemployment), filed July 12, 1984, in Book 5, Page 338.

15. There is a JUDGMENT, Case No. 27945, in which SNOW BASIN, LTD., et al., is named Debtor, and STATE TAX COMMISSION is named as Creditor; Judgment in the amount of $5,704.65 (Sales); filed September 19, 1984, in Book 5, Page 338.

Morgan County, UT

(01-005-083, 480.98 acres) Lots 3, 4 and 5 and the Southeast Quarter of the Northwest Quarter of Section 6, Township 5 North, Range 2 East, Salt Lake Base and Meridian, U.S. Survey. Also the East half of the Southwest Quarter and Lots 6 and 7 of Section 6, Township 5 North, Range 2 East. Also the Southeast Quarter of Section 6, Township 5 North, Range 2 East of the Salt Lake Meridian, U.S. Survey

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Weber County, UT

(20-005-0031, 26.12 acres) Beginning at a point N 1° 39'41" E, 600.00 feet and S 89°50' E, 349.10 feet from the S ¼ Corner of Section 10, T6N, R1E, SLB&M, said point being on the Easterly Right-of-Way line of State Highway U-162, and running thence S 89° 50' E, 94.00 feet; thence N 62° 27' E, 593.90 feet; thence S 70° 35' E, 348.80 feet; thence N 85° 09' E, 413.50 feet; thence N 5° 06' W, 869.41 feet, thence N 26° 51' W, 728.50 feet to a point on the Easterly Right-of-Way line of said State Highway U-162; thence along said Easterly right-of-way line as follows: S 30° 50' 58" W, 1668.30 feet to a point of an 1849.86 foot radius curve to the left thence Southwesterly 270.22 feet along the arc of said curve to the point of beginning. Containing 26.121 acres.

Together with all mineral and subsurface rights and all appurtenances thereto belonging or in anywise appertaining.

SUBJECT TO each of the following:

(a) General ad valorem real property taxes for the year 1990 which are accruing As a lien but are not yet due and payable, being due and payable November 30, 1990.

(b) The Farmland Assessment roll-back taxes as shown on that certain Application for Assessment and Taxation of Agricultural Land, dated April 30, 1975 by COSEC & CO., as record owners, recorded April 30, 1975, in Book 1084, at Page 283, Weber County Recorder's Office.

(c) Easement created by Right of Way Deed in favor of the United Sates of America for a road or highway and other facilities, 66 feet in width, with As much additional width as may be required for adequate cuts and fills, over And across the following described land: Part of the Southeast Quarter of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, (sic) (the centerline of which roadway [Right-of-Way] is) Beginning at a point on the East right-of-way boundary line of the Pineview – Eden Highway (State Route U-162) and the Grantor's land. Said point of beginning being 60.24 feet, South 64° 19' East of Engineers' Station 114+65.28 of Highway U-162 centerline of survey and bearing North 29° 46' East, a distance of 1,886.67 feet from the Quarter Section Corner common to Sections 10 and

15, Township 6 North, Range 1 East, Salt Lake Base and Meridian; thence South 64° 19' East, 745.76 feet to a point of tangency with a 100 foot radius Curve to the left; thence along the arc of the curve a distance of 86.00 feet, More or less, to a point of intersection of the roadway centerline and the East boundary of the Grantors' land, said point being on an existing fence line Bearing North 5° 06' West along the East boundary of the Grantors' land. Said Deed recorded July 12, 1961 as Entry No. 362641 in Book 686, Page 450, Records of Weber County, Utah.

(d) Easement in favor of Ogden City, a Municipal Corporation to construct, reconstruct, operate and maintain a pipeline on, in, over, upon or across the following described real property: A perpetual easement and right of way 20 feet wide being 10 feet on each side of the following described center line with an additional temporary construction easement 30 feet wide on the downhill side, or South side, of said pipeline easement and 50 feet on the uphill side, or North side, of the pipeline easement and right of way; A part of the Southeast Quarter of Section 10, Township 6 North, Range 1 East, Salt Lake Base & Meridian, U.S Survey: Beginning at a point on the existing fence on the South line of the Grantor's property and at Engineer's station 81+09.2 of the proposed pipeline survey. Said point also being East 98.3 feet, more or less and North 893 feet, more or less, from the Southwest Corner of Said Quarter Section; and running thence North 50° 26' East 665.2 feet to Engineer's P.I. Station 87+74.4 of said proposed pipeline survey; thence South 86° 34' East 190.70 feet, more or less, to point on an existing fence line, said point being the East line of the Grantor's property and at Engineer's station 89+65.10 of said proposed pipeline survey. Said Easement recorded January 15, 1971 as Entry No. 545025 in Book 958, Page 118, Records of Weber County, Utah,

(e) Easement reserved by Grantor for water line and pump station (including the right to install, maintain and remove and replace the described water line and related equipment, and including the right for installation, maintenance and replacement of an electric power line to the pump station and including the right to pump and transport water from the pump station westward to other lands of Grantor) to pump from the Ogden City Pipeline (the easement for which Ogden City Pipeline is described above in subparagraph (d)), which easement reserved by Grantor for such purposes being over and within real property particularly described as follows: Beginning at a point on the East right-of-way boundary line of Pineview-Eden Highway (State Road U-162) said point being 1886.67 feet North 29° 46' East, 1.69 feet South 64° 19' East and 33.00 feet South 30° 50' 58" West from the South Quarter Corner of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey, running thence South 64° 19' East, 744.07 feet along the Southerly line of an existing 66.0 foot right-of-way (described in subparagraph (c) above), thence South 25° 41' West 40.00 feet, thence North 64° 19' West 744 feet, more or less to the Easterly line of said Highway, thence North 30° 50' 58" East 40.0 feet, more or less along said Highway to the point of beginning.

(f) Easement reserved by Grantor for installation and operation of a well and pipeline, including the right of Grantor to maintain the existing well or redrill the same as may be necessary or appropriate from time to time and the right to transport water from the existing well through the existing or other pipeline to serve properties of Grantor to the west, the ownership of which is retained by Grantor or is owned by an affiliate of Grantor, and including the right to install, remove, reinstall, operate, maintain, replace, and otherwise use the well for production of underground water and for transporting water to the real properties of Grantor to the west. The location of well No. 1 and the related easement is particularly described as follows:

Well No. 1 being 1678.89 feet North 18°38'44" East along the Quarter Section Line and 935.10 feet East from the South Quarter Corner of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey.

Together with a 30 foot wide easement from said well west to State Highway U-162 for pipeline maintenance and repairs. The specific legal description of said easement is as follows:

Beginning at a point on the East right-of-way boundary line of Pineview-Eden Highway (State Road U-162), said point being 1886.67 feet North 29° 46' East 1.69 feet South 64° 19' East and 33.00 feet North 30° 50' 58" East from the south Quarter Corner (sic) of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey, running thence North 30° 50'58" East, 30.00 feet along the Easterly right-of-way line; thence South 64°19' East, 30.00 feet; thence South 30°50'58" West, 30.00 feet to the North line of an existing 66.0 foot right-of-way; thence North 64° 19' West 30.00 feet along said right-of-way to the point of beginning.

(g) The foregoing right to install, operate, and maintain a well and transport water therefrom includes the right to isolate the well from concentrated sources of pollution for a distance of 100 feet in all directions (100 foot radius from well). Concentrated sources of pollution shall include, but not be limited to, septic tank and drain field systems, ordinary sewer lines, garbage dumps, pit privies, hazardous water disposal sites, corrals, feed lots, etc.

(h) Right of Way Easement in favor or The Mountain States Telephone and Telegraph Company, a Colorado corporation to construct, operate, maintain and remove such communication and other facilities, from time to time, upon, over, under and across the following described land: An easement 6 feet in width described by a center line with 3 feet on each side as follows: Commencing at a point on the East right of way boundary line of the Pineview Eden Highway (State Route U-162) and the Grantors' land. Said point of beginning bearing North 29° 46' East a distance of 1,992.67 feet from the South Quarter Corner of Section 10, Township 6 North, Range 1 East, Salt Lake Base & Meridian; thence South 64° 19' East 745.76 feet to a point of tangency with a 100 foot radius curve to the left, thence along the arc of the curve a distance of 83.0 feet, more or less; thence North 5° 06' West 95 feet, more or less, to end. Said easement recorded October 4, 1982 as Entry No. 865210 in Book 1410, Page 722, Records of Weber County, Utah.

The document reserving said Easement rights is as recorded October 25, 1982, as Entry No. 866402 in Book 1411, Page 1023, Weber County Recorder's Office.

(i) Subject to boundary line discrepancies, if any, with the property of the United States of America on the East and South as disclosed by various Deeds of Record.

(j) Any changes or assessments, or both, that may be levied by Weber Basin Water Conservancy District, Eden Cemetery Maintenance District and the Weber County Fire Protection Service Area No. 4.

(k) Other than 10 acre feet of unappropriated Weber Basin Water Conservancy District contract rights to irrigation water, (that are being transferred by Grantor to Grantee), Grantor reserves all remaining water rights incident to the conveyed parcel of land, whether or not appurtenant to such parcel of land, including

(1) all rights to all water pertaining to that certain 6 inch "T" connection on the Ogden City culinary pipeline, which pipeline and its related easements are particularly described in paragraphs (d) and (e) hereof, and

(2) all of the rights to all water pertaining to the existing well drilled within the conveyed parcel, being Well No. 1 particularly described above in paragraphs (f) and (g) hereof.

Weber County, UT

(20-040-0002) Part of Sections 25 and 26, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey: Beginning 1298.67 feet South from the Northwest corner of said Section 26, running thence North 89°04' East 3251.98 feet; thence South 70°44; East 605.30 feet; thence North 85°27 East 1069.04 feet; thence North 33°39' East 1716.12 feet to a point 501.87 feet North 89°26' East from the Northwest corner of Section 25; thence East to the Northeast corner of Section 25, thence South to the Southeast corner of Section 25; thence West 6780 feet, more or less; thence North 29°08'14" West 1072.96 feet; thence South 73°41'46" West 1042.76 feet; thence South 4°26'44" West 646.40 feet; thence West 2208.55 feet more or less, to the Southwest corner of Section 26; thence North to the beginning.
EXCEPT that part deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20). SUBJECT TO the following Right of Way: a perpetual easement, upon part of an entire tract of property in the Northwest Quarter of the Northeast Quarter of Section 25, Township 6 North, Range 1 East, Salt Lake Base and Meridian, Weber County, Utah, for the purpose of providing access to an abutting tract of property incident to the construction of a highway known as Project No. 365. Said part of an entire tract is a strip of land 50.00 feet in width adjoining Westerly the following described Westerly Right of Way line of said project: Beginning in the Westerly Right of Way line of said project at a point 300.00 feet perpendicularly distant Westerly from the control line of said project at Engineer Station 442+21.13, said point of beginning is 1857.43 feet North 89°39'48" West along the North line of said Northeast Quarter of Section 25 and 242.72 feet South 0°14'21" West from the Northeast corner of the Northeast Quarter of said Section 25 as monumented by a BLM brass cap and running thence North 19°45'04" East 257.35 feet to the North line of said entire tract, said point being the point of terminus, (NOTE: Easement terminates at the North line of said entire tract).

(20-044-0007, 133.66 acres) Part of the North ½ of Section 35, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey: Beginning at the Northwest corner of said Section 35, running thence North 89°32' East 2208.55 feet along said Section line; thence South 04°26'44" West 1745.43 feet; thence South 32°19'34" East 786.73 feet; thence South 37°52'21" East 85.48 feet; thence South 52°00'40" West 60.38 feet; thence along a 5579.58 foot radius curve to the right a distance of 201.99 feet, more or less, to the South line of the Northwest Quarter; thence West along the Quarter Section line to the Southwest corner of the Northwest Quarter of said Section; thence North to the point of beginning. SUBJECT TO the following described Right of Way: Beginning at a point on the North Right of Way line of Trappers Loop Road (as referenced from U.D.O.T. drawings on Project NS-365 (2) sheet no.'s 10 & 11). South 90°00'00" West 93.57 feet and South 00°00'00" East 2472.46 feet from the South Quarter Corner of Section 26, Township 6 North, Range 1 East, Salt Lake Base and Meridian, said described point being the point of beginning for the following described parcel of land and the point of beginning for the parcel last described above; thence continuing along the North Right of Way line of Trappers Loop Road for the next two courses, and being more particularly described as follows: South 52°02'15" West 60.37 feet to a point of curvature to the right; thence along said curve for 269.86 feet, said curve having a long chord bearing South 53°25'23" West, and a long chord length of 269.83 feet; thence North 35°11'29" West 120.00' to a point of curvature to the left, thence along said curve for 261.65 feet to a point that is at a perpendicular distance of 66.00 feet from the West boundary line of the previously described parcel of land, said curve having a long chord

bearing of North 53°26'08" East, and a long chord length of 261.62 feet, (said described curve to be parallel to the North Right Of Way line of Trappers Loop Road and also being a perpendicular distance 120.00 feet from before said Right of Way); Continuing thence from before said described point that is 66.00 feet perpendicular distance from the West boundary line of the above described parcel of land for the next two courses that are parallel to the West boundary line of the above described parcel of land, and more particularly described as follows: North 32°19'34" West 780.50 feet; thence North 04°26'44" East 11077.94 feet; thence South 85°33'16" East 66.00 feet to a point on the West boundary line on the above described parcel of land; thence along the West boundary of the before mentioned parcel for the next three courses that are described as follows: South 04°26'44" West 1056.00 feet; thence South 32°19'34" East 786.73 feet; thence South 37°52'21" East 85.48 feet to the point of beginning. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20).

(20-044-0008, 24.82 acres) Part of the North ½ of Section 35, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey: Beginning at a point on the North Right of Way line of Trappers Loop 1780.12 feet North 90°00' East and South 00°00' East 1144.88 feet from the South Quarter corner of Section 26, township 6 North, Range 1 East, running thence North 29°08'14" West 1310.76 feet, more or less, to the Section line; thence East 1500 feet, more or less, to the Northeast corner of said Section 35; thence South to the Southeast corner of the Northeast Quarter, thence West to the Southerly line of Trappers Loop; thence Northeasterly along Trappers Loop to a point South 29°08'14" East of beginning; thence North 29°08'14" West to the point of beginning. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20) SUBJECT TO the following described Right of Way: Beginning at a point on the North Right of Way line of Trappers Loop Road (as referenced from U.D.O.T. drawings of Project NS-365 (2) sheet no.'s 10 & 11). North 90°00'00" East 1780.12 feet and South 00°00'00" East 1144.88 feet from the South Quarter corner of Section 26, Township 6 North, Range 1 East, Salt Lake Base and Meridian. Said described point being the point of beginning for the following described parcel of land, said point also being at the intersection of the East boundary line of the previously described parcel of land the before mentioned Right of Way; thence along the Right of Way on a curve to the right for 245.09 feet; said curve having a long chord bearing of North 70°21'13" East and a long chord length of 244.89 feet, thence North 16°15'50" West 66.00 feet to a point of curvature; thence along a curve to the left for 259.94 feet to a point on the East boundary line of the before mentioned parcel, (said curve is also being parallel to and at a perpendicular distance of 66.00 feet to before mentioned Right of Way), said curve having a long chord bearing of South 70°14'30" West, and a long chord length of 259.72 feet; thence South 29°08'14" East 66.29 feet to the point of beginning.

(20-044-0005, 108.51 acres) That part of the following parcel lying within Weber County. The North ½ of Section 36, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20).

(21-039-0004, 134 acres) All that portion of the Northwest Quarter and the Southwest Quarter of Section 30, Township 6 North, Range 2 East, Salt Lake Meridian, U.S. Survey, lying West of the County Road, more particularly described as follows, to-wit: Beginning at County Road Monument No. 111, identical with the Quarter corner between Sections 19 and 30, Township 6 North, Range 2 East, thence South 33°33' West 328 feet, South 66°18' West 180 feet, South 41°18' West 45 feet, South 24°42' East 100 feet, South 25°18" West 90 feet, South 39°18' West 200 feet, South 34°18' West 500 feet, South 30°18" West 300 feet, South 43°48' West 650 feet to a point where the road is changed to a more Southwesterly course; thence along the center line of a new road South 56°41' West 326 feet, South 26°West 535 feet, South 51°50' West 385 feet, South 23°24' East 436 feet to a junction with the old road; thence along the center line of the old road South 24°48' West 400 feet, South 16°42' East 150 feet, South 34°38' West 300 feet, South 13°48' West 182 feet to a point from whence the County Road Monument No. 113 bears South 16°16' West 148 feet; thence South 11°10' East 193 feet; South

35°35' East 425 feet; South 16° East 280 feet; South 37°26' West 123 feet to a point on the North line of the Byram property, from which point the Southwest corner of said Section 30 bears South 68°25'30" West 851.62 feet distant; thence along said North line in a Westerly direction 150 feet, more or less, to the Northwest corner of said Byram's land; thence Southerly along the West line of said Byram's land and the center line of the old county road 336.3 feet, more or less, to the South line of Section 30; thence Westerly along the Section line 685 feet, more or less, to the Southwest corner of Section 30; thence Northerly along the range line between Sections 25 and 30 to the Northwest corner of Section 30; thence Easterly along the North line of Section 30 to County Monument No. 111, the place of beginning.

(21-040-0002, 19.81 acres) That part of the following parcel lying within Weber County. Part of the Northwest Quarter of Section 31, Township 6 North, Range 2 East, Salt Lake Meridian, U.S. Survey: Beginning at the Northwest corner of said Quarter Section; running thence East 685 feet; thence South 10°09' East 952 feet; thence South 21°03' West 926 feet; thence South 33°53' West 540 feet; thence South 13°50' West 384 feet to the South line of said Quarter Section; thence West 124 feet to the West line of said Quarter Section; thence North 2646 feet to the place of beginning.

Morgan County, UT

(01-006-015, 195 acres) That part of the following parcel lying within Morgan County. The North ½ of Section 36, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20).

(01-006-006, 15.50 acres) That part of the following parcel lying within Weber County. Part of the Northwest Quarter of Section 31, Township 6 North, Range 2 East, Salt Lake Meridian, U.S. Survey: Beginning at the Northwest corner of said Quarter Section; running thence East 685 feet; thence South 10°09' East 952 feet; thence South 12°03' West 926 feet; thence South 33°53' West 540 feet; thence South 13°50' West 384 feet to the South line of said Quarter Section; thence West 124 feet to the West line of said Quarter Section; thence North 2646 feet to the place of beginning.

(01-006-034, 51.26 acres) All that portion of the NE ¼ of Section 35, Township 6 North, Range 1 East, SLB&M, lying South of Trappers Loop Road.

Weber County, UT
(20-043-0001) Township 6 North, Range 1 East, SLM
Section 31: All

Weber County, UT
(23-004-0002, 40 acres) Part of Section 5, Township 5 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey. Being the SW ¼ NW ¼ of said section.

Exhibit 3: Snowbasin Resort – Special District Application Materials

Appendix 2:
Design Standards

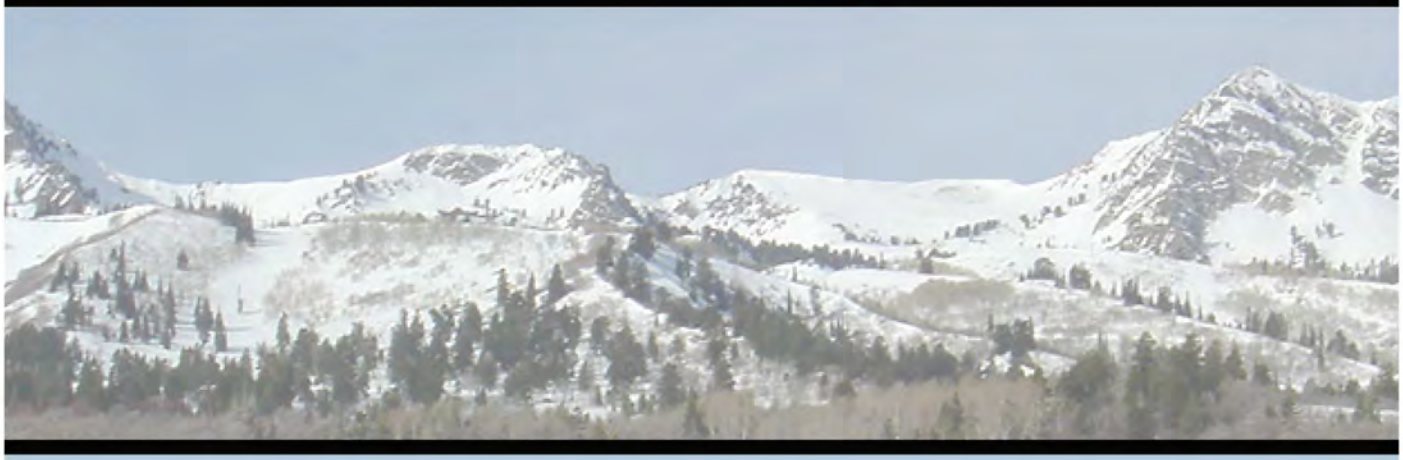


Exhibit 3: Snowbasin Resort – Special District Application Materials

Snowbasin Design Standards

Morgan County, Utah

snowbasin
A SUN VALLEY RESORT

APPLICANT:
SNOWBASIN RESORT COMPANY
P.O. Box 10
1 Sun Valley Road
Sun Valley, ID 83353

PREPARED BY:
DESIGNWORKSHOP
1390 LAWRENCE STREET #200
DENVER, CO 80204

Table of Contents

Exhibit 3: Snowbasin Resort – Special District Application Materials

Introduction

Intent and Purpose

The Snowbasin Resort consists of approximately 12,000 acres near the Wasatch-Cache National Forest and spans both Morgan County and Weber County. Approximately 8,100 acres are located within Morgan County. Due to the vast geographic area of the resort, the intent is for the development standards to be consistent across the two counties so the ultimate build-out of the project appears to not be influenced by different jurisdictional requirements.

The Purpose of the Snowbasin Design Standards is to direct development in ways that will preserve and enhance the Snowbasin Resort-related development. By maintaining the natural, open and mountain characteristics of the area, Snowbasin Resort will be integrated into the landscape. Specific objectives of the standards are below:

1. Retain and enhance the natural character of the site.
2. Maximize the perceived open space.
3. Optimize views and privacy.
4. Conform with the Morgan County codes and be complementary to the Weber County codes.

This document is to be used in addition to the Morgan County Code. Where there is a conflict between this document and the Morgan County Code, the Municipal Code governs. The Criteria set forth within this document may be more stringent than the Morgan County Code but never less so.

Document Structure and Organization

The document addresses the specific requirements of the Morgan County Resort Special District (Ordinance No. CO-11-17) zone application requirements, Section 8-5J-2-C2.

Illustrations/ Images

The illustrations and images in this document are not intended to be representative of what will/should be built. Instead, they are intended to be a visual reference to the narrative language.

Definition of Terms

The goals and requirements for the design of each element are described under three headings for each review issue: Intent, Standard and Guideline . These are comprehensive for all land use types unless there needs to be a more specific delineation of the Standard, in which case the land use types (Mixed-Use, Multi-Family or Single Family) will be included to qualify the Standard.

They are described as follows:

Intent

Intent statements are provided to define the vision and goals that the standards and guidelines have been created to achieve. The intent statement will provide additional information where a standard or guideline is in question.

Standard

The Standard is objective criteria that provides a specific set of directions for achieving the Intent. Standards denote issues that are considered critical. Standards use the term "shall" to indicate that compliance is absolutely required and deemed necessary to achieve the intent for each section.

Guideline

The Guideline provides alternative solutions for accomplishing the goals set forth in the Intent statement. Guidelines are more flexible and are sometimes more difficult to quantify than standards. Guidelines use the terms "should" or "may" to denote they are considered relevant to achieving the Intent statement and will be pertinent in the review process.

Where Guidelines amplify a Standard, they are preferred, but not mandatory criteria. Guidelines will, however, be strongly considered where a Standard is not being met and an alternative is being sought, but a Guideline shall never be considered a variance. In such a case, it must be demonstrated that the alternative meets one or more of the following criteria:

- the alternative better achieves the Intent statement;
- the Intent statement that the Standard was created to address will be improved by application of the Guideline in this particular circumstance;
- the application of other Standards will be improved by not applying the Standard in this particular circumstance;
- unique site characteristics make the Standard impractical or cost prohibitive.

Definitions

Definitions

Applicant: The owner of land proposed for any land use application or such owner's duly authorized agent. Any agent must have written authorization from the owner.

Architect: A professional individual registered in the state of Utah to practice in the field of architecture.

Berm: A strip of mounded top soil, which provides a visual buffer or screen.

Building Height: The vertical distance from finish grade surface at the foundation, to the highest point of the building roof or coping.

Cut: Any disturbance on the land including any trenching, which results in the permanent removal of earth, rock or any other surface material such as vegetation, filling or paving.

Defensible Space: An area either natural or man-made, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

Design Standards: The intents, standards and guidelines adopted and enforced by Morgan County as set forth within this document.

Disturbed Area: Any Lot surface area altered in any way during the construction of a building or landscape improvement.

Fill: Any addition of earth, rock or any other surface materials to the surface of the land that increases the natural elevation of the original surface.

Finish Grade: The final elevation of the land surface of the site after completion of development.

Grading: Either an excavation or fill, or the act of excavating or filling.

Indigenous: Plants native to and/or originating from a locale.

Lot: A parcel or tract of land within a subdivision and abutting a public street, or a private street, pursuant to the requirements of this title.

Owner: Any person who alone, jointly or severally with others, or in a representative capacity (including, without limitation, an authorized agent, executor or trustee) has legal or equitable title to any property.

Owner Representative: Any Architect, contractor, subcontractor, agent or employee hired or engaged by an Owner to speak and act on behalf of the Owner in regards to any Activity.

Percent Slope: Percent slope is calculated by multiplying the ratio of a slope's rise (1') to run (2') by one hundred (100). For example, a slope of 2:1 is a 50% slope.

Permanent Enhancement: The construction of any landscaping wall, fencing or other non-temporary element to remain for more than one calendar year.

Permeable: A surface material that allows for the penetration or partial penetration of surface water.

Record Grade: Natural grade existing prior to any site preparation, grading or filling, unless a new Record Grade is approved and recorded at the time of subdivision approval and noted and filed on the final plat.

Retaining Wall: A wall designed and constructed to resist the lateral displacement and erosion of soils or other materials.

Ridgeline: The highest points along a mountain top.

Skylining: Any structure or improvement that creates a silhouetted appearance against the sky. Typically referring to a structure or improvement above a ridgeline.

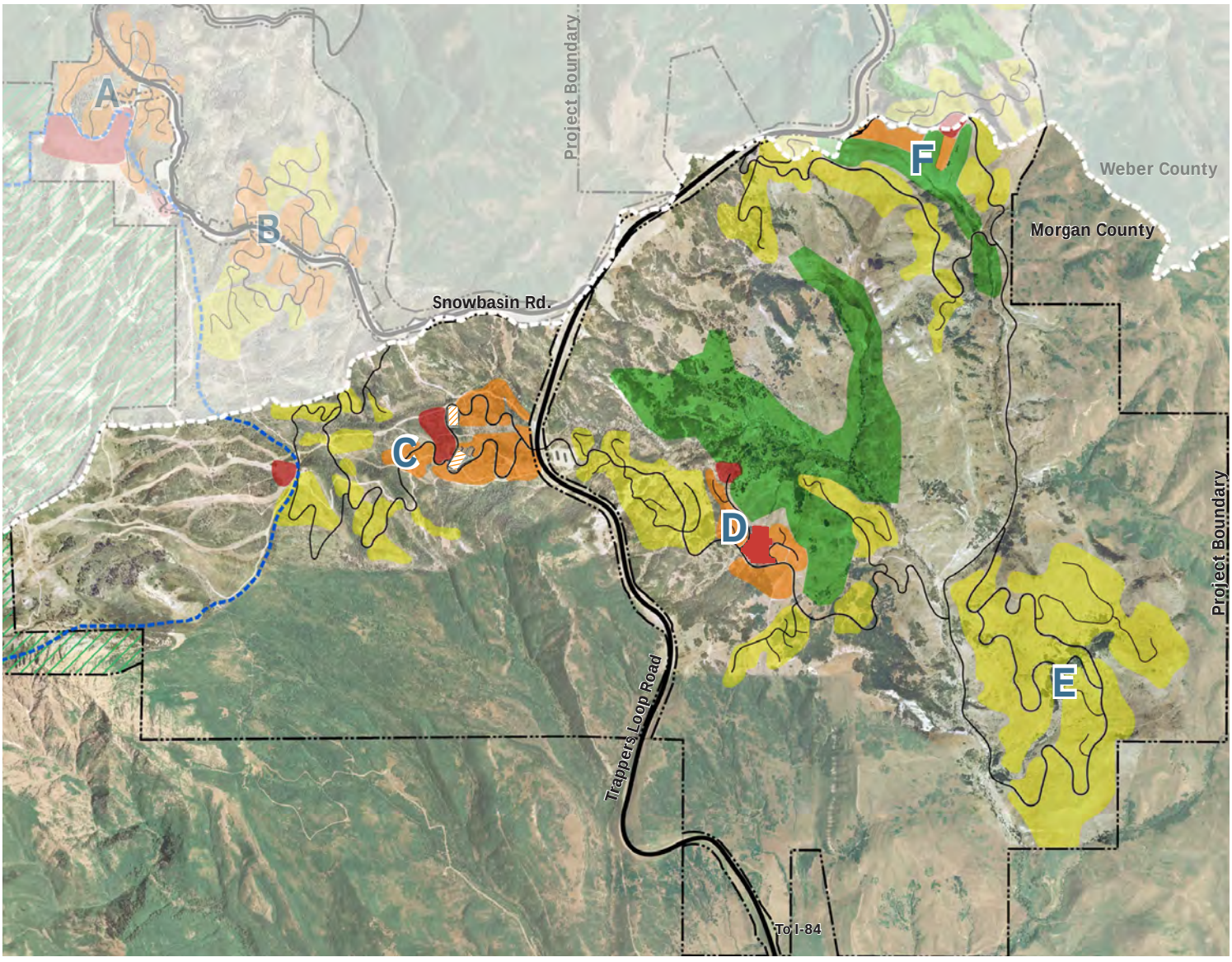
Turnabout: The area adjacent to a garage intended for the use of turning a car around and/or the outdoor parking of vehicles.

Site Planning and Development

Land Use Types, Location and Density

- Snowbasin Project Boundary
- Snowbasin Ski Area Boundary
- USFS Special Use Permit Area
- Roads
- Parking Structure with Residential Above
- Single Family residential
- Multi-family residential
- Mixed-use development
- Golf and Golf Infrastructure

Morgan County Development Area	
Development Area	**Acres**
Morgan County Total Land Area	**8,144**
Area C - Strawberry Village	227
Area D - The Meadows Village	294
Area E - The Meadows	475
Area F - The Meadows	190
Morgan County Total Development	**1,186**
Morgan County Total Open Space	**6,958**
Morgan County % of Open Space	**85%**



General Architectural Design Considerations

Intent

To establish an architectural standard that is appropriate for the Snowbasin Resort, is consistent with the natural surroundings and exhibits the highest level of quality.

Standard

- All buildings shall be designed by a licensed professional in accordance with the local building and fire codes.
- All buildings and structures shall be designed with consideration given to the mountain community home styles and shall be appropriate for the climate.

Guideline

Architects and Landscape Architects are preferred to have experience in the region or similar climates/environments.

Lot Area

Intent

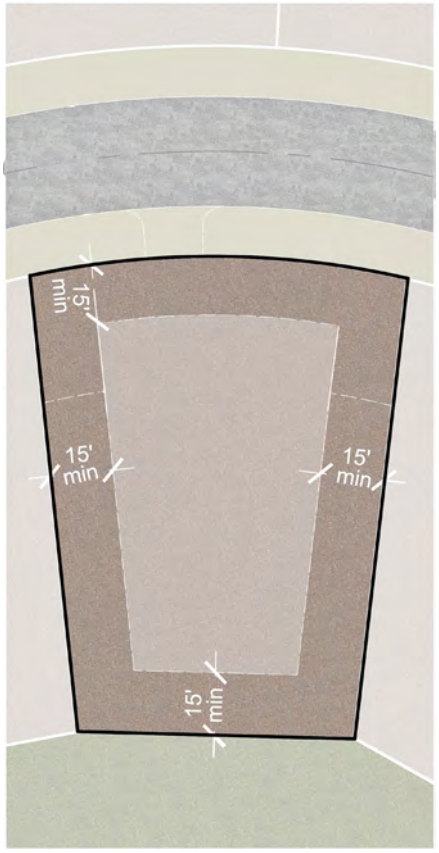
To provide satisfactory and desirable sites for buildings and property related to topography.

Single Family Residential

- Lots sizes will vary.

Multi-family Residential and Single Family Residential Standard

- Each lot shall abut on a public street, private street, or private access right-of-way (i.e. driveway to multi-family building).
- Side lines of lots shall be approximately at 90 degree angles, or radial to the street right-of-way, as practicable.



Multi-family and single family residential setbacks

Minimum Setbacks

Intent

To provide boundaries that will be used to determine the location of any permanent construction, excluding the Mixed-Use land use.

Standard for all Land Use types

- The minimum setback from the Trapper's Loop Highway right-of-way shall be one hundred feet (100').
- Setbacks from other public rights-of-way shall be a minimum of fifteen feet (15'), unless otherwise specified.

Multi-family Residential and Single Family Residential Standard

- Setbacks from the public right-of-way shall be a minimum of fifteen feet (15').
- Side Yard setbacks shall be a minimum of fifteen feet (15').
- Rear Yard setbacks shall be a minimum of fifteen feet (15').
- No structures or grading other than a driveway, utilities and paths shall be constructed within setback areas.
- Building orientation shall respond to the site and the front of the house should face the street whenever possible.

Guideline

Permanent enhancements such as landscaping walls or fencing may be constructed within the setback area.

Building Height

Intent

To maintain quality aesthetics for adjacent uses.

Mixed Use Standard (excluding Hotels)

- No portion of any building shall exceed sixty-six feet (66') in height above Design Grade with the exclusion of the following:
  - Chimneys
  - Lightning rods
  - Elevator core
  - Utility Stacks
  - Photovoltaic panels
  - Hotels may exceed this height restriction with County approval.
- Buildings on natural topography above fifteen percent (15%) in slope shall be stepped in form.
- Larger structures shall include a variety of building heights to avoid a monumental appearance.
- The tallest portion of a structure shall be located towards the center of the building, wherever possible.

Building Height Con't

Multi-Family Residential Standard

- No portion of any multi-family building shall exceed forty-four feet (44') in height above Finish Grade with the exclusion of the following:
  - Chimneys
- Lightning rods
  - Weather vanes
  - Photovoltaic panels
- Buildings on natural topography above fifteen percent (15%) in slope shall be stepped in form.
- Larger structures shall include a variety of building heights to avoid a monumental appearance.
- Buildings shall not be constructed so that any portion skylines (creates silhouetted appearance against sky).

Buildings on natural topography above fifteen percent (15%) in slope shall be stepped in form

Guideline

Variations in building height are encouraged to convey visual interest, reduce perceived mass, and give a sense of scale.

Construction on steep slopes will avoid excessive cutting into existing topography for foundations

Examples of building mass and form

Building Mass and Form

Intent

To provide safe access, exhibit the traditional mass and scale of comparable resort communities, and promote stepped construction that fits into the existing topography as naturally as possible.

Mixed Use and Multi-Family Residential Standard

- The shape of the building shall be determined by its functional mass.
- The resulting building mass from the shape of the walls, floors and roofs shall be broken into smaller scale components to avoid visually overpowering proportions.
- The use of singular roof mass shall be avoided.

Guideline

An articulated facade is encouraged to avoid overly repetitive elements so as to avoid the appearance of an over-scaled singular mass on large buildings

Roofs

Intent

To avoid large, unbroken expanses of single pitched roofs and to promote large sheltering roofs with long overhangs that minimize the apparent height of walls.

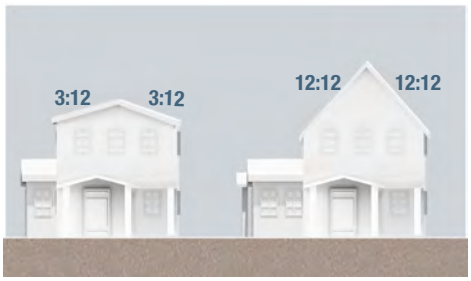
Standard

- The mass of a roof shall be broken into planes and smaller elements to visually reduce the overall scale.
- Recommended roof pitches are from 3:12 to 12:12.
- Stylistic roof forms such as Mansard or "exotic" forms such as hyperbolic paraboloids or other conical sections shall not be permitted.
- Roofs shall have at least a Class A roof covering, Class B roof assembly or an approved noncombustible roof covering.
- Roof surfaces should be covered with composite shake or natural or synthetic slate tiles.
- All roof flashing, fire place caps, vents, hoods and other roof accessories shall be copper or a pre-finished metal that blend with the color of the selected roof material.
- Shiny or reflective metal roofing or flashing material shall not be allowed.
- Non-reflective metal accents such as copper or zinc may be used provided it does not cover more than twenty five percent (25%) of roof surface.

Guideline

A hip, gable or shed roof configuration may be appropriate to achieve the intended rural architectural character.

Examples of roof form



Recommended roof pitches are from 3:12 to 12:12

Building Color and Texture

Intent

To help blend the structure into the surrounding natural landscape.

Standard

- Exterior color schemes shall reflect the natural earth tones of the surrounding landscape.
- Exterior sun screens and awnings shall be in natural tones compatible with the building color.
- Neutral tones shall be used for large exterior surface applications.
- Colors shall complement or blend with surrounding landscape.
- Stone and mortar shall reflect the natural colors of the surrounding landscape.
- Finishes shall complement and enhance the building's natural material and its intrinsic qualities.
- Textures shall be incorporated throughout the structure to create a variety of pattern and shadow.
- Approved exterior wall materials shall be of stone, wood siding, composite siding and natural log.
- All building surfaces, excluding metal, shall be painted or stained. Metal siding shall be resistant to glare.
- Exposed wood beams or timbers are allowed on building walls.
- Log products shall be peeled.
- Shingles or shakes shall be limited to concrete, composite material or asphalt.
- Faux stone shall not be permitted.
- Vinyl siding shall not be permitted on any exterior building surface wall.
- Highly reflective and mirrored glass and window films shall not be used.

Guideline

Accent colors that are not included within the natural earth tone color palette that are used in specific and limited applications may be approved if it is demonstrated that the additional color benefits the overall design scheme.

Retaining Walls

Intent

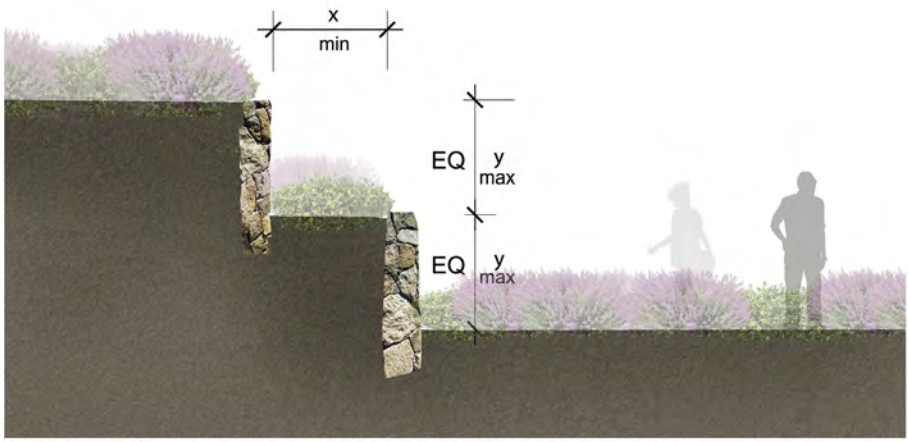
To minimize the disturbance of the site and to integrate new improvements into the existing topography.

Standard

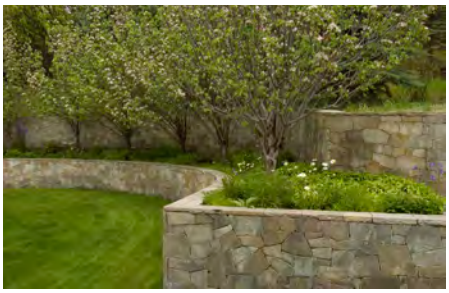
- Retaining wall height shall not exceed six feet (6').
- Retaining walls that need to make up vertical elevation beyond four and one-half feet (4.6') shall be stepped or terraced to provide planting pockets.
- The terrace width shall be a minimum of thirty-six inches (36"), or equal to the height of the wall if over 36" from face of wall to back of wall.
- The planting area of the terrace shall be a minimum of thirty-six inches (36").
- Tops and ends of walls shall be shaped to blend into adjoining natural contours.

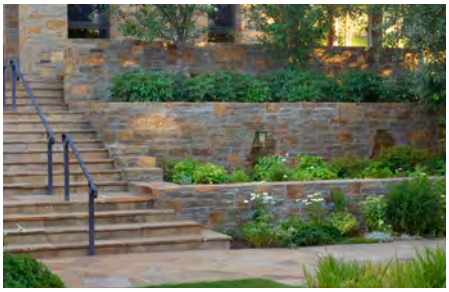
Guideline

Higher retaining walls may be considered if the design results in lesser impacts on the land.



x = minimum of 36", or equal to the height of the wall
y = maximum height of wall to be less than or equal to 4'-6".





Examples of retaining walls

Examples of project signage

Signage Standards

Intent

To provide clear identity and wayfinding signage for visitors and residences

Mixed Use Standard

- Each freestanding building or complex is allowed two (2) wall signs per street frontage which shall not exceed five percent (5%) of the square footage of the front of the building, not including false fronts.
- Each freestanding building or complex having primary or secondary entry from a street, shall be allowed one (1) ground mounted sign per frontage. The sign may be placed on a landscaped berm up to two (2) feet from finished grade.
- Portable signage shall not be allowed.
- Banners shall be allowed on light poles or free-standing poles. Each banner shall be safely secured to a permanent fixture and be no closer than eight (8') feet to the ground.

Multi-family Residential Standard

- Multi-family residential buildings shall be allowed one (1) sign identifying the name of the property.
- One (1) Entry or Monument signs shall be allowed for a subdivision area.

Guideline

All signage should be designed to minimize visual impact as much as possible while still providing direction for users.

Exterior Service Areas and Site Utilities

Intent

To provide areas outside of plain view from street and adjacent neighboring buildings to hide unsightly necessities on site.

Standard

- Utility routing shall follow the driveway unless this routing is not feasible.
- Any utility boxes and/or meters shall be screened so they are not visible from the street per utility company requirements.
- All mechanical equipment shall be screened from view, either by enclosure or parapet wall.
- Garbage storage sites shall be hidden from view of adjacent buildings and the street or shall be designed with minimum visual impact when it is not possible to completely hide the structure.
- Garbage enclosures shall be made inaccessible to wildlife and incorporated into architecture of residential structure.

Guideline

All service areas should be designed to be as least visually impacting as possible.

All parking and drive lanes shall be paved with concrete, asphalt or permeable paver, unless alternative material is approved.

Driveways are to be designed with the natural topography when feasible

Parking and Driveway Standards

Intent

Provide alignments that minimize grading and other disruption of the site.

Mixed Use and Multi-Family Residential Standard

- All parking and drive lanes shall be paved with concrete, asphalt or permeable paver, unless alternative material is approved.
- Maximum gradient of parking lots shall meet Morgan County code requirements.
- All subdivisions shall be provided with fire apparatus access roads in accordance with fire codes.
- Driveways shall provide a minimum unobstructed width of twelve feet (12') and a minimum unobstructed height of thirteen feet, six inches (13'6").

Guideline

A garage may be located above or below main living area to accommodate a lesser driveway gradient and avoid driveways in excess of 10 percent.

Examples of preferred lighting

Resort/Parking Lot Lighting Standards

Intent

To minimize lighting, maintain the rural character of the site, limit lighting as required only by safety and preserve views of the night sky in Morgan County.

Standard

- Pedestrian/Village lights shall be a maximum of sixteen feet (16') in height.
- Parking lot lights shall be a maximum of twenty feet (20') in height.
- Full cut-off lights shall be required for all lighting fixtures.
- No uplighting of any kind shall be allowed.
- Pool lighting shall be limited to fully submerged lights and down lights for adjacent patio areas.
- The maximum total lumens of any exterior light fixture shall be 1000 lumens.
- Sodium vapor and all colored lights shall be prohibited.

Guideline

LED lighting requirements may exceed the 1000 lumens maximum if deemed necessary for safety.

Signage Lighting Standards: Resort District & Neighborhoods

Example of Spot Down Lighting

Example of Dimensional "Halo" Letters (day)

Example of Dimensional "Halo" Letters (evening)

Example of White Reflective Lettering

Intent

To provide consistent and appropriate lighting for signage and wayfinding

Resort District & Neighborhood Standard

- Each freestanding monument sign shall be illuminated with a series of external spot down lights or with internal "halo" lighting.
- Spot lights shall always be pointed down. No uplighting of signs is allowed.
- Lighting shall be a warm white (3000º). No colored lighting is allowed.
- Signage on larger roadways shall utilize white reflective lettering on a dark background for vehicular informational and directional signs.
- Exposed illumination is not allowed.
- Lighting shall never cause glare or distract drivers.

Guideline

All lighting shall be designed as an integrated element of the signage design. Lighting should be subtle and not draw attention to itself. A concealed timer shall be included with all lighting.

Signage Lighting Standards: Pedestrian Village Core/Ski Base

Intent

To provide consistent and appropriate lighting for signage

Pedestrian Village Core/Ski Base Standard

- All Retail Tenant signs shall be illuminated with 1-3 external spot down lights or a linear down light fixture.
- Spot lights shall always be pointed down. No uplighting of signs is allowed.
- Lighting shall be a warm white (3000°). No colored lighting is allowed.
- Exposed illumination is not allowed.
- Internal illumination is not allowed.
- Neon illumination is not allowed.

Guideline

All lighting shall be designed as an integrated element of the signage design. Lighting should be subtle and not draw attention to itself.

Examples of Retail Tenant Sign Spot Down Lighting ("Goose Necks")

Examples of Retail Tenant Sign Down Lighting (Linear Fixture)

Landscape and Buffer Standards

It is encouraged that parking lots be well landscaped to interrupt the pavement expanse, reduce heat island effect, improve the visual appearance and to shade parked cars and pedestrians

Parking Lot Landscaping Standards

Intent

Visually break up large areas of surface parking

Mixed Use and Multi-Family Residential Standard

- Create landscape buffers between rows
- Parking lots shall be screened, for the purpose of minimizing views of parking cars from the public right-of-way, but a landscaped treatment along all property lines which abut the public right-of-way.
- The landscape treatment should be undulating, and have a variety of materials to provide interest and separation from the site's impervious surface.
- The end of every parking aisle shall have a landscaping island.

Guideline

Where space allows, berming is encouraged as part of the perimeter landscape treatment to allow for diversity of interest.

Defensible Space

Intent

To reduce the possibility and intensity of a wildfire, reduce the rate of fire spread and provide increased safety for emergency fire equipment.

Standard

- A minimum of 30 feet adjacent to all structures shall be considered defensible space. In order to qualify as defensible space, fuel modification shall be provided as follows:
  - Nonfire-resistive vegetation must be modified or removed.
  - Trees are allowed, provided the horizontal distance between crowns of adjacent trees and overhead electrical facilities or unmodified fuels is not less than 10 feet (10').
  - Ornamental vegetative fuel or cultivated ground cover, such as green grass, ivy, succelents or similar plants are allowed provided they do not form a means of transmitting the fire from the native growth to any structure.

Guideline

Nonfire-resistive vegetation or growth shall be kept clear of buildings or structures.

Common and Private Open Space for Multi-Family Residential

Intent

To maintain the natural beauty of Morgan County and Snowbasin Resort and enhance built structures as they relate to the surrounding environment.

Standard

- A minimum of thirty percent (30%) of the total disturbed area of each lot shall be landscaped (excluding the building footprint area from gross calculation)
- A minimum of seventy percent (70%) of all new planting shall be indigenous species to the Rocky Mountain sub-alpine and lower mountain zones.
- Approved plant species list is included in Appendix A.
- Utah fire resistant species list is in Appendix B.

Guideline

Plant species that are similar in character and hydration requirements to those listed on the approved plant species palette may be considered for use (See Appendix).

Examples of natural revegetation

Revegetation and Seed Mixes for Multi-Use and Multi-Family

Intent

To prevent erosion and the invasion of unwanted species.

Standard

- All disturbed areas on each lot shall be revegetated via drill seeding or hydromulch application the first growing season after disturbance has occurred using the native seed mix listed in the Approved Plant Species Palette in the Appendix.
- A minimum of 95% of the disturbed area must be covered two years after the application or additional seeding will be required.
- Any disturbance caused by utility construction shall be revegetated immediately following completion of construction, or within sixty (60) days after the disturbance.
- All slopes 3:1 and greater shall be protected with erosion control fabric as appropriate. Hydromulch may also be utilized.

Guideline

An alternative seed mix may be considered and approved outside of the building envelope if the alternative seed mix unifies the overall landscaping theme for the lot and does not include invasive or unwanted species.

Irrigation

Intent

To minimize the need for permanent irrigation in an attempt to reduce usage of potable water.

Standard

- Automated irrigation systems shall be required for all new plantings for a minimum of two growing seasons for establishment purposes.

Guideline

Permanent irrigation shall be located only where necessary. The seven steps of Xeriscape design are encouraged (See Appendix).

Grading

Intent

To promote the public health, safety, and welfare, to protect property and infrastructure, and to minimize grading impacts on the natural contour of the land on each site by blending new designs into existing topography and land forms, while ensuring the protection of drainage corridors.

Standard

- Buildings shall not appear perched on site.
- Maximum slopes shall be 2:1, subject to geotech report. Slopes greater than 2:1 shall require a retaining wall.
- Disturbed areas shall be revegetated to match and blend naturally into surrounding environment.
- All cuts and fills shall be shaped, rounded, minimized and non-uniform to simulate natural existing contours.
- Existing topsoil will be stockpiled and utilized to cover manufactured slopes.
- All earthwork and grading shall respect any landslide mitigation strategies for the property, depending upon location.
- A geotech report is required for all structural grading.

Guideline

Slopes up to 2:1 may be considered without the use of retaining walls if proper slope stabilization products are utilized and approved by Morgan County.

Buildings are to be constructed to minimize grading impacts

Examples of preferred grading solutions

Examples of preferred drainage solutions

Drainage

Intent

To maintain existing drainage patterns and discharge points both during and after construction.

Standard

- New drainage ways shall appear natural and function like natural drainage ways.
- Drainage resulting from development shall be dispersed on site and not directed to other lots.
- Passive landscape swales shall be protected prior to drainage leaving the site.

Guideline

When existing drainage patterns run through a development parcel, the drainage pattern may be manipulated to accommodate a built structure if the drainage is rerouted.

Appendix

Appendix A

Approved Plant Species Palette

Any species of plants not listed below that are indigenous to Morgan County may also be acceptable, upon specific review by Morgan County.

PLANT TYPES	BOTANICAL NAME	COMMON NAME
Evergreen Trees		
	Picea pungens	Colorado Spruce
	Pinus ponderosa	Ponderosa Pine
	Pinus edulis	Pinyon Pine
	Pinus nigra	Austrian Pine
	Psedotsuga menziesii	Douglas Fir
Deciduous Trees		
	Acer grandidentatum	Big-tooth Maple
	Celtis occidentalis	Common Hackberry
	Crataegus douglasii	Douglas Hawthorn
	Populus tremuloides	Quaking Aspen
	Sorbus scopulina	Rocky Mountain Ash
Evergreen Shrubs		
	Cercocarpus ledifolius	Curl-leaf Mountain Mahogany
	Juniperus horizontalis	Creeping Juniper
	Mahonia repens	Creeping Mahonia
Deciduous Shrubs		
	Acer glabrum	Rocky Mountain Maple
	Amelanchier alnifolia	Saskatoon Serviceberry
	Cornus stolonifera	Redtwig Dogwood
	Euonymus alatus	Burning Bush
	Fallugia paradoxa	Apache Plume
	Foresteria neomexicana	Mountain Privet
	Physocarpus malvaceus	Ninebark
	Philadelphus lewisii	Mockorange
	Potentilla fruticosa	Shrubby Cinquefoil
	Prunus melanocarpa	Chokecherry
	Rhus glabra	Smooth Sumac
	Rhus trilobata	Oakleaf Sumac
	Ribes alpinum	Alpine Currant
	Ribes aureum	Golden Currant
	Rosa woodseii	Wood's Rose
	Symphoricarpos albus	Common Snowberry
Perennials/ Ground covers		
	Alyssum saxatile	Basket of Gold
	Aquilegia caerulea	Rocky Mountain Columbine
	Arctostaphulos uva-uri	Kinnikinnick

Chrysantemum maximum	Shasta Daisy
Delphinium elatum	Delphinium
Echinacea purpurea	Purple Coneflower
Eriogonum species	Buckwheat species
Euonymus fortunei	Wintercreeper
Fragaria species	Wild Strawberry
Gaillardia species	Blanket Flower
Heuchera sanguinea	Coralbells
Hemerocallis hybrids	Daylillies
Linum perenne	Wild Blue Flax
Lupinus polyphyllus	Lupine
Oenothera missouriensis	Evening Primrose
Penstemon species	Penstemon
Sphaeralcea species	Globemallow species
Vinca species	Periwinkle

Ornamental Grasses

Andropogon scoparium	Little Bluestem
Bouteloua gracilis	Blue Grama
Festuca ovina	Sheep Fescue
Orysopsis hymenoides	Indian Ricegrass
*Pseudoroegneria spicat*a	Bluebunch Wheatgrass

Native Seed Mix

Provide seed mixes designed to perform at altitude with an initial cover crop to minimize erosion.

Guideline

Drought tolerant plants that are not local to the immediate Snowbasin Resort, but that work well in Morgan County and other Xeriscape gardens may be acceptable.

All weeds officially designated and published as noxious per the Utah Noxious Weed Act shall not be introduced on the site. If evidence supports that any noxious weeds exist prior to development, all efforts should be taken to eliminate the noxious weeds.

Appendix B

VEGETATION MANAGEMENT PLAN

Source: 2006 Utah Wildland-Urban Interface Code

UTAH FIRE RESISTIVE SPECIES

Adapted from "Utah Forest Facts: Firewise Plants for Utah Landscapes"
Utah State University Extension, 2002

Grasses

Agropyron cristatum (Crested Wheatgrass)
Agropyron smithii (Western Wheatgrass)
Buchloe dactyloides (Buffalograss)
Dactylis glomerata (Orchardgrass)
Festuca cinerea and other species (Blue Fescue)
Lolium species (Rye Grass)
Poa pratensis (Kentucky Bluegrass)
Poa secunda (Sandberg Bluegrass)

Herbaceous Perennials

Achillea clavennae (Silvery Yarrow)
Achillea filipendulina (Fernleaf Yarrow)
Achillea - other species & hybrids (Yarrow)*
Aquilegia - species & hybrids (Columbine)
Armeria maritime (Sea Pink, Sea Thrift)
Artemisia stelleriana (Beach Wormwood, Dusty Miller)
Artemisia - other species & hybrids (Various names)*
Bergenia – species & hybrids (Bergenia)
Centranthus rubber (Red Valerian, Jupiter's Beard)
Cerastium tomentosum (Snow-in-summer)
Coreopsis auriculata var. *Nana* (Dwarf Mouse Ear Coreopsis)
Coreopsis – other perennial species (Coreopsis)
Delosperma nubigenum (Hardy Ice Plant)
Dianthus plumarius & others (Pinks)
Erigeron hybrids (Fleabane)*
Gaillardia X grandiflora (Blanket Flower)
Geranium cinereum (Hardy Geranium)
Geranium sanguineum (Bloody Cranesbill, Bloodred Geranium)
Geranium species (Geranium)
Hemerocallis species (Daylily)
Heuchera sanguinea (Coral Bells, Alum Root)
Iberis sempervirens (Evergreen Candytuft)
Iris species & hybrids (Iris)
Kniphofia species & hybrids (Red-hot Poker)
Lavandula species (Lavender)
Leucanthemum X superbum (Shasta Daisy)
Limonium latifolium (Sea-lavender, Statice)
Linum species (Flax)
Liriope spicata (Lily-turf)
Lupinus species & hybrids (Lupine)*
Medicago sativus (Alfalfa)
Oenothera species (Primrose)
Papaver species (Poppy)
Penstemon species & hybrids (Penstemon)
Perovskia atriplicifolia (Russian Sage, Azure Sage)
Potentilla nepalensis (Nepal Cinquefoil)
Potentilla tridentata (Wineleaf Cinquefoil)
Potentilla verna (tabernaemontani) (Spring Cinquefoil; Creeping Potentilla)
Potentilla – other non-shrubby species & hybrids (Cinquefoil, Potentilla)*
Salvia species & hybrids (Salvia, Sage)*
Sedum species (Stonecrop, Sedum)
Sempervivum tectorum (Hen and Chicks)
Stachys byzantina (Lamb's Ear)
Yucca filamentosa (Yucca)

continued

Shrubs and Woody Vines

Atriplex species (Saltbush)
Ceanothus americanus (New Jersey Tea)
Ceanothus ovatus & others (Ceanothus)
Cistus species (Rock-rose)
Cotoneaster dammeri (Bearberry Cotoneaster)
Cotoneaster horizontalis (Rockspray or Rock Cotoneaster)
Cotoneaster – other compact species (Cotoneaster)
Hedera helix (English Ivy)
Lonicera species & hybrids (Honeysuckle)
Mahonia repens (Creeping Oregon Grape)
Parthenocissus quinquefolia (Virginia Creeper)
Prunus besseyi (Sand Cherry)
Purshia tridentata (Bitterbrush, Antelope Bitterbrush)
Pyracantha species (Firethorn, Pyracantha)
Rhamnus species (Buckthorn)
Rhus trilobata (Skunkbush Sumac)
Rhus – other species (Sumac)
Ribes species (Currant, Gooseberry)
Rosa rugosa & other hedge roses (Rugosa Rose)
Shepherdia canadensis (Russet Buffaloberry)
Syringa vulgare (Lilac)
Vinca major (Large Periwinkle)
Vinca minor (Dwarf Periwinkle, Common Periwinkle)

Trees

Acer species (Maple)
Betula species (Birch)
Cercis canadensis (Eastern Redbud)
Populus tremuloides (Quaking Aspen)
Populus – other species (Poplar, Cottonwood)
Salix species (Willow)

**** Plants or groups of plants marked with an asterisk (*) can become weedy in certain circumstances, and may even be noxious weeds with legal restrictions against their planting and cultivation. Check with your local Extension office or State Department of Agriculture for information on noxious weeds in your area.***

Note: Some of the listed plants may not be considered "water-wise" or drought-tolerant for arid climates.

Appendix C

Xeriscape (Seven Steps)

1. Design

Achieving long-term success of a Xeriscape landscape takes planning and design. Minimize initial investment by installing xeriscape landscape in phases. Create a site plan drawing of the property, being careful to note any slopes, drainage problems, existing plants and trees or other factors that will affect your landscape needs. Determine which areas of the site are in full sun or shaded and the areas that will need to be irrigated.

2. Plant Selection

When selecting new plants, choose those labeled "drought-tolerant." Group plants together, according to their sunlight and water need, to eliminate unnecessary watering. Following the original site plan, determine which areas of the landscape fall into the three zones listed below and then select plants accordingly.

Natural Zones

Plants in these areas live on rainfall alone. These plants can be native to Idaho, thriving in full sun, or they can be cultivated plants that have adapted and are more suitable for shade areas. Try to incorporate any of the existing drought-tolerant plants into the new Xeriscape.

Low-Water Zones

Plants in these areas will be able to survive mostly on rainfall, but may need a little additional watering in times of drought.

Moderate Water Zone

These areas will require frequent waterings and should be limited in number to serve as the focal points of the Xeriscape landscape. Keep these areas functional, as in entryway flower gardens, grass areas, or fruit and vegetable gardens.

3. Improve the Soil

Mix organic matter, such as homemade compost, peat, manure or topsoil into the flower or vegetable gardens to improve the soil's ability to retain water. The best soil contains equal amounts of all three of the major soil components - sand, silt and clay.

4. Practical Turf Areas

Turf grass requires more water and maintenance than any other part of the landscape. Always look for drought-tolerant varieties when installing new turf areas. Aside from areas needed for recreation and run-off control, consider other alternatives: attractive ground covers, mulched gardens and walkways and low shrubs.

5. Water Wisely

By grouping plants according to their water needs, design the sprinkler system to use water more efficiently. Sprinkler heads that spray work the best for lawns, but drip, bubble and micro-sprinklers are more appropriate for planted areas. Remember to inspect sprinkler system weekly as broken or misaligned heads waste water. Only water when needed and only between the hours of 5 p.m. to 9 a.m.

6. Use Mulches

Mulches reduce evaporation of moisture from the soil. Placing two to three inches (2-3") of mulch on garden beds and walkways cuts down on weeds and slows erosion. Appropriate mulches for our state include: shredded or chipped bark, pine needles and leaves.

7. Proper Maintenance

Xeriscapes typically require less maintenance than normal landscapes. Important tips to remember are:

Water correctly. Overwatering will only increase the risk of plant disease and threaten the health of your plants.

Properly fertilize. Excessive fertilizing promotes fast but weak growth and increases the amount of water a plant needs. Use the appropriate fertilizers in limited quantities. New high-nitrogen fertilizer blends support root growth and can help make turf more drought-tolerant.

Keep lawnmower blades sharp. Also remember to raise the lawnmower to its highest setting. Remove no more than 1/3 of grass blades in each cutting. This encourages the grass roots to grow deeper, making the lawn more drought-tolerant.

Prune plants properly. Excessive or improper pruning practices only increase a plant's need for water.

Exhibit 3: Snowbasin Resort – Special District Application Materials

Appendix 3:
Development Agreement

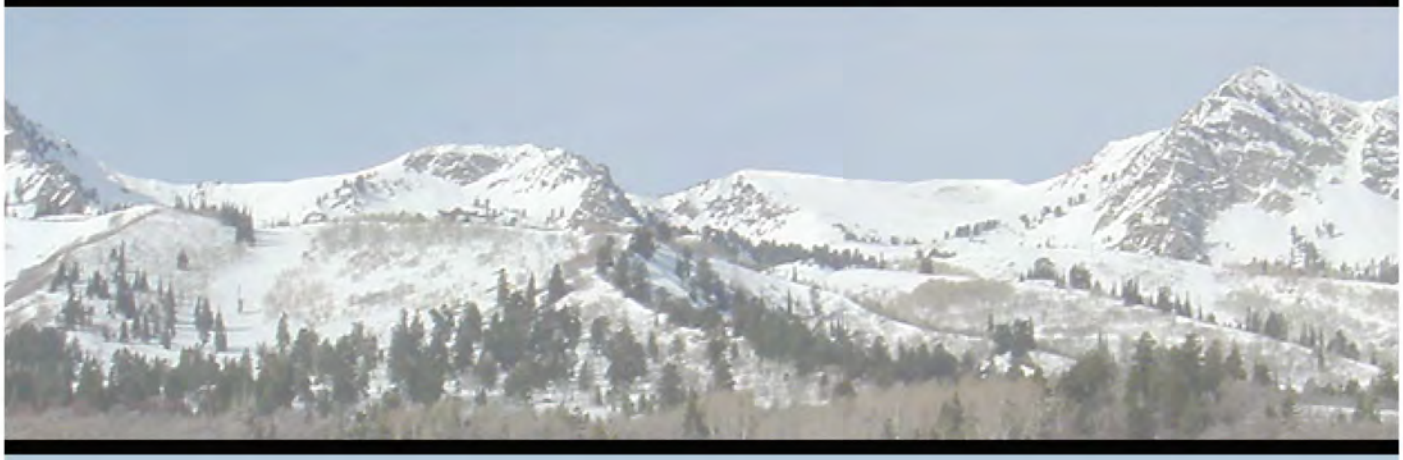


Exhibit 3: Snowbasin Resort – Special District Application Materials

FOR COUNTY COUNCIL REVIEW

Exhibit 3: Snowbasin Resort – Special District Application Materials

Morgan County and Snowbasin Resort

Development Agreement

I. General

1.1. This development agreement ("Agreement") is entered into by and between the land owner ("Snowbasin" or "Owner") and Morgan County Corporation (the "County" or "Morgan County") as of this _____ day of _____, 20___.

1.2. The purpose of this Agreement is to establish development regulations that will apply to the subject property (further described on Exhibit A attached hereto), conditions to which the development will be subject and responsible parties for the construction, operations and maintenance of certain public infrastructure.

1.3. The Owner will develop the subject property ("Property") based on the Conceptual Land Use Plan, attached as Exhibit B, in accordance with the Snowbasin Resort Special District Ordinance and Morgan County ordinances.

1.4. Both parties recognize the advantageous nature of this Agreement, which provides for the accrual of benefits and protection of interests to both parties.

1.5. Nothing contained in this Agreement constitutes a waiver of the County's sovereign immunity under any applicable state law.

1.6. This Agreement is entered into in conformance with the provisions of Ordinance No. CO-11-17 (Resort Special District Zoning District), Ordinance CO-12-XX Snowbasin Resort Special District, as well as other applicable County and State of Utah laws, ordinances and regulations.

II. Definitions

The following terms and references shall have the meanings set forth below unless the context in which they are used clearly indicates otherwise:

2.1. **Conceptual Development Plan** – Attached as Exhibit B, the Conceptual Development Plan, also referred to as the Conceptual Land Use Plan or Master Plan, depicts the type and location of land uses.

2.2. **General Plan** – Refers to the Morgan County General Plan, adopted December 21, 2010.

2.3. **Dwelling Unit (DU)** – A hotel room, condominium unit, townhome duplex unit, or single family home are each considered one DU.

2.4. **Effective Date** – The commencement date set forth in Section 1.1 above.

2.5. **Hotel** – Either traditional or condominiumized property that provides short-term, overnight accommodation for guests.

2.6. **Open Space** - Land used for recreation (including but not limited to golf courses and ski terrain owned by Snowbasin, which may charge a fee to access), agriculture, resource protection, amenity or buffers; is accessible to all residents of the development, except in the case of agricultural lands where access may be restricted. Does not include road or road right of ways, parking areas or private yards. Open Space should be left in natural state, except in the case of recreation uses, which may contain impervious surfaces.

2.7. **Vested Property Rights** - The right to undertake and complete the development and use of property under the terms and conditions of zoning, development agreement and other approvals granted by Morgan County and/or other relevant agencies.

III. Health and Safety

3.1 **Geologic Hazards** – Geologic hazard review will be completed as required by Morgan County ordinance.

3.2 **Erosion Control** – Commercially reasonable practices for erosion control will be utilized by Owner and its contractors, and all homebuilders.

3.3 **Avalanche Hazards –** The parties acknowledge that no known avalanche hazards exist on the Property. However, the County may reasonably require Owner to address site specific avalanche hazards at the time of plan review for development approvals.

3.4 **Air Quality - Fireplaces -** All new commercial and residential fireplaces shall utilize natural gas, liquid propane or any other high efficiency, low emission burning methods. These methods may include high efficiency wood burning systems.

3.5 **Wildfire Hazards -** Owner shall address site specific wildfire hazards and management plans at the time of and within all development review applications, per the adopted Wildland-Urban Interface Code, as administered by the local Fire Code Official

3.6 **Public Safety Facilities -** Owner shall provide a public safety facility, including but not limited to office, equipment storage, and living area for the Morgan County Sheriff's Office and the Mountain Green Fire District. Said facility shall be dedicated (ownership transferred) to the county(s). The facility design/floor plan shall be approved by the Morgan County Sheriff's Office and the Fire District and shall be provided at a time that is deemed necessary and practical by the same. The facility may be a shared-use facility with Weber County Sheriff and Fire Departments, as determined by an emergency services intergovernmental agreement.

IV. Allowed Number of Units

4.1 **Units Allowed** - Residential and commercial density is approved for up to 2,447 DUs distributed according to the Conceptual Land Use Plan, as requested by the Owner and approved by Morgan County as set forth in Paragraph V below.

4.2 **Diminish Rate** - Owner acknowledges that DUs (development rights) will diminish, as development occurs, at a rate of one (1) DU per one (1) residential lot/unit developed.

V. Development

5.1 **Design Flexibility –** The Conceptual Land Use Plan may be refined and modified by the Owner but the general concept of the plan will not be changed without prior formal approval of the County. The Owner will begin construction on the designated project as soon as conditions allow and will pursue project completion in good faith.

5.2 **Additional Applications -** Owner agrees that development, consistent with the Conceptual Land Use Plan approved as part of this agreement will be subject to and part of a more specific and more detailed subdivision and/or plan review. The County will review more detailed development plans based on compliance with applicable standards found in the Morgan County Zoning Ordinance, Building Code and/or Health Regulations.

5.3 **Conditions of Approval -** Any conditions imposed by the County in the approval of any additional applications shall not modify elements of the Project that have been specifically agreed to and approved as part of this Agreement including but not limited to, the total number of units, open space, recreation, off-site improvements, etc.

5.4 **Open Space -** The parties hereby approve the open space as depicted in the Conceptual Land Use Plan which exceeds the 60 percent open space requirements as defined in the Morgan County RSD. Open space shall be dedicated and/or permanently preserved with each phase so that at no time will the project have less than 60 percent preserved.

5.5 **Recreational Amenities -** Although a phasing plan/schedule is not proposed by or required of the Owner, the Owner agrees to provide the recreational amenities at a rate that is commensurate with the level of resort development.

VI. Streets, Parking and Circulation

6.1 **Traffic Mitigation** - Morgan County shall retain the right to, as part of any development application, reasonably require and define the scope of a traffic analysis that can be used to verify representations made in the Snowbasin Resort Master Plan Transportation Element ("Transportation Plan"). In the event Morgan County suspects a drop in Level of Service (LOS) that exceeds the tolerances defined in the Transportation Plan, Snowbasin agrees to investigate the traffic volumes, utilizing a qualified traffic/transportation consultant, to determine the existing LOS at subject intersections, determine the impacts attributable to Snowbasin and provide mitigation designed to return service to anticipated levels as presented in the Transportation Plan.

6.2 **Road Dedication** - Dedication and acceptance of roads shall take place upon recordation of a final plat for each phase of the Property. Final acceptance of roads is subject to approval by the County of grades, cross sections and other engineering and design details. The County shall accept all roads that are in compliance with then existing County standards, but reserves the right not to accept any roads that do not comply with such standards. Consideration of waivers for roads shall be evaluated and may be approved and accepted upon review of specific subdivision and/or design review applications required for each area or phase of development.

6.3 **Road Standards –** Road standards for development within Snowbasin are defined in Exhibit C to this agreement.

6.4 **Road Maintenance** - Owner shall maintain all roads, including all snow removal, until the time of dedication and acceptance of the specific roadway by the County. Upon such dedication and acceptance, the County shall maintain and become liable for such roads.

6.5 **Sidewalks** – Sidewalks located within the public right of way (i.e., road right of way), will be maintained by the County. Sidewalks located on private property, will be maintained by the appropriate community association, homeowner association, resort, business entity, individual owner or other private entity.

6.6 **Private Access Ways** - Owner shall install, at its sole expense, all private access ways within the Project. Owner and/or a duly constituted homeowners' association shall be responsible for the year-round maintenance of all private driveways, private pedestrian pathways, private trails and similar private access ways, including, without limitation, snow removal to maintain access to parking, as well as emergency vehicle turnaround, within the Property.

6.7 **Lighting** - Owner shall, at its sole expense, install lighting within each phase of the Project, as required by County ordinances and/or street standards during Design Review for each phase, prior to the issuance of any Certificates of Occupancy within each phase.

6.8 **Streets and Bridge Assurances** - Owner shall attempt to mitigate material damage to roads in Morgan County caused by construction traffic. This Agreement shall reflect the County Engineer's methodology for determining the material damage to the County's roads caused by construction traffic and the estimated cost of repair. Every year, Owner's engineer shall meet and confer with the County's engineer to determine the required mitigation and

associated cost based on the methodology set forth herein. In the event that the engineers are unable to agree, they shall select a third engineer who shall determine the final cost, which shall be binding on the Parties. Prior to commencement of construction Owner may choose to document current road conditions. Such documentation will be provided to the County Engineer and shall be utilized along with any other relevant documentation from the County to determine if damage was caused by construction traffic as opposed normal non-construction traffic or other causes not attributable to Owner's construction. All such documentation and any other evidence shall be provided to the Owner's engineer at least two weeks prior to the yearly engineers meeting.

6.9 **Parking** – Commercial and residential parking standards are recommended in Exhibit D. These provide for shared-use parking and lower requirements for retail/commercial due to destination characteristics. Public skier parking shall be available on the property to service the mountain portal in Area C, Strawberry Village.

6.10 **Trails** - **Public** – Some trails will be available for public use. Some of the trails may be maintained as private trails and will be maintained by Snowbasin, the community owner association (COA), homeowner association (HOA) or similar entity. Some of the trails may be available for public use and may be dedicated to the public and maintained by the County or other quasi-public entity.

6.11 **Trails - Private** – Private trails will be maintained by Snowbasin, community owner association (COA), homeowner association (HOA) or similar entity.

VII. Infrastructure Improvements and Utilities

7.1 **Municipal Water and Sanitary Sewer Systems and Facilities** – Prior to the issuance of any building permit, Owner shall provide evidence to the County that municipal water systems and facilities (including water rights and sources of water supply, and systems and facilities for the pumping, distribution and storage of municipal water), and sanitary sewer systems and facilities (including systems and facilities for the collection, distribution and treatment of sewage), are available and adequate for the Property to be served, and that municipal water and sanitary sewer service providers are in place, willing and capable of providing said services as set forth in Section 7.2 below. All municipal water and sanitary sewer improvements, systems and facilities shall, as applicable, be constructed underground in local streets and roads prior to road construction, and/or within legally established easements and rights-of-way, and the same shall be constructed and installed in conformance with the standards and specifications of the municipal water and sanitary sewer service providers and all other applicable federal, state and local laws and regulations. Conditional will-serve letters will be required to be provided as a condition to final plat approval for the Property to be served.

7.2 **Municipal Water and Sanitary Sewer Service** – Municipal water and sanitary sewer service shall be provided as follows:

(a) **Municipal Water Service**. Subject to the provisions of Sections 7.7 and 7.8 below, municipal water service will be provided by a special service district to be established pursuant to the provisions of Utah Code Ann. 17D-1-101 et seq., or a water improvement district or other limited purpose local government entity to be established in conformance with the provisions of Utah Code Ann. 17B-1-101 et seq., having jurisdictional boundaries and authority to provide municipal water service to the Property to be served in Weber County and Morgan County.

(b) **Sanitary Sewer Service**. Subject to the provisions of Sections 7.7 and 7.8, sanitary sewer service (including collection, distribution and treatment services), will be

provided by a special service district to be established pursuant to the provisions of Utah Code Ann. 17D-1-101 et seq., or a sewer improvement district or other limited purpose local government entity to be established in conformance with the provisions of Utah Code Ann. 17B-1-101 et seq., having jurisdictional boundaries and authority to provide sanitary sewer service to the Property to be served in Weber County and Morgan County.

7.3 **Storm and Flood Water Systems and Facilities –** Owner shall provide storm and flood water collection, transportation, detention and retention improvements, systems and facilities adequate for the Property to be served, in conformance with a storm and flood water plan approved by the County in connection with each phase of development of the Property. All storm water improvements and facilities shall, as applicable, be constructed in local streets and roads prior to road construction, and/or within legally established easements and rights-of-way, and the same shall be constructed and installed in conformance with applicable County standards and specifications, and/or the standards and specifications of any special service district or other limited local government entity established to provide such service, and all other applicable federal, state and local laws and regulations.

7.4 **Other Utility Systems, Facilities and Services** – Prior to the issuance of any building permit, Owner shall provide evidence to the County that all other utilities (such as electricity, natural gas, cable, telephone, internet and fiber optic), shall be available and adequate for the Property to be served. All such utility improvements, systems and facilities shall, as applicable, be constructed underground in local streets and roads prior to road construction, and/or within legally established easements and rights-of-way, and in conformance with the standards, specifications and regulations of the applicable utility service provider.

7.5 **Off-site Utility Systems and Facilities** – All off-site improvements, systems and facilities needed to provide required utility services to the Property to be served (including, without limitation, electricity, natural gas, cable, telephone, internet and fiber optic), shall be constructed and installed by Owner or the utility service provider, in conformance with the standards, specifications and regulations of the applicable utility service provider. In the event any off-site utility improvement, system or facility shall also benefit any other development within the County, the County shall enter into a Reimbursement Agreement with the Owner requiring that the County shall collect from the developer of the other benefitted development, and pay to Owner, said developer's proportionate share of Owner's actual cost of constructing and installing such improvement, system or facility, subject to and in conformance with any applicable County reimbursement ordinance.

7.6 **Transfer of Warranties** – To the extent allowable, and subject to all applicable laws and regulations, Owner agrees to assign to the County any warranties accruing to Owner, arising out of the construction of improvements, systems and facilities described herein which are to be dedicated or otherwise transferred to the County, which remain in effect at the time of such dedication or transfer.

7.7 **County Cooperation in the Establishment of Special Service Districts and other Limited Purpose Local Government Entities** – The County agrees to fully cooperate with Owner in the initiation and pursuit of all proceedings necessary for the establishment of one or more special service districts pursuant to the provisions of Utah Code Ann. 17D-1-101 et seq., and/or improvement districts or other limited purpose local government entities which are now or may hereafter be authorized pursuant to the provisions of Utah Code Ann. 17B-1-101 et seq. or other statutory authority, which entities are to be established for the purpose of providing certain, authorized municipal-type services within the Property to be developed

(including, without limitation, municipal water, sanitary sewer and storm water services, as specifically provided for herein, as well as parks and recreation, garbage, transportation, street lighting, public roads, fire protection, police services, health care, and such other services as are now or may hereafter be authorized by law to be provided by a special service district or other limited purpose local government entity), which services are determined to be necessary for the development of the Property.

7.8 **County Cooperation in Interlocal Agreements** - The County agrees to fully cooperate with Owner in the initiation and pursuit of all proceedings necessary in connection with the negotiation, preparation and approval of interlocal agreements under the Utah Interlocal Cooperation Act, Utah Code Ann. 11-13-101 et seq., by and between, or among, on the one hand, the County, and/or a newly established special service district, improvement district or other limited purpose local government entity, and on the other hand, Weber County, and/or a currently existing special service district, improvement district or other limited purpose local government entity, as shall be necessary to provide, within the Property to be served, as required, the municipal-type services which are currently being provided by said existing entity outside of the Property (including, without limitation, police, fire, emergency and/or other services).

VIII. Infrastructure Financing

8.1 **Special Assessment Areas**

(a) The County agrees to fully cooperate with the Owner, as requested by the Owner in consultation with the County, in the designation of one or more special assessment areas, as authorized under the Utah Special Assessment Area Act, Utah Code Ann. 11-42-101 et seq. (the "Assessment Area Act"), and/or in proceedings pursuant to other similar current or future statutory authority under Utah law, which may be utilized for the purpose of financing public improvements, operation and maintenance and/or economic development costs within the Property to be developed by Owner; provided, however, that said designation or proceedings do not create any financial liability for the County except as otherwise expressly authorized by the County in connection therewith.

(b) With respect to those roads which are to be constructed within the Property and dedicated to and thereafter maintained by the County ("Snowbasin Roads"), it is hereby acknowledged and agreed that the cost to the County for maintaining Snowbasin Roads, including snow plowing, will be greater due to elevation and climatic conditions than the cost of maintenance of other roads within the County. In an effort to ameliorate the cost differential to the County of maintaining Snowbasin Roads until such time as revenues to the County generated from the development of the Property begin to offset these increased costs, the Owner agrees that it shall fully cooperate with the County, as requested by the County in consultation with the Owner, in the designation of one or more special assessment areas, as authorized under the Assessment Area Act, which may be utilized as a means of financing operation and maintenance costs for the Snowbasin Roads on an interim basis. Owner agrees to cooperate with the County, in the levy by the County of reasonable, special assessments against the developable portion of the Property, as agreed to by the Owner, pursuant to and in conformance with the applicable requirements of the Assessment Area Act, to offset these increased costs of maintaining the Snowbasin Roads. The Owner agrees to allow assessments to be made as provided herein for the

maximum 5-year period authorized for the levy of assessments for operation and maintenance costs as provided in the Assessment Area Act as of the date hereof.

8.2 **Community and Economic Development Project Areas** - The County agrees to fully cooperate with the Owner, as requested by the Owner in consultation with the County, in the establishment of a community development agency to provide for community and/or economic development within one or more community and/or economic development project areas designated within the Property, as authorized under the Community and Renewal Agencies Act, Utah Code Ann. 17C-1-101 et seq., and/or in proceeding pursuant to other similar current or future statutory authority under Utah law, which may be utilized for the purpose of pursuing community development activities within the Property, including encouragement, promotion or provision of development, as well as economic development to promote the creation of public and private jobs in connection with the development of the Property, through planning, design, development, construction, business relocation and the provision of office, parking, public or other facilities that benefit the State and the County, and to facilitate the financing of the same through the receipt and use of tax increment financing and other financing means available under Utah law; provided, however, that such activity does not create any financial liability for the County except as otherwise expressly authorized by the County in connection therewith.

IX. Reinvestment Fee Covenant

9.1 Owner shall record a Reinvestment Fee Covenant that complies with Utah State Code.

X. Term

10.1 In recognition of the size of the development contemplated under this Agreement, the substantial investment and time required to compete the development of the Snowbasin Resort, the requirements for a phased development, and the possible impact of economic cycles and varying market conditions during the course of development, Owner and the County agree that the term of this Agreement and the vested property rights established under this Agreement shall commence on the Effective Date and shall not terminate, except for Default, as defined in Section 15.1.

XI. Sale or Transfer of the Property

11.1 This Agreement, and any Memorandum of Agreement recorded in Morgan County, shall run with the land comprising the Property, and shall be binding upon and benefit Owner, its assigns, and any successor in interest to any portion of the Property, as provided in this Agreement. In the event that Owner or a successor in interest to Owner, sells or transfers the Property, or any portion thereof, written notice of said transaction shall be given to County no less than thirty (30) days prior to closing, provided such notice is not required for conveyance of individual lots, villas, condominiums or townhouse units.

XII. Amendment and Termination of Agreement

12.1 This Agreement can be amended in whole or in part, only by the mutual consent of the Parties, executed in writing. This Agreement may only be terminated as set forth in 10.1 and 15.1.

XIII. Reimbursement

13.1 The Parties acknowledge that the size, location and development potential of the Property, together with the public interest in the Project, may require analysis and review of

subsequent development applications and/or requested amendments (the "Supplemental Applications") to this Agreement that may place an atypical burden upon County and its resources. In order to facilitate and expedite such analysis, Owner agrees to reimburse County for the services of appropriate land use planners, legal counsel, engineers and other consultants ("Consultants" or "Consultant") retained by County, with Owner's prior approval, to process the Supplemental Applications. Such reimbursements shall not exceed County's standard practices for future applications associated with the project such as Design Review, Subdivision, and others for which the Owner shall pay County's standard application and processing fees.

XIV. Superseding Prior Agreements

14.1 This Agreement supersedes and extinguishes all prior agreements between the parties with regard to the development of the Property or any portion thereof.

IX. Default and Enforcement

15.1 Default - The following conditions, occurrences and/or actions will constitute a default by the Owner, his assigns and/or his successors in interest.

(a) Disposing of the property for any other purpose than that approved by this Agreement, the Land Use Plan and/or any subsequent more detailed plans approved by the County.

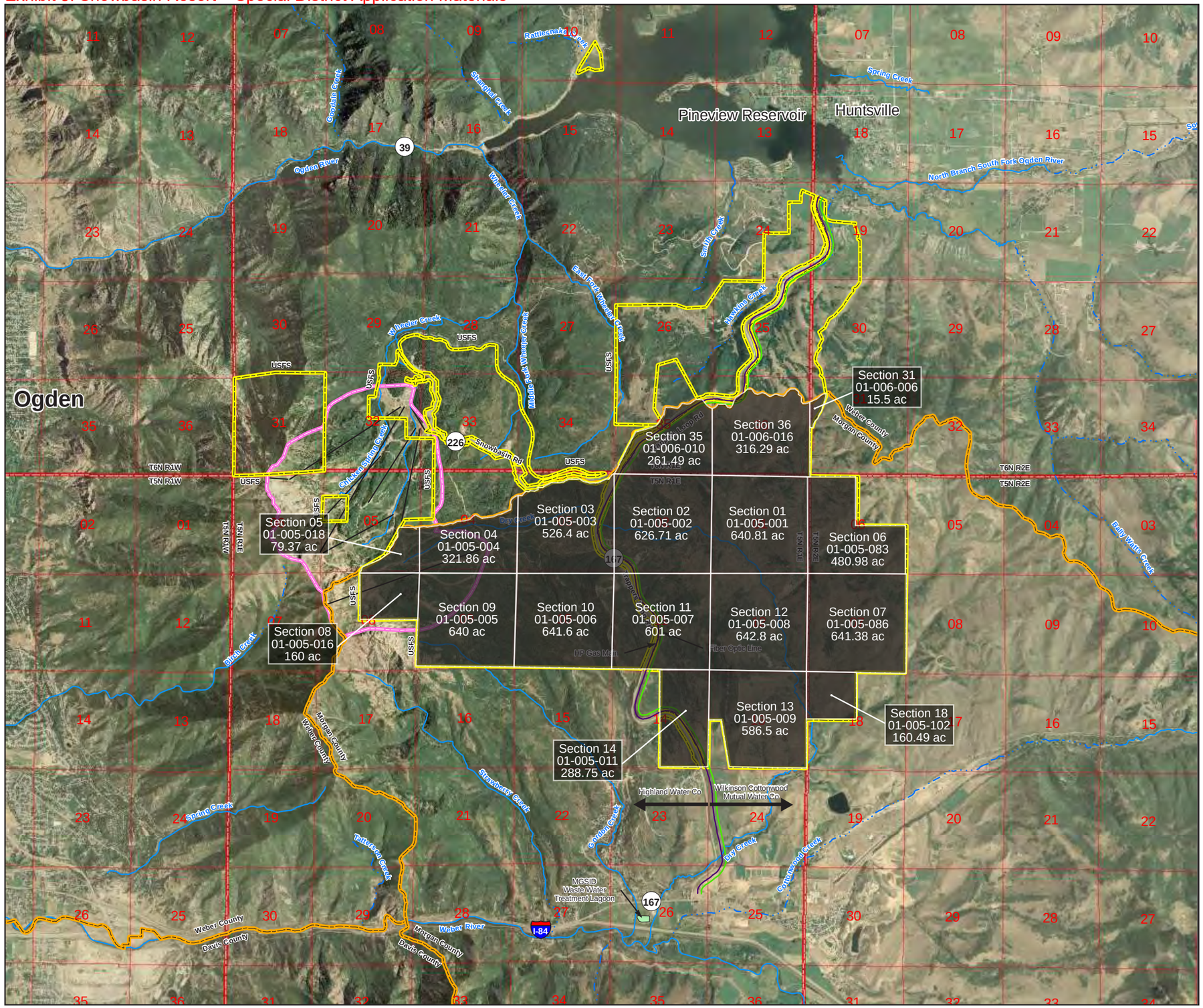
15.2 Legal Action – In the event that legal action is required in order to enforce the terms of this Agreement, the prevailing party shall be entitled to receive reimbursement, from the faulting party, for attorney's fees and other associated costs incurred while enforcing this Agreement.

IN WITNESS WHEREOF, the Parties hereto, having been duly authorized, have executed this Agreement to be effective as of the day and date first written above.

Morgan County Corporation	Snowbasin Resort Company
By_____	By_____
Its_____	Its_____

10/11/2012

EXHIBIT A
SNOWBASIN PROPERTY/ OWNERSHIP MAP



Legend

- Existing Ski Lifts
- Fiber Optic Line
- HP Gas Line
- Snowbasin Ski Boundary
- Snowbasin Property Boundary
- County Boundary
- Townships & Ranges
- Sections

0 0.5 1 2

1 in = 1 miles

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)

Stantec

Exhibit 3: Snowbasin Resort – Special District Application Materials

When recorded mail to:
Scott K. Mayeda
Corporate Counsel
P.O. Box 30825
Salt Lake City, Utah 84130-0825

Parcel number(s):

GENERAL WARRANTY DEED

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, The Sinclair Companies, a Wyoming corporation, f.k.a. Sinclair Oil Corporation, a Wyoming corporation ("Grantor"), hereby conveys, assigns, transfers, and delivers, with WARRANTY COVENANTS, to Snowbasin Resort Company, a Wyoming corporation ("Grantee") the real property described on Exhibit A attached hereto together with all improvements, fixtures, easements, rights of way, water rights, mineral rights, and all other rights and privileges appurtenant thereto ("*Premises*"); to wit: Grantor hereby covenants with Grantee and its successors ("successor(s)" for purposes of this Agreement is defined as a successor in interest that is a subsidiary, parent, brother, sister, or other closely related entity to Grantee), that Grantor is lawfully seized in fee simple of the Premises; that it has a good right to convey; and that Grantor will forever warrant and defend all of the property so granted to Grantee and its successors, against every person lawfully claiming the same or any part thereof.

These WARRANTY COVENANTS are subject to all recorded or unrecorded easements, covenants and restrictions, roads or highways, conditions, rights of way and governmental or regulatory restrictions, questions of survey; all special taxes or special assessments, levied or assessed, and all installments of special taxes or special assessments, not due and payable as of the date hereof.

WITNESS the hand and seal of said Grantor this 22nd day of Feb., 2008.

Grantor
The Sinclair Companies f.k.a. Sinclair Oil Corporation, a Wyoming corporation

By _____
Its

STATE OF UTAH

COUNTY OF SALT LAKE

On the 22nd day of February, 2008, personally appeared before me Peter M. Johnson who, being duly sworn, did say that he is the Vice President of The Sinclair Companies, a Wyoming corporation, and that the foregoing instrument was signed on behalf of said corporation by authority of a resolution of its board of directors and said Peter M. Johnson acknowledged to me that said corporation duly executed the same.

Marilyn Byrd
NOTARY PUBLIC
My commission expires: 7/8/2011

MARILYN BYRD
NOTARY PUBLIC - STATE OF UTAH
550 EAST SOUTH TEMPLE
SALT LAKE CITY, UT 84102
My Comm. Exp. 07/08/2011

(Weber County Serial Number 20-043-0005)
(Morgan County Serial Number 01-005-003-01, 8.20 acres)

A parcel of land at Snowbasin Ski Resort situated in Sections 3 and 4, Township 5 North, Range 1 East; and also Sections 28, 29, 32, 33, 34, and 35, Township 6 North, Range 1 East, Salt Lake Meridian, Weber and Morgan Counties, Utah, more particularly described as follows:

Beginning at the southeast corner of Section 34, Township 6 North, Range 1 East, Salt Lake Meridian; thence N. 27°05'17"E., 468.09 feet, to a standard U.S. Forest Service (USFS) survey monument; thence S. 64°16'42"W., 166.67 feet, to a standard USFS survey monument; thence S. 38°21'49"W., 318.29 feet, to a standard USFS survey monument; thence S. 54°26'10"W., 168.62 feet, to a standard USFS survey monument; thence S. 89°28'38"W., 168.96 feet, to a standard USFS survey monument; thence N. 74°24'52"W., 65.14 feet, to a standard USFS survey monument; thence N. 83°48'34"W., 163.89 feet, to a standard USFS survey monument; thence S. 86°47'44" W., 516.67 feet, to a standard USFS survey monument; thence N. 88°14'30"W., 191.77 feet, to a standard USFS survey monument; thence N. 66°49'04"W., 192.73 feet, to a standard USFS survey monument; thence N. 61°48'03"W., 206.74 feet, to a standard USFS survey monument; thence N. 75°47'33"W., 381.60 feet, to a standard USFS survey monument; thence S. 83°41'50"W., 364.20 feet, to a standard USFS survey monument; thence S. 70°11'21"W., 1197.45 feet, to a standard USFS survey monument; thence S. 79°22'43"W, 345.30 feet, to a standard USFS survey monument; thence N. 73°48'14"W., 334.17 feet, to a standard USFS survey monument; thence N. 49°38'32"W., 334.17 feet, to a standard USFS survey monument; thence N. 25°28'50"W., 334.17 feet, to a standard USFS survey monument; thence N. 00°47'25"E., 355.40 feet, to a standard USFS survey monument; thence N. 10°59'50"E., 1161.11 feet, to a standard USFS survey monument; thence N. 02°17'25"W., 342.90 feet, to a standard USFS survey monument; thence N. 15°56'27"W., 375.43 feet, to a standard USFS survey monument; thence N. 29°50'57"W., 970.88 feet, to a standard USFS survey monument; thence N. 15°21'47"W., 399.23 feet, to a standard USFS survey monument; thence N. 00°52'38"W., 356.66 feet, to a standard USFS survey monument; thence N. 15°46'51"W., 311.76 feet, to a standard USFS survey monument; thence N. 29°32'39"W., 313.64 feet, to a standard USFS survey monument; thence N. 43°11'46"W., 298.49 feet, to a standard USFS survey monument; thence N. 57°44'26"W., 287.22 feet, to a standard USFS survey monument; thence N. 56°44'43"W., 349.98 feet, to a standard USFS survey monument; thence N. 39°59'11"W., 317.67 feet, to a standard USFS survey monument; thence N. 19°52'16"W., 304.52 feet, to a standard USFS survey monument; thence N. 00°14'07"E., 1306.80 feet, to a standard USFS survey monument; thence along the northerly, 100 foot right-of-way line of Utah State Route 226 thru the following courses:
Along the arc of a curve to the left having a radius of 1,637.68 feet and a central angle of 06°43'20" (chord bears: N. 78°31'18" W., 192.03 feet) 192.14 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 732.81 feet and a central angle of 46°36'37" (chord bears: S.74°48'44" W., 579.83 feet) 596.14 feet; thence S. 51°30'25"W., 101.22 feet; thence along the arc of a curve to the right having a radius of 198.36 feet and a central angle of 35°19'25" (chord bears: S. 69°10'07"W, 120.36 feet) 122.29 feet; thence S. 86°49'50"W., 45.00 feet; thence along the arc of a curve to the right having a radius of 78.33 feet and a central angle of 31°19'31" (chord bears: N. 77°30'25"W., 42.29 feet) 42.82 feet, to the point of a reverse curve; thence along the arc of a curve to the left having a radius of 639.24 feet and a central angle of 41°48'19" (chord bears: N. 82°44'49"W., 456.14 feet) 466.42 feet; thence S. 76°21'02"W., 74.95 feet; thence along the arc of a curve to the right having a radius of 1,054.97 feet and a central angle of 12°22'20" (chord bears: S. 82°32'12"W., 227.36 feet) 227.80 feet; thence S. 88°43'21"W., 523.95 feet; thence along the arc of a curve to the right having a radius of 181.79 feet and a central angle of 73°23'25" (chord bears: N. 54°34'56" W., 217.25 feet) 232.85 feet; thence N. 17°53'14"W., 93.90 feet; thence along the arc of a curve to the left having a radius of 297.64 feet and a central angle of 48°58'02" (chord bears N. 42°22'15"W., 246.71 feet) 254.38 feet; thence N.

66°51'15"W., 315.66 feet; thence along the arc of a curve to the left having a radius of 330.06 feet and a central angle of 46°08'48" (chord bears: S. 89°55'39"W., 258.71 feet) 265.84 feet, to the point of a reverse curve; thence along the arc of a curve to the right having a radius of 105.78 feet and a central angle of 40°46'19" (chord bears S. 87°26'06"W., 73.69 feet) 75.27 feet, to the point of a compound curve; thence along the arc of a curve to the right having a radius of 280.88 feet and having a central angle of 16°44'29" (chord bears: N. 63°51'30"W., 81.78 feet) 82.07 feet, to the point of a reverse curve; thence along the arc of a curve to the left having a radius of 436.50 feet and a central angle of 46°44'50" (chord bears: N. 78°51'41"W., 346.34 feet) 356.14 feet; thence S. 77°45'54"W., 29.09 feet; thence along the arc of a curve to the right having a radius of 277.35 feet and a central angle of 35°52'29" (chord bears: N. 84°17'52"W., 170.84 feet) 173.66 feet; thence N. 66°21'37"W., 257.54 feet; thence along the arc of a curve to the left having a radius of 593.75 feet and a central angle of 13°06'27" (chord bears: N. 72°54'51"W., 135.54 feet) 135.83 feet to the point of a compound curve; thence along the arc of a curve to the left having a radius of 689.65 feet and a central angle of 24°28'54" (chord bears S. 88°17'28"W., 292.44 feet) 294.68 feet, and to the point of a compound curve; thence along the arc of a curve to the left having a radius of 2547.36 feet and a central angle of 03°44'30" (chord bears: S. 74°10'47"W., 166.33 feet) 166.36 feet; thence S. 72°18'31"W., 202.73 feet; thence along the arc of a curve to the left having a radius of 628.54 feet and a central angle of 23°19'57" (chord bears: S. 60°38'33"W., 254.20 feet) 255.96 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 1,748.83 feet and a central angle of 09°55'11" (chord bears: S. 44°00'59"W., 302.40 feet) 302.78 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 352.33 feet and a central angle of 40°31'40" (chord bears: S. 18°47'34"W., 244.05 feet) 249.22 feet, to the point of a compound curve; thence along the arc of a curve to the left having a radius of 787.21 feet and a central angle of 14°44'15" (chord bears: S. 08°50'24" E., 201.93 feet) 202.48 feet; thence S. 16°03'27"E., 168.06 feet, to a standard USFS survey monument; thence leaving said 100-foot, right-of-way line, S. 61°00'58"W., 39.82 feet, to a standard USFS survey monument; thence S. 10°27'16"W., 137.56 feet, to a standard SUSF survey monument; thence S. 03°01'48"E., 351.16 feet, to a standard USFS survey monument; thence S. 24°12'58"W., 302.00 feet, to a standard USFS survey monument; thence N. 89°43'52"W., 856.83 feet, to a railroad spike set in the centerline of the existing Maples Campground Road; thence along said centerline of road thru the following courses:

thence S. 14°36'38"W., 14.61 feet;
thence S. 06°25'35"E., 55.54 feet;
thence S. 00°01'14"E., 74.91 feet;
thence S. 05°46'45"W., 64.17 feet;
thence S. 12°40'46"W., 77.78 feet;
thence S. 05°40'31"W., 87.81 feet;
thence S. 01°49'57"W., 74.17 feet;
thence S. 06°46'19"E., 244.59 feet;
thence S. 02°02'02"E., 80.63 feet;
thence S. 06°38'09"W., 55.26 feet;
thence S. 13°15'45"W., 89.45 feet;
thence S. 15°47'55"W., 214.44 feet;
thence S. 09°32'26"W., 156.88 feet;
thence S. 12°45'32"W., 111.76 feet;
thence S. 17°33'56"W., 65.90 feet;
thence S. 14°59'32"W., 71.55 feet;
thence S. 10°25'50"W., 79.99 feet;
thence S. 07°17'09"W., 86.76 feet;
thence S. 06°34'44"W., 56.48 feet, to a railroad spike set in the centerline of said road;
thence leaving said centerline, N. 89°45'53"W., 344.04 feet, to a standard USFS survey monument;
thence S. 00°14'07"W., 1,183.89 feet, to a standard USFS survey monument;
thence S. 89°45'53"E., 2,042.19 feet, to a standard USFS survey monument;
thence S. 00°40'10"E., 1,067.86 feet, to a standard USFS survey monument;
thence S. 89°45'53"E., 1,506.67 feet, to a standard USFS survey monument;
thence S. 00°14'07"W., 4,392.10 feet, to a standard USFS survey monument;
thence N. 87°32'57"E., 2,833.40 feet, to a standard USFS survey monument;

thence N. 52°18'54"E., 1,855.65 feet, to a standard USFS survey monument;
thence N. 77°29'50"E., 1,391.68 feet, to a standard USFS survey monument;
thence N. 65°32'40"E., 1,553..50 feet, to a standard USFS survey monument;
thence S. 86°20'47"E., 1,619.61 feet, to a standard USFS survey monument;
thence N. 68°58'25"E., 1,192.41 feet, to the point of beginning.
Containing 1,377.60 acres more or less.

SUBJECT TO easements, rights of way, restrictions, and reservations of record, including, but not limited to the following:

1. Highway Easement Deed Weber/Morgan Counties, Project No. SP-1975(1)0 Trappers Loop – Snowbasin Road, dated March 30, 2000, by and between the United States of America, acting by and through the Department of Transportation, Federal Highway Administration, and the Utah Department of Transportation. Said Deed recorded April 20, 2000, as Entry No. 1701345, Book 2068, pages 920-934, Official Records, Weber County, Utah; also recorded April 20, 2000, as Entry No. 00082156, Book M0159, pages 00084-00098, Official Records, Morgan County, Utah.
2. Reservations contained in that certain Deed dated January 10, 1898, Book 33, page 221 of Official Records, wherein the Union Pacific Railway Company reserves the exclusive rights to prospect for coal and other minerals.
3. That certain Warranty Deed, dated October 31, 1940, by and between the Ogden Chamber of Commerce, Grantor, and the United States of America, Grantee, wherein said Warranty Deed excepts and reserves the mineral and mineral rights as shown in the Deed from the Union Pacific Railroad Company to the Utah light and Railway Company, dated February 15, 1910, recorded May 14, 1910, in Book 63 of Deeds, page 125. Said Warranty Deed of October 31, 1940, was recorded October 31, 1940, as Instrument No. 56087, Book 136 of Deeds, page 557, Official Records of Weber County, Utah. Affects the S ½ NE ¼, N ½ SE ¼ of Section 28, and all of Section 29, Township 6 North, Range 1 East, Salt Lake Meridian.
4. Reservations contained in that certain Deed, dated March 16, 1943, by and between Ogden City, a Municipal Corporation, Grantor, and the United States of America, Grantee, recorded April 8, 1943, as Instrument No. 74990, Book 173 of Deeds, page 144, Official Records, Weber County, Utah. Affects the NW ¼ NE ¼, W ½, S ½ SE ¼ of Section 28; and the S ½, NE ¼, N ½ NW ¼, N ½ S ½ NW ¼ of Section 32, Township 6 North, Range 1 East, Salt Lake Meridian.
5. That certain Quit Claim Deed, dated November 14, 1985, by and between Ogden City, a Municipal Corporation, Grantor, and the United States of America, Grantee, wherein Grantor reserves unto itself all water rights. Said land conveyed is to be used by the Grantee for public recreational and other U.S. Forest Service uses. Said Deed recorded November 26, 1985, as Instrument No. 954056, Book 1480, pages 915-916, Official Records, Weber County, Utah. Affects the S ½ S ½ NW ¼ of Section 32, Township 6 North, Range 1 East, Salt Lake Meridian.
6. That certain Warranty Deed, dated June 18, 1941, by and between Ogden Chamber of Commerce, Grantor, and the United States of America, Grantee, subject ot the rights of prospecting, mining, ingress, egress, and regress and ownership of minerals owned by the Union Pacific Railroad Company. Said Warranty Deed recorded June 19, 1941, as Instrument No. 61543, in Book 143 of Deeds, page 376, Official Records of Weber County, Utah. Affects the W ½ W ½ NW ¼, and the W ½ W ½ SW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

   Also, that certain Correction Warranty Deed, dated July 14, 1941, by and between the parties listed above, recorded July 26, 1941, as Instrument No. 62460, in Book 147 of Deeds, page 450, Official Records of Weber County, Utah. Affects the W ½ W ½ NW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

7. That certain Deed, dated July 21, 1944, by and between the Ogden Chamber of Commerce, Grantor, and the United States of America, Grantee, subject to reservations by the Union Pacific Railway Company of all coal and other minerals owned by the said Company and right of way for railroad purposes. Said Deed recorded August 4, 1944, as Instrument No. 85250, in Book 196 of Deeds, page 268, Official Records, Weber County, Utah. Affects the E ½, E ½ W ½, E ½ W ½ NW ¼, and the E ½ W ½ SW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

   Also subject to a reservation of an easement for a right of way for pole lines of the Grantor, its successors or assigns or licensees, as now constructed on the premises or as may be constructed hereafter, by Bargain and Sale Deed, dated September 23, 1943, by and between Utah Light and Traction Company, a Utah Corporation, Grantor, and Ogden Chamber of Commerce, a Corporation, Grantee. Said deed recorded in Book 181, page 602, Official Records of Weber County, Utah. Affects the E ½, E ½ W ½, E ½ W ½ NW ¼, and the E ½ W ½ SW ¼ of Section 33, Township 6 North, Range 1 East, Salt Lake Meridian.

8. Reservations contained in that certain Deed, dated June 29, 1945, by and between Ogden City, a Municipal Corporation, Grantor, and the United States of America, Grantee, recorded July 19, 1945, as Instrument No. 94381, in Book 214 of Deeds, pages 164-166, Official Records, Weber County, Utah. Affects a portion of the SW ¼ of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian; and also a portion within the N ½ of Section 3, and the N ½ of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian.

9. Quit Claim Deed executed by the Union Pacific Railroad Company, Grantor, to Union Pacific Land Resources Corporation, Grantee, dated April 1, 1971, recorded April 16, 1971, as Instrument No. 549081, in Book 963, pages 849-855 of Official Records, Weber County, Utah, wherein the Grantor excepts and reserves unto itself, its successors and assigns, its railroad operating rights of way, together with all its right, title, and interest in the lands upon which any such rights of way are located, and in and to any and all lands used or held for use in transportation service, other than the coal and iron and all other minerals and mineral rights underlying any such rights of way and lands; it being the intention of the Grantor to quitclaim unto the Grantee, its successors and assigns, all of the Grantor's right, title and interest in and to the coal and iron and all other minerals and mineral rights underlying said rights of way and lands used or held for use in transportation service (hereinabove excepted and reserved to the Grantor, its successors and assigns), together with the sole, exclusive and perpetual right to explore for, remove and dispose of said minerals by any means or methods suitable to the Grantee, its successors and assigns, but without entering upon or using the surface of said rights of way and lands hereby excepted and in such manner as not to damage the surface thereof hereby excepted or to interfere with the use thereof by the Grantor, its lessees, licensees, successors and assigns.

10. Contract between Weber Basin Water Conservancy District and Hill Air Force Base Nonappropriated Welfare Fund for the Sale and Use of Untreated Water dated May 18, 1964, recorded in Book 888, page 485 of Official Records.

ALSO SUBJECT TO:

1. Reserving to the United States a right-of-way thereon for ditches or canals constructed by the authority of the United States Act of August 30, 1890 (26 Stat. 391: 43 U.S.C. 845), as it pertains to those Public Domain Status lands.
2. Reserving to the United States the below-described exclusive public easements for non-motorized recreational trails and associated trailhead, parking facilities, and access roads as generally depicted on the map entitled "Snowbasin Land Exchange Federal Lands Conveyed to Private Ownership Wasatch-Cache National Forest, May 2000" attached hereto and made a part hereof as Exhibit B,

together with the right to construct, reconstruct, maintain the trails, and place appropriate signage.

(a) **Trail No. 3346 Middle Fork of Wheeler Creek.** Trail is approximately 2,650 feet in length and 10 feet wide (5 feet each side of the trail centerline), being .61 acre, more or less.

(b) **Trail No. 3320 East Fork of Wheeler Creek.** Trail is approximately 950 feet in length and 10 feet wide (5 feet each side of the trail centerline), being .22 acre, more or less.

(c) **Trail No. 3341 Green Pond Trail.** Trail is approximately 5,150 feet in length and 10 feet wide (5 feet each side of the trail centerline), being 1.18 acres, more or less.

(d) **Trail No. 2001.1 Great Western Trail (also known as the Skyline Trail).** Trail is approximately 4,250 feet in length and 33 feet wide (16.5 feet each side of the trail/road centerline), being 3.2 acres, more or less.

(e) **Maples Access Road.** Road is from future Snowbasin Olympic Loop Road to Maples Campground and parallels the Great Western Trail from the furthest northwest point of Snowbasin Olympic Loop Road. Road is 1,450'x33' or 1.09 acres, more or less (33 feet on eastern side of the road centerline).

(f) **Lower Existing Parking Lot as follows:**
One (1) handicapped parking stall: 1@ 15'x20'= 300 square ft.
Four (4) trailer parking stalls: 4@ 12'x40'= 1,920 square ft.
Fifteen (15) car parking stalls: 15@ 10'x20'=3,000 square ft.
Travelway: 1@ 20'x213'= 4,260 square ft.
Total: =10,000 square ft. (approx.)

(g) **Upper Existing Parking Lot as follows:**
One (1) handicapped parking stall: 1 @ 15'x20'=300 square ft.
Four (4) trailer parking stalls: 4 @ 12'x40'=1,920 square ft.
Fifteen (15) car parking stalls: 15 @ 10'x20'=3,000 square ft.
Travelway: 1 @ 20'x213'=4,260 square ft.
Total: =10,000 square feet (approx.)

3. Reserving to the United States two easements to construct, reconstruct, and maintain public trailheads on the existing old Snowbasin Road (Weber County Road No. 226), as generally depicted on the map entitled "Snowbasin Land Exchange Federal Lands Conveyed to Private Ownership Wasatch-Cache National Forest, May 2000," attached hereto and made a part hereof as Exhibit B.
4. Reserving to the United States two easements to construct, reconstruct, and maintain public turnouts on the Trapper's Loop-Snowbasin Road, SR 226, as depicted on the survey plats attached hereto and made a part hereof as Exhibit C.
5. Reserving to the United States a right-of-way for access for National Forest purposes, including but not limited to, public access and administrative uses, as generally depicted as the Snowbasin Olympic Loop Road on the map entitled "Snowbasin Land Exchange Federal Lands Conveyed to Private Ownership Wasatch-Cache National Forest, May 2000," attached hereto and made a part hereof as Exhibit B. Said road is approximately 5,280 feet long and 100 feet wide.

MORGAN COUNTY PROPERTY

All of Sections 1 (01-005-001, 640.81 acres), 2 (01-005-002, 626.71 acres), 9 (01-005-005, 640 acres), 10 (01-005-006, 641.60 acres), 11 (01-005-007, 601 acres) and 12 (01-005-008, 642.80 acres), Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-005-003, 526.40 acres) That part of the following parcel lying within Morgan County. All of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S.

Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 68°51'20" West 1183.9 feet along divide; thence North 86°27'35" West 1608.2 feet along divide; thence South 65°25'55" West 1542.6 feet along divide; thence South 73°41'51" West 1096.0 feet along divide; thence North along West boundary of Section 3, 1276.8 feet to the Northwest corner; thence East 5165 feet to Northeast corner of Section and place of beginning.

(01-005-004, 321.86 acres) That part of the following parcel lying within Morgan County. All of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South on Section line 1276.8 feet; thence South 73°42' West 276.00 feet; thence South 52°03' West 1685.5 feet; thence South 87°26' West 3575.0 feet; thence North along West boundary of Section 2550.8 feet to Northwest corner of section; thence East 5165 feet to the Northeast corner of Section and place of beginning.

(01-005-018, 79.37 acres) That part of the following parcel lying within Morgan County. All of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 2550.8 feet; thence South 87°26' West 820 feet to divide; thence along divide South 29°33'30" West 2221.1 feet; thence South 58°34' West 1460 feet to South boundary of Section; thence West 2120 feet to Southwest corner of Section; thence North 5280 feet to Northwest corner of Section; thence East 5280 feet to Northeast corner of Section and point of beginning.

All of Section 7 (01-005-086, 641.38 acres), and the Northwest Quarter of Section 18 (01-005-102, 160.49 acres), Township 5 North, Range 2 East of the Salt Lake Meridian, U.S. Survey.

(01-005-016, 160 acres) The Northeast Quarter of Section 8, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-005-009, 586.50 acres) All of Section 13, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Commencing at the Southwest corner of the Southwest Quarter of said Section 13 and running thence North 157 rods; thence East 43-1/2 rods; thence South 9°45' East 159.5 rods to Section line; thence West 70-1/2 rods to the point of beginning.

(01-005-011, 288.75 acres) The East half of Section 14, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-006-016, 316.29 acres) The South half of Section 36, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey.

(01-006-010, 261.49 acres) That part of the following parcel lying within Morgan County. The South half of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Quarter corner of the West boundary of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence East 2368.4 feet to divide; thence along divide South 72°09'49" West 1308.8 feet; thence along divide South 26° 52' 35" West 2482.8 feet, to the Southwest corner of Section; thence North 2614 feet to Quarter Corner and the place of beginning.

WEBER COUNTY PROPERTY

(23-002-003, 6.75 acres) That part of the following parcel lying within Weber County. All of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 3, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 68°51'20" West 1183.9 feet along divide; thence North 86°27'35" West 1608.2 feet

along divide; thence South 65°25'55" West 1542.6 feet along divide; thence South 73°41'31" West 1096.0 feet along divide; thence North along West boundary of Section 3, 1276.8 feet to the Northwest corner; thence East 5165 feet to Northeast corner of Section and place of beginning.

(23-003-0002, 47.78 acres) That part of the following parcel lying within Weber County. All of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 4, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South on Section line 1276.8 feet; thence South 73°42' West 276.00 feet; thence South 52°03' West 1685.5 feet; thence South 87°26' West 3575.0 feet; thence North along West boundary of Section 2550.8 feet to Northwest corner of section; thence East 5165 feet to the Northeast corner of Section and place of beginning.

(23-004-0003, 27.45 acres) That part of the following parcel lying within Weber County. All of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Northeast corner of Section 5, Township 5 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence South 2550.8 feet; thence South 87°26' West 820 feet to divide; thence along divide South 29°33'30" West 2221.1 feet; thence South 58°34' West 1460 feet to South boundary of Section; thence West 2120 feet to Southwest corner of Section; thence North 5280 feet to Northwest corner of Section; thence East 5280 feet to Northeast corner of Section and point of beginning.

(20-044-0003, 13.95 acres) That part of the following parcel lying within Weber County. The South half of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey. EXCEPTING THEREFROM the following: Beginning at the Quarter corner of the West boundary of Section 35, Township 6 North, Range 1 East, Salt Lake Meridian, U.S. Survey; thence East 2368.4 feet to divide; thence along divide South 72°09'49" West 1308.8 feet; thence along divide South 26° 52' 35" West 2482.8 feet, to the Southwest corner of Section; thence North 2614 feet to Quarter Corner and the place of beginning.

TOGETHER WITH:

1. All rights now held by Grantor in said real property, specifically including all water rights, mineral rights, easements and rights-of-way, licenses, permits and privileges pertaining to said real property; and

2. All improvements, fixtures and personal property now located on such real property and owned by Grantor.

SUBJECT TO:

1. Taxes for the year 1984 now due and payable, but not delinquent, in the following amounts: #5-1,2,3,4 (Morgan County), $437.93; #5-5,6,7,8,9 (Morgan County), $598.38; #5-11 (Morgan County), $62.24; #5-86 (Morgan County), $124.80; #5-102 (Morgan County), $31.12; #23-004-0003 (Weber County), $86.25; #23-001-0004 (Weber County), $131.02; #20-044-0003 (Weber County), $233.86; and #20-044-0006 (Weber County), $262.04. (Taxes for the year 1983 and prior years paid).

2. This property is located within the boundaries of the Weber Basin Water Conservancy District and is subject to assessments levied by said district.

3. Reservation to United States of America reserving all mineral lands as shown on Patent recorded in Book F of Records, Page 576, in Book R of Records, Page 234, Book B of Records, Page 9, in Book L of Records, Page 7, in Book G of Records, Page 113, and in Book D of Records, Page 566, Records of Morgan County, Utah; and in Book 27 of Records, Page 502, Records of Weber County, Utah.

4. Reservation in Warranty Deed recorded in Book G of Records, Page 150, in Book G of Records, Page 146 and in Book F of Records, Page 52, Records of Morgan County,

Utah, and in Book 33 of Records, Page 221, Records of Weber County, Utah, as follows: "Reserving, however, to the Union Pacific Railway Co the exclusive right to prospect for coal and other minerals within the underlying said lands, and to mine for and remove the same if found, and for this purpose it shall have right of way over and across said lands and space necessary for the conduct of said business thereon without charge or liability for damage thereof."

5. Reservation in Patent of State of Utah, recorded in Book I of Records, Page 95, in Book I of Records, Page 96, in Book I of Records, Page 537, in Book J of Records, Page 244, in Book I of Records, Page 103, in Book K of Records, Page 20, in Book K of Records, Page 21, in Book J of Records, Page 125, in Book J of Records, Page 225, in Book 1032 of Records, Page 588, and in Book 1032 of Records, Page 590, as follows: "Subject to any easement or Right-of-Way of Public to use all such highways as may have been established according to law, over the same or any part thereof, and subject also to all rights of way for ditches, tunnels and telephone and transmission lines that may have been constructed by authority of the United States."

6. Subject to Reservation in deed from Union Pacific Railroad Company recorded in Book J, Page 245 and in Book J, Page 122 which reads as follows: First: All coal and other minerals. Second: The exclusive right to prospect in and upon said land for coal and other minerals therein, and to mine and remove all coal and other minerals found thereon by any one. Third: The right of ingress, egress, and regress upon said lands to prospect for, mine and remove any and all such coal and other minerals, and the right to use so much of said land as maybe convenient or necessary for the rights of way to and from such prospect places or mines and for the convenient and proper operation of such prospect places, mines, and for roads and approaches thereto or for the removal therefrom of coal, mineral, machinery or other material.

7. Reservation in Patent recorded in Book G of Deeds, Page 74, in Book G of Deeds, Page 422, in Book J of Deeds, Page 127, in Book J of Deeds, Page 129, in Book J of Deeds, Page 243 and in Book G of Deeds, Page 376, reserving to United States of America any vested and accrued water rights for mining, agricultural, manufacturing, etc. and subject to the right of a proprietor of a vein or lode to extract and remove his ore therefrom, should the same be found to penetrate or intersect the premises hereby granted.

8. Subject to any vested and accrued water rights for mining, agricultural, manufacturing or other purposes, and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by local customs, laws, and decisions of courts; and there is reserved from the land hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States, by Patent to State of Utah recorded in Book C of Records, Page 507 and in Book R of Records, Page 234, Records of Morgan County, Utah.

9. Subject to Application for Green Belt, as recorded in Book M-38, Page 272, Records of Morgan County, Utah. (Subject to roll-back on taxes).

10. Subject to rights of others which may have been established over and upon said land for development, conveyance and use of water arising from springs situated upon lands described in this report.

11. Subject to existing roads which have been established over said land and rights which the public may have established over said property in use of established roads.

12. Subject to the rights of SNOW BASIN LIMITED, by reason of that certain unrecorded Option to Purchas Agreement by and Between HONOLULU FEDERAL SAVINGS & LOAN, as Optioner, and SNOW BASIN LIMITED, as Optionee, dated March 1, 1982, and unless extended or exercised in accordance with its terms will expire on February 28, 1983, as disclosed by Notice of Interest dated August 19, 1982; recorded August 19, 1982 in Book M-37, Pages 161 to 164, Records of Morgan County, Utah; and recorded August 19, 1982 in Book 1407, Page 1458, Records of Weber County, Utah.

13. Excepting and reserving to the United States: Rights-of-Way over and across the canals, reservoirs and canals constructed by the authority of the United States as directed and required by the Act of Congress approved August 30, 1980, 26 Stat. 391; 43 U.S.C. 945., as reserved in Utah Indemnity Selection List No. 322, dated September 10, 1982, and recorded March 15, 1983 in Book M-39, Page 17, Records of Morgan County, Utah. (Affects the North half of the Southeast Quarter and the South half of the Northeast Quarter of Section 2, Township 5 North, Range 1 East, Salt Lake Base and Meridian).

14. There is a JUDGMENT, Case No. 26601; in which SNOW BASIN is named as Debtor; and STATE TAX COMMISSION is named as Creditor; Judgment in Amount of $14, 770.33 (unemployment), filed July 12, 1984, in Book 5, Page 338.

15. There is a JUDGMENT, Case No. 27945, in which SNOW BASIN, LTD., et al., is named Debtor, and STATE TAX COMMISSION is named as Creditor; Judgment in the amount of $5,704.65 (Sales); filed September 19, 1984, in Book 5, Page 338.

Morgan County, UT
(01-005-083, 480.98 acres) Lots 3, 4 and 5 and the Southeast Quarter of the Northwest Quarter of Section 6, Township 5 North, Range 2 East, Salt Lake Base and Meridian, U.S. Survey. Also the East half of the Southwest Quarter and Lots 6 and 7 of Section 6, Township 5 North, Range 2 East. Also the Southeast Quarter of Section 6, Township 5 North, Range 2 East of the Salt Lake Meridian, U.S. Survey

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Weber County, UT
(20-005-0031, 26.12 acres) Beginning at a point N 1° 39'41" E, 600.00 feet and S 89°50' E, 349.10 feet from the S ¼ Corner of Section 10, T6N, R1E, SLB&M, said point being on the Easterly Right-of-Way line of State Highway U-162, and running thence S 89° 50' E, 94.00 feet; thence N 62° 27' E, 593.90 feet; thence S 70° 35' E, 348.80 feet; thence N 85° 09' E, 413.50 feet; thence N 5° 06' W, 869.41 feet, thence N 26° 51' W, 728.50 feet to a point on the Easterly Right-of-Way line of said State Highway U-162; thence along said Easterly right-of-way line as follows: S 30° 50' 58" W, 1668.30 feet to a point of an 1849.86 foot radius curve to the left thence Southwesterly 270.22 feet along the arc of said curve to the point of beginning. Containing 26.121 acres.

Together with all mineral and subsurface rights and all appurtenances thereto belonging or in anywise appertaining.

SUBJECT TO each of the following:

(a) General ad valorem real property taxes for the year 1990 which are accruing As a lien but are not yet due and payable, being due and payable November 30, 1990.

(b) The Farmland Assessment roll-back taxes as shown on that certain Application for Assessment and Taxation of Agricultural Land, dated April 30, 1975 by COSEC & CO., as record owners, recorded April 30, 1975, in Book 1084, at Page 283, Weber County Recorder's Office.

(c) Easement created by Right of Way Deed in favor of the United Sates of America for a road or highway and other facilities, 66 feet in width, with As much additional width as may be required for adequate cuts and fills, over And across the following described land: Part of the Southeast Quarter of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, (sic) (the centerline of which roadway [Right-of-Way] is) Beginning at a point on the East right-of-way boundary line of the Pineview – Eden Highway (State Route U-162) and the Grantor's land. Said point of beginning being 60.24 feet, South 64° 19' East of Engineers' Station 114+65.28 of Highway U-162 centerline of survey and bearing North 29° 46' East, a distance of 1,886.67 feet from the Quarter Section Corner common to Sections 10 and

15, Township 6 North, Range 1 East, Salt Lake Base and Meridian; thence South 64° 19' East, 745.76 feet to a point of tangency with a 100 foot radius Curve to the left; thence along the arc of the curve a distance of 86.00 feet, More or less, to a point of intersection of the roadway centerline and the East boundary of the Grantors' land, said point being on an existing fence line Bearing North 5° 06' West along the East boundary of the Grantors' land. Said Deed recorded July 12, 1961 as Entry No. 362641 in Book 686, Page 450, Records of Weber County, Utah.

(d) Easement in favor of Ogden City, a Municipal Corporation to construct, reconstruct, operate and maintain a pipeline on, in, over, upon or across the following described real property: A perpetual easement and right of way 20 feet wide being 10 feet on each side of the following described center line with an additional temporary construction easement 30 feet wide on the downhill side, or South side, of said pipeline easement and 50 feet on the uphill side, or North side, of the pipeline easement and right of way; A part of the Southeast Quarter of Section 10, Township 6 North, Range 1 East, Salt Lake Base & Meridian, U.S Survey: Beginning at a point on the existing fence on the South line of the Grantor's property and at Engineer's station 81+09.2 of the proposed pipeline survey. Said point also being East 98.3 feet, more or less and North 893 feet, more or less, from the Southwest Corner of Said Quarter Section; and running thence North 50° 26' East 665.2 feet to Engineer's P.I. Station 87+74.4 of said proposed pipeline survey; thence South 86° 34' East 190.70 feet, more or less, to point on an existing fence line, said point being the East line of the Grantor's property and at Engineer's station 89+65.10 of said proposed pipeline survey. Said Easement recorded January 15, 1971 as Entry No. 545025 in Book 958, Page 118, Records of Weber County, Utah,

(e) Easement reserved by Grantor for water line and pump station (including the right to install, maintain and remove and replace the described water line and related equipment, and including the right for installation, maintenance and replacement of an electric power line to the pump station and including the right to pump and transport water from the pump station westward to other lands of Grantor) to pump from the Ogden City Pipeline (the easement for which Ogden City Pipeline is described above in subparagraph (d)), which easement reserved by Grantor for such purposes being over and within real property particularly described as follows: Beginning at a point on the East right-of-way boundary line of Pineview-Eden Highway (State Road U-162) said point being 1886.67 feet North 29° 46' East, 1.69 feet South 64° 19' East and 33.00 feet South 30° 50' 58" West from the South Quarter Corner of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey, running thence South 64° 19' East, 744.07 feet along the Southerly line of an existing 66.0 foot right-of-way (described in subparagraph (c) above), thence South 25° 41' West 40.00 feet, thence North 64° 19' West 744 feet, more or less to the Easterly line of said Highway, thence North 30° 50' 58" East 40.0 feet, more or less along said Highway to the point of beginning.

(f) Easement reserved by Grantor for installation and operation of a well and pipeline, including the right of Grantor to maintain the existing well or redrill the same as may be necessary or appropriate from time to time and the right to transport water from the existing well through the existing or other pipeline to serve properties of Grantor to the west, the ownership of which is retained by Grantor or is owned by an affiliate of Grantor, and including the right to install, remove, reinstall, operate, maintain, replace, and otherwise use the well for production of underground water and for transporting water to the real properties of Grantor to the west. The location of well No. 1 and the related easement is particularly described as follows:

Well No 1 being 1671.85 feet North 1° 39' 41" East along the Quarter Section Line and 935.10 feet East from the South Quarter Corner of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey.

Together with a 30 foot wide easement from said well west to State Highway U-162 for pipeline maintenance and repairs. The specific legal description of said easement is as follows:

Beginning at a point on the East right-of-way boundary line of Pineview-Eden Highway (State Road U-162), said point being 1886.67 feet North 29° 46' East 1.69 feet South 64° 19' East and 33.00 feet North 30° 50' 58" East from the south Quarter Corner (sic) of Section 10, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey, running thence North 30° 50'58" East, 30.00 feet along the Easterly right-of-way line; thence South 64°19' East, 30.00 feet; thence South 30°50'58" West, 30.00 feet to the North line of an existing 66.0 foot right-of-way; thence North 64° 19' West 30.00 feet along said right-of-way to the point of beginning.

(g) The foregoing right to install, operate, and maintain a well and transport water therefrom includes the right to isolate the well from concentrated sources of pollution for a distance of 100 feet in all directions (100 foot radius from well). Concentrated sources of pollution shall include, but not be limited to, septic tank and drain field systems, ordinary sewer lines, garbage dumps, pit privies, hazardous water disposal sites, corrals, feed lots, etc.

(h) Right of Way Easement in favor or The Mountain States Telephone and Telegraph Company, a Colorado corporation to construct, operate, maintain and remove such communication and other facilities, from time to time, upon, over, under and across the following described land: An easement 6 feet in width described by a center line with 3 feet on each side as follows: Commencing at a point on the East right of way boundary line of the Pineview Eden Highway (State Route U-162) and the Grantors' land. Said point of beginning bearing North 29° 46' East a distance of 1,992.67 feet from the South Quarter Corner of Section 10, Township 6 North, Range 1 East, Salt Lake Base & Meridian; thence South 64° 19' East 745.76 feet to a point of tangency with a 100 foot radius curve to the left, thence along the arc of the curve a distance of 83.0 feet, more or less; thence North 5° 06' West 95 feet, more or less, to end. Said easement recorded October 4, 1982 as Entry No. 865210 in Book 1410, Page 722, Records of Weber County, Utah.

The document reserving said Easement rights is as recorded October 25, 1982, as Entry No. 866402 in Book 1411, Page 1023, Weber County Recorder's Office.

(i) Subject to boundary line discrepancies, if any, with the property of the United States of America on the East and South as disclosed by various Deeds of Record.

(j) Any changes or assessments, or both, that may be levied by Weber Basin Water Conservancy District, Eden Cemetery Maintenance District and the Weber County Fire Protection Service Area No. 4.

(k) Other than 10 acre feet of unappropriated Weber Basin Water Conservancy District contract rights to irrigation water, (that are being transferred by Grantor to Grantee), Grantor reserves all remaining water rights incident to the conveyed parcel of land, whether or not appurtenant to such parcel of land, including

(1) all rights to all water pertaining to that certain 6 inch "T" connection on the Ogden City culinary pipeline, which pipeline and its related easements are particularly described in paragraphs (d) and (e) hereof, and

(2) all of the rights to all water pertaining to the existing well drilled within the conveyed parcel, being Well No. 1 particularly described above in paragraphs (f) and (g) hereof.

Weber County, UT

(20-040-0002) Part of Sections 25 and 26, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey: Beginning 1298.67 feet South from the Northwest corner of said Section 26, running thence North 89°04' East 3251.98 feet; thence South 70°44; East 605.30 feet; thence North 85°27 East 1069.04 feet; thence North 33°39' East 1716.12 feet to a point 501.87 feet North 89°26' East from the Northwest corner of Section 25; thence East to the Northeast corner of Section 25, thence South to the Southeast corner of Section 25; thence West 6780 feet, more or less; thence North 29°08'14" West 1072.96 feet; thence South 73°41'46" West 1042.76 feet; thence South 4°26'44" West 646.40 feet; thence West 2208.55 feet more or less, to the Southwest corner of Section 26; thence North to the beginning.
EXCEPT that part deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20). SUBJECT TO the following Right of Way: a perpetual easement, upon part of an entire tract of property in the Northwest Quarter of the Northeast Quarter of Section 25, Township 6 North, Range 1 East, Salt Lake Base and Meridian, Weber County, Utah, for the purpose of providing access to an abutting tract of property incident to the construction of a highway known as Project No. 365. Said part of an entire tract is a strip of land 50.00 feet in width adjoining Westerly the following described Westerly Right of Way line of said project: Beginning in the Westerly Right of Way line of said project at a point 300.00 feet perpendicularly distant Westerly from the control line of said project at Engineer Station 442+21.13, said point of beginning is 1857.43 feet North 89°39'48" West along the North line of said Northeast Quarter of Section 25 and 242.72 feet South 0°14'21" West from the Northeast corner of the Northeast Quarter of said Section 25 as monumented by a BLM brass cap and running thence North 19°45'04" East 257.35 feet to the North line of said entire tract, said point being the point of terminus, (NOTE: Easement terminates at the North line of said entire tract).

(20-044-0007, 133.66 acres) Part of the North ½ of Section 35, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey: Beginning at the Northwest corner of said Section 35, running thence North 89°32' East 2208.55 feet along said Section line; thence South 04°26'44" West 1745.43 feet; thence South 32°19'34" East 786.73 feet; thence South 37°52'21" East 85.48 feet; thence South 52°00'40" West 60.38 feet; thence along a 5579.58 foot radius curve to the right a distance of 201.99 feet, more or less, to the South line of the Northwest Quarter; thence West along the Quarter Section line to the Southwest corner of the Northwest Quarter of said Section; thence North to the point of beginning. SUBJECT TO the following described Right of Way: Beginning at a point on the North Right of Way line of Trappers Loop Road (as referenced from U.D.O.T. drawings on Project NS-365 (2) sheet no.'s 10 & 11). South 90°00'00" West 93.57 feet and South 00°00'00" East 2472.46 feet from the South Quarter Corner of Section 26, Township 6 North, Range 1 East, Salt Lake Base and Meridian, said described point being the point of beginning for the following described parcel of land and the point of beginning for the parcel last described above; thence continuing along the North Right of Way line of Trappers Loop Road for the next two courses, and being more particularly described as follows: South 52°02'15" West 60.37 feet to a point of curvature to the right; thence along said curve for 269.86 feet, said curve having a long chord bearing South 53°25'23" West, and a long chord length of 269.83 feet; thence North 35°11'29" West 120.00' to a point of curvature to the left, thence along said curve for 261.65 feet to a point that is at a perpendicular distance of 66.00 feet from the West boundary line of the previously described parcel of land, said curve having a long chord

bearing of North 53°26'08" East, and a long chord length of 261.62 feet, (said described curve also being parallel to the North Right of Way line of Trappers Loop Road and also being a perpendicular distance 120.00 feet from before said Right of Way); Continuing thence from before said described point that is 66.00 feet perpendicular distance from the West boundary line of the above described parcel of land for the next two courses that are parallel to the West boundary line of the above described parcel of land, and more particularly described as follows: North 32°19'34" West 780.50 feet; thence North 04°26'44" East 11077.94 feet; thence South 85°33'16" East 66.00 feet to a point on the West boundary line on the above described parcel of land; thence along the West boundary of the before mentioned parcel for the next three courses that are described as follows: South 04°26'44" West 1056.00 feet; thence South 32°19'34" East 786.73 feet; thence South 37°52'21" East 85.48 feet to the point of beginning. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20).

(20-044-0008, 24.82 acres) Part of the North ½ of Section 35, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey: Beginning at a point on the North Right of Way line of Trappers Loop 1780.12 feet North 90°00' East and South 00°00' East 1144.88 feet from the South Quarter corner of Section 26, township 6 North, Range 1 East, running thence North 29°08'14" West 1310.76 feet, more or less, to the Section line; thence East 1500 feet, more or less, to the Northeast corner of said Section 35; thence South to the Southeast corner of the Northeast Quarter, thence West to the Southerly line of Trappers Loop; thence Northeasterly along Trappers Loop to a point South 29°08'14" East of beginning; thence North 29°08'14" West to the point of beginning. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20) SUBJECT TO the following described Right of Way: Beginning at a point on the North Right of Way line of Trappers Loop Road (as referenced from U.D.O.T. drawings of Project NS-365 (2) sheet no.'s 10 & 11). North 90°00'00" East 1780.12 feet and South 00°00'00" East 1144.88 feet from the South Quarter corner of Section 26, Township 6 North, Range 1 East, Salt Lake Base and Meridian. Said described point being the point of beginning for the following described parcel of land, said point also being at the intersection of the East boundary line of the previously described parcel of land the before mentioned Right of Way; thence along the Right of Way on a curve to the right for 245.09 feet; said curve having a long chord bearing of North 70°21'13" East and a long chord length of 244.89 feet, thence North 16°15'50" West 66.00 feet to a point of curvature; thence along a curve to the left for 259.94 feet to a point on the East boundary line of the before mentioned parcel, (said curve is also being parallel to and at a perpendicular distance of 66.00 feet to before mentioned Right of Way), said curve having a long chord bearing of South 70°14'30" West, and a long chord length of 259.72 feet; thence South 29°08'14" East 66.29 feet to the point of beginning.

(20-044-0005, 108.51 acres) That part of the following parcel lying within Weber County. The North ½ of Section 36, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20).

(21-039-0004, 134 acres) All that portion of the Northwest Quarter and the Southwest Quarter of Section 30, Township 6 North, Range 2 East, Salt Lake Meridian, U.S. Survey, lying West of the County Road, more particularly described as follows, to-wit: Beginning at County Road Monument No. 111, identical with the Quarter corner between Sections 19 and 30, Township 6 North, Range 2 East, thence South 33°33' West 328 feet, South 66°18' West 180 feet, South 41°18' West 45 feet, South 24°42' East 100 feet, South 25°18" West 90 feet, South 39°18' West 200 feet, South 34°18' West 500 feet, South 30°18" West 300 feet, South 43°48' West 650 feet to a point where the road is changed to a more Southwesterly course; thence along the center line of a new road South 56°41' West 326 feet, South 26°West 535 feet, South 51°50' West 385 feet, South 23°24' East 436 feet to a junction with the old road; thence along the center line of the old road South 24°48' West 400 feet, South 16°42' East 150 feet, South 34°38' West 300 feet, South 13°48' West 182 feet to a point from whence the County Road Monument No. 113 bears South 16°16' West 148 feet; thence South 11°10' East 193 feet; South

35°35' East 425 feet; South 16° East 280 feet; South 37°26' West 123 feet to a point on the North line of the Byram property, from which point the Southwest corner of said Section 30 bears South 68°25'30" West 851.62 feet distant; thence along said North line in a Westerly direction 150 feet, more or less, to the Northwest corner of said Byram's land; thence Southerly along the West line of said Byram's land and the center line of the old county road 336.3 feet, more or less, to the South line of Section 30; thence Westerly along the Section line 685 feet, more or less, to the Southwest corner of Section 30; thence Northerly along the range line between Sections 25 and 30 to the Northwest corner of Section 30; thence Easterly along the North line of Section 30 to County Monument No. 111, the place of beginning.

(21-040-0002, 19.81 acres) That part of the following parcel lying within Weber County. Part of the Northwest Quarter of Section 31, Township 6 North, Range 2 East, Salt Lake Meridian, U.S. Survey: Beginning at the Northwest corner of said Quarter Section; running thence East 685 feet; thence South 10°09' East 952 feet; thence South 21°03' West 926 feet; thence South 33°53' West 540 feet; thence South 13°50' West 384 feet to the South line of said Quarter Section; thence West 124 feet to the West line of said Quarter Section; thence North 2646 feet to the place of beginning.

Morgan County, UT

(01-006-015, 195 acres) That part of the following parcel lying within Morgan County. The North ½ of Section 36, Township 6 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey. EXCEPT that portion deeded to UTAH DEPARTMENT OF TRANSPORTATION for Trappers Loop Road (1577-20).

(01-006-006, 15.50 acres) That part of the following parcel lying within Weber County. Part of the Northwest Quarter of Section 31, Township 6 North, Range 2 East, Salt Lake Meridian, U.S. Survey: Beginning at the Northwest corner of said Quarter Section; running thence East 685 feet; thence South 10°09' East 952 feet; thence South 12°03' West 926 feet; thence South 33°53' West 540 feet; thence South 13°50' West 384 feet to the South line of said Quarter Section; thence West 124 feet to the West line of said Quarter Section; thence North 2646 feet to the place of beginning.

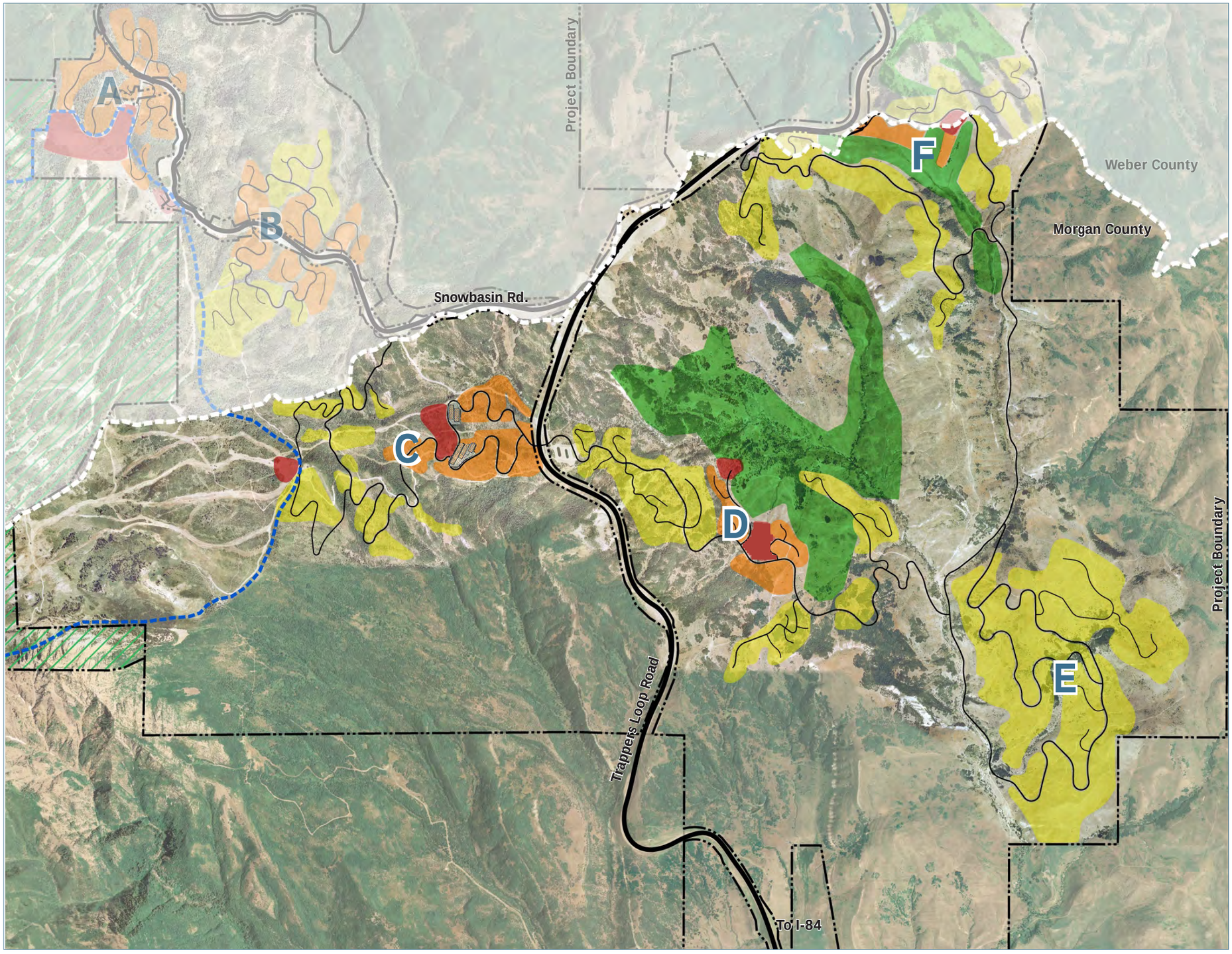
(01-006-034, 51.26 acres) All that portion of the NE ¼ of Section 35, Township 6 North, Range 1 East, SLB&M, lying South of Trappers Loop Road.

Weber County, UT
(20-043-0001) Township 6 North, Range 1 East, SLM
Section 31: All

Weber County, UT
(23-004-0002, 40 acres) Part of Section 5, Township 5 North, Range 1 East, Salt Lake Base and Meridian, U.S. Survey. Being the SW ¼ NW ¼ of said section.

Exhibit 3: Snowbasin Resort – Special District Application Materials

EXHIBIT B
CONCEPTUAL LAND USE PLAN



MORGAN COUNTY DEVELOPMENT CHART		
Development Area	**Acres**	**Total Units**
Morgan County Total Land Area	**8,144**	
Area C - Strawberry Village	227	1,209
Area D - The Meadows Village	294	917
Area E - The Meadows	475	157
Area F - The Meadows	190	164
Morgan County Total Development	**1,186**	**2,447**
Morgan County Total Open Space	**6,958**	
Morgan County % of Open Space	**85%**	

- Snowbasin Project Boundary
- Snowbasin Ski Area Boundary
- USFS Special Use Permit Area
- Roads
- Parking Structure with Residential Above
- Single Family residential
- Multi-family residential
- Mixed-use development
- Golf and Golf Infrastructure

Drawing Not to Scale

NORTH

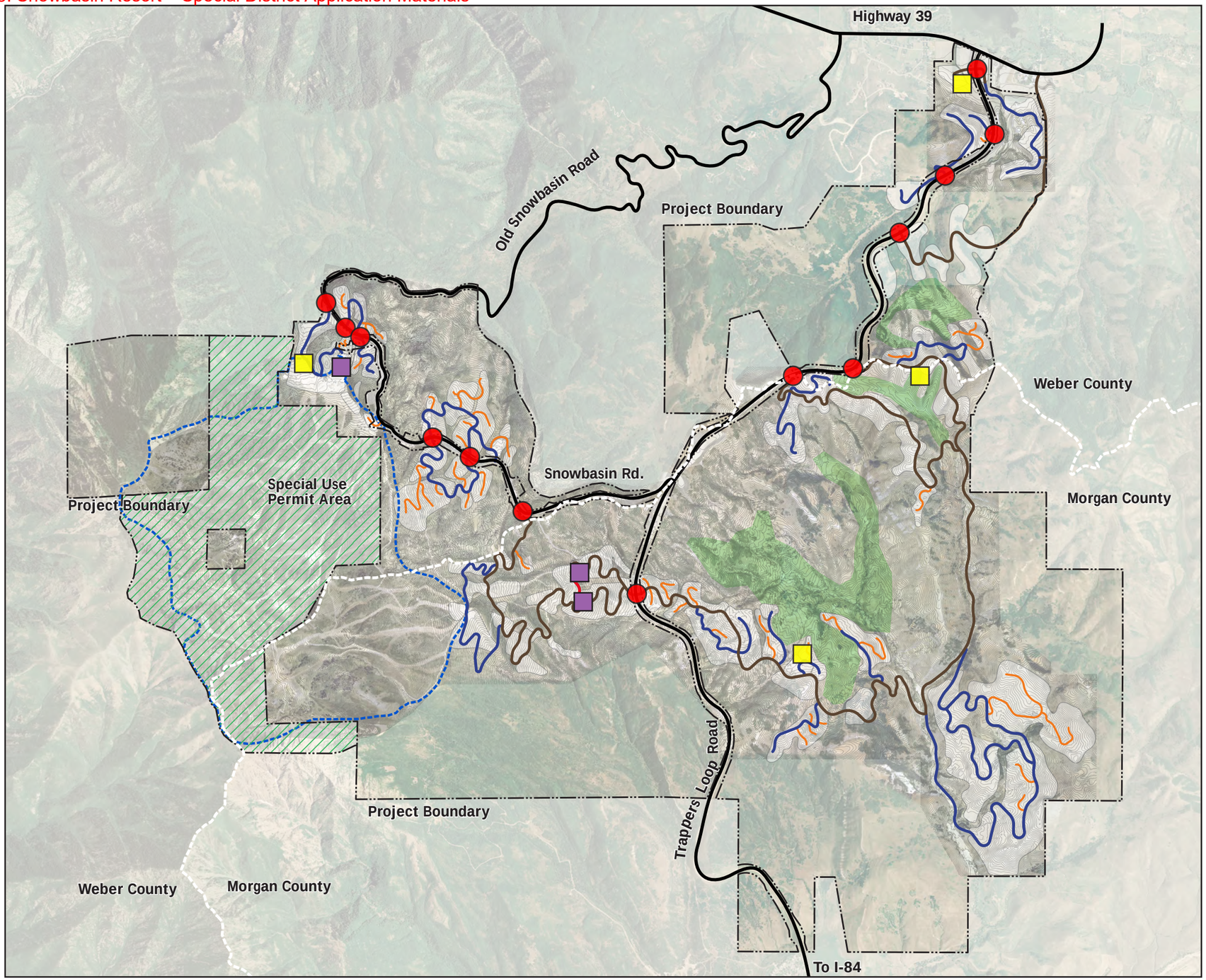


EXHIBIT C
ROAD STANDARDS

ROAD SYSTEM AND APPROXIMATE PARKING LOCATIONS

The Road System diagram illustrates the hierarchy of proposed roads within Snowbasin.

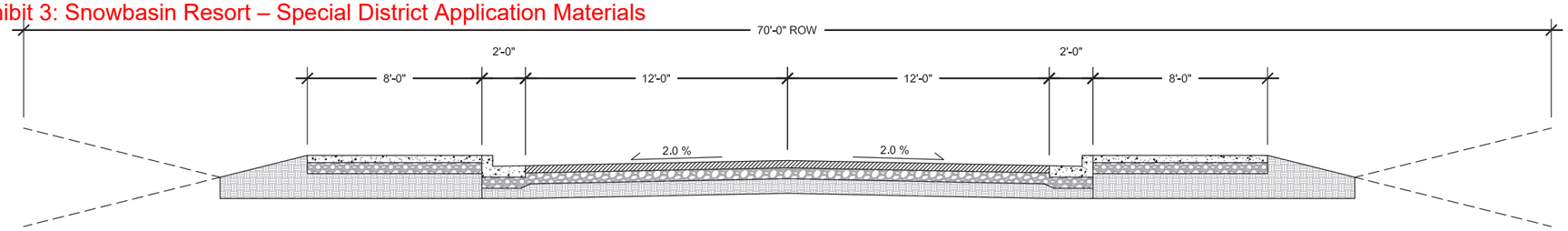
The rural collector roads provide the primary framework for the development areas. These are the main access points from Trappers Loop Road and Snowbasin Road. Rural local roads are utilized in lower density areas that may also be a primary access point but are secondary to the major collector. The neighborhood roads are used primarily in cul-de-sac conditions or when accessing small development pods.

Structured parking is currently planned in Area C in the new Village Core to support base-mountain requirements at build out. The parking in Area C may begin as surface lots and over time convert to structured parking. Additionally, surface parking lots will be utilized for the hotel and golf operations in Area D and golf operations in Area F.

Note: Final classifications of each road is subject to further engineering and design.

- Snowbasin Project Boundary
- Snowbasin Ski Area Boundary
- USFS Special Use Permit Area
- Existing Roads
- Rural Collector Roads
- Rural Local Roads
- Neighborhood Roads
- Village Core Road
- Access from existing road
- Surface Parking
- Structure Parking

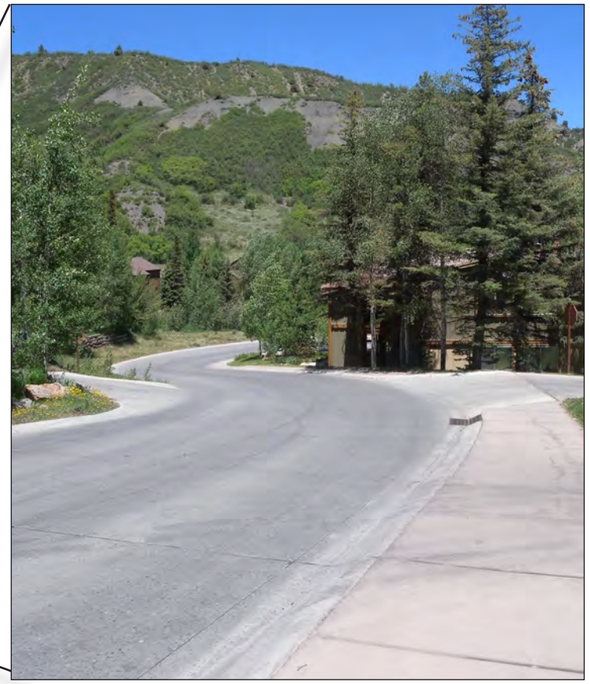
Drawing not to scale



ROAD STANDARDS VILLAGE CORE 2 LANE

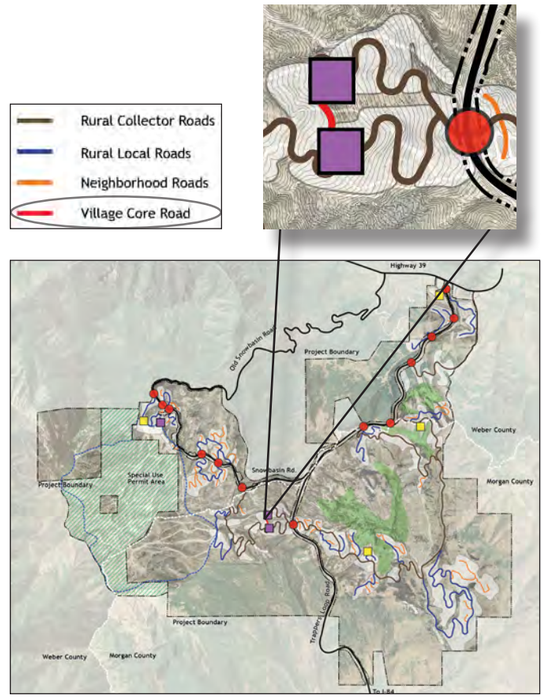
The Village Core road classification would be for the primary roadway through the new base village core area (Area C). It provides for one 12-foot travel lane in each direction, and in some cases a center left turn lane for access to driveways and parking lots. Curbs, gutters and an 8-foot sidewalk would separate vehicles and pedestrians and create a safer walking environment. The 70-foot right of way would allow for utility location, the construction of on-street bike lanes if desired, or a right turn lane at intersections, if necessary. The 250-foot turning radius would accommodate the turning needs of larger vehicles, in recognition of the delivery needs associated with the commercial establishments in those core areas.

Carriage Way, Snowmass Village, Colorado

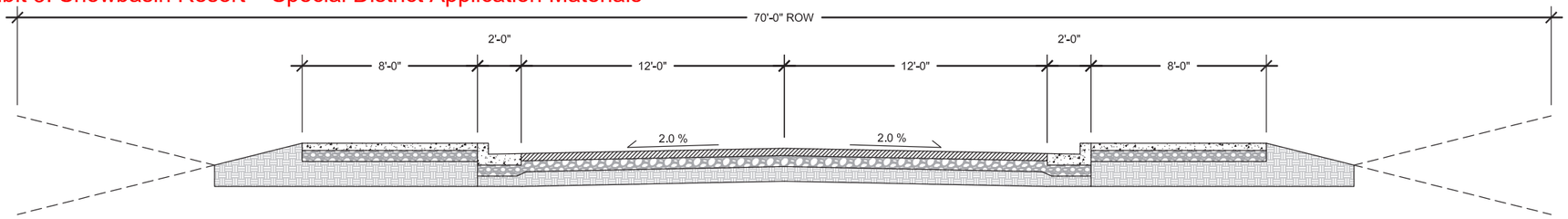


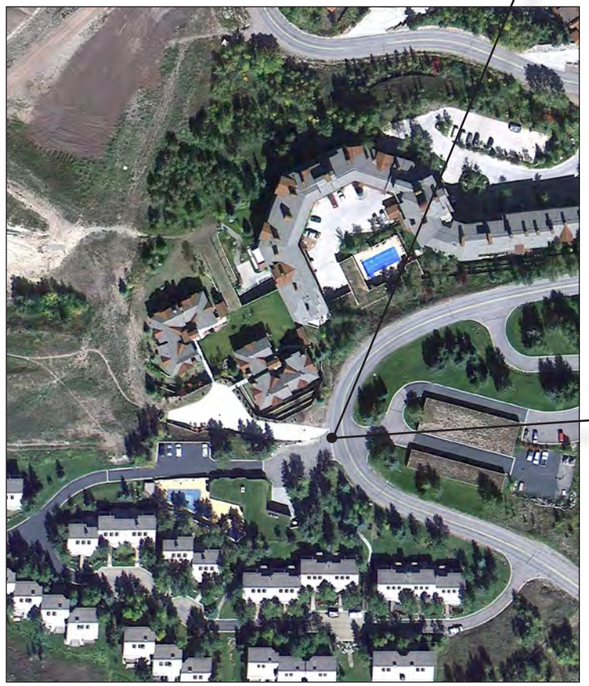
Number of Units Served: Village core (Multi-Family and Hotels)

Carriage Way, Snowmass Village, Colorado



ROAD STANDARDS
VILLAGE CORE 2 LANE

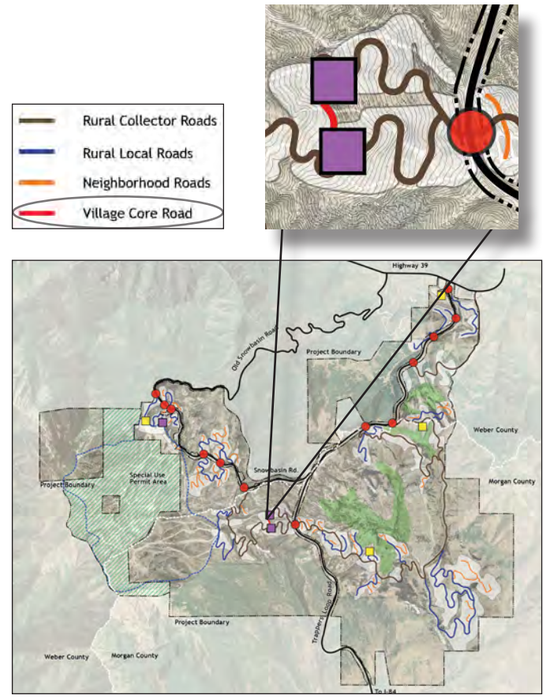




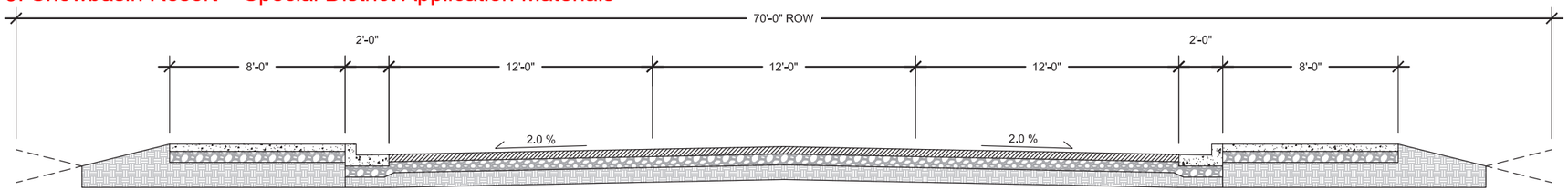
Wood Road, Snowmass Village, Colorado

Number of Units Served: 60 single family homes, unknown number of multi-family units

Wood Road, Snowmass Village, Colorado



ROAD STANDARDS
VILLAGE CORE 3 LANE

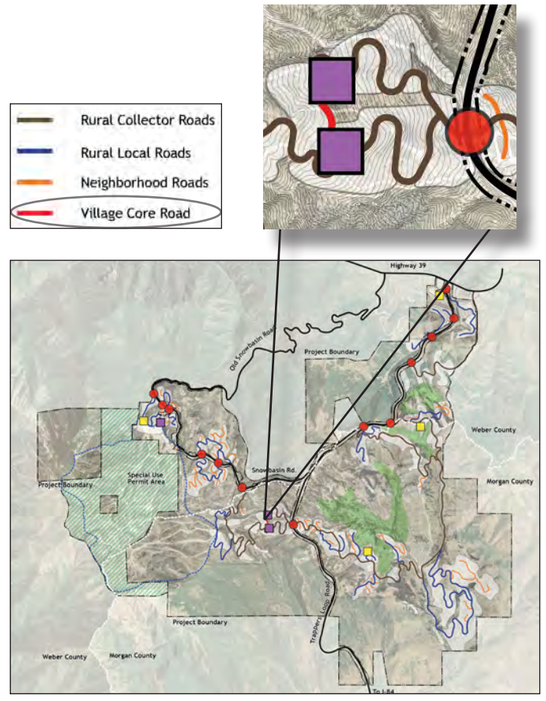


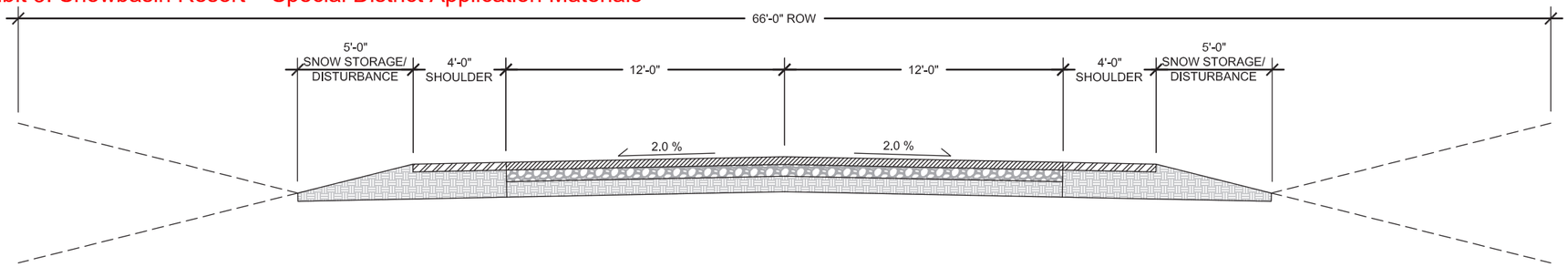
Village Core - 3 Lanes

Breckenridge, Colorado

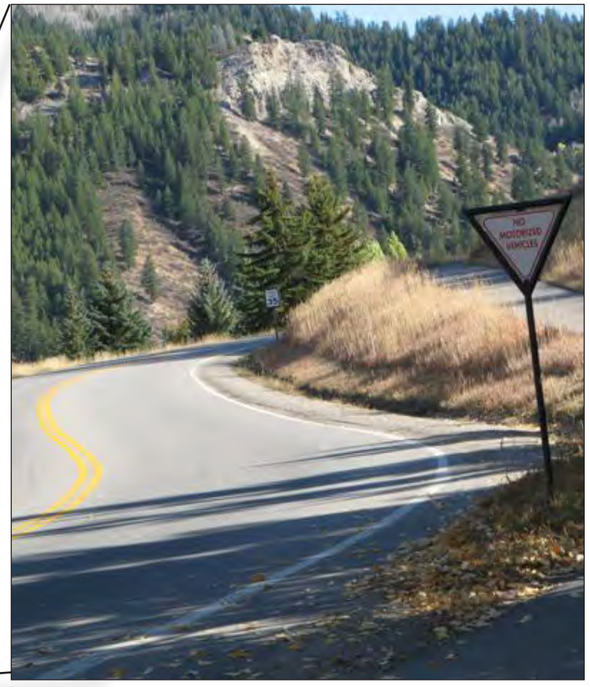
Breckenridge, Colorado

Number of Units Served: Village core (Multi-Family and Hotels)

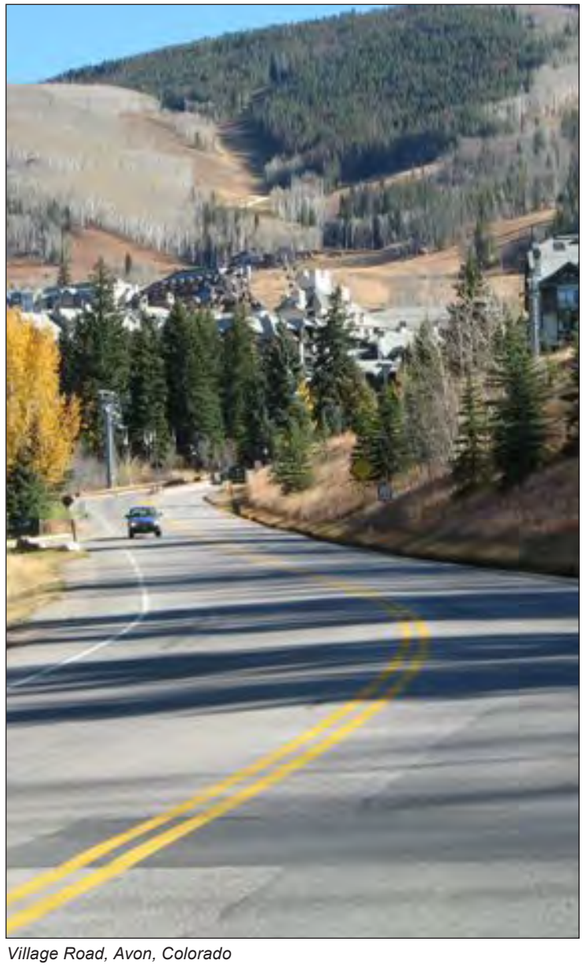




Village Road, Avon, Colorado



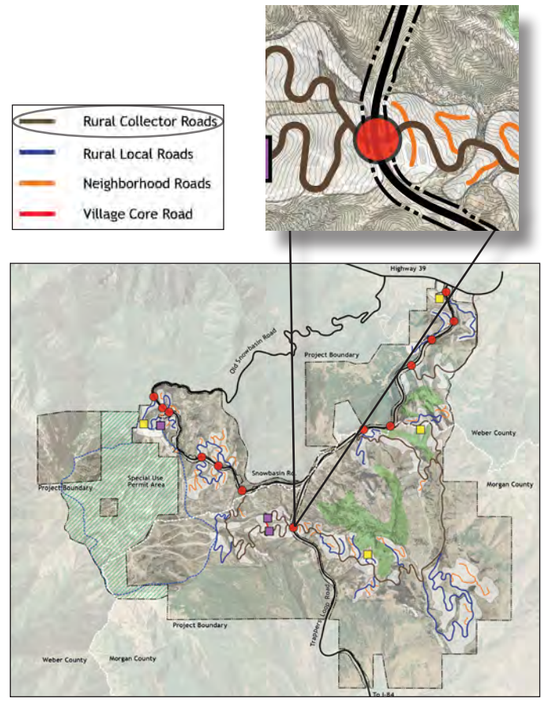
Connects US 6 with Beaver Creek Village
Number of Units Served: 75 single family homes, unknown number of multi-family units

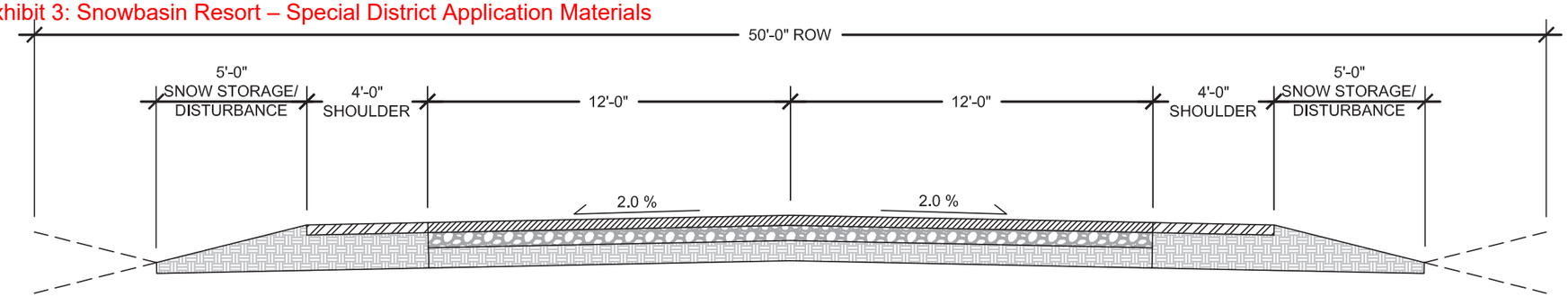


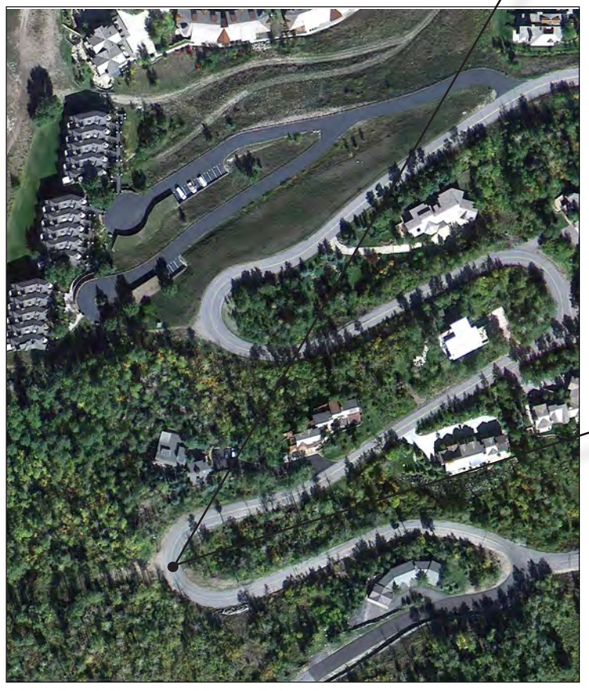
Village Road, Avon, Colorado

ROAD STANDARDS RURAL COLLECTOR

The Rural Collector road classification would be for the main roadways within the resort that connect residential areas and neighborhoods to either the existing road system or the village core areas. It provides for one 12-foot travel lane in each direction, 4-foot shoulders for pedestrians and bicycles, plus 5 feet outside of the shoulder for snow storage. In cases where rural collector roads travel through geologically hazardous areas, the shoulder and snow disturbance width, along with drainage requirements would be subject to review. The 66-foot right of way would allow for utility location, the construction of on-street bike lanes if desired, and left and/or right turn lanes at intersections, if necessary. The 200-foot turning radius would also accommodate larger vehicle turning radii, such as delivery vehicles destined for the Village Core, moving trucks and construction vehicles.







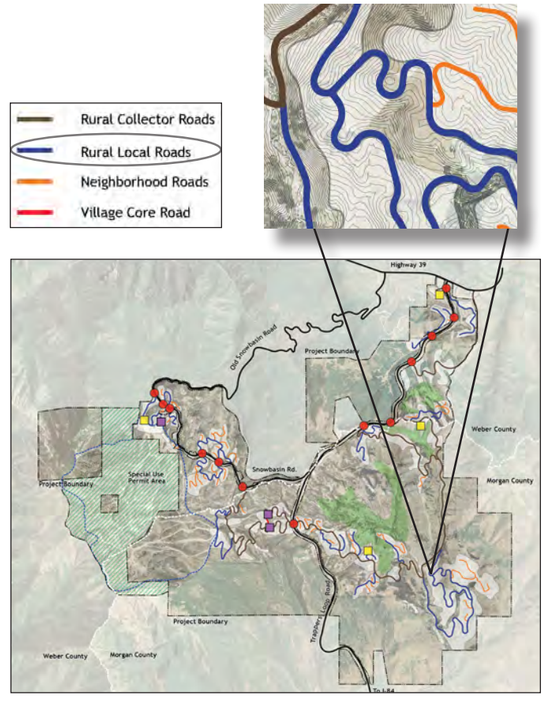
Ridge Road, Snowmass Village, Colorado

Number of Units Served: 24 single family homes

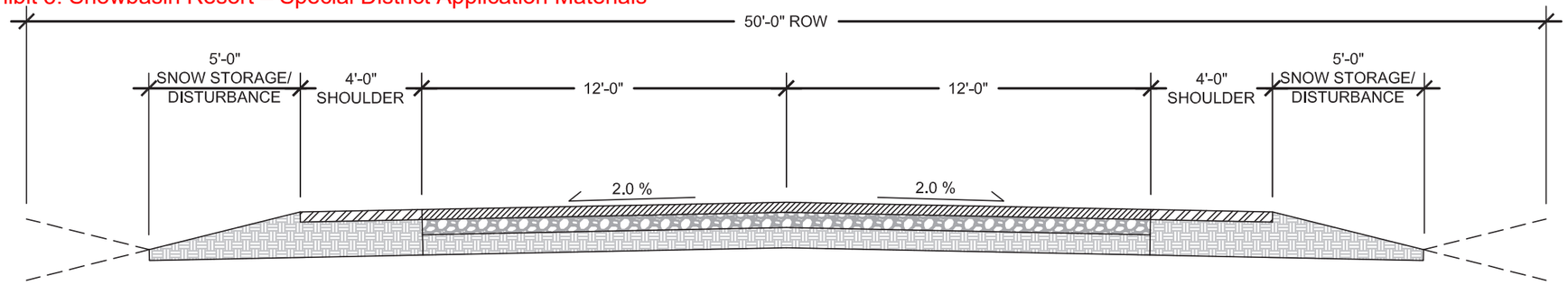
Ridge Road, Snowmass Village, Colorado

ROAD STANDARDS RURAL LOCAL

The Rural Local road classification would be for the roadways within each neighborhood that connect to the rural collector road system, and also provide access to individual residences. It provides for one 12-foot travel lane in each direction, 4-foot shoulders for pedestrians and bicycles, plus 5 feet outside of the shoulder for snow storage. In cases where rural local roads travel through geologically hazardous areas, the shoulder and snow disturbance width, along with drainage requirements, would be subject to review. The 50-foot right of way would allow for utility location or the construction of on-street bike lanes, if desired. The 125-foot turning radius would accommodate moving trucks and construction vehicles, but would also provide for lower speed curves that would help to keep travel speeds down in the neighborhoods.



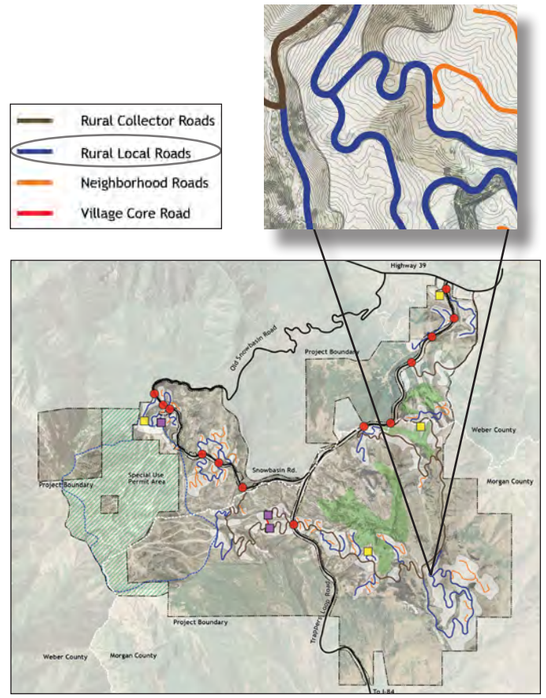
ROAD STANDARDS
RURAL LOCAL



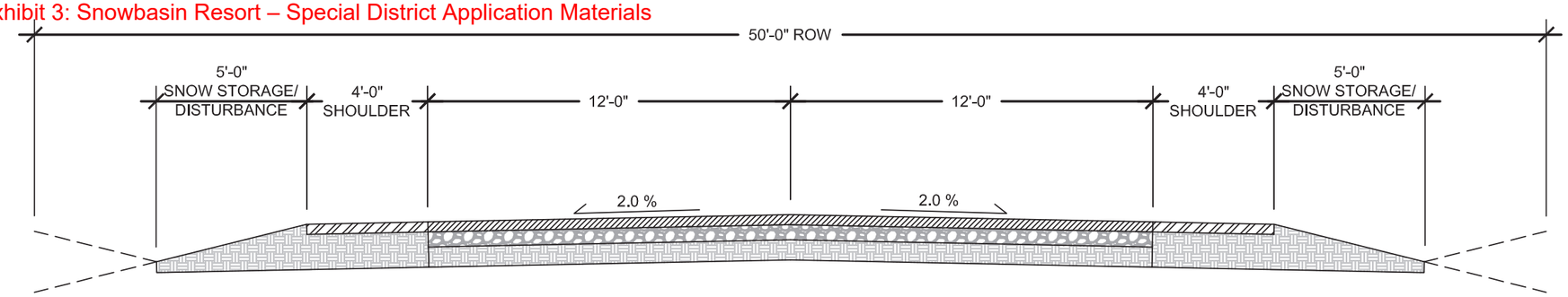
Sinclair Road, Snowmass Village, Colorado

Number of Units Served: 62 single family homes

Sinclair Road, Snowmass Village, Colorado



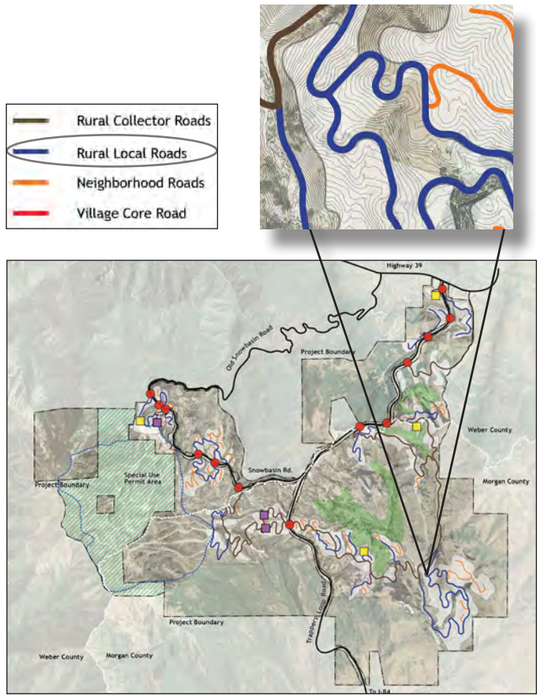
ROAD STANDARDS
RURAL LOCAL

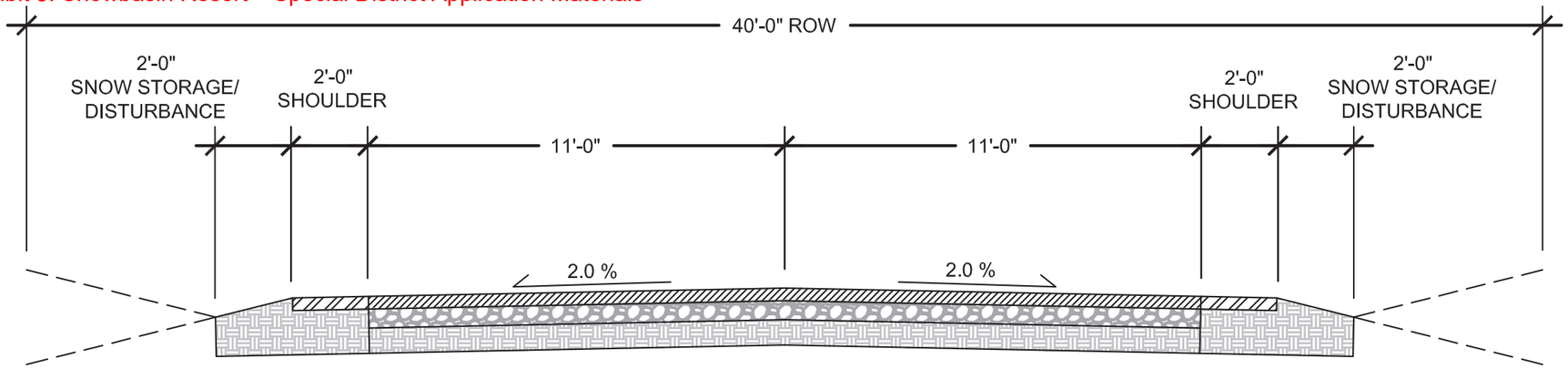


Meadow Road, Snowmass Village, Colorado

Number of Units Served: 39 single family homes

Meadow Road, Snowmass Village, Colorado



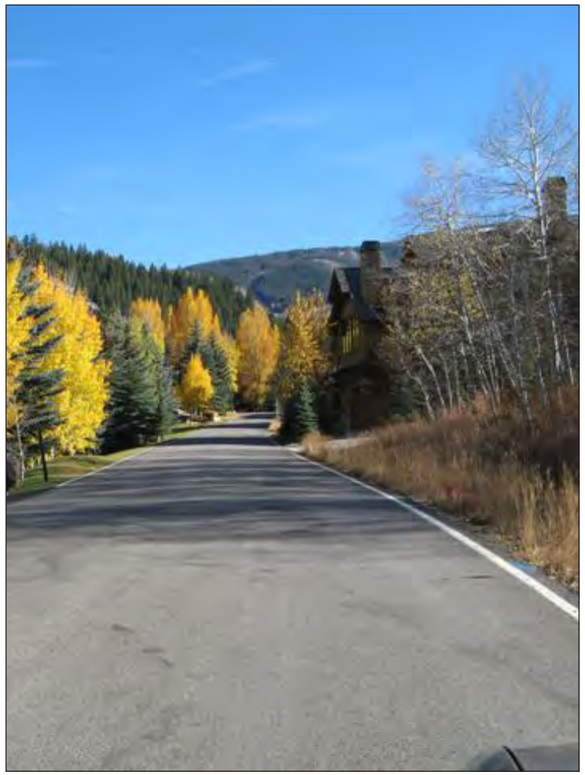


ROAD STANDARDS NEIGHBORHOOD

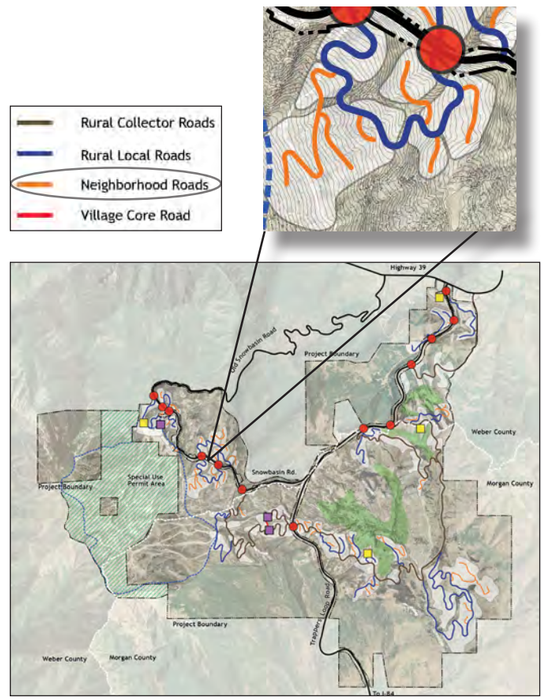
The Neighborhood road classification would be for the cul-de-sac and non-connective roadways within each neighborhood that primarily serve as access to residences. It provides for one 11-foot travel lane in each direction, 2-foot shoulders for pedestrians, plus 2 feet outside of the shoulder for snow storage. These would be low-volume, low speed roads where bicyclists could share the travel lane with vehicles. The 40-foot right of way would allow for utility location or some additional snow storage, if needed. The 125-foot turning radius would accommodate moving trucks and construction vehicles, but would also provide for lower speed curves that would help to keep travel speeds down.

Beaver Creek Drive, Avon, Colorado

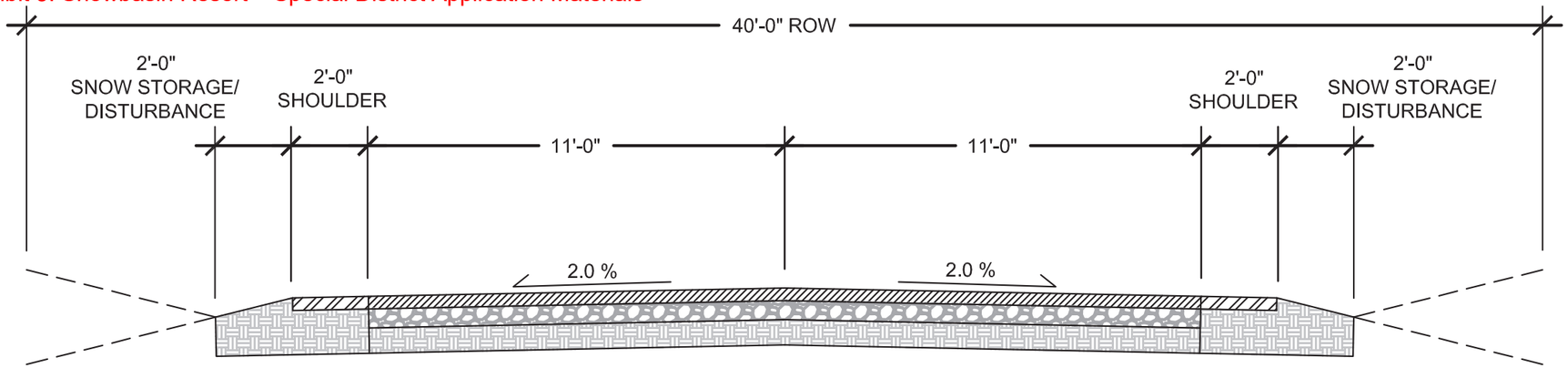
Number of Units Served: 15 single family homes



Beaver Creek Drive, Avon, Colorado



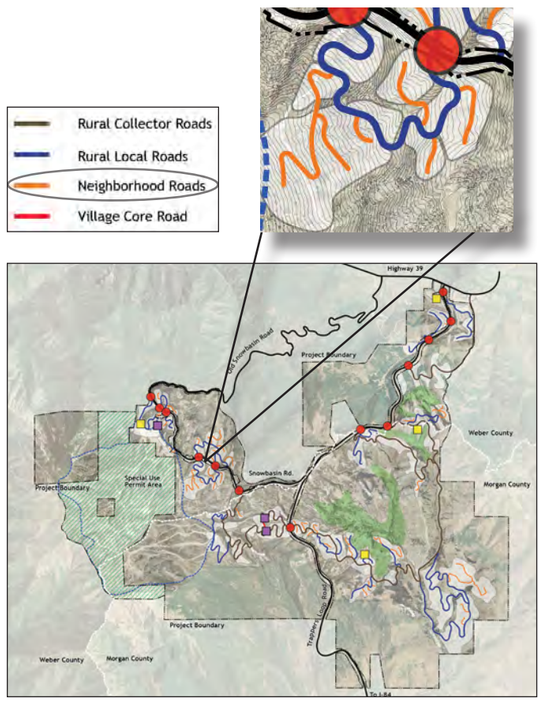
ROAD STANDARDS NEIGHBORHOOD



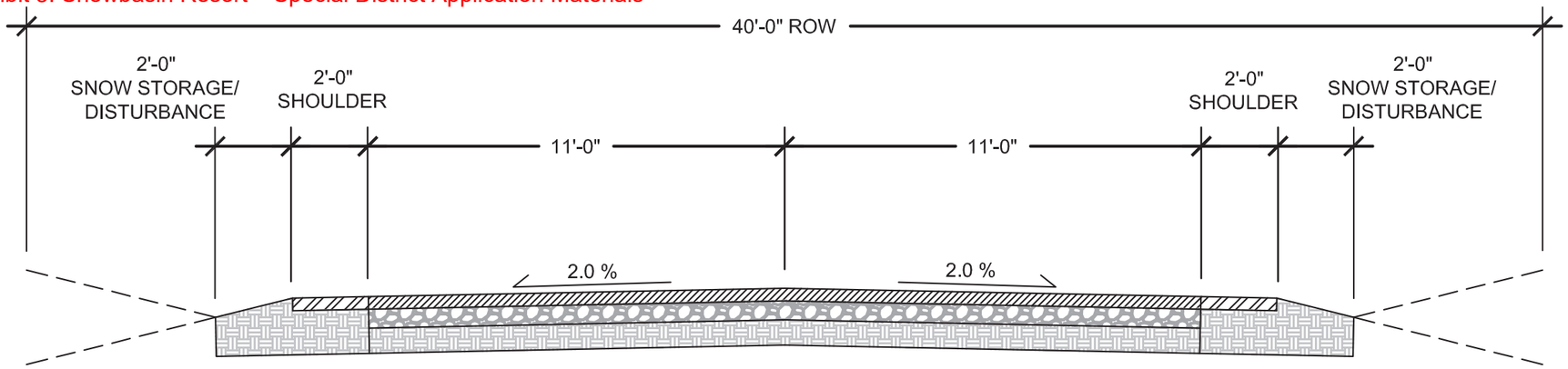
Martingale Lane, Snowmass Village, Colorado

Number of Units Served: 8 single family homes

Martingale Lane, Snowmass Village, Colorado



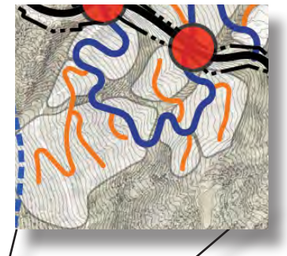
ROAD STANDARDS NEIGHBORHOOD



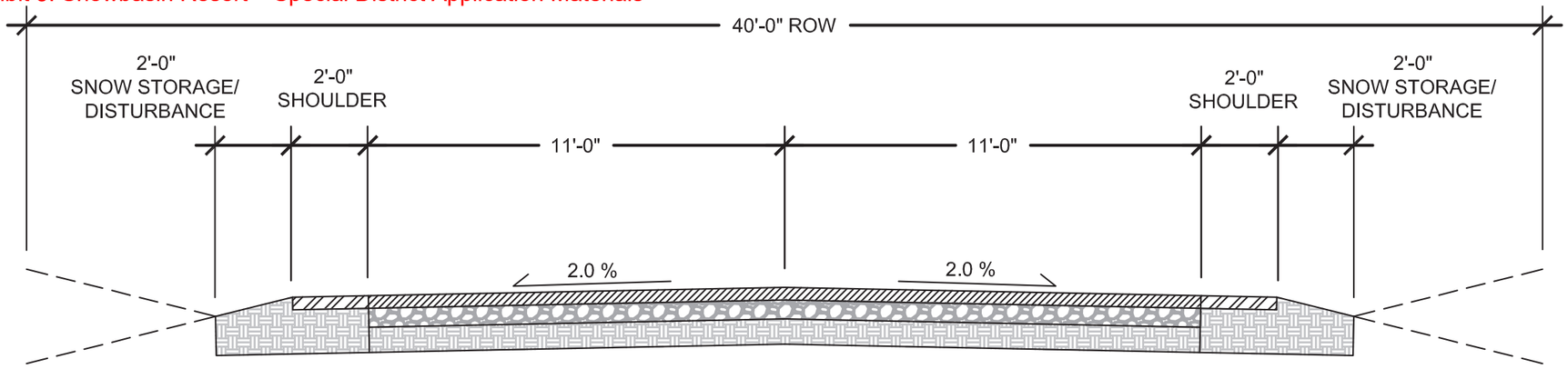
Meadow Lane, Snowmass Village, Colorado

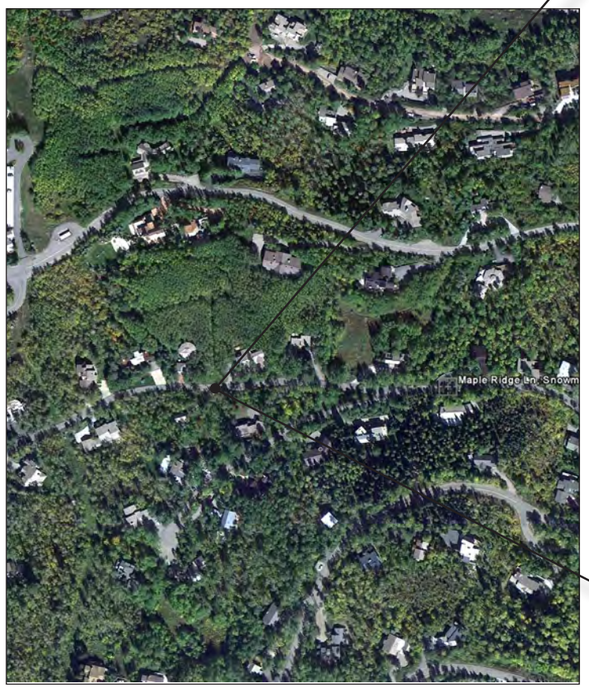
Number of Units Served: 10 single family homes

Meadow Lane, Snowmass Village, Colorado



ROAD STANDARDS NEIGHBORHOOD





Maple Ridge Lane, Snowmass Village, Colorado

Number of Units Served: 21 single family homes

Maple Ridge Lane, Snowmass Village, Colorado

EXHIBIT D

SNOWBASIN RESORT PROPOSED PARKING REQUIREMENTS

A key attribute of resort uses are the ability for shared parking uses. The mix of uses reduces the parking requirement for each use. For example, when someone parks their car at a resort village, they will shop at retail stores and dine at a restaurant – using one parking space for both uses. Based on regulations and experiences in other mountain resorts, Snowbasin requests the following parking requirements for the Snowbasin Resort Special District.

Business or professional offices	1.75 spaces per 1,000 sf
Dwellings	
single family	2 spaces per dwelling
duplex or townhome	2 spaces per unit
condominium	1 space per 1,500 sf plus 0.25 guest spaces per unit
Hotels and motels	0.7 per room
Retail stores	2 per 1000 sf
Restaurants, taverns private clubs	4 per 1000sf
Churches with fixed seating	4 per 1000sf of net usable area
All other uses not listed above	As determined at site plan approval for specific planning area

SNOWBASIN RESORT
MASTER PLAN

TRANSPORTATION ELEMENT

Prepared for:

Sun Valley Company
PO Box 10
Sun Valley, ID 83353

Prepared by:

Felsburg Holt & Ullevig
6600 South Syracuse Way, Suite 600
Greenwood Village, CO 80111
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Project Manager: Jeff Ream, PE, PTOE
Project Engineer: Steven C. Marfitano, EI

FHU Reference No. 08-299-01
December 2010

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

This report summarizes the transportation impacts associated with the proposed Snowbasin Resort Master Plan. The report includes an analysis of build-out conditions for a typical weekday and peak Saturday during ski season at the proposed resort. In addition to the buildout analysis, an analysis of intermediate development steps was also conducted to identify when the various identified roadway improvements would be needed, so that the road system would continue to provide adequate operations as the development progresses toward completion.

The Snowbasin Resort Master Development Plan Update was completed in December 2010, and defines the operational improvements anticipated for Snowbasin going into the future. The Development Plan was developed alongside the Snowbasin Area Plans, which were completed in May 2008 and updated in November 2010. Together, these documents represent a vision for the transformation of Snowbasin Resort from a day-skier destination to a year-round resort.

Snowbasin is located in the Wasatch Mountains east of Ogden, Utah. The resort currently focuses around Earl's Lodge, which is accessed via Snowbasin Road (SR-226). Snowbasin Road intersects Trappers Loop Road (SR-167), which provides access north to Huntsville and Ogden (via Ogden Canyon Road (SR-39)) and south to Salt Lake City (via Interstate 84). Much of the property along Trappers Loop Road and Snowbasin Road is within the ownership boundary of the Snowbasin Resort Company. The Snowbasin Resort Master Plan proposes strategic development of these lands, with care taken to preserve the natural beauty, view corridors, and sensitive lands within the region.

The proposed development would expand the Earl's Lodge base area and construct a second resort base in the Strawberry Park area, with ski lift and gondola connections between the two areas. These bases would be developed as mixed-use villages, complete with lodging, retail, restaurants and skier support services. Residential neighborhoods with a mix of townhomes, condominiums and single family homes would be built around both base areas, as well as on the east side of Trappers Loop Road opposite the ski area. A residential and commercial development would also be developed at the north end of Trappers Loop Road near the SR-39 intersection to serve resort guests and the Ogden Valley community. Finally, a smaller residential development may be built on the northwest side of the Pineview Reservoir.

Together, these general development areas have been divided into seven development areas, labeled A thru H for design and planning consideration. **Table ES-1** lists the various land uses planned for each development area.

Table ES-1. Snowbasin Development Area Land Uses

Land Use	Size								Total
	A	B	C	D	E	F	G	H	
Single Family (du[1])	---	143	185	280	157	60	135	---	960
Townhome (Rent) (du[1])	680	180	514	143	---	32	41	---	1,588
Condominium (Rent) (du[1])	128	---	---	---	---	---	---	---	128
Townhome (Private) (du[1])	680	180	511	430	---	95	122	50	2,065
Condominium (Private) (du[1])	43	---	---	---	---	---	---	---	43
Hotel (rooms)	150	---	150	150	---	---	---	---	450
Retail (ksf[2])	75	---	100	75	---	---	80	---	330

1. Dwelling units
2. 1,000 square feet

Due to the large scale of the project, a broad view of the traffic impacts was taken for the Master Plan. The traffic analysis assessed highway operations on Trappers Loop Road from the I-84 interchange to Ogden Canyon Road and Ogden Canyon Road between Trappers Loop Road and SR-158, as well as major intersections along both roads.

Existing traffic counts were taken on the Thursday and Saturday of the Martin Luther King, Jr. holiday to capture volumes on a typical winter weekday and a peak weekend ski day. Future background traffic projections throughout the study area were derived from these counts, historic Utah Department of Transportation (UDOT) average daily traffic (ADT) counts, and traffic projections from the *Powder Mountain Ski Resort Traffic Impact Study* (Fehr & Peers, 2005).

The Master Plan trip generation is based on trip rates published in *Trip Generation, 8th Edition* (Institute of Transportation Engineers, 2008), the nationally recognized standard, and utilizes trip-making assumptions that are based on observations from several other ski areas in the western United States. Two additional key trip-making assumptions were used to develop traffic projections: 1) the commercial development at the resort functions primarily as a service to day skiers, resort guests and local residents, so the majority of commercial trips would remain internal to the resort, and 2) as the resort grows, the number of day skiers coming from Ogden, Salt Lake City and other off-mountain areas will generally remain the same as today; i.e., the increase in skiers on the mountain would be a result of the increased number of guests and residents staying at the resort rather than from more day visits from the Salt Lake Basin.

Resort Trip Generation
(Refer to Tables 6 and 7)

The following highlights the results of the resort trip generation analysis for the winter season:

- Overall, the resort would generate approximately 28,700 vehicle trips on a peak weekend ski day. Of these, approximately 12,400 trips are generated by the development in and around the ski area (development areas A, B and C on the west side of Trappers Loop Road), 5,400 trips are generated by the residential development east of the ski area (development areas D, E, and F on the east side of Trappers Loop Road), 10,800 trips are generated by the predominantly retail development at the Ogden Canyon Road/Trappers Loop Road intersection (development area G), and 140 are

generated by the reduced residential development at the Pineview Reservoir (development area H).

- On weekdays, the resort would generate approximately 16,000 vehicle trips. Of these, Area ABC generates 6,500 trips, Area DEF generates 2,800 trips, Area G generates 6,600 trips and Area H generates 75 trips.

- An internal shuttle service between the ski area bases and the residential developments in Areas ABC and DEF would be available so resort guests won't need to rely on their personal vehicle to access the ski area. The shuttle is anticipated to reduce vehicle travel within and between those areas by approximately 4,800 trips per day on the weekend and 3,200 trips on the weekday.

- The retail in Area G would primarily provide additional commercial services for resort guests and residents (e.g., a grocery store, office space, etc.), but would also provide a shopping destination that would appeal to residents living elsewhere in the community. It is anticipated that on the weekends approximately 60 percent of the retail trips generated by Area G would come from the other resort areas (ABC, DEF and H) with the remaining demand fulfilled by residents of Huntsville and Mountain Green. On weekdays approximately 40 percent of the retail traffic would be from the resort and 60 percent from Huntsville and Mountain Green.

Traffic Impacts

The following highlights the results of the intersection and highway level of service analyses, and the recommended improvement measures identified from these analyses:

Existing Intersections (Listed from south to north)

I-84 Off Ramp to Old Trappers Loop Highway

In the morning at this intersection the northbound movement would operate at LOS F and in the afternoon the southbound movement would operate at LOS E. Both of these movements are forecast to have extremely low volumes, however (five vehicles per hour southbound and less than five vehicles per hour northbound), because there is virtually no development or developable land south of the interstate, so no improvements to the existing lane geometry is recommended at this location.

As noted in the Future Background Conditions section, UDOT is considering replacing the current split diamond configuration with a full diamond interchange somewhere between the two existing overpasses. Morgan County and Mountain Green both support the proposed concept and Snowbasin Resort is not opposed to the idea, but would like input on the design should the project move to that stage. However, it should be noted that the current interchange configuration adequately accommodates Snowbasin traffic and that development of the resort is not dependent on interchange improvements.

I-84 On Ramp from Old Trappers Loop Highway

At this intersection the northbound movement would operate at LOS C in the morning and LOS B in the afternoon. These represent acceptable levels of service, so no improvements to the existing lane geometry is recommended at this location.

Trappers Loop Road (SR-167) / Old Trappers Loop Highway

This intersection near Mountain Green would operate at LOS F in the long-range future, either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, and therefore was assumed to be implemented in the background analysis. With a signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS B in the morning and LOS C in the afternoon. No additions to the current lane geometry would be required, but the eastbound left turn lane would need to be lengthened to accommodate the increased traffic volumes for that movement.

SR-167 / SR-226

This intersection currently serves as the primary access to Snowbasin Resort. In the future, the intersection would provide the primary access to Areas A and B, including the Earl's Lodge base area, which includes one of the main parking lots for day skiers. The intersection would require signalization by build-out of the resort and would operate at LOS B or better with a signal during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, southbound right and eastbound left) would need to be lengthened to accommodate the increased traffic volumes at the resort.

SR-167 / SR-39

This intersection at Huntsville would operate at LOS F in the long-range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the background analysis. With a signal and the addition of Snowbasin traffic the intersection would operate at LOS B or better during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

SR-39 / Old Trappers Loop Road

This intersection would serve as the second of two access points to the residential portions of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach, with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-39.

SR-39 / SR-226

This intersection provides access to residences along Old Snowbasin Road. Due to the closure of this road during the winter as an access to Snowbasin Resort, no additional volumes are anticipated at this intersection. The intersection would operate at LOS B or better for all movements. No changes in the lane geometry would be required.

SR-39 / SR-158

This intersection provides access to residences along the west side of the Pineview Reservoir, and serves as a part of the access route to the Powder Mountain Ski Resort. The intersection would operate at LOS F in the long range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, since that resort has a much more significant impact on traffic operations there (very little Snowbasin traffic would use this intersection, particularly the SR-158 approach). With the signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS E in the morning and LOS F in the afternoon on weekends, which is the same level of service as that reported in the *Powder Mountain Ski Resort Traffic Impact Study*. The *Powder Mountain Ski Resort Traffic Impact Study* further identifies a public awareness campaign and alternate route identification using an ATMS system to reduce delays at the intersection. The proposed system would provide automated signs that notify drivers prior to the SR-158 / SR-162 intersection that the SR-39 / SR-158 intersection is experiencing an overcapacity condition, and suggest the alternate route. The system would be triggered by queue detectors at the SR-158 / SR-39 intersection.

The majority of Snowbasin-related traffic at this intersection would be through volumes on SR-39 travelling between the resort and Ogden (i.e., the major street movement). Only Area H traffic would use the SR-158 (minor street) approach, and as noted in the Resort Traffic Generation section, Snowbasin has elected to transfer much of the allowed density on that parcel to other development areas in an effort to minimize the traffic impacts to that roadway (only 50 of the 572 allow units in Area H would be developed).

SR-39 / Intersection G8

This intersection has recently been constructed due to the purchase of an adjacent parcel to be constructed as a church. At the present time, there are no vehicles accessing this roadway, but with the construction of the retail center in Area G, this road will provide as a second access to that parcel. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS B or better during the morning and afternoon. No additions to the current lane geometry would be required, but each of the existing turn lanes (eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

New Intersections (listed from south to north)

SR-167 / Intersection C/D1

This intersection would serve as the primary access to the new ski area base in development Area C as well as the primary access to the residential development Areas D and E. It is one of two new intersections requiring signalization at build-out of Snowbasin Resort. With a signal the intersection would operate at LOS C or better during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and left turn lanes on both side street approaches.

SR-167 / Intersection D2

This intersection would serve as a secondary access point to areas E and F. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection E/F1

This intersection would serve as the primary access point to Area F and a secondary access to Area E. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection G7

This intersection would serve as the primary access point to a parcel of approximately 13 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G6

This intersection would serve as the primary access point to a parcel of approximately 51 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G5

This intersection would serve as the primary access point to a parcel of approximately 12 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with the eastbound left turn operating at LOS C in the morning and LOS F in the afternoon; all movements would operate at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G4

This intersection would serve as the primary access point to a parcel of approximately 25 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS E or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G3

This intersection would serve as one of two access points to the residential portions of Area G on the east side of SR-167 near the SR-39 intersection. It would be stop sign controlled on the side street approach, with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G2

This intersection would serve as the primary access to the retail and residential development in Area G and is one of two new intersections requiring signalization in the proposed build-out of Snowbasin Resort. Without a signal the side street left turns at the intersection would operate at LOS F in both the morning and afternoon peak periods and would experience significant queuing and delays in the afternoon. With a signal the intersection would operate at LOS A during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and separate left turn lanes on both side street approaches.

SR-167 / Intersection G1

This intersection serves as a secondary access to the retail and residential development in Area G and would be restricted to southbound right turns in and eastbound right turns out only. It would be stop sign controlled on the side street approach with all the eastbound movement operating at LOS B or better during both the morning and afternoon peaks.

SR-167 Highway Level of Service

Two-lane highway level of service analyses were conducted for the peak travel directions on SR-167 both north and south of the Snowbasin Resort.

The south section of SR-167 is projected to carry 18,800 vpd on weekends at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (due in large part to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.67 in the afternoon, (i.e., the projected volume would be approximately 67 percent of the capacity of the roadway during the peak hour), so it would appear that the roadway would not require an additional downhill lane.

The north section of SR-167 is projected to carry 20,700 vpd on weekends at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (again due to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.73 in the afternoon, however, so it would appear that no additional lanes would be necessary on that section, either.

Interim Development Phasing and Roadway Improvement Schedule

Traffic volumes at Snowbasin Resort would increase over time as the resort is developed, and as a result, not all of the above roadway improvements would be needed immediately. Overall, the resort would be developed in 16 distinct phases. To determine when the various roadway improvements would be needed, interim transportation analyses were conducted for three interim phases, each representing a significant development or transportation need milestone: completion of Phases 1-3 (completion of approximately 1/3 of the base village in Area C and 2/3 of the Area G commercial), 4-6 (50 percent completion of the Area A base village, full completion of Area F, Area G commercial and Area H), and 9-15 (buildout of the project). **Table ES-2** shows projected development levels for each interim year.

Table ES-2. Transportation Analysis Development Phasing

Phase	Proposed Snowbasin Resort Development
1-3	139 Single Family Homes 416 Townhomes 150 Hotel Rooms 121,000 SF Commercial Additional Mountain Usage: 710 Skiers
4-6	370 Single Family Homes 170 Condominiums 1,770 Townhomes 300 Hotel Rooms 216,000 SF Commercial Additional Mountain Usage: 2,800 Skiers
9-15 (Build-Out)	960 Single Family Homes 170 Condominiums 3653 Townhomes 450 Hotel Rooms 331,000 SF Commercial Additional Mountain Usage: 5,640 Skiers

Table ES-3 shows the recommended phasing plan for the road system improvements based on the above development schedule. As the table indicates, the existing road system could accommodate project growth in the near term, with the first road system improvement (signalization of the SR-167/SR-39 intersection) needed at completion of Phase 3. By the completion of Phase 6, the remaining four additional intersections would need signalization: SR-167/SR-226, SR-167/G2, SR-167/C/D1, SR-167/Old Trappers Loop Highway.

Table ES-3. Off-Site Roadway Improvement Schedule

Improvement	Development Phase
Signalization of SR-167 / SR-39	1-3
Signalization of SR-167 / SR-226	4-6
Signalization of SR-167 / G2	4-6
Signalization of SR-167 / C/D1	4-6
Signalization of SR-167 / Old Trappers Loop Highway	4-6

I. EXISTING CONDITIONS

A. Roadway System

Major roadways that serve the Snowbasin Resort area are illustrated on **Figure 1**. During the winter the Old Snowbasin Road coming in from the north from Ogden Canyon Road is no longer plowed, so the only access to Snowbasin Resort is from Trappers Loop Road (SR-167). Trappers Loop Road is a two-lane rural highway with an additional climbing lane in the uphill direction for each approach to Snowbasin Road. To the north Trappers Loop Road provides access to Huntsville and Ogden via Ogden Canyon Road (SR-39), while to the south Trappers Loop Road provides access to Salt Lake City via Interstate 84. Due to a lack of lodging at the hill, all Snowbasin visitors are currently day skiers, the majority of which live in Ogden or Salt Lake City.

B. Traffic Volumes

Daily traffic volumes along SR-167, SR-226, and SR-39 for the winter season were collected in January 2009, on a typical weekday and on the Saturday of Martin Luther King, Jr. Day. The later was chosen because skier visits on that day are typically around the 10th highest of the year, so it provides a good representation of traffic conditions on a peak ski day for the season. The existing weekday and Saturday traffic volumes are shown in **Table 1** and on **Figures 2** and **3**. As shown on the table and figures, daily traffic volumes along SR-167 range from 3,800 vehicles per day (vpd) south of the SR-39 intersection to 6,600 vpd west of Mountain Green. SR-226 carries approximately 4,200 vpd west of SR-167 and SR-39 carries approximately 4,500 vpd west of SR-167. All volumes represent moderate traffic levels that are within the capacity of two lane roads. **Appendix A** contains the raw traffic count data.

Table 1. Existing Average Daily Traffic Volumes (Winter Season)

Road	Location	2009 Weekday Volume	2009 Saturday Volume
SR-39	East of SR-226	3,500	4,500
	West of SR-167	3,500	4,500
	East of SR-167	3,800	3,800
SR-226	South of SR-39	150	200
	West of SR-167	1,900	4,200
SR-167 (Trappers Loop)	South of SR-39	2,600	3,800
	North of SR-167 (Old Highway)	3,400	5,300
SR-167 (Old Trappers Loop Highway)	West of SR-167 (Trappers Loop)	5,700	6,600
	East of SR-167 (Trappers Loop)	3,700	2,300

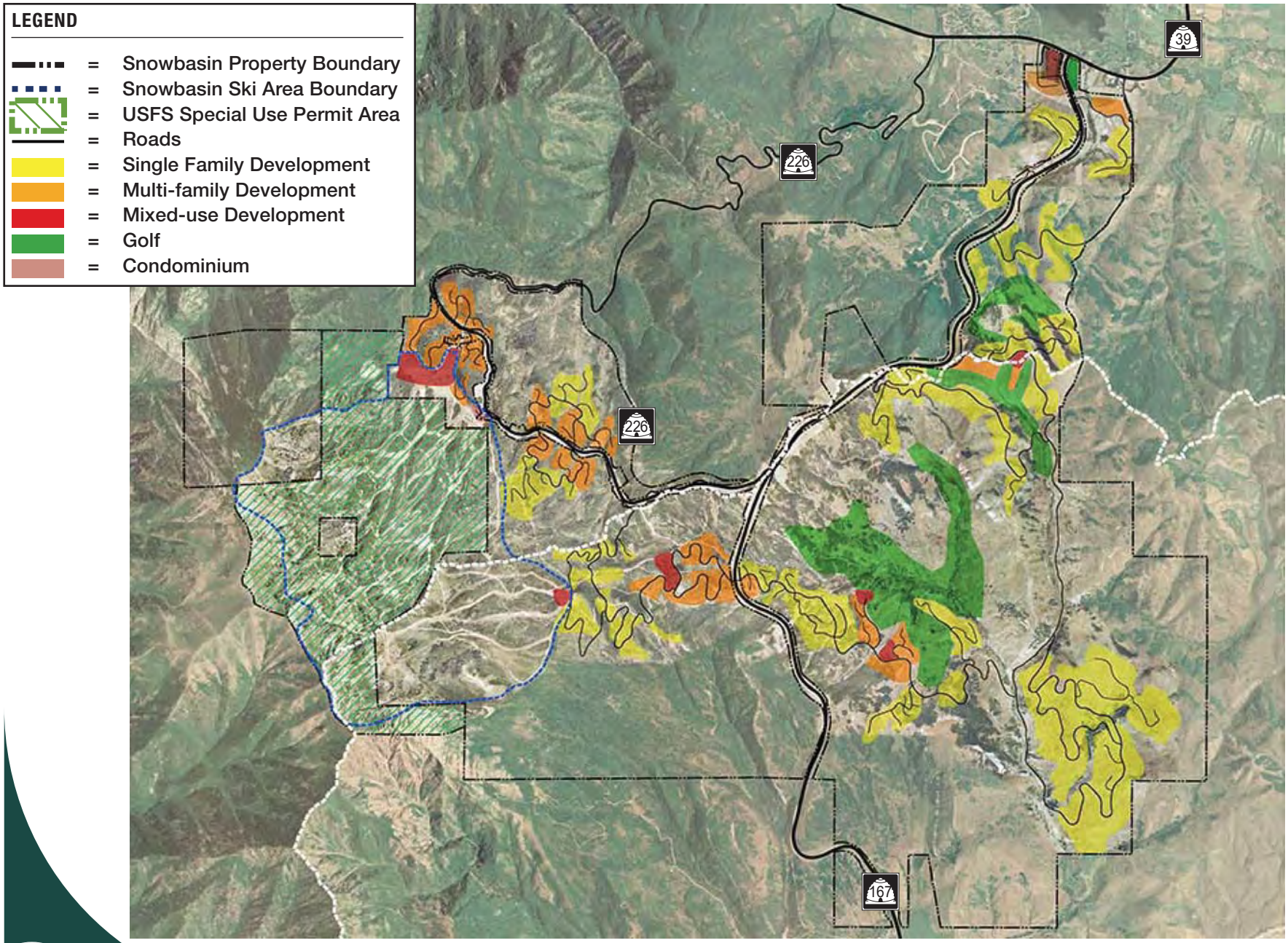
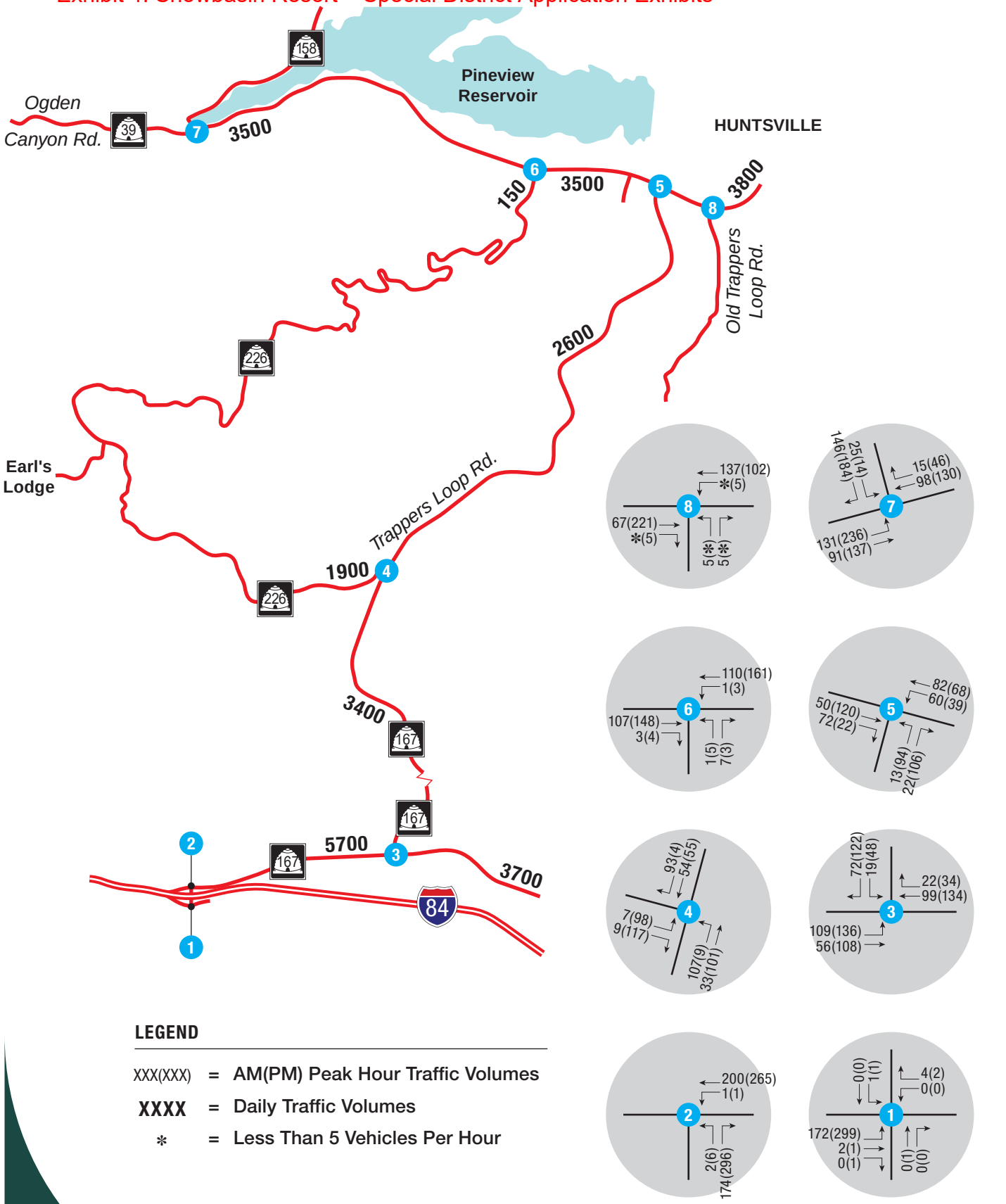


Figure 1
Vicinity Map

FELSBURG HOLT & ULLEVIG

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

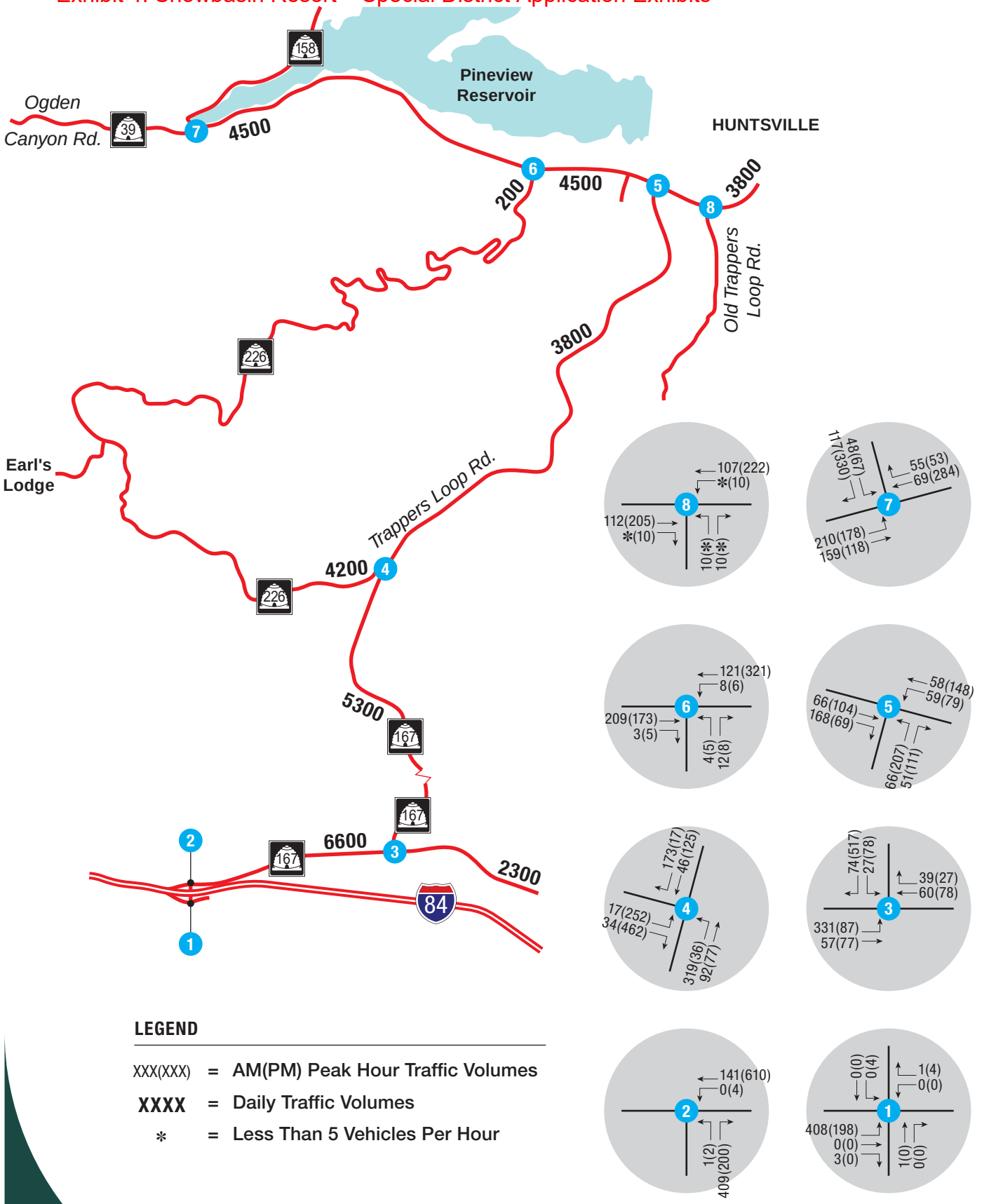
XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
*	=	Less Than 5 Vehicles Per Hour

Figure 2
Existing Weekday Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
*	=	Less Than 5 Vehicles Per Hour

Figure 3
Existing Saturday Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

C. Intersection Operations

Traffic operations within the study area were evaluated according to techniques documented in the Highway Capacity Manual, (Transportation Research Board, 2000) (HCM-2000). Level of service (LOS) is a qualitative measure of traffic operational conditions, based on roadway capacity and vehicle delay. Levels of service are described by a letter designation ranging from LOS A to LOS F, with LOS A representing the best possible conditions and LOS F representing congested conditions. For signalized intersections, level of service is calculated for the entire intersection; for unsignalized intersections, levels of service are calculated for movements which must yield right-of-way to other traffic movements.

Existing levels of service are shown on **Figures 4** and **5** for weekday and Saturday conditions, respectively. All intersections are currently stop sign or yield controlled and all individual movements currently operate at LOS D or better. **Appendix B** contains the existing level of service worksheets.

D. Safety Assessment

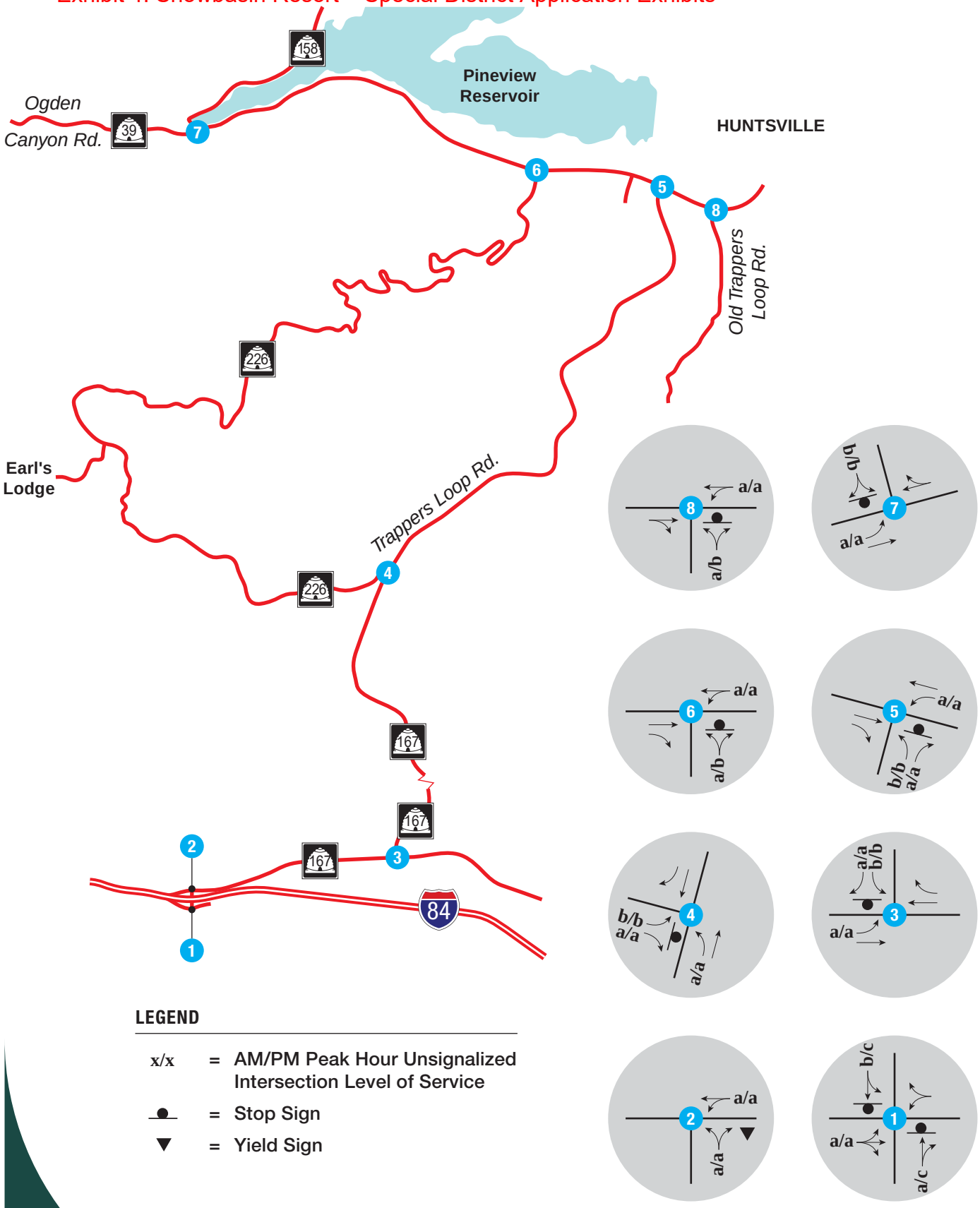
Crash records were obtained from the Utah Department of Transportation from 2005 – 2008 for state highways in the Snowbasin project area. Records were collected for the following highway segments:

a. SR-39, Milepost 9 - 19
b. SR-158, Milepost 0 - 4.33
c. SR-167, Milepost 0 - 11.05
d. SR-226, Milepost 0 - 3

The records were then analyzed to determine crash patterns along each corridor in order to determine roadway sections requiring further review for improvements which could help to reduce accident frequency and severity. The Utah Department of Transportation classifies each accident type into one of five categories based on the severity of the crash.

1. No Injury/Property Damage Only
2. Possible Injury
3. Non-Incapacitating Injury
4. Incapacitating Injury
5. Fatal

Special consideration was given to accidents which occurred in category four and five due to the severity of these accident types. Each of these highway segments is summarized in the following sections. Included is the calculation of the average crash rate. This value was determined by calculating how many crashes occurred per one million vehicle miles traveled.



LEGEND

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

● = Stop Sign

▼ = Yield Sign

Figure 4
Existing Weekday
Lane Geometry and Levels of Service

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

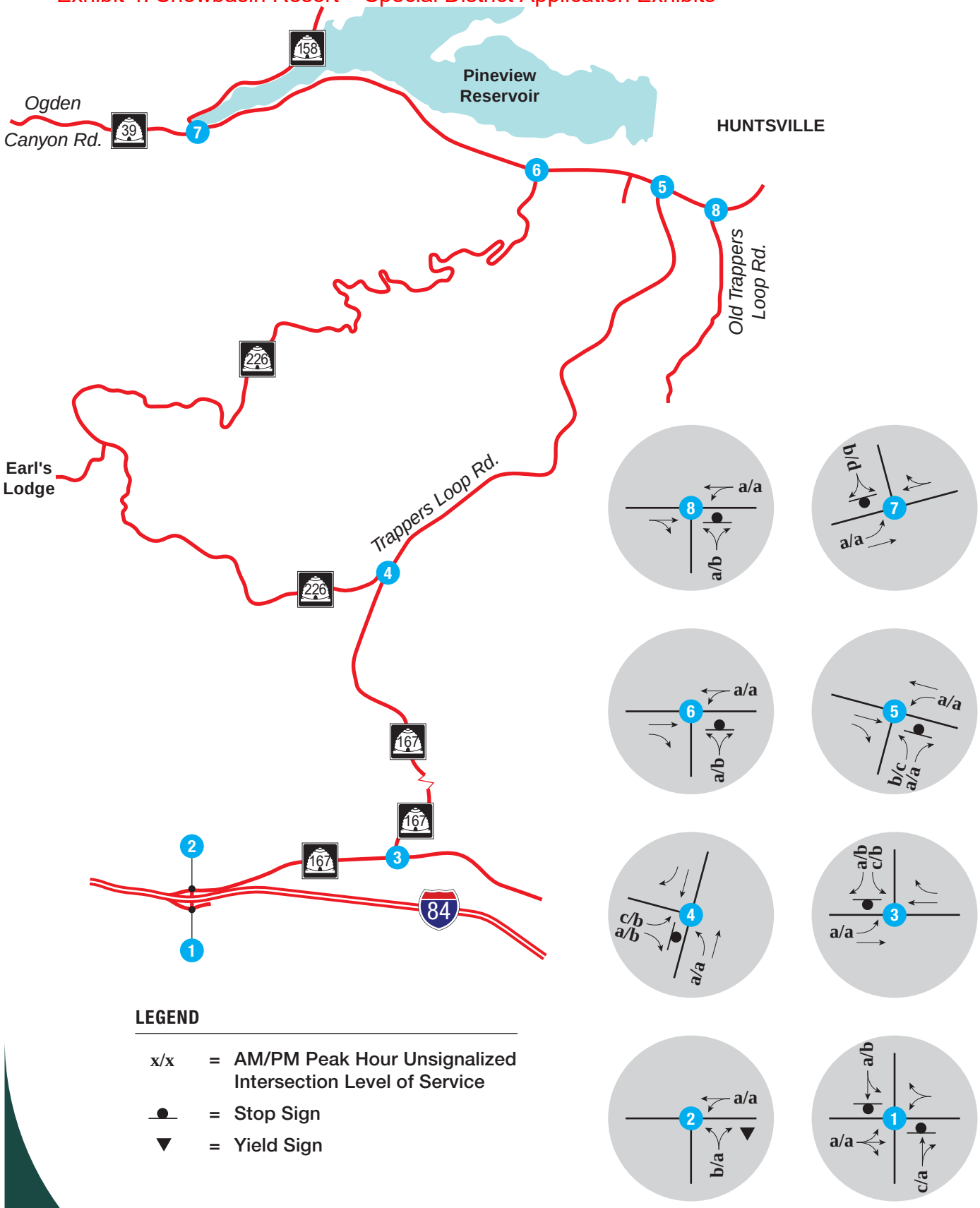


Figure 5
Existing Saturday
Lane Geometry and Levels of Service

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

SR-39, Milepost 9 - 19

SR-39 at milepost 9 represents the mouth of Ogden Canyon continuing to milepost 19 which represents the termination of the study area at Huntsville. This segment of SR-39 provides access the Snowbasin Resort from Ogden. Between mileposts 9 and 19 there were 208 total accidents, including 20 with a severity rating of four and 2 with a severity rating of five. The fatal accidents occurred at milepost 10.06, resulting from a head-on accident, and at milepost 15, as a result of a single car accident. In total, there were 11 head-on accidents including a concentration of seven accidents between mileposts 9.50 and 11.50. In addition, 9 of 20 incapacitating accidents occurred between these same mileposts representing a significant concentration of accidents along the segment. This two mile section should be reviewed for safety concerns.

The average crash rate was calculated to be 3.03 accidents per one million miles traveled for the segment.

SR-158, Milepost 0 - 4.33

SR-158 begins at the junction with SR-39 at the Pineview Reservoir and heads north to Eden. This segment of SR-158 ends at the junction with SR-162 and represents the portion of SR-158 along which Area H development is proposed. Between mileposts 0 and 4.33 there were 47 total accidents, including four with a severity rating of four; there were no fatal accidents along this segment during the study horizon. Two of the incapacitating injury accidents occurred at intersections, one resulting in a head on accident and the other in an angled accident. The other serious accidents were a rear end accident and an angled accident. An examination of all crashes occurring in the segment revealed two primary areas of higher accident frequency. The first area occurred at the intersection of SR-158 and SR-39 and represented a concentration of rear end accidents, likely due to the junction. The second area occurred between mileposts 3.60 and 3.85 and represented a higher concentration of intersections throughout the segment leading to more conflict points and more accidents.

The average crash rate was calculated to be 1.58 accidents per one million miles traveled for the segment.

SR-167, Milepost 0 - 11.05

SR-167 begins at the junction with Interstate 84 and heads north ending at the junction with SR-39. This segment represents the primary access for all destinations within the Snowbasin Resort as well as provides a connection between Mountain Green, to the south and Huntsville, to the north. Additionally, coming from the south and beginning at Mountain Green, the road ascends steep grades to SR-226 and the county line between Weber and Morgan counties, and descends back to SR-39. Along each uphill section there is an additional climbing lane. Between mileposts 0 and 11.05 there were 73 total accidents, including 13 with a severity rating of four; there were no fatal accidents along this segment during the study horizon. Of these 13 accidents, eleven were single car accidents, one was an angled accident occurring at the intersection with Interstate 84, and one was a sideswipe same direction accident. The majority of accidents along the segment were single vehicle accidents, 59 of 73, and did not occur in any significant concentrations.

The average crash rate was calculated to be 1.81 accidents per one million miles traveled for the segment.

SR-226, Milepost 0 - 3

SR-226 begins at the junction with SR-167 and heads west ending at the existing entrance to the Snowbasin Resort. SR-226 provides the primary access to Areas A and B, and secondary access to Area C. Between mileposts 0 and 3 there were 17 total accidents, including two with a severity rating of four; there were no fatal accidents along this segment during the study horizon. Each of the incapacitating injury accidents occurring within this segment were single car accidents. There was no concentration of accidents within the study segment.

The average crash rate was calculated to be 2.68 accidents per one million miles traveled for the segment.

II. RESORT TRAFFIC PROJECTIONS

This section documents the processes used to develop traffic projections for the Snowbasin Resort Master Plan.

A. Background

The Snowbasin Resort Master Development Plan Update was completed in November 2010, and defines future operational improvements anticipated for Snowbasin Ski Area. The Development Plan was developed alongside the Snowbasin Area Plans, which was originally completed in May 2008. Together, these documents represent a vision for the transition of Snowbasin Resort from a day-skier destination to a year-round resort.

The trip forecasts for the project is based on trip rates published in *Trip Generation, 8th Edition* (Institute of Transportation Engineers, 2008), the nationally recognized standard, and utilizes trip-making assumptions that are based on observations from several other ski areas in the western United States. Two additional key trip-making assumptions were used when forecasting resort trips: 1) the commercial development functions primarily as a service to day skiers, resort guest and local residents so the majority of commercial trips will remain internal to the resort, and 2) as the resort grows, the number of day skiers coming from Ogden, Salt Lake city and other off-mountain areas will generally remain the same as today; i.e., the increase in skiers on the mountain will be a result of the increased number of guests and residents staying at the resort rather than increased day visits from the Salt Lake Basin.

B. Resort Trip Generation

The Snowbasin Resort expansion has been divided into eight key development areas (labeled A to H) and each has been uniquely defined by the Snowbasin Area Plans. **Table 2** summarizes the land uses proposed for each area.

Table 2. Snowbasin Development Summary

Land Use	Size								Total
	A	B	C	D	E	F	G	H	
Single Family (du[1])	---	143	185	280	157	60	135	---	960
Townhome (Rent) (du[1])	680	180	514	143	---	32	41	---	1,588
Condominium (Rent) (du[1])	128	---	---	---	---	---	---	---	128
Townhome (Private) (du[1])	680	180	511	430	---	95	122	50	2,065
Condominium (Private) (du[1])	43	---	---	---	---	---	---	---	43
Hotel (rooms)	150	---	150	150	---	---	---	---	450
Retail (ksf[2])	75	---	100	75	---	---	80	---	330

1. Dwelling units
2. 1,000 square feet

Due to natural grouping of these areas and proximity to access points, the eight areas were consolidated into four groups for the traffic evaluation: ABC, DEF, G, and H.

Trip generation forecasts for Snowbasin were based on three key elements: 1) overnight population projections derived from the proposed lodging/residential densities; 2) the projected employment base; and 3) the proposed commercial densities. In general, trips in or out of the resort would include day-skier trips, employee trips, and overnight guests and residents' non-skiing related trips. The follow provides further details on each of the key elements.

Overnight Guest/Resident Trips. Overnight guests and residents represent those visitors to the resort that are staying within the properties of Snowbasin. These overnight visitors would represent a significant number of skiers for the resort, so to determine these skier forecasts, the residential land uses within the resort were first broken down by single family or multi-family and owned versus rented, and then an average number of bedrooms was applied to each multi-family unit. Next, weekday and weekend occupancy rates, based on information from other ski resorts and discussions with the project team, were applied to each property type. **Table 3** shows the projected occupancy rates for weekday and weekend conditions.

Table 3. Snowbasin Residential Occupancy Rates Summary

Land Use	Occupancy Rate	
	Weekday	Weekend
Single Family (Private) (du[1])	25%	50%
Townhome (Rent) (du[1])	50%	90%
Condominium (Rent) (du[1])	50%	90%
Townhome (Private) (du[1])	25%	50%
Condominium (Private) (du[1])	25%	50%
Hotel (rooms)	50%	90%

1. Dwelling Units

Finally, the above information was used in conjunction with information from other ski resorts on the typical number of skiers per unit or bed to project the total number of skiers from the overnight guest and resident population. **Table 4** provides the weekend skier forecasts for each development area and lodging type.

Table 4. Weekend Snowbasin Internal Skier Generation

Product Type	Area	Units	Beds	Notes	Occupancy		Skiers per Unit	Skiers
					Owned Unit	Rental Unit		
Single Family	B	143			50%		1.5	107
	C	185			50%		1.5	139
	D	280			50%		1.5	210
	E	157			50%		1.5	118
	F	60			50%		1.5	45
	G	135			50%		1.5	101
							Total	**720**
Townhomes (Rent)	A	680	2,040	50% in rental pool	50%	90%	0.7	1,000
	B	180	540	50% in rental pool	50%	90%	0.7	265
	C	514	1,542	50% in rental pool	50%	90%	0.7	756
	D	143	429	25% in rental pool	50%	90%	0.7	180
	F	32	96	25% in rental pool	50%	90%	0.7	40
	G	41	123	25% in rental pool	50%	90%	0.7	52
							Total	**2,293**
Condominiums (Rent)	A	128	256	75% in rental pool	50%	90%	0.7	143
							Total	**143**
Townhomes (Private)	A	680	2,040		50%		0.7	714
	B	180	540		50%		0.7	189
	C	511	1,533		50%		0.7	537
	D	430	1,290		50%		0.7	452
	F	95	285		50%		0.7	100
	G	122	366		50%		0.7	128
	H	50	150		50%		0.7	53
							Total	**2,173**
Condominiums (Private)	A	43	86		50%		0.7	30
							Total	**30**
Hotel / Lodge	A	150	150			90%	0.7	95
	C	150	150			90%	0.7	95
	D	150	150			90%	0.7	95
							Total	285
Total Skiers							**ABC**	4,070
							DEF	1,240
							G	281
							H	53
							Total	**5,644**

Since Area A and Area C represent slopeside lodging and Area B would have a lift that connects it to the Earl's Lodge base, and all three areas would have an internal transit shuttle, it was assumed that all of the skier trips from Area ABC would either be walking or transit, so there would be no vehicle trips generated by skier from those areas onto Trappers Loop Road or any other external road. Similarly, transit service is planned between Area DEF and the ski area bases, so skier vehicle traffic crossing Trappers Loop Road between DEF and the ski area was reduced by 50 percent to account for transit use (with the percentage forecast based on observations of transit use for near-slopeside accommodations at other ski resorts). No transit reductions were assumed for skier trips from Area G, since it is not yet known whether transit services would be provided between that Area and the ski area bases.

For those skiers that do choose to drive, a vehicle occupancy of 2.0 skiers per vehicle was used to project traffic volumes. This occupancy is based on the existing vehicle occupancy at Snowbasin.

Day Skiers. As mentioned previously, it is anticipated that the number of day skiers at Snowbasin will remain roughly the same in the future as there are today. The trips associated with these day skiers is already reflected in the existing traffic volumes so no additional adjustments were taken for day skier visits.

It should be noted that anecdotal evidence from other ski areas operators suggest that some current day skiers convert to overnight guests once accommodations are provided at the resort. However, for Snowbasin it was assumed that little to no conversion would occur so that the traffic analysis is based on a more conservative traffic condition.

Projected Employment Base. The projected employment base includes all new employees working at Snowbasin Resort, either for the ski area or for one of the rental, hotel or commercial properties at the resort. The existing ski area employees are not included in this analysis as they have already been accounted for in the existing daily traffic volume counts. **Table 5** shows the projected employment summary at full buildout of the resort.

Table 5. Snowbasin Employment Forecasts

Land Use	Employees							TOTAL
	A	B	C	D	E	F	G	
Rental Lodging	260	58	165	23	---	5	7	518
Hotel	80	---	80	80	---	---	---	240
Retail	43	---	58	43	---	---	57	201
Additional Ski Area Employees	---	---	310	---	---	---	---	310
Total	**383**	**58**	**613**	**146**	**---**	**5**	**64**	**1269**

The employment forecasts in Table 5 represent the total employees needed if every residence and commercial property were to be operating at full capacity. To account for typical occupancy conditions, the rental lodging and hotel employment forecasts were multiplied by the occupancy rates listed in **Table 3**.

A vehicle occupancy rate of 1.6 employees per vehicle was used to project traffic volumes for employees. This occupancy is based on employee vehicle occupancy surveys collected at other ski resorts.

Commercial Densities. The commercial land uses planned for Areas ABC and DEF would provide many of the services required by on-mountain guests (shopping, restaurants, etc.), so almost all of the activity generated by these uses is anticipated to come from either day skiers or overnight guests staying in Areas ABC and DEF. The only external traffic associated with those properties would be that generated by employees and by deliveries and other service needs.

The commercial uses in Area G, on the other hand, would provide services such as a grocery store that would appeal to a broader market beyond the resort. As such, while a significant portion of the demand from that area would come from the residents and guests of the Snowbasin Resort, its customer base will also include residents of Huntsville, Mountain Green and the surrounding area. To determine the appropriate split between resort patrons and non-resort patrons, the proportion of trips generated by the resort's residential population was determined based on internal capture percentages and procedures outlined in the Trip Generation Handbook, (Institute of Transportation Engineers (ITE), 2004), with the remaining trips assigned to the non-resort area population.

Total Trip Generation

Using the above assumptions and procedures, vehicle trips were forecast for each of the four development areas as well as for the resort as a whole. **Table 6** summarizes the trip generation for the resort on a weekday and **Table 7** summarizes trip generation on the weekend.

Table 6. Weekday Snowbasin Trip Generation

Land Use	Weekday						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Area ABC							
Residential	4,700	145	130	275	85	220	305
Retail	900	50	10	60	35	50	85
Ski Area/Lodging Employees	800	65	10	75	20	100	120
Area ABC Subtotal	**6,400**	**260**	**150**	**410**	**140**	**370**	**510**
Area DEF							
Residential	1,000	50	100	150	55	35	90
Retail	1,600	30	15	45	70	75	145
Ski Area/Lodging Employees	100	5	0	5	0	10	10
Area DEF Subtotal	**2,700**	**85**	**115**	**200**	**125**	**120**	**245**
Area G							
Residential	600	10	35	45	35	20	55
Retail	6,100	120	75	195	300	295	595
Ski Area/Lodging Employees	0	0	0	0	0	0	0
Area G Subtotal	**6,700**	**130**	**110**	**240**	**335**	**315**	**650**
Area H							
Residential	100	0	5	5	5	0	5
Area H Subtotal	**100**	**0**	**5**	**5**	**5**	**0**	**5**
TOTAL	**15,900**	**475**	**380**	**855**	**605**	**805**	**1,410**

Table 7. Weekend Snowbasin Trip Generation

Land Use	Saturday						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Area ABC							
Residential	10,000	265	350	615	70	425	495
Retail	1,400	80	15	95	100	65	165
Ski Area/Lodging Employees	1,100	95	15	110	25	140	165
Area ABC Subtotal	**12,500**	**440**	**380**	**820**	**195**	**630**	**825**
Area DEF							
Residential	3,400	105	225	330	140	115	255
Retail	1,900	45	20	65	105	90	195
Ski Area/Lodging Employees	100	10	0	10	5	15	20
Area DEF Subtotal	**5,400**	**160**	**245**	**405**	**250**	**220**	**470**
Area G							
Residential	1,200	20	70	90	75	40	115
Retail	9,700	140	85	225	335	320	655
Ski Area/Lodging Employees	0	0	0	0	0	0	0
Area G Subtotal	**10,900**	**160**	**155**	**315**	**410**	**360**	**770**
Area H							
Residential	100	0	10	10	10	5	15
Area H Subtotal	**100**	**0**	**10**	**10**	**10**	**5**	**15**
TOTAL	**28,900**	**760**	**790**	**1,550**	**865**	**1,215**	**2,080**

C. Resort Vehicle-Trip Distribution and Assignment

Trips from the Snowbasin Resort were assigned to the external road system by considering the internal attractions between the development areas as well as the external attractions of the surrounding communities. **Table 8** defines the trip distribution for each of the general land uses according to the development areas.

Table 8. Snowbasin Proposed Development Trip Distribution

Trip Type/Trip Origin		Destination						
		ABC	DEF	G	Salt Lake City	Ogden	Huntsville	Mtn. Green
Skier Trips	DEF	100%						
	G	100%						
Residential Trips	ABC							
	Internal Retail (64%)		5%	95%				
	Off Mountain Retail (16%)						67%	33%
	Off Mountain Other (20%)				75%	25%		
	DEF							
	Internal Retail (64%)	5%		95%				
	Off Mountain Retail (16%)						67%	33%
	Off Mountain Other (20%)				75%	25%		
	G (all non-skiing trips)						80%	20%
	H[1] (all trips)	15%		15%		20%	10%	
Retail Trips	ABC (employee/service)				75%	25%		
	DEF (employee/service)				75%	25%		
	G (non-resort-based trips)						80%	20%
Ski Area / Lodging Employee Trips	ABC				70%	20%	10%	
	DEF				70%	20%	10%	

1. The remaining 40 percent of the trips from Area H were assigned to the north, out of the study area.

Residential Trips. For the residential trip assignment, first, skier vehicle trips were separated from the total residential trips and assigned to Area ABC. Next, the remaining vehicle trips were designated a trip type; 64 percent were designated internal retail trips (i.e., trips to retail in another resort development area) 16 percent were designated as off mountain retail and 20 were designated as other off mountain destinations. Finally, each trip type was assigned to final destinations; i.e., of the 20 percent off mountain residential trips, 75 percent were assigned to Salt Lake City and 25 percent were assigned to Ogden.

As noted previously, because Area H is located in a distinct area away from the rest of the resort, trips from it were assigned separately; 40 percent were assigned to the north, 20 percent to Ogden, 10 percent to Huntsville, 15 percent to ABC, and 15 percent to G.

Retail Trips. As noted previously, the patronage for the retail developments in ABC and DEF would come from either day skiers or overnight guests and residents staying in those areas, so the only off-site trips would be made by employees and service vehicles. Those trips were assigned 75 percent to Salt Lake City and 25 percent to Ogden. For Area G the demand from Areas ABC and DEF were accounted for in the "internal retail" residential trips and the demand from Area H was identified in it's trip assignment. The remaining retail trips from Area G were assigned 80 percent to Huntsville and 20 percent to Mountain Green.

Ski Area/Lodging Employee Trips. Ski area employee and lodging employee trips were assigned 70 percent to Salt Lake City, 20 percent to Ogden and 10 percent to Huntsville.

Figures 6 and **7** show the resulting site-generated weekday and Saturday traffic volumes at buildout of Snowbasin Resort.

D. Density Transfer From Area H

As noted previously, Area H's location on the northwest side of the Pineview Reservoir places it in quite a bit different location than the other seven Snowbasin development parcels. Under the current land use zoning designation, up to 572 multifamily units could be developed on that site, which would add a significant volume of to SR 158 on the west side of the reservoir. Limiting traffic on that road is important because the *Powder Mountain Ski Resort Traffic Impact Study* has already identified that the SR 39/SR 158 would experience LOS F conditions with the buildout of that resort. As a result of this, Snowbasin has elected to minimize the development of that property, and transfer that density to the other seven parcels that are closer to the ski area. **Table 9** shows how this density transfer will help minimize traffic growth on SR 158, reducing trips from the parcel by approximately 760 trips per day on the weekday (91 percent) and by approximately 1,480 trips per day on the weekend (also 91 percent) over what could potentially be generated by that parcel.

Table 9. Trip Reduction from Area H Due to Density Transfer

Scenario	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Weekday								
Proposed Development	50 Units	73	1	5	6	5	2	7
Potential Development	572 Units	831	11	52	63	50	24	74
Trip Reduction		**-758**	**-10**	**-47**	**-57**	**-45**	**-22**	**-67**
Percent Reduction		**91%**			**90%**			**91%**
Weekend								
Proposed Development	50 Units	142	2	9	11	9	4	13
Potential Development	572 Units	1,622	21	105	126	100	49	149
Trip Reduction		**-1,480**	**-19**	**-96**	**-115**	**-91**	**-45**	**-136**
Percent Reduction		**91%**			**91%**			**91%**

III. TRAFFIC IMPACTS

A. Background Traffic Volume Projections

Background traffic volumes were derived from historical daily traffic volumes along SR-167 and SR-39. The growth factor was based on historical growth trends from 2003 to 2009 (**Table 10**). Based on the historical data, traffic on the roadways in the vicinity of the project is anticipated to grow at a rate of 2.5 percent per year.

Table 10. Historical Traffic Volume Growth

Road	Location	2003 ADT	2009 ADT	Annual Growth
SR-167	Weber/Morgan County Line	2,180	2,555	2.7%
			SR-167 Growth	**2.7%**
SR-39	SR-226 (Snow Basin Rd) SR-167 (Trappers Loop Rd)	3,040 3,040	3,545 3,495	2.6% 2.4%
			SR-39 Growth	**2.5%**
			Overall Growth	**2.5%**

For the purpose of the traffic analysis, the year 2030 was selected as a buildout analysis scenario, since it represent the typical 20-year future design horizon. The background traffic volume projections were calculated for 2030 by first removing the existing ski area traffic from Snowbasin Resort and Powder Mountain Resort, then applying the annual growth rate to the remaining background traffic, then adding the existing Snowbasin Resort ski volumes and the anticipated 2030 Powder Mountain ski volumes back into the newly calculated background volumes to determine the 2030 background traffic volume projections.

Figures 8 and **9** show the 2030 background weekday and Saturday traffic volumes. Note that for the purpose of the traffic analysis it was assumed that a second base parking lot would be constructed in Area C as part of background conditions (for a better apples to apples traffic comparison of with and without expansion operations), and that some of the existing ski area traffic would shift to the new lot.

B. Background Traffic Operations

Background operational conditions were analyzed at each of the study intersections based on procedures documented in the Highway Capacity Manual, (Transportation Research Board, Third Edition, 2000). **Figures 10** and **11** show the projected levels of service, lane geometry and signalization requirements for the study area intersections under 2030 weekday and weekend background traffic conditions, respectively. As the figures indicate, three intersections would require signalization; SR-39/SR-158 northwest of the project area, SH 39/Trappers Loop Road near Huntsville, and SR-167/Old Trappers Loop Highway at Mountain Green.

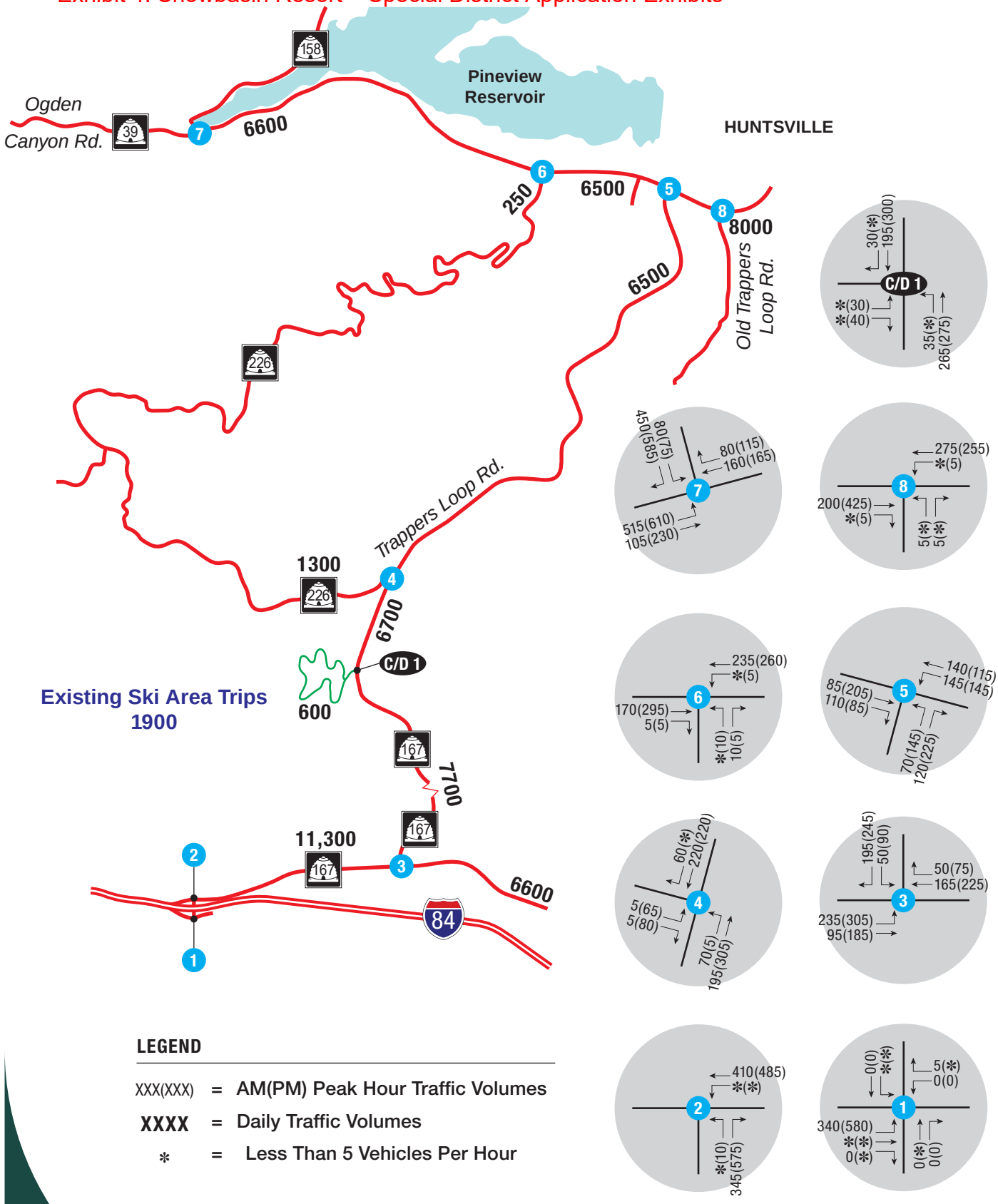
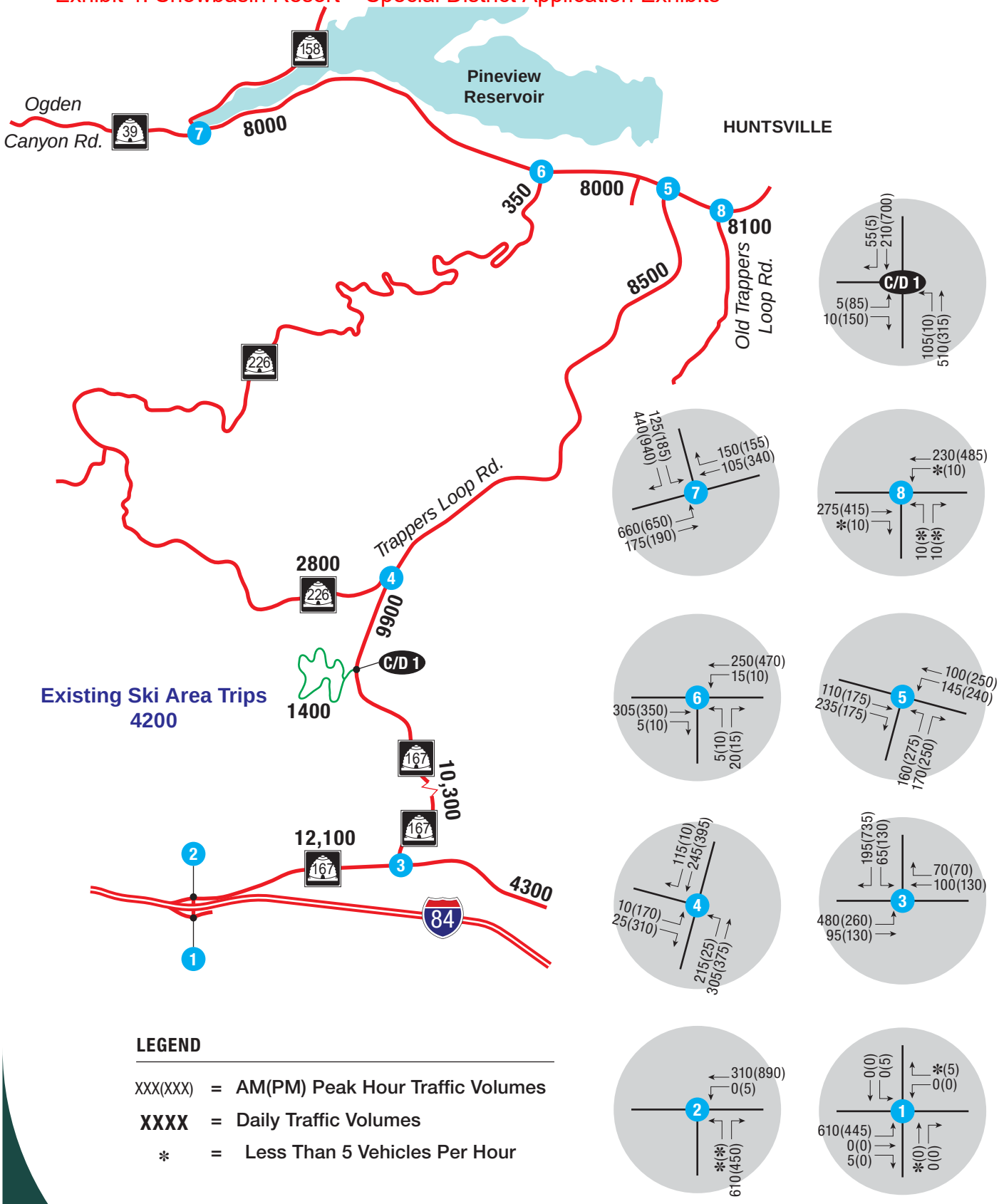


Figure 8
2030 Background Weekday Traffic Volumes

FELSBURG HOLT & ULLEVIG

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

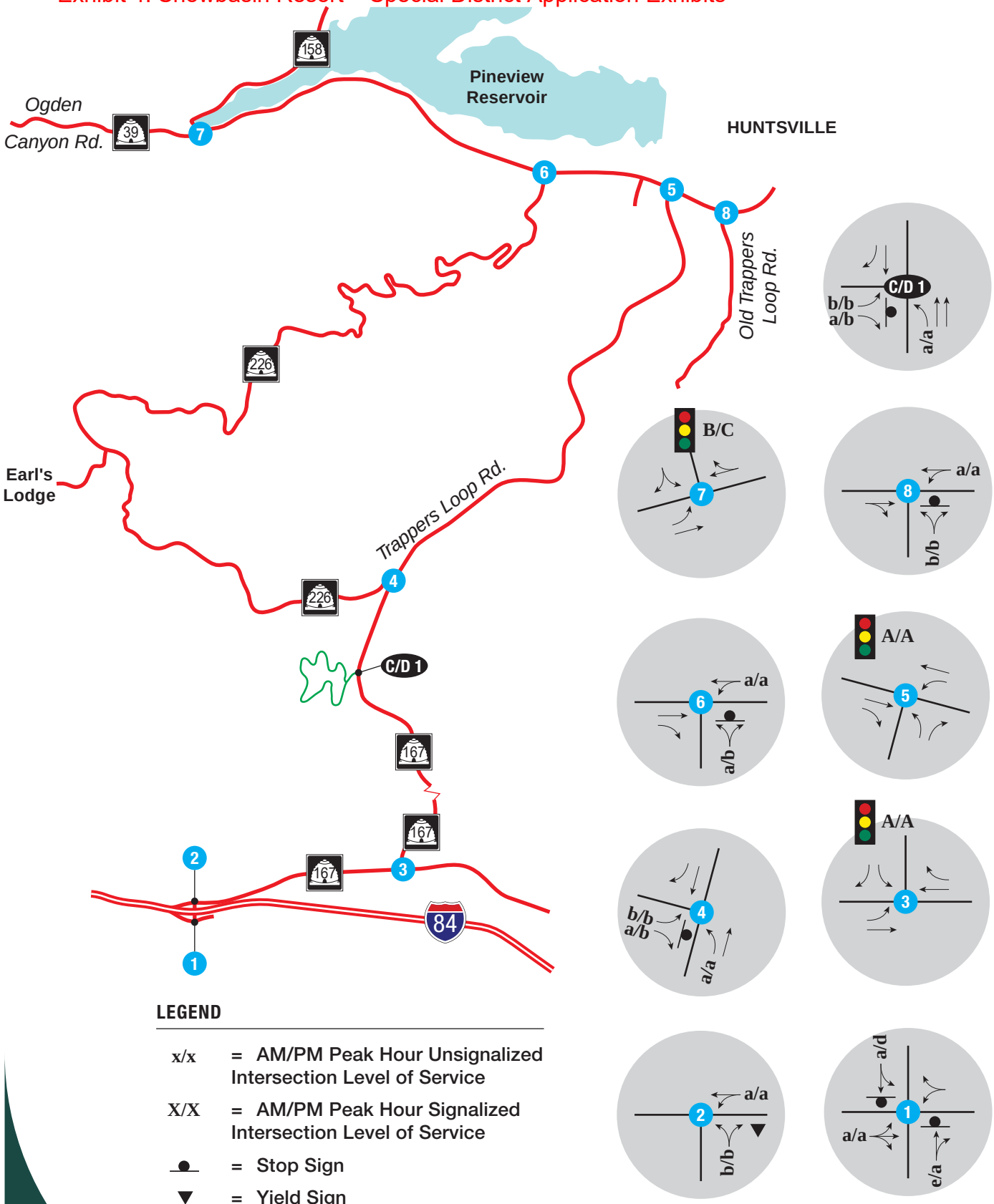
XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
*	=	Less Than 5 Vehicles Per Hour

Figure 9
2030 Background Saturday
Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

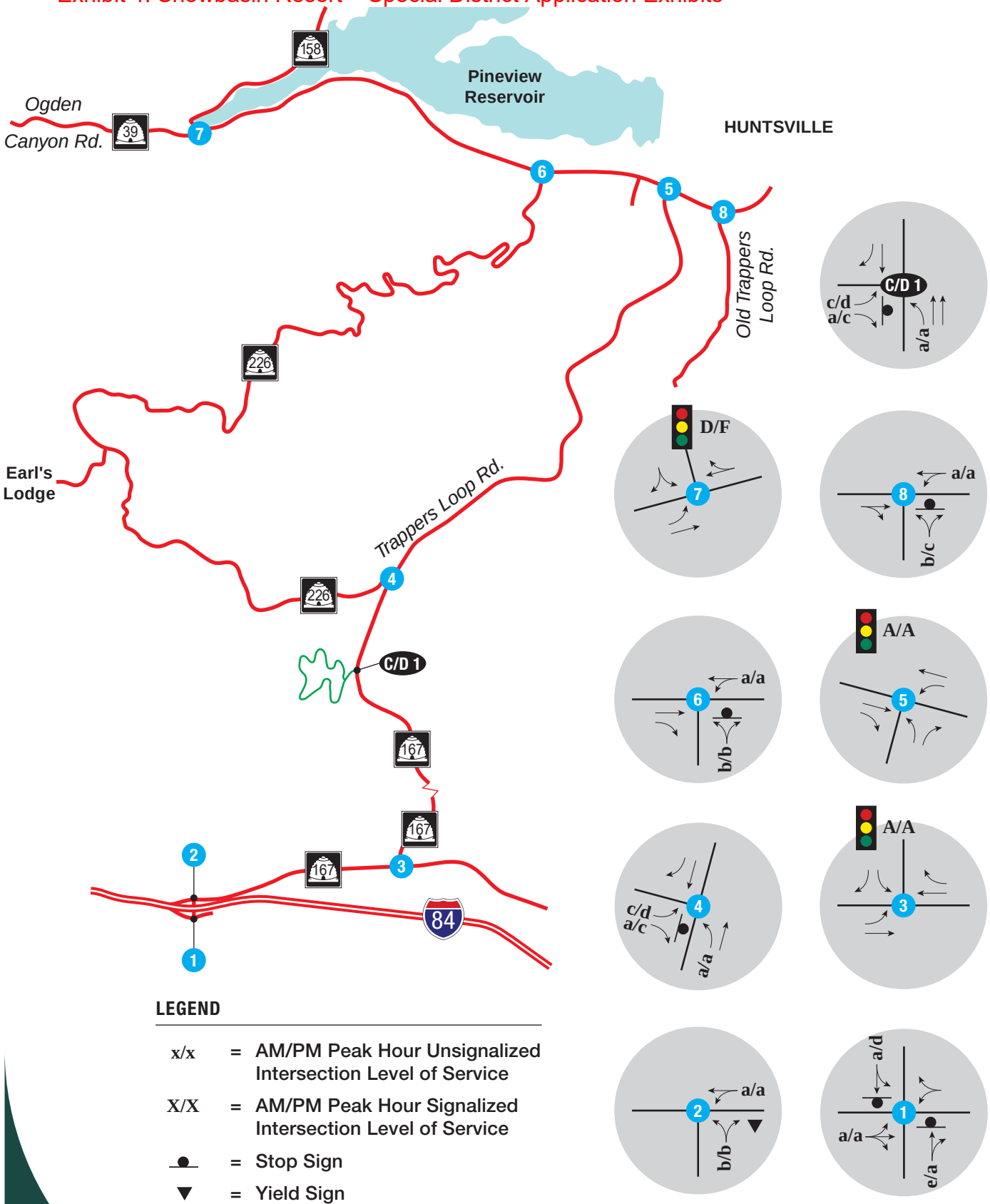
x/x	= AM/PM Peak Hour Unsignalized Intersection Level of Service
X/X	= AM/PM Peak Hour Signalized Intersection Level of Service
●	= Stop Sign
▼	= Yield Sign
	= Traffic Signal
	= New Traffic Signal

Figure 10
2030 Background Weekday
Level of Service and Lane Geometry

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
●	=	Stop Sign
▼	=	Yield Sign
	=	Traffic Signal
	=	New Traffic Signal

Figure 11
2030 Background Saturday
Level of Service and Lane Geometry

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

The signal at the SR-39/SR-158 intersection was also identified in the Powder Mountain Ski Resort Traffic Impact Study. It is projected to operate at LOS C or better during the week and at LOS D on Saturday mornings, but would operate at LOS F during the Saturday afternoon peak hour. The poor level of service during the weekend afternoon peak was also documented in the Powder Mountain Ski Resort Traffic Impact Study and reflects build-out of Powder Mountain as part of the background traffic assumptions for this analysis.

The signals at SH 39/Trappers Loop Road and SR-167/Old Trappers Loop Highway are both projected operate at LOS A for all peak periods on both the weekday and weekend.

All remaining intersections are projected to remain stop sign or yield controlled, and all individual movements would operate at LOS C or better during the week. On the weekends all individual movements at the unsignalized intersections would operate at LOS D or better, with the exception of the northbound movement at the I-84 Eastbound Ramp intersection, which would operate at LOS E in the afternoon peak. It is not uncommon, however, for movements from driveways and side streets along higher volume roadways to experience poor levels of service. As noted in Chapter 17 (Unsignalized Intersections) of the Highway Capacity Manual (2000):

> *In evaluating the overall performance of two-way stop control intersections, it is important to consider measures of effectiveness in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th percentile queue lengths. By focusing on a single measure of effectiveness for the worst movement only, such as delay for the minor street left turn, users may make less effective traffic control decisions.*

At the I-84 Eastbound Ramp intersection the northbound traffic volumes would be less than five vehicles per hour, the v/c ratio would be 0.02 and the projected 95th percentile queue length would be one vehicle, so no improvements would appear to be necessary at that location. It is worth noting, however, that UDOT is considering replacing the current split diamond interchange with a full diamond configuration located somewhere between the two overpasses, and that this new interchange would eliminate the movement with the poor level of service. Morgan County and Mountain Green both support the idea of a new interchange.

Appendix C contains the background level of service worksheets.

C. Total Traffic Volume Projections

Build-out site generated traffic volumes were added to the 2030 background traffic volumes to estimate the 2030 build-out total traffic volumes. **Figures 12** and **13** show the 2030 total weekday and Saturday traffic volumes, while **Figures 14** and **15** show the lane geometry and levels of service for weekday and Saturday conditions.

D. Total Traffic Operations

Substantial lane geometry and signalization changes would be required for the proposed development of Snowbasin Resort at several existing and newly proposed access points. The following highlights the traffic operations and improvement needs at each study intersection at full buildout of the project.

Existing Intersections (Listed from south to north)

I-84 Off Ramp to Old Trappers Loop Highway

In the morning at this intersection the northbound movement would operate at LOS F and in the afternoon the southbound movement would operate at LOS E. Both of these movements are forecast to have extremely low volumes, however (five vehicles per hour southbound and less than five vehicles per hour northbound), because there is virtually no development or developable land south of the interstate, so no improvements to the existing lane geometry is recommended at this location.

As noted in the Future Background Conditions section, UDOT is considering replacing the current split diamond configuration with a full diamond interchange somewhere between the two existing overpasses. Morgan County and Mountain Green both support the proposed concept and Snowbasin Resort is not opposed to the idea, but would like input on the design should the project move to that stage. However, it should be noted that the current interchange configuration adequately accommodates Snowbasin traffic and that development of the resort is not dependent on interchange improvements.

I-84 On Ramp from Old Trappers Loop Highway

At this intersection the northbound movement would operate at LOS C in the morning and LOS B in the afternoon. These represent acceptable levels of service, so no improvements to the existing lane geometry is recommended at this location.

Trappers Loop Road (SR-167) / Old Trappers Loop Highway

This intersection near Mountain Green would operate at LOS F in the long-range future, either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, and therefore was assumed to be implemented in the background analysis. With a signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS B in the morning and LOS C in the afternoon. No additions to the current lane geometry would be required, but the eastbound left turn lane would need to be lengthened to accommodate the increased traffic volumes for that movement.

SR-167 / SR-226

This intersection currently serves as the primary access to Snowbasin Resort. In the future, the intersection would provide the primary access to Areas A and B, including the Earl's Lodge base area, which includes one of the main parking lots for day skiers. The intersection would require signalization by build-out of the resort and would operate at LOS B or better with a signal during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, southbound right and eastbound left) would need to be lengthened to accommodate the increased traffic volumes at the resort.

SR-167 / SR-39

This intersection at Huntsville would operate at LOS F in the long-range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the background analysis. With a signal and the addition of Snowbasin traffic the intersection would operate at LOS B or better during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

SR-39 / Old Trappers Loop Road

This intersection would serve as the second of two access points to the residential portions of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach, with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-39.

SR-39 / SR-226

This intersection provides access to residences along Old Snowbasin Road. Due to the closure of this road during the winter as an access to Snowbasin Resort, no additional volumes are anticipated at this intersection. The intersection would operate at LOS B or better for all movements. No changes in the lane geometry would be required.

SR-39 / SR-158

This intersection provides access to residences along the west side of the Pineview Reservoir, and serves as a part of the access route to the Powder Mountain Ski Resort. The intersection would operate at LOS F in the long range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, since that resort has a much more significant impact on traffic operations there (very little Snowbasin traffic would use this intersection, particularly the SR-158 approach). With the signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS E in the morning and LOS F in the afternoon on weekends, which is the same level of service as that reported in the *Powder Mountain Ski Resort Traffic Impact Study*. The *Powder Mountain Ski Resort Traffic Impact Study* further identifies a public awareness campaign and alternate route identification using an ATMS system to reduce delays at the intersection. The proposed system would provide automated signs that notify drivers prior to the SR-158 / SR-162 intersection that the SR-39 / SR-158 intersection is experiencing an overcapacity condition, and suggest the alternate route. The system would be triggered by queue detectors at the SR-158 / SR-39 intersection.

The majority of Snowbasin-related traffic at this intersection would be through volumes on SR-39 travelling between the resort and Ogden (i.e., the major street movement). Only Area H traffic would use the SR-158 (minor street) approach, and as noted in the Resort Traffic Generation section, Snowbasin has elected to transfer much of the allowed density on that parcel to other development areas in an effort to minimize the traffic impacts to that roadway (only 50 of the 572 allow units in Area H would be developed).

SR-39 / Intersection G8

This intersection has recently been constructed due to the purchase of an adjacent parcel to be constructed as a church. At the present time, there are no vehicles accessing this roadway, but with the construction of the retail center in Area G, this road will provide as a second access to that parcel. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS B or better during the morning and afternoon. No additions to the current lane geometry would be required, but each of the existing turn lanes (eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

New Intersections (listed from south to north)

SR-167 / Intersection C/D1

This intersection would serve as the primary access to the new ski area base in development Area C as well as the primary access to the residential development Areas D and E. It is one of two new intersections requiring signalization at build-out of Snowbasin Resort. With a signal the intersection would operate at LOS C or better during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and left turn lanes on both side street approaches.

SR-167 / Intersection D2

This intersection would serve as a secondary access point to areas E and F. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection E/F1

This intersection would serve as the primary access point to Area F and a secondary access to Area E. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection G7

This intersection would serve as the primary access point to a parcel of approximately 13 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G6

This intersection would serve as the primary access point to a parcel of approximately 51 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G5

This intersection would serve as the primary access point to a parcel of approximately 12 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with the eastbound left turn operating at LOS C in the morning and LOS F in the afternoon; all movements would operate at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G4

This intersection would serve as the primary access point to a parcel of approximately 25 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS E or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G3

This intersection would serve as one of two access points to the residential portions of Area G on the east side of SR-167 near the SR-39 intersection. It would be stop sign controlled on the side street approach, with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G2

This intersection would serve as the primary access to the retail and residential development in Area G and is one of two new intersections requiring signalization in the proposed build-out of Snowbasin Resort. Without a signal the side street left turns at the intersection would operate at LOS F in both the morning and afternoon peak periods and would experience significant queuing and delays in the afternoon. With a signal the intersection would operate at LOS A during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and separate left turn lanes on both side street approaches.

SR-167 / Intersection G1

This intersection serves as a secondary access to the retail and residential development in Area G and would be restricted to southbound right turns in and eastbound right turns out only. It would be stop sign controlled on the side street approach with all the eastbound movement operating at LOS B or better during both the morning and afternoon peaks.

Appendix D contains the 2030 total level of service worksheets.

E. Highway Operations

Highway capacity analyses were performed for key sections of SR-226 (Trappers Loop Road), including:

1. SR-226 to Huntsville, uphill
2. SR-226 to Huntsville, downhill
3. SR-226 to Mountain Green, uphill
4. SR-226 to Mountain Green, downhill

Highway capacity analyses were performed using methodologies documented in the *Highway Capacity Manual*. The uphill segments were evaluated during the morning peak and the downhill segments were evaluated during the evening peak for the existing Saturday volumes, 2030 background Saturday volumes, and 2030 total Saturday volumes. The analysis was designed to capture the worst highway level of service for each direction during a peak ski Saturday. The results of the analyses are summarized in **Table 11**.

Table 11. Highway Levels of Service

Segment	Existing		2030 Background		2030 Total	
	Uphill AM	Downhill PM	Uphill AM	Downhill PM	Uphill AM	Downhill PM
SR-226 to Huntsville	LOS A	LOS D	LOS A	LOS D	LOS A	LOS E
SR-226 to Mountain Green	LOS A	LOS D	LOS A	LOS E	LOS A	LOS E

The south section of SR-167 is projected to carry 18,800 vpd on Saturdays at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (due in large part to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.67 in the afternoon, (i.e., the projected volume would be approximately 67 percent of the capacity of the roadway during the peak hour), so it would appear that the roadway would not require an additional downhill lane.

The north section of SR-167 is projected to carry 20,700 vpd on Saturdays at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (again due to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.73 in the afternoon, however, so it would appear that no additional lanes would be necessary on that section, either.

Appendix E contains the highway analysis worksheets.

F. Auxiliary Lane Requirements

Table 12 provides auxiliary length requirements for each of existing intersections while **Table 13** provides requirements for new intersections that would be built for the resort. The recommendations consider roadway speed limits, grades, traffic volumes and projected 95th percentile queues at each intersection at buildout of the project. Table 12 also includes the existing lane lengths at each intersection and indicates which turn lanes require additional length beyond what currently exists.

Table 12. Auxiliary Lane Requirements at Existing Intersections

Intersection	Lane	Length	Existing Auxiliary Lane Length
SR-167 / Mountain Green	EB LT	*845 ft (Includes 160 ft taper)*	375 ft (Includes 150 ft taper)
	WB RT	465 ft (Includes 160 ft taper)	550 ft (Includes 250 ft taper)
	SB LT	705 ft (Includes 225 ft taper)	800 ft (Includes 300 ft taper)
SR-167 / SR-226	EB LT	*500 ft (Includes 100 ft taper)*	200 ft (Includes 50 ft taper)
	NB LT	*770 ft (Includes 225 ft taper)*	750 ft (Includes 275 ft taper)
	SB RT	*625 ft (Includes 225 ft taper)*	350 ft (Includes 125 ft taper)
SR-167 / SR-39	EB RT	*630 ft (Includes 225 ft taper)*	475 ft (Includes 250 ft taper)
	WB LT	*700 ft (Includes 180 ft taper)*	600 ft (Includes 250 ft taper)
	NB LT	*860 ft (Includes 225 ft taper)*	650 ft (Includes 250 ft taper)
Old Trappers Loop / SR-39	WB LT	*525 ft (Includes 180 ft taper)*	None
G8 / SR-39	WB LT	575 ft (Includes 180 ft taper)	Newly Constructed (Length Unknown)

Italic – revisions to existing lane

Table 13. Auxiliary Lane Requirements at New Intersections

Intersection	Lane	Length
SR-167 / C/D1	EB LT	525 ft (Includes 100 ft taper)
	WB LT	295 ft (Includes 100 ft taper)
	NB LT	675 ft (Includes 225 ft taper)
	NB RT	610 ft (Includes 225 ft taper)
	SB LT	625 ft (Includes 225 ft taper)
	SB RT	625 ft (Includes 225 ft taper)
SR-167 / D2	EB RT	860 ft (Includes 225 ft taper)
	WB LT	565 ft (Includes 225 ft taper)
	NB LT	275 ft (Includes 100 ft taper)
	WB (L) ACCEL	1920 ft (Includes 225 ft taper)
SR-167 / E/F1	EB RT	770 ft (Includes 225 ft taper)
	WB LT	580 ft (Includes 225 ft taper)
	NB LT	300 ft (Includes 100 ft taper)
	EB (R) ACCEL	625 ft (Includes 225 ft taper)
	WB (L) ACCEL	1440 ft (Includes 225 ft taper)
SR-167 / G1	SB RT	675 ft (Includes 225 ft taper)
SR-167 / G2	EB LT	335 ft (Includes 100 ft taper)
	WB LT	250 ft (Includes 100 ft taper)
	NB LT	815 ft (Includes 225 ft taper)
	SB LT	600 ft (Includes 225 ft taper)
SR-167 / G3	WB LT/RT	Share Lane
	SB LT	565 ft (Includes 225 ft taper)
SR-167 / G4	EB LT/RT	Share Lane
	NB LT	745 ft (Includes 225 ft taper)
SR-167 / G5	EB LT/RT	Share Lane
	NB LT	745 ft (Includes 225 ft taper)
SR-167 / G6	WB LT/RT	Share Lane
	SB LT	565 ft (Includes 225 ft taper)
SR-167 / G7	WB LT/RT	Share Lane
	SB LT	565 ft (Includes 225 ft taper)

IV. PARKING

Parking demand at the ski area bases on the weekend was determined based on the skier and employment forecasts developed for the trip generation analysis. The following summarizes the assumptions used to create the parking forecasts.

Day Skiers. The existing weekend traffic volumes, parking lot counts and skier volumes were used to develop the parking demand for day skiers. The data indicated that the peak parking demand created by day skiers was 1,900 vehicles. For buildout conditions, this demand was assigned to the two base areas based on the available parking supply at each (roughly 2/3 to the Earl's Lodge base and 1/3 to the new Area C base).

Overnight Guest/Resident Skiers. The overnight guest and resident skiers were previously summarized in Table 4. Since Area A and Area C represent slopeside lodging and Area B would have a lift that connects it to the Earl's Lodge base, and all three areas would have in internal transit shuttle, it was assumed that there would be no parking demand on the two base area lots generated by those areas. Similarly, transit service is planned between Area DEF and the ski area bases, and it was assumed that 50 percent of the skiers from that area would use that service, so skier parking demand at the day lots was reduced by 50 percent. No transit reductions were assumed for skier trips from Areas G and H, since it is not yet know whether transit services would be provided between those areas and the ski area bases. The total demand was assigned to the two base areas based on the available parking supply at each.

Base Area Commercial Employees. Employee forecasts for the commercial properties planned in each base area were generated based on information published by the US Department of Energy on the typical number of retail employees per gross square foot of floor space. An average vehicle occupancy of 1.6 employees per vehicle was assumed to determine the parking demand generated by the employees. This vehicle occupancy is based on employee surveys collected at other ski resorts.

Ski Area/Lodging Employees. Employee forecasts for the ski area were based on the current employee to ski area capacity ratio on a peak day at Snowbasin and the planned future mountain capacity. Lodging employee forecasts were generated based on information from other ski resorts on the typical number of employees per hotel room and per condominium unit. As above, an average vehicle occupancy of 1.6 employees per vehicle was assumed to determine the parking demand generated by the employees.

Table 14 shows the projected parking demand at the two ski area bases at buildout of the resort based on the above assumptions. As indicated, the base areas are projected to generate a peak parking demand of approximately 3,200 vehicles on the weekend. The planned parking supply would be 3,700 spaces, so on a typical higher demand weekend the base area lots would be approximately 85 percent occupied. This represents a reasonable occupancy level, as it leaves an additional 500 spaces available for peak of peak demand days.

Table 14. Base Area Weekend Parking Demand

User Group	Earl's Lodge Base	Area C Base	Total
Day Skiers	1,300	600	1,900
Skiers from DEF	189	126	315
Skiers from G	87	58	145
Skiers from H	9	6	15
Commercial Employees	28	36	64
Ski Area/Lodging Employees	505	218	723
Total Demand	**2,118**	**1,044**	**3,162**
Capacity	2,500	1,200	3,700
Percent Occupancy	85%	87%	85%

V. TRAVEL DEMAND MANAGEMENT

Travel demand management (TDM) measures represent actions taken by a development to limit vehicle trips made to and from the site. Typically these measures encourage site users to select a travel mode other than a single occupancy vehicle to get to and from the property, such as carpooling, transit, or walking and biking.

As noted previously, Snowbasin plans on providing an internal shuttle system in Areas ABC and DEF so that overnight guests and residents of those areas have means to access the ski area base without using their vehicles. The shuttle is anticipated to reduce vehicle travel within and between those areas by approximately 4,800 trips per day on the weekend and 3,200 trips on the weekday. Similarly, a comprehensive system of pedestrian and bicycle trails will promote walking and cycling within and between Areas ABC and DEF. Snowbasin may also consider providing transit service between the ski area bases and Area G so residents and guests don't have to rely on their personal vehicle for trips to the project's primary commercial area.

Several other TDM measures could be implemented by Snowbasin to reduce the number of trips generated by the project. **Table 15** lists various measures targeting a specific resort user group that have been successfully implemented at other ski resorts. The table includes traffic reduction estimates for each measure based on usage levels experienced by those other resorts. As the table indicates, using the I-84 intercept lot for employee parking and providing a shuttle to the base areas has the greatest potential for reducing trips at the resort, and if all the measures listed in the table were implemented, traffic from the ski area base could potentially be reduced by 20 to 25 percent.

Table 15. Travel Demand Management Options

TDM Measure	Target Group	Potential Use	Potential Daily Trip Reduction
Use the I-84 intercept lot and provide shuttle service to the resort	Employees coming from the south	55 Percent	-800 vpd[1]
Construct an intercept lot near Huntsville and provide shuttle service to the resort	Employees coming from the north	55 Percent	-400 vpd
Transit service between Ski Area and Area G	Overnight guest and resident skiers in Area G	25 percent	-100 vpd
	Retail/shopping trips between Areas ABC, DEF and Area G	10 percent	-150 vpd from ABC -200 vpd from DEF
Transit service between Ski Area and Huntsville and Mountain Green	Day skiers and employees living in Huntsville and Mountain Green	25 percent	-200 vpd
Provide preferred parking in the Day Skier lots for vehicles with 3 or more occupants	Day Skiers	15 percent	-250 vpd
		Total	**-2,100 vpd**
		Trips from ABC without TDM Measures	12,500 vpd
		Trips from ABC with TDM Measures Implemented	9,400 vpd
		Potential Percent Reduction	20-25%

1. vehicle trips per day

VI. SUSTAINABILITY

Transportation sustainability is accomplished by limiting the traffic demand on the roadway system; fewer vehicles equals less congestion equals less environmental impacts. Snowbasin aims to achieve that by providing on-mountain accommodations that allow residents and guests to drive to the resort once and stay for multiple days instead of making trips back and forth every day. Additionally, Snowbasin will provide supportive commercial uses within the resort that allow residents and guests to fulfill many of their trip purposes (such as dining, entertainment and resort-related shopping) on site, limiting the number of trips to Mountain Green or Huntsville for those needs. Snowbasin will also provide an internal shuttle system between the resort development areas that will enable guests to access the ski area bases without using their vehicle. This system could operate as either an on-call system, a fixed route, fixed schedule system or hybrid system that offered fixed route service during the peak demand periods and on-call service during lower demand periods. Snowbasin may also consider similar transit service between Areas ABC-DEF and the primary commercial center in Area G to help reduce travel demand on the northern half of Trappers Loop Road between the ski resort and Huntsville. Finally, a comprehensive system of pedestrian and bicycle trails will promote alternate modes of travel by providing internal connections to each development area and connections between Areas ABC and DEF.

Other ways that the resort could reduce travel demand and promote sustainability include:

- Utilize the built I-84 intercept lot for employee parking and consider constructing an employee parking lot near Huntsville, then provide shuttle service between those locations and the resort.
- Consider providing preferred parking in the day skier lots for vehicles with three or more occupants. To promote reduced vehicle emissions and a healthier environment, preferred parking could also be extended to hybrid vehicles and other low-emissions vehicles.
- Consolidate services that are needed at the resort from any non-resort business, whether it be related to laundry, custodial, utility, security, or lawn/landscaping service.
- Provide transit service between the resort, Mountain Green and the Trappers Loop/SR 39 intersection.
- Consider the use of alternative fuel shuttles for the employee/day skier transit services.
- Provide bicycles for use by resort residents and guests.
- Provide information on shuttles, transit and other alternate modes to visitors and residents.

SNOWBASIN RESORT
MASTER PLAN

TRANSPORTATION ELEMENT

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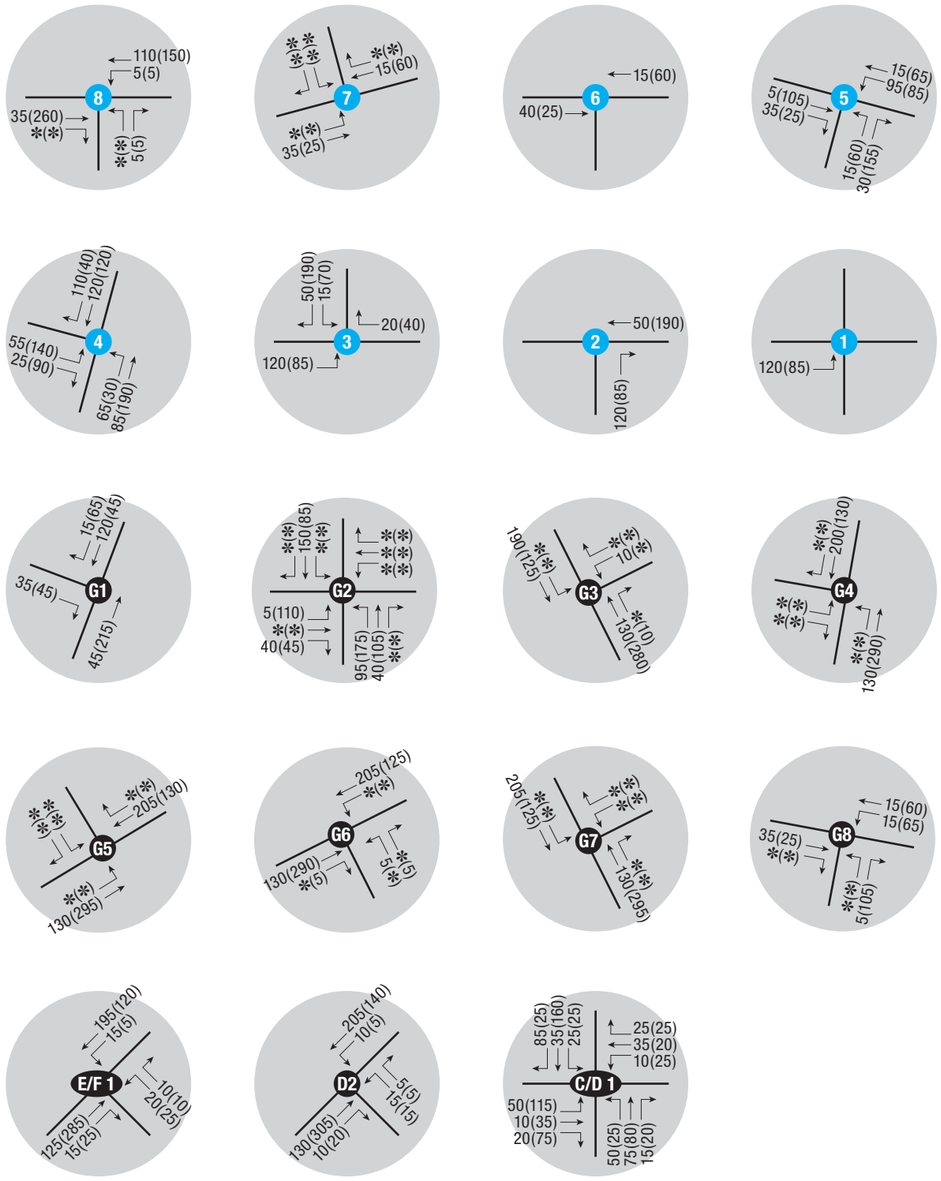
FHU Reference No. 08-299-01
December 2010

TABLE OF CONTENTS



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

* = Less Than 5 Vehicles Per Hour

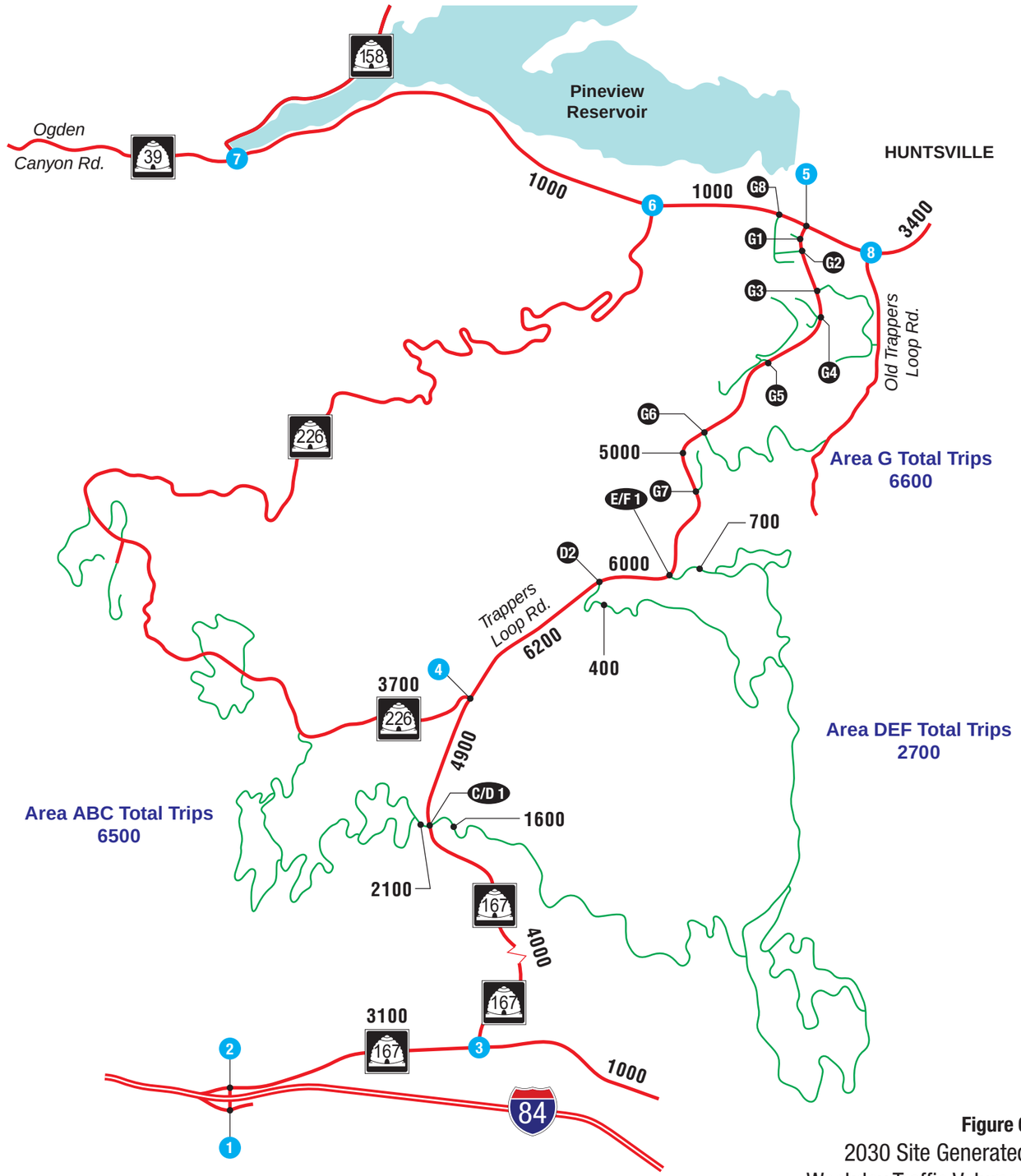
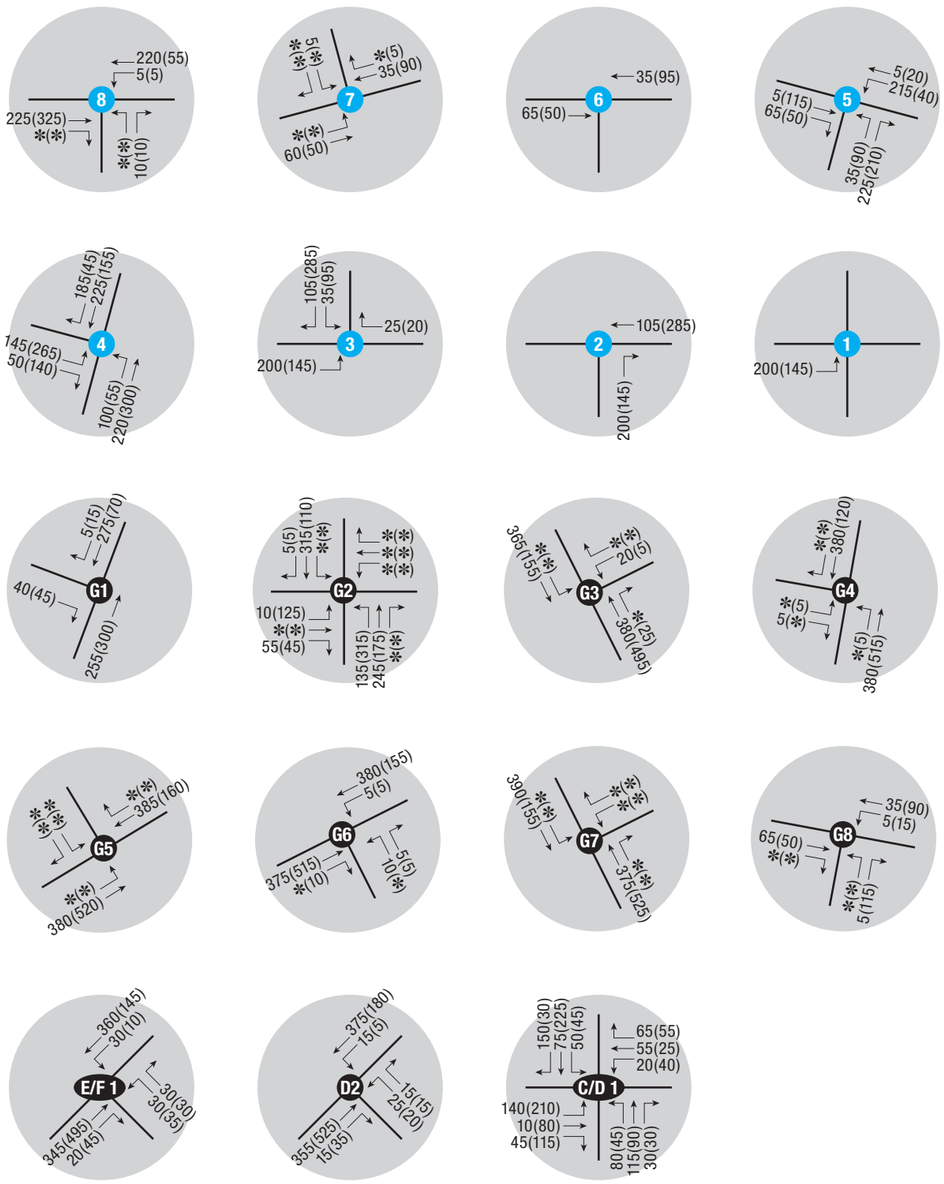


Figure 6
2030 Site Generated
Weekday Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

* = Less Than 5 Vehicles Per Hour

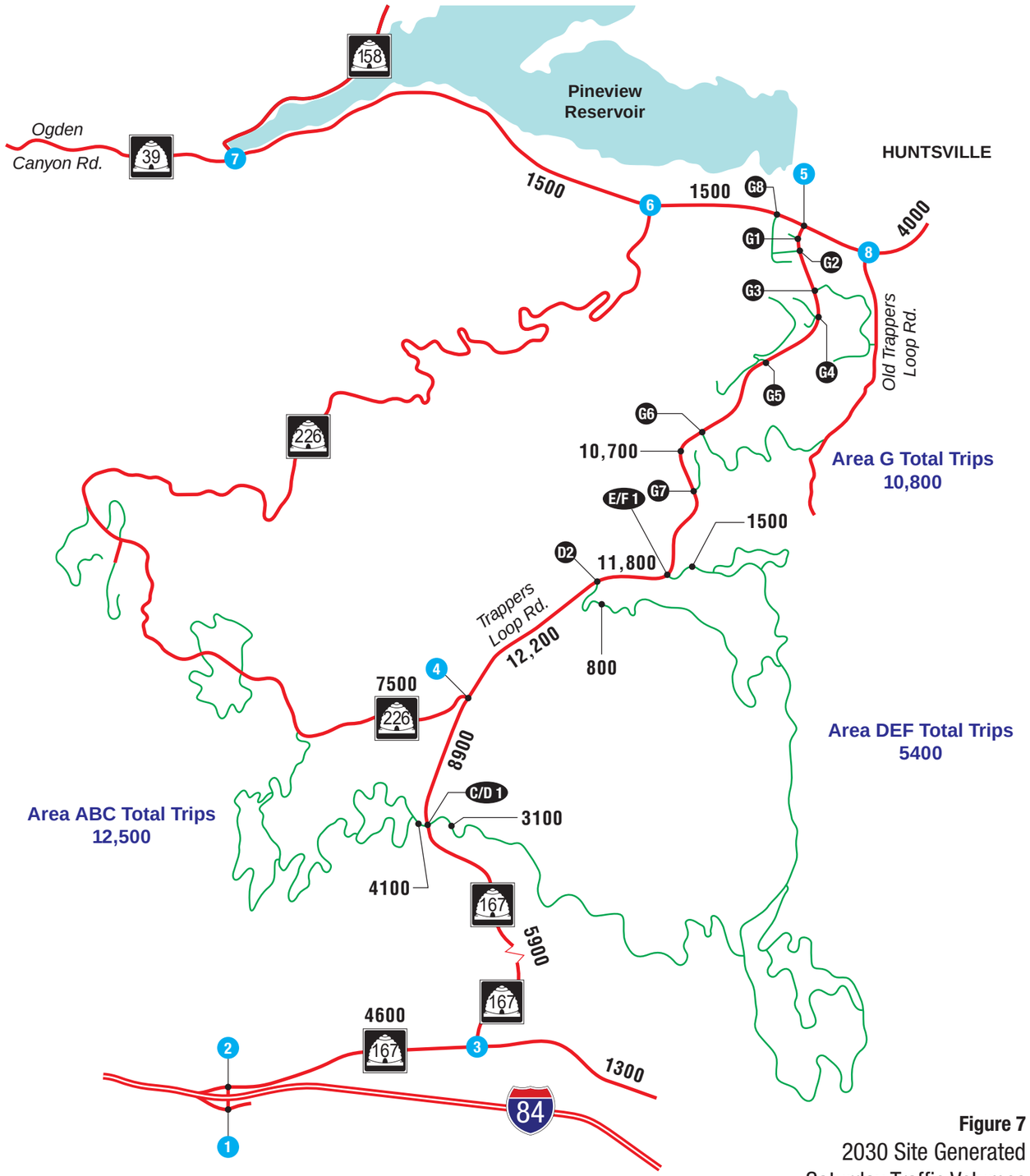
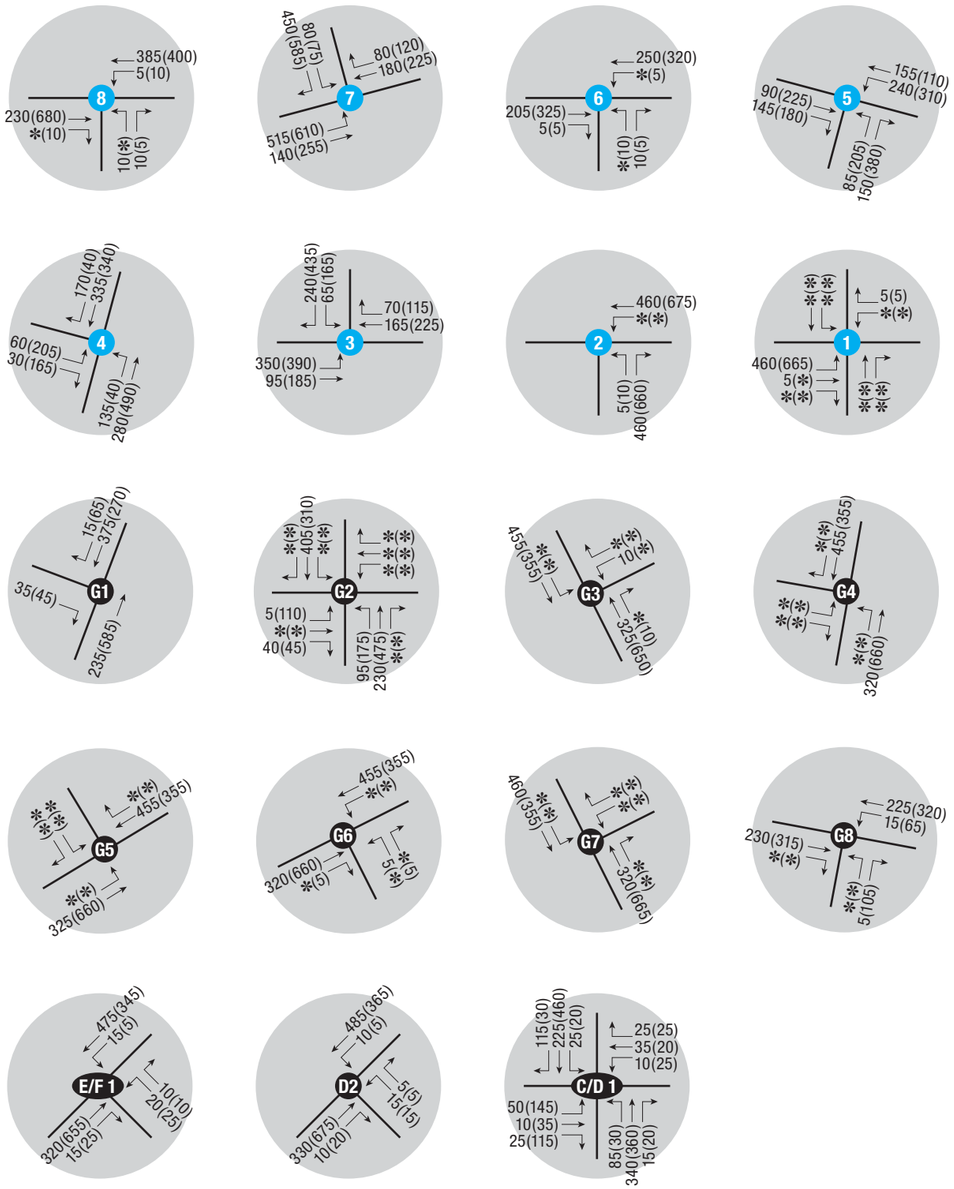


Figure 7
2030 Site Generated
Saturday Traffic Volumes

FELSBURG HOLT & ULLEVIG



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

* = Less Than 5 Vehicles Per Hour

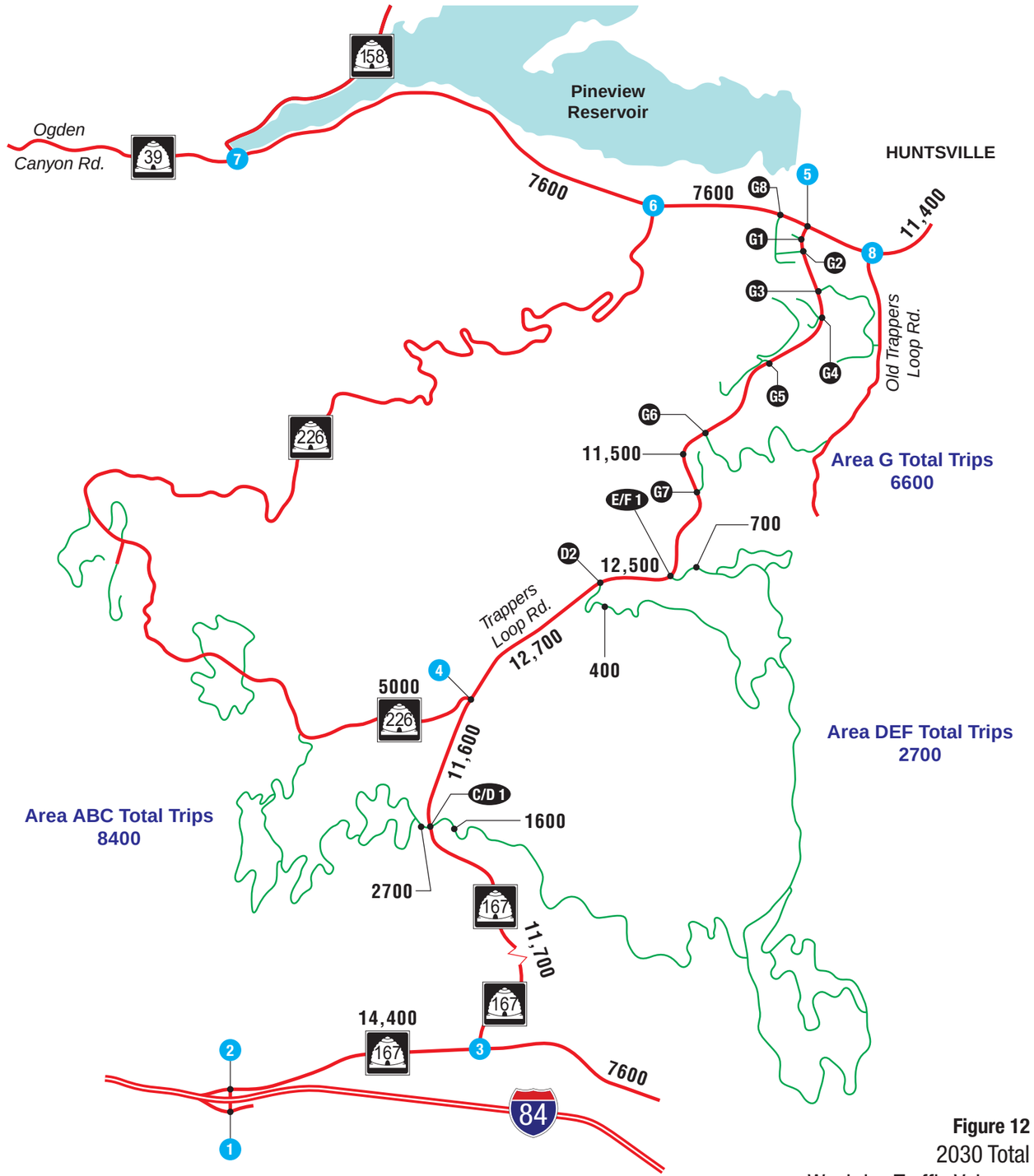
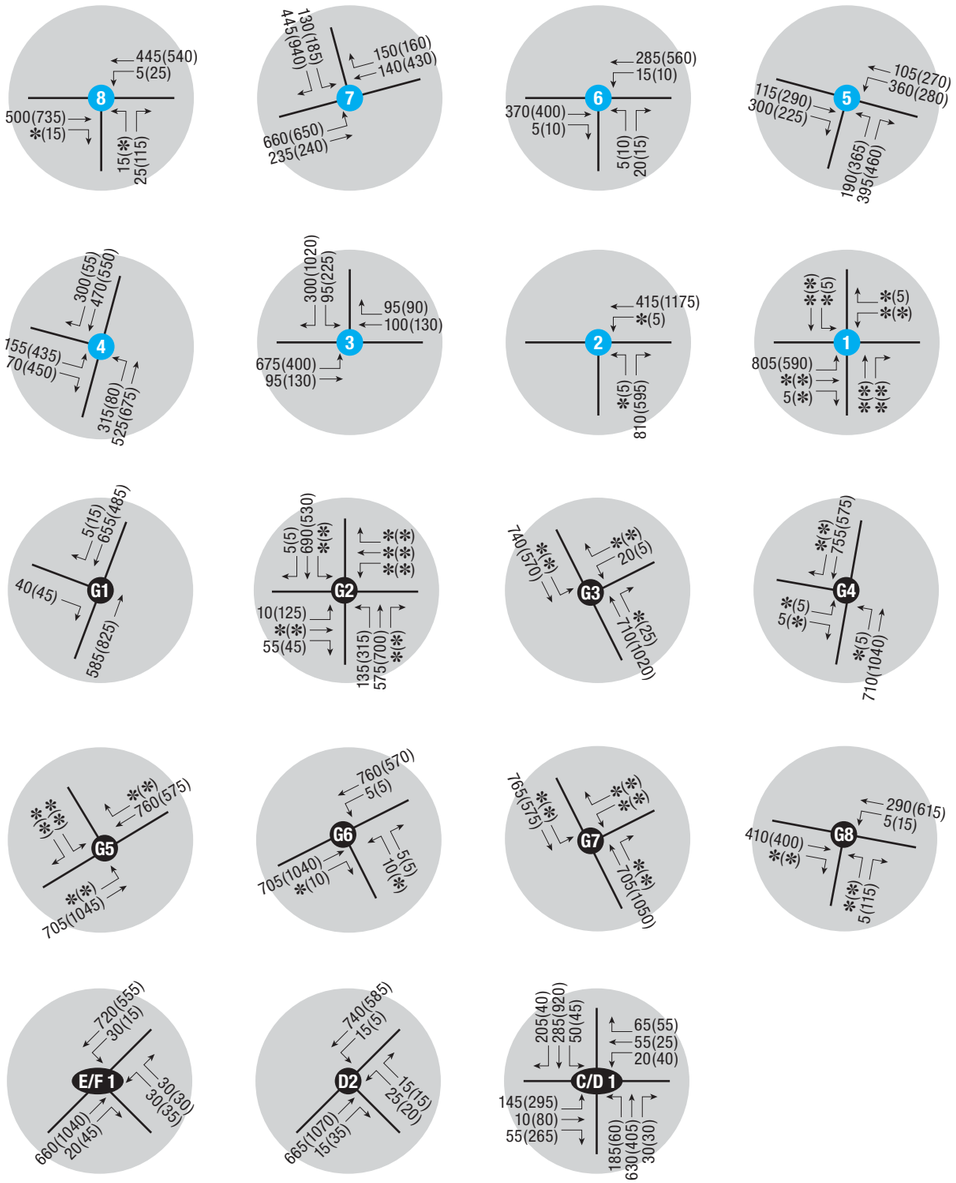


Figure 12
2030 Total
Weekday Traffic Volumes

NORTH

FELSBURG HOLT & ULLEVIG



LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
*	=	Less Than 5 Vehicles Per Hour

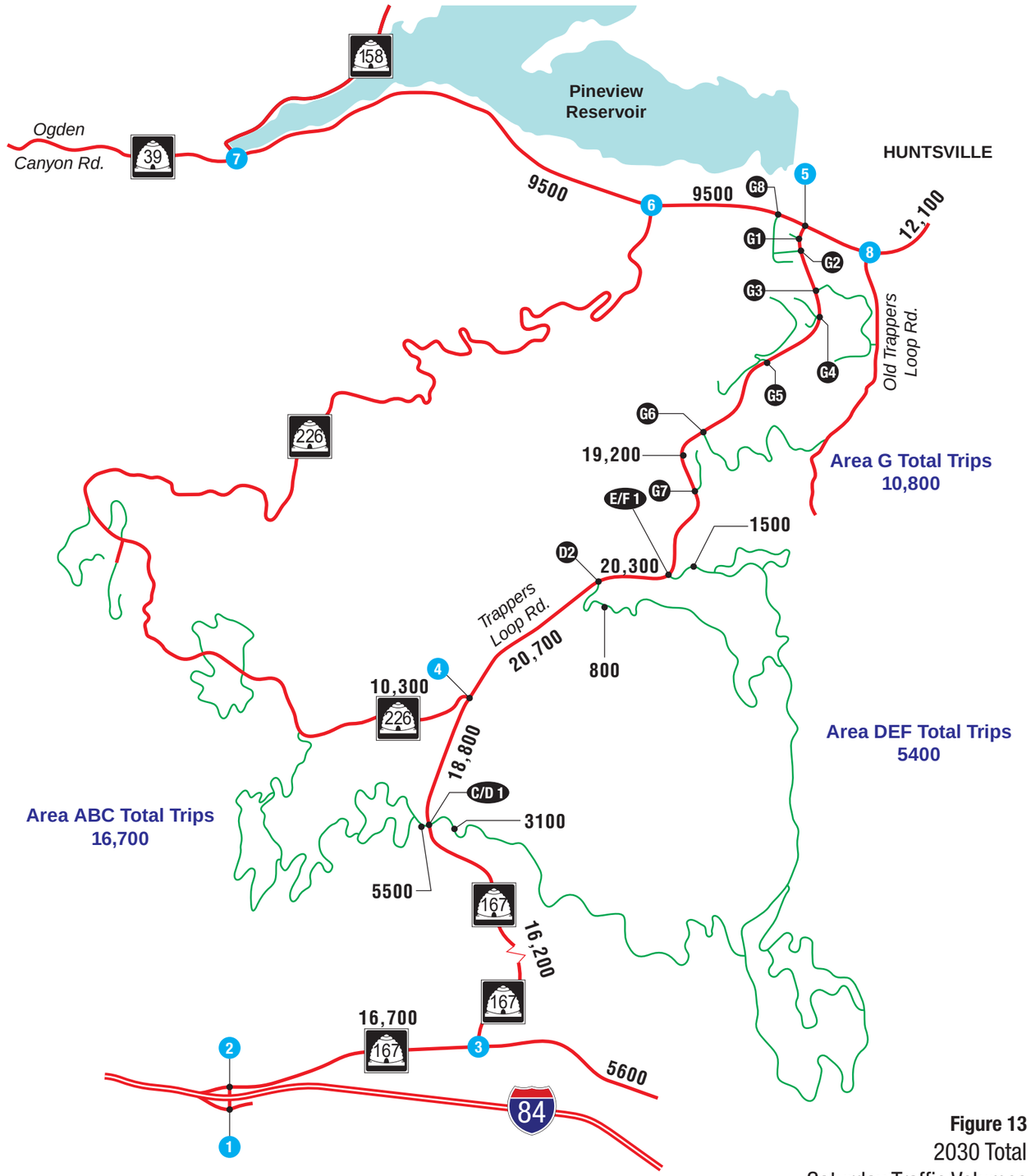
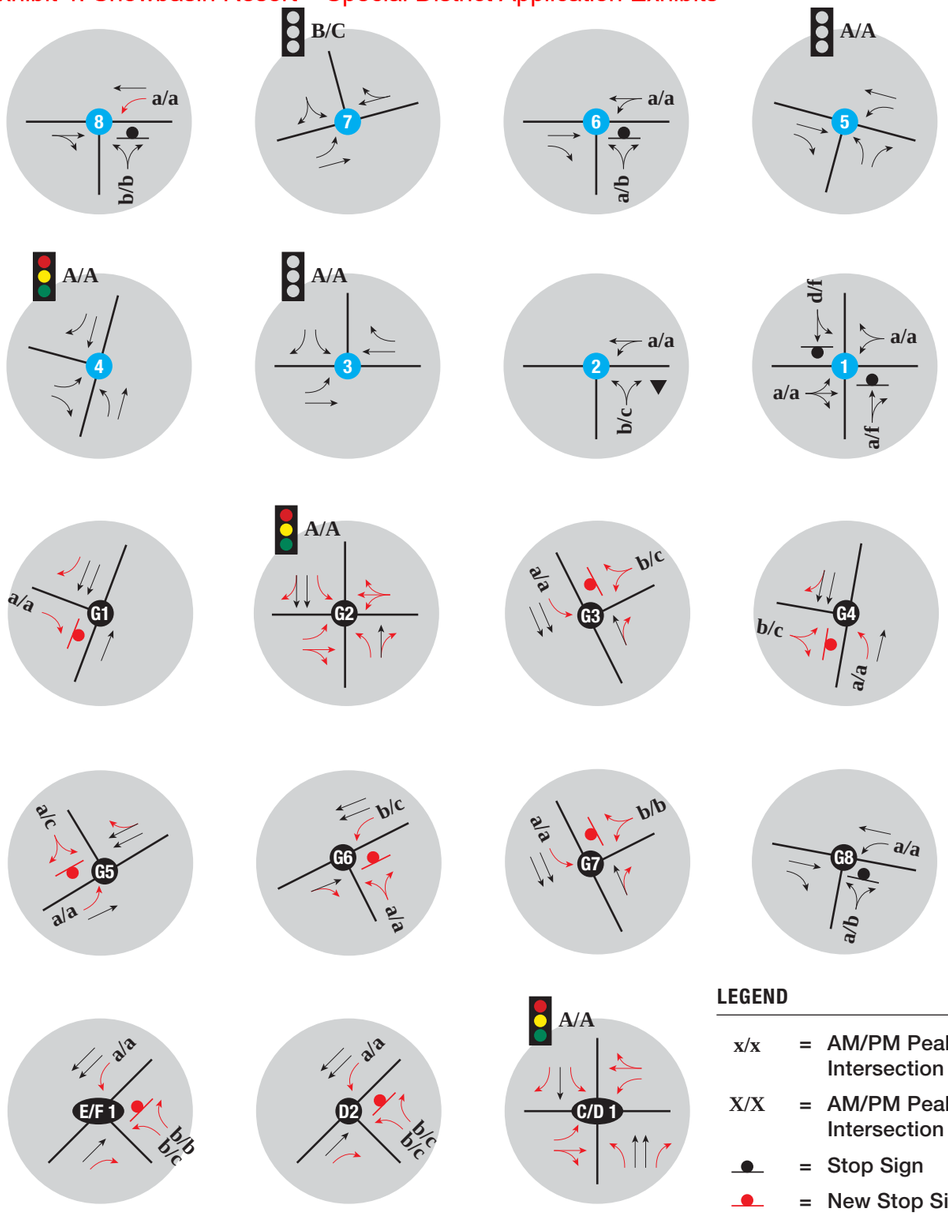


Figure 13
2030 Total
Saturday Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH



LEGEND

x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
	=	Stop Sign
	=	New Stop Sign
	=	Yield Sign
	=	Traffic Signal (identified in Powder Moutain Study)
	=	New Traffic Signal
	=	New Lane Geometry

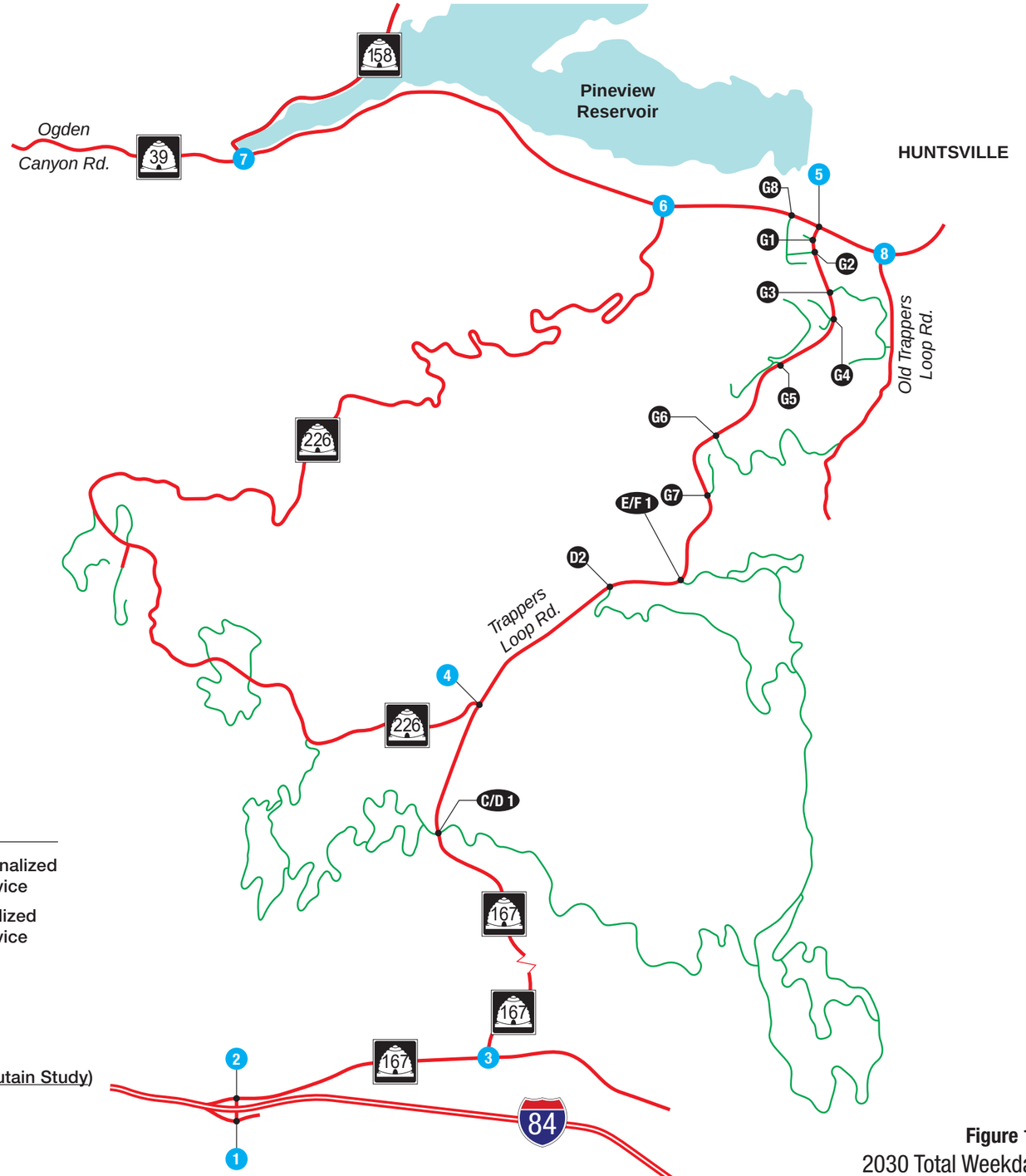
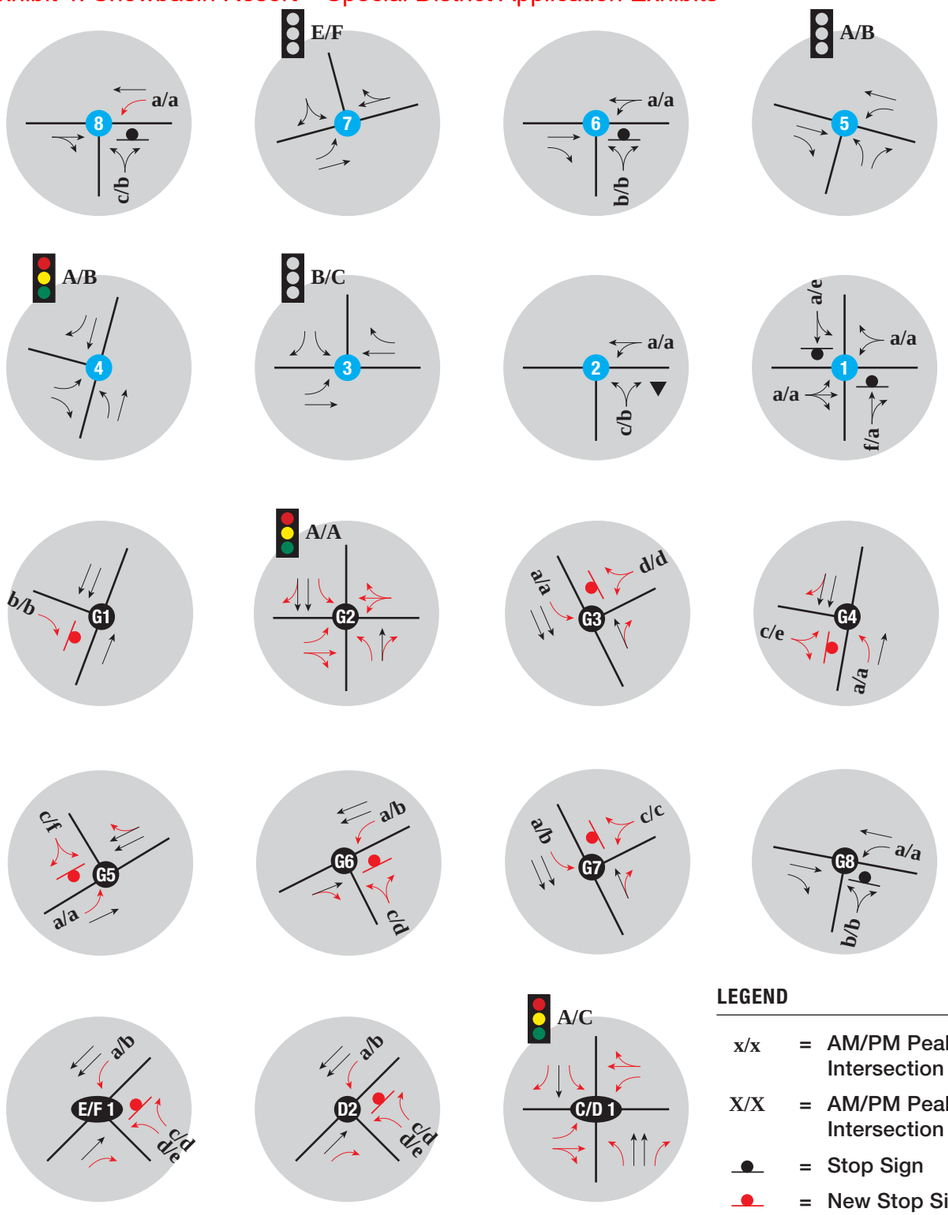


Figure 14
2030 Total Weekday
Levels of Service and Lane Geometry

FELSBURG HOLT & ULLEVIG

NORTH



LEGEND

x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
	=	Stop Sign
	=	New Stop Sign
	=	Yield Sign
	=	Traffic Signal (identified in Powder Moutain Study)
	=	New Traffic Signal
	=	New Lane Geometry

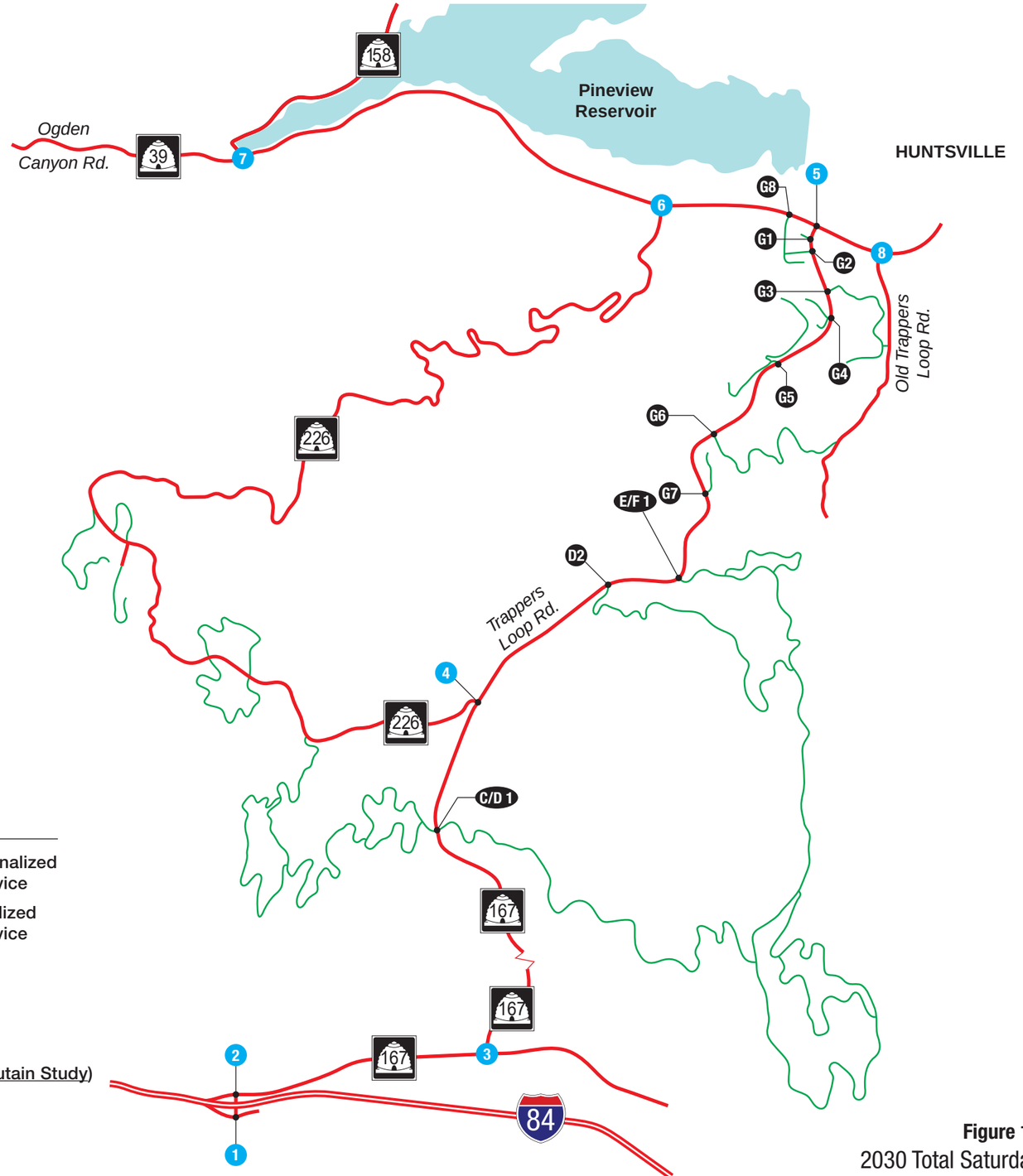


Figure 15
2030 Total Saturday
Levels of Service and Lane Geometry

NORTH

FELSBURG HOLT & ULLEVIG

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

This report summarizes the transportation impacts associated with the proposed Snowbasin Resort Master Plan. The report includes an analysis of build-out conditions for a typical weekday and peak Saturday during ski season at the proposed resort. In addition to the buildout analysis, an analysis of intermediate development steps was also conducted to identify when the various identified roadway improvements would be needed, so that the road system would continue to provide adequate operations as the development progresses toward completion.

The Snowbasin Resort Master Development Plan Update was completed in December 2010, and defines the operational improvements anticipated for Snowbasin going into the future. The Development Plan was developed alongside the Snowbasin Area Plans, which were completed in May 2008 and updated in November 2010. Together, these documents represent a vision for the transformation of Snowbasin Resort from a day-skier destination to a year-round resort.

Snowbasin is located in the Wasatch Mountains east of Ogden, Utah. The resort currently focuses around Earl's Lodge, which is accessed via Snowbasin Road (SR-226). Snowbasin Road intersects Trappers Loop Road (SR-167), which provides access north to Huntsville and Ogden (via Ogden Canyon Road (SR-39)) and south to Salt Lake City (via Interstate 84). Much of the property along Trappers Loop Road and Snowbasin Road is within the ownership boundary of the Snowbasin Resort Company. The Snowbasin Resort Master Plan proposes strategic development of these lands, with care taken to preserve the natural beauty, view corridors, and sensitive lands within the region.

The proposed development would expand the Earl's Lodge base area and construct a second resort base in the Strawberry Park area, with ski lift and gondola connections between the two areas. These bases would be developed as mixed-use villages, complete with lodging, retail, restaurants and skier support services. Residential neighborhoods with a mix of townhomes, condominiums and single family homes would be built around both base areas, as well as on the east side of Trappers Loop Road opposite the ski area. A residential and commercial development would also be developed at the north end of Trappers Loop Road near the SR-39 intersection to serve resort guests and the Ogden Valley community. Finally, a smaller residential development may be built on the northwest side of the Pineview Reservoir.

Together, these general development areas have been divided into seven development areas, labeled A thru H for design and planning consideration. **Table ES-1** lists the various land uses planned for each development area.

Table ES-1. Snowbasin Development Area Land Uses

Land Use	Size								Total
	A	B	C	D	E	F	G	H	
Single Family (du[1])	---	143	185	280	157	60	135	---	960
Townhome (Rent) (du[1])	680	180	514	143	---	32	41	---	1,588
Condominium (Rent) (du[1])	128	---	---	---	---	---	---	---	128
Townhome (Private) (du[1])	680	180	511	430	---	95	122	50	2,065
Condominium (Private) (du[1])	43	---	---	---	---	---	---	---	43
Hotel (rooms)	150	---	150	150	---	---	---	---	450
Retail (ksf[2])	75	---	100	75	---	---	80	---	330

1. Dwelling units
2. 1,000 square feet

Due to the large scale of the project, a broad view of the traffic impacts was taken for the Master Plan. The traffic analysis assessed highway operations on Trappers Loop Road from the I-84 interchange to Ogden Canyon Road and Ogden Canyon Road between Trappers Loop Road and SR-158, as well as major intersections along both roads.

Existing traffic counts were taken on the Thursday and Saturday of the Martin Luther King, Jr. holiday to capture volumes on a typical winter weekday and a peak weekend ski day. Future background traffic projections throughout the study area were derived from these counts, historic Utah Department of Transportation (UDOT) average daily traffic (ADT) counts, and traffic projections from the *Powder Mountain Ski Resort Traffic Impact Study* (Fehr & Peers, 2005).

The Master Plan trip generation is based on trip rates published in *Trip Generation, 8th Edition* (Institute of Transportation Engineers, 2008), the nationally recognized standard, and utilizes trip-making assumptions that are based on observations from several other ski areas in the western United States. Two additional key trip-making assumptions were used to develop traffic projections: 1) the commercial development at the resort functions primarily as a service to day skiers, resort guests and local residents, so the majority of commercial trips would remain internal to the resort, and 2) as the resort grows, the number of day skiers coming from Ogden, Salt Lake City and other off-mountain areas will generally remain the same as today; i.e., the increase in skiers on the mountain would be a result of the increased number of guests and residents staying at the resort rather than from more day visits from the Salt Lake Basin.

Resort Trip Generation
(Refer to Tables 6 and 7)

The following highlights the results of the resort trip generation analysis for the winter season:

- Overall, the resort would generate approximately 28,700 vehicle trips on a peak weekend ski day. Of these, approximately 12,400 trips are generated by the development in and around the ski area (development areas A, B and C on the west side of Trappers Loop Road), 5,400 trips are generated by the residential development east of the ski area (development areas D, E, and F on the east side of Trappers Loop Road), 10,800 trips are generated by the predominantly retail development at the Ogden Canyon Road/Trappers Loop Road intersection (development area G), and 140 are

generated by the reduced residential development at the Pineview Reservoir (development area H).

- On weekdays, the resort would generate approximately 16,000 vehicle trips. Of these, Area ABC generates 6,500 trips, Area DEF generates 2,800 trips, Area G generates 6,600 trips and Area H generates 75 trips.

- An internal shuttle service between the ski area bases and the residential developments in Areas ABC and DEF would be available so resort guests won't need to rely on their personal vehicle to access the ski area. The shuttle is anticipated to reduce vehicle travel within and between those areas by approximately 4,800 trips per day on the weekend and 3,200 trips on the weekday.

- The retail in Area G would primarily provide additional commercial services for resort guests and residents (e.g., a grocery store, office space, etc.), but would also provide a shopping destination that would appeal to residents living elsewhere in the community. It is anticipated that on the weekends approximately 60 percent of the retail trips generated by Area G would come from the other resort areas (ABC, DEF and H) with the remaining demand fulfilled by residents of Huntsville and Mountain Green. On weekdays approximately 40 percent of the retail traffic would be from the resort and 60 percent from Huntsville and Mountain Green.

Traffic Impacts

The following highlights the results of the intersection and highway level of service analyses, and the recommended improvement measures identified from these analyses:

Existing Intersections (Listed from south to north)

I-84 Off Ramp to Old Trappers Loop Highway

In the morning at this intersection the northbound movement would operate at LOS F and in the afternoon the southbound movement would operate at LOS E. Both of these movements are forecast to have extremely low volumes, however (five vehicles per hour southbound and less than five vehicles per hour northbound), because there is virtually no development or developable land south of the interstate, so no improvements to the existing lane geometry is recommended at this location.

As noted in the Future Background Conditions section, UDOT is considering replacing the current split diamond configuration with a full diamond interchange somewhere between the two existing overpasses. Morgan County and Mountain Green both support the proposed concept and Snowbasin Resort is not opposed to the idea, but would like input on the design should the project move to that stage. However, it should be noted that the current interchange configuration adequately accommodates Snowbasin traffic and that development of the resort is not dependent on interchange improvements.

I-84 On Ramp from Old Trappers Loop Highway

At this intersection the northbound movement would operate at LOS C in the morning and LOS B in the afternoon. These represent acceptable levels of service, so no improvements to the existing lane geometry is recommended at this location.

Trappers Loop Road (SR-167) / Old Trappers Loop Highway

This intersection near Mountain Green would operate at LOS F in the long-range future, either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, and therefore was assumed to be implemented in the background analysis. With a signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS B in the morning and LOS C in the afternoon. No additions to the current lane geometry would be required, but the eastbound left turn lane would need to be lengthened to accommodate the increased traffic volumes for that movement.

SR-167 / SR-226

This intersection currently serves as the primary access to Snowbasin Resort. In the future, the intersection would provide the primary access to Areas A and B, including the Earl's Lodge base area, which includes one of the main parking lots for day skiers. The intersection would require signalization by build-out of the resort and would operate at LOS B or better with a signal during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, southbound right and eastbound left) would need to be lengthened to accommodate the increased traffic volumes at the resort.

SR-167 / SR-39

This intersection at Huntsville would operate at LOS F in the long-range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the background analysis. With a signal and the addition of Snowbasin traffic the intersection would operate at LOS B or better during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

SR-39 / Old Trappers Loop Road

This intersection would serve as the second of two access points to the residential portions of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach, with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-39.

SR-39 / SR-226

This intersection provides access to residences along Old Snowbasin Road. Due to the closure of this road during the winter as an access to Snowbasin Resort, no additional volumes are anticipated at this intersection. The intersection would operate at LOS B or better for all movements. No changes in the lane geometry would be required.

SR-39 / SR-158

This intersection provides access to residences along the west side of the Pineview Reservoir, and serves as a part of the access route to the Powder Mountain Ski Resort. The intersection would operate at LOS F in the long range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, since that resort has a much more significant impact on traffic operations there (very little Snowbasin traffic would use this intersection, particularly the SR-158 approach). With the signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS E in the morning and LOS F in the afternoon on weekends, which is the same level of service as that reported in the *Powder Mountain Ski Resort Traffic Impact Study*. The *Powder Mountain Ski Resort Traffic Impact Study* further identifies a public awareness campaign and alternate route identification using an ATMS system to reduce delays at the intersection. The proposed system would provide automated signs that notify drivers prior to the SR-158 / SR-162 intersection that the SR-39 / SR-158 intersection is experiencing an overcapacity condition, and suggest the alternate route. The system would be triggered by queue detectors at the SR-158 / SR-39 intersection.

The majority of Snowbasin-related traffic at this intersection would be through volumes on SR-39 travelling between the resort and Ogden (i.e., the major street movement). Only Area H traffic would use the SR-158 (minor street) approach, and as noted in the Resort Traffic Generation section, Snowbasin has elected to transfer much of the allowed density on that parcel to other development areas in an effort to minimize the traffic impacts to that roadway (only 50 of the 572 allow units in Area H would be developed).

SR-39 / Intersection G8

This intersection has recently been constructed due to the purchase of an adjacent parcel to be constructed as a church. At the present time, there are no vehicles accessing this roadway, but with the construction of the retail center in Area G, this road will provide as a second access to that parcel. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS B or better during the morning and afternoon. No additions to the current lane geometry would be required, but each of the existing turn lanes (eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

New Intersections (listed from south to north)

SR-167 / Intersection C/D1

This intersection would serve as the primary access to the new ski area base in development Area C as well as the primary access to the residential development Areas D and E. It is one of two new intersections requiring signalization at build-out of Snowbasin Resort. With a signal the intersection would operate at LOS C or better during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and left turn lanes on both side street approaches.

SR-167 / Intersection D2

This intersection would serve as a secondary access point to areas E and F. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection E/F1

This intersection would serve as the primary access point to Area F and a secondary access to Area E. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection G7

This intersection would serve as the primary access point to a parcel of approximately 13 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G6

This intersection would serve as the primary access point to a parcel of approximately 51 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G5

This intersection would serve as the primary access point to a parcel of approximately 12 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with the eastbound left turn operating at LOS C in the morning and LOS F in the afternoon; all movements would operate at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G4

This intersection would serve as the primary access point to a parcel of approximately 25 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS E or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G3

This intersection would serve as one of two access points to the residential portions of Area G on the east side of SR-167 near the SR-39 intersection. It would be stop sign controlled on the side street approach, with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G2

This intersection would serve as the primary access to the retail and residential development in Area G and is one of two new intersections requiring signalization in the proposed build-out of Snowbasin Resort. Without a signal the side street left turns at the intersection would operate at LOS F in both the morning and afternoon peak periods and would experience significant queuing and delays in the afternoon. With a signal the intersection would operate at LOS A during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and separate left turn lanes on both side street approaches.

SR-167 / Intersection G1

This intersection serves as a secondary access to the retail and residential development in Area G and would be restricted to southbound right turns in and eastbound right turns out only. It would be stop sign controlled on the side street approach with all the eastbound movement operating at LOS B or better during both the morning and afternoon peaks.

SR-167 Highway Level of Service

Two-lane highway level of service analyses were conducted for the peak travel directions on SR-167 both north and south of the Snowbasin Resort.

The south section of SR-167 is projected to carry 18,800 vpd on weekends at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (due in large part to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.67 in the afternoon, (i.e., the projected volume would be approximately 67 percent of the capacity of the roadway during the peak hour), so it would appear that the roadway would not require an additional downhill lane.

The north section of SR-167 is projected to carry 20,700 vpd on weekends at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (again due to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.73 in the afternoon, however, so it would appear that no additional lanes would be necessary on that section, either.

Interim Development Phasing and Roadway Improvement Schedule

Traffic volumes at Snowbasin Resort would increase over time as the resort is developed, and as a result, not all of the above roadway improvements would be needed immediately. Overall, the resort would be developed in 16 distinct phases. To determine when the various roadway improvements would be needed, interim transportation analyses were conducted for three interim phases, each representing a significant development or transportation need milestone: completion of Phases 1-3 (completion of approximately 1/3 of the base village in Area C and 2/3 of the Area G commercial), 4-6 (50 percent completion of the Area A base village, full completion of Area F, Area G commercial and Area H), and 9-15 (buildout of the project). **Table ES-2** shows projected development levels for each interim year.

Table ES-2. Transportation Analysis Development Phasing

Phase	Proposed Snowbasin Resort Development
1-3	139 Single Family Homes 416 Townhomes 150 Hotel Rooms 121,000 SF Commercial Additional Mountain Usage: 710 Skiers
4-6	370 Single Family Homes 170 Condominiums 1,770 Townhomes 300 Hotel Rooms 216,000 SF Commercial Additional Mountain Usage: 2,800 Skiers
9-15 (Build-Out)	960 Single Family Homes 170 Condominiums 3653 Townhomes 450 Hotel Rooms 331,000 SF Commercial Additional Mountain Usage: 5,640 Skiers

Table ES-3 shows the recommended phasing plan for the road system improvements based on the above development schedule. As the table indicates, the existing road system could accommodate project growth in the near term, with the first road system improvement (signalization of the SR-167/SR-39 intersection) needed at completion of Phase 3. By the completion of Phase 6, the remaining four additional intersections would need signalization: SR-167/SR-226, SR-167/G2, SR-167/C/D1, SR-167/Old Trappers Loop Highway.

Table ES-3. Off-Site Roadway Improvement Schedule

Improvement	Development Phase
Signalization of SR-167 / SR-39	1-3
Signalization of SR-167 / SR-226	4-6
Signalization of SR-167 / G2	4-6
Signalization of SR-167 / C/D1	4-6
Signalization of SR-167 / Old Trappers Loop Highway	4-6

I. EXISTING CONDITIONS

A. Roadway System

Major roadways that serve the Snowbasin Resort area are illustrated on **Figure 1**. During the winter the Old Snowbasin Road coming in from the north from Ogden Canyon Road is no longer plowed, so the only access to Snowbasin Resort is from Trappers Loop Road (SR-167). Trappers Loop Road is a two-lane rural highway with an additional climbing lane in the uphill direction for each approach to Snowbasin Road. To the north Trappers Loop Road provides access to Huntsville and Ogden via Ogden Canyon Road (SR-39), while to the south Trappers Loop Road provides access to Salt Lake City via Interstate 84. Due to a lack of lodging at the hill, all Snowbasin visitors are currently day skiers, the majority of which live in Ogden or Salt Lake City.

B. Traffic Volumes

Daily traffic volumes along SR-167, SR-226, and SR-39 for the winter season were collected in January 2009, on a typical weekday and on the Saturday of Martin Luther King, Jr. Day. The later was chosen because skier visits on that day are typically around the 10th highest of the year, so it provides a good representation of traffic conditions on a peak ski day for the season. The existing weekday and Saturday traffic volumes are shown in **Table 1** and on **Figures 2** and **3**. As shown on the table and figures, daily traffic volumes along SR-167 range from 3,800 vehicles per day (vpd) south of the SR-39 intersection to 6,600 vpd west of Mountain Green. SR-226 carries approximately 4,200 vpd west of SR-167 and SR-39 carries approximately 4,500 vpd west of SR-167. All volumes represent moderate traffic levels that are within the capacity of two lane roads. **Appendix A** contains the raw traffic count data.

Table 1. Existing Average Daily Traffic Volumes (Winter Season)

Road	Location	2009 Weekday Volume	2009 Saturday Volume
SR-39	East of SR-226	3,500	4,500
	West of SR-167	3,500	4,500
	East of SR-167	3,800	3,800
SR-226	South of SR-39	150	200
	West of SR-167	1,900	4,200
SR-167 (Trappers Loop)	South of SR-39	2,600	3,800
	North of SR-167 (Old Highway)	3,400	5,300
SR-167 (Old Trappers Loop Highway)	West of SR-167 (Trappers Loop)	5,700	6,600
	East of SR-167 (Trappers Loop)	3,700	2,300

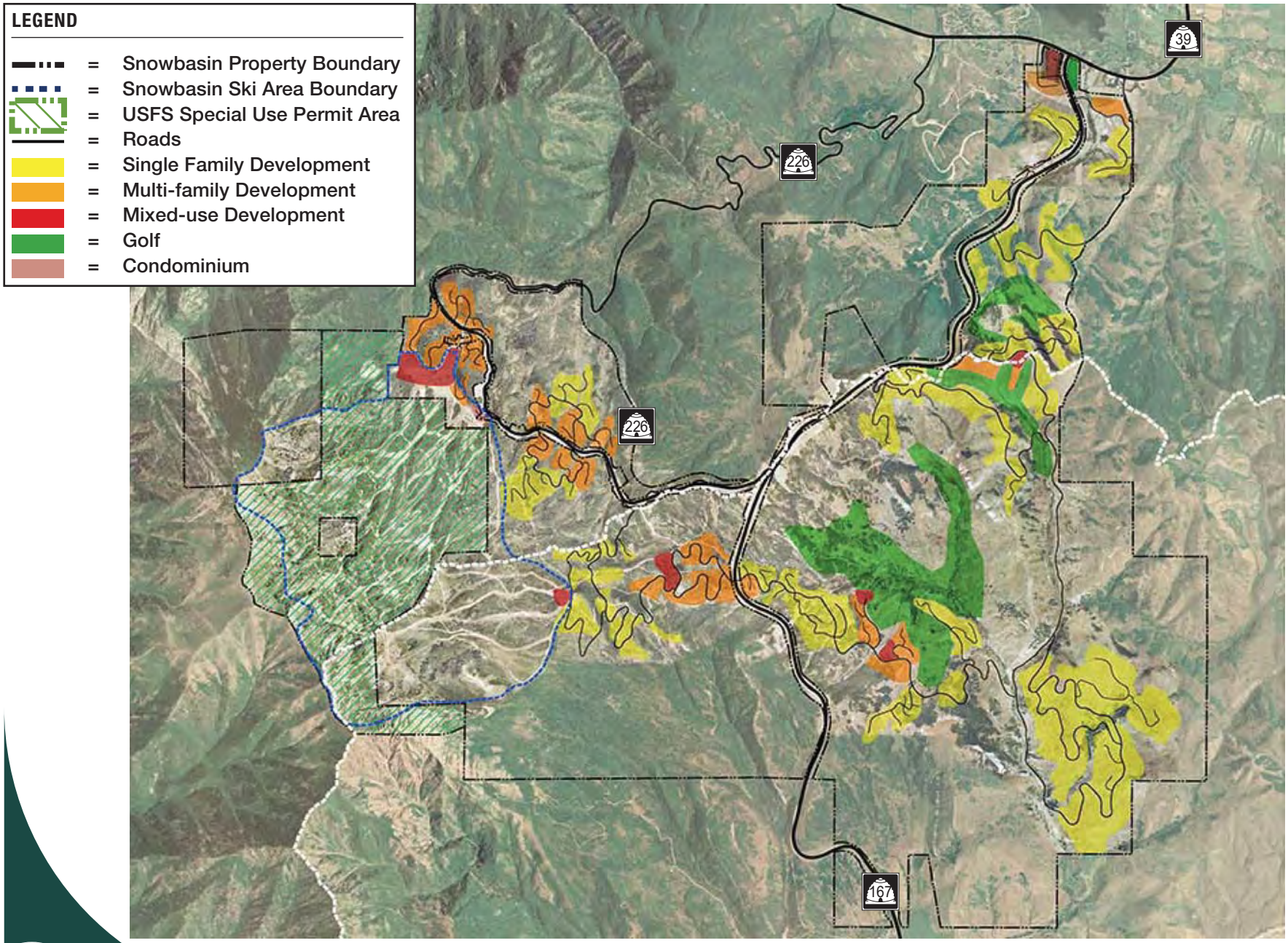


Figure 1
Vicinity Map

FELSBURG HOLT & ULLEVIG

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

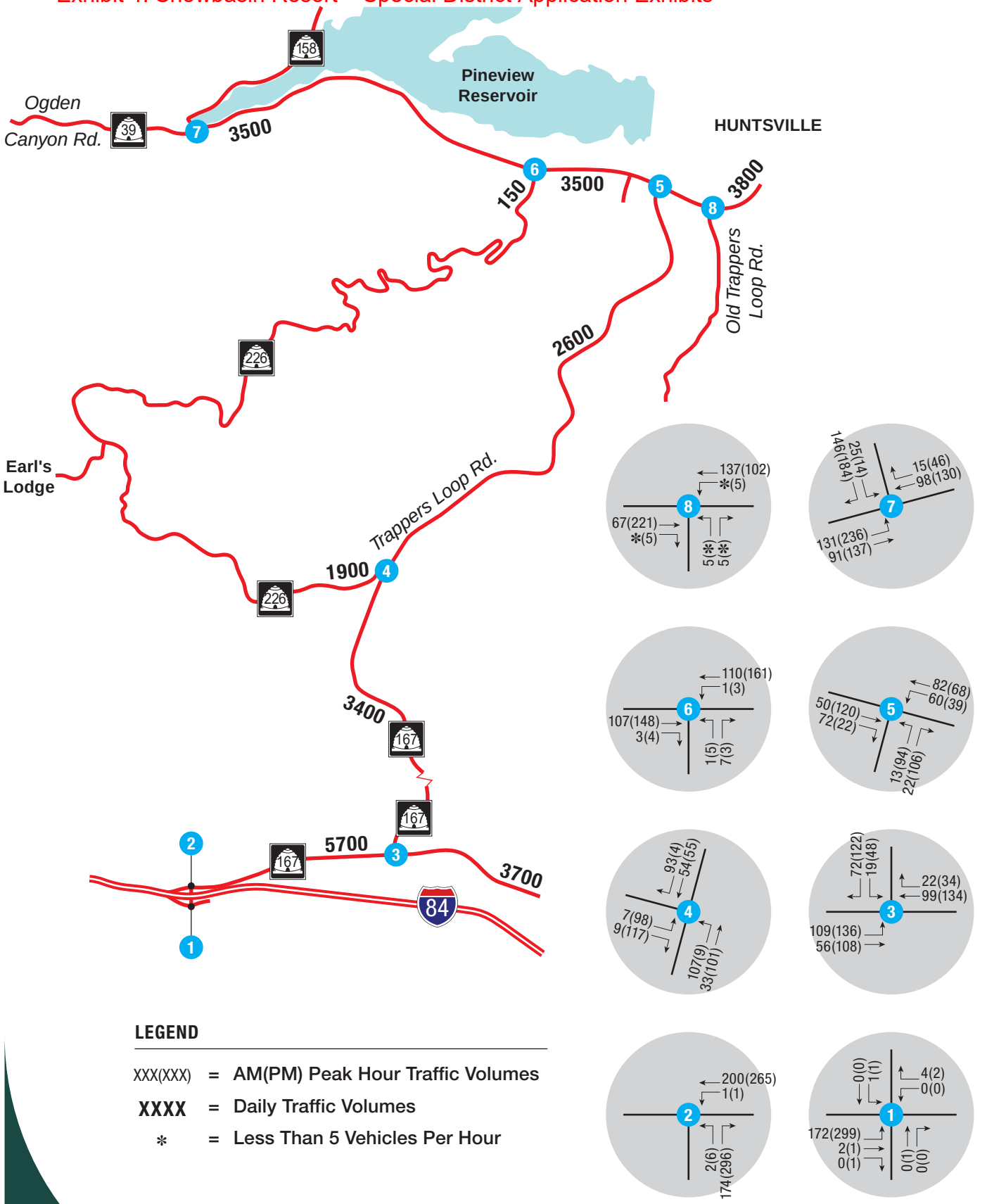


Figure 2
Existing Weekday
Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

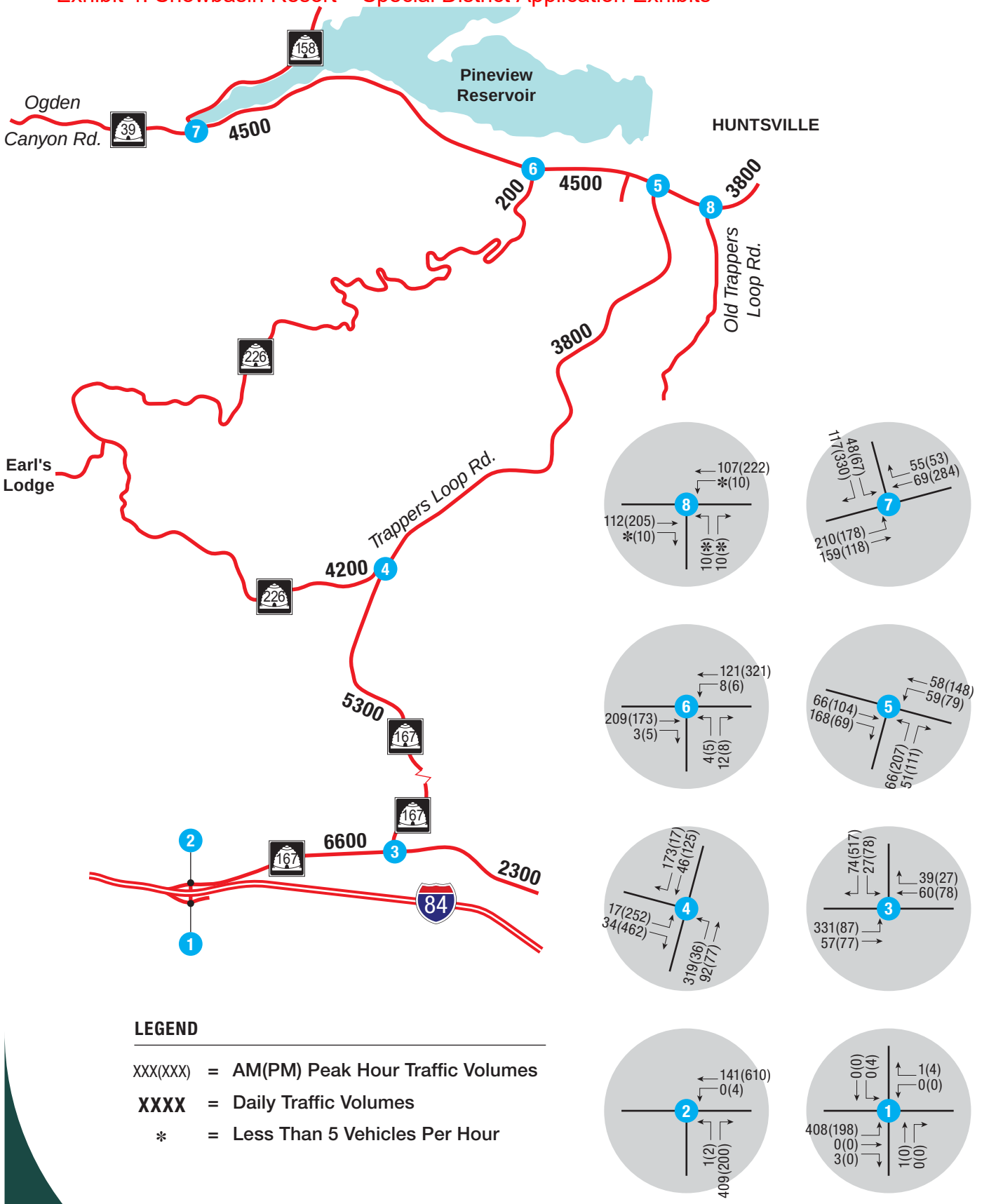


Figure 3
Existing Saturday Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

C. Intersection Operations

Traffic operations within the study area were evaluated according to techniques documented in the Highway Capacity Manual, (Transportation Research Board, 2000) (HCM-2000). Level of service (LOS) is a qualitative measure of traffic operational conditions, based on roadway capacity and vehicle delay. Levels of service are described by a letter designation ranging from LOS A to LOS F, with LOS A representing the best possible conditions and LOS F representing congested conditions. For signalized intersections, level of service is calculated for the entire intersection; for unsignalized intersections, levels of service are calculated for movements which must yield right-of-way to other traffic movements.

Existing levels of service are shown on **Figures 4** and **5** for weekday and Saturday conditions, respectively. All intersections are currently stop sign or yield controlled and all individual movements currently operate at LOS D or better. **Appendix B** contains the existing level of service worksheets.

D. Safety Assessment

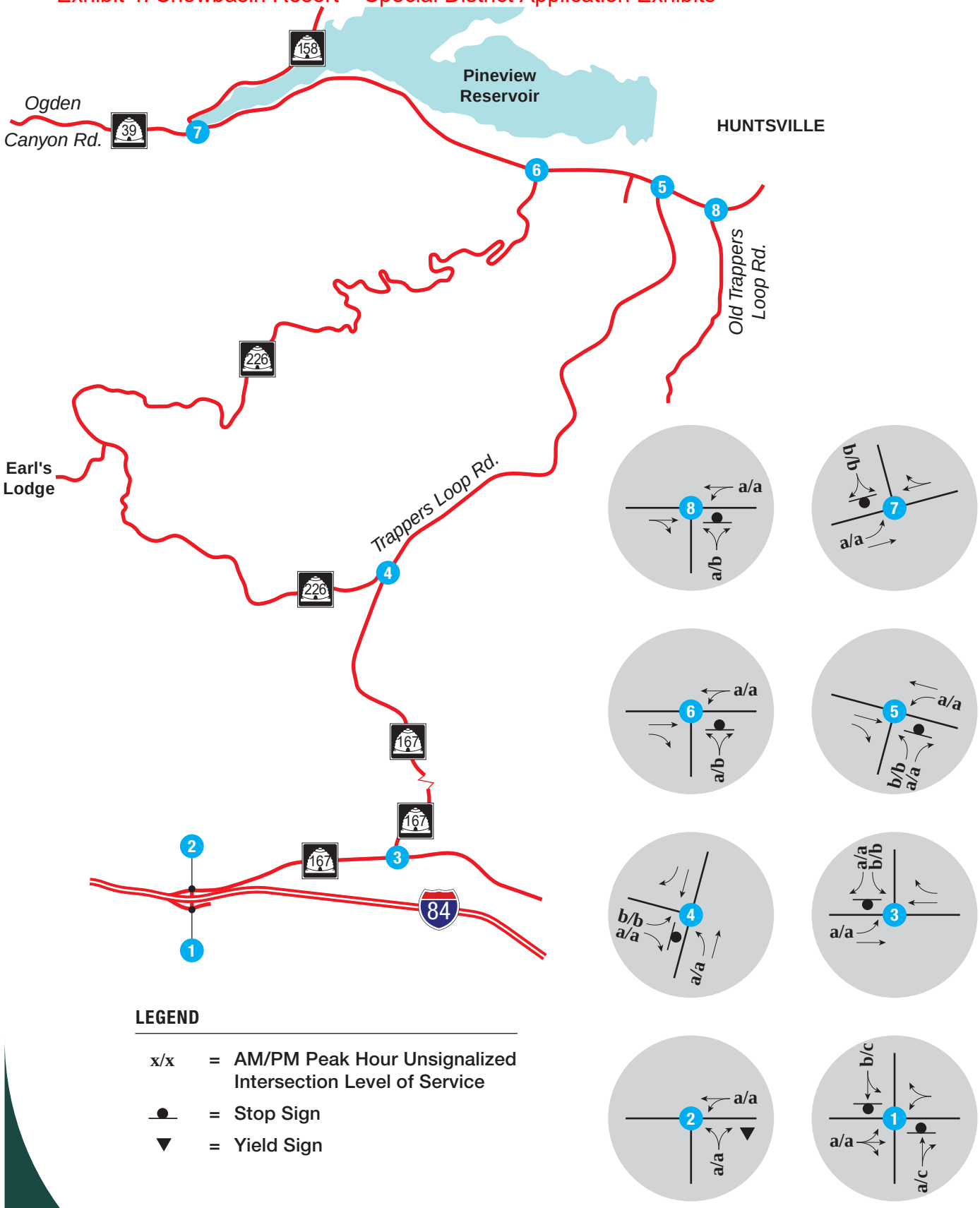
Crash records were obtained from the Utah Department of Transportation from 2005 – 2008 for state highways in the Snowbasin project area. Records were collected for the following highway segments:

a. SR-39, Milepost 9 - 19
b. SR-158, Milepost 0 - 4.33
c. SR-167, Milepost 0 - 11.05
d. SR-226, Milepost 0 - 3

The records were then analyzed to determine crash patterns along each corridor in order to determine roadway sections requiring further review for improvements which could help to reduce accident frequency and severity. The Utah Department of Transportation classifies each accident type into one of five categories based on the severity of the crash.

1. No Injury/Property Damage Only
2. Possible Injury
3. Non-Incapacitating Injury
4. Incapacitating Injury
5. Fatal

Special consideration was given to accidents which occurred in category four and five due to the severity of these accident types. Each of these highway segments is summarized in the following sections. Included is the calculation of the average crash rate. This value was determined by calculating how many crashes occurred per one million vehicle miles traveled.



LEGEND

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

● = Stop Sign

▼ = Yield Sign

Figure 4
Existing Weekday
Lane Geometry and Levels of Service

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

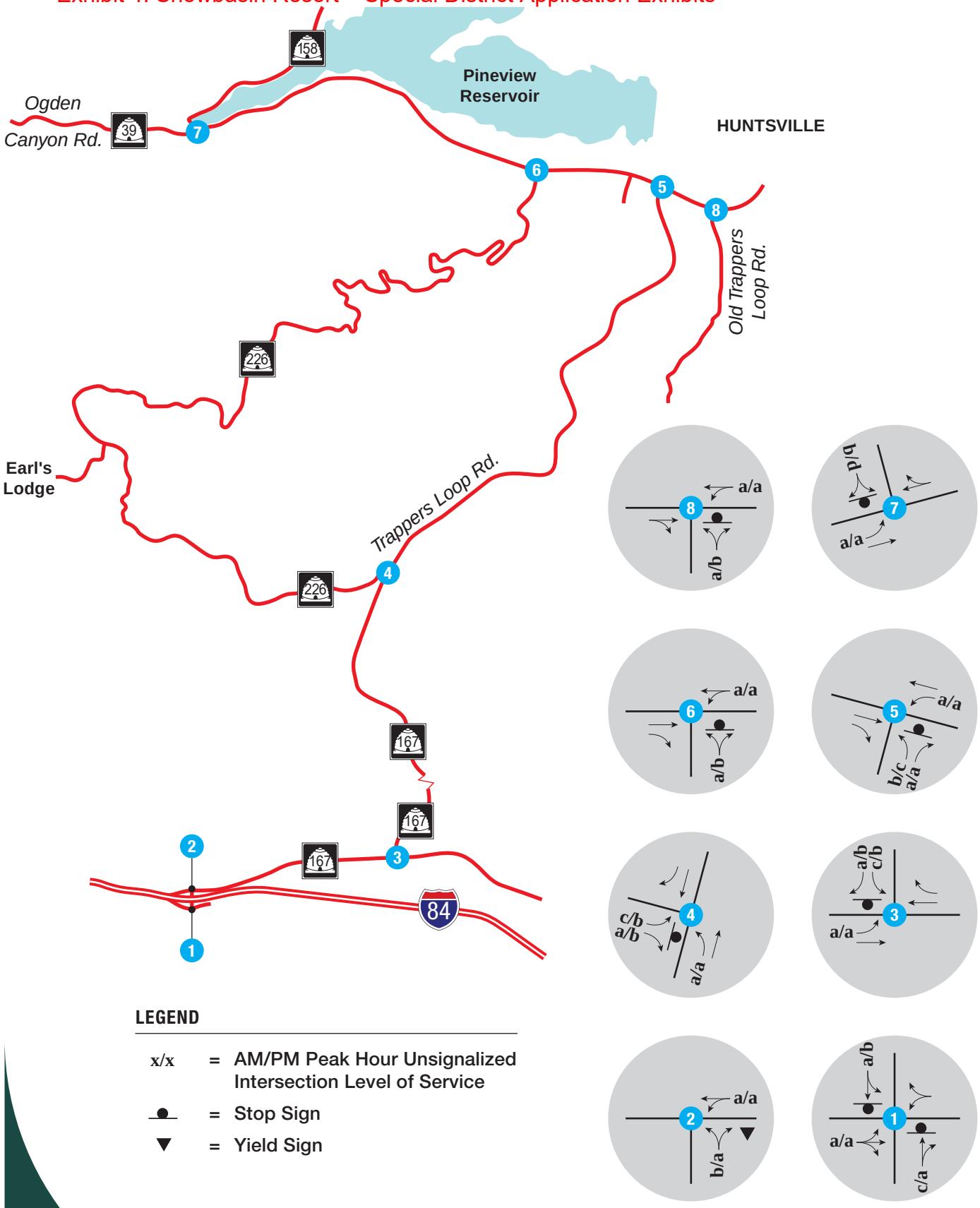


Figure 5
Existing Saturday
Lane Geometry and Levels of Service

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

SR-39, Milepost 9 - 19

SR-39 at milepost 9 represents the mouth of Ogden Canyon continuing to milepost 19 which represents the termination of the study area at Huntsville. This segment of SR-39 provides access the Snowbasin Resort from Ogden. Between mileposts 9 and 19 there were 208 total accidents, including 20 with a severity rating of four and 2 with a severity rating of five. The fatal accidents occurred at milepost 10.06, resulting from a head-on accident, and at milepost 15, as a result of a single car accident. In total, there were 11 head-on accidents including a concentration of seven accidents between mileposts 9.50 and 11.50. In addition, 9 of 20 incapacitating accidents occurred between these same mileposts representing a significant concentration of accidents along the segment. This two mile section should be reviewed for safety concerns.

The average crash rate was calculated to be 3.03 accidents per one million miles traveled for the segment.

SR-158, Milepost 0 - 4.33

SR-158 begins at the junction with SR-39 at the Pineview Reservoir and heads north to Eden. This segment of SR-158 ends at the junction with SR-162 and represents the portion of SR-158 along which Area H development is proposed. Between mileposts 0 and 4.33 there were 47 total accidents, including four with a severity rating of four; there were no fatal accidents along this segment during the study horizon. Two of the incapacitating injury accidents occurred at intersections, one resulting in a head on accident and the other in an angled accident. The other serious accidents were a rear end accident and an angled accident. An examination of all crashes occurring in the segment revealed two primary areas of higher accident frequency. The first area occurred at the intersection of SR-158 and SR-39 and represented a concentration of rear end accidents, likely due to the junction. The second area occurred between mileposts 3.60 and 3.85 and represented a higher concentration of intersections throughout the segment leading to more conflict points and more accidents.

The average crash rate was calculated to be 1.58 accidents per one million miles traveled for the segment.

SR-167, Milepost 0 - 11.05

SR-167 begins at the junction with Interstate 84 and heads north ending at the junction with SR-39. This segment represents the primary access for all destinations within the Snowbasin Resort as well as provides a connection between Mountain Green, to the south and Huntsville, to the north. Additionally, coming from the south and beginning at Mountain Green, the road ascends steep grades to SR-226 and the county line between Weber and Morgan counties, and descends back to SR-39. Along each uphill section there is an additional climbing lane. Between mileposts 0 and 11.05 there were 73 total accidents, including 13 with a severity rating of four; there were no fatal accidents along this segment during the study horizon. Of these 13 accidents, eleven were single car accidents, one was an angled accident occurring at the intersection with Interstate 84, and one was a sideswipe same direction accident. The majority of accidents along the segment were single vehicle accidents, 59 of 73, and did not occur in any significant concentrations.

The average crash rate was calculated to be 1.81 accidents per one million miles traveled for the segment.

SR-226, Milepost 0 - 3

SR-226 begins at the junction with SR-167 and heads west ending at the existing entrance to the Snowbasin Resort. SR-226 provides the primary access to Areas A and B, and secondary access to Area C. Between mileposts 0 and 3 there were 17 total accidents, including two with a severity rating of four; there were no fatal accidents along this segment during the study horizon. Each of the incapacitating injury accidents occurring within this segment were single car accidents. There was no concentration of accidents within the study segment.

The average crash rate was calculated to be 2.68 accidents per one million miles traveled for the segment.

II. RESORT TRAFFIC PROJECTIONS

This section documents the processes used to develop traffic projections for the Snowbasin Resort Master Plan.

A. Background

The Snowbasin Resort Master Development Plan Update was completed in November 2010, and defines future operational improvements anticipated for Snowbasin Ski Area. The Development Plan was developed alongside the Snowbasin Area Plans, which was originally completed in May 2008. Together, these documents represent a vision for the transition of Snowbasin Resort from a day-skier destination to a year-round resort.

The trip forecasts for the project is based on trip rates published in *Trip Generation, 8th Edition* (Institute of Transportation Engineers, 2008), the nationally recognized standard, and utilizes trip-making assumptions that are based on observations from several other ski areas in the western United States. Two additional key trip-making assumptions were used when forecasting resort trips: 1) the commercial development functions primarily as a service to day skiers, resort guest and local residents so the majority of commercial trips will remain internal to the resort, and 2) as the resort grows, the number of day skiers coming from Ogden, Salt Lake city and other off-mountain areas will generally remain the same as today; i.e., the increase in skiers on the mountain will be a result of the increased number of guests and residents staying at the resort rather than increased day visits from the Salt Lake Basin.

B. Resort Trip Generation

The Snowbasin Resort expansion has been divided into eight key development areas (labeled A to H) and each has been uniquely defined by the Snowbasin Area Plans. **Table 2** summarizes the land uses proposed for each area.

Table 2. Snowbasin Development Summary

Land Use	Size								Total
	A	B	C	D	E	F	G	H	
Single Family (du[1])	---	143	185	280	157	60	135	---	960
Townhome (Rent) (du[1])	680	180	514	143	---	32	41	---	1,588
Condominium (Rent) (du[1])	128	---	---	---	---	---	---	---	128
Townhome (Private) (du[1])	680	180	511	430	---	95	122	50	2,065
Condominium (Private) (du[1])	43	---	---	---	---	---	---	---	43
Hotel (rooms)	150	---	150	150	---	---	---	---	450
Retail (ksf[2])	75	---	100	75	---	---	80	---	330

1. Dwelling units
2. 1,000 square feet

Due to natural grouping of these areas and proximity to access points, the eight areas were consolidated into four groups for the traffic evaluation: ABC, DEF, G, and H.

Trip generation forecasts for Snowbasin were based on three key elements: 1) overnight population projections derived from the proposed lodging/residential densities; 2) the projected employment base; and 3) the proposed commercial densities. In general, trips in or out of the resort would include day-skier trips, employee trips, and overnight guests and residents' non-skiing related trips. The follow provides further details on each of the key elements.

Overnight Guest/Resident Trips. Overnight guests and residents represent those visitors to the resort that are staying within the properties of Snowbasin. These overnight visitors would represent a significant number of skiers for the resort, so to determine these skier forecasts, the residential land uses within the resort were first broken down by single family or multi-family and owned versus rented, and then an average number of bedrooms was applied to each multi-family unit. Next, weekday and weekend occupancy rates, based on information from other ski resorts and discussions with the project team, were applied to each property type. **Table 3** shows the projected occupancy rates for weekday and weekend conditions.

Table 3. Snowbasin Residential Occupancy Rates Summary

Land Use	Occupancy Rate	
	Weekday	Weekend
Single Family (Private) (du[1])	25%	50%
Townhome (Rent) (du[1])	50%	90%
Condominium (Rent) (du[1])	50%	90%
Townhome (Private) (du[1])	25%	50%
Condominium (Private) (du[1])	25%	50%
Hotel (rooms)	50%	90%

1. Dwelling Units

Finally, the above information was used in conjunction with information from other ski resorts on the typical number of skiers per unit or bed to project the total number of skiers from the overnight guest and resident population. **Table 4** provides the weekend skier forecasts for each development area and lodging type.

Table 4. Weekend Snowbasin Internal Skier Generation

Product Type	Area	Units	Beds	Notes	Occupancy		Skiers per Unit	Skiers
					Owned Unit	Rental Unit		
Single Family	B	143			50%		1.5	107
	C	185			50%		1.5	139
	D	280			50%		1.5	210
	E	157			50%		1.5	118
	F	60			50%		1.5	45
	G	135			50%		1.5	101
							Total	**720**
Townhomes (Rent)	A	680	2,040	50% in rental pool	50%	90%	0.7	1,000
	B	180	540	50% in rental pool	50%	90%	0.7	265
	C	514	1,542	50% in rental pool	50%	90%	0.7	756
	D	143	429	25% in rental pool	50%	90%	0.7	180
	F	32	96	25% in rental pool	50%	90%	0.7	40
	G	41	123	25% in rental pool	50%	90%	0.7	52
							Total	**2,293**
Condominiums (Rent)	A	128	256	75% in rental pool	50%	90%	0.7	143
							Total	**143**
Townhomes (Private)	A	680	2,040		50%		0.7	714
	B	180	540		50%		0.7	189
	C	511	1,533		50%		0.7	537
	D	430	1,290		50%		0.7	452
	F	95	285		50%		0.7	100
	G	122	366		50%		0.7	128
	H	50	150		50%		0.7	53
							Total	**2,173**
Condominiums (Private)	A	43	86		50%		0.7	30
							Total	**30**
Hotel / Lodge	A	150	150			90%	0.7	95
	C	150	150			90%	0.7	95
	D	150	150			90%	0.7	95
							Total	285
Total Skiers							**ABC**	4,070
							DEF	1,240
							G	281
							H	53
							Total	**5,644**

Since Area A and Area C represent slopeside lodging and Area B would have a lift that connects it to the Earl's Lodge base, and all three areas would have an internal transit shuttle, it was assumed that all of the skier trips from Area ABC would either be walking or transit, so there would be no vehicle trips generated by skier from those areas onto Trappers Loop Road or any other external road. Similarly, transit service is planned between Area DEF and the ski area bases, so skier vehicle traffic crossing Trappers Loop Road between DEF and the ski area was reduced by 50 percent to account for transit use (with the percentage forecast based on observations of transit use for near-slopeside accommodations at other ski resorts). No transit reductions were assumed for skier trips from Area G, since it is not yet known whether transit services would be provided between that Area and the ski area bases.

For those skiers that do choose to drive, a vehicle occupancy of 2.0 skiers per vehicle was used to project traffic volumes. This occupancy is based on the existing vehicle occupancy at Snowbasin.

Day Skiers. As mentioned previously, it is anticipated that the number of day skiers at Snowbasin will remain roughly the same in the future as there are today. The trips associated with these day skiers is already reflected in the existing traffic volumes so no additional adjustments were taken for day skier visits.

It should be noted that anecdotal evidence from other ski areas operators suggest that some current day skiers convert to overnight guests once accommodations are provided at the resort. However, for Snowbasin it was assumed that little to no conversion would occur so that the traffic analysis is based on a more conservative traffic condition.

Projected Employment Base. The projected employment base includes all new employees working at Snowbasin Resort, either for the ski area or for one of the rental, hotel or commercial properties at the resort. The existing ski area employees are not included in this analysis as they have already been accounted for in the existing daily traffic volume counts. **Table 5** shows the projected employment summary at full buildout of the resort.

Table 5. Snowbasin Employment Forecasts

Land Use	Employees							TOTAL
	A	B	C	D	E	F	G	
Rental Lodging	260	58	165	23	---	5	7	518
Hotel	80	---	80	80	---	---	---	240
Retail	43	---	58	43	---	---	57	201
Additional Ski Area Employees	---	---	310	---	---	---	---	310
Total	**383**	**58**	**613**	**146**	**---**	**5**	**64**	**1269**

The employment forecasts in Table 5 represent the total employees needed if every residence and commercial property were to be operating at full capacity. To account for typical occupancy conditions, the rental lodging and hotel employment forecasts were multiplied by the occupancy rates listed in **Table 3**.

A vehicle occupancy rate of 1.6 employees per vehicle was used to project traffic volumes for employees. This occupancy is based on employee vehicle occupancy surveys collected at other ski resorts.

Commercial Densities. The commercial land uses planned for Areas ABC and DEF would provide many of the services required by on-mountain guests (shopping, restaurants, etc.), so almost all of the activity generated by these uses is anticipated to come from either day skiers or overnight guests staying in Areas ABC and DEF. The only external traffic associated with those properties would be that generated by employees and by deliveries and other service needs.

The commercial uses in Area G, on the other hand, would provide services such as a grocery store that would appeal to a broader market beyond the resort. As such, while a significant portion of the demand from that area would come from the residents and guests of the Snowbasin Resort, its customer base will also include residents of Huntsville, Mountain Green and the surrounding area. To determine the appropriate split between resort patrons and non-resort patrons, the proportion of trips generated by the resort's residential population was determined based on internal capture percentages and procedures outlined in the Trip Generation Handbook, (Institute of Transportation Engineers (ITE), 2004), with the remaining trips assigned to the non-resort area population.

Total Trip Generation

Using the above assumptions and procedures, vehicle trips were forecast for each of the four development areas as well as for the resort as a whole. **Table 6** summarizes the trip generation for the resort on a weekday and **Table 7** summarizes trip generation on the weekend.

Table 6. Weekday Snowbasin Trip Generation

Land Use	Weekday						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Area ABC							
Residential	4,700	145	130	275	85	220	305
Retail	900	50	10	60	35	50	85
Ski Area/Lodging Employees	800	65	10	75	20	100	120
Area ABC Subtotal	**6,400**	**260**	**150**	**410**	**140**	**370**	**510**
Area DEF							
Residential	1,000	50	100	150	55	35	90
Retail	1,600	30	15	45	70	75	145
Ski Area/Lodging Employees	100	5	0	5	0	10	10
Area DEF Subtotal	**2,700**	**85**	**115**	**200**	**125**	**120**	**245**
Area G							
Residential	600	10	35	45	35	20	55
Retail	6,100	120	75	195	300	295	595
Ski Area/Lodging Employees	0	0	0	0	0	0	0
Area G Subtotal	**6,700**	**130**	**110**	**240**	**335**	**315**	**650**
Area H							
Residential	100	0	5	5	5	0	5
Area H Subtotal	**100**	**0**	**5**	**5**	**5**	**0**	**5**
TOTAL	**15,900**	**475**	**380**	**855**	**605**	**805**	**1,410**

Table 7. Weekend Snowbasin Trip Generation

Land Use	Saturday						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Area ABC							
Residential	10,000	265	350	615	70	425	495
Retail	1,400	80	15	95	100	65	165
Ski Area/Lodging Employees	1,100	95	15	110	25	140	165
Area ABC Subtotal	**12,500**	**440**	**380**	**820**	**195**	**630**	**825**
Area DEF							
Residential	3,400	105	225	330	140	115	255
Retail	1,900	45	20	65	105	90	195
Ski Area/Lodging Employees	100	10	0	10	5	15	20
Area DEF Subtotal	**5,400**	**160**	**245**	**405**	**250**	**220**	**470**
Area G							
Residential	1,200	20	70	90	75	40	115
Retail	9,700	140	85	225	335	320	655
Ski Area/Lodging Employees	0	0	0	0	0	0	0
Area G Subtotal	**10,900**	**160**	**155**	**315**	**410**	**360**	**770**
Area H							
Residential	100	0	10	10	10	5	15
Area H Subtotal	**100**	**0**	**10**	**10**	**10**	**5**	**15**
TOTAL	**28,900**	**760**	**790**	**1,550**	**865**	**1,215**	**2,080**

C. Resort Vehicle-Trip Distribution and Assignment

Trips from the Snowbasin Resort were assigned to the external road system by considering the internal attractions between the development areas as well as the external attractions of the surrounding communities. **Table 8** defines the trip distribution for each of the general land uses according to the development areas.

Table 8. Snowbasin Proposed Development Trip Distribution

Trip Type/Trip Origin		Destination						
		ABC	DEF	G	Salt Lake City	Ogden	Huntsville	Mtn. Green
Skier Trips	DEF	100%						
	G	100%						
Residential Trips	ABC							
	Internal Retail (64%)		5%	95%				
	Off Mountain Retail (16%)						67%	33%
	Off Mountain Other (20%)				75%	25%		
	DEF							
	Internal Retail (64%)	5%		95%				
	Off Mountain Retail (16%)						67%	33%
	Off Mountain Other (20%)				75%	25%		
	G (all non-skiing trips)						80%	20%
	H[1] (all trips)	15%		15%		20%	10%	
Retail Trips	ABC (employee/service)				75%	25%		
	DEF (employee/service)				75%	25%		
	G (non-resort-based trips)						80%	20%
Ski Area / Lodging Employee Trips	ABC				70%	20%	10%	
	DEF				70%	20%	10%	

1. The remaining 40 percent of the trips from Area H were assigned to the north, out of the study area.

Residential Trips. For the residential trip assignment, first, skier vehicle trips were separated from the total residential trips and assigned to Area ABC. Next, the remaining vehicle trips were designated a trip type; 64 percent were designated internal retail trips (i.e., trips to retail in another resort development area) 16 percent were designated as off mountain retail and 20 were designated as other off mountain destinations. Finally, each trip type was assigned to final destinations; i.e., of the 20 percent off mountain residential trips, 75 percent were assigned to Salt Lake City and 25 percent were assigned to Ogden.

As noted previously, because Area H is located in a distinct area away from the rest of the resort, trips from it were assigned separately; 40 percent were assigned to the north, 20 percent to Ogden, 10 percent to Huntsville, 15 percent to ABC, and 15 percent to G.

Retail Trips. As noted previously, the patronage for the retail developments in ABC and DEF would come from either day skiers or overnight guests and residents staying in those areas, so the only off-site trips would be made by employees and service vehicles. Those trips were assigned 75 percent to Salt Lake City and 25 percent to Ogden. For Area G the demand from Areas ABC and DEF were accounted for in the "internal retail" residential trips and the demand from Area H was identified in it's trip assignment. The remaining retail trips from Area G were assigned 80 percent to Huntsville and 20 percent to Mountain Green.

Ski Area/Lodging Employee Trips. Ski area employee and lodging employee trips were assigned 70 percent to Salt Lake City, 20 percent to Ogden and 10 percent to Huntsville.

Figures 6 and **7** show the resulting site-generated weekday and Saturday traffic volumes at buildout of Snowbasin Resort.

D. Density Transfer From Area H

As noted previously, Area H's location on the northwest side of the Pineview Reservoir places it in quite a bit different location than the other seven Snowbasin development parcels. Under the current land use zoning designation, up to 572 multifamily units could be developed on that site, which would add a significant volume of to SR 158 on the west side of the reservoir. Limiting traffic on that road is important because the *Powder Mountain Ski Resort Traffic Impact Study* has already identified that the SR 39/SR 158 would experience LOS F conditions with the buildout of that resort. As a result of this, Snowbasin has elected to minimize the development of that property, and transfer that density to the other seven parcels that are closer to the ski area. **Table 9** shows how this density transfer will help minimize traffic growth on SR 158, reducing trips from the parcel by approximately 760 trips per day on the weekday (91 percent) and by approximately 1,480 trips per day on the weekend (also 91 percent) over what could potentially be generated by that parcel.

Table 9. Trip Reduction from Area H Due to Density Transfer

Scenario	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Weekday								
Proposed Development	50 Units	73	1	5	6	5	2	7
Potential Development	572 Units	831	11	52	63	50	24	74
Trip Reduction		**-758**	**-10**	**-47**	**-57**	**-45**	**-22**	**-67**
Percent Reduction		**91%**			**90%**			**91%**
Weekend								
Proposed Development	50 Units	142	2	9	11	9	4	13
Potential Development	572 Units	1,622	21	105	126	100	49	149
Trip Reduction		**-1,480**	**-19**	**-96**	**-115**	**-91**	**-45**	**-136**
Percent Reduction		**91%**			**91%**			**91%**

III. TRAFFIC IMPACTS

A. Background Traffic Volume Projections

Background traffic volumes were derived from historical daily traffic volumes along SR-167 and SR-39. The growth factor was based on historical growth trends from 2003 to 2009 (**Table 10**). Based on the historical data, traffic on the roadways in the vicinity of the project is anticipated to grow at a rate of 2.5 percent per year.

Table 10. Historical Traffic Volume Growth

Road	Location	2003 ADT	2009 ADT	Annual Growth
SR-167	Weber/Morgan County Line	2,180	2,555	2.7%
			SR-167 Growth	**2.7%**
SR-39	SR-226 (Snow Basin Rd) SR-167 (Trappers Loop Rd)	3,040 3,040	3,545 3,495	2.6% 2.4%
			SR-39 Growth	**2.5%**
			Overall Growth	**2.5%**

For the purpose of the traffic analysis, the year 2030 was selected as a buildout analysis scenario, since it represent the typical 20-year future design horizon. The background traffic volume projections were calculated for 2030 by first removing the existing ski area traffic from Snowbasin Resort and Powder Mountain Resort, then applying the annual growth rate to the remaining background traffic, then adding the existing Snowbasin Resort ski volumes and the anticipated 2030 Powder Mountain ski volumes back into the newly calculated background volumes to determine the 2030 background traffic volume projections.

Figures 8 and **9** show the 2030 background weekday and Saturday traffic volumes. Note that for the purpose of the traffic analysis it was assumed that a second base parking lot would be constructed in Area C as part of background conditions (for a better apples to apples traffic comparison of with and without expansion operations), and that some of the existing ski area traffic would shift to the new lot.

B. Background Traffic Operations

Background operational conditions were analyzed at each of the study intersections based on procedures documented in the Highway Capacity Manual, (Transportation Research Board, Third Edition, 2000). **Figures 10** and **11** show the projected levels of service, lane geometry and signalization requirements for the study area intersections under 2030 weekday and weekend background traffic conditions, respectively. As the figures indicate, three intersections would require signalization; SR-39/SR-158 northwest of the project area, SH 39/Trappers Loop Road near Huntsville, and SR-167/Old Trappers Loop Highway at Mountain Green.

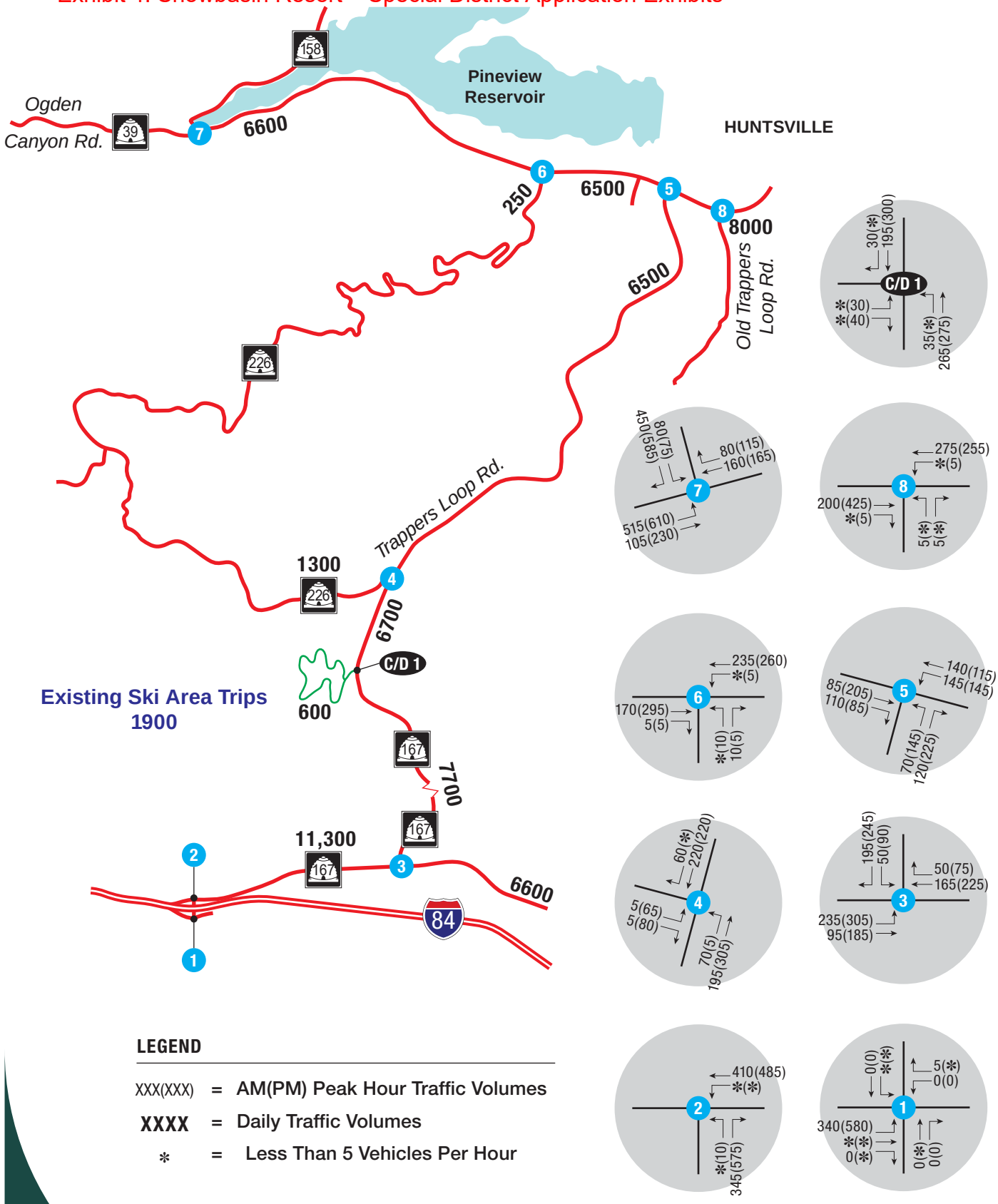
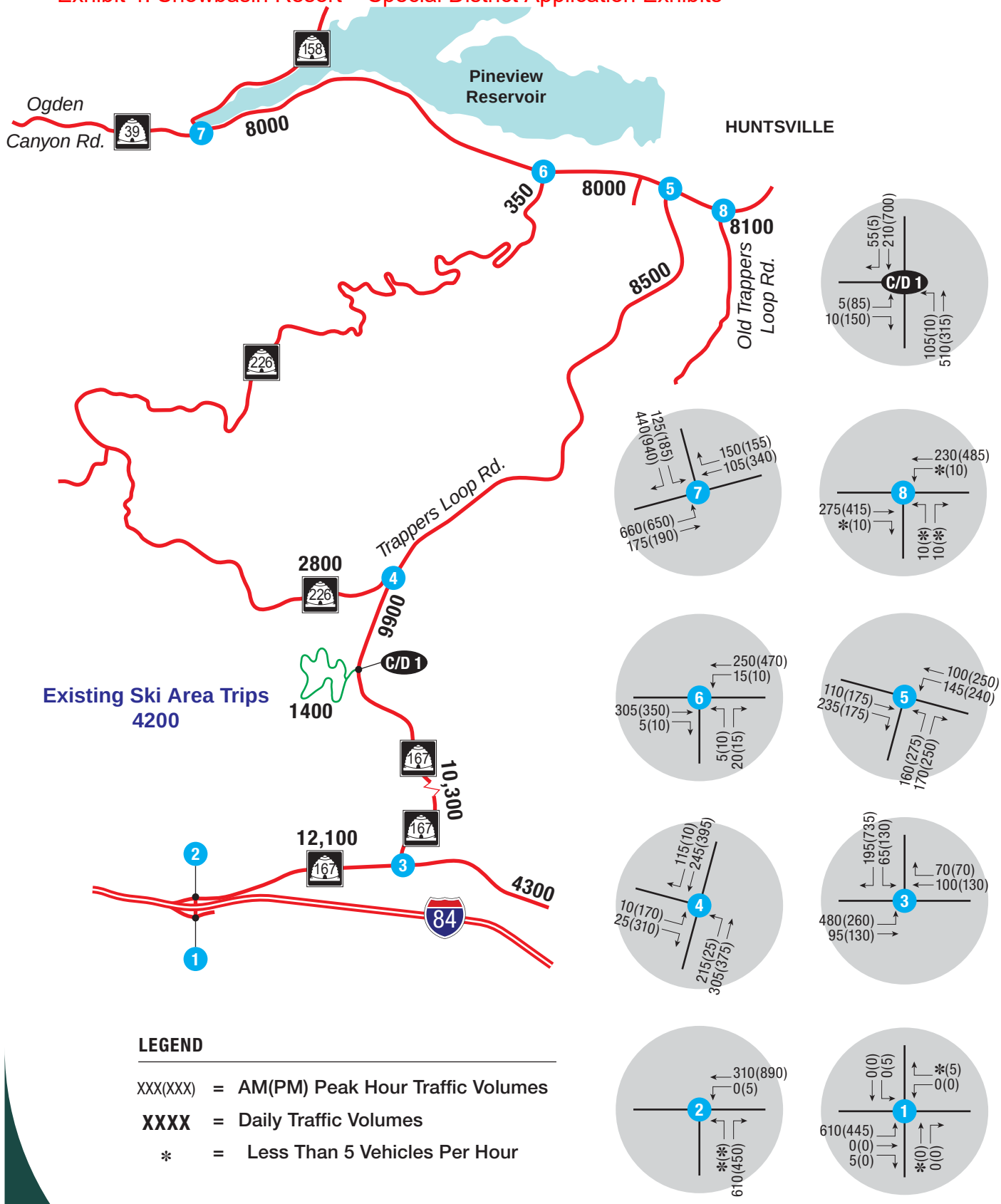


Figure 8
2030 Background Weekday Traffic Volumes

FELSBURG HOLT & ULLEVIG

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

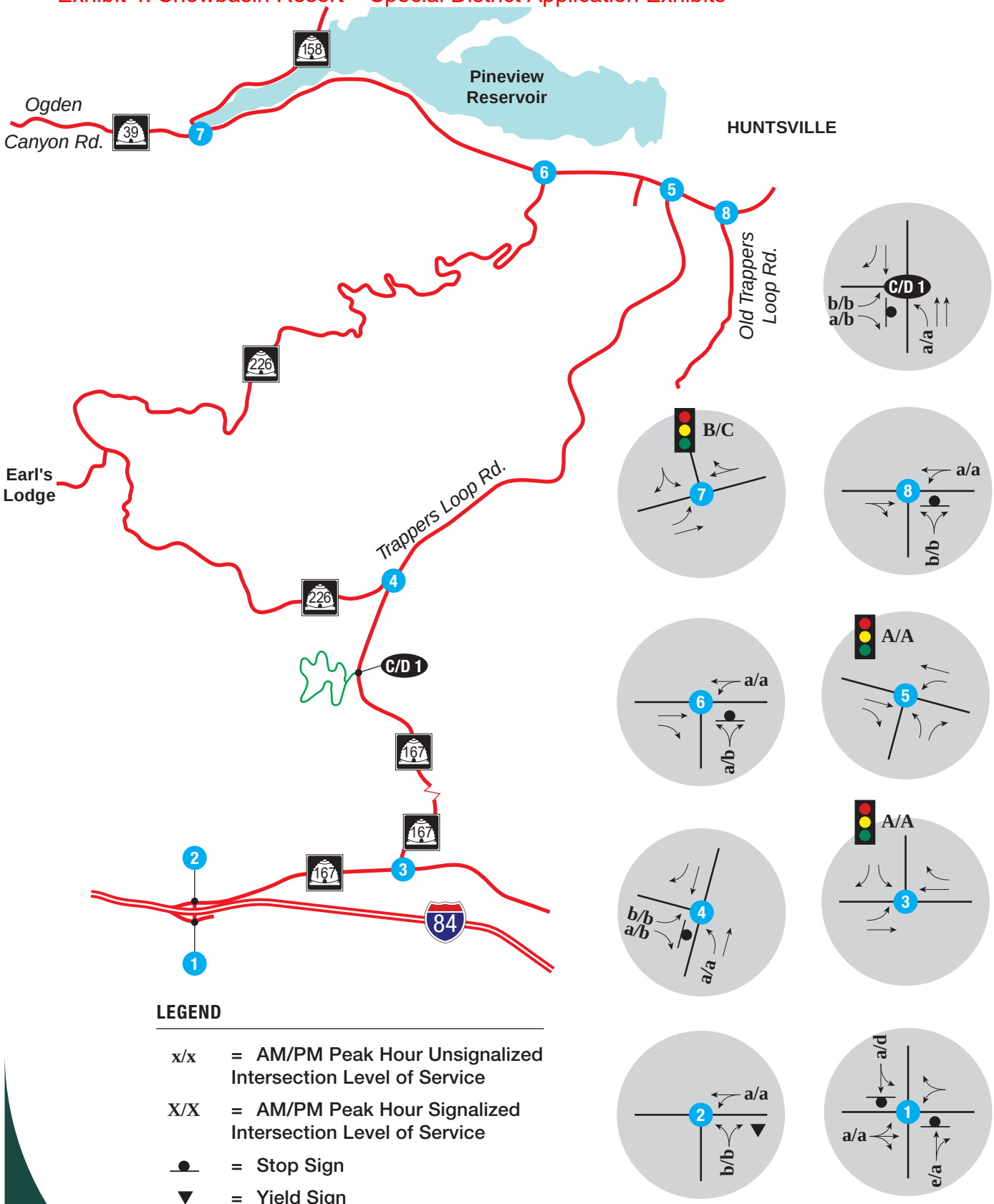
XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
*	=	Less Than 5 Vehicles Per Hour

Figure 9
2030 Background Saturday
Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

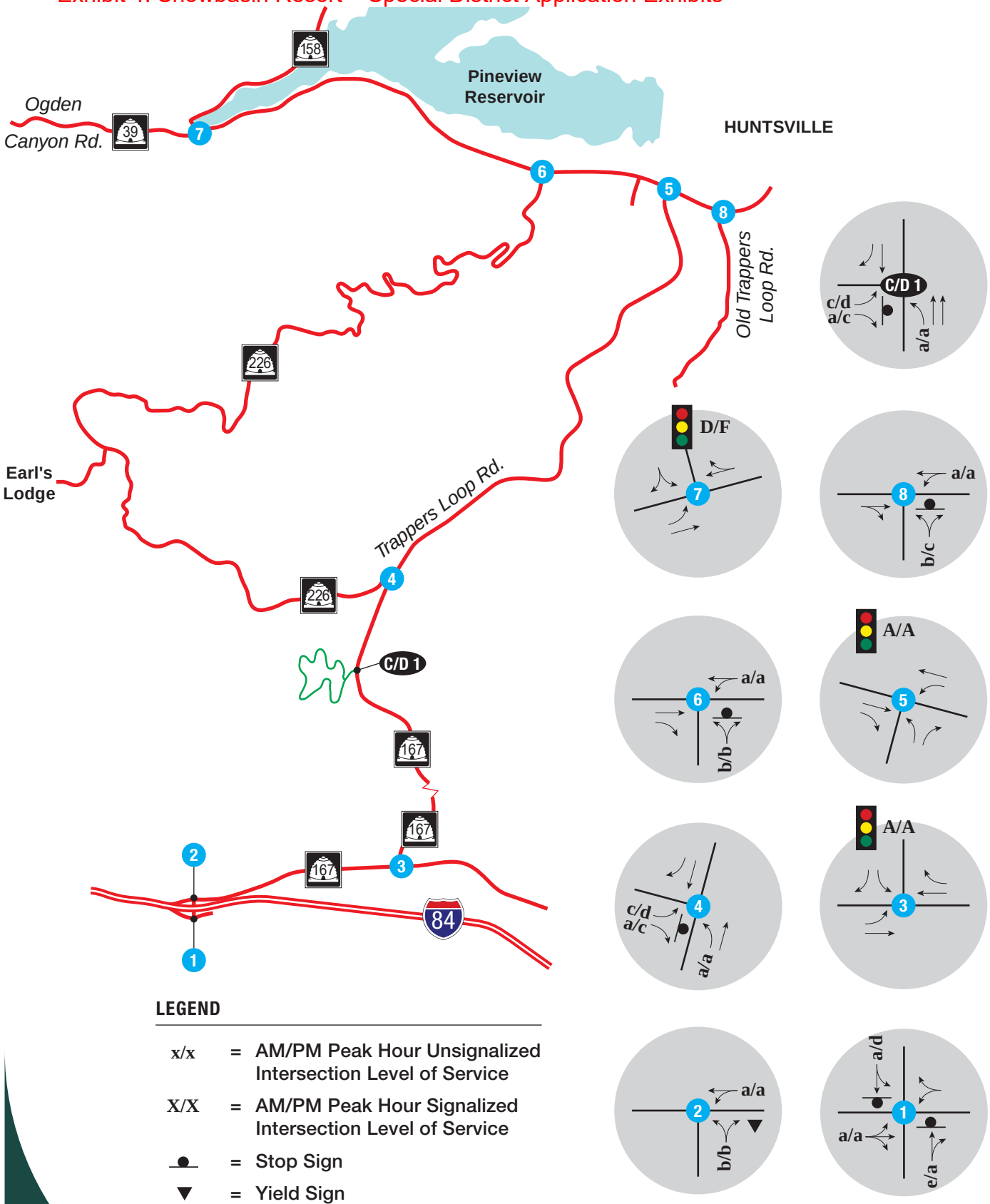
x/x	= AM/PM Peak Hour Unsignalized Intersection Level of Service
X/X	= AM/PM Peak Hour Signalized Intersection Level of Service
●	= Stop Sign
▼	= Yield Sign
	= Traffic Signal
	= New Traffic Signal

Figure 10
2030 Background Weekday
Level of Service and Lane Geometry

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10



LEGEND

x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
●	=	Stop Sign
▼	=	Yield Sign
	=	Traffic Signal
	=	New Traffic Signal

Figure 11
2030 Background Saturday
Level of Service and Lane Geometry

FELSBURG HOLT & ULLEVIG

NORTH

Snowbasin Traffic Analysis, 08-299-01, 12/02/10

The signal at the SR-39/SR-158 intersection was also identified in the Powder Mountain Ski Resort Traffic Impact Study. It is projected to operate at LOS C or better during the week and at LOS D on Saturday mornings, but would operate at LOS F during the Saturday afternoon peak hour. The poor level of service during the weekend afternoon peak was also documented in the Powder Mountain Ski Resort Traffic Impact Study and reflects build-out of Powder Mountain as part of the background traffic assumptions for this analysis.

The signals at SH 39/Trappers Loop Road and SR-167/Old Trappers Loop Highway are both projected operate at LOS A for all peak periods on both the weekday and weekend.

All remaining intersections are projected to remain stop sign or yield controlled, and all individual movements would operate at LOS C or better during the week. On the weekends all individual movements at the unsignalized intersections would operate at LOS D or better, with the exception of the northbound movement at the I-84 Eastbound Ramp intersection, which would operate at LOS E in the afternoon peak. It is not uncommon, however, for movements from driveways and side streets along higher volume roadways to experience poor levels of service. As noted in Chapter 17 (Unsignalized Intersections) of the Highway Capacity Manual (2000):

> *In evaluating the overall performance of two-way stop control intersections, it is important to consider measures of effectiveness in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th percentile queue lengths. By focusing on a single measure of effectiveness for the worst movement only, such as delay for the minor street left turn, users may make less effective traffic control decisions.*

At the I-84 Eastbound Ramp intersection the northbound traffic volumes would be less than five vehicles per hour, the v/c ratio would be 0.02 and the projected 95th percentile queue length would be one vehicle, so no improvements would appear to be necessary at that location. It is worth noting, however, that UDOT is considering replacing the current split diamond interchange with a full diamond configuration located somewhere between the two overpasses, and that this new interchange would eliminate the movement with the poor level of service. Morgan County and Mountain Green both support the idea of a new interchange.

Appendix C contains the background level of service worksheets.

C. Total Traffic Volume Projections

Build-out site generated traffic volumes were added to the 2030 background traffic volumes to estimate the 2030 build-out total traffic volumes. **Figures 12** and **13** show the 2030 total weekday and Saturday traffic volumes, while **Figures 14** and **15** show the lane geometry and levels of service for weekday and Saturday conditions.

D. Total Traffic Operations

Substantial lane geometry and signalization changes would be required for the proposed development of Snowbasin Resort at several existing and newly proposed access points. The following highlights the traffic operations and improvement needs at each study intersection at full buildout of the project.

Existing Intersections (Listed from south to north)

I-84 Off Ramp to Old Trappers Loop Highway

In the morning at this intersection the northbound movement would operate at LOS F and in the afternoon the southbound movement would operate at LOS E. Both of these movements are forecast to have extremely low volumes, however (five vehicles per hour southbound and less than five vehicles per hour northbound), because there is virtually no development or developable land south of the interstate, so no improvements to the existing lane geometry is recommended at this location.

As noted in the Future Background Conditions section, UDOT is considering replacing the current split diamond configuration with a full diamond interchange somewhere between the two existing overpasses. Morgan County and Mountain Green both support the proposed concept and Snowbasin Resort is not opposed to the idea, but would like input on the design should the project move to that stage. However, it should be noted that the current interchange configuration adequately accommodates Snowbasin traffic and that development of the resort is not dependent on interchange improvements.

I-84 On Ramp from Old Trappers Loop Highway

At this intersection the northbound movement would operate at LOS C in the morning and LOS B in the afternoon. These represent acceptable levels of service, so no improvements to the existing lane geometry is recommended at this location.

Trappers Loop Road (SR-167) / Old Trappers Loop Highway

This intersection near Mountain Green would operate at LOS F in the long-range future, either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, and therefore was assumed to be implemented in the background analysis. With a signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS B in the morning and LOS C in the afternoon. No additions to the current lane geometry would be required, but the eastbound left turn lane would need to be lengthened to accommodate the increased traffic volumes for that movement.

SR-167 / SR-226

This intersection currently serves as the primary access to Snowbasin Resort. In the future, the intersection would provide the primary access to Areas A and B, including the Earl's Lodge base area, which includes one of the main parking lots for day skiers. The intersection would require signalization by build-out of the resort and would operate at LOS B or better with a signal during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, southbound right and eastbound left) would need to be lengthened to accommodate the increased traffic volumes at the resort.

SR-167 / SR-39

This intersection at Huntsville would operate at LOS F in the long-range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the background analysis. With a signal and the addition of Snowbasin traffic the intersection would operate at LOS B or better during both the morning and afternoon peak periods. No additions to the current lane geometry would be required, but each of the existing turn lanes (northbound left, eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

SR-39 / Old Trappers Loop Road

This intersection would serve as the second of two access points to the residential portions of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach, with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-39.

SR-39 / SR-226

This intersection provides access to residences along Old Snowbasin Road. Due to the closure of this road during the winter as an access to Snowbasin Resort, no additional volumes are anticipated at this intersection. The intersection would operate at LOS B or better for all movements. No changes in the lane geometry would be required.

SR-39 / SR-158

This intersection provides access to residences along the west side of the Pineview Reservoir, and serves as a part of the access route to the Powder Mountain Ski Resort. The intersection would operate at LOS F in the long range future either with or without the Snowbasin Resort development. A signal was identified for this location as part of the *Powder Mountain Ski Resort Traffic Impact Study*, since that resort has a much more significant impact on traffic operations there (very little Snowbasin traffic would use this intersection, particularly the SR-158 approach). With the signal and the addition of Snowbasin buildout traffic, the intersection would operate at LOS E in the morning and LOS F in the afternoon on weekends, which is the same level of service as that reported in the *Powder Mountain Ski Resort Traffic Impact Study*. The *Powder Mountain Ski Resort Traffic Impact Study* further identifies a public awareness campaign and alternate route identification using an ATMS system to reduce delays at the intersection. The proposed system would provide automated signs that notify drivers prior to the SR-158 / SR-162 intersection that the SR-39 / SR-158 intersection is experiencing an overcapacity condition, and suggest the alternate route. The system would be triggered by queue detectors at the SR-158 / SR-39 intersection.

The majority of Snowbasin-related traffic at this intersection would be through volumes on SR-39 travelling between the resort and Ogden (i.e., the major street movement). Only Area H traffic would use the SR-158 (minor street) approach, and as noted in the Resort Traffic Generation section, Snowbasin has elected to transfer much of the allowed density on that parcel to other development areas in an effort to minimize the traffic impacts to that roadway (only 50 of the 572 allow units in Area H would be developed).

SR-39 / Intersection G8

This intersection has recently been constructed due to the purchase of an adjacent parcel to be constructed as a church. At the present time, there are no vehicles accessing this roadway, but with the construction of the retail center in Area G, this road will provide as a second access to that parcel. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS B or better during the morning and afternoon. No additions to the current lane geometry would be required, but each of the existing turn lanes (eastbound right and westbound left) would need to be lengthened to accommodate the increased traffic volumes for those movements.

New Intersections (listed from south to north)

SR-167 / Intersection C/D1

This intersection would serve as the primary access to the new ski area base in development Area C as well as the primary access to the residential development Areas D and E. It is one of two new intersections requiring signalization at build-out of Snowbasin Resort. With a signal the intersection would operate at LOS C or better during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and left turn lanes on both side street approaches.

SR-167 / Intersection D2

This intersection would serve as a secondary access point to areas E and F. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection E/F1

This intersection would serve as the primary access point to Area F and a secondary access to Area E. It would be stop sign controlled on the side street approach, with left turns out of the site operating at LOS D in the morning and LOS E in the afternoon. Left and right turn deceleration lanes and acceleration lanes would be required in each direction of SR-167, as would a left turn lane on the side street approach.

SR-167 / Intersection G7

This intersection would serve as the primary access point to a parcel of approximately 13 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G6

This intersection would serve as the primary access point to a parcel of approximately 51 residential units of Area G on the east side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G5

This intersection would serve as the primary access point to a parcel of approximately 12 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with the eastbound left turn operating at LOS C in the morning and LOS F in the afternoon; all movements would operate at LOS C or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G4

This intersection would serve as the primary access point to a parcel of approximately 25 residential units of Area G on the west side of SR-167. It would be stop sign controlled on the side street approach with all movements operating at LOS E or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G3

This intersection would serve as one of two access points to the residential portions of Area G on the east side of SR-167 near the SR-39 intersection. It would be stop sign controlled on the side street approach, with all movements operating at LOS D or better during both the morning and afternoon peaks. A left turn deceleration lane would be required on SR-167.

SR-167 / Intersection G2

This intersection would serve as the primary access to the retail and residential development in Area G and is one of two new intersections requiring signalization in the proposed build-out of Snowbasin Resort. Without a signal the side street left turns at the intersection would operate at LOS F in both the morning and afternoon peak periods and would experience significant queuing and delays in the afternoon. With a signal the intersection would operate at LOS A during both the morning and afternoon peak periods. In addition to signalization, the intersection would require left and right turn deceleration lanes in each direction of SR-167, and separate left turn lanes on both side street approaches.

SR-167 / Intersection G1

This intersection serves as a secondary access to the retail and residential development in Area G and would be restricted to southbound right turns in and eastbound right turns out only. It would be stop sign controlled on the side street approach with all the eastbound movement operating at LOS B or better during both the morning and afternoon peaks.

Appendix D contains the 2030 total level of service worksheets.

E. Highway Operations

Highway capacity analyses were performed for key sections of SR-226 (Trappers Loop Road), including:

1. SR-226 to Huntsville, uphill
2. SR-226 to Huntsville, downhill
3. SR-226 to Mountain Green, uphill
4. SR-226 to Mountain Green, downhill

Highway capacity analyses were performed using methodologies documented in the *Highway Capacity Manual*. The uphill segments were evaluated during the morning peak and the downhill segments were evaluated during the evening peak for the existing Saturday volumes, 2030 background Saturday volumes, and 2030 total Saturday volumes. The analysis was designed to capture the worst highway level of service for each direction during a peak ski Saturday. The results of the analyses are summarized in **Table 11**.

Table 11. Highway Levels of Service

Segment	Existing		2030 Background		2030 Total	
	Uphill AM	Downhill PM	Uphill AM	Downhill PM	Uphill AM	Downhill PM
SR-226 to Huntsville	LOS A	LOS D	LOS A	LOS D	LOS A	LOS E
SR-226 to Mountain Green	LOS A	LOS D	LOS A	LOS E	LOS A	LOS E

The south section of SR-167 is projected to carry 18,800 vpd on Saturdays at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (due in large part to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.67 in the afternoon, (i.e., the projected volume would be approximately 67 percent of the capacity of the roadway during the peak hour), so it would appear that the roadway would not require an additional downhill lane.

The north section of SR-167 is projected to carry 20,700 vpd on Saturdays at build-out of the resort. At these volumes the uphill direction would operate at LOS A during the morning peak (again due to the continuous climbing lane) while the downhill direction would operate at LOS E during the afternoon peak. The volume-to-capacity ratio for the downhill direction would be 0.73 in the afternoon, however, so it would appear that no additional lanes would be necessary on that section, either.

Appendix E contains the highway analysis worksheets.

F. Auxiliary Lane Requirements

Table 12 provides auxiliary length requirements for each of existing intersections while **Table 13** provides requirements for new intersections that would be built for the resort. The recommendations consider roadway speed limits, grades, traffic volumes and projected 95th percentile queues at each intersection at buildout of the project. Table 12 also includes the existing lane lengths at each intersection and indicates which turn lanes require additional length beyond what currently exists.

Table 12. Auxiliary Lane Requirements at Existing Intersections

Intersection	Lane	Length	Existing Auxiliary Lane Length
SR-167 / Mountain Green	EB LT	*845 ft (Includes 160 ft taper)*	375 ft (Includes 150 ft taper)
	WB RT	465 ft (Includes 160 ft taper)	550 ft (Includes 250 ft taper)
	SB LT	705 ft (Includes 225 ft taper)	800 ft (Includes 300 ft taper)
SR-167 / SR-226	EB LT	*500 ft (Includes 100 ft taper)*	200 ft (Includes 50 ft taper)
	NB LT	*770 ft (Includes 225 ft taper)*	750 ft (Includes 275 ft taper)
	SB RT	*625 ft (Includes 225 ft taper)*	350 ft (Includes 125 ft taper)
SR-167 / SR-39	EB RT	*630 ft (Includes 225 ft taper)*	475 ft (Includes 250 ft taper)
	WB LT	*700 ft (Includes 180 ft taper)*	600 ft (Includes 250 ft taper)
	NB LT	*860 ft (Includes 225 ft taper)*	650 ft (Includes 250 ft taper)
Old Trappers Loop / SR-39	WB LT	*525 ft (Includes 180 ft taper)*	None
G8 / SR-39	WB LT	575 ft (Includes 180 ft taper)	Newly Constructed (Length Unknown)

Italic – revisions to existing lane

Table 13. Auxiliary Lane Requirements at New Intersections

Intersection	Lane	Length
SR-167 / C/D1	EB LT	525 ft (Includes 100 ft taper)
	WB LT	295 ft (Includes 100 ft taper)
	NB LT	675 ft (Includes 225 ft taper)
	NB RT	610 ft (Includes 225 ft taper)
	SB LT	625 ft (Includes 225 ft taper)
	SB RT	625 ft (Includes 225 ft taper)
SR-167 / D2	EB RT	860 ft (Includes 225 ft taper)
	WB LT	565 ft (Includes 225 ft taper)
	NB LT	275 ft (Includes 100 ft taper)
	WB (L) ACCEL	1920 ft (Includes 225 ft taper)
SR-167 / E/F1	EB RT	770 ft (Includes 225 ft taper)
	WB LT	580 ft (Includes 225 ft taper)
	NB LT	300 ft (Includes 100 ft taper)
	EB (R) ACCEL	625 ft (Includes 225 ft taper)
	WB (L) ACCEL	1440 ft (Includes 225 ft taper)
SR-167 / G1	SB RT	675 ft (Includes 225 ft taper)
SR-167 / G2	EB LT	335 ft (Includes 100 ft taper)
	WB LT	250 ft (Includes 100 ft taper)
	NB LT	815 ft (Includes 225 ft taper)
	SB LT	600 ft (Includes 225 ft taper)
SR-167 / G3	WB LT/RT	Share Lane
	SB LT	565 ft (Includes 225 ft taper)
SR-167 / G4	EB LT/RT	Share Lane
	NB LT	745 ft (Includes 225 ft taper)
SR-167 / G5	EB LT/RT	Share Lane
	NB LT	745 ft (Includes 225 ft taper)
SR-167 / G6	WB LT/RT	Share Lane
	SB LT	565 ft (Includes 225 ft taper)
SR-167 / G7	WB LT/RT	Share Lane
	SB LT	565 ft (Includes 225 ft taper)

IV. PARKING

Parking demand at the ski area bases on the weekend was determined based on the skier and employment forecasts developed for the trip generation analysis. The following summarizes the assumptions used to create the parking forecasts.

Day Skiers. The existing weekend traffic volumes, parking lot counts and skier volumes were used to develop the parking demand for day skiers. The data indicated that the peak parking demand created by day skiers was 1,900 vehicles. For buildout conditions, this demand was assigned to the two base areas based on the available parking supply at each (roughly 2/3 to the Earl's Lodge base and 1/3 to the new Area C base).

Overnight Guest/Resident Skiers. The overnight guest and resident skiers were previously summarized in Table 4. Since Area A and Area C represent slopeside lodging and Area B would have a lift that connects it to the Earl's Lodge base, and all three areas would have in internal transit shuttle, it was assumed that there would be no parking demand on the two base area lots generated by those areas. Similarly, transit service is planned between Area DEF and the ski area bases, and it was assumed that 50 percent of the skiers from that area would use that service, so skier parking demand at the day lots was reduced by 50 percent. No transit reductions were assumed for skier trips from Areas G and H, since it is not yet know whether transit services would be provided between those areas and the ski area bases. The total demand was assigned to the two base areas based on the available parking supply at each.

Base Area Commercial Employees. Employee forecasts for the commercial properties planned in each base area were generated based on information published by the US Department of Energy on the typical number of retail employees per gross square foot of floor space. An average vehicle occupancy of 1.6 employees per vehicle was assumed to determine the parking demand generated by the employees. This vehicle occupancy is based on employee surveys collected at other ski resorts.

Ski Area/Lodging Employees. Employee forecasts for the ski area were based on the current employee to ski area capacity ratio on a peak day at Snowbasin and the planned future mountain capacity. Lodging employee forecasts were generated based on information from other ski resorts on the typical number of employees per hotel room and per condominium unit. As above, an average vehicle occupancy of 1.6 employees per vehicle was assumed to determine the parking demand generated by the employees.

Table 14 shows the projected parking demand at the two ski area bases at buildout of the resort based on the above assumptions. As indicated, the base areas are projected to generate a peak parking demand of approximately 3,200 vehicles on the weekend. The planned parking supply would be 3,700 spaces, so on a typical higher demand weekend the base area lots would be approximately 85 percent occupied. This represents a reasonable occupancy level, as it leaves an additional 500 spaces available for peak of peak demand days.

Table 14. Base Area Weekend Parking Demand

User Group	Earl's Lodge Base	Area C Base	Total
Day Skiers	1,300	600	1,900
Skiers from DEF	189	126	315
Skiers from G	87	58	145
Skiers from H	9	6	15
Commercial Employees	28	36	64
Ski Area/Lodging Employees	505	218	723
Total Demand	**2,118**	**1,044**	**3,162**
Capacity	2,500	1,200	3,700
Percent Occupancy	85%	87%	85%

V. TRAVEL DEMAND MANAGEMENT

Travel demand management (TDM) measures represent actions taken by a development to limit vehicle trips made to and from the site. Typically these measures encourage site users to select a travel mode other than a single occupancy vehicle to get to and from the property, such as carpooling, transit, or walking and biking.

As noted previously, Snowbasin plans on providing an internal shuttle system in Areas ABC and DEF so that overnight guests and residents of those areas have means to access the ski area base without using their vehicles. The shuttle is anticipated to reduce vehicle travel within and between those areas by approximately 4,800 trips per day on the weekend and 3,200 trips on the weekday. Similarly, a comprehensive system of pedestrian and bicycle trails will promote walking and cycling within and between Areas ABC and DEF. Snowbasin may also consider providing transit service between the ski area bases and Area G so residents and guests don't have to rely on their personal vehicle for trips to the project's primary commercial area.

Several other TDM measures could be implemented by Snowbasin to reduce the number of trips generated by the project. **Table 15** lists various measures targeting a specific resort user group that have been successfully implemented at other ski resorts. The table includes traffic reduction estimates for each measure based on usage levels experienced by those other resorts. As the table indicates, using the I-84 intercept lot for employee parking and providing a shuttle to the base areas has the greatest potential for reducing trips at the resort, and if all the measures listed in the table were implemented, traffic from the ski area base could potentially be reduced by 20 to 25 percent.

Table 15. Travel Demand Management Options

TDM Measure	Target Group	Potential Use	Potential Daily Trip Reduction
Use the I-84 intercept lot and provide shuttle service to the resort	Employees coming from the south	55 Percent	-800 vpd[1]
Construct an intercept lot near Huntsville and provide shuttle service to the resort	Employees coming from the north	55 Percent	-400 vpd
Transit service between Ski Area and Area G	Overnight guest and resident skiers in Area G	25 percent	-100 vpd
	Retail/shopping trips between Areas ABC, DEF and Area G	10 percent	-150 vpd from ABC -200 vpd from DEF
Transit service between Ski Area and Huntsville and Mountain Green	Day skiers and employees living in Huntsville and Mountain Green	25 percent	-200 vpd
Provide preferred parking in the Day Skier lots for vehicles with 3 or more occupants	Day Skiers	15 percent	-250 vpd
		Total	**-2,100 vpd**
		Trips from ABC without TDM Measures	12,500 vpd
		Trips from ABC with TDM Measures Implemented	9,400 vpd
		Potential Percent Reduction	20-25%

1. vehicle trips per day

VI. SUSTAINABILITY

Transportation sustainability is accomplished by limiting the traffic demand on the roadway system; fewer vehicles equals less congestion equals less environmental impacts. Snowbasin aims to achieve that by providing on-mountain accommodations that allow residents and guests to drive to the resort once and stay for multiple days instead of making trips back and forth every day. Additionally, Snowbasin will provide supportive commercial uses within the resort that allow residents and guests to fulfill many of their trip purposes (such as dining, entertainment and resort-related shopping) on site, limiting the number of trips to Mountain Green or Huntsville for those needs. Snowbasin will also provide an internal shuttle system between the resort development areas that will enable guests to access the ski area bases without using their vehicle. This system could operate as either an on-call system, a fixed route, fixed schedule system or hybrid system that offered fixed route service during the peak demand periods and on-call service during lower demand periods. Snowbasin may also consider similar transit service between Areas ABC-DEF and the primary commercial center in Area G to help reduce travel demand on the northern half of Trappers Loop Road between the ski resort and Huntsville. Finally, a comprehensive system of pedestrian and bicycle trails will promote alternate modes of travel by providing internal connections to each development area and connections between Areas ABC and DEF.

Other ways that the resort could reduce travel demand and promote sustainability include:

- Utilize the built I-84 intercept lot for employee parking and consider constructing an employee parking lot near Huntsville, then provide shuttle service between those locations and the resort.
- Consider providing preferred parking in the day skier lots for vehicles with three or more occupants. To promote reduced vehicle emissions and a healthier environment, preferred parking could also be extended to hybrid vehicles and other low-emissions vehicles.
- Consolidate services that are needed at the resort from any non-resort business, whether it be related to laundry, custodial, utility, security, or lawn/landscaping service.
- Provide transit service between the resort, Mountain Green and the Trappers Loop/SR 39 intersection.
- Consider the use of alternative fuel shuttles for the employee/day skier transit services.
- Provide bicycles for use by resort residents and guests.
- Provide information on shuttles, transit and other alternate modes to visitors and residents.

FELSBURG HOLT & ULLEVIG

engineering paths to transportation solutions

December 29, 2011

MEMORANDUM

TO: Ms. Terri Harrington, LEED AP, Design Workshop

FROM: Jeff Ream, P.E., PTOE, Felsburg Holt and Ullevig

SUBJECT: Clarifications for Morgan County on the Snowbasin Traffic Study
FHU Reference No. 08-299-01

This memo addresses the comments provided by A Trans Transportation Engineering in the November 28, 2011 letter to Morgan County regarding the Snowbasin Resort Master Plan Transportation Element (FHU, December 2010).

The base assumptions from the Snowbasin Resort Transportation Master Plan include:

> *1. The commercial development is mainly in support of the local area and therefore those retail land uses are not generating traffic as it is mainly local to the resort.*
>
> *2. The number of day skiers remains constant.*

While we concur with the principal of #1, since some of the future developments are outside of SR 226 and therefore some traffic should be expected from the surrounding residential areas. Therefore, some additional traffic is likely on SR 167 however, it is not likely to be significant.

FHU agrees with the above statement and has factored off-site traffic into the analysis. As noted on page 17 of the study, while the retail located at the base of the ski area (area ABC off of SR 226 and area DEF on the opposite side of SH 167) is anticipated to attract all of its patronage from day skiers, overnight guests and residents staying in those areas, and the retail in Area G at the north end of SR 167 is anticipated to attract most of its demand from those same user groups, it is anticipated that the Area G retail would also attract patronage from existing and future residents in Huntsville and Mountain Green, beyond that generated by day skiers and resort guests and residents. To determine the Huntsville and Mountain Green portion, the total retail trips generated by G was calculated based on ITE rates (9,700 trips on a Saturday), then the retail portion of the external residential trips from ABC (95 percent of 64 percent of 10,000 daily trips, or 6,100 trips), DEF (95 percent of 64 percent of 3,400 trips, or 2,100 trips) and H (15 percent of 100 trips) was subtracted from that total. The balance (1,500 trips) was assumed to come 80 percent from Huntsville and 20 percent from Mountain Green, based on the relative sizes of those communities and the location of the retail at the north end of SR 167.

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The #2 assumption should be backed by the skier-day related data for the past several years. To assume a stable day skier population should be supported by historic unchanged skier growth. Background growth in the area is likely to occur and more data be provided to address this growth.

FHU believes that since the planned development would change the nature of the resort from a day skier-only destination to a stay and ski destination with day-skier traffic, it would not be appropriate to simply look at historical skier visits at Snowbasin and assume that a similar growth pattern would continue. With no lodging available right now, every skier on the mountain must arrive from somewhere else in the morning and return there in the afternoon. Thus, the current mix of skiers includes residents of the Wasatch Front (traditional "day skiers") as well as guests staying in either the Wasatch Front or at other mountain resorts areas and driving to Snowbasin for a day of skiing (potential resort guests). It is reasonable to assume that if lodging were available at Snowbasin, some of both of these groups of skiers would stay on the mountain rather than day trip there. So, while the basic assumption is that the overall number of skiers coming from off-mountain won't change, the study did assume that some of the current Snowbasin day skiers that are coming from the Wasatch Front or staying in lodging at Park City or other resorts in the area will either buy houses or stay in the rental properties within the resort once they become available. When they do, those skiers are shifted from the day skier count to the on-mountain skier count, and the study also assumed that for every day skier who buys property and becomes a resident-skier, a new day skier would take their place, and these new day skiers would come from the growing population in the Wasatch Front. Similarly, the study anticipated that the additional population in the Wasatch Front will be a major target market for the on-mountain properties; i.e., they would day-ski at various resorts when they first move to the area, decide that Snowbasin is their favorite, and buy or rent property there. These patrons wouldn't necessarily show up in the day skier count, but they do represent an additional part of the growth anticipated in the Wasatch Front. So with these two assumptions the study has accounted for the Wasatch Front growth and day skier growth.

In the bigger picture, Snowbasin would grow from 3,700 weekend skiers today to 8,500 at buildout from the area, which, if it is assumed that Snowbasin would be built out in 2040 (to be consistent with the Wasatch Front forecasts), represents an annual skier growth of 2.5 percent per year. Since this is higher than the 1.5 percent growth forecast for the Wasatch Front, it can therefore be stated that the study accommodated both planned local growth as well as growth from additional tourist/second homeowners from outside the Wasatch Front.

2) One of the concerns is the smoothing of the peak hour factor. The existing data counts from the data collection company "L2" shows that many of the movements are operating on a 0.6 to 0.8 peak hour factor but the analysis, even the existing conditions, uses a default 0.92 peak hour factor. This factor adjusted to the smaller peak hour factor is projected to reduce all LOS by at least one level. An example is Intersection 3, during the 2030 Saturday Peak period. Figure 13 provides the volumes and Figure 15 provides the LOS. If even a 0.85 peak hour factor is applied, then the LOS increases from the report stated average delay of 29.5 seconds / LOS C to 42.4 seconds / LOS D. This is the problem at most of the ski areas, the peak pulse that occurs with the beginning and ending of the day.

FHU will update the existing conditions analysis so that the results reflect the following current overall intersection peak hour factors:

Intersection Number	Location	AM Peak Hour Factors	PM Peak Hour Factors
1	I-80 Eastbound Ramp	0.78/0.72[1]	0.84/0.80[1]
2	I-80 Westbound Ramp	0.88/0.82	0.85/0.90
3	SR 167/Old Trappers Loop Rd.	0.88/0.86	0.87/0.88
4	SR 167/Snowbasin Road	0.87/0.86	0.94/0.86
5	SR 39/SR 167	0.89/0.88	0.88/0.98
6	SR 39/SR 226	0.78/0.85	0.87/0.93
7	SR 39/SR 158	0.81/0.86	0.95/0.95
8	SR 39/Old Trappers Loop Road	0.78/0.85	0.87/0.93

1. Weekday/weekend peak hour factor.

These revisions are not anticipated to result in significant changes to the existing levels of service reported in the study.

For future conditions, however, as background traffic volumes grow and the resort is built out, it is anticipated that traffic volumes will spread out over the course the peak hour and the peak hour factor will increase. Note that in the above table that the current Saturday afternoon peak hour factors are higher than the other periods analyzed, particularly at the busier intersections in the study area, which reflects this peak spreading. The use of 0.92 as the future peak hour factor is reflective of this peak spreading.

These concerns are seen in many of the ski areas. Both Big and Little Cottonwood Canyons (SR190 and SR 210) experience regular congestion in the AM and PM peak period. They are both State Highways with 2 lanes and passing lanes at some locations. In the winter months they don't exceed an average 9,000 ADT but because of the peaking time of ski traffic, the roadway congestion is significant on most Saturday and Sundays.

The ski areas at the top of both Big and Little Cottonwood Canyons have limited lodging, which is more reflective of what currently Snowbasin is, rather than what it would be once the proposed development is complete. Without lodging or other base area development, the demand on both canyon roads is primarily limited to day skiers, who all generally arrive in a 2-3 hour window in the morning and leave in a 1-2 hour window in the afternoon, centered around the ski area hours of operations. Since there is little traffic on the road outside of those hours, the peak hour volume represents a higher percentage of the daily volume, and the result can be peak period congestion on a road with lower daily volumes (as a minor clarification, this peak-to-day relationship is the *k factor*, while the *peak hour factor* is the relationship between the peak 15 minutes period and the peak hour). In contrast, built out resorts like Park City, Deer Valley, The Canyons, etc., have a resident population at their bases, not all of which are skiing, that can and do make day trips that occur outside of the ski resort's peak periods (eating, shopping, sightseeing, etc), so while the peak hour volumes going into and out of those resorts may be the same or similar to the Cottonwood Canyon ski area volumes, the overall daily volumes on the road roads around those resorts are generally higher. Once complete, the Snowbasin resort will be more similar to the latter situation, rather than the former.

In addition to the above, it should also be noted Snowbasin can be accessed from either the north or the south on SR 167, as opposed to the one way in, one way out access for Big and Little Cottonwood Canyon, and that SR 167 has a continuous uphill climbing lane from both directions. Given these factors, the current traffic conditions on neither canyon road would appear to be a very good comparison with future traffic conditions on the access routes at Snowbasin.

The other concern is the origin destination of most of the external trips is stated as 70-75% to Salt Lake and 20-25% to Ogden. Yet when Figure 7 is considered, the traffic does not seem assigned in a similar proportion. An example is that at Intersection 4 in the AM peak, 495 trips are associated to/from the north (Ogden) and 355 to/from the south (Salt Lake), this represents a 60/40 split to the north (Ogden). With the amount of internal traffic, we could look to the external intersection of 3 and 5. Intersection 5 has 525 new trips and intersection 3 has 350 new trips in the 2030 AM peak. This again is a 60/40 split to the north. This seems different than the stated split in the study and will impact the results as we believe the critical section will be from I-84 to SR 226.

The trips shown in Figure 7 are reflective of the trip distribution information provided on Table 8 (page 17) of the traffic study, and include, in addition to the 75/25 Salt Lake/Ogden out-of-area distribution cited above, all of the retail trips made between the resort's residential components and the primary retail center in area G, at the north end of Trappers Loop Road, as well as off-mountain retail and other trips between Areas ABC and DEF toward Huntsville (and Powder Mountain) and Mountain Green (and Park City). Since most of these residential units are located in Areas ABC and DEF at the summit of Trappers Loop Road, and commercial trips to Area G represent approximately 2/3 of the external trips generated by those residential units, it skews the overall trip distribution at those driveways to the north. In addition, one of the two access points to Area DEF is located north of the Snowbasin entrances, so some of the skier trips from that Area are also assigned to and from the north, further skewing the distribution in that direction.

It should also be noted that the volumes on Figure 7 exclude the existing day skier traffic at Snowbasin, which is more heavily oriented to and from the south (Figure 3).

The following is a related traffic comparison showing the relative projected increase by associated development. One concern is that the 2009 north Morgan study indicated that the interchange at I-84 is operating at 50% of its capacity and with background and Snowbasin expansion considered, that increase is 150% (16,500/6600). This seems as conflicting between the studies. The primary concern is that Old Trappers Loop is a two lane roadway with a projected Capacity of 12,000 to 14,000 ADT. The future projected ADT is 16,000 to 24,000 ADT (depending on growth scenario and report). This road will be congested and difficult to access.

Most of these roadways represent UDOT facilities and therefore it is recommended that UDOT provide comments on the analysis and ability of the roadways to accommodate the increased demand.

UDOT has reviewed the traffic analysis and provided letter comments, and FHU provided a response to those comments (attached). That response further clarifies the traffic operations around the interchange area and along Old Trappers Loop Road, and indicates that area would operate with adequate levels of service, with the exception of two low volume movements at the off ramp (i.e., the southbound left/through movement in the afternoon and the northbound through right turn in the morning, each of which carries volumes of five vehicles or less during those peak periods). Note also that a signal would be installed at the SR 167/Old Trappers Loop Road intersection once traffic volumes warrant one, and that signal would provide breaks in the traffic stream on Old Trappers Loop Road that would provide opportunities for side street movements on that segment of road to turn onto the main street.

The employee trip generation is also a concern as there are a projected 1,167 new employees, Table 5, with an assumed 1.6 vehicle occupancy factor. That would equate to 729 vehicles at full employee usage. A trip up and a trip down would be 1,458 ADT. According to Table 7, there will be 1,110 ADT which seems reasonable once the occupancy factor are considered, but the 105 AM peak and 160 PM seems unreasonable. This indicates that only 10% of the employee trips occur in the peak periods. Are the employee trips actually spread throughout the day as a normal roadway which accommodates several types of trips?

Note that the ski area peak periods are driven by the arrival and departure of skiers, which occurs after most ski area employees have arrived in the morning (8:30 to 9:30 AM), and before most employees depart in the afternoon (4:00 to 5:00 PM), hence the lower percentage of employee trips made in those peak hours.

I trust the above information is sufficient for the County to continue their review of the project. If you have any comments or questions, or need additional information, please give me a call at (303) 721-1440.

November 28, 2011

Mr. Grant Crowell, AICP
Director
Morgan County
48 West Young Street
Morgan, UT 84050

TRANSPORTATION ENGINEERING

RE: Snowbasin and Mountain Green Area Transportation Review

The following is a transportation review of the North Morgan County / Mountain Green area. It includes reviews of the 2009 North Morgan County Transportation Planning Study and the Snowbasin Resort Transportation Master Plan.

Current traffic levels for 2010 from Traffic on Utah Highways has 5,955 ADT on SR 167 between the interchange and Trappers Loop and 3,320 AADT on Trappers Loop (SR 167). The 2009 North Morgan County Transportation Planning Study identifies that the interchange is functioning at approximately 50% of its capacity. That same plan discusses options for interchanges in the area. One option was the direct alignment of a new interchange with Trappers Loop (SR 167). This would allow for a commercial node at this location and also is a more direct connection for the ski traffic associated with this corridor, which in the winter, represents the majority of the traffic.

This interchange is not funded or planned on any State Improvement Plan and it is not clear how the interchange was included in the General Plan. The question of the interchange realignment is one of what is the long range vision for Mountain Green. Long range projections indicate that SR 167 from I-84 to Trappers Loop may carry as much as 16,500 ADT. That's 275% higher volumes than currently carried. The new interchange would eliminate much of this traffic along this section of road and help maintain the rural flavor of the area, but the existing interchange can accommodate the future projected traffic flow. Otherwise, expect an almost continuous flow of vehicles along this section of road in the AM and PM peak periods.

The base assumptions from the Snowbasin Resort Transportation Master Plan include:

1. The commercial development is mainly in support of the local area and therefore those retail land uses are not generating traffic as it is mainly local to the resort.
2. The number of day skiers remains constant.

While we concur with the principal of #1, since some of the future developments are outside of SR 226 and therefore some traffic should be expected from the surrounding residential areas. Therefore, some additional traffic is likely on SR 167 however, it is not likely to be significant.

The #2 assumption should be backed by the skier-day related data for the past several years. To assume a stable day skier population should be supported by historic unchanged skier growth. Background growth in the area is likely to occur and more data be provided to address this growth.

In reviewing the study, two primary concerns occur in the analysis, the use of peak hour factor, and the application of the origin – destination to the traffic.

One of the concerns is the smoothing of the peak hour factor. The existing data counts from the data collection company "L2" shows that many of the movements are operating on a 0.6 to 0.8 peak hour factor but the analysis, even the existing conditions, uses a default 0.92 peak hour factor. This factor adjusted to the smaller peak hour factor is projected to reduce all LOS by at least one level. An example is Intersection 3, during the 2030 Saturday Peak period. Figure 13 provides the volumes and Figure 15 provides the LOS. If even a 0.85 peak hour factor is applied, then the LOS increases from the report stated average delay of 29.5 seconds / LOS C to 42.4 seconds / LOS D. This is the problem at most of the ski areas, the peak pulse that occurs with the beginning and ending of the day.

These concerns are seen in many of the ski areas. Both Big and Little Cottonwood Canyons (SR190 and SR 210) experience regular congestion in the AM and PM peak period. They are both State Highways with 2 lanes and passing

lanes at some locations. In the winter months they don't exceed an average 9,000 ADT but because of the peaking time of ski traffic, the roadway congestion is significant on most Saturday and Sundays.

The other concern is the origin destination of most of the external trips is stated as 70-75% to Salt Lake and 20-25% to Ogden. Yet when Figure 7 is considered, the traffic does not seem assigned in a similar proportion. An example is that at Intersection 4 in the AM peak, 495 trips are associated to/from the north (Ogden) and 355 to/from the south (Salt Lake), this represents a 60/40 split to the north (Ogden). With the amount of internal traffic, we could look to the external intersection of 3 and 5. Intersection 5 has 525 new trips and intersection 3 has 350 new trips in the 2030 AM peak. This again is a 60/40 split to the north. This seems different than the stated split in the study and will impact the results as we believe the critical section will be from I-84 to SR 226.

The following is a related traffic comparison showing the relative projected increase by associated development. One concern is that the 2009 north Morgan study indicated that the interchange at I-84 is operating at 50% of its capacity and with background and Snowbasin expansion considered, that increase is 150% (16,500/6600). This seems as conflicting between the studies.

Saturday Traffic by Development (in ADT)

Route Location	Existing	2030 Background ADT	2030 with Snowbasin Expansion ADT	Snowbasin Expansion Increase in Traffic	% increase over Existing	% increase over Background	% of new Snowbasin Traffic of Total 2030 Traffic
SR 167 I-84 to Trappers	6,600	12,100	16,500	+4,400	67%	36%	27%
SR 167 Trappers South	5,300	10,300	18,800	+8,500	160%	83%	45%
SR 226	4,200	2,800	9,600	+6,800	162%	242%	71%
SR 167 Trappers North	3,800	8,500	20,400	+11,900	313%	140%	58%

The primary concern is that Old Trappers Loop is a two lane roadway with a projected Capacity of 12,000 to 14,000 ADT. The future projected ADT is 16,000 to 24,000 ADT (depending on growth scenario and report). This road will be congested and difficult to access.

Most of these roadways represent UDOT facilities and therefore it is recommended that UDOT provide comments on the analysis and ability of the roadways to accommodate the increased demand.

The two critical issues above need to be addressed before a specific comment on queue length and lane geometry can be finalized as these will both impact the operational analysis of each intersection.

Secondary issues are that the accident rate is identified but no extrapolation of how expected accidents would increase, or an evaluation of which roadway segments are already above expected values and if any mitigation is possible.

The employee trip generation is also a concern as there are a projected 1,167 new employees, Table 5, with an assumed 1.6 vehicle occupancy factor. That would equate to 729 vehicles at full employee usage. A trip up and a trip down would be 1,458 ADT. According to Table 7, there will be 1,110 ADT which seems reasonable once the occupancy factor are considered, but the 105 AM peak and 160 PM seems unreasonable. This indicates that only 10% of the employee trips occur in the peak periods. Are the employee trips actually spread throughout the day as a normal roadway which accommodates several types of trips?

Please contact me with any questions.

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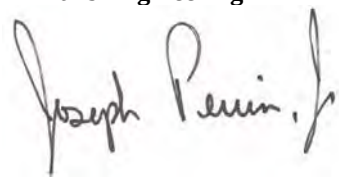
Sincerely,
A-Trans Engineering



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Principal

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Snowbasin Cost Benefit Analysis: Morgan County

September 20, 2011

Prepared for:

Snowbasin Resort Company

Prepared by:

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Fiscal Impact Analysis

TABLE OF CONTENTS

Introduction

This report summarizes the results of a Cost Benefit Analysis of the proposed development program of the portion of Snowbasin Resort in Morgan County, in support of Snowbasin's discussions with the County regarding its development plans. The study has been requested by the County as background information to help evaluate the development proposal.

This report is intended to address the County's information needs. It includes the following primary components:

1. Resort market feasibility discussion: This section contains a general discussion of the market feasibility of the proposed development, and specifically examines whether there is evidence of market demand sufficient to support the project. Because the project is anticipated to have a very long buildout horizon (50+/- years, spread across 16 phases of up to five years each), any discussion of market feasibility must necessarily be relatively generalized. As such, this section of the report speaks broadly to the market context for the mountain resort industry in the upcoming decades, in the Rocky Mountains generally and in the Wasatch Front more specifically, as well as attributes of the Snowbasin proposal and context, in order to assess market feasibility.

2. Economic impact analysis: This element of the study addresses the direct and secondary economic impacts of the project to Morgan County. The analysis addresses impacts in terms of economic output, jobs, and aggregate labor income. The analysis utilizes a variety of assumptions regarding the economic performance of various elements of the project (e.g. unit occupancy patterns, lodging occupancy and pricing, visitor spending patterns, construction values, etc.), and also utilizes economic data and factors from the IMPLAN economic impact modeling system.

3. Fiscal impact on the Morgan County government: This section of the study examines the fiscal impact of the proposed Snowbasin project on the Morgan County government, by examining the revenues and expenses attributable to Snowbasin which would accrue to Morgan County's budgetary funds.

Methodological details for each study element are discussed in the respective study sections.

Summary of Key Findings

Among the key findings of the Cost Benefit Analysis are the following:

- Market feasibility: From a skiing and mountain resort industry standpoint, the Rocky Mountain region in general, Utah specifically, and Snowbasin in particular are extremely well positioned for future growth. In the period between 1980 and 2010, the Rocky Mountain region increased its skier visits overall from approximately 15 million to 21 million. During this same period, Utah skier visits have doubled (from approximately 2 million to over 4 million visits). The state (and particularly the Wasatch Front resorts) possess superlative competitive advantages with respect to air access, convenient local accessibility, and consistently high-quality, abundant snowfall. Utah also enjoys significant competitive advantages on a national and international scale with respect to additional factors that are traditional catalysts for skier retention and long-term growth: scenic beauty, relatively inexpensive and high-quality lodging, less crowded experiences on the mountain slopes and in villages and towns, and perceived high value of experience relative to price. These factors have greatly influenced Utah's ability to support significant tourism growth during this extended timeframe.

  At Snowbasin Resort, skier visits have experienced a rate of growth which is greater than that for the state of Utah—particularly since 2000, spurred by base area and on-mountain improvements and the hosting of the Winter Olympic Games (including the prestigious downhill event). In the last 10 years, Snowbasin skier visitation has more than doubled from approximately 120,500 visits in 2001/02 to in excess of 240,000 in 2010/11. The resort is now reaching a critical mass where the creation of a long-range land use/master development plan has become realistic to consider. Within the context of the relatively high growth potential of skiing, and particularly destination ski visitation, it is reasonable to anticipate rates of growth in both total visits and destination visits at Snowbasin in excess of statewide averages. In fact, looking back approximately 30 years to 1980, Snowbasin has grown from about 90,000 annual visits to the current general range of about 250,000—a nearly three-fold increase.

  In light of the multi-faceted summer and winter recreation and tourism offerings in the Snowbasin/Ogden Valley/Morgan County area, many of which are already well developed, a long-range projection of consistent growth in year-round tourism/destination visitation in the area is both reasonable and compatible with existing planning vision in the Morgan Valley General Plan, and the various supporting documentation. Both the Morgan Valley and Ogden Valley will continue to attract seekers of a recreation-oriented active lifestyle year round, which will reinforce and create a year-round resident demand component for the Snowbasin development. The close proximity of the area to the Salt Lake City airport will further create ongoing interest in viable second-home investment opportunities from already established

national markets. Additionally, the competitive advantages of the overall Snowbasin Resort and the combined Ogden Valley and Morgan County/Mountain Green area will become more recognized by a greater audience as resort infrastructure improvements are implemented and the planned resort community is initiated.

Assuming that the Snowbasin Master Development Plan for both on-mountain and base area improvements is permitted to be implemented as proposed on a logical, phased basis; that there are no unanticipated calamitous events that significantly impact the region; and the competitive advantages cited above for both the state of Utah and the greater Ogden Valley/Morgan County remain, it is reasonable to project continued long-term growth in destination visitation in winter and summer.

A growth model that projects that skier/snowboarder visitation in Utah will increase by an average annual rate of 2 percent from 2010-2020, and then by an average annual rate of 1.5 percent between 2020-2040, would yield an estimated 6.7 million Utah skier visits in 2040, with growth anticipated to arise from both in-state and destination markets. This model is reasonably conservative in comparison to the approximately 3 percent average annual growth rate in the state's skier visitation during the prior 30-year period, 1980-2010.

Subject to the capacity of its on- and off-mountain infrastructure, Snowbasin would be anticipated to grow in excess of statewide average rates, given the resort's comparatively undeveloped state and future potential (in comparison to more mature destination resorts elsewhere in the state and region). The development of Snowbasin's base area villages, lodging and amenities should enable the ski area reposition itself as a destination resort, helping catalyze and support future growth.

While the projected market demand for skiing and snowboarding in Utah and at Snowbasin may appear ambitious, it should be noted as a frame of reference that Colorado presently supports over 12 million annual skier visits. Several Colorado resorts (including Vail, Breckenridge, Keystone, Steamboat, and Winter Park) have all reached or exceeded the 1 million visit threshold. Taken in that context, and recognizing the significant national and international reputation possessed by the state of Utah as part of the overall Rocky Mountain region as well as the excellent infrastructure already in place, the market demand projections we have identified are realistic and achievable, assuming continued growth in the broader skier market.

- Economic impact: The economic impacts of the Snowbasin development have been analyzed from the standpoint of output, employment, and labor income. For each of these measures, both "direct" and "secondary" economic impacts have been analyzed. These terms have the following meanings:

- "Output" is the value of goods and services produced and sold to final users during a calendar year. "Employment "is defined as jobs (with full-time and part-time jobs counted equally), while "labor income" is defined as employee compensation plus proprietor income.

- "Direct" impacts represent the output, employment, and labor income associated with economic activity directly generated by the project (such as construction activity and visitor purchases). Most of the direct impacts are expected to occur onsite within the Snowbasin development.

- "Secondary" (or "multiplier") impacts refer to additional rounds of economic activity indirectly stimulated by the project as a result of supply-chain activity and the spending of employee income earned directly or indirectly as a result of the project. Secondary impacts are anticipated to primarily occur offsite of the Snowbasin development (insofar as most supplier businesses would likely be located offsite, and employee purchases of household goods and services would be likely to occur offsite as well).

- "Total" impacts represent the sum of direct and secondary impacts.

Direct and total economic impacts of the Snowbasin project are anticipated to increase as the project builds out and the economic activity of visitors, second homeowners, and local resident occupants of the project correspondingly grows. Upon project stabilization after buildout, ongoing annual economic impacts are projected as follows:

- Output: Direct output attributable to the project upon stabilization after buildout is projected at $138 million annually. Secondary output, anticipated to primarily occur offsite of the development, is projected at $57 million annually. Total output is projected at $195 million annually.

- Employment: Direct jobs created by the development upon stabilization after buildout are projected at 2,044 jobs. As is typical for resort settings and the hospitality and service industries, many of these jobs are likely to be part-time in nature, and many employees will likely hold more than one job. As such, the number of individual persons employed in the development will likely be less than the number of jobs generated by the development.

  Jobs associated with secondary economic activity, which are anticipated to primarily occur offsite from the development, are projected at 525 jobs. Total jobs are projected at 2,569.

- Labor income: Direct labor income is projected at $45 million annually, secondary labor income is projected at $17 million, and total labor income is projected at $63 million.

As one means of placing these economic measures in context, the economic impact of Snowbasin can be compared to the size of the overall Morgan County economy in 2009. Upon project stabilization, Snowbasin would directly generate economic activity equivalent to 41 percent of the existing (2009) output of the Morgan County economy; 68 percent of the employment (jobs); and 51 percent of the labor income. Additionally, taking into account both direct and multiplier impacts, Snowbasin would directly or indirectly generate total economic activity equivalent to 58 percent of the existing (2009) output of the Morgan County economy; 85 percent of the employment (jobs); and 71 percent of the labor income.

For further perspective, it should also be noted that Morgan County as a whole is projected to experience significant future growth. The Governor's Office of Planning and Budget 2008 Baseline Projections envision Morgan County employment rising to 25,870 in 2060, over eight times greater than the 2009 level of 3,005. In this context, in the final year of buildout of the Snowbasin project, Snowbasin would directly generate employment equivalent to 8 percent of the projected total employment in Morgan County in 2060. Additionally, factoring in multiplier impacts as well, Snowbasin would directly or indirectly generate employment equivalent to 10 percent of the projected total employment in Morgan County in 2060.

- Fiscal impact: The Snowbasin project is projected to have a positive fiscal impact on all growth-sensitive funds in the Morgan County budget. Upon project stabilization after buildout, Snowbasin is projected to generate up to $6.8 million in annual revenue for the General Fund, while generating $1.5 million in annual expenses, resulting in an annual net surplus of up to $5.3 million. This very positive budgetary impact is due to anticipated high property values, the assessment of most residential units at full market value, and the significant visitor / second homeowner orientation of the project (resulting in high per capita spending and resulting sales tax revenues, plus a moderate cost of service profile). Other growth-sensitive Morgan County funds are also projected to experience positive fund balances throughout the construction period of the project and upon project stabilization after buildout.

Project Overview

The Snowbasin Resort Company owns extensive lands in the vicinity of Snowbasin Resort, including much of the property along Trappers Loop Road and Snowbasin Road, in both Morgan and Weber counties. The Snowbasin Resort Master Plan proposes planned development of a portion of these lands, as a part of a vision for transforming Snowbasin Resort from a day-skier area to a year-round destination resort.

The overall development vision includes mixed-use villages (with lodging, retail, restaurants and skier support services) at the existing base area in Weber County and at a proposed new base area in the Strawberry Park area of Morgan County. Residential neighborhoods with a mix of attached units and single family homes would be built around both base areas. In addition, the area east of Trappers Loop Road in Morgan County will include golf courses and a mix of attached units and single family homes. Together, the land use plan across both Morgan and Weber Counties has been divided into seven development areas, labeled A thru G for design and planning consideration.

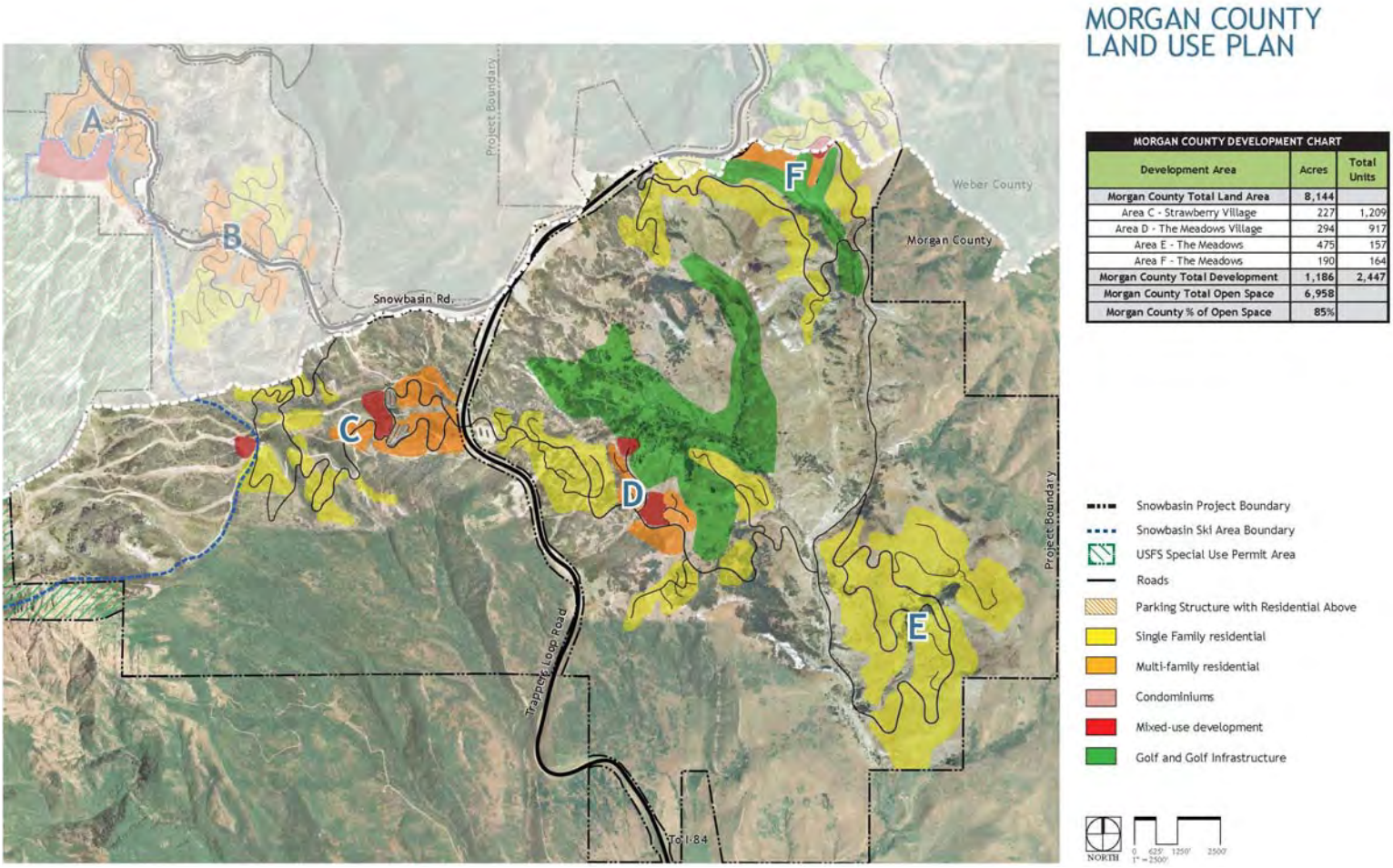
This report analyzes only those development areas located in the Morgan County portion of the proposed Snowbasin development, specifically Areas C, D, E, and part of F, as shown in Figure 1 to follow. Combined, these development areas are proposed to encompass 2,205 residential units, 300 hotel units, and 176,418 square feet of commercial space upon completion. The hotel rooms would be located in Areas C and D, and the commercial square footage mostly in Area C, with a smaller amount in Area D.

The proposed Morgan County development will be constructed in multiple phases over an estimated 50-year period of time. There are 16 phases proposed, with each phase anticipated to take up to five years to complete (depending on market conditions). The proposed pace of development is relatively gradual, with the impacts mitigated accordingly. Similarly, the proposed phasing of the development would be consistent with overall mountain capital improvements and expansion of terrain, lifts and facilities. For example, at the end of the third phase, which would be proposed to be implemented over a period of up to 15 years (dependent on market conditions), there would be a projected 100 single-family homes, 200 townhomes and 100 village townhomes (400 total units). There would also be 150 hotel rooms and 40,508 square feet of commercial space added during this period, all of which represents a very reasonable expectation of absorption.

Additionally, the Master Plan projects that the single-family and townhome units will be utilized in a variety ways, including out-of-area residents using their properties as vacation homes or short-term rentals, and year-round permanent residents who choose to live in the area for a combination of lifestyle and community reasons. The anticipated occupancy and usage mix further diversifies the potential base of real estate purchasers and utilization, which provides

desirable and practical flexibility and synergy for the overall resort community, and successful implementation of the Development Plan.

Figure 1
Snowbasin Development Land Use Plan (Morgan County portion)



Resort Market Feasibility Discussion

The purpose of this discussion is to identify current and longer-term trends and patterns which are relevant to assessing the market feasibility the proposed Snowbasin development plan.

Overview: U.S. and Rocky Mountain Skier Visitation Trends

The Rocky Mountain region in general, and Utah specifically, are extremely well positioned to continue to lead U.S. growth in alpine skiing and snowboarding. The Rocky Mountain region has been the most consistent and fastest-growing skiing destination within the U.S., accounting for an average of over 20 million skier visits annually over the past six seasons. While only about 4.2 percent of the U.S. population lives in six Rocky Mountain states (UT, CO, NM, ID, WY, MT), this area records about 35 percent of total U.S. resort skier visits, attracting customers from all regions of the United States as well as a diverse international base. Colorado and Utah, together representing over 16 million skier visits and about 80 percent of total Rocky Mountain region skier visits, are clearly the strongest states within the region.

Not only are Colorado and Utah leaders in total skier visitation, but both states are also leaders in drawing overnight destination visits, especially from outside of their respective boundaries. Over the past five seasons, the Rocky Mountain region has typically generated between 55 and 60 percent of its skier/boarder visits from overnight guests (including 7 percent from foreign countries), setting national standards for the highest proportion of destination visits of any U.S. region.

Utah is clearly well positioned to continue its leadership status in generating destination visitation on both a national and international scale. The Salt Lake City airport has continued to expand its role as a major U.S. hub, with affordable service from all regions of the country and excellent service internationally. The airport enplaned over 9.9 million passengers in 2010, making it the 24th busiest airport in the U.S. Of significant competitive advantage, not only does Salt Lake City airport provide convenient air service to its destination visitors, but the major ski resorts are all located within a convenient distance. Typically ground transportation from the airport to a resort can be completed in an hour's drive. In comparison, this is half or less the amount of drive time experienced from Denver to Colorado's major ski resorts.

In addition to Utah's superlative competitive advantages with respect to air access and convenient local accessibility, the state also possesses a key competitive advantage in terms of consistently high-quality, abundant snowfall. Utah snow is not only plentiful, but also of low moisture content and therefore desirable for skiing and snowboarding. Further, the high elevations of its base areas and mountain peaks offer the long-term likelihood that even under scenarios of future erratic weather and temperatures related to global climate change, Utah will be one of the states which will continue to experience positive winter conditions and

relatively abundant snowfall. Many existing ski resorts outside of the Rocky Mountains are located at lower elevations and will be more susceptible to inconsistent precipitation and weather conditions.

Utah also enjoys significant competitive advantages on a national and international scale with respect to additional factors that are traditional catalysts for skier retention and long-term growth: scenic beauty, relatively inexpensive and high-quality lodging, less crowded experiences on the mountain slopes and in villages and towns, and perceived high value of experience relative to price.

A few additional statistics will be helpful in illustrating the long-range growth trend for winter destination visitation and related potential for resort real estate development. In the 1979/80 season, Utah recorded approximately 2.06 million skier visits; by 1989/90, the total had grown to 2.50 million and in 1999/00, had increased to 2.96 million visits. By 2010/11, the total had reached 4.22 million visits. Over that approximately 30-year period, Utah skier visits more than doubled in volume. In comparison, since 1979/80, U.S. total skier visits have grown from approximately 48.2 million to a record 60.5 million visits in 2010/11. This represents a national growth in visits of about 26 percent.

Over the past 30 years, therefore, Utah skier visits have grown by 105 percent, or about four times the national growth about 26 percent. Furthermore, the volume of overnight (destination) visits within Utah have also grown significantly. In 1979/80, based on data from the Governor's Office of Planning and Budget, Utah's overnight visits represented 47.8 percent of total skier visits, or approximately 1.0 million visits. Overnight visits are estimated to have increased to approximately 2.6 million visits in 2010/11, or 63 percent of total visitation, a significant increase of 160 percent from 1979/80.

Future Prospects for Growth of Skiing in Utah

In light of the historical rate of growth in the Utah ski industry over the past 30 years, among both its local residents and overnight/destination visitors, it is reasonable to assume a continued pattern of growth in winter visitation over at least the next several decades. The growth can be projected to exceed that of the overall U.S. average and even that of the greater Rocky Mountain region. A reasonable projection of growth in total skier visits in Utah would be approximately 6.7 million visits achieved in 2040 (30 years). While clearly highly speculative, given the timeframes involved, a reasonable projection of skier visits for the state over the full 50-year period of the proposed Master Development Plan would be for Utah to exceed 9 million visits by 2060. While this may appear ambitious, as a frame of reference note Colorado's current skier visitation exceeds 12 million annually.

Potential Growth Opportunities for Snowbasin

At Snowbasin Resort, skier visits have experienced a rate of growth which is greater than that for the State of Utah—particularly since 2000. Total visits in Snowbasin in the 1979/80 season were approximately 94,000. Visits remained relatively steady, though variable, from year to year through 1999/00 when visits were at about 79,600. Beginning in 2000/01, however, annual visits grew significantly, spurred by base area and on-mountain improvements and the hosting of the Winter Olympic Games (including the prestigious downhill event). Visits exceeded 200,000 for the first time in 2004/05 and topped 275,000 in 2007/08. Over that period, Snowbasin skier visitation has grown by a factor of almost 3.5 and is now reaching a critical mass where the creation of a long-range land use/master development plan has become realistic to consider. Since the 2007/08 record season, visits have leveled off at about 250,000 annually, but in light of the projected overall growth within the state and the improved capacity and expanded amenities of the mountain resort (including the proposed base area development), Snowbasin will resume its upward momentum of the past several years.

Within the context of the relatively high growth potential of skiing, including destination ski visitation, it is reasonable to anticipate future rates of growth in both total visits and destination visits at Snowbasin in excess of statewide averages, given the resort's comparatively undeveloped state and future potential (in comparison to more mature destination resorts elsewhere in the state and region), subject to the capacity of Snowbasin's skiing infrastructure. This assumes the continued overall health of winter alpine sports and of Utah's relatively dominant role in the Rocky Mountain region in promoting tourism and economic development. For context, it should be noted that several Colorado resorts (including Vail, Breckenridge, Keystone, Copper Mountain and Winter Park) have exceeded or currently are attracting 1 million or more skier visits annually. Furthermore, Summit County, Utah resorts including Park City Mountain Resort, Deer Valley Resort, and Canyons together currently attract approximately 1.87 million annual skier visits.

Population Projections for Morgan County

Both the State of Utah Governor's Office of Planning and Budget (GOPB) and Morgan County have developed overall population and employment forecasts as important planning benchmarks for Morgan County's General Plan and visioning documents.

As stated in Envision Morgan: Your Valley Your Vision (2008), "Between 2000 and 2050, Morgan County will be among the most rapidly growing counties in Utah, with a 3.8 percent annual average rate of change in population (GOPB 2008). The GOPB predicts that Morgan County's population will increase from 9,265 in 2007 to 25,000 around 2030 and 35,000 by 2040 . . . Today, the Morgan area is about 20 percent built out. Most of its planned growth is still to come."

The Envision Morgan document assumes an average household size of 3.25-3.5 persons per home, and establishes a vision how such a rate of anticipated growth might best be accommodated, based on feedback from workshops which engaged county citizens in proactive planning to help shape the county's future.

The GOPB projects population for Morgan County beyond the 2040 timeframe as documented in the County General Plan and Envision Morgan planning statement and policy report. Specifically, the GOPB forecasts a county population of 48,662 in 2050 and 68,246 in 2060. Separately, as mentioned earlier, the Envision Morgan document indicates that the County was approximately 20 percent built out in 2008, which (at a population of approximately 9,600 in that year) would imply a buildout population of approximately 48,000. If this latter buildout estimate is correct, GOPB population projections may be overstated to the extent they exceed that threshold beyond 2050.

Regardless of the exact scale of future growth, the proposed phased expansion of Snowbasin (including terrain, new lifts, and a variety of supporting infrastructure and services), in combination with the proposed phased implementation of the Land Use Plan for the resort area, is consistent with statewide policies to promote and expand tourism; to promote economic development which is also consistent with other environmental and quality of life metrics; and to enhance the overall awareness and positive image of the state of Utah. It is also clearly consistent with projected overall population and economic growth projected within Morgan County.

It is also important to note that the extent of development proposed as part of the application is in reasonable balance with overall population and growth forecasts for Morgan County. For example, comparisons of the proposed number of year-round residential units within the Snowbasin Master Development Plan with the projected overall county resident population indicates the following. At completion, it is projected that 407 units within Snowbasin would be occupied local residents. Assuming that Morgan County has a buildout population of approximately 48,000, corresponding to perhaps 14,500 households, Snowbasin would account for approximately 2.8 percent of the County's permanent resident households at buildout. This relatively moderate proportion is generally consistent throughout the various phases of the project build-out. The other units within the development would be anticipated to be occupied by short-term destination visitors staying one week or less and second homeowners in residence perhaps 25 percent of the year, and generating substantial revenues to the local economy and tax proceeds to the public jurisdictions while occupied.

Development Program and Related Building and Occupancy Measures

Development Program by Area and Phase

As illustrated in Table 1 below, the proposed development program in Morgan County encompasses 2,205 residential units (640 single family units and 1,565 townhomes), two 150 room hotels, and 176,418 square feet of commercial space. Development is projected to occur over 16 phases, each lasting up to five years each, for a potential overall development time horizon of 50 +/- years. Actual timing would be contingent on market conditions. Note that although no new residential or commercial development is anticipated during Phase 1, improvements to the existing base area are anticipated to be made during that period.

Table 1
Study Area Development Program

		Development Per Phase (Up to 5 Years per Phase)																
Area	Unit Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL
Area C - Strawberry Village	Single Family	--	--	25	25	25	25	25	25	35	--	--	--	--	--	--	--	185
	Townhome	--	100	--	100	40	--	412	--	--	--	--	--	--	--	--	--	652
	Village - townhomes	--	--	100	50	50	50	50	72	--	--	--	--	--	--	--	--	372
	Hotel Rooms	--	150	--	--	--	--	--	--	--	--	--	--	--	--	--	--	150
	Commercial	--	20,254	20,254	--	20,254	20,254	20,254	--	--	--	--	--	--	--	--	--	101,270
Area D - The Meadows Village	Single Family	--	25	50	--	26	26	26	26	26	26	29	--	--	--	--	--	260
	Townhome	--	50	50	--	42	42	42	12	--	179	--	--	--	--	--	--	415
	Hotel Rooms	--	--	--	--	--	--	150	--	--	--	--	--	--	--	--	--	150
	Commercial	--	--	--	--	7,515	7,515	7,515	7,515	7,515	7,515	7,515	7,515	7,515	7,515	--	--	75,148
Area E - The Meadows	Single Family	--	--	--	--	--	--	--	--	--	--	--	--	--	--	79	79	157
Area F - The Meadows (Morgan pt)	Single Family	--	--	--	19	--	19	--	--	--	--	--	--	--	--	--	--	38
	Townhome	--	--	--	63	--	63	--	--	--	--	--	--	--	--	--	--	126
Morgan Total	Single Family	--	25	75	44	51	70	51	51	61	26	29	--	--	--	79	79	640
	Townhome	--	150	50	163	82	105	454	12	--	179	--	--	--	--	--	--	1,193
	Village - townhomes	--	--	100	50	50	50	50	72	--	--	--	--	--	--	--	--	372
	Hotel Rooms	--	150	--	--	--	--	150	--	--	--	--	--	--	--	--	--	300
	Commercial (sqft)	--	20,254	20,254	--	27,769	27,769	27,769	7,515	7,515	7,515	7,515	7,515	7,515	7,515	--	--	176,418

Source: Design Workshop, Inc.
Note: Columns may not sum to totals due to rounding.

Assumptions Regarding the Use and Value of Residential Units

In order to project the economic and fiscal impacts of the proposed development, it is necessary to develop a variety of assumptions regarding the use and value of residential and lodging units. While these assumptions are believed to reflect a realistic functional scenario for

the project (based on experiences at comparable developments at other mountain resorts), it should be recognized that actual patterns could vary from those assumed here.

Table 2 below illustrates the assumed usage patterns of residential and hotel units. Units have been assigned to the categories of short-term lodging rentals, second homes, and local resident occupied units. Assumptions are based loosely on general patterns observed at other mountain resorts, in RRC's and Design Workshop's experience and research. As shown, use of residential units as short-term rentals is anticipated to be most prevalent close the ski area base (e.g. Area C - Strawberry Village), and decrease further away from the ski slopes. Usage patterns are also projected to vary by unit type, with townhomes in "village" areas generally expected to have higher levels of short-term rental use than less centrally located townhomes and single family homes.

Table 2
Assumed Usage Patterns of Residential and Hotel Units, by Unit Type and Area

	Area C - Strawberry Village			Area D - The Meadows Village			Area E - The Meadows			Area F - The Meadows (Morgan pt)		
	% short-term rental	% second home	% local resident	% short-term rental	% second home	% local resident	% short-term rental	% second home	% local resident	% short-term rental	% second home	% local resident
Single Family	20%	55%	25%	20%	55%	25%	0%	65%	35%	20%	55%	25%
Townhome	40%	45%	15%	20%	60%	20%	--	--	--	25%	50%	25%
Village - townhomes	50%	45%	5%	20%	60%	20%	--	--	--	--	--	--
Hotel Rooms	100%	0%	0%	100%	0%	0%	--	--	--	--	--	--

Source: RRC Associates and Design Workshop.

Table 3 to follow illustrates the assumed occupancy patterns of residential and hotel units. Short-term rental units are specified in terms of the average annual percentage of days they are assumed to be occupied by short-term renters, by owners / owner guests, or vacant. Similarly, second homeowner units are assigned occupancy / vacancy ratios, while local resident units are assumed to be 100% occupied. The table also outlines the assumed average number of persons per unit when the unit is occupied by varying types of users. Finally, for units used as short-term rentals, the assumed average daily rental rate is shown.

Table 3
Assumed Occupancy Patterns of Residential and Hotel Units, by Unit Type and Area

	Use of Short-Term Rental Units (All Areas)			Use of 2nd Homes (all areas)		Local Res. Occup.	Persons per Unit by Occupancy Type (All Areas)			ADR (rentals)
	% used as short-term rental	% used by owner/ guest	% vacant	% used by owner/ guest	% vacant	% used by resident	When used as short-term rental	When used by owner/ guest	When used by resident	Avg Daily Room Rate
Single Family	25%	15%	60%	25%	75%	100%	3.0	3.0	3.2	$325
Townhome	30%	10%	60%	25%	75%	100%	2.7	2.7	2.7	$250
Village -townhomes	35%	10%	55%	25%	75%	100%	2.7	2.7	2.7	$275
Hotel Rooms	65%	n/a	35%	n/a	n/a	0%	1.7	n/a	n/a	$250

Source: RRC Associates and Design Workshop.

Table 4 below illustrates the assumed market values (prices as sold) of residential units in the respective areas, for purposes of calculating a variety of economic and fiscal impacts later in the analysis. Also shown is the assumed average square footage of residential units, averaged across all areas, for purposes of later economic impact calculations.

Table 4
Assumed Market Value and Square Footage of Residential Units, by Unit Type and/or Area

	Area C	Area D	Area E	Area F (Morgan)	Sqft/unit (project average across all areas)
Single Family	$1,400,000	$1,000,000	$500,000	$1,400,000	3,000
Townhome	$750,000	$600,000	--	$750,000	1,600
Village - townhomes	$750,000	$600,000	--	--	1,600

Source: RRC Associates and Design Workshop. Market values are expressed in current (2011) dollars.

Projected Occupancy Patterns

Applying the assumptions outlined above to the proposed development program yields a variety of aggregate occupancy projections for the development.

As illustrated in Table 5 to follow, upon buildout at the completion of Phase 16, 958 residential/hotel units are projected to be used as short-term rentals (38 percent of the 2,505 total residential/hotel units), 1,141 units (46 percent) are projected to be used as second homes, and 407 units (16 percent) are projected to be used by local residents.

As illustrated in Table 6 to follow, upon buildout, an annual daily average of 397 residential/hotel units (16 percent) are projected to be occupied by short-term renters, 356 units (14 percent) are projected to be occupied by second homeowners or their guests, 407 units (16 percent) are projected to be occupied by local residents, and 1,346 units (54 percent) are projected to be vacant (not occupied).

As illustrated in Table 7 to follow, upon buildout, the project is anticipated to have an average daily population of 3,062 persons, of which 884 are projected to be short-term renters (29 percent), 992 are projected to be second homeowners (32 percent), and 1,186 (39 percent) are projected to be full-time local residents.

Table 5
Projected Number of Residential/Hotel Units by Type of Use

	CUMULATIVE UNITS BY END OF PHASE															
Phase:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cumulative Number of Units Used for Short-Term Rentals																
Single Family	0	5	20	29	39	53	63	73	86	91	97	97	97	97	97	97
Townhome	0	50	60	116	140	164	337	340	340	375	375	375	375	375	375	375
Village - townhomes	0	0	50	75	100	125	150	186	186	186	186	186	186	186	186	186
Hotel Rooms	0	150	150	150	150	150	300	300	300	300	300	300	300	300	300	300
TOTAL	0	205	280	370	429	492	850	899	911	952	958	958	958	958	958	958
Cumulative Number of Units Used as Second Homes																
Single Family	0	14	55	79	107	146	174	202	235	250	266	266	266	266	317	368
Townhome	0	75	105	182	224	281	491	498	498	605	605	605	605	605	605	605
Village - townhomes	0	0	45	68	90	113	135	167	167	167	167	167	167	167	167	167
Hotel Rooms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	89	205	328	422	539	800	868	901	1,023	1,038	1,038	1,038	1,038	1,089	1,141
Cumulative Number of Units Used by Local Residents																
Single Family	0	6	25	36	49	66	79	92	107	114	121	121	121	121	148	176
Townhome	0	25	35	66	80	104	174	177	177	212	212	212	212	212	212	212
Village - townhomes	0	0	5	8	10	13	15	19	19	19	19	19	19	19	19	19
Hotel Rooms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	31	65	109	139	183	268	287	302	344	352	352	352	352	379	407
Total Cumulative Number of Units Built																
Single Family	0	25	100	144	195	265	316	367	428	454	483	483	483	483	562	640
Townhome	0	150	200	363	445	549	1,003	1,015	1,015	1,193	1,193	1,193	1,193	1,193	1,193	1,193
Village - townhomes	0	0	100	150	200	250	300	372	372	372	372	372	372	372	372	372
Hotel Rooms	0	150	150	150	150	150	300	300	300	300	300	300	300	300	300	300
TOTAL	0	325	550	807	990	1,214	1,919	2,054	2,115	2,319	2,348	2,348	2,348	2,348	2,427	2,505

Source: RRC Associates. Note: Columns may not sum to totals due to rounding.

Table 6
Projected Number of Residential / Hotel Units Occupied by Day (Annual Average), by Type of Use

	CUMULATIVE UNITS BY END OF PHASE															
Phase:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Average Number of Units Occupied by SHORT-TERM RENTERS - Per Day (Annual Daily Average)																
Single Family	0	1	5	7	10	13	16	18	21	23	24	24	24	24	24	24
Townhome	0	15	18	35	42	49	101	102	102	113	113	113	113	113	113	113
Village - townhomes	0	0	18	26	35	44	53	65	65	65	65	65	65	65	65	65
Hotel Rooms	0	98	98	98	98	98	195	195	195	195	195	195	195	195	195	195
TOTAL	0	114	138	166	184	204	364	380	383	395	397	397	397	397	397	397
Average Number of Units Occupied by SECOND HOMEOWNERS - Per Day (Annual Daily Average)																
Single Family	0	4	17	24	33	44	53	61	72	76	81	81	81	81	94	106
Townhome	0	24	32	57	70	87	156	159	159	189	189	189	189	189	189	189
Village - townhomes	0	0	16	24	33	41	49	60	60	60	60	60	60	60	60	60
Hotel Rooms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	28	65	105	135	172	258	280	291	325	330	330	330	330	343	356
Average Number of Units Occupied by LOCAL RESIDENTS - Per Day (Annual Daily Average)																
Single Family	0	6	25	36	49	66	79	92	107	114	121	121	121	121	148	176
Townhome	0	25	35	66	80	104	174	177	177	212	212	212	212	212	212	212
Village - townhomes	0	0	5	8	10	13	15	19	19	19	19	19	19	19	19	19
Hotel Rooms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	31	65	109	139	183	268	287	302	344	352	352	352	352	379	407
Average Number of VACANT Units - Per Day (Annual Daily Average)																
Single Family	0	13	53	77	104	141	168	195	228	242	257	257	257	257	295	334
Townhome	0	86	115	206	252	309	571	577	577	679	679	679	679	679	679	679
Village - townhomes	0	0	61	92	123	153	184	228	228	228	228	228	228	228	228	228
Hotel Rooms	0	53	53	53	53	53	105	105	105	105	105	105	105	105	105	105
TOTAL	0	152	282	427	531	656	1,028	1,106	1,138	1,254	1,269	1,269	1,269	1,269	1,308	1,346

Source: RRC Associates.
Note: Columns may not sum to totals due to rounding.

Table 7
Projected Average Daily Population by Population Type

	AVERAGE DAILY POPULATION BY END OF PHASE															
Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overnight visitor population	0	210	277	352	403	457	794	837	847	879	884	884	884	884	884	884
Second home population (avg/day)	0	77	181	292	375	477	713	776	806	901	916	916	916	916	954	992
Resident population (avg/day)	0	88	188	313	399	527	764	821	869	987	1,010	1,010	1,010	1,010	1,098	1,186
Total Population (annual daily average)	0	374	646	957	1,177	1,460	2,270	2,434	2,522	2,767	2,809	2,809	2,809	2,809	2,936	3,062

Source: RRC Associates.

Projected Property Values

Based on the assumptions outlined previously, the total market value of the development at buildout is projected to be approximately $1.88 billion. The value of the residential portion of the development at buildout is projected to be approximately $1.76 billion. The hotel and commercial portions of the development are projected to have a value of approximately $121 million, using assumptions regarding the income and profitability of these operations. Total taxable value for property tax purposes is projected at a slight lower $1.73 billion (after adjusting for primary residences taxed at 55 percent of value).

Table 8
Projected Property Value: Primary Residences and Non-Primary Residences
(Projections omitted for odd-numbered development phases due to space limitations)

	CUMULATIVE VALUE BY END OF PHASE								Stabilized at
	Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Buildout
Cumulative RESIDENTIAL Property Value - UNITS OCCUPIED AS PRIMARY RESIDENCE									
Single Family	$6,250,000	$42,900,000	$80,050,000	$110,550,000	$135,800,000	$143,050,000	$143,050,000	$170,525,000	$170,525,000
Townhome	$17,250,000	$46,312,500	$72,585,000	$125,355,000	$146,775,000	$146,775,000	$146,775,000	$146,775,000	$146,775,000
Village - townhomes	$0	$5,625,000	$9,375,000	$13,950,000	$13,950,000	$13,950,000	$13,950,000	$13,950,000	$13,950,000
TOTAL	$23,500,000	$94,837,500	$162,010,000	$249,855,000	$296,525,000	$303,775,000	$303,775,000	$331,250,000	$331,250,000
Cumulative RESIDENTIAL Property Value - UNITS NOT OCCUPIED AS PRIMARY RESIDENCE									
Single Family	$18,750,000	$128,700,000	$240,150,000	$331,650,000	$407,400,000	$429,150,000	$429,150,000	$480,175,000	$480,175,000
Townhome	$87,750,000	$210,937,500	$311,715,000	$600,045,000	$685,725,000	$685,725,000	$685,725,000	$685,725,000	$685,725,000
Village - townhomes	$0	$106,875,000	$178,125,000	$265,050,000	$265,050,000	$265,050,000	$265,050,000	$265,050,000	$265,050,000
TOTAL	$106,500,000	$446,512,500	$729,990,000	$1,196,745,000	$1,358,175,000	$1,379,925,000	$1,379,925,000	$1,430,950,000	$1,430,950,000
Cumulative RESIDENTIAL Property Value - TOTAL									
Single Family	$25,000,000	$171,600,000	$320,200,000	$442,200,000	$543,200,000	$572,200,000	$572,200,000	$650,700,000	$650,700,000
Townhome	$105,000,000	$257,250,000	$384,300,000	$725,400,000	$832,500,000	$832,500,000	$832,500,000	$832,500,000	$832,500,000
Village - townhomes	$0	$112,500,000	$187,500,000	$279,000,000	$279,000,000	$279,000,000	$279,000,000	$279,000,000	$279,000,000
TOTAL	$130,000,000	$541,350,000	$892,000,000	$1,446,600,000	$1,654,700,000	$1,683,700,000	$1,683,700,000	$1,762,200,000	$1,762,200,000

Source: RRC Associates.

Table 9
Projected Property Value: Hotel and Commercial
(Projections omitted for odd-numbered development phases due to space limitations)

	CUMULATIVE VALUE BY END OF PHASE								
	Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Stabilized at Buildout
Hotel - Areas C and D									
Hotel Rooms	150	150	150	300	300	300	300	300	300
Room revenue (previous calculation)	$8,896,875	$8,896,875	$8,896,875	$17,793,750	$17,793,750	$17,793,750	$17,793,750	$17,793,750	$17,793,750
Room revenue share of total revenue /1	62.8%	62.8%	62.8%	62.8%	62.8%	62.8%	62.8%	62.8%	62.8%
Total revenue	$14,166,998	$14,166,998	$14,166,998	$28,333,997	$28,333,997	$28,333,997	$28,333,997	$28,333,997	$28,333,997
Net operating margin /1	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%
Net operating income	$2,564,227	$2,564,227	$2,564,227	$5,128,453	$5,128,453	$5,128,453	$5,128,453	$5,128,453	$5,128,453
Capitalization rate	8%	8%	8%	8%	8%	8%	8%	8%	8%
Hotel property value - income approach	$32,052,834	$32,052,834	$32,052,834	$64,105,668	$64,105,668	$64,105,668	$64,105,668	$64,105,668	$64,105,668
Commercial - Areas C & D									
Commercial (sqft)	20,254	40,508	96,046	131,329	146,359	161,388	176,418	176,418	176,418
Net operating income / sqft	$8.00	$8.00	$8.00	$8.00	$8.00	$8.00	$8.00	$8.00	$8.00
Net operating income	$162,032	$324,064	$768,365	$1,050,634	$1,170,870	$1,291,107	$1,411,344	$1,411,344	$1,411,344
Capitalization rate	8%	8%	8%	8%	8%	8%	8%	8%	8%
Commercial property value - income approach	$2,025,400	$4,050,800	$9,604,560	$13,132,920	$14,635,880	$16,138,840	$17,641,800	$17,641,800	$17,641,800
Annual sales / sqft	$300	$300	$300	$300	$300	$300	$300	$300	$300
Annual sales	$6,076,200	$12,152,400	$28,813,680	$39,398,760	$43,907,640	$48,416,520	$52,925,400	$52,925,400	$52,925,400
Annual rent per sqft	$40	$40	$40	$40	$40	$40	$40	$40	$40
Annual rent	$810,160	$1,620,320	$3,841,824	$5,253,168	$5,854,352	$6,455,536	$7,056,720	$7,056,720	$7,056,720
Operating income as a percentage of rent /2	65%	65%	65%	65%	65%	65%	65%	65%	65%
Operating income	$526,604	$1,053,208	$2,497,186	$3,414,559	$3,805,329	$4,196,098	$4,586,868	$4,586,868	$4,586,868
Capitalization rate	8%	8%	8%	8%	8%	8%	8%	8%	8%
Property value	$6,582,550	$13,165,100	$31,214,820	$42,681,990	$47,566,610	$52,451,230	$57,335,850	$57,335,850	$57,335,850
TOTAL VALUE									
Hotel	$32,052,834	$32,052,834	$32,052,834	$64,105,668	$64,105,668	$64,105,668	$64,105,668	$64,105,668	$64,105,668
Commercial	$6,582,550	$13,165,100	$31,214,820	$42,681,990	$47,566,610	$52,451,230	$57,335,850	$57,335,850	$57,335,850

Source: RRC Associates.
/1 STR 2010 HOST Report is source for selected hotel operating assumptions [i.e. room revenue equivalent to 62.8% of total revenue (luxury hotel average) and 18.1% operating margin].
/2 Commercial space operating income equal to 65% of rent is derived from "2004 Dollars and Cents of Shopping Centers" (neighborhood shopping center average).

Table 10
Projected Total Market Value and Taxable Value
(Projections omitted for odd-numbered development phases due to space limitations)

	CUMULATIVE VALUE BY END OF PHASE								Stabilized at
Property type	Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Bldout
Residential - primary residences	$23,500,000	$94,837,500	$162,010,000	$249,855,000	$296,525,000	$303,775,000	$303,775,000	$331,250,000	$331,250,000
Residential - other	$106,500,000	$446,512,500	$729,990,000	$1,196,745,000	$1,358,175,000	$1,379,925,000	$1,379,925,000	$1,430,950,000	$1,430,950,000
Hotel	$32,052,834	$32,052,834	$32,052,834	$64,105,668	$64,105,668	$64,105,668	$64,105,668	$64,105,668	$64,105,668
Commercial	$6,582,550	$13,165,100	$31,214,820	$42,681,990	$47,566,610	$52,451,230	$57,335,850	$57,335,850	$57,335,850
Total MARKET value	$168,635,384	$586,567,934	$955,267,654	$1,553,387,658	$1,766,372,278	$1,800,256,898	$1,805,141,518	$1,883,641,518	$1,883,641,518
Total TAXABLE value (1)	$158,060,384	$543,891,059	$882,363,154	$1,440,952,908	$1,632,936,028	$1,663,558,148	$1,668,442,768	$1,734,579,018	$1,734,579,018

Source: RRC Associates. (1) Note: For primary residences, taxable value is equal to 55 percent of market value.

Economic Impact Analysis

This element of the study addresses the direct and secondary economic impacts of the Snowbasin project to Morgan County. The analysis addresses impacts in terms of economic output, jobs, and aggregate labor income. The analysis utilizes a variety of assumptions regarding the economic performance of various elements of the project which are believed to be realistic, but which may differ from actual operating performance of the development. The analysis also relies heavily on economic data and factors for Morgan County as of 2009 from the IMPLAN economic impact modeling system.[1] Note that these factors may evolve in the future as Morgan County's relatively small economy expands and changes with future growth.

The economic impacts discussed in this report are economic impacts which are projected to occur in Morgan County as a result of the project. Economic impacts which might occur outside of Morgan County are excluded. All dollar values are expressed in current (2011) dollars, without discount or inflation factors.

Methodology

This economic analysis addresses both the direct and secondary (indirect plus induced) economic impacts of the Snowbasin development, as measured by output, employment, and labor income. These terms are defined below.

- "Output" is the value of goods and services produced and sold to final users during a calendar year. "Direct output" represents the output associated with the first-order round of economic activity generated by the project. Direct employment (i.e. jobs) and direct labor income (i.e. employee compensation and proprietor income) are associated with production of direct output. Most of the direct impacts of the Snowbasin development are expected to occur onsite within the Snowbasin project area.
- "Secondary" (or "multiplier") impacts represent the sum of "indirect" and "induced" impacts, as defined below:
    - "Indirect" impacts represent the output, employment, and labor income associated with backwards-linked industries that supply goods and services to businesses directly serving final users, along with subsequent related follow-on rounds of economic activity in the local economy.
    - "Induced" impacts represent the output/employment/income resulting from the spending of employee income earned directly or indirectly as a result of the project, along with subsequent related follow-on rounds of economic activity in the local economy.

[1] IMPLAN is an economic modeling software tool with accompanying local data that is produced by the Minnesota IMPLAN Group. IMPLAN ("IMpacts for PLANning") is widely used for economic impact analysis.

  - Secondary impacts are anticipated to primarily occur offsite of the development.
- "Total" impacts represent the sum of direct, indirect, and induced impacts.
- The ratio of total economic activity (direct, indirect, and induced) to direct economic activity is referred to as a "multiplier." For a given industry, separate multipliers exist for output, employment, and labor income.

The approach of the economic impact analysis is to first estimate direct output associated with the project, focusing on specified categories of economic activity which are projected to occur. Then, total output estimates are developed by multiplying direct output by applicable IMPLAN multipliers for Morgan County as of 2009 (the most current available data year). Additionally, direct employment and direct labor income impacts are derived from output:employment and output:labor income ratios for Morgan County as provided by IMPLAN. Finally, total employment and total labor income impacts are estimated based on multipliers supplied by IMPLAN. Each of these steps is summarized in the following sections of the report.

Underlying the use of 2009 Morgan County employment:output and labor income:output ratios for economic projections is the assumption that Snowbasin will have similar economic interrelationships between these measures as the same sectors currently in Morgan County. While this assumption is reasonable for purposes of baseline economic projections, it should be noted that Snowbasin's economic activity in applicable sectors may differ, due to unique aspects of its product profile, location, and scope. Additionally, insofar as the Morgan County economy more fully develops in future years, multiplier ratios may increase, as more of the secondary economic impacts associated with the Snowbasin development are retained within Morgan County rather than "leaked" to other counties.

It should also be noted that while much of the projected direct economic activity will, by definition or expectation, take place within the project area, a significant amount will almost certainly take place offsite, particularly much of the economic activity associated with secondary impacts.

It should also be noted that employment impacts should be understood as "job" impacts, and that a full-time job and part-time job are each counted as one job. In many tourism-oriented industry sectors, a significant share of jobs are part-time in nature, and many employees hold multiple jobs. As such, the number of individual persons employed in the development will likely be less than the number of jobs created by the development.

Summary of Impacts

Total economic impacts of the project are anticipated to increase as the project builds out and the economic activity of visitors, second homeowners, and local resident occupants of the

project correspondingly grows. As illustrated in Table 11 to follow, upon project stabilization after construction buildout, ongoing economic impacts are projected as follows:

- Output: Direct annual output attributable to the project upon stabilization after buildout is projected at $138 million. Secondary output, anticipated to primarily occur offsite of the development, is projected at $57 million. Total annual output is projected at $195 million.

- Employment: Direct jobs created by the development upon stabilization after buildout are projected at 2,044 jobs. As is typical for resort settings and the hospitality and service industries, many of these jobs are anticipated to be part-time in nature, and many employees will likely hold more than one job. As such, the number of individual persons employed in the development will likely be less than the number of jobs.

  Secondary or "multiplier" jobs, which are anticipated to primarily occur offsite of the development, are projected at 525 jobs. Total jobs are projected at 2,569.

- Labor income: Direct labor income is projected at $45 million annually, secondary labor income is projected at $17 million, and total labor income is projected at $63 million.

Table 11
Summary of Economic Impacts Per Year at End of Phase and at Buildout
(Projections omitted for odd-numbered development phases due to space limitations)

	IMPACT PER YEAR AT END OF PHASE								Stabilized at
Measure	Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Bldout
Direct output	$29,859,551	$56,600,332	$76,906,451	$126,738,603	$139,290,052	$134,038,603	$134,121,542	$143,124,932	$137,909,673
Total output	$40,128,696	$77,746,371	$107,040,932	$176,119,640	$194,659,240	$188,209,958	$188,318,320	$202,184,680	$195,335,401
Direct employment	406	795	1,094	1,839	2,017	1,980	1,981	2,084	2,044
Total employment	500	988	1,369	2,286	2,521	2,472	2,473	2,626	2,569
Direct labor income	$9,438,735	$18,060,586	$24,953,848	$41,379,459	$45,657,082	$44,141,882	$44,179,737	$47,266,286	$45,478,151
Total labor income	$12,511,009	$24,397,628	$34,006,821	$56,107,185	$62,225,289	$60,297,341	$60,343,229	$64,990,773	$62,654,853

Source: RRC Associates.

As one means of placing these economic measures in context, the economic impact of Snowbasin can be compared to the size of the overall Morgan County economy in 2009. As illustrated in Table 12 to follow, upon project stabilization, Snowbasin would directly generate economic activity equivalent to 41 percent of the existing (2009) output of the Morgan County economy; 68 percent of the employment (jobs); and 51 percent of the labor income. Additionally, taking into account both direct and multiplier impacts, Snowbasin would directly

or indirectly generate total economic activity equivalent to 58 percent of the existing (2009) output of the Morgan County economy; 85 percent of the employment (jobs); and 71 percent of the labor income.

For further perspective, it should also be noted that Morgan County as a whole is projected to experience significant future growth. The Governor's Office of Planning and Budget 2008 Baseline Projections envision Morgan County employment rising to 25,870 in 2060, over eight times greater than the 2009 level of 3,005. In this context, in the final year of buildout of the Snowbasin project, Snowbasin would directly generate employment equivalent to 8 percent of the projected total employment in Morgan County in 2060. Additionally, factoring in multiplier impacts as well, Snowbasin would directly or indirectly generate employment equivalent to 10 percent of the projected total employment in Morgan County in 2060.

Table 12
Direct and Total Economic Impacts of Snowbasin at Project Stabilization (Upon Buildout)
in Comparison to the Overall Size of the Morgan County Economy in 2008 and 2060

	Snowbasin Project: Stabilization after Buildout	Morgan County Overall 2009	Ratio of Snowbasin to 2009 Morgan Co. Economy	Morgan County Projected 2060	Ratio of Snowbasin to 2060 Morgan Co. Economy
Snowbasin DIRECT Impacts:					
Total output	$137,909,673	$337,175,582	41%		
Total employment	2,044	3,005	68%	25,870	8%
Total labor income	$45,478,151	$88,864,868	51%		
Snowbasin TOTAL Impacts (direct plus secondary):					
Total output	$195,335,401	$337,175,582	58%		
Total employment	2,569	3,005	85%	25,870	10%
Total labor income	$62,654,853	$88,864,868	71%		

Source: RRC Associates; IMPLAN 2009 (2009 Morgan County data); Governor's Office of Planning and Budget 2008 Baseline Projections (2060 employment projection).

Direct Output Calculations

For purposes of this analysis, total direct output is estimated as the sum of four sub-categories of direct output which are analyzed separately:

1. Impacts associated with initial project construction (one-time, non-recurring impacts).
2. Trip-related impacts associated with the spending of visitors and second homeowners coming to Snowbasin (recurring, ongoing impacts).
3. Impacts associated with purchases of home furnishings, the maintenance of second homes, and sales transaction services for residential units (other than units owned by local residents, which are analyzed separately) (recurring, ongoing impacts).
4. Impacts associated with the household spending of local resident occupants of units at Snowbasin. This analysis assumes that these local resident households would not live in

Morgan County and not make consumption purchases in Morgan County unless the Snowbasin project was built.[2]

Note that in addition to the impacts above, there are likely to be ongoing construction impacts associated with periodic remodeling / additions / redevelopment. While not explicitly estimated in this analysis, these impacts are partially included, specifically as part of the secondary impacts associated with short-term rental units, the hotel, and the retail development.

Direct impacts have been estimated for each of the four categories of impact described above via specific case studies for each, as summarized below:

1. Initial construction impacts: The value of construction-related activities was estimated based on the development assumptions outlined above, as well as additional RRC assumptions as needed. Construction related activities were disaggregated into soft costs (architecture, engineering, etc.) and hard costs (building materials and construction services). Adjustments were made to exclude assumed purchases of goods and services from outside Morgan County, including construction workers working on the Snowbasin jobsite but living outside of county (estimated to be 70 percent of construction workers in the initial phase, decreasing to 42 percent of workers by the final phase). Additionally, to properly account for incremental economic activity associated with purchases of construction materials, retail and wholesale margins were applied to gross purchases to exclude the cost of goods sold.

   As summarized in Table 13 to follow, gross construction costs for the entirety of the development are projected at approximately $1.3 billion. Total direct output in Morgan County associated with this construction is projected at $302 million (after deducting for assumed purchases of goods and services from firms located outside of Morgan County). On an average annual basis, assuming a 50 year buildout, annual construction costs are estimated at approximately $26.1 million, while average annual direct output in Morgan County is $6.0 million.

[2] Insofar as the objective of this analysis is to document new, incremental economic activity occurring in Morgan County as a result of the Snowbasin project, local resident occupant impacts are only relevant to the extent that local residents choose to live in the County as a direct result of the project.

Table 13
Direct Output Per Phase and In Total: Construction
(Projections omitted for odd-numbered development phases due to space limitations)

	OUTPUT BY PHASE								
	Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	TOTAL
A Aggregate construction costs	$116,040,167	$125,426,667	$128,468,867	$80,955,367	$100,005,367	$9,105,367	$9,105,367	$66,101,667	$1,308,504,500
B. Apportionment of costs by type of cost									
Soft costs (assume 25%)	$29,010,042	$31,356,667	$32,117,217	$20,238,842	$25,001,342	$2,276,342	$2,276,342	$16,525,417	$327,126,125
Hard construction costs - building materials (assume 35%)	$40,614,058	$43,899,333	$44,964,103	$28,334,378	$35,001,878	$3,186,878	$3,186,878	$23,135,583	$457,976,575
Hard construction costs - construction services (assume 40%)	$46,416,067	$50,170,667	$51,387,547	$32,382,147	$40,002,147	$3,642,147	$3,642,147	$26,440,667	$523,401,800
Total construction costs	$116,040,167	$125,426,667	$128,468,867	$80,955,367	$100,005,367	$9,105,367	$9,105,367	$66,101,667	$1,308,504,500
C. Direct output - Soft costs (architecture, engineering, etc.)									
Aggregate soft costs	$29,010,042	$31,356,667	$32,117,217	$20,238,842	$25,001,342	$2,276,342	$2,276,342	$16,525,417	$327,126,125
Share of soft cost services purchased in Morgan Co (est.) /1	10%	14%	18%	22%	26%	30%	34%	38%	20%
Direct local output: soft costs	$2,901,004	$4,389,933	$5,781,099	$4,452,545	$6,500,349	$682,903	$773,956	$6,279,658	$65,888,128
/1 Estimate by RRC. Morgan Co was projected to account for 0.16% of prof/tech svcs emps in Weber/Davis/Salt Lake/Morgan co's in 2010 (GOBP 2008 baseline proj), vs. 0.64% of pop'n=25% ratio. Reduce Phase 2 ratio to 10% due to small size of base; assume growth by 2 ppts/phase in later phases.									
D. Direct outputHard construction costs - building materials									
Aggregate cost of construction materials	$40,614,058	$43,899,333	$44,964,103	$28,334,378	$35,001,878	$3,186,878	$3,186,878	$23,135,583	$457,976,575
Share of construction materials purchased in Morgan Co. (est.) /2	12%	16%	20%	24%	28%	32%	36%	40%	22%
Gross local purchases: construction materials	$4,873,687	$7,023,893	$8,992,821	$6,800,251	$9,800,526	$1,019,801	$1,147,276	$9,254,233	$101,402,910
Local purchases: avg of wholesale trade & retail blg materials --	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%
Direct local output: wholesale trade & retail building mate	$1,253,761	$1,806,904	$2,313,412	$1,749,371	$2,521,195	$262,345	$295,138	$2,380,661	$26,086,000
/2 RRC assumption. Per ESRI, in 2010, Morgan Co captured 12% of resident bldg material store purchases. Assume share grows by 2 ppts/phase.									
E. Hard construction costs - construction services									
Aggregate cost of construction services	$46,416,067	$50,170,667	$51,387,547	$32,382,147	$40,002,147	$3,642,147	$3,642,147	$26,440,667	$523,401,800
Share of construction employees from Morgan Co /3	30%	34%	38%	42%	46%	50%	54%	58%	40%
Direct output - construction services	$13,924,820	$17,058,027	$19,527,268	$13,600,502	$18,400,987	$1,821,073	$1,966,759	$15,335,587	$210,101,364
F. Total construction-related output	$18,079,585	$23,254,864	$27,621,779	$19,802,418	$27,422,531	$2,766,321	$3,035,853	$23,995,906	$302,075,492
/3 RRC assumption. Morgan Co was projected to account for 0.99% of constr emps in Weber/Davis/Salt Lake/Morgan co's in 2010 (GOBP 2008 baseline proj), vs. 0.64% of pop'n=154% ratio. Reduce Phase 2 ratio to 30% due to small size of base; growth by 2 ppts/phase.									

Source: RRC Associates.

2. Trip-related visitor and second homeowner spending impacts: Utilizing assumptions regarding typical visitor spending patterns, estimates were developed for spending in Morgan County by visitors and second homeowners staying at Snowbasin on the following items: lodging/short term rentals, eating and drinking services, recreation, and other retail / services. Direct output is equivalent to sales in the case of each item except retail, where direct output is equivalent to retail gross margins (i.e. sales minus cost of goods sold), as estimated by IMPLAN as of 2009.

   As summarized in Table 14 to follow, direct output associated with trip-related spending by visitors and second homeowners staying at Snowbasin is projected to total approximately $125 million annually upon project stabilization after buildout. Approximately $37 million of this output is associated with lodging, while $88 million is associated with purchases of other goods and services.

Table 14
Direct Output Per Year at End of Phase and at Buildout: Visitor & Second Homeowner Trip-Related Spending
(Projections omitted for odd-numbered development phases due to space limitations)

		OUTPUT BY YEAR AT END OF PHASE								
		Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Stabilized at Buildout
A.	Room rental spending -- visitors staying at Snowbasin	$10,413,906	$15,554,475	$19,352,300	$35,801,481	$37,294,788	$37,466,794	$37,466,794	$37,466,794	$37,466,794
	Estimates based on occupancy rates and ADRs outlined in development assumptions									
B.	Trip-related retail and services spending (excluding lodging) -- visitors and second homeowners staying at Snowbasin									
B.1	Aggregate spending estimate									
	Visitors & second homeowners - average daily population	287	644	933	1,613	1,781	1,800	1,800	1,876	1,876
	Days per year	365	365	365	365	365	365	365	365	365
	Visitors & second homeowners - annual person days	104,641	235,031	340,634	588,772	649,951	656,858	656,858	684,794	684,794
	Average per capita daily retail expenditure in Morgan Co /1	$150	$150	$150	$150	$150	$150	$150	$150	$150
	Annual, incremental retail sales	$15,696,141	$35,254,620	$51,095,054	$88,315,747	$97,492,723	$98,528,730	$98,528,730	$102,719,158	$102,719,158
	/1 RRC assumption. Compare to Park City out of state visitor: $340/day winter, $264/day summer; summer overnight in-state $185 (figures include lodging). (PC Chamber)									
B.2	Output estimates by sector (eating/drinking, recreation, other retail/services)									
	In analysis below, spending derived immediately above is apportioned in equal thirds to eating/drinking, recreation, and other retail/services (roughly per Dean Runyan Assoc - Economic Analysis of Blaine Co - 2001, p. 46 - short-term visitor spending)									
	B.2.a - Output estimate for eating / drinking									
	Share of non-loding spending									
	Direct output: Eating and drinking places	$5,232,047	$11,751,540	$17,031,685	$29,438,582	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
	Direct output: Recreation	$5,232,047	$11,751,540	$17,031,685	$29,438,582	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
	B.2.c - Output estimate for other retail & services									
	Other retail & services: gross spending	$5,232,047	$11,751,540	$17,031,685	$29,438,582	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
	assume 1/3rd share of non-lodging spending									
	In analysis below, assume 22% is retail, 11% other services -- roughly per Dean Runyan analysis of Tourism in Blaine County, ID 2001, Table 7.2. Assume "retail" portion is an equally weighted mix of food & beverage stores, sporting goods / hobby / book / music stores, clothing & clothing accessory stores, gasoline stations, general merchandise stores, and miscellaneous retail stores. For "other services" portion, utilize "personal services" multiplier as a simplified, representative multiplier.									
	B.2.c.1 - Output estimate for other retail									
	Other retail: gross sales	$3,488,031	$7,834,360	$11,354,457	$19,625,722	$21,665,050	$21,895,273	$21,895,273	$22,826,480	$22,826,480
	Other retail: margin IMPLAN '09 - Morgan Co	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%
	Other retail: direct output (margin, i.e. sales minus cost of goods)	$1,209,294	$2,716,158	$3,936,569	$6,804,202	$7,511,233	$7,591,051	$7,591,051	$7,913,899	$7,913,899
	B.2.c.2 - Output estimate for other services									
	Other services: direct output	$1,744,016	$3,917,180	$5,677,228	$9,812,861	$10,832,525	$10,947,637	$10,947,637	$11,413,240	$11,413,240
C.	Total trip-related impacts Summed from above	$23,831,310	$45,690,893	$63,029,467	$111,295,708	$120,633,694	$121,691,301	$121,691,301	$125,273,371	$125,273,371

Source: RRC Associates.

3. Impacts associated with furnishings purchases, maintenance of second homes, and sales transaction services for residential units (local resident units excluded): Residential furnishing impacts were estimated for initial sales and resales, using assumptions regarding sales frequency, value of furnishings, and other factors.[3] Maintenance of second homes was estimated using estimates of employment associated with second home maintenance based on RRC research in other mountain resort communities, as converted into output estimates by reference to a direct output:employment ratio estimated by IMPLAN. Sales transaction services, encompassing real estate commissions and other transaction services (appraisal, legal, etc.), were estimated using assumptions regarding sales frequency, sales value, commission levels, and other factors. All data exclude local resident units, whose impacts are addressed separately (point 4 below).

   As summarized in Table 15 to follow, direct output associated with these purchases and services is projected to total approximately $12.6 million annually upon project stabilization after buildout. Approximately $6.5 million of this output is associated with sales transaction services, $5.8 million is associated with second home maintenance, and $0.3 million is associated with furnishing purchases.

[3] Maintenance expenditures associated with units in the short term rental pool are accounted for as part of the secondary impact associated with the rental of short-term units. Maintenance expenditures associated with local resident occupied units are accounted for as part of the local resident spending impact analysis.

Table 15
Direct Output Per Year at End of Phase and at Buildout:
Maintenance Services, Furnishing Purchases, and Sales Transaction Services (Local Residents Excluded)

	OUTPUT BY YEAR AT END OF PHASE								
	Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Stabilized at Buildout
A. Maintenance of second homes which are not in the rental pool									
Number used as second homes	89	328	539	868	1,023	1,038	1,038	1,141	1,141
Employees per unit (services provided for the home)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Employees	9	33	54	87	102	104	104	114	114
Output per employee: services to bldgs & dwellings	$50,875	$50,875	$50,875	$50,875	$50,875	$50,875	$50,875	$50,875	$50,875
Direct output: services to bldgs & dwellings	$451,516	$1,669,718	$2,742,417	$4,413,661	$5,201,969	$5,283,114	$5,283,114	$5,802,294	$5,802,294
Employees/unit: RRC Assumption based on second homewoner sruvey research. Output/employee: IMPLAN 2009 - Morgan Co									
B. Residential furnishing purchases (movable, non-fixed items) - excl. local residents									
B.1 - Furnishings upon initial sale									
New residential units built per phase - total	175	257	225	135	205	0	0	79	0
New res. units built per phase - excl. local res. occupied	144	213	180	116	162	0	0	51	0
New residential units built per year (I.e. per phase/5)	29	43	36	23	32	0	0	10	0
Avg. cost of furnishing per unit (incl. interior design svcs)	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Total cost of initial furnishings - per year	$1,437,500	$2,127,500	$1,804,500	$1,162,500	$1,623,000	$0	$0	$510,250	$0
B.2 - Refurnishing upon resale									
Total residential units - excl. local resident occupied	144	548	881	1,467	1,675	1,696	1,696	1,798	1,798
Share of residential units selling per year	7%	7%	7%	7%	7%	7%	7%	7%	7%
Number of units selling per year	10	38	62	103	117	119	119	126	126
Share of resold units which are refurnished	25%	25%	25%	25%	25%	25%	25%	25%	25%
Average cost of furnishing per unit	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Total cost of refurnishing upon resale - per year	$125,781	$479,281	$771,006	$1,283,231	$1,465,275	$1,484,306	$1,484,306	$1,573,600	$1,573,600
B.3 - Aggregate output associated with furnishing and refurnishing									
Total gross cost of furnishing & refurn. res. units	$1,563,281	$2,606,781	$2,575,506	$2,445,731	$3,088,275	$1,484,306	$1,484,306	$2,083,850	$1,573,600
Share of furnishing purchases made in Morgan County /1	12%	16%	20%	24%	28%	32%	36%	40%	42%
Gross cost of furnishings purchased locally	$187,594	$417,085	$515,101	$586,976	$864,717	$474,978	$534,350	$833,540	$660,912
Retail Stores - Furniture and home furnishings - margin	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%
Direct output: Retail stores - furn / home furnishings	$91,733	$203,955	$251,885	$287,031	$422,847	$232,264	$261,297	$407,601	$323,186
/1 RRC assumption. Per ESRI, in 2010, Morgan Co captured 12% of resident furnishing purchases. Assume share grows by 2 ppts/phase.									
C. Residential sales transaction services									
C.1 - Real estate services upon initial sale									
New res value completed -per phase -exc. resident-occup.	$106,500,000	$181,012,500	$156,682,500	$102,810,000	$105,180,000	$0	$0	$25,512,500	$0
New residential value completed - per year (per phase/5)	$21,300,000	$36,202,500	$31,336,500	$20,562,000	$21,036,000	$0	$0	$5,102,500	$0
Real estate sales commissions as a % of value	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Real estate sales commissions - per year	$1,278,000	$2,172,150	$1,880,190	$1,233,720	$1,262,160	$0	$0	$306,150	$0
C.2 - Real estate services upon resale									
Cum residential value completed - excl. res occupied	$106,500,000	$446,512,500	$729,990,000	$1,196,745,000	$1,358,175,000	$1,379,925,000	$1,379,925,000	$1,430,950,000	$1,430,950,000
Share of units selling per year	7%	7%	7%	7%	7%	7%	7%	7%	7%
Value of resale unit purchases	$7,455,000	$31,255,875	$51,099,300	$83,772,150	$95,072,250	$96,594,750	$96,594,750	$100,166,500	$100,166,500
Real estate sales commissions as a % of value	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Real estate sales commissions - per year	$447,300	$1,875,353	$3,065,958	$5,026,329	$5,704,335	$5,795,685	$5,795,685	$6,009,990	$6,009,990
C.3 - Total real estate services									
Direct output: Real estate establishments	$1,725,300	$4,047,503	$4,946,148	$6,260,049	$6,966,495	$5,795,685	$5,795,685	$6,316,140	$6,009,990
C.4 - Other sales transaction services (appraisal, legal, title insurance, etc.)									
Value of initial sale & resale units, nonlocal residents	$28,755,000	$67,458,375	$82,435,800	$104,334,150	$116,108,250	$96,594,750	$96,594,750	$105,269,000	$100,166,500
Cost of other sales transaction services	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Direct output: other sales transaction services	$143,775	$337,292	$412,179	$521,671	$580,541	$482,974	$482,974	$526,345	$500,833
C.5 - Aggregate output associated with sales transaction services									
Direct output	$1,869,075	$4,384,794	$5,358,327	$6,781,720	$7,547,036	$6,278,659	$6,278,659	$6,842,485	$6,510,823
D. Grand total -- maintenance of second homes, residential furnishing purchases, and sales transaction services (excl. resident-occupied units)									
Direct output	$2,412,324	$6,258,466	$8,352,628	$11,482,411	$13,171,852	$11,794,037	$11,823,070	$13,052,380	$12,636,302

4. Impacts associated with the ongoing spending of local resident occupants of units in Snowbasin (excluding initial home construction): Local residents were assumed to have an average annual household income of $125,000. The economic impacts associated with increased household spending are counted in the IMPLAN system as induced effects. Thus, direct impact of local resident household spending is $0, and all the economic impacts are accounted for as secondary impacts (discussed later). Impacts associated with initial home construction are excluded to avoid double-counting impacts.

Total direct output in Morgan County, based on the sum of the above four sub-categories of impacts, is summarized in Table 16 below. Total direct output is estimated at approximately $138 million upon project stabilization after buildout. The dominant share of impacts is attributable to trip-related spending ($125 million), followed by maintenance, furnishing, and sales transaction services ($12.6 million).

Table 16
Direct Output Per Year at End of Phase and at Buildout
(Projections omitted for odd-numbered development phases due to space limitations)

	OUTPUT BY YEAR AT END OF PHASE								Stabilized at
	Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Buildout
Construction-related output:									
Architectural, engineering, and related services	$580,201	$877,987	$1,156,220	$890,509	$1,300,070	$136,581	$154,791	$1,255,932	$0
Wholesale trade (margin)	$125,376	$180,690	$231,341	$174,937	$252,120	$26,234	$29,514	$238,066	$0
Retail building materials (margin)	$125,376	$180,690	$231,341	$174,937	$252,120	$26,234	$29,514	$238,066	$0
Construction - new residential	$2,015,521	$3,411,605	$3,681,831	$2,650,789	$3,605,676	$0	$0	$3,067,117	$0
Construction - new nonresidential	$769,443	$0	$223,622	$69,312	$74,521	$364,215	$393,352	$0	$0
SUBTOTAL - Direct output	$3,615,917	$4,650,973	$5,524,356	$3,960,484	$5,484,506	$553,264	$607,171	$4,799,181	$0
Trip-related visitor / second homeowner output:									
Hotel room rentals	$8,896,875	$8,896,875	$8,896,875	$17,793,750	$17,793,750	$17,793,750	$17,793,750	$17,793,750	$17,793,750
Rental pool rentals	$1,517,031	$6,657,600	$10,455,425	$18,007,731	$19,501,038	$19,673,044	$19,673,044	$19,673,044	$19,673,044
Food services and drinking places	$5,232,047	$11,751,540	$17,031,685	$29,438,582	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
Recreation (other amusement & recreation industries)	$5,232,047	$11,751,540	$17,031,685	$29,438,582	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
Other retail (margin)	$1,209,294	$2,716,158	$3,936,569	$6,804,202	$7,511,233	$7,591,051	$7,591,051	$7,913,899	$7,913,899
Other services	$1,744,016	$3,917,180	$5,677,228	$9,812,861	$10,832,525	$10,947,637	$10,947,637	$11,413,240	$11,413,240
SUBTOTAL - Direct output	$23,831,310	$45,690,893	$63,029,467	$111,295,708	$120,633,694	$121,691,301	$121,691,301	$125,273,371	$125,273,371
Maintenance services, furnishing purchases, and sales transaction services output (local residents excluded):									
Maintenance of second homes not in rental pool	$451,516	$1,669,718	$2,742,417	$4,413,661	$5,201,969	$5,283,114	$5,283,114	$5,802,294	$5,802,294
Retail store furnishings purchases (margin)	$91,733	$203,955	$251,885	$287,031	$422,847	$232,264	$261,297	$407,601	$323,186
Real estate sales services (real estate establishments)	$1,725,300	$4,047,503	$4,946,148	$6,260,049	$6,966,495	$5,795,685	$5,795,685	$6,316,140	$6,009,990
Real estate sales services (legal / insurance)	$143,775	$337,292	$412,179	$521,671	$580,541	$482,974	$482,974	$526,345	$500,833
SUBTOTAL - Direct output	$2,412,324	$6,258,466	$8,352,628	$11,482,411	$13,171,852	$11,794,037	$11,823,070	$13,052,380	$12,636,302
Local resident households:									
SUBTOTAL - Direct output	$0	$0	$0	$0	$0	$0	$0	$0	$0
GRAND TOTAL - DIRECT OUTPUT	$29,859,551	$56,600,332	$76,906,451	$126,738,603	$139,290,052	$134,038,603	$134,121,542	$143,124,932	$137,909,673

Source: RRC Associates.

Total Output

Total output in Morgan County is estimated by applying industry-specific total output multipliers to the direct output measures summarized in Table 16 previously, and also factoring in local resident induced impacts. The results, illustrated in Table 17 below, indicate that total output in Morgan County is estimated at $195 million upon project stabilization after buildout. Of the $195 million in total output, $138 million is projected to be directly attributable to the project, while $57 million is projected to be indirectly attributable to the project. Note that the multiplier ratios on which the calculations of total output are based reflect existing (2009) economic patterns. Insofar as the Morgan County economy grows and evolves in the future (and comes to have more a developed supplier for primary industries, as well as more retail options to serve the resident population and reduce sales leakage), these multiplier ratios will likely increase, and total output would accordingly be higher than estimated below.

Table 17
Total Output Per Year at End of Phase and at Buildout
(Projections omitted for odd-numbered development phases due to space limitations)

		TOTAL OUTPUT BY YEAR AT END OF PHASE								Stabilized
		Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	at Buildout
Output multiplier (IMPLAN 2009 - Morgan Co)										
Construction-related output:										
Architectural, engineering, and related services	1.39157	$807,388	$1,221,777	$1,608,956	$1,239,202	$1,809,133	$190,061	$215,402	$1,747,712	$0
Wholesale trade (margin)	1.29655	$162,557	$234,274	$299,946	$226,815	$326,886	$34,014	$38,266	$308,665	$0
Retail building materials (margin)	1.24777	$156,440	$225,460	$288,660	$218,281	$314,587	$32,735	$36,826	$297,051	$0
Construction - new residential	1.30685	$2,633,987	$4,458,462	$4,811,607	$3,464,187	$4,712,083	$0	$0	$4,008,267	$0
Construction - new nonresidential commercial	1.34067	$1,031,567	$0	$299,803	$92,924	$99,908	$488,291	$527,354	$0	$0
SUBTOTAL - Total output		$4,791,939	$6,139,972	$7,308,972	$5,241,409	$7,262,597	$745,101	$817,849	$6,361,695	$0
Trip-related visitor / second homeowner output:										
Hotel room rentals	1.31839	$11,729,547	$11,729,547	$11,729,547	$23,459,094	$23,459,094	$23,459,094	$23,459,094	$23,459,094	$23,459,094
Rental pool rentals (assume similar to hotel)	1.31839	$2,000,038	$8,777,310	$13,784,323	$23,741,204	$25,709,964	$25,936,735	$25,936,735	$25,936,735	$25,936,735
Food services and drinking places	1.31954	$6,903,912	$15,506,665	$22,474,045	$38,845,482	$42,881,954	$43,337,640	$43,337,640	$45,180,790	$45,180,790
Recreation (other amusement and recreation industries)	1.29521	$6,776,616	$15,220,750	$22,059,663	$38,129,241	$42,091,288	$42,538,571	$42,538,571	$44,347,737	$44,347,737
Other retail (margin) - blend of f&b, gas, clothing...	1.24290	$1,503,033	$3,375,916	$4,892,766	$8,456,949	$9,335,719	$9,434,925	$9,434,925	$9,836,193	$9,836,193
Other services (blend - persl svcs, auto repair)	1.34996	$2,354,355	$5,288,044	$7,664,042	$13,246,989	$14,623,497	$14,778,893	$14,778,893	$15,407,440	$15,407,440
SUBTOTAL - Total output		$31,267,501	$59,898,232	$82,604,386	$145,878,960	$158,101,516	$159,485,858	$159,485,858	$164,167,989	$164,167,989
Maintenance services, furnishing purchases, and sales transaction services output (local residents excluded):										
Maintenance of second homes not in rental pool	1.25159	$565,112	$2,089,801	$3,432,381	$5,524,092	$6,510,730	$6,612,291	$6,612,291	$7,262,091	$7,262,091
Retail store furnishings purchases (margin)	1.22666	$112,525	$250,182	$308,976	$352,088	$518,687	$284,908	$320,522	$499,986	$396,438
Real estate sales services (real estate establishments)	1.14256	$1,971,262	$4,624,521	$5,651,279	$7,152,492	$7,959,650	$6,621,928	$6,621,928	$7,216,579	$6,866,784
Real estate sales services (insurance; legal unavailable)	1.34208	$192,958	$452,673	$553,177	$700,124	$779,133	$648,189	$648,189	$706,397	$672,157
SUBTOTAL - Total output		$2,841,857	$7,417,177	$9,945,812	$13,728,796	$15,768,200	$14,167,316	$14,202,930	$15,685,053	$15,197,470
Local resident household output:										
SUBTOTAL - Total output		$1,227,400	$4,290,989	$7,181,761	$11,270,475	$13,526,926	$13,811,683	$13,811,683	$15,969,943	$15,969,943
GRAND TOTAL - output (direct, indirect, induced)		$40,128,696	$77,746,371	$107,040,932	$176,119,640	$194,659,240	$188,209,958	$188,318,320	$202,184,680	$195,335,401

Source: RRC Associates; IMPLAN 2009. Note: Total output is shown by the sector responsible for direct output. Stated another way, the total output shown above includes direct output occurring in the sectors shown, plus secondary output stimulated by direct output occurring in those respective sectors.

Direct and Total Employment

Direct employment in Morgan County which is attributable to the proposed development is estimated by applying industry-specific direct employment:direct output ratios to the direct output projections summarized in Table 16 previously.[4] The results, illustrated in Table 18 to follow, indicate that direct employment in Morgan County is projected to be approximately 2,044 jobs upon project stabilization at buildout. The dominant share of employment is attributable to trip-related spending (1,834 jobs), followed by maintenance, furnishing, and sales transaction services (210 jobs). The maximum number of jobs during the life of the development is projected be slightly higher (2,084 jobs) and occur at the end of Phase 16, due to the inclusion of jobs associated with the final stages of construction. Note that many direct jobs are anticipated to be part-time in nature, and many employees will likely hold more than one job. As such, the number of individual persons employed in the development will likely be less than the number of jobs.

Additionally, it should be noted that the jobs associated with on-site construction represent jobs projected to be held by Morgan County resident workers (estimated to increase from 30 percent to 58 percent of jobs across the phases), and exclude jobs that are held by persons living in other counties (70 percent to 42 percent of jobs). As such, the construction-related jobs actually occurring on building sites in Snowbasin are likely to be larger than shown in Table 18.[5] (By contrast, all projected jobs associated with trip-related spending and maintenance, furnishing, and sales transaction services are included, regardless of the share of working individuals who live in Morgan County or elsewhere.)

Total employment in Morgan County which is attributable to the proposed development is estimated by applying industry-specific total employment:direct output ratios to the direct output projections summarized in Table 16 previously. The results, illustrated in Table 19 to follow, indicate that total employment in Morgan County directly or indirectly attributable to the project is projected to be approximately 2,569 jobs upon project stabilization after buildout. Of these jobs, 2,044 jobs are projected to be directly attributable to the project, and most of these jobs are anticipated to be located on site within the project (either by definition or expectation), as noted previously. The remaining 525 jobs are projected to be indirectly attributable to the project, and most of these jobs are likely to be located off site from the project (insofar as supplier businesses would tend to be located offsite, and employee purchases of household goods and services would tend to occur offsite as well). Note again

[4] Note that 2009 Morgan County employment:direct output ratios and employment:total output ratios are unusually high in some sectors. Weber County 2008 ratios have used as substitute in these sectors as a more likely indicator of future employment as the Morgan County economy develops and changes.

[5] Additionally, the annual average number of construction jobs per phase conservatively assumes each phase lasts five years, while in fact most phases will likely be built more quickly (expected average of approximately three years), and construction employment will likely thus be higher than shown. Additionally, the difficulties of construction in winter will likely cause a disproportionate share of construction to occur in warm-weather months.

that these "secondary" jobs might be understated in the future, insofar as the Morgan County economy grows (and comes to have more a developed supplier network as well as more retail options to serve the resident population and reduce sales leakage, both of which would increase secondary jobs in Morgan County).

Table 18
Direct Employment Per Year at End of Phase and at Buildout
(Projections omitted for odd-numbered development phases due to space limitations)

		DIRECT EMPLOYMENT BY YEAR AT END OF PHASE								Stabilized
		Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	at Buildout
A. Direct employment, by sector, in Morgan County - average per year										
*Direct employment per $1 million output (IMPLAN 2009 - Morgan Co; *Sector exceptions: 2008 Weber Co.)*										
Construction-related employment:										
Architectural, engineering, and related services	8.83844	5.1	7.8	10.2	7.9	11.5	1.2	1.4	11.1	0.0
Wholesale trade (margin)	4.53477	0.6	0.8	1.0	0.8	1.1	0.1	0.1	1.1	0.0
*Retail building materials (margin)	11.14440	1.4	2.0	2.6	1.9	2.8	0.3	0.3	2.7	0.0
Construction - new residential permanent site single and multi-family structures	6.36766	12.8	21.7	23.4	16.9	23.0	0.0	0.0	19.5	0.0
Construction - new nonresidential commercial and health care structures	9.44054	7.3	0.0	2.1	0.7	0.7	3.4	3.7	0.0	0.0
SUBTOTAL - Direct employment		27.2	32.3	39.4	28.1	39.1	5.1	5.5	34.4	0.0
Trip-related visitor / second homeowner employment:										
Hotel room rentals	13.33100	118.6	118.6	118.6	237.2	237.2	237.2	237.2	237.2	237.2
Rental pool rentals (assume similar to hotel)	13.33100	20.2	88.8	139.4	240.1	260.0	262.3	262.3	262.3	262.3
Food services and drinking places	19.72490	103.2	231.8	335.9	580.7	641.0	647.8	647.8	675.4	675.4
*Recreation (other amusement & recreation industries)	8.19772	42.9	96.3	139.6	241.3	266.4	269.2	269.2	280.7	280.7
*Other retail (margin) - blend of f&b, gas, clothing, sport/hobby, gen merch, & misc	19.03697	23.0	51.7	74.9	129.5	143.0	144.5	144.5	150.7	150.7
Other services (blend - persl svcs, auto repair)	19.99161	34.9	78.3	113.5	196.2	216.6	218.9	218.9	228.2	228.2
SUBTOTAL - Direct employment		342.8	665.5	922.0	1625.0	1764.1	1779.9	1779.9	1834.4	1834.4
Maintenance services, furnishing purchases, and sales transaction services employment (local residents excluded):										
Maintenance of second homes not in rental pool (services to buildings and dwellings)	19.65586	8.9	32.8	53.9	86.8	102.2	103.8	103.8	114.0	114.0
*Retail store furnishings purchases (margin)	10.77675	1.0	2.2	2.7	3.1	4.6	2.5	2.8	4.4	3.5
Real estate sales services (real estate establishments)	14.30511	24.7	57.9	70.8	89.6	99.7	82.9	82.9	90.4	86.0
Real estate sales services (legal / insurance)	12.30503	1.8	4.2	5.1	6.4	7.1	5.9	5.9	6.5	6.2
SUBTOTAL - Direct employment		36.3	97.1	132.4	185.8	213.6	195.2	195.5	215.3	209.7
Local resident household employment:										
SUBTOTAL - Direct employment		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRAND TOTAL - DIRECT employment		406.3	794.9	1093.8	1838.9	2016.9	1980.2	1981.0	2084.0	2044.0

Source: RRC Associates; IMPLAN 2009. Note: Columns may not sum to totals due to rounding.
*Note: Asterisked sectors above had unusually high employment:output ratios in Morgan County in 2009. Weber County 2008 is used as substitute as a more likely indicator of future employment as the Morgan County economy develops and changes.

Table 19
Total Employment Per Year at End of Phase and at Buildout
(Projections omitted for odd-numbered development phases due to space limitations)

		TOTAL EMPLOYMENT BY YEAR AT END OF PHASE								Stabilized
Source of Direct Output		Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	at Buildout
B. Total employment, by sector, in Morgan County - average per year										
Construction-related employment:	*Total empl. per $1 million output (IMPLAN 2009 - Morgan Co; *Sector exceptions: 2008 Weber Co.)*									
Architectural, engineering, and related services	12.9	7.5	11.4	15.0	11.5	16.8	1.8	2.0	16.2	0.0
Wholesale trade (margin)	7.3	0.9	1.3	1.7	1.3	1.8	0.2	0.2	1.7	0.0
*Retail building materials (margin)	12.3	1.5	2.2	2.8	2.1	3.1	0.3	0.4	2.9	0.0
Construction - new residential permanent site single- and multi-family structures	9.5	19.2	32.5	35.1	25.2	34.3	0.0	0.0	29.2	0.0
Construction - new nonresidential commercial and health care structures	12.6	9.7	0.0	2.8	0.9	0.9	4.6	5.0	0.0	0.0
SUBTOTAL - Total employment		38.8	47.4	57.4	41.1	57.0	6.9	7.5	50.1	0.0
Trip-related visitor / second homeowner employment:										
Hotel room rentals	16.8	149.8	149.8	149.8	299.7	299.7	299.7	299.7	299.7	299.7
Rental pool rentals (assume similar to hotel)	16.8	25.5	112.1	176.1	303.3	328.4	331.3	331.3	331.3	331.3
Food services and drinking places	22.7	118.6	266.3	386.0	667.2	736.5	744.4	744.4	776.0	776.0
*Recreation (other amusement and recreation industries)	8.8	45.9	103.0	149.3	258.1	284.9	287.9	287.9	300.1	300.1
*Other retail (margin) - blend of f&b, gas, clothing, sport/hobby, gen merch, & misc	20.5	24.8	55.7	80.7	139.6	154.1	155.7	155.7	162.3	162.3
Other services (blend - persl svcs, auto repair)	23.3	40.7	91.4	132.5	229.0	252.8	255.4	255.4	266.3	266.3
SUBTOTAL - Total employment		405.3	778.4	1074.4	1896.7	2056.3	2074.4	2074.4	2135.8	2135.8
Maintenance services, furnishing purchases, and sales transaction services employment (local residents excluded):										
Maintenance of second homes not in rental pool (services to buildings and dwellings)	22.2	10.0	37.1	60.9	98.0	115.5	117.3	117.3	128.8	128.8
*Retail store furnishings purchases (margin)	11.9	1.1	2.4	3.0	3.4	5.0	2.8	3.1	4.9	3.8
Real estate sales services (real estate estabs)	15.8	27.2	63.9	78.1	98.8	110.0	91.5	91.5	99.7	94.9
Real estate sales services (insurance; legal NA)	16.0	2.3	5.4	6.6	8.4	9.3	7.7	7.7	8.4	8.0
SUBTOTAL - Total employment		40.7	108.8	148.5	208.6	239.8	219.2	219.6	241.8	235.5
Local resident household employment:	*Total induced employees per $125k household*									
SUBTOTAL - Total employment	0.5	15.2	53.2	89.0	139.7	167.6	171.1	171.1	197.9	197.9
GRAND TOTAL - TOTAL employment		500.0	987.8	1369.3	2286.0	2520.7	2471.7	2472.7	2625.6	2569.2

Source: RRC Associates; IMPLAN 2009.
Note: Total employment in the table above is shown by the sector responsible for direct output. Stated another way, the total employment shown above includes direct employment occurring in the sectors shown, plus secondary employment stimulated by direct output occurring in those respective sectors.
Note: Columns may not sum to totals due to rounding.
*Note: Asterisked sectors above had unusually high employment:output ratios in Morgan County in 2009. Weber County 2008 is used as substitute as a more likely indicator of future employment as the Morgan County economy develops and changes.

Direct and Total Labor Income

Direct labor income in Morgan County which is attributable to the proposed development is estimated by applying industry-specific labor income:output ratios to the direct output measures summarized in Table 16 previously. The results, illustrated in Table 20 below, indicate that direct labor income in Morgan County is projected to be approximately $45 million upon project stabilization after buildout. The dominant share of income is projected to be attributable to trip-related activities ($42 million), followed by maintenance, furnishing, and sales transaction services ($3 million).

Table 20
Direct Labor Income Per Year at End of Phase and at Buildout
(Projections omitted for odd-numbered development phases due to space limitations)

		TOTAL LABOR INCOME BY YEAR AT END OF PHASE								Stabilized at
Source of Direct Output		Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Buildout
Construction-related labor income:	*Direct labor income per $1 million output (IMPLAN 2009 - Morgan Co)*									
Architectural, engineering, and related Svcs	0.55662	$322,952	$488,706	$643,577	$495,677	$723,647	$76,024	$86,160	$699,079	$0
Wholesale trade (margin)	0.38824	$48,676	$70,151	$89,816	$67,917	$97,883	$10,185	$11,458	$92,426	$0
Retail building materials (margin)	0.53639	$67,251	$96,921	$124,090	$93,835	$135,235	$14,072	$15,831	$127,697	$0
Construction - new residential permanent site single- and multi-family structures	0.25732	$518,628	$877,864	$947,397	$682,093	$927,801	$0	$0	$789,221	$0
Construction - new nonresidential commercial and health care structures	0.38138	$293,453	$0	$85,286	$26,434	$28,421	$138,906	$150,018	$0	$0
SUBTOTAL - Direct labor income		$1,250,960	$1,533,642	$1,890,165	$1,365,956	$1,912,987	$239,187	$263,468	$1,708,423	$0
Trip-related visitor / second homeowner labor income:										
Hotel room rentals	0.27065	$2,407,909	$2,407,909	$2,407,909	$4,815,818	$4,815,818	$4,815,818	$4,815,818	$4,815,818	$4,815,818
Rental pool rentals (assume similar to hotel)	0.27065	$410,579	$1,801,857	$2,829,725	$4,873,731	$5,277,890	$5,324,442	$5,324,442	$5,324,442	$5,324,442
Food services and drinking places	0.34298	$1,794,477	$4,030,519	$5,841,492	$10,096,783	$11,145,950	$11,264,393	$11,264,393	$11,743,467	$11,743,467
Recreation (other amusement and recreation)	0.29808	$1,559,582	$3,502,928	$5,076,847	$8,775,126	$9,686,958	$9,789,897	$9,789,897	$10,206,261	$10,206,261
Other retail (margin) - blend of f&b, gas, clothing, sport/hobby, gen merch, & misc	0.49568	$599,426	$1,346,352	$1,951,289	$3,372,724	$3,723,187	$3,762,752	$3,762,752	$3,922,782	$3,922,782
Other services (blend - persl svcs, auto repair, museums/parks, perf arts)	0.56409	$983,786	$2,209,651	$3,202,480	$5,535,358	$6,110,542	$6,175,476	$6,175,476	$6,438,119	$6,438,119
SUBTOTAL - Direct labor income		$7,755,758	$15,299,216	$21,309,742	$37,469,541	$40,760,346	$41,132,778	$41,132,778	$42,450,890	$42,450,890
Maintenance services, furnishing purchases, and sales transaction services labor income (local residents excluded):										
Maintenance of second homes not in rental pool (services to buildings and dwellings)	0.35954	$162,337	$600,327	$986,003	$1,586,879	$1,870,305	$1,899,480	$1,899,480	$2,086,145	$2,086,145
Retail store furnishings purchases (margin)	0.46753	$42,888	$95,354	$117,763	$134,194	$197,692	$108,590	$122,163	$190,564	$151,098
Real estate sales services (real estate estabs)	0.09964	$171,913	$403,302	$492,845	$623,764	$694,156	$577,494	$577,494	$629,353	$598,848
Real estate sales services (legal / insurance)	0.38171	$54,880	$128,746	$157,331	$199,125	$221,596	$184,354	$184,354	$200,909	$191,171
SUBTOTAL - Direct labor income		$432,017	$1,227,729	$1,753,941	$2,543,962	$2,983,749	$2,769,918	$2,783,491	$3,106,971	$3,027,261
Local resident household labor income:										
SUBTOTAL - Direct labor income		$0	$0	$0	$0	$0	$0	$0	$0	$0
GRAND TOTAL - DIRECT labor income		$9,438,735	$18,060,586	$24,953,848	$41,379,459	$45,657,082	$44,141,882	$44,179,737	$47,266,286	$45,478,151

Source: RRC Associates; IMPLAN 2009.

Total labor income in Morgan County which is attributable to the proposed development is estimated by applying industry-specific total labor income:direct output ratios to the direct output measures summarized in Table 16 previously. The results, illustrated in Table 21 below, indicate that total labor income in Morgan County is projected to be approximately $63 million upon project stabilization after buildout. Of the $63 million in total income, $45 million is projected to be directly attributable to the project, while $18 million is projected to be indirectly attributable to the project. Again, the indirect effects might be understated to the extent that Morgan County comes to have a more developed economy in future years.

Table 21
Total Labor Income Per Year at End of Phase and at Buildout
(Projections omitted for odd-numbered development phases due to space limitations)

		TOTAL LABOR INCOME BY YEAR AT END OF PHASE								Stabilized at
Source of Direct Output		Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Buildout
Construction-related labor income:	*Total labor income per $1 million output (IMPLAN 2009 - Morgan Co)*									
Architectural, engineering, and related services	0.68344	$396,535	$600,054	$790,211	$608,613	$888,525	$93,345	$105,791	$858,359	$0
Wholesale trade (margin)	0.47567	$59,638	$85,950	$110,043	$83,213	$119,927	$12,479	$14,039	$113,242	$0
Retail building materials (margin)	0.60297	$75,598	$108,951	$139,491	$105,482	$152,020	$15,819	$17,796	$143,546	$0
Construction - new residential permanent site single- and multi-family structures	0.36552	$736,707	$1,246,999	$1,345,771	$968,907	$1,317,935	$0	$0	$1,121,082	$0
Construction - new nonresidential commercial and health care structures	0.49978	$384,555	$0	$111,763	$34,641	$37,244	$182,028	$196,591	$0	$0
SUBTOTAL - Total labor income		$1,653,032	$2,041,953	$2,497,279	$1,800,856	$2,515,650	$303,671	$334,217	$2,236,229	$0
Trip-related visitor / second homeowner labor income:										
Hotel room rentals	0.36539	$3,250,868	$3,250,868	$3,250,868	$6,501,736	$6,501,736	$6,501,736	$6,501,736	$6,501,736	$6,501,736
Rental pool rentals (assume similar to hotel)	0.36539	$554,315	$2,432,650	$3,820,354	$6,579,924	$7,125,570	$7,188,420	$7,188,420	$7,188,420	$7,188,420
Food services and drinking places	0.43054	$2,252,594	$5,059,482	$7,332,783	$12,674,421	$13,991,433	$14,140,113	$14,140,113	$14,741,492	$14,741,492
Recreation (other amusement and recreation indu	0.38350	$2,006,479	$4,506,690	$6,531,614	$11,289,633	$12,462,749	$12,595,185	$12,595,185	$13,130,858	$13,130,858
Other retail (margin) - blend of f&b, gas, clothing, sport/hobby, gen merch, & misc	0.56067	$678,020	$1,522,879	$2,207,132	$3,814,938	$4,211,352	$4,256,104	$4,256,104	$4,437,117	$4,437,117
Other services (blend - persl svcs, auto repair)	0.65819	$1,147,899	$2,578,262	$3,736,714	$6,458,759	$7,129,895	$7,205,661	$7,205,661	$7,512,118	$7,512,118
SUBTOTAL - Total labor income		$9,890,174	$19,350,830	$26,879,465	$47,319,412	$51,422,736	$51,887,219	$51,887,219	$53,511,741	$53,511,741
Maintenance services, furnishing purchases, and sales transaction services labor income (local residents excluded):										
Maintenance of second homes not in rental pool (services to buildings and dwellings)	0.43923	$198,318	$733,385	$1,204,544	$1,938,599	$2,284,845	$2,320,487	$2,320,487	$2,548,524	$2,548,524
Retail store furnishings purchases (margin)	0.52848	$48,479	$107,785	$133,115	$151,689	$223,465	$122,746	$138,090	$215,408	$170,796
Real estate sales services (real estate establishi	0.13879	$239,457	$561,759	$686,483	$868,841	$966,890	$804,391	$804,391	$876,626	$834,135
Real estate sales services (insurance; legal una	0.49339	$70,937	$166,416	$203,365	$257,387	$286,433	$238,294	$238,294	$259,693	$247,106
SUBTOTAL - Total labor income		$557,191	$1,569,345	$2,227,507	$3,216,516	$3,761,633	$3,485,919	$3,501,262	$3,900,251	$3,800,561
Local resident household labor income:	Total induced labor income per $125k household:									
SUBTOTAL - Total labor income	$13,140	$410,612	$1,435,499	$2,402,571	$3,770,401	$4,525,270	$4,620,531	$4,620,531	$5,342,551	$5,342,551
GRAND TOTAL - TOTAL labor income		$12,511,009	$24,397,628	$34,006,821	$56,107,185	$62,225,289	$60,297,341	$60,343,229	$64,990,773	$62,654,853

Source: RRC Associates; IMPLAN 2009.
Note: Total income in the table above is shown by the sector responsible for direct output. Stated another way, the total income shown above includes direct income occurring in the sectors shown, plus secondary income stimulated by direct output occurring in those respective sectors.

Fiscal Impact Analysis

This section of the report examines the fiscal impact of the proposed Snowbasin project on the Morgan County government, by examining the revenues and expenses attributable to Snowbasin which would accrue to Morgan County's several budgetary funds.

Summary of Impacts

The projected fiscal impacts of the proposed Snowbasin development on Morgan County upon stabilization (after project buildout) are summarized by Morgan County fund in Table 22 to follow. As shown, the Snowbasin development is projected to have a positive net fiscal impact on the Morgan County General Fund and other growth-sensitive funds. As illustrated in more detail later in the report, the positive fiscal impacts accrue throughout the construction phases of the project as well. The order of magnitude of the net benefits is quite large for each fund, with revenues projected to exceed expenses by factors of 2.9 to as high as 8.0 upon project stabilization after buildout. This indicates a substantial "margin of error" for positive balances for each fund, even if revenues are substantially overestimated and expenses substantially underestimated.

The significant net fiscal benefit of the Snowbasin project to Morgan County is primarily due to its revenue generating capacity, due to anticipated high property values, the assessment of most residential units at full market value, and significant visitor / second homeowner orientation (resulting in high per capita spending and resulting sales tax revenues).

Table 22
Summary of Annual Fiscal Impacts on Morgan County Government Funds
Attributable to Snowbasin at Stabilization (After Project Buildout); and
Projected Total Impact Fees

	Annual - Stabilized Upon Buildout				
Fund	Revenues	Expenses	Net Surplus (Deficit)	Revenue: Expense Ratio	Comments
General Fund - broadest revenue comparison	$6,846,064	$1,529,716	$5,316,348	4.5	See discussion in "General Fund" section
General Fund - narrowest revenue comparison	$4,464,012	$1,529,716	$2,934,296	2.9	See discussion in "General Fund" section
Library Fund	$283,598	$36,985	$246,613	7.7	
Health Services Fund	$283,506	$35,235	$248,271	8.0	
Flood Disaster Fund	$31,535	$5,727	$25,809	5.5	

	Total Impact Fees				
Impact Fee	Revenues	Expenses	Net Surplus (Deficit)	Revenue: Expense Ratio	Comments
Fire (County)	$450,277	$450,277	$0	0.0	Total for project. Assume costs=revenues.
EMS	$51,214	$51,214	$0	0.0	Total for project. Assume costs=revenues.
Police	$587,783	$587,783	$0	0.0	Total for project. Assume costs=revenues.
Regional Parks & Recreation	$1,148,180	$1,148,180	$0	0.0	Total for project. Assume costs=revenues.
Community/Neighborhood Parks & Recreation	$1,768,409	$1,768,409	$0	0.0	Total for project. Assume costs=revenues.
Transportation	$1,027,351	$1,027,351	$0	0.0	Total for project. Assume costs=revenues.

Note: Impact fees are shown for entire development of project, rather than a single year.
Source: RRC Associates.

Methodology

This fiscal impact analysis utilizes the following methodological approach:

1. Evaluate the Morgan County budget to determine which funds should be included in the Snowbasin fiscal impact analysis. The County has numerous funds for budgeting purposes. Only those funds which are systematically affected by new growth and which are anticipated to be directly impacted in a predictable way by the Snowbasin development are included in the analysis.

2. For each applicable fund, determine which revenue and expense items are growth sensitive. Within each fund, revenue and expense items which are directly impacted by the development of Snowbasin are included in the analysis, while those which are not impacted (or for which revenues and expenses are intended to offset one another) are excluded. These determinations were made on the basis of a detailed review of the 2011 County budget, in some cases using judgment and assumptions.

3. Calculate applicable revenues and expenses attributable to Snowbasin, utilizing appropriate methodologies. Two primary methodologies were employed to evaluate applicable revenues and expenses attributable to Snowbasin – the "per capita" approach (in many cases modified to include visitors and/or second homeowners – along with permanent local residents – in the population or household base); and the "case study" (independent calculation) approach, as further described in the applicable calculations.

4. Compare revenues and expenses to assess the net surplus (deficit) to Morgan County.

Pursuant to Step 1 above (determination of funds subject to analysis), Table 23 lists Morgan County's budgetary funds and identifies which are appropriate for inclusion or exclusion in the Fiscal Impact Analysis. Also shown is the rationale for excluding selected funds from analysis. Key reasons for exclusion include the following:

- Expenses are designed to be offset by user fee revenue, as in the case of the Garbage Enterprise Fund.

- New growth does not have a direct marginal impact on costs and revenues, or stated another way, revenues and expenses are not systematically related to growth. Based on a review of revenues and expenses for each fund, it is believed that several funds will not experience a direct, systematic marginal revenue/expense impact as a result of the project. Specific funds excluded on this basis including the following:
    - Road Fund: In the 2011 Morgan County budget, this fund is used to account for revenues and expenditures associated with State of Utah Class B county road allotment funds, sourced from statewide highway user fees and distributed to counties on the basis of population and weighted road mileage. Insofar as the overall revenue pool and Morgan County's share of the pool are not predictably related to the Snowbasin development plan, the fund is excluded from analysis as a separate entity. However, a discussion of road-related costs related to Snowbasin is included in the fiscal analysis as a special-topic study, and that discussion incorporates revenue from the Road Fund.
    - Mineral lease fund: Snowbasin is not anticipated to impact mineral lease revenues received by Morgan County.
    - Bond interest fund, capital projects fund, flood fund, and park fund: Each of these funds have no projected revenue or expense activity in 2011, although several of these funds have existing balances. While the Snowbasin development could influence future activity in these funds, there is no current identified pattern of activity which could provide a basis for projecting the future impacts of Snowbasin on these funds.

- Payroll fund: This fund is used for internal operational purposes for processing payroll. With no budgeted revenue or expense, it is unlikely to be meaningfully impacted by the Snowbasin development.
- Mountain Green Fire Station Grant fund: This fund accounts for lease payments made by the Mountain Green Fire Protection District to the Morgan County Municipal Building Authority to pay off lease revenue bonds issued in 2002 to construct a fire station in Mountain Green. The fund is unaffected by the Snowbasin development insofar as it applies to existing fixed financing arrangements unaffected by Snowbasin.

For the remaining funds, fund-specific fiscal impact analyses have been conducted.

Table 23
Morgan County 2011 Budget Summary

Fund	Revenue (incl. transfers in)	Evaluated in Fiscal Impact Analysis?
General Fund	$4,918,416	Yes
Flood Disaster Fund	$17,711	Yes
Health Services Fund	$153,178	Yes
Impact Fee Fund	$48,400	Yes
Library Fund	$160,786	Yes
Garbage Enterprise Fund	$365,000	No - user fees offset costs
Road Fund	$325,000	No - revenues & expenses not predictably impacted by Snowbasin
Mineral Lease Fund	$44,000	No - not impacted by Snowbasin
Bond Interest Fund	$0	No - no current or predictable future activity in fund
Capital Projects Fund	$0	No - no current or predictable future activity in fund
Flood Fund	$0	No - no current or predictable future activity in fund
Park Fund	$0	No - no current or predictable future activity in fund
Payroll Fund	$0	No - used for processing payroll
Mt. Green Fire Station Grant	$16,150	No - accounts for financing of existing facility (not impacted by future growth)
GRAND TOTAL	$6,048,641	

Source: Morgan County 2011 Budget; RRC Associates.

Additional methodological notes include the following:

- Multiplier impacts excluded: This analysis addresses the direct, first-order impacts of the Snowbasin development. Indirect and secondary ("multiplier") impacts are excluded.
- Numbers are expressed in 2011 dollars, with no inflation or discount factors.
- Impacts on entities other than Morgan County are excluded.

The balance of the Fiscal Impact Analysis proceeds as follows:

- Analysis of property tax revenues (applicable to multiple funds).
- Analysis of sales tax revenues.
- Analysis of revenues, expenses, and net surplus (deficit) for each impacted fund.

Calculation of Property Tax Revenues

Property taxes are calculated in a straightforward manner by multiplying the taxable property value (estimated earlier) by the property tax rates for applicable County levies. As shown in Table 24 to follow, upon project buildout at the completion of Phase 16, the Snowbasin development is projected to have a taxable property value of $1.73 billion, resulting in annual property tax collections to the County of $4.6 million (assuming continuation of 2010 tax rates). Funds collected for County General Operations are projected to be approximately $3.16 million annually. Additionally, approximately $281,000 is projected to accrue annually to the Library Fund, $31,000 to the Flood Control Fund, and $245,000 to the Health Service fund. An additional $886,000 is projected to be generated for purposes of assessing and collecting property taxes, although this amount may be reduced per state statutes if it exceeds the costs of assessing and collecting property taxes. Additionally, property tax collections may be different from shown in Table 24 if tax rates are changed in the future.

To place these numbers in context, in 2011, the Morgan County General Fund is budgeted to have $1.64 million in property taxes revenues (excluding assessing and collecting revenues). The Snowbasin project at buildout, with $3.16 million in property tax revenues generated annually for General Operations purposes, is projected to be almost double the size of the County's existing General Operations property tax revenue stream, even though it would have fewer housing/hotel units (2,505 housing/hotel units at Snowbasin vs. 3,006 countywide housing units as of 4/1/10 per U.S. Census). The disproportionately large property valuation (and property tax generation) of Snowbasin is primarily due to its high projected residential property values, combined with a high projected share of units used for non-primary residential purposes (and thus taxed at 100 percent of market value rather than 55 percent of market value).

Also shown for reference in Table 24 are the projected property tax collections of other governmental entities with a levy on project area lands. The Morgan County School District is projected to collect approximately $11.0 million in annual property tax revenues from the Snowbasin development upon buildout, while the Weber Basin Water Conservancy District is projected to collect approximately $359,000 annually (both assuming continuance of existing property tax rates).

Additionally, for illustrative purposes only, Table 24 illustrates property tax collections that would accrue to the Mountain Green Fire Protection District in the event that Snowbasin were

to be included in that District in the future. As shown, upon buildout, Snowbasin would generate approximately $857,000 annually in property taxes for the Mountain Green FPD if it were included in the FPD taxing area and existing tax rates were maintained.

Table 24
Projected Property Taxes by Fund
(Projections omitted for odd-numbered development phases due to space limitations)

			ANNUAL PROPERTY TAX REVENUES AT END OF PHASE								
			Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
Total taxable property value - at end of Phase			$158,060,384	$543,891,059	$828,890,354	$1,394,040,908	$1,632,936,028	$1,663,558,148	$1,668,442,768	$1,734,579,018	$1,734,579,018
Morgan County -- annual property tax collections upon completion of Phase											
Morgan County Fund	2010 tax rate	Geog. area									
General operations	0.001822	Countywide	$287,986	$990,970	$1,607,666	$2,625,416	$2,975,209	$3,031,003	$3,039,903	$3,160,403	$3,160,403
Library	0.000162	Countywide	$25,606	$88,110	$142,943	$233,434	$264,536	$269,496	$270,288	$281,002	$281,002
Flood Control	0.000018	Countywide	$2,845	$9,790	$15,883	$25,937	$29,393	$29,944	$30,032	$31,222	$31,222
Health	0.000141	Countywide	$22,287	$76,689	$124,413	$203,174	$230,244	$234,562	$235,250	$244,576	$244,576
Assess & Collect - State /1	0.000162	Countywide	$25,606	$88,110	$142,943	$233,434	$264,536	$269,496	$270,288	$281,002	$281,002
Assess & Collect - Local /1	0.000349	Countywide	$55,163	$189,818	$307,945	$502,893	$569,895	$580,582	$582,287	$605,368	$605,368
Total - Morgan County	0.002654		$419,492	$1,443,487	$2,341,792	$3,824,289	$4,333,812	$4,415,083	$4,428,047	$4,603,573	$4,603,573
Total - excluding Assess & Collect	0.002143		$338,723	$1,165,559	$1,890,904	$3,087,962	$3,499,382	$3,565,005	$3,575,473	$3,717,203	$3,717,203
/1 Note: Assessing and collecting revenues (state and local) are limited to an amount equivalent the estimated cost of assessing and collecting property taxes. Actual permitted collections may be less than shown above.											
Other Morgan County entities with Snowbasin in tax area -- annual property tax collections upon completion of Phase											
Other Morgan County entities	2010 tax rate	Geog. area									
Morgan County School District	0.006358	Countywide	$1,004,948	$3,458,059	$5,610,065	$9,161,579	$10,382,207	$10,576,903	$10,607,959	$11,028,453	$11,028,453
Weber Basin Water Conservancy District	0.000207	Countywide	$32,718	$112,585	$182,649	$298,277	$338,018	$344,357	$345,368	$359,058	$359,058
Total - Other Entities	0.007059		$1,115,748	$3,839,327	$6,228,602	$10,171,687	$11,526,895	$11,743,057	$11,777,537	$12,244,393	$12,244,393
Mountain Green Fire Protection District -- annual property tax collections upon completion of Phase -- for illustrative purposes only /2											
	2010 tax rate	Geog. area									
Mountain Green Fire Protection District	0.000494	Portion of county	$78,082	$268,682	$435,887	$711,831	$806,670	$821,798	$824,211	$856,882	$856,882
/2 Note: Snowbasin is not currently located in the Mountain Green Fire Protection District. Property tax collections are shown for rough illustration purposes, in the event it were to be added to the district in the future.											

Source: RRC Associates.

Calculation of Sales Tax Revenues

There are five Morgan County sales taxes which are projected to be impacted by the Snowbasin project, as outlined in Table 25 to follow. Each is accounted for in the Morgan County General Fund. There are important distinctions between the taxes regarding the location where taxes are levied (countywide vs. unincorporated county only) and the method of allocation (point of sale only vs. blend of point of sale and population). Additionally, it is important to note that the 0.25% County Option Sales Tax and 1.0% Local Sales and Use Tax can be used for broad governmental purposes. By contrast, revenues from the 3.0% Transient Room Tax, 1.0% Restaurant Tax, and 7.0% Leased Vehicle Fee are restricted for purposes primarily related to tourism development.

Table 25
Summary of Morgan County Sales Taxes

Sales tax	Morgan County fund	Tax rate	Tax type (taxable items)	Where levied	Allocation method
County Option Sales Tax	General fund	0.25%	General sales and use tax	Countywide	50% share to Morgan County, 50% to statewide pool and allocated back to counties on basis of population
Local Sales & Use Tax	General fund	1.00%	General sales and use tax	Unincorporated	50% share to Morgan County, 50% to to statewide pool and allocated back to cities/unincorp areas on basis of population
Transient Room Tax	General fund	3.00%	Accommodations	Countywide	100% to Morgan County
Tourism - Restaurant Tax	General fund	1.00%	Restaurants	Countywide	100% to Morgan County
Leased vehicle fees	General fund	7.00%	Vehicle rentals	Countywide	3 ppts to Morgan Co. Of remaining 4 ppts, 70% to Morgan Co, 30% to particip counties on basis of population.

Source: RRC Associates; Utah State Tax Commission.

For purposes of projecting sales tax collections for each tax, it was necessary to project total taxable sales for each specified sector (i.e. all items, lodging, restaurants, and rental vehicles), as further cross-referenced by location of sale (countywide vs. unincorporated county). (Note that all taxes are levied countywide except for the 1.0% local sales and use tax, which is levied in unincorporated areas only.)

Projections of taxable sales were based on the direct output calculations in the Economic Impact Analysis (Tables 13-16 and related discussion previously). Specifically, incremental taxable sales were estimated from the projected spending of visitors, second homeowners, and residents staying at or living in the Snowbasin development, as well as other direct economic activity associated with the development. As a cross-check for reasonableness against this occupant-based approach, however, taxable sales were also estimated from the standpoint of the expected sales occurring at the retail spaces in the project (via sales per square foot assumptions). These two separate calculation methods produced similar conclusions, a finding which is not surprising, insofar as the commercial space proposed in the project is in large measure intended to serve visitors to and residents of the development. Calculations of taxable sales via both the occupant spending and retail space approaches are shown in Table 26 to follow.

To estimate sales tax proceeds, for taxes distributed on a point-of-sale basis, sales tax collections were estimated as a function of the taxable sales multiplied by the applicable tax rate. For taxes distributed on a per capita basis, sales tax proceeds were estimated as a function of the new permanent resident population of the development, multiplied by the applicable statewide or multi-county per capita tax distribution factor (which was estimated). Calculations are shown in Table 27 to follow.

Table 28 to follow illustrates the summary results of the analysis. Overall, upon stabilization after buildout, the development is projected to generate approximately $2.4 million annually in aggregate sales tax revenue for Morgan County. On a tax-by-tax basis:

- The 0.25% County Option Sales Tax is projected to generate approximately $215,000 annually upon buildout, while the 1.0% Local Sales and Use Tax is projected to generate approximately $730,000. Combined, these taxes are projected to generate approximately $945,000 annually. Note that proceeds from these taxes can be used for broad governmental purposes.

  For context, the projected annual revenues attributable to Snowbasin from the 0.25% County Option Tax upon buildout ($214,717) are just slightly below the overall Morgan County 2011 budgeted revenues from that tax ($220,876). Additionally, the projected annual revenues attributable to Snowbasin from the 1.0% Local Sales and Use Tax upon buildout ($730,281) are substantially larger than the overall Morgan County 2011 budgeted revenues from that tax ($487,808). These comparisons illustrate the significant scale of taxable economic activity projected to be generated by the Snowbasin development.

- Upon stabilization after buildout, the Transient Room Tax is projected to generate $1.12 million annually; the Restaurant Tax is projected to generate $353,000 annually; and the Leased Vehicle Fees are projected to generate $18,000 annually. Together, these taxes are projected to generate approximately $1.5 million annually upon buildout. Note that proceeds from these taxes are statutorily restricted for selected purposes, primarily related to tourism development.

Table 26
Calculation of Projected Taxable Sales
(Projections omitted for odd-numbered development phases due to space limitations)

			ANNUAL TAXABLE SALES AT END OF PHASE								Stabilized at
			Phase 2	Phase 4	Phase 6	Phase 8	Phase 10	Phase 12	Phase 14	Phase 16	Bldout
Construction & furnishings-related expenditures		**Source**									
1. Construction materials purchases (non-recurring)		Econ impacts analysis (per yr per phase)	$974,737	$1,404,779	$2,022,564	$4,684,157	$1,960,105	$203,960	$229,455	$1,850,847	$0
2. Furnishing purchases -- initial purchases (non-recurring		Econ impacts	$172,500	$340,400	$428,900	$1,125,960	$454,440	$0	$0	$204,100	$0
3. Furnishing purchases -- refurnishing upon resale (recur		Econ impacts	$15,094	$76,685	$141,391	$293,171	$410,277	$474,978	$534,350	$629,440	$660,912
Visitor & second home-related expenditures											
4. Visitor lodging in project area		Econ impacts	$10,413,906	$15,554,475	$18,306,119	$34,530,369	$37,294,788	$37,466,794	$37,466,794	$37,466,794	$37,466,794
5. Visitor / second homeowner non-lodging, non-furnishing		Econ impacts	$15,696,141	$35,254,620	$47,546,762	$84,672,846	$97,492,723	$98,528,730	$98,528,730	$102,719,158	$102,719,158
5a. Visitor / second homeowners: recreation		Econ impacts	$5,232,047	$11,751,540	$15,848,921	$28,224,282	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
5b. Visitor / second homeowners: restaurants		Econ impacts	$5,232,047	$11,751,540	$15,848,921	$28,224,282	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
5c. Visitor / second homeowners: grocery food		Econ impacts anal; assume 40% of "other retail"	$1,395,213	$3,133,744	$4,226,379	$7,526,475	$8,666,020	$8,758,109	$8,758,109	$9,130,592	$9,130,592
5d. Visitor / second homeowners: other retail		Econ impacts anal; assume 60% of "other retail"	$2,092,819	$4,700,616	$6,339,568	$11,289,713	$12,999,030	$13,137,164	$13,137,164	$13,695,888	$13,695,888
5e. Visitor / second homeowners: car rentals		Econ impacts anal; assume 2.5% "other svcs"	$43,600	$97,930	$132,074	$235,202	$270,813	$273,691	$273,691	$285,331	$285,331
5f. Visitor / second homeowners: other svcs		Econ impacts anal; assume 97.5% of "other srvcs"	$1,700,415	$3,819,251	$5,150,899	$9,172,892	$10,561,712	$10,673,946	$10,673,946	$11,127,909	$11,127,909
Local resident expenditures											
6. Local resident non-housing taxable spending - calculation:											
General methodology: Assume $125,000 annual household income. Assume spending distribution per 2009 US BLS Cons. Exp Svy - $120-149.9K+ category.											
Exclude goods & svcs not taxed in Morgan County. Category expenditures per HH per yr from same source (BLS).											
Local resident households			31	109	175	283	344	352	352	407	407
Average household income		RRC assumption	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000
Average annual taxable spending		BLS (above note); RRC estimates	$48,349	$48,349	$48,349	$48,349	$48,349	$48,349	$48,349	$48,349	$48,349
Share of taxable purch. made in Morgan Cnty		ESRI: 2010 Retail; assume 1ppt/growth per phase	46%	48%	50%	52%	54%	56%	58%	60%	61%
Total local resident taxable expenditures in Morgan County			$695,016	$2,535,418	$4,219,652	$7,126,341	$8,991,739	$9,521,063	$9,861,101	$11,795,203	$11,991,790
	Avg annual spending/HH/yr: (restaurants & grocery from 2009 US BLS Cons Exp Svy)										
6a. Local residents: restaurants	$4,418	x # HHs x capture %	$63,504	$231,661	$385,550	$651,134	$821,576	$869,940	$901,009	$1,077,728	$1,095,691
6b. Local residents: grocery food	$4,904	x # HHs x capture %	$70,498	$257,176	$428,014	$722,849	$912,063	$965,754	$1,000,245	$1,196,428	$1,216,369
6c. Local residents: car rentals	Assume $25/hh/yr (0.5 day rental/hh/yr)		$781	$2,731	$4,364	$7,086	$8,610	$8,791	$8,791	$10,165	$10,165
6d. Local residents: other taxable purchases	Residual		$560,233	$2,043,849	$3,401,725	$5,745,271	$7,249,490	$7,676,578	$7,951,055	$9,510,882	$9,669,566
TOTAL taxable expenditures											
7. TOTAL taxable expenditures - all items			$27,967,394	$55,166,376	$72,665,388	$132,432,843	$146,604,072	$146,195,525	$146,620,430	$154,665,541	$152,838,654
7a. Grocery food			$1,465,710	$3,390,920	$4,654,393	$8,249,325	$9,578,083	$9,723,864	$9,758,355	$10,327,020	$10,346,960
7b. Lodging			$10,413,906	$15,554,475	$18,306,119	$34,530,369	$37,294,788	$37,466,794	$37,466,794	$37,466,794	$37,466,794
7c. Restaurants			$5,295,551	$11,983,201	$16,234,470	$28,875,416	$33,319,150	$33,712,850	$33,743,919	$35,317,448	$35,335,410
7d. Car rentals			$44,382	$100,661	$136,438	$242,289	$279,423	$282,482	$282,482	$295,496	$295,496
7e. Construction materials			$974,737	$1,404,779	$2,022,564	$4,684,157	$1,960,105	$203,960	$229,455	$1,850,847	$0
7f. Furnishings			$187,594	$417,085	$570,291	$1,419,131	$864,717	$474,978	$534,350	$833,540	$660,912
7g. All other			$9,585,514	$22,315,255	$30,741,113	$54,432,158	$63,307,806	$64,330,597	$64,605,075	$68,574,397	$68,733,082
Total			$27,967,394	$55,166,376	$72,665,388	$132,432,843	$146,604,072	$146,195,525	$146,620,430	$154,665,541	$152,838,654
Taxable spending in UNINCORP county		*RRC assumed share in unincorp. area*									
7a. Grocery food		90%	$1,319,139	$3,051,828	$4,188,953	$7,424,392	$8,620,275	$8,751,477	$8,782,519	$9,294,318	$9,312,264
7b. Lodging		100%	$10,413,906	$15,554,475	$18,306,119	$34,530,369	$37,294,788	$37,466,794	$37,466,794	$37,466,794	$37,466,794
7c. Restaurants		90%	$4,765,995	$10,784,881	$14,611,023	$25,987,875	$29,987,235	$30,341,565	$30,369,527	$31,785,703	$31,801,869
7d. Car rentals		50%	$22,191	$50,330	$68,219	$121,144	$139,712	$141,241	$141,241	$147,748	$147,748
7e. Construction materials		50%	$487,369	$702,389	$1,011,282	$2,342,078	$980,053	$101,980	$114,728	$925,423	$0
7f. Furnishings		50%	$93,797	$208,543	$285,146	$709,565	$432,359	$237,489	$267,175	$416,770	$330,456
7g. Visitor recreation		90%	$4,708,842	$10,576,386	$14,264,028	$25,401,854	$29,247,817	$29,558,619	$29,558,619	$30,815,747	$30,815,747
7g. All other		50%	$2,176,734	$5,281,858	$7,446,096	$13,103,938	$15,405,116	$15,743,844	$15,881,082	$17,167,339	$17,246,681
Total			$23,987,973	$46,210,690	$60,180,867	$109,621,215	$122,107,353	$122,343,009	$122,581,686	$128,019,842	$127,121,559
Taxable spending in UNINCORPORATED county - based on sales at commercial projects - alternate calculation (with similar results)											
A. Sales at retail spaces											
Cumulative retail sqft in all project areas			20,254	40,508	75,792	131,329	146,359	161,388	176,418	176,418	176,418
Assumed sales per sqft per yr			$300	$300	$300	$300	$300	$300	$300	$300	$300
Sales at project retail spaces per yr			$6,076,200	$12,152,400	$22,737,480	$39,398,760	$43,907,640	$48,416,520	$52,925,400	$52,925,400	$52,925,400
B. Lodging sales (from above)			$10,413,906	$15,554,475	$18,306,119	$34,530,369	$37,294,788	$37,466,794	$37,466,794	$37,466,794	$37,466,794
C. Recreation sales (ski lift tickets, golf, etc.) - visitors (from above)			$5,232,047	$11,751,540	$15,848,921	$28,224,282	$32,497,574	$32,842,910	$32,842,910	$34,239,719	$34,239,719
D. TOTAL			$21,722,153	$39,458,415	$56,892,519	$102,153,411	$113,700,002	$118,726,224	$123,235,104	$124,631,913	$124,631,913

Source: RRC Associates.

Table 27
Calculations of Projected Sales Taxes
(Projections omitted for odd-numbered development phases due to space limitations)

				ANNUAL SALES TAX COLLECTIONS AT END OF PHASE								
				Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
A. Total sales taxes generated (regardless of final recipient) -- by type of tax												
Sales tax	Morgan County fund	Tax rate	Taxable items									
County Option Sales Tax	General fund	0.25%	All retail sales	$69,918	$137,916	$192,953	$333,196	$366,510	$365,489	$366,551	$386,664	$382,097
Local Sales & Use Tax	General fund	1.00%	All retail sales (unincorp)	$239,880	$462,107	$640,498	$1,117,874	$1,221,074	$1,223,430	$1,225,817	$1,280,198	$1,271,216
Transient Room Tax (TRT) county-wide	General fund	3.00%	Accommodations	$312,417	$466,634	$580,569	$1,074,044	$1,118,844	$1,124,004	$1,124,004	$1,124,004	$1,124,004
Tourism - Restaurant Tax	General fund	1.00%	Restaurants	$52,956	$119,832	$174,356	$300,978	$333,192	$337,129	$337,439	$353,174	$353,354
Leased vehicle fees	General fund	7.00%	Vehicle rentals	$3,107	$7,046	$10,255	$17,675	$19,560	$19,774	$19,774	$20,685	$20,685
TOTAL				$678,278	$1,193,535	$1,598,631	$2,843,767	$3,059,178	$3,069,825	$3,073,585	$3,164,725	$3,151,355
B. Sales tax proceeds which are allocated to Morgan County based on point of sale												
Sales tax	Morgan direct share	Pooled & reallocated share	Share redirected to other agencies									
County Option Sales Tax	50%	50%	0%	$34,959	$68,958	$96,477	$166,598	$183,255	$182,744	$183,276	$193,332	$191,048
Local Sales & Use Tax	50%	50%	0%	$119,940	$231,053	$320,249	$558,937	$610,537	$611,715	$612,908	$640,099	$635,608
Transient Room Tax	100%	0%	0%	$312,417	$466,634	$580,569	$1,074,044	$1,118,844	$1,124,004	$1,124,004	$1,124,004	$1,124,004
Tourism - Restaurant Tax	100%	0%	0%	$52,956	$119,832	$174,356	$300,978	$333,192	$337,129	$337,439	$353,174	$353,354
Leased vehicle fees	83%	17%	0%	$2,574	$5,838	$8,497	$14,645	$16,207	$16,384	$16,384	$17,139	$17,139
TOTAL				$522,846	$892,316	$1,180,147	$2,115,202	$2,262,034	$2,271,976	$2,274,011	$2,327,748	$2,321,153
C. Sales tax proceeds which are allocated to Morgan County based on population												
County Option and Local Sales & Use Taxes - calculation of per capita tax factors (using 2008 statewide figures):												
2009 Utah statewide taxable sales	$44,409,394,852	Utah State Tax Commission										
2009 Utah statewide population	2,780,871	U.S. Census										
Taxable sales per resident	$15,970	Arithmetic										
Per capita taxes distributed - 0.125% tax	$20											
Per capita taxes distributed - 0.5% tax	$80											
Local resident population living in project area (average at end of phase):				88	313	527	821	987	1,010	1,010	1,186	1,186
Sales tax	Per capita taxes distributed (2009) - approx.			Sales taxes allocated to Morgan County on basis of project area resident population:								
County Option Sales Tax	$20			$1,747	$6,248	$10,516	$16,382	$19,695	$20,158	$20,158	$23,668	$23,668
Local Sales & Use Tax	$80			$6,987	$24,990	$42,066	$65,526	$78,780	$80,633	$80,633	$94,673	$94,673
Leased vehicle fees	$1			$88	$313	$527	$821	$987	$1,010	$1,010	$1,186	$1,186
TOTAL				$8,821	$31,551	$53,109	$82,729	$99,462	$101,801	$101,801	$119,527	$119,527
D. TOTAL SALES TAXES TO MORGAN COUNTY (including taxes distributed by point of sale and population)												
Sales tax	Morgan County fund	Allocation method										
County Option Sales Tax	General fund	POS & population		$36,706	$75,206	$106,993	$182,980	$202,950	$202,903	$203,434	$217,000	$214,717
Local Sales & Use Tax	General fund	POS & population		$126,927	$256,044	$362,314	$624,463	$689,317	$692,348	$693,541	$734,773	$730,281
Transient Room Tax	General fund	Point of sale (POS)		$312,417	$466,634	$580,569	$1,074,044	$1,118,844	$1,124,004	$1,124,004	$1,124,004	$1,124,004
Tourism - Restaurant Tax	General fund	Point of sale (POS)		$52,956	$119,832	$174,356	$300,978	$333,192	$337,129	$337,439	$353,174	$353,354
Leased vehicle fees	General fund	POS & population		$2,662	$6,151	$9,024	$15,465	$17,193	$17,394	$17,394	$18,324	$18,324
TOTAL				$531,667	$923,867	$1,233,256	$2,197,931	$2,361,496	$2,373,777	$2,375,812	$2,447,276	$2,440,680

Source: RRC Associates.

Table 28
Summary of Projected Sales Tax Collections
(Projections omitted for odd-numbered development phases due to space limitations)

		ANNUAL SALES TAX COLLECTIONS AT END OF PHASE								
		Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
Sales tax	Morgan County fund									
County Option Sales Tax	General fund	$36,706	$75,206	$106,993	$182,980	$202,950	$202,903	$203,434	$217,000	$214,717
Local Sales & Use Tax	General fund	$126,927	$256,044	$362,314	$624,463	$689,317	$692,348	$693,541	$734,773	$730,281
Transient Room Tax	General fund	$312,417	$466,634	$580,569	$1,074,044	$1,118,844	$1,124,004	$1,124,004	$1,124,004	$1,124,004
Tourism - Restaurant Tax	General fund	$52,956	$119,832	$174,356	$300,978	$333,192	$337,129	$337,439	$353,174	$353,354
Leased vehicle fees	General fund	$2,662	$6,151	$9,024	$15,465	$17,193	$17,394	$17,394	$18,324	$18,324
TOTAL		$531,667	$923,867	$1,233,256	$2,197,931	$2,361,496	$2,373,777	$2,375,812	$2,447,276	$2,440,680

Source: RRC Associates.

Revenue and Cost Projections: General Fund

The General Fund is the principal operating fund of the County, and accounts for all financial resources of the County which are not accounted for in another fund.

1. General Fund Revenues

The General Fund has multiple sources of revenue, which have been projected based on a combination of case study and per capita approaches, as illustrated in Table 29 to follow. Property tax and sales tax projections were calculated as described previously. Most other revenue sources were calculated on a per household basis, i.e. by deriving a per household revenue factor on a countywide basis, and multiplying that factor by the projected number of permanent resident households at Snowbasin. Additionally, revenue projections for licenses, permits and fees other than building permits were calculated on a per housing and hotel unit basis, employing a broader base as a proxy to better extrapolate revenue associated with business permits.

Special adjustments or exclusions have been made for selected revenue sources, as described below.

- Morgan County building permit fees have generally been designed to function on a cost-recovery basis, so that revenues and costs offset one another. Thus, to simplify the fiscal analysis, revenues associated with building permit fees have been excluded, as they have the corresponding expenses associated with processing building permits (as described later in the expenditure discussion).
- Intergovernmental revenues received from Morgan City have been excluded. These revenues pay for selected County services provided to Morgan City residents which

would otherwise be uncompensated. The Snowbasin development, located in the unincorporated county, should not have a direct impact on these revenues.

- It has been assumed that some revenue streams are not completely variable with growth, specifically intergovernmental revenues (other than those attributable to Morgan City), other enterprise and utility revenue, and miscellaneous revenue. For these revenue streams, it is assumed that 50 percent of the revenue is variable with growth.
- Revenues associated with contributions and transfers have been excluded since they most commonly represent transfers of prior year fund balances to the current budget year and are thus not directly related to new growth.

Based on the above calculations and adjustments, total revenues generated by the Snowbasin development for the General Fund are projected to be up to $6.8 million annually upon buildout. Some caveats are important to note, however:

- Upon buildout, property tax revenue generated for purposes of defraying the costs of assessing and collecting property taxes are projected to be approximately $886,000 annually. However, it should be noted that the amount of revenue which can be generated from the state and local assessing and collecting levy is limited so as to bear a reasonable relationship to the costs of administering the property tax system. Should these revenues exceed those costs, the underlying tax rates would likely be reduced, and revenues produced would be lower than shown. As such, this revenue stream's contribution to the General Fund may potentially be overstated. Excluding this revenue source, total General Fund revenues attributable to Snowbasin are projected at approximately $6.0 million upon buildout.
- As noted earlier, three taxes are statutorily restricted for selected purposes, primarily related to tourism development – the Transient Room Tax, Restaurant Tax, and Leased Vehicle Fees. Together, these taxes are projected to generate approximately $1.5 million annually upon buildout. Excluding these revenue sources, total General Fund revenues attributable to Snowbasin are projected at approximately $5.35 million upon buildout.
- Excluding both Assessing and Collecting revenues, as well as taxes generally restricted to tourism development, the Snowbasin development is projected to generate approximately $4.5 million in General Fund revenue annually upon buildout.

Table 29
Projected General Fund Revenues Attributable to Snowbasin
(Projections omitted for odd-numbered development phases due to space limitations)

				ANNUAL REVENUES AT END OF PHASE								
				Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
Snowbasin local resident households				31	109	183	287	344	352	352	407	407
Snowbasin housing & hotel units				325	807	1,214	2,054	2,319	2,348	2,348	2,505	2,505
Revenues - General Fund	2011 budget	Assumed % Variable	Amount per household /3									
Taxes:												
Property taxes /1	$1,640,491	100%	Indep. calc.	$287,986	$990,970	$1,607,666	$2,625,416	$2,975,209	$3,031,003	$3,039,903	$3,160,403	$3,160,403
General sales and use taxes (1%)	$487,808	100%	Indep. calc.	$126,927	$256,044	$362,314	$624,463	$689,317	$692,348	$693,541	$734,773	$730,281
Fee in lieu (vehicle registration fees)	$436,170	100%	$154.67	$4,833	$16,898	$28,281	$44,383	$53,268	$54,390	$54,390	$62,889	$62,889
County option sales tax (.25%)	$220,876	100%	Indep. calc.	$36,706	$75,206	$106,993	$182,980	$202,950	$202,903	$203,434	$217,000	$214,717
Assessing and collecting property taxes	$425,345	100%	Indep. calc.	$80,769	$277,928	$450,888	$736,327	$834,430	$850,078	$852,574	$886,370	$886,370
Transient room tax (TRT)	$3,302	100%	Indep. calc.	$312,417	$466,634	$580,569	$1,074,044	$1,118,844	$1,124,004	$1,124,004	$1,124,004	$1,124,004
Restaurant tax	$30,578	100%	Indep. calc.	$52,956	$119,832	$174,356	$300,978	$333,192	$337,129	$337,439	$353,174	$353,354
Leased vehicle fees	$6,616	100%	Indep. calc.	$2,662	$6,151	$9,024	$15,465	$17,193	$17,394	$17,394	$18,324	$18,324
Total Taxes	$3,251,186			$905,255	$2,209,663	$3,320,091	$5,604,056	$6,224,404	$6,309,248	$6,322,679	$6,556,937	$6,550,342
Other revenues - calc. per housing/hotel unit:	2011 budget	Assumed % Variable	Amount per housing and hotel unit /4									
Licenses, permits, & fees: bldg permits	$137,608	100%	n/a	N/A - Assume equal to building permit review costs.					n/a	n/a	n/a	n/a
Licenses, permits, & fees: other	$28,301	100%	$9.41	$3,060	$7,598	$11,430	$19,333	$21,833	$22,106	$22,106	$23,584	$23,584
Charges for services /2	$262,545	100%	$87.34	$28,386	$70,484	$106,031	$179,353	$202,542	$205,075	$205,075	$218,788	$218,788
Other revenues - calc. per household	2011 budget	Assumed % Variable	Amount per household /3									
Intergovernmental - Morgan City	$303,654	0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Intergov'tal - excl. Morgan City /2	$307,921	50%	$54.60	$1,706	$5,965	$9,983	$15,666	$18,803	$19,199	$19,199	$22,199	$22,199
Fines and forfeitures	$134,642	100%	$47.75	$1,492	$5,216	$8,730	$13,701	$16,444	$16,790	$16,790	$19,413	$19,413
Miscellaneous	$110,174	50%	$19.53	$610	$2,134	$3,572	$5,605	$6,728	$6,869	$6,869	$7,943	$7,943
Other Enterprise & Utility Rev	$52,650	50%	$9.34	$292	$1,020	$1,707	$2,679	$3,215	$3,283	$3,283	$3,796	$3,796
Contributions & transfers totals	$329,735	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Special fund revenue totals	$0	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Other Revenues	$1,667,230			$35,546	$92,416	$141,453	$236,338	$269,564	$273,321	$273,321	$295,722	$295,722
Grand Total General Fund Revenues	$4,918,416			$940,801	$2,302,079	$3,461,543	$5,840,394	$6,493,968	$6,582,569	$6,596,000	$6,852,659	$6,846,064
Total - excluding assessing & collecting property taxes (A&C)				$860,032	$2,024,150	$3,010,656	$5,104,067	$5,659,538	$5,732,491	$5,743,426	$5,966,289	$5,959,694
Total - excluding TRT, restaurant, and leased vehicle taxes				$572,767	$1,709,461	$2,697,595	$4,449,907	$5,024,740	$5,104,043	$5,117,163	$5,357,157	$5,350,382
Total - excluding A&C, TRT, restaurant, and leased vehicle taxes				$491,998	$1,431,533	$2,246,707	$3,713,580	$4,190,309	$4,253,965	$4,264,589	$4,470,787	$4,464,012

/1 Current property taxes & delinquent property taxes, and penalties/interest on delinquent taxes.
/2 Exclude intergov't revenue associated with Morgan City contributions for shared services. Assume remaining intergov't is partially related to population, and thus a portion is variable with growth.
/3 Morgan Co households April 1, 2010: 2,820 (U.S. Census).
/4 Morgan Co housing units April 1, 2010: 3006 (U.S. Census.) No hotels with >9 units in Morgan County per STR.

Source: RRC Associates.

2. General Fund Expenses

On the expense side, all General Fund costs were projected on a broad per capita basis (inclusive of residents, second homeowners, and visitors), in an attempt to account for the impacts of the many users and associated impacts of the Snowbasin development.[6] All General Fund activities were assumed to have costs which are 100 percent variable with new growth, with the exception of fund transfers (assumed to be unrelated to new growth). Additionally, expenses associated with processing building permits have been excluded, consistent with the exclusion of building permit revenues in the revenue calculations (previously). The per capita expense factors were multiplied by Snowbasin's combined local resident, second homeowner, and overnight visitor populations. The resulting calculations yield an estimate of approximately $1.5 million in annual General Fund costs attributable to the Snowbasin development upon project buildout, as illustrated in Table 30 to follow.

3. General Fund Balance

Comparing revenues and costs, the General Fund is projected to experience a net surplus from the Snowbasin project across all construction phases and upon buildout. This finding holds even after excluding various categories of revenues which may be limited as to amount (assessing and collecting revenues) or which are restricted as to use (transient room, restaurant, and leased vehicle taxes). Table 31 to follow illustrates Snowbasin's net contribution to the General Fund balance under these various scenarios. To summarize:

- Including all revenues, and assuming that Assessing and Collecting fees are not limited as to amount, the Snowbasin project would generate a surplus for the General Fund of approximately $5.3 million annually upon buildout. Viewed another way, revenues generated by Snowbasin would exceed associated costs of service by a factor of 4.5.
- Including all revenues except assessing and collecting taxes, the Snowbasin project would generate a surplus for the General Fund of approximately $4.4 million annually upon buildout. Viewed another way, revenues generated by Snowbasin would exceed associated costs of service by a factor of 3.9. Note that this surplus and the revenue:expense ratio are understated insofar as they assume no assessing and collecting taxes are received to offset the cost of assessing and collecting property taxes, when in fact the law would permit a commensurate level of such revenues to be collected.

[6] Note that per capita expense factors for the General Fund are calculated against the County's resident population, while Snowbasin's associated expenses are calculated against the project's combined resident, second homeowner, and overnight visitor populations. Insofar as the County also has second homeowner and overnight visitor populations which are excluded from the per capita factor calculations (due to lack of available data), this mismatch has the effect of somewhat overstating Snowbasin's relative costs, and understating the net fund surplus resulting from the development – making this a conservative estimation approach.

- Including all revenues except for sales taxes restricted primarily for tourism development purposes, the Snowbasin project would generate a surplus for the General Fund of approximately $3.8 million annually upon buildout. Viewed another way, revenues generated by Snowbasin would exceed associated costs of service by a factor of 3.5. The revenues generated from sales taxes earmarked largely for tourism development purposes would still be available to Morgan County, even if they were to be accounted for separately.
- Including all revenues except assessing and collecting revenues and sales taxes restricted primarily for tourism development purposes, the Snowbasin project would generate a surplus for the General Fund of approximately $2.9 million annually upon buildout. Viewed another way, revenues generated by Snowbasin would exceed associated costs of service by a factor of 2.9. These surplus and cost coverage factors are both understated insofar as assessing and collecting revenue sufficient to cover assessing and collecting costs would be allowed. Additionally, the revenues generated from sales taxes earmarked largely for tourism development purposes would still be available to Morgan County even if they were accounted for separately.

The highly positive fiscal impact on the General Fund is due primarily to the strong tax generation of the project. The large positive cost coverage ratios add confidence that even if the project were to significantly underperform expectations (with lower revenues and/or higher costs), it would still be highly likely to have a positive fiscal impact on the General Fund.

Note that the analysis in this section does not include the cost of any capital improvements that may be warranted to ensure adequate delivery of public services the Snowbasin development. However, the capital costs of many such capital improvements – specifically as related to fire protection, EMS, police, regional parks, neighborhood/community parks, and transportation – are addressed in the Impact Fees analysis later in this report.

Table 30
Projected General Fund Expenditures Attributable to Snowbasin
(Projections omitted for odd-numbered development phases due to space limitations)

				ANNUAL EXPENDITURES AT END OF PHASE								
				Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
Snowbasin local resident, second home, and visitor population				374	957	1,374	2,359	2,767	2,809	2,809	3,062	3,062
Expenses - General Fund	2011 budget	Assumed % Variable	Amount per capita (resident, 2nd home & visitor pop'n) /1									
County Council	$59,798	100%	$6.32	$2,363	$6,043	$9,220	$15,369	$17,476	$17,742	$17,742	$19,336	$19,336
District Court	$55,587	100%	$5.87	$2,197	$5,617	$8,571	$14,287	$16,245	$16,493	$16,493	$17,974	$17,974
Justice Of The Peace	$91,459	100%	$9.66	$3,614	$9,242	$14,102	$23,507	$26,729	$27,136	$27,136	$29,573	$29,573
Attorney For Indigent	$22,678	100%	$2.39	$896	$2,292	$3,497	$5,829	$6,628	$6,729	$6,729	$7,333	$7,333
Microfilming	$520	100%	$0.05	$21	$53	$80	$134	$152	$154	$154	$168	$168
Human Services	$11,900	100%	$1.26	$470	$1,203	$1,835	$3,059	$3,478	$3,531	$3,531	$3,848	$3,848
Clerk/Auditor	$151,713	100%	$16.02	$5,995	$15,331	$23,393	$38,993	$44,338	$45,013	$45,013	$49,057	$49,057
Treasurer	$138,251	100%	$14.60	$5,463	$13,971	$21,317	$35,533	$40,404	$41,019	$41,019	$44,704	$44,704
Recorder	$259,766	100%	$27.43	$10,265	$26,251	$40,054	$66,765	$75,917	$77,072	$77,072	$83,996	$83,996
Attorney	$211,403	100%	$22.33	$8,354	$21,363	$32,597	$54,335	$61,783	$62,723	$62,723	$68,358	$68,358
Assessor	$270,418	100%	$28.56	$10,686	$27,327	$41,697	$69,503	$79,030	$80,233	$80,233	$87,440	$87,440
Surveyor	$17,500	100%	$1.85	$692	$1,768	$2,698	$4,498	$5,114	$5,192	$5,192	$5,659	$5,659
Human Resources	$24,500	100%	$2.59	$968	$2,476	$3,778	$6,297	$7,160	$7,269	$7,269	$7,922	$7,922
IT Department	$192,754	100%	$20.36	$7,617	$19,479	$29,722	$49,541	$56,332	$57,190	$57,190	$62,327	$62,327
Non-Departmental	$190,480	100%	$20.12	$7,527	$19,249	$29,371	$48,957	$55,668	$56,515	$56,515	$61,592	$61,592
Courthouse Bldg & Grounds	$170,444	100%	$18.00	$6,735	$17,224	$26,281	$43,807	$49,812	$50,571	$50,571	$55,113	$55,113
Elections	$0	100%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Comm. Devel. - bldg permit processing	$137,608	100%	$14.53	N/A - Assume equal to building permit revenues					n/a	n/a	n/a	n/a
Comm. Devel. - other	$248,401	100%	$26.23	$9,816	$25,102	$38,302	$63,844	$72,595	$73,700	$73,700	$80,321	$80,321
GIS	$92,574	100%	$9.78	$3,658	$9,355	$14,274	$23,793	$27,055	$27,467	$27,467	$29,934	$29,934
Sheriff	$850,467	100%	$89.82	$33,608	$85,944	$131,137	$218,586	$248,549	$252,333	$252,333	$275,000	$275,000
Records Clerk	$82,799	100%	$8.74	$3,272	$8,367	$12,767	$21,281	$24,198	$24,566	$24,566	$26,773	$26,773
Dispatch Services	$34,740	100%	$3.67	$1,373	$3,511	$5,357	$8,929	$10,153	$10,307	$10,307	$11,233	$11,233
Liquor Law Enforcement	$15,250	100%	$1.61	$603	$1,541	$2,351	$3,920	$4,457	$4,525	$4,525	$4,931	$4,931
County Fire Dept	$91,086	100%	$9.62	$3,599	$9,205	$14,045	$23,411	$26,620	$27,025	$27,025	$29,453	$29,453
Coop Fire	$157,320	100%	$16.61	$6,217	$15,898	$24,258	$40,434	$45,977	$46,677	$46,677	$50,870	$50,870
Jail	$100,000	100%	$10.56	$3,952	$10,106	$15,419	$25,702	$29,225	$29,670	$29,670	$32,335	$32,335
Animal Control	$33,854	100%	$3.58	$1,338	$3,421	$5,220	$8,701	$9,894	$10,044	$10,044	$10,947	$10,947
Emergency Management	$77,765	100%	$8.21	$3,073	$7,859	$11,991	$19,987	$22,727	$23,073	$23,073	$25,145	$25,145
Ambulance	$171,700	100%	$18.13	$6,785	$17,351	$26,475	$44,130	$50,179	$50,943	$50,943	$55,520	$55,520
Council of Aging	$300	100%	$0.03	$12	$30	$46	$77	$88	$89	$89	$97	$97
Public Works/Engineering	$312,940	100%	$33.05	$12,366	$31,624	$48,253	$80,432	$91,457	$92,849	$92,849	$101,190	$101,190
Weed Department	$13,900	100%	$1.47	$549	$1,405	$2,143	$3,573	$4,062	$4,124	$4,124	$4,495	$4,495
Fleet Management	$125,000	100%	$13.20	$4,940	$12,632	$19,274	$32,127	$36,531	$37,087	$37,087	$40,419	$40,419
Fairgrounds	$26,000	100%	$2.75	$1,027	$2,627	$4,009	$6,682	$7,599	$7,714	$7,714	$8,407	$8,407
Parks	$85,160	100%	$8.99	$3,365	$8,606	$13,131	$21,888	$24,888	$25,267	$25,267	$27,537	$27,537
Rifle Range	$3,500	100%	$0.37	$138	$354	$540	$900	$1,023	$1,038	$1,038	$1,132	$1,132
Airport	$16,997	100%	$1.80	$672	$1,718	$2,621	$4,369	$4,967	$5,043	$5,043	$5,496	$5,496
County Recreation	$20,180	100%	$2.13	$797	$2,039	$3,112	$5,187	$5,898	$5,987	$5,987	$6,525	$6,525
TV Tower	$2,500	100%	$0.26	$99	$253	$385	$643	$731	$742	$742	$808	$808
Extension Service	$61,943	100%	$6.54	$2,448	$6,260	$9,551	$15,921	$18,103	$18,378	$18,378	$20,029	$20,029
Fair	$85,000	100%	$8.98	$3,359	$8,590	$13,106	$21,847	$24,841	$25,219	$25,219	$27,485	$27,485
Econ. Development	$152,261	100%	$16.08	$6,017	$15,387	$23,478	$39,134	$44,498	$45,176	$45,176	$49,234	$49,234
Transfers	$50,000	0%	$5.28	$1,976	$5,053	$7,710	$12,851	$14,613	$14,835	$14,835	$16,168	$16,168
Total General Fund Expenditures	$4,918,416	100%	$519.42	$188,924	$483,127	$737,172	$1,228,759	$1,397,193	$1,418,460	$1,418,460	$1,545,883	$1,545,883

/1 Per capita factors in this column calculated on basis of 4/1/2010 Morgan County population: 9469 (per U.S. Census).

Source: RRC Associates.

Table 31
Projected Contribution to General Fund Balance Attributable to Snowbasin
(Projections omitted for odd-numbered development phases due to space limitations)

	CONTRIBUTION TO GENERAL FUND SURPLUS/DEFICIT AT END OF PHASE								
	Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
COMPARISON 1:									
General Fund Revenues - Grand Total	$940,801	$2,302,079	$3,461,543	$5,840,394	$6,493,968	$6,582,569	$6,596,000	$6,852,659	$6,846,064
General Fund Expenditures	$188,924	$483,127	$737,172	$1,228,759	$1,397,193	$1,418,460	$1,418,460	$1,545,883	$1,545,883
Annual Surplus / Deficit - General Fund	$751,877	$1,818,952	$2,724,371	$4,611,636	$5,096,775	$5,164,109	$5,177,540	$5,306,776	$5,300,181
Revenue:Expense Ratio	5.0	4.8	4.7	4.8	4.6	4.6	4.7	4.4	4.4
COMPARISON 2:									
General Fund Revenues - excluding assessing & collecting property taxes (A&C)	$860,032	$2,024,150	$3,010,656	$5,104,067	$5,659,538	$5,732,491	$5,743,426	$5,966,289	$5,959,694
General Fund Expenditures	$188,924	$483,127	$737,172	$1,228,759	$1,397,193	$1,418,460	$1,418,460	$1,545,883	$1,545,883
Annual Surplus / Deficit - General Fund	$671,108	$1,541,023	$2,273,484	$3,875,309	$4,262,345	$4,314,031	$4,324,966	$4,420,406	$4,413,811
Revenue:Expense Ratio	4.6	4.2	4.1	4.2	4.1	4.0	4.0	3.9	3.9
COMPARISON 3:									
General Fund Revenues - excluding TRT, restaurant, and leased vehicle taxes	$572,767	$1,709,461	$2,697,595	$4,449,907	$5,024,740	$5,104,043	$5,117,163	$5,357,157	$5,350,382
General Fund Expenditures	$188,924	$483,127	$737,172	$1,228,759	$1,397,193	$1,418,460	$1,418,460	$1,545,883	$1,545,883
Annual Surplus / Deficit - General Fund	$383,843	$1,226,334	$1,960,423	$3,221,148	$3,627,547	$3,685,583	$3,698,703	$3,811,273	$3,804,498
Revenue:Expense Ratio	3.0	3.5	3.7	3.6	3.6	3.6	3.6	3.5	3.5
COMPARISON 4:									
General Fund Revenues - excluding A&C, TRT, restaurant, and leased vehicle taxes	$491,998	$1,431,533	$2,246,707	$3,713,580	$4,190,309	$4,253,965	$4,264,589	$4,470,787	$4,464,012
General Fund Expenditures	$188,924	$483,127	$737,172	$1,228,759	$1,397,193	$1,418,460	$1,418,460	$1,545,883	$1,545,883
Annual Surplus / Deficit - General Fund	$303,074	$948,406	$1,509,535	$2,484,821	$2,793,116	$2,835,504	$2,846,129	$2,924,903	$2,918,128
Revenue:Expense Ratio	2.6	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.9

Source: RRC Associates.

4. Special Discussion: Road Maintenance in Snowbasin

Morgan County has expressed particular interest in understanding the fiscal impacts that might be associated with ongoing maintenance of the Snowbasin road network. The purpose of this section is to provide some context and numbers for evaluating this issue.

Currently, Morgan County receives Utah Class B Road Allotment monies to support maintenance of 77.10 miles of unincorporated county roads. For purposes of the fund distribution, the Class B road allotment system weights road mileage by type of surface, giving paved roads a weighting of 5, gravel roads a weighting of 2, and dirt/other surface roads a weighting of 1. Morgan County's weighted road mileage (for purposes of receiving Class B allotment monies) is thus 355.38, as illustrated in Table 32 to follow.

In the fiscal year ending on 12/31/2009, Morgan County spent $404,840 on road maintenance, according to a budgetary report filed with the Utah State Auditor. These funds are presumed to reflect a combination of Class B Road Allotment monies (accounted for in the county's Road Fund) and a portion of the General Fund budget for Public Works and Engineering purposes. To

the extent that the 2009 budget year is representative, this implies an annual County maintenance cost of approximately $1,139 per weighted road mile for unincorporated Morgan County roads.

Snowbasin is projected to have 27.1 miles of new roads which are proposed to be subject to County maintenance, all of which would be paved. If the annual average cost of maintaining these roads is similar to that of other Morgan County roads ($1,139 per weighted road mile), the average annual cost of maintaining Morgan County's roads would be approximately $154,000.

It is unclear whether the actual cost of maintaining Snowbasin's roads would be greater or less on a per-weighted-mile than the average of other roads in Morgan County, and as such the actual cost of maintaining Snowbasin's roads may differ from the estimate contained in Table 32. However, these figures provide a rough "order of magnitude" indication of the potential costs. Even if the actual costs were to prove to be significantly higher than projected here, it should be noted that the substantial projected General Fund surplus generated by Snowbasin (projected at a minimum of $2.9 million annually at buildout) is significant enough to provide assurance that Snowbasin would generate County revenues more than sufficient to pay for ongoing maintenance of its roads.

Table 32
Projected Cost of Road Maintenance for New Roads in Snowbasin Project at Buildout

	Unincorporated Morgan County Roads		
	Actual Mileage	Weight Factor	Weighted Mileage
Paved surface (as of 11/2006) /1	67.28	5	336.4
Gravel surface (as of 11/2006) /1	9.16	2	18.32
Dirt/other surface (as of 11/2006) /1	0.66	1	0.66
Total miles	77.10	n/a	355.38
Morgan Co: FY ended 12/31/09 transportation maintenance expenditures /2			$404,840
2009 road maintenance expenditures per weighted road mile			$1,139.17

	Snowbasin Roads at Buildout		
	Actual Mileage	Weight Factor	Weighted Mileage
Paved surface	27.1	5	135.5
Gravel surface	n/a	n/a	n/a
Dirt/other surface	n/a	n/a	n/a
Total miles	27.1	n/a	135.5
Assumed maintenance expenditures per weighted road mile (if equal to rest of uninc. Morgan Co)			$1,139.17
Annual cost of maintaining Snowbasin roads (if equal on per-weighted-mile basis to rest of uninc. Morgan Co)			$154,358.21

/1 Source: UDOT: Mileage Report for B & C Road Distribution 07/18/11 For FY-2011 Sixth Payment, May 1, 2011 - June 30, 2011: Unincorporated Morgan County.
/2 Source: Utah State Auditor - Survey of Local Government Finances for FY ended 12/31/2009 (Form F-65 UT-1), for Morgan County.

Revenue and Cost Projections: Library Fund

The Library Fund accounts for the operations of the Morgan County Library and Morgan County Historical Society. Revenues are primarily generated from property taxes and vehicle registration fees.

On the revenue side, Library Fund property tax revenues were projected as discussed earlier. Additional revenues from registered vehicle fees were calculated on a per capita basis. Total revenues attributable to the Snowbasin development are projected at approximately $284,000 annually upon buildout.

On the expense side, all Library Fund expenses were assumed to be 100% variable with growth. Per capita costs were projected against Snowbasin's combined resident and second homeowner populations, under the assumption that both groups would make use of the library system. Total costs are projected at approximately $37,000 annually upon buildout.

Comparing revenues and costs, the Library Fund is projected to experience a net surplus from the Snowbasin project across all construction phases, followed by an annual surplus of approximately $247,000 after buildout. The highly positive fiscal impact is due to the use of property taxes as the primary revenue source, combined with the moderate cost impact of the project.

Table 33
Projected Library Fund Revenues and Expenses
(Projections omitted for odd-numbered development phases due to space limitations)

				ANNUAL REVENUES AND EXPENSES AT END OF PHASE								
				Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
Snowbasin local resident population				88	313	527	821	987	1,010	1,010	1,186	1,186
Revenues - Library Fund	2011 budget	% Variable	Amount per capita									
Contributions and transfers	$0	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Miscellaneous (sundry revenue)	$6,000	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Property taxes	$134,053	100%	Indep. calc.	$25,606	$88,110	$142,943	$233,434	$264,536	$269,496	$270,288	$281,002	$281,002
Intergov't - fee in lieu	$20,733	100%	$2.19	$192	$685	$1,154	$1,797	$2,160	$2,211	$2,211	$2,596	$2,596
Total revenue	$160,786			$25,797	$88,796	$144,096	$235,231	$266,696	$271,708	$272,499	$283,598	$283,598
Snowbasin local resident & second home population				164	605	1,004	1,596	1,888	1,926	1,926	2,178	2,178
Expenses - Library Fund	2011 budget	% Variable	Amount per capita									
Library expenses	$130,695	100%	$13.80	$2,266	$8,349	$13,851	$22,033	$26,058	$26,580	$26,580	$30,063	$30,063
Historical Society expenses	$30,091	100%	$3.18	$522	$1,922	$3,189	$5,073	$6,000	$6,120	$6,120	$6,922	$6,922
Total expenses	$160,786			$2,788	$10,272	$17,040	$27,106	$32,058	$32,699	$32,699	$36,985	$36,985
Annual surplus (deficit) - Library Fund				$23,009	$78,524	$127,056	$208,125	$234,638	$239,008	$239,799	$246,613	$246,613

Note: Snowbasin expenses calculated on basis of local resident population and average daily second homeowner population.
Morgan County population: 9469 as of 4/1/2010 per U.S. Census.
Source: RRC Associates.

Revenue and Cost Projections: Health Services Fund

The Health Services Fund accounts for Morgan County's share of the activities of the Weber-Morgan Health Department. Revenues are primarily generated from property taxes and vehicle registration fees.

On the revenue side, Health Services Fund property tax revenues were projected as illustrated earlier. Additional revenues from registered vehicle fees were calculated on a per capita basis. Miscellaneous revenues were conservatively assumed to be static or not directly variable with growth. Total revenues are projected at approximately $284,000 annually upon buildout.

On the expense side, all Health Services Fund expenses were assumed to be 100% variable with growth. Per capita costs were projected against Snowbasin's combined resident and second homeowner populations, under the assumption that both groups would make use of the health system. Total costs are projected at approximately $35,000 annually upon buildout.

Comparing revenues and costs, the Health Services Fund is projected to experience a net surplus from the Snowbasin project across all construction phases, followed by an annual surplus of approximately $248,000 after buildout. Again, the highly positive fiscal impact is due to the use of property taxes as the primary revenue source, combined with the moderate cost impact of the project.

Table 34
Projected Health Services Fund Revenues and Expenses
(Projections omitted for odd-numbered development phases due to space limitations)

				ANNUAL REVENUES AND EXPENSES AT END OF PHASE								
				Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
Snowbasin local resident population				88	313	527	821	987	1,010	1,010	1,186	1,186
		%	Amount									
Revenues - Health Svcs Fund	2011 budget	Variable	per capita									
Property taxes	$119,420	100%	Indep. calc.	$25,606	$88,110	$142,943	$233,434	$264,536	$269,496	$270,288	$281,002	$281,002
Intergov't - fee in lieu	$20,000	100%	$2.11	$185	$661	$1,113	$1,733	$2,084	$2,133	$2,133	$2,504	$2,504
Miscellaneous revenue	$13,758	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contributions and transfers	$0	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total revenue	$153,178			$25,791	$88,771	$144,056	$235,168	$266,620	$271,629	$272,421	$283,506	$283,506
Snowbasin local resident & second home population				164	605	1,004	1,596	1,888	1,926	1,926	2,178	2,178
		%	Amount									
Expenses - Health Svcs Fund	2011 budget	Variable	per capita									
Health services expenditures	$153,178	100%	$16.18	$2,656	$9,786	$16,234	$25,823	$30,541	$31,152	$31,152	$35,235	$35,235
Total expenses	$153,178			$2,656	$9,786	$16,234	$25,823	$30,541	$31,152	$31,152	$35,235	$35,235
Annual surplus (deficit) - Health Svcs Fund				$23,135	$78,986	$127,822	$209,344	$236,078	$240,477	$241,269	$248,271	$248,271

Note: Snowbasin expenses calculated on basis of local resident population and average daily second homeowner population.
Morgan County population: 9469 as of 4/1/2010 per U.S. Census.
Source: RRC Associates.

Revenue and Cost Projections: Flood Fund and Flood Disaster Fund

The Flood Fund and Flood Disaster Fund together account for the County's revenues and expenses related to flood preparedness and flood recovery efforts.

In 2011, the Flood Fund is budgeted to have neither revenues nor expenditures. The existing fund balance has been judged to be sufficient for the Fund's purposes for the time being. No revenue or cost projections have been developed for Flood Fund in this analysis due to the absence pattern of activity which could provide a basis for projecting the future impacts of Snowbasin on the fund. Instead, it is generally assumed that any future expenses that Snowbasin project may incur against the Flood Fund will be offset by compensating future revenues generated by Snowbasin.

In 2011, the Flood Disaster Fund is budgeted to have $17,711 in revenues resulting from property taxes and vehicle registration fees. The Snowbasin development is projected to add approximately $31,500 in annual revenues to the Fund upon buildout, assuming existing tax rates remain the same.

On the expense side, all Flood Disaster Fund expenses are assumed to be 100% variable with growth. Per capita costs were projected against Snowbasin's combined resident, second homeowner, and visitor populations, under the assumption that the lives and real property used by all three groups would fall within the Fund's concern, and under the assumption that the Fund's per capita costs would be similar in the Snowbasin area relative to the remainder of Morgan County. Total costs attributable to Snowbasin are projected at approximately $5,700 annually upon buildout.

Comparing revenues and costs, the Flood Disaster Fund is projected to experience a net surplus from the Snowbasin project across all construction phases, followed by an annual surplus of approximately $25,800 after buildout. The highly positive fiscal impact is due to the use of property taxes as the primary revenue source, combined with the assumed average cost impact of the project.

Table 35
Projected Flood Disaster Fund Revenues and Expenses
(Projections omitted for odd-numbered development phases due to space limitations)

				ANNUAL REVENUES AND EXPENSES AT END OF PHASE								
				Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Stabilized at Bldout
Snowbasin local resident population				88	313	527	821	987	1,010	1,010	1,186	1,186
Revenues - Flood Disaster Fund	2011 budget	% Variable	Amount per capita									
Property taxes	$15,211	100%	Indep. calc.	$2,845	$9,790	$15,883	$25,937	$29,393	$29,944	$30,032	$31,222	$31,222
Intergov't - fee in lieu	$2,500	100%	$0.26	$23	$83	$139	$217	$260	$267	$267	$313	$313
Miscellaneous revenue	$0	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contributions and transfers	$0	0%	$0.00	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total revenue	$17,711			$2,868	$9,873	$16,022	$26,154	$29,653	$30,211	$30,299	$31,535	$31,535
Morgan County population: 9469 as of 4/1/2010 per U.S. Census.												
Snowbasin local resident, second home, and visitor population				374	957	1,460	2,434	2,767	2,809	2,809	3,062	3,062
Expenses - Flood Disaster Fund	2011 budget	% Variable	Amount per capita									
Total expenses	$17,711	100%	$1.87	$700	$1,790	$2,731	$4,552	$5,176	$5,255	$5,255	$5,727	$5,727
Annual surplus (deficit) to Flood Disaster Fund				$2,168	$8,083	$13,291	$21,602	$24,477	$24,956	$25,044	$25,809	$25,809

Source: RRC Associates.

Revenue and Cost Projections: Impact Fees Fund

The Impact Fees Fund accounts for the County's impact fees imposed on new development to defray the capital infrastructure costs attributable to growth activity. The County imposes development impact fees to pay for growth-related capital improvements associated with transportation, regional parks, community parks, EMS, and police services in all of Morgan County less Morgan City. Additionally, Morgan County imposes an impact fee for fire improvements in all of Morgan County less the Mountain Green Fire District and Morgan City. Impact fees are charged on a per unit of development basis, as applicable to the type of capital improvement and type of development.

As illustrated in Table 35 to follow, the Snowbasin development is anticipated to generate the following total impact fees for Morgan County:

- Fire impact fees: $450,277 *(This assumes that Snowbasin remains outside of the Mountain Green Fire Protection District boundary, and is thus subject to the County fire impact fee rather than the Mountain Green FPD fire impact fee.)*
- EMS impact fees: $51,214
- Police impact fees: $587,783
- Regional parks and recreation impact fees: $1,148,180
- Community/neighborhood parks and recreation impact fees: $1,768,409
- Transportation impact fees: $1,027,351

The cost of providing commensurate capital improvements to serve Snowbasin's new growth is assumed to be equal to these fee amounts.

All of the impact fees have been calculated in a straightforward manner using standard development types and fee levels, with the exception the transportation impact fee, where two special calculations have been applied, per below.

- Hotels are a non-standard use for transportation impact fee purposes. Hotel transportation impact fees were calculated by employing appropriate factors in the specified formula for non-standard uses. Specifically, each hotel unit was estimated to warrant an impact fee of $338.81, based on the following formula:
    - Impact fee per hotel unit = $82.94 per trip end * 8.17 trip ends (per ITE Trip Generation Manual, 7th ed.) * 50% adjustment factor (per ITE Trip Generation Manual, 7th ed.) = $338.81.
- To calculate transportation impact fees associated with Snowbasin's proposed 176,418 square feet of commercial development (excluding hotels), the following assumptions were used:
    - 30 percent of square footage is assessed an impact fee based on specialty retail center use.

- 30 percent of square footage is assessed an impact fee based on high turnover (sit-down) restaurant use.
- No impact fee is assessed against the remaining 40 percent of square footage, under the assumption that vehicle trips associated with the commercial development are reduced by 40 percent from standard predicted amounts, due to extensive use of alternative transportation modes, large percentage of overnight (destination) visitors, and other vehicular trip reduction strategies.

Table 36
Projected Impact Fees Fund Revenues and Expenses
(Projections omitted for odd-numbered development phases due to space limitations)

			TOTAL REVENUES PER PHASE								
			Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Project Total
Fire Impact Fee (County)	Per unit										
Residential	$177.16		$31,003	$45,530	$39,772	$23,917	$36,229	$0	$0	$13,907	$390,638
Commercial (per 1000 SF)	$158.44		$19,053	$0	$4,400	$1,191	$1,191	$1,191	$1,191	$0	$59,640
Total Fire (County)			$50,056	$45,530	$44,172	$25,107	$37,420	$1,191	$1,191	$13,907	$450,277
Note: County Fire Impact Fee applies if Snowbasin is not included in Mountain Green Fire Protection District in future. Currently, Snowbasin is not in Mountain Green FPD.											
EMS Impact Fee	Per unit										
Residential	$23.10		$4,043	$5,937	$5,186	$3,119	$4,724	$0	$0	$1,813	$50,936
Commercial (per 1000 SF)	$0.74		$89	$0	$21	$6	$6	$6	$6	$0	$279
Total EMS			$4,131	$5,937	$5,206	$3,124	$4,730	$6	$6	$1,813	$51,214
Police Impact Fee	Per unit										
Residential	$261.92		$45,836	$67,313	$58,801	$35,359	$53,563	$0	$0	$20,561	$577,534
Commercial (per 1000 SF)	$27.23		$3,275	$0	$756	$205	$205	$205	$205	$0	$10,250
Total Police			$49,111	$67,313	$59,557	$35,564	$53,767	$205	$205	$20,561	$587,783
Regional Parks & Rec Imp. Fee	Per unit										
Single Family Residential	$590.35		$14,759	$25,975	$41,325	$30,108	$15,349	$0	$0	$46,342	$377,824
Multi-Family Residential	$492.24		$73,836	$104,847	$76,051	$41,348	$87,865	$0	$0	$0	$770,356
Total Regional Parks & Recreation			$88,595	$130,823	$117,376	$71,456	$103,214	$0	$0	$46,342	$1,148,180
Cmty/Nbhd Parks & Rec Imp. Fee	Per unit										
Single Family Residential	$909.25		$22,731	$40,007	$63,648	$46,372	$23,641	$0	$0	$71,376	$581,920
Multi-Family Residential	$758.14		$113,721	$161,484	$117,133	$63,684	$135,328	$0	$0	$0	$1,186,489
Total Community/Neighborhood Parks & Recreation			$136,452	$201,491	$180,780	$110,056	$158,968	$0	$0	$71,376	$1,768,409
Transportation Impact Fee	Per unit	Notes									
Single family residential units	$396.89		$9,922	$17,463	$27,782	$20,241	$10,319	$0	$0	$31,156	$254,010
Multi-family residential units	$278.69		$41,804	$59,361	$43,058	$23,410	$49,746	$0	$0	$0	$436,150
Specialty retail ctr (per 1000 SF) /1	$1,286.64	30% of total comm'l sf	$7,818	$0	$10,719	$2,901	$2,901	$2,901	$2,901	$0	$68,096
Sit-down restaurant (per 1000 SF) /1	$3,163.93	30% of total comm'l sf	$19,225	$0	$26,358	$7,133	$7,133	$7,133	$7,133	$0	$167,452
Hotel (non-standard use) - per unit /2	$338.81		$50,821	$0	$0	$0	$0	$0	$0	$0	$101,643
Total Transportation			$129,590	$76,824	$107,916	$53,685	$70,099	$10,034	$10,034	$31,156	$1,027,351

/1 Note: 40% of commercial sqft is excluded from transportation impact fee due to assumed vehicle trip reduction via use of alternate transportation modes. Remaining 60% of commercial sqft is included in transportation impact fee calculation.

*/2 Calculation of transportation impact fee for hotels (special use): $82.94/trip end * 8.17 trip ends* 50% adj factor. Trip ends per ITE Trip Generation Manual - 7th ed.*

Expenses: Expenses are assumed to equal impact fee revenue.
Net fund balances: Assumed to be $0 (due to offsetting revenues and expenses)

Source: RRC Associates.

Mountain Green Fire Protection District Impact Fees (For Illustrative Purposes)

Currently, Snowbasin is located outside the Mountain Green Fire Protection District taxing and service boundary. Thus, it is currently subject to Morgan County's fire impact fee, rather than the Mountain Green Fire Protection District (FPD) fire impact fee. However, in the event that Snowbasin joins the Mountain Green FPD in the future, the associated impact fees can be modeled for rough illustration purposes using existing impact fee rates. It should be cautioned, however, that the Mountain Green FPD impact fees were developed for the Mountain Green FPD service area as it existed in 2004, rather than for an enlarged District boundary that would encompass Snowbasin. As such, actual future Mountain Green FPD fire impact fees that would be imposed in Snowbasin may differ from those here, in the event that the fees are recalculated in the future for an enlarged service area.

Subject to the caveats above, Snowbasin would be subject to estimated $461,976 in Mountain Green FPD fire impact fees if it is included in the Mountain Green FPD, assuming a similar fee structure in the future as exists today. This is very similar to the projected $450,277 County fire impact fee (per previous section) if Snowbasin remains outside the Mountain Green FPD boundary.

Table 37
Projected Impact Fees Fund Revenues and Expenses

		TOTAL REVENUES PER PHASE								
		Ph. 2	Ph. 4	Ph. 6	Ph. 8	Ph. 10	Ph. 12	Ph. 14	Ph. 16	Project Total
Fire Impact Fee (Mtn Green FPD)	Per unit									
Residential	$194.12	$33,971	$49,889	$43,580	$26,206	$39,698	$0	$0	$15,238	$428,035
Commercial (per 1000 SF)	$90.17	$10,843	$0	$2,504	$678	$678	$678	$678	$0	$33,942
Total Fire (Mtn Green FPD)		$44,814	$49,889	$46,084	$26,884	$40,375	$678	$678	$15,238	$461,976

Note: Mountain Green FPD Fire Impact Fee applies if Snowbasin is included in Mountain Green Fire Protection District. Currently, Snowbasin is not in Mountain Green FPD.

Expenses: Expenses are assumed to equal impact fee revenue.
Net fund balances: Assumed to be $0 (due to offsetting revenues and expenses)

Source: RRC Associates.

snowbasin
A SUN VALLEY RESORT

SNOWBASIN RESORT

INFRASTRUCTURE MASTER PLAN

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Stantec

December 3, 2010

Table of Contents

Table of Contents

Table of Contents

LIST OF TABLES

Table of Contents

LIST OF FIGURES

APPENDICES

1.0 Introduction

The purpose of the Snowbasin Infrastructure Master Plan is to identify the infrastructure improvements needed to support the proposed Snowbasin development. The site consists of approximately 12,350 acres in Morgan and Weber Counties and is separated into eight development areas. The infrastructure master plan for Snowbasin is intended to meet state and local requirements while being both economically sustainable and sensitive to the mountain environment. The master plan is designed to take advantage of existing infrastructure and incorporate sustainable development concepts. While the plan focuses on water, wastewater and storm water, it also analyzes existing and future conditions that will be required for power, natural gas and communications.

This document was completed to support the Morgan County Sketch Plan application per the requirements of the Master Plan Development Reserve (MDPR) process. The following tasks were completed as part of the infrastructure master plan:

- A review and analysis of the existing infrastructure was conducted.
- Water demands and sewer flows were calculated to size and locate the primary water and sewer infrastructure for the proposed development.
- Water right demands were calculated for the development for both Morgan and Weber Counties.
- Drainage basins and sub-basins were delineated and modeled to calculate stormwater runoff volumes. Preliminary requirements for stormwater detention were identified.
- Existing dry utility locations and capacities were researched and compiled.

Sustainable design practices were incorporated into the infrastructure master plan to minimize impacts on natural resources. The concepts include reducing indoor and outdoor water usage, reusing treated wastewater effluent for irrigation of golf courses and implementing stormwater quality best management practices.

The Snowbasin Infrastructure Master Plan is separated into sections by utility. These sections discuss the existing infrastructure, the required improvements for the proposed development as well as the steps that will be required to expand existing capacities to serve the project at buildout.

2.0 Water System

The water system for the Snowbasin development was designed to utilize existing infrastructure and onsite water sources. This approach aims to minimize pumping from remote sources and the amount of infrastructure required. Water demands for the Snowbasin development were calculated to size key infrastructure and determine additional needs for water sources and water rights. Measures to minimize the total amount of water required for the development were incorporated and include utilizing reuse water for golf course irrigation and implementing water reduction strategies.

2.1 EXISTING WATER SYSTEM

The existing water system for the Snowbasin Resort is located on private and National Forest System lands in Morgan and Weber Counties. A Regional Overview Map and Land Ownership Map (Morgan County) are provided in Figure 1 and Figure 2 of this report. The system is comprised of three wells, four water storage tanks and a water distribution system that provides potable, irrigation and fire flow water to the day lodges and existing buildings (see Figure 3 and 4 for Existing Wet Utilities). Snowmaking water for the ski resort is currently provided by a combination of potable and non-potable water sources. Snowbasin Resort and the Sinclair Oil Company maintain water rights in both Morgan and Weber Counties that are used to meet existing water system demands.

2.1.1 Water Demands

The Utah State Administrative Code for Drinking Water (Title R309-510) specifies sizing requirements for drinking water systems to ensure that systems are capable of providing an adequate water supply while meeting water quality standards. Water sources are required to supply peak day demands and average annual demands. Storage is required to include equalization storage, emergency reserve (if required by water supplier) and fire suppression storage. Equalization storage must provide average day demands which are estimated to be one-half the peak day demand per Title R309-510. The detailed water system demand and storage calculations are presented in Appendix A and are summarized in Table 1.

Table 1: Existing Water Demands, Annual Water Usage and Storage Volume

Demand	Peak Day Demand Winter	Peak Day Demand Summer	Storage Winter	Storage Summer	Annual Water Demand
	(gpm)	(gpm)	(gallons)	(gallons)	(ac-ft)
Potable	44	9	31,925	6,275	17.9
Irrigation	0	24	0	17,250	9.8
Total	**44**	**33**	**31,925**	**23,525**	**27.7**
Fire Flow	NA	NA	630,000	630,000	NA
Snowmaking	3,000	0	NA	NA	244.2

2.1.1.1 Potable

Current potable water demands for the ski resort were calculated based on information provided in the Utah State Administrative Code for Drinking Water (Title R309-510) and the 1994 Park City Water Supply/Demand Study. Water demands were calculated using a maximum resort capacity of 5,000 guests during peak winter and 1,000 guests during peak summer. Winter and summer employees were also included.

The peak day source demand for potable water is approximately 44 gallons per minute (gpm) in the winter and 9 gpm in the summer. The maximum storage required is 31,925 gallons during winter. For annual use, it was assumed that the ski area operates 5 months during the winter, 5 months during the summer, winter employees work 5 months and summer employees work 7 months. The annual potable water demand is 17.9 ac-ft.

2.1.1.2 Irrigation

The peak day irrigation demand was estimated to be 6,900 gallons per day per irrigated acre based on data from the Utah Division of Water Rights (UDW) Consumptive Use Tables for the National Weather Service (NWS) Station at Kamas, Elevation 6470' (see Appendix B). Additional information was taken from the Ames Irrigation Handbook (see Appendix B). For irrigation conducted at the base area and parking lots, aerial photographs of the resort were used to estimate an approximate area of 5 irrigated acres. These areas were assumed to be turf grass in demand calculations. The peak day source demand for irrigation water is approximately 24 gpm. For annual usage, irrigation water was estimated to be 1.96 acre-feet (ac-ft) per irrigated acre at 70% efficiency (Appendix B), which requires an annual water demand of 9.8 ac-ft.

The operational storage requirement is estimated to be one-half of the peak day demand per Title R309-510. Total irrigation storage required for the existing water system is 17,250 gallons.

2.1.1.3 Fire Flow

A fire flow demand of 3,500 gpm for three hours was assumed for the existing buildings and lodges. The storage required for the fire flow is 630,000 gallons.

2.1.1.4 Snowmaking

Snowmaking is provided on approximately 370 acres of skiable terrain for an estimated 2.5 months mid-November through January. Snowmaking water is provided by non-potable water pumped directly from the High Span Well and potable water that is supplied by gravity from the one-million gallon (MG) potable water tank. Peak pumping capacity of the snowmaking system is over 3,000 gpm. At this peak rate, the system is capable of utilizing 4.32 MG per day. During a five day period pumping 24 hours a day, 21.6 MG of water would be used for snowmaking alone. Currently storage is provided by the 1 MG potable water tank. During peak use the entire tank volume including capacity dedicated for fire storage is utilized for snowmaking.

Approximately 0.66 ac-ft per acre is required annually by the snowmaking system to provide adequate coverage (per Snowbasin Resort management). The annual water demand for 370-acres of existing snowmaking terrain is approximately 244.2 ac-ft.

2.1.2 Water Source

Water at the resort is provided by three wells, the High Span Well, the Blue Grouse Well and the Bluebell Flats Well (see Figure 3 – Existing Wet Utilities). The High Span well is a non-potable source due to high turbidity levels and is used for snowmaking purposes only. Source capacities of the wells are provided in Table 2. The wells are equipped to pump the maximum 24-hour flow rate. The safe yield peak day source capacity is estimated to be two-thirds of the maximum 24-hour pumping rate.. Average annual source capacity was estimated to be 50-percent of the peak day capacity to maintain a sustainable source throughout the year.

Table 2: Existing Source Capacity

Source	Maximum 24 Hour Flow Rate	Peak Day Source Capacity	Average Annual Source Capacity	
	(gpm)	(gpm)	(gpm)	(ac-ft)
Potable				
Blue Grouse Well	600	400	200	323
Blue Bell Flats Well	300	200	100	161
Total Potable	900	600	300	484
Non-potable				
High Span Well	1400	933	467	747
Total Non-potable	1400	933	467	747

To provide a reliable year-round source, the maximum 24-hour pump capacity was reduced by one-third to allow for drought conditions, pump failure or other conditions that could potentially cause a reduction in capacity. The reduced source capacities are tabulated in Table 3. Estimates for the High Span Well were not reduced because it is a seasonal source only used during the winter for snowmaking and is not used year-round.

Table 3: Existing Source Capacity with Reduction

Source	Maximum 24 Hour Flow Rate	Peak Day Source Capacity	Average Annual Source Capacity	
	(gpm)	(gpm)	(gpm)	(ac-ft)
Potable				
Blue Grouse Well	400	267	133	215
Blue Bell Flats Well	200	133	67	108
Total Potable	600	400	200	323

2.1.3 Water Storage

Four water storage tanks are utilized for potable water storage (see Figure 3 – Existing Wet Utilities). Potable and irrigation water for the base area is stored in Tank No. 1 and Tank No. 3 provides storage for the Strawberry base facility. Both tanks are 300,000 gallon buried concrete tanks. Fire flow and supplemental potable water for the resort is stored in Tank No. 2, a 1 MG buried concrete tank located above Tanks No. 1 and 3. Potable water stored in this tank is also currently used for snowmaking purposes. The resort will need to discontinue this practice when residential development starts and construct one or more dedicated snowmaking ponds in order to preserve the fire flow in Tank No. 2. Tank No. 4 is a 50,000 gallon buried concrete tank at the top of the Strawberry Gondola that provides storage for the Needles and John Paul Day Lodge. The tank storage capacity and overflow elevations are summarized in Table 4.

Table 4: Existing Water Storage

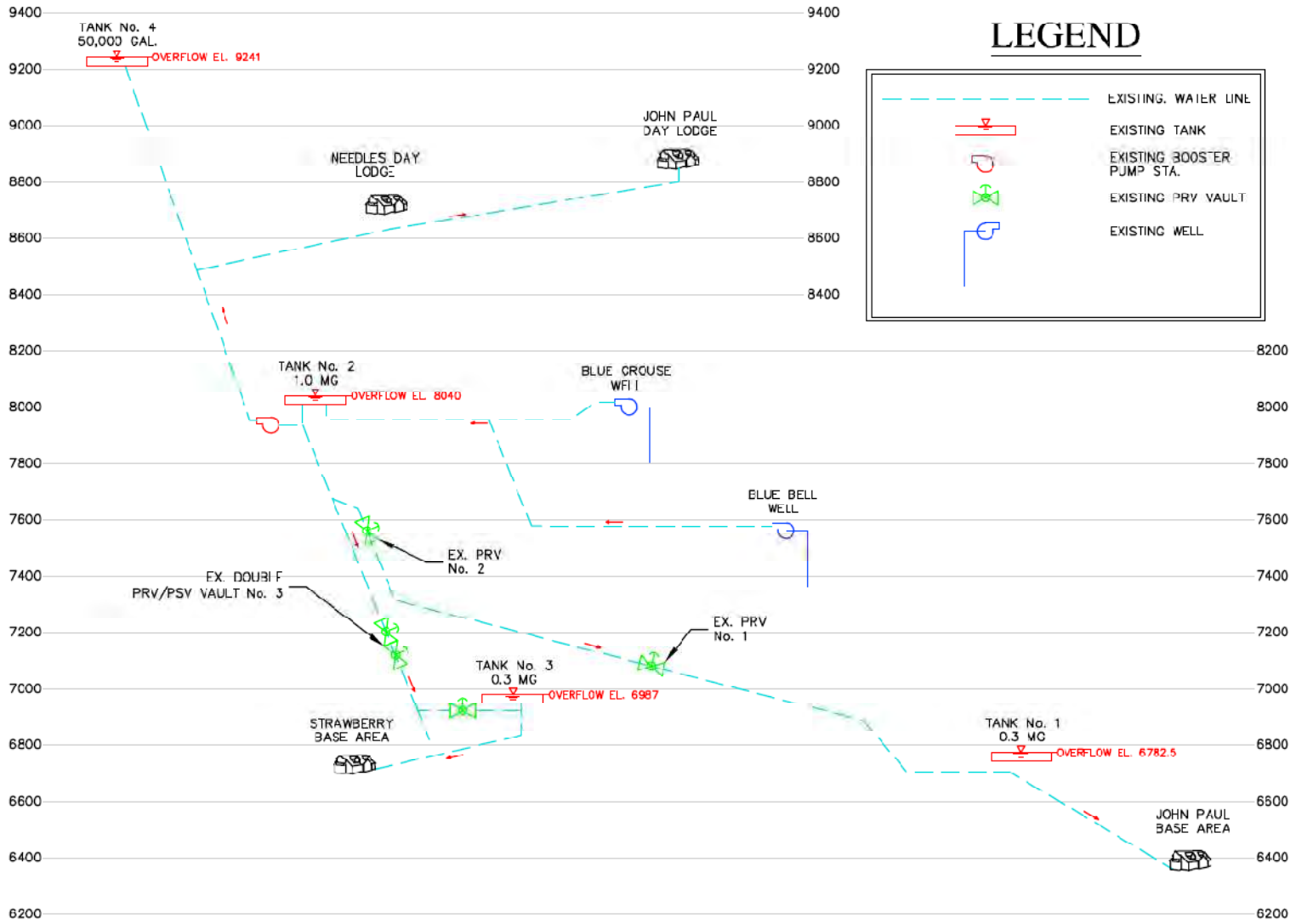
Water Tank	Storage Capacity (gal)	Overflow Elevation (ft)
Tank No. 1	300,000	6782.5
Tank No. 2	1,000,000	8040.0
Tank No. 3	300,000	6987.0
Tank No. 4	50,000	9241.0
Total Tank Storage	1,650,000	

2.1.4 Water Supply and Distribution System

Water is pumped from the two potable wells, Blue Bell Flats and Blue Grouse, to Tank No. 2. Water from Tank No. 2 is gravity fed through a 12-inch distribution line passing through several pressure reducing valves (PRV's) to fill Tank No. 1 and Tank No. 3. Tank No. 1 provides fire flow, potable and irrigation water to the base area via a 12-inch distribution line. Supplemental fire flow is fed from Tank No. 2 during a fire event. The water system at the base area is a mix of 8-inch and 10-inch distribution lines. Refer to Figures 3 and 4 for Existing Wet Utilities.

Water is pumped up to Tank No. 4 from the Tank No. 2 valve vault. Water is then delivered by gravity through 8-inch supply lines to both the Needles Day Lodge and the John Paul Day Lodge. Initial fire flow for these lodges will come from the 50,000 gallon Tank No. 4 with augmentation form the resorts snowmaking system pumps which can be fed by gravity from the 1.0 MG Tank No. 2. A schematic of the water system is illustrated in Figure 5.

Figure 5: Existing Water System Profile



2.1.5 Water Rights

Snowbasin Resort has water rights totaling 779.16 ac-ft, with 361.00 in Morgan County and 418.16 in Weber County. The water rights are listed in Table 5 and are provided in Appendix C. It is estimated that the existing Snowbasin Resort currently uses 271.9 ac-ft of the 779.16 ac-ft of water rights available for use in Morgan and Weber Counties.

Table 5: Existing Water Rights

Water Right No.	Description	Quantity	
		Morgan County (ac-ft)	Weber County (ac-ft)
35-7343 a23691	Decreed rights from underground water wells		131.28
E4990	Weber Basin contract from underground water wells		175.00
E4991	Weber Basin contract from underground water wells	361.00	
35-100	Surface water diversion from Hawkins Creek for use on Area G.		36.88[1]
35-7246	Surface water diversion from Hawkins Creek for use on Area G.		75.00[2]
	Total	**361.00**	**418.16**
	Total Morgan and Weber Counties		**779.16**

[1] 0.2 cfs for 92 days (3/15-5/15, 10/15-11/15) + 0.45 ac-ft/EDU x 1 EDU
[2] 25 acres at rate of 3 ac-ft/irrigated acre (per Utah Division of Water Rights

2.2 PROPOSED WATER SYSTEM

The proposed water system is intended to serve the existing Snowbasin Resort and development areas A through H in Weber and Morgan Counties (see Figure 6 – Water System Master Plan, Figure 7 – Water System Profile and Figure 9 – Water System Master Plan – Area H). The water system will consist of a series of new and existing underground water storage tanks, pump stations and water lines. Source capacity will be provided by development of additional groundwater sources and potentially a surface water diversion from the Weber River. The proposed water system is divided into the following service areas:

- Service Area 1: Ski Resort and Areas A – G
- Service Area 2: Area H

In Service Area 1 it is anticipated that the primary water distribution system will serve the ski resort, Areas A through F and the upper half of Area G. The lower half of Area G could be connected to the upper system but will be served by an additional water storage tank and potentially two new water wells. Another option for Area G is to potentially connect to Huntsville's existing water system.

Service Area 2 is likely to have a stand alone water system to serve Area H. Construction of a water storage tank and a water well will be required (see Figure 9 – Water System Master Plan - Area H). There may be potential to connect to the existing water system that serves the Yacht Club development. It will be necessary to coordinate with the Pine View West Water Company to determine if this is a possibility.

2.2.1 Water Demands

Water demands have been defined for the potable and irrigation water system based on proposed densities and land uses in Areas A through H. Demands were prepared for 100-percent occupancy and reduced occupancy conditions. Calculations were based on requirements in the Utah State Administrative Code for Drinking Water (Title R309-510) for source capacity, storage sizing and distribution system sizing.

Peak day demands for the development are greatest during summer months due to irrigation. The maximum peak day demand for Service Area 1 is 3,948 gpm. Service Area 2 has a peak day demand of 32 gpm. The water demands are summarized in Table 6 and detailed demand spreadsheets can be found in Appendix A. Annual water demands and water rights are discussed in further detail in section 2.2.8 – Annual Water Right Demand.

2.2.1.1 Potable

Potable water demands were calculated for Service Areas 1 and 2. Demands were based on information provided in the Utah State Administrative Code for Drinking Water (Title R309-510) and the 1994 Park City Water Supply/Demand Study. Water demands for the ski resort were calculated using a maximum resort capacity of 10,000 guests during peak winter and 2,000 guests during peak summer. Winter and summer employees were also included. The development areas included residential demands for private and rental condominiums, townhomes and single family homes. Demands were also calculated for hotels, retail, restaurant and office space.

The peak day source demand for potable water for Service Area 1 is approximately 2,907 gpm in summer and 2,977 gpm in the winter. The storage required is 2.09 MG. For annual use, it was assumed that the ski area operates 5 months during the winter, 5 months during the summer, winter employees work 5 months and summer employees work 7 months. The annual potable water demand with 100-percent occupancy is 2,366 ac-ft. With reduced occupancy, annual water demands were estimated to be 1,791 ac-ft.

Service Area 2 has a peak day source demand of 28 gpm and a storage requirement of 20,000 gallons. The annual potable water demand with 100-percent occupancy is 22 ac-ft. With reduced occupancy, annual water demands were estimated to be 16 ac-ft.

Table 6: Water System Demands

	Peak Day Demand		Average Day Demand (Minimum Storage Volume)		Annual Water Right Demands					
					100% Occupancy			Reduced Occupancy		
	Winter	Summer	Winter	Summer	Total Demand	Consumptive	Reuse	Total Demand	Consumptive	Reuse
	(gpm)	(gpm)	(gal)	(gal)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
Ski Area Total Buildout										
Potable	88	17	63,025	12,550	35	7	28	35	7	28
Irrigation	0	24	0	17,250	10	7	0	10	7	0
Total	**88**	**41**	**63,025**	**29,800**	**45**	**14**	**28**	**45**	**14**	**28**
Area A										
Potable	867	867	624,498	624,498	700	140	560	487	97	389
Irrigation	0	119	0	85,467	49	34	0	49	34	0
Total	**867**	**986**	**624,498**	**709,965**	**748**	**174**	**560**	**535**	**131**	**389**
Area B										
Potable	299	299	215,546	215,546	241	48	193	185	37	148
Irrigation	0	132	0	95,327	54	38	0	54	38	0
Total	**299**	**432**	**215,546**	**310,873**	**296**	**86**	**193**	**239**	**75**	**148**
Area C										
Potable	742	742	534,207	534,207	598	120	479	440	88	352
Irrigation	0	224	0	161,618	92	64	0	92	64	0
Total	**742**	**966**	**534,207**	**695,825**	**690**	**184**	**479**	**532**	**152**	**352**
Area D										
Potable	551	551	396,578	396,578	444	89	355	355	71	284
Irrigation	0	256	0	184,135	103	72	0	103	72	0
Total	**551**	**807**	**396,578**	**580,712**	**547**	**161**	**355**	**458**	**143**	**284**
Area E										
Potable	109	109	78,500	78,500	88	18	70	79	16	63
Irrigation	0	114	0	81,777	46	32	0	46	32	0
Total	**109**	**223**	**78,500**	**160,277**	**134**	**50**	**70**	**125**	**48**	**63**
Area F										
Potable	112	112	80,800	80,800	91	18	72	73	15	58
Irrigation	0	54	0	38,846	22	15	0	22	15	0
Total	**112**	**166**	**80,800**	**119,646**	**112**	**33**	**72**	**95**	**30**	**58**
Area G										
Potable	208	208	150,040	150,040	169	34	135	137	27	110
Irrigation	0	118	0	85,245	49	34	0	49	34	0
Total	**208**	**327**	**150,040**	**235,285**	**217**	**68**	**135**	**186**	**61**	**110**
Area H										
Potable	28	28	20,000	20,000	22	4	18	16	3	13
Irrigation	0	4	0	2,989	2	1	0	2	1	0
Total	**28**	**32**	**20,000**	**22,989**	**24**	**6**	**18**	**17**	**4**	**13**
Total: Ski Area + Areas A-H	**3,004**	**3,980**	**2,163,193**	**2,865,373**	**2,813**	**775**	**1,911**	**2,232**	**659**	**1,446**

1. Consumptive Use Potable = 20%; Consumptive Use Irrigation = 70%

2. Reuse Potable = 80%

2.2.1.1.1 Water Reduction

Additional analysis was performed to estimate the potential reductions in potable water use through the use of water efficient plumbing and appliances. It was determined that an approximate 30-percent reduction could be realized after implementation to minimize indoor water consumption (see Appendix A). This reduction will need to be monitored through the early stages of the project to confirm potential reductions. To realize the benefits of water conservation measures, the project will be required to prove to the state that the lower demands and flows are being achieved. The proof analysis will take place after development is established and actual water usage can be measured and analyzed. Water conservation measures are discussed further in Section 5.0 – Sustainable Infrastructure.

2.2.1.2 Irrigation

For the ski resort and the higher elevation areas A, B and C, the peak day irrigation unit demand was estimated to be 6,900 gallons per day per irrigated acre based on data from the Utah Division of Water Rights Consumptive Use Tables for the NWS Station at Kamas, Elevation 6470 ft (see Appendix B). The peak day irrigation unit demand for the lower elevation areas D, E, F, G and H was estimated to be 6,945 gallons per day per irrigated acre based on data from the Utah Division of Water Rights Consumptive Use Tables for the NWS Station at Echo Dam, Elevation 5470 ft (see Appendix B). Additional information was taken from the Ames Irrigation Handbook (see Appendix B). Irrigated areas were assumed to be turf grass in demand calculations. The peak day source demand for irrigation water for Service Area 1 is approximately 1,041 gpm. The peak day demand is 4 gpm for Service Area 2.

For annual usage for the ski resort and areas A, B and C, irrigation water was estimated to be 1.96 ac-ft per irrigated acre at 70-percent efficiency (see Appendix B). For areas D, E F, G and H it was estimated that 1.94 ac-ft per irrigated acre is required at 70-percent efficiency. An annual water demand of 423 ac-ft is required for irrigation at 100-percent occupancy and reduced occupancy for the Service Area 1. Service Area 2 requires 2 ac-ft at 100-percent and reduced occupancy.

The operational storage requirement is estimated to be one-half of the peak day storage requirements per Title R309-510. Total irrigation storage required for Service Area 1 is 0.75 MG, excluding golf course irrigation. Service Area 2 has a storage requirement of 3,000 gallons.

2.2.1.2.1 Water Reduction

While no water reductions are included based on occupancy, it is proposed that the development can achieve a significant reduction in outdoor water usage by limiting the irrigated area, using water efficient irrigation systems, native plants and low-water turf. As mentioned in Section 2.2.1.1.1, this reduction will need to be monitored through the early stages of the project to confirm potential reductions for later phases. Water conservation measures are discussed further in Section 5.0 – Sustainable Infrastructure.

2.2.1.3 Golf Course Irrigation

Three golf courses located in Areas D and F are planned for the development. It is anticipated that the irrigation for the golf courses will be supplied by a secondary water system to reuse treated wastewater produced by the development. The use of secondary water also minimizes the potable water supply, storage demand and water rights required for the overall development.

The water demand is based on 90 irrigated acres per course for a total water demand of 540 ac-ft annually. This is based on an annual water usage of 2.0 ac-ft per irrigated acre at 70-percent efficiency.

2.2.1.4 Snowmaking

For demand calculations, it was assumed that snowmaking will be provided on approximately 500 acres of skiable terrain for an estimated 2.5 months mid-November through January. Based on existing application rates during peak periods, peak pumping capacity of the snowmaking system may approach 4,100 gpm. At this peak rate, the system is capable of utilizing 5.9 MG per day. During a five day period pumping 24 hours a day, 29.5 MG of water would be required for snowmaking. The annual water demand to achieve adequate coverage on 500 acres of snowmaking terrain at a rate of 0.66 ac-ft per acre (per Snowbasin Resort management) is approximately 330 ac-ft.

2.2.2 Source Capacity

A minimum of four additional wells are anticipated for development to supplement the existing well supply (see Figure 6 – Water System Master Plan). The Strawberry A Well has been drilled and constructed and is ready to be tested for specific capacity and water quality. Estimates were made for the maximum 24-hour flow rates for the wells that have not been developed. Peak day source capacity is estimated to be two-thirds of the maximum 24-hour flow rate to provide a safe yield. Average annual source capacity is calculated as 50-percent of the peak day source capacity. Source capacities are provided in Table 7.

Table 7: Well Source Capacity

Source	Maximum 24 Hour Flow Rate	Peak Day Source Capacity	Average Annual Source Capacity	
	(gpm)	(gpm)	(gpm)	(ac-ft)
Existing Wells (Blue Bell and Blue Grouse)	900	600	300	484
Strawberry A	1,000	667	333	538
Upper Shop	500	333	167	269
Upper Bear Springs	500	333	167	269
Smiley	500	333	167	269
Total Potable	**3,400**	**2,266**	**1,133**	**1,828**

For design purposes, the maximum 24-hour pump capacity was reduced by one-third to provide a conservative estimate for year-round source capacity. This allows for some redundancy in the water system from other sources rather than being completely dependent on the well supplies in the event of reduction in capacity. Such a reduction may be a result of reduced aquifer levels due to drought, pump motor failure or a change in water quality. The reduced source capacities are listed in Table 8.

Table 8: Well Source Capacity with Reduction

Source	Maximum 24 Hour Flow Rate	Peak Day Source Capacity	Average Annual Source Capacity	
	(gpm)	(gpm)	(gpm)	(ac-ft)
Existing Wells (Blue Bell and Blue Grouse)	600	400	200	323
Strawberry A	667	444	222	538
Upper Shop	333	222	111	269
Upper Bear Springs	333	222	111	269
Smiley	333	222	111	269
Total Potable	**2,267**	**1,511**	**755**	**1,219**

The total peak day demand for Service Area 1 is 3,948 gpm. It is anticipated that source capacity for Area G will be provided by a combination of sources. The peak day demand for the upper portion of Area G will be satisfied by sources in Areas A through F. The remaining source capacity for the lower half will be provided by potentially two well sources to be developed at the base of Area G. The Utah State Administrative Code for Drinking Water (Title R309-515-4.30) requires a minimum of two water sources for 100 connections or more. The wells in Area G would need to be capable of providing a peak day source demand of 164 gpm. Service Area 2 will have an independent system with potentially one water well. The well will require a capacity of 32 gpm.

In Service Area 1, the peak day demand for the resort, development areas A through F and the upper 50-percent of Area G is 3,784 gpm. With the source capacity of the existing and proposed wells providing 1,511 gpm, an additional 2,273 gpm must be provided by alternate sources. Potential alternatives to provide the required source capacity include:

- Developing additional groundwater sources
- Diverting raw water from the Weber River and potentially Dry Creek
- Treating non-potable well sources such as the High Span Well

As development occurs, the alternatives for additional source capacity will be explored. The alternative to divert raw water from the Weber River is presented in Figure 6 – Water System Master Plan. For this alternative, the raw water will be pumped up and stored in reservoirs. It will be treated and pumped from a water treatment plant through a dual zone booster pump station

to water storage tanks. Two additional booster pump stations will be required to pump water up to the existing water system. The required source capacity is summarized in Table 9.

Table 9: Required Source Capacity

	Peak Day Source Capacity (gpm)
Peak Day Water System Demand Resort and Areas A – F, Upper Portion of Area G (50%)	3,784
Well Sources	1,511
Water Treatment Plant	2,273

2.2.2.1 Snowmaking Source Capacity

The snowmaking water will be provided by the High Span Well, which can provide up to 1,400 gpm peak source capacity that will pump to future water storage ponds dedicated to snowmaking (see Section 2.2.6). The potable water system does not include source capacity for snowmaking however the potable sources will have some excess capacity during the winter months due to a lack of irrigation demand on the system. This capacity could potentially be used to supplement the High Span Well or provide snowmaking on the lower mountain.

2.2.3 Potable Water Storage

Potable water for Service Area 1 will be stored in a series of buried concrete water storage tanks located throughout the development area. Six additional storage tanks with a storage capacity of 3.87 MG will be required for construction to satisfy fire flow, potable and irrigation demands and supplement existing storage capacity. Area G will have an additional tank with a capacity of 0.42 MG to serve the lower half. Service Area 2 will have one water tank with capacity of 0.23 MG in Area H. The proposed water tanks with corresponding service areas are provided in Table 10.

2.2.3.1 Fire Flow

Fire flow for Areas A, C and D was estimated to be 3,500 gpm for 3 hours to provide adequate fire flow to the hotels and commercial areas. This fire flow requires a storage volume of 630,000 gallons. Area E is strictly residential. A fire flow of 1,500 gpm for 2 hours was assumed, requiring a storage volume of 180,000 gallons. The fire flow for Areas B and F is 1750 gpm for 2 hours to serve townhomes and residential units, requiring a storage volume of 210,000 gallons. The fire flow for area G is set at 2,500 gpm for 2 hours and H is set at 1,750 gpm for two hours. The fire flow storage totals for areas G and H are 300,000 and 210,000 gallons respectively.

Table 10: Proposed Water Storage

Water Tank	Service Area	Storage Capacity (gal)	Overflow Elevation (ft)
Existing Tanks 1, 2 & 3 Tank 3A	Potable: Resort, A, B and 30% of C Fire Flow: Resort, A, B, C	Potable: 970,000 Fire Flow: 630,000 **Total: 1,600,000** Tank 3A Potable: 300,000 Tank 3A Fire Flow: 630,000 **Tank 3A Total: 930,000** **Total: 2,530,000**	Tank 1: 6782.5 Tank 2: 8040.0 Tank 3: 6987.0 Tank 3A: 6987.0
Tank No. 5	Potable: 70% of C	Potable: 500,000 **Total: 500,000**	6551.7
Tank No. 6	Potable: D, F and 50% of G Fire Flow: D, F, G	Potable: 820,000 Fire Flow: 630,000 **Total: 1,450,000**	6080.0
Tank No. 7	Potable: E Fire Flow: E	Potable: 160,000 Fire Flow: 180,000 **Total: 340,000**	5955.0
Tank No. 8	Potable: 50% of G Fire Flow: G	Potable:120,000 Fire Flow: 300,000 **Total: 420,000**	5355.0
Tank No. 9	Potable: H Fire Flow: H	Potable: 23,000 Fire Flow: 210,000 **Total: 230,000**	5095.00
Total Tank Storage: Existing + Proposed		**5,470,000**	
Total Tank Storage: Proposed		**3,870,000**	

Note:
1. Tank No. 4 is dedicated to the upper mountain day lodges and is not included in the total system storage.
2. Potable includes potable and irrigation water from the potable water system.
3. Fire flow is provided in Tank 3A to provide redundancy to Tank 2 and Tank 6.

2.2.4 Snowmaking Water Storage

Storage ponds will be used to store water for snowmaking to eliminate the dependency on the existing potable system during peak demands. The construction of the storage ponds will reduce peak source demands on the potable water system by providing a water supply independent of the well system. It also reduces the overall storage required for the potable water system. The snowmaking ponds will have a total volume of approximately 20 MG to meet peak demands. Snowmaking water can potentially be recovered by pumping the High Span Well in the spring at a reduced rate and by collecting surface water runoff and routing it back to the snowmaking storage ponds.

2.2.5 Raw Water Storage

If a surface water diversion is utilized to provide source capacity, raw water from the Weber River and potentially Dry Creek can be stored in an open water reservoir or multiple reservoirs/ponds totaling approximately 200 - 300 ac-ft. Providing raw water storage allows the pump stations from the water treatment plant to peak out of the ponds rather than directly from the source, reducing the size of the pump station and the supply line required for the Weber River diversion. Pumping water directly to the treatment plant without a reservoir would have limitations due to fluctuations in water quality from the Weber River diversion and some storage would be required for equalization. If raw water storage reservoirs are not feasible due to geotechnical or other constraints, smaller reservoirs are an alternative. The water treatment plant could also be located down lower near the Weber River diversion. The raw water storage pond may be omitted; however this will affect the water treatment process and have greater costs.

Figure 10 depicts the fluctuations in storage if a single 230 acre-foot reservoir is constructed with a conservation pool of 100 ac-ft. Data and additional supply and demand graphs used to determine adequate storage capacity are located in Appendix D.

Figure 10: Raw Water Storage Reservoir – Storage vs. Time

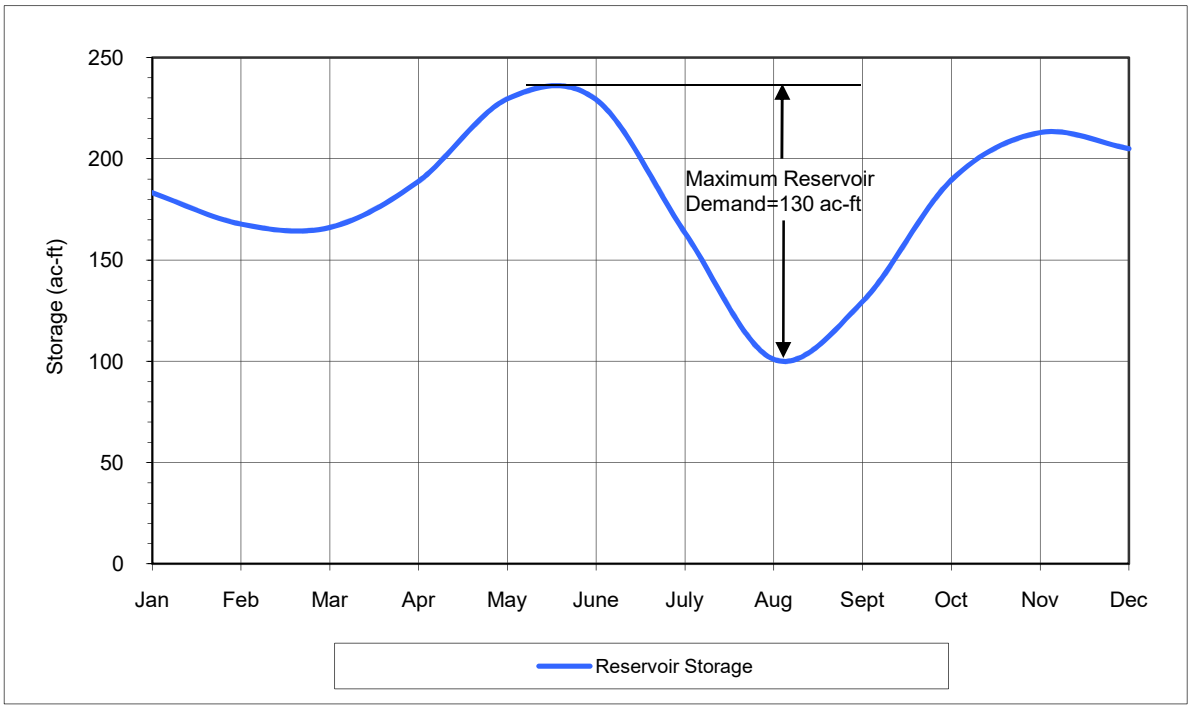
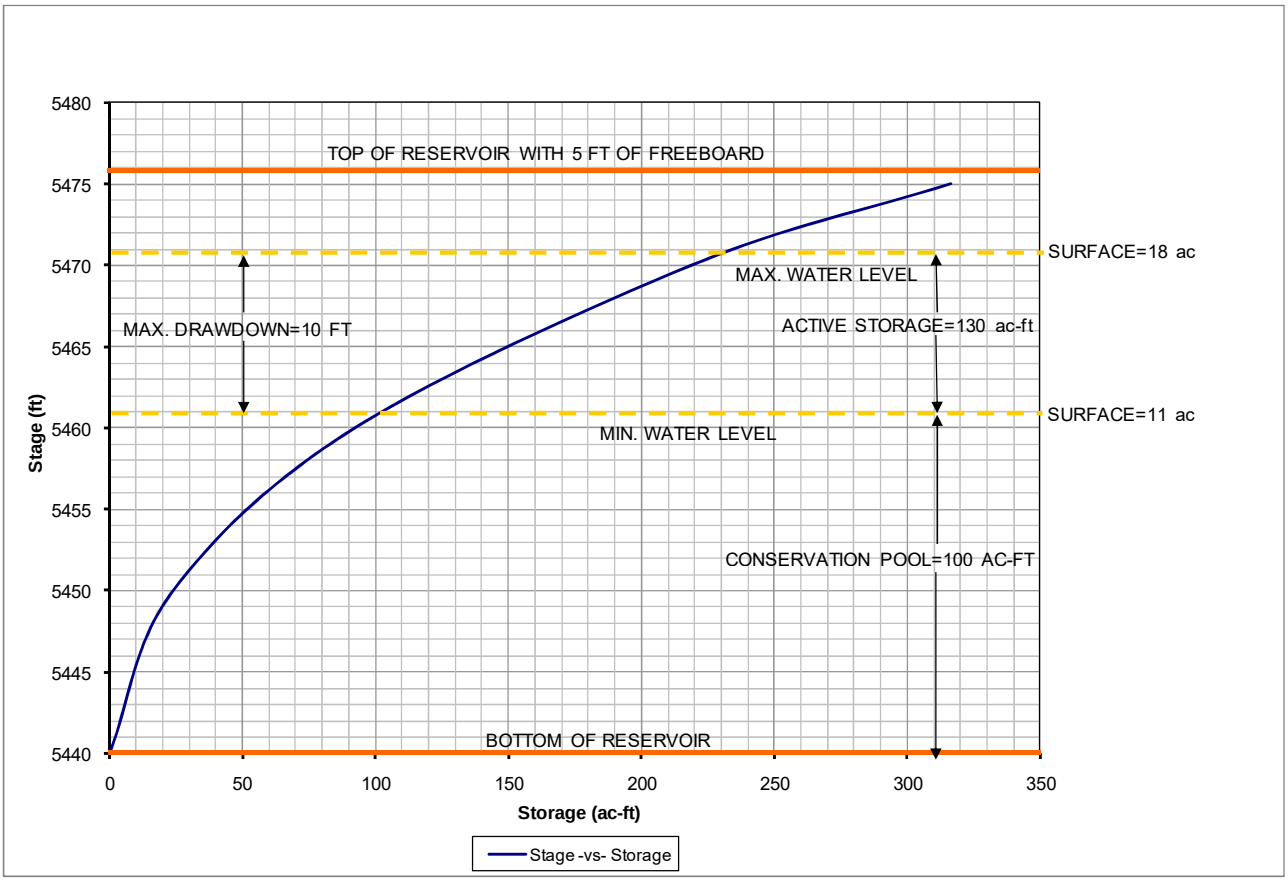


Figure 11 displays the 230 acre-foot reservoir with a 100 acre-foot conservation pool with actual depths that would be observed during annual fluctuations. During normal operating conditions the reservoir has a depth of 31-feet and a maximum drawdown of 10-feet. The minimum water height is 21-feet. With 5-feet of freeboard, the reservoir has a maximum volume of 330 acre-feet and a total depth of 36-feet.

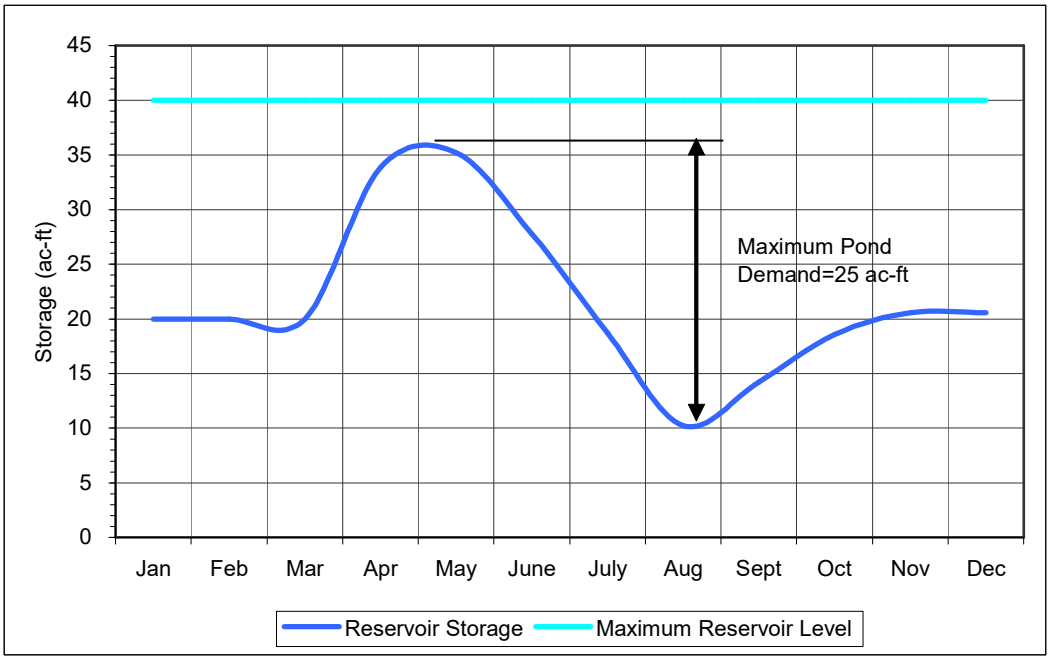
Figure 11: Raw Water Storage Reservoir – Stage vs. Storage



2.2.6 Reuse Water Storage

Reuse water will likely be stored in multiple ponds with a total capacity of approximately 320 ac-ft. The ponds will be located in and around the golf course and will provide secondary water for irrigation of the golf courses. Figure 12 represents the fluctuations in volume of a single pond if a total of eight ponds with volumes of 40 ac-ft each are constructed. The model assumes reuse water is pumped at variable rates primarily during the summer months in order to minimize the storage volume required and ensure each pond has a conservation pool of 10 ac-ft. Additional information is provided in Appendix D.

Figure 12: Reuse Water Storage Reservoir – Storage vs. Time



2.2.7 Water Supply and Distribution System

The water system was designed to have static pressures between 50 and 150 psi and meet water system sizing requirements specified in the Utah Administrative Code for Drinking Water (Title R309). Pressure zones are illustrated in Figure 8. Water line sizes were selected to maintain dynamic pressures greater than 40 psi at the highest connection point during peak day conditions and 20 psi during a fire event with average day demands. Velocities are typically less than 5 feet per second during peak day conditions and less than 10 feet per second during a fire flow scenario. Refer to Figure 6 – Water System Master Plan for proposed water line sizes.

2.2.8 Annual Water Right Demand

The annual water demands were calculated for the ski resort and the development areas A through H to determine annual water rights required for 100-percent occupancy and reduced occupancy. Estimates for consumptive and reuse water were also estimated to determine quantities available for secondary water. Annual water demands were calculated using average daily demands and annual irrigation requirements (see Appendix B for irrigation assumptions). The annual water demands and estimates for consumptive and reuse water are summarized in Table 11.

Table 11: Annual Water Demands

	Annual Water Right Demands					
	100% Occupancy			Reduced Occupancy		
	Total (ac-ft)	Consumptive (ac-ft)	Reuse (ac-ft)	Total (ac-ft)	Consumptive (ac-ft)	Reuse (ac-ft)
Weber County						
Ski Area Total Buildout	23	7	14	23	7	14
Area A	748	174	560	535	131	389
Area B	296	86	193	239	75	148
Area G (50%)	109	34	67	93	31	55
Area H	24	6	18	17	4	13
Total Weber County	**1,199**	**307**	**852**	**907**	**248**	**619**
Morgan County						
Ski Area Total Buildout	23	7	14	23	7	14
Area C	690	184	479	532	152	352
Area D	547	161	355	458	143	284
Area E	134	50	70	125	48	63
Area F	112	33	72	95	30	58
Area G (50%)	109	34	67	93	31	55
Total Morgan County	**1,614**	**434**	**991**	**1,231**	**380**	**772**
Total Morgan & Weber County	**2,813**	**741**	**1,843**	**2,139**	**628**	**1,391**

Notes:
1. Consumptive Use Potable = 20%; Consumptive Use Irrigation = 70%
2. Reuse Potable = 80%
3. Ski Area Total Buildout Demands are allocated 50% to Weber County and 50% to Morgan County
4. Area G is served by sources in both Weber and Morgan Counties.

The ski resort and the development areas A through H require a total water right of 2,813 ac-ft for 100-percent occupancy, of which 1,199 ac-ft is in Weber County and 1,614 ac-ft is in Morgan County. The water right for snowmaking is approximately 330 ac-ft and is divided equally between counties. With Snowbasin's existing water right of 779.16 ac-ft, 361.00 ac-ft in Morgan County and 418.16 ac-ft in Weber County, a remaining water right of 2,364 ac-ft is required. Snowbasin will need additional water rights of 946 ac-ft in Weber County and 1,418 ac-ft in Morgan County. A summary of the annual water right demands are listed in Table 12.

Table 12: Water Rights

Water Right	Quantity	
	Morgan County (ac-ft)	Weber County (ac-ft)
Existing Snowbasin Water Rights	361	418
Water Right Required for Ski Resort and Development Areas A - H	1,614	1,199
Water Right Required for Snowmaking	165	165
Total Water Rights Needed	**1,418**	**946**
	2,364	

3.0 Wastewater System

The wastewater master plan for the Snowbasin development has been designed to utilize existing infrastructure where possible and maximize efficiency by limiting the number of lift stations. Limiting lift stations is balanced with the desire to keep as much sewer infrastructure in the proposed roadways as possible to minimize environmental impacts. The system is also planned to reuse treated wastewater effluent for irrigation for portions of the development.

The proposed system will serve the development areas as defined in the Snowbasin land use plan. It is anticipated that the development will require the formation of a private water and sewer company under Weber and Morgan counties that would operate and maintain the system for the development area. This portion of the master plan defines what is available in the existing wastewater system, as well as the steps required to collect, reclaim, and reuse the wastewater for the project.

3.1 EXISTING WASTEWATER SYSTEM

The existing wastewater system serves the Snowbasin Resort base area as well as the existing John Paul and Needles Day Lodges (See Figure 13 – Wastewater System Master Plan). Formerly, some buildings and lodges implemented on-site septic systems. These systems have been abandoned and all existing buildings are connected to the sanitary sewer system. The base area collection system gravity flows to an existing lift station located on the east side of the western base parking lot at the ski resort base area. The wastewater lift station pumps water through an existing 12-inch diameter force main to a point on the SR 226 where it transitions to gravity flow. Wastewater flows east to an existing double barrel siphon that conveys flows to an existing 12-inch diameter gravity line that crosses SR 167. Existing sewage lagoons east of SR 167 provide the wastewater treatment as well as the terminus of the existing system.

There are three unlined wastewater lagoons that are approximately 300 feet long by 120 feet wide. The lagoons are performing poorly due to lower than expected infiltration rates and will ultimately be abandoned once the wastewater system is constructed for the development areas. Currently the effluent from the lagoons is used for spray irrigation of an existing tree farm and is not of suitable quality to be directly discharged to nearby intermittent streams without further treatment. With the exception of the existing sewage lagoons, existing infrastructure was sized to accommodate future expansion and development in areas A, B, and C. There is no existing wastewater infrastructure to support Areas D through H.

3.1.1 Existing Wastewater System Flows

The average annual daily flow (AADF) rate for the resort during the ski season is approximately 20 gpm which is equivalent to 28,800 gallons per day (gpd). The flow rate was calculated by assuming 90-percent of the average daily water demand. The maximum daily design flow was calculated as 80 gpm by applying a peaking factor of 4 to the AADF. Table 13 provides an overview of the existing wastewater flows. Refer to the wastewater loads table in Appendix E for the detailed calculations of wastewater flows.

Table 13: Existing Wastewater Flows

Area	Average Annual Daily Flow Rate		Maximum Daily Design Flow Rate (Peaking Factor=4)	
	(gpm)	(gpd)	(gpm)	(gpd)
Snowbasin Resort Day Skier Use	18.8	27,000	75.0	108,000
Snowbasin Resort Employee	1.2	1,733	5.0	6,930
Total Flow	**20.0**	**28,733**	**80.0**	**114,930**

3.2 PROPOSED WASTEWATER SYSTEM

The proposed Snowbasin wastewater system is comprised of three separate collection systems to service the ski resort and Areas A through H. Each collection system will likely be connected to onsite water reclamation facilities (WRF). The sanitary sewer system is separated into the following collection areas:

- Collection Area 1: Ski Resort + Area A – E + 75% of Area F
- Collection Area 2: Area G + 25% of Area F
- Collection Area 3: Area H

Collection Area 1 will generate domestic wastewater that will be treated in an onsite water reclamation facility (see Figure 13 – Wastewater System Master Plan). The WRF will be designed meet the requirements for Type 1 recycled water suitable for reuse on nearby landscaped areas, golf courses and other vegetated areas. Recycled water not utilized for reuse will be discharged into nearby Dry Creek.

There are two options to provide wastewater treatment for Collection Area 2. The first option for this system will be to connect to the future Ogden Valley wastewater collection system. Ogden Valley is completing a feasibility study to evaluate the construction of a wastewater collection system and reclamation facility for Huntsville and the surrounding areas. If this option is infeasible due to cost or timing, an additional WRF will be required to serve this collection area.

Based on preliminary conversations with the Utah Department of Environmental Quality (UDEQ), surface water discharge of WRF effluent to Pineview Reservoir is not allowed. Reuse or subsurface discharge will be required.

Collection Area 3 will require a WRF (see Figure 14 – Wastewater System Master Plan – Area H). Given the proximity of Area H to Pineview reservoir, WRF effluent will need to be reused or discharged subsurface.

3.2.1 Wastewater System Flows

Average annual daily flow rates and maximum daily flow (MDF) rates were estimated for development areas A through H to determine the capacity of the WRF and wastewater collection systems. The AADF rates were estimated to be 90-percent of the average daily water demand. The MDF rates used for collection sizing were calculated by applying a peaking factor of 4 to the AADF rate for 12-inch diameter and smaller collection pipes and 2.5 for collection pipes larger than 12-inch diameter.

For Collection Area 1, the AADF is projected to be approximately 1.8 MGD based on 100-percent occupancy. The WRF will be provided with a design capacity of 1.8 MGD at build out to meet the ultimate AADF. Wastewater system flows are provided in Table 14. Collection Areas 2 and 3 will require WRF's with capacities of 0.15 MGD and 0.018 MGD respectively.

Table 14: Wastewater Flows

	Average Annual Daily Flow Rate				Maximum Daily Design Flow Rate			
	Total Flow		Reduced Occupancy Total Flow		Total Flow		Reduced Occupancy Total Flow	
	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	(gpd)
Ski Area Total Buildout	39	56,723	39	56,723	158	226,890	158	226,890
Area A	390	562,048	272	391,132	1,561	2,248,193	1,086	1,564,529
Area B	135	193,991	103	148,684	539	775,964	413	594,735
Area C	334	480,786	245	353,490	1,336	1,923,145	982	1,413,960
Area D	248	356,920	198	285,288	991	1,427,679	792	1,141,150
Area E	49	70,650	44	63,585	196	282,600	177	254,340
Area F (75%)	38	54,540	31	43,929	152	218,160	122	175,716
Total Ski Area + Areas A-F	**1,233**	**1,775,658**	**933**	**1,342,830**	**4,932**	**7,102,631**	**3,730**	**5,371,321**
Area F (25%)	13	18,180	10	14,643	51	72,720	41	58,572
Area G	94	135,486	76	110,103	376	541,942	306	440,410
Area H	13	18,000	9	12,600	50	72,000	35	50,400
Total Ski Area + Areas A-H	**1,352**	**1,947,323**	**1,028**	**1,480,176**	**5,409**	**7,789,293**	**4,112**	**5,920,703**

Note:
1. Approximately 75% of the wastewater in Area F will be treated by the WTP in Morgan County, the remaining 25% will be treated by the WTP in Area G.

For complete sewer flow calculations, refer to Appendix E.

3.2.1.1 Water Reduction

Currently the system is sized and designed to accommodate traditional state required minimums for sewer flows and water demands. If water demands for the development are reduced as discussed in Section 2.2.1 and Section 4.0 – Sustainable Infrastructure, this will have the potential to significantly minimize the infrastructure and treatment volumes required for the development.

3.2.2 Proposed Wastewater Collection System

The wastewater collection system will be comprised of a combination of gravity sewer mains, lift stations with corresponding force mains, and low pressure sewer collection systems. The intent of the proposed design is to limit pumping where possible. By limiting the number of lift stations for the project, overall operation and maintenance costs are reduced.

3.2.2.1 Collection System

The majority of the pipes for the proposed project will be 8-inch diameter gravity sewer lines. Sizing calculations for major collectors are included in Appendix E. Pipes have been sized using the Manning's equation with a roughness coefficient of 0.013. Slopes have been approximated based on existing topography. Refer to Figure 13 – Wastewater System Master Plan for proposed gravity sewer line locations and sizes.

Existing and proposed lines have been evaluated to confirm the existing sewer capacities and to size proposed sewers. The existing 12-inch diameter pipe that crosses Trappers Loop Road was installed at 1.75-percent. Based on the pipe sizing calculations, it will be necessary to run a new 16-inch HDPE (15-inch ID) pipe through the existing 24-inch casing to achieve the necessary capacity.

There are areas throughout the project where gravity service is not viable. Development areas that are less than 140 feet below the proposed gravity sewer are shown as low pressure sewer on Figure 13 – Wastewater System Master Plan. These systems operate with individual pumps for each connection and pump to a shared force main in the road. The shared force main discharges to gravity sewer where it can be conveyed to the WRF. Low pressure sewer systems have been approved by the UDEQ.

3.2.2.2 Lift Stations

There are eight lift stations required to serve Collection Area 1, and two lift stations are proposed for Collection Area 2. These lift stations and their corresponding force mains have been sized based on the sewer flows generated in each contributing area. Force mains have been sized to minimize head loss and provide a minimum velocity of 2 feet per second. For a summary of the preliminary sewer lift station and force main sizing, refer to Appendix E. Based on sewer flow calculations, the existing lift station in Area A will be slightly over capacity at buildout. The existing capacity is 1,000 gpm, and the build out flow will be approximately 1,075

gpm. It is recommended that lift station performance be monitored throughout the development to determine if a retrofit of the facility will be required.

3.2.3 Wastewater Effluent Requirements

The quality of the treated effluent will meet the discharge requirements for Type 1 recycled water. The WRF's will be designed to provide a higher quality effluent suitable for disposal into Dry Creek as well as for reuse on the project golf courses and open space areas. The facilities will be provided with provisions for phosphorus removal should a phosphorus limit be established for the plant in the future. The anticipated discharge requirements are based on preliminary consultation with the Utah Division of Water Quality and as required to meet reuse requirements specified in the Utah Administrative Code (Title R317-1-4).

Type 1 effluent is defined in Title R317-1-4 as treated domestic wastewater effluent where human contact is likely. It is permitted for use as:

- Residential irrigation
- Urban uses, including non-residential landscape irrigation, golf course irrigation, toilet flushing, fire protection and other similar uses with potential for human contact.
- Irrigation of food crops where the reclaimed water is likely to have direct contact with the edible part; Type I is required for all spray irrigation of food crops
- Irrigation of pasture for milking animals
- Impoundments of wastewater where direct human contact is likely to occur
- All Type II uses (Type II is defined as effluent where human exposure is unlikely).

The proposed wastewater treatment needed to achieve Type I effluent is described in the following section.

3.2.4 Wastewater Treatment

It is anticipated that the resort and development areas will generate wastewater that is expected to be typical of domestic wastewater with no industrial component. The preliminary design values for wastewater treatment are based on typical domestic wastewater generation rates. The anticipated design parameters are shown in the Table 15.

Table 15: Wastewater Treatment Design Parameters for a Flow of 0.10 MGD.

Parameter	Inflow (mg/L)	Effluent (mg/L)
Biological Oxygen Demand (BOD)	250	10
Total Suspended Solids (TSS)	220	10
Total Nitrogen	50	10

3.2.4.1 Membrane Bioreactor System

The proposed reclamation facility will be a membrane bioreactor (MBR) system to achieve the advanced level of treatment required for Type I effluent and will meet the values shown in Table 15. The treatment train will consist of anoxic basins, aeration basins and membrane tanks. Following the treatment train, disinfections will be required by UV disinfection and/or a sodium hypochlorite system.

In a typical MBR system, wastewater is processed in a continuous operation and passes through a membrane system that filters out the suspended solids. A pressure differential forces water through the membranes. The resulting filtered water meets tertiary treatment requirements and is suitable for reuse after disinfection. Sludge is generated as part of this process and will be required to be hauled off-site or possibly treated to a level suitable for use around the development open space areas. The WRF will be fully automated, but a certified operator will need to monitor the operation on an intermittent basis. A State of Utah Pollutant Discharge Elimination System (UPDES) discharge permit will be required for discharge of effluent to the existing Dry Creek stream channel. While the project goal is to reuse the effluent, there will be times, particularly in winter months, that effluent storage and/or reuse is not viable.

MBR systems are expandable and can be installed in phases. In addition to the quality of the treated effluent, the flexibility of the system will allow for lower initial capital cost as well as better operation. WRF's operate best when consistent influents can be provided to the system. As the design of the project progresses, the proposed phasing of the WRF will be evaluated to determine the number of expansion phases that best suit this facility.

Location of the primary WRF will be near the bottom of each Collection Area. The final location will need to be balanced with environmental and aesthetic considerations. The proposed location for the WRF in Collection Area 1 is near the bottom of Area D. This location will require Lift Stations out of Area E, but will be easier to access on a regular basis. The WRF for Collection Area 2 is proposed to be more centrally located. The location is intended to be accessible and limit operational concerns of neighboring communities. The Collection Area 3 WRF will be located based on a more detailed review of the development plan for the area. Based on meetings with Weber County, there is potential for expanding the Crimson Ridge WRF. Further discussions with Crimson Ridge will be required to evaluate this option.

4.0 Stormwater System

The intent of the Snowbasin stormwater master plan is to limit the impact of the proposed development on downstream waters. The stormwater master plan has been set up to evaluate the existing and post development conditions for the onsite drainage basins. Drainage basins were delineated based on the existing topography and the proposed land use plan. Stormwater maps have been prepared to illustrate the existing drainage basins, existing soil conditions and post development drainage conditions.

The stormwater master plan for the Snowbasin Infrastructure Master Plan area is based on two primary principals:

- Discharge Rate– Post development discharge rates are to be released at pre-development rates. Detention will be provided to achieve this goal.
- Water Quality – To lessen the impacts that development creates on natural resources, water quality best management practices (BMP's) are to be included to protect existing water quality downstream.

To develop the Snowbasin stormwater master plan, a model was created to evaluate existing and proposed drainage conditions. Given the scale of the project, the proposed model will need to be re-evaluated with more detailed calculations as the final land use plans develop. A hydrologic study for the Snowbasin development was performed for the drainage basins above and within the property boundary.

4.1 MODEL DESCRIPTION

The Snowbasin storm drainage model was created using Haestad Methods Pondpack© Hydrologic Modeling Software for calculation of runoff hydrographs. Pondpack© can be used for both urban and rural watershed models. Pondpack© allows use of both the SCS curve number and unit hydrograph method for modeling undeveloped watersheds. Sources used to create the calculated hydrological characteristics for the stormwater master plan are include:

- "Soil Survey, Weber County, Utah" (NRCS, 2005)
- "Soil Survey, Morgan County, Utah" (NRCS, 2005)
- Aerial photo mapping and contour data for Snowbasin and Surrounding Areas
- Digital mapping for Morgan and Weber Counties (Digital Elevation Models, DEMs)
- 7-½ Minute U.S. Geological Survey topographical maps

- Curve number selection procedures provided by the Soils Conservation Service (SCS, 1972)

4.1.1 Model Components

The storm drainage model is comprised of four major components. Each of these model components are described below.

- **Sub-basin Elements** – Sub-basins are the basic elements for which runoff hydrographs are calculated. Sub-basin elements represent a geographic area and they are described by all of the hydrologic characteristics required by Pondpack© for calculation of a runoff hydrograph.

- **Conveyance Elements** - Conveyance elements are used to represent routing of runoff through pipes, gutters, swales and channels. Conveyance elements are described by slope, length, hydraulic roughness and cross section dimensions.

- **Confluence Elements** - Confluence elements are used to combine runoff hydrographs. Confluences are described by a single value, which defines the number of hydrographs to be combined.

- **Detention Basin Elements** - Detention basin elements route runoff through a detention basin. Detention basin elements are described numerically by a stage volume relationship a stage discharge relationship and an initial water level.

4.1.2 Modeling Existing Conditions

The existing storm drain system was modeled as accurately as possible given the available information and resources. Only major storm drainage features are represented in the model. The model was used as a base to evaluate the existing surface runoff peak flows and discharge points for each sub-basin. Refer to Figure 15 for the Existing Hydrologic Basins map.

4.1.3 Modeling Proposed Conditions

A model for the proposed land use plan was created to evaluate peak surface water runoff for each sub-basin under the post-development condition. The post development model is intended to be a tool for the project as it moves forward. These preliminary values for post development runoff are to be fine tuned as development plans are developed. Detention pond locations for each sub-basin are to be included in each detailed design phase. Refer to Figures 16 and 17 for the Proposed Land Use Map and Proposed Hydrologic Basins.

Computation of Runoff Hydrographs

Hydrographs were computed for each sub-basin, conveyance, and confluence. The maximum value from each hydrograph is the peak runoff flow rate. Hydrographs were calculated for 24-hr storm duration. Elements in the proposed drainage system were designed for the 2-year, 10-year and 100-year storm events and the critical storm duration. The peak flow rates were then compared to the capacities of the model elements to determine where additional refinements were needed. Peak runoff flow rates for each conveyance and other model elements are provided in Section 4.2 –Storm Drain Model Results.

4.1.4 Drainage Design Storm Frequency

The approach used for determining the drainage design frequency is based upon methodology given in the Urban Storm Drainage Criteria Manual (Denver Regional Council of Governments, 1990). This Manual defines the urban drainage system as follows:

> *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).*
>
> *The major storm drainage system in newly developing areas 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 sewers (which are considered part of the initial storm drainage system) should be designed for the 100-year event.*

4.1.5 Design Rainstorm

Rainfall data for 2-year 24-hour and 10-year 24-hour rainfall events was utilized to calculate peak runoff flows for the initial storm drainage system. A 100-year, 24-hour storm was utilized to calculate the volume and runoff peak reduction that will be required to detain runoff to Weber/Morgan County Standards. Table 16 shows the data used in the project.

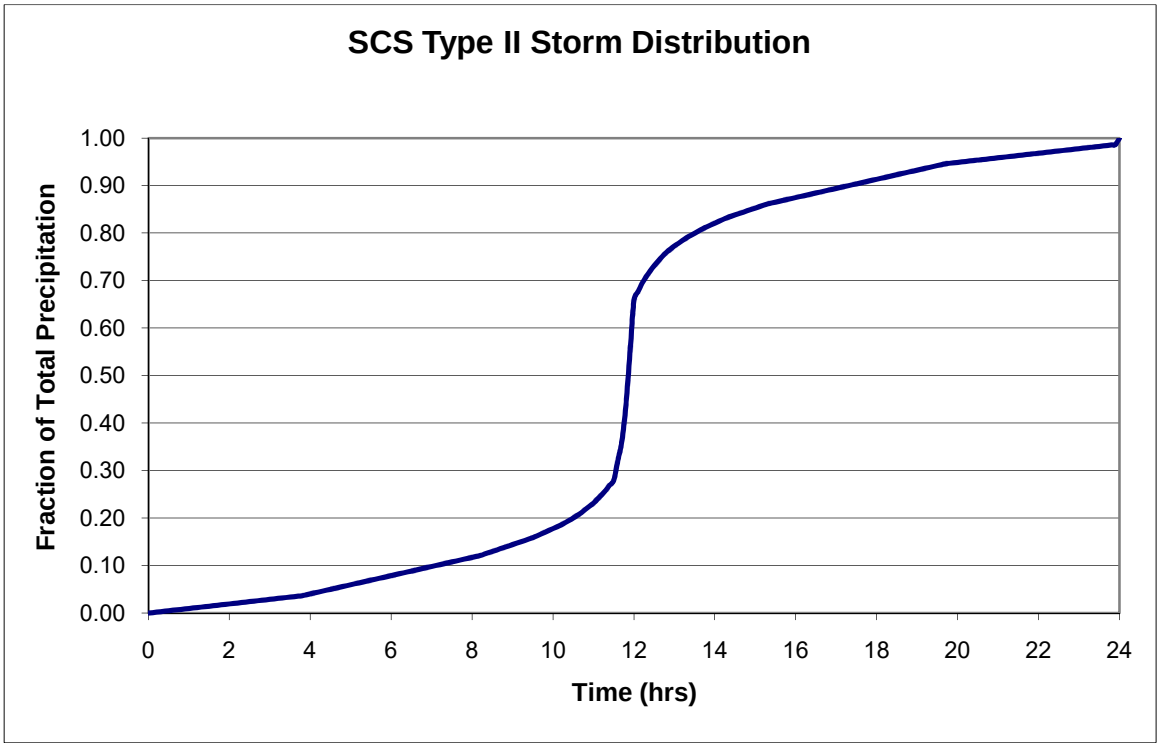
Table 16: Precipitation Data

Year	Precipitation* (inches)
2	1.95
10	2.64
100	3.75

* Data taken from NOAA Atlas 14, Volume 1, Version 4, published by the National Weather Service 2006.

The standard Soil Conservation Service (SCS) Type II design storm distribution is representative of the project area, see Figure 18. This distribution shows 50 to 75 percent of total rainfall to occur in a brief period (approximately 2 hours), which is typical of the intense short duration storms experienced within Morgan and Weber Counties.

Figure 18: SCS Type II Storm Distribution



4.1.6 Drainage Basin Characteristics

The Snowbasin project area is divided into 28 drainage basins, sub-basins were delineated based on existing topography and the proposed land use plan. Digital base mapping of Snowbasin consists of 2-meter Lidar Digital Elevation Models (DEMs) obtained from the Utah Automated Geographic Reference Center (Utah AGRC) within the project boundary. Sub-basins vary in size depending upon the topography in the sub-basin and the locations for which hydrographs were needed.

4.1.7 Hydrologic Soil Type

Hydrologic soil type is a general indication of the soil's infiltration capacity. Soils are assigned a hydrologic soil group (HSG) of A, B, C, or D by the Natural Resource Conservation Service (NRCS). Group A is sand, loamy sand or sandy loam types of soils. It has low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission. Group B is silt loam or loam. It has a moderate infiltration rate when thoroughly wetted and consists chiefly or

moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. Group C soils are sandy clay loam. They have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine-to-fine structure. Group D soils are clay loam, silty clay loam, sandy clay, silty clay or clay. This HSG has the highest runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material. Soils within the project site consist of hydrologic soil type B, C, and D. The majority of soils are of hydrologic soil type C and D. Each sub-basin was assigned a hydrologic soil type based upon the NRCS mapping (see Figure 19, Hydrologic Soil Group Map).

4.1.8 SCS Curve Numbers

SCS curve numbers were assigned for each sub-basin. The curve number describes the relationship between precipitation and runoff for the pervious and unconnected impervious portions of the sub-basin. Curve numbers for each sub-basin were estimated using a methodology presented by the Soil Conservation Service (SCS, 1972). Each sub-basin was area weighted to give a better estimated curve number. The SCS curve number for existing and proposed land uses are listed in Table 17.

Table 17: SCS Curve Number for Snowbasin

Study Area	HSG	SCS Curve Number					
		Oak-Aspen	Sagebrush	Single Family Residential	Village/Hotel/Commercial	Town Homes/Condos	Roads and Parking Lots
		Good Condition	Fair Condition	(1/4 acre to 2 acre lots)			Impervious
Existing Conditions	B	41	51	-	-	-	-
	C	45	54	-	-	-	-
	D	48	58	-	-	-	-
Development Areas	B	-	-	77	90	85	98
	C	-	-	82	92	87	98
	D	-	-	86	94	91	98

4.1.9 Time of Concentration

The time of concentration is defined as the time it takes for water to flow from the most hydrologically distant point to the watershed outlet point. This parameter is often used to link multiple sub-watersheds together and determine the hydrograph for the entire watershed. The time of concentration was determined for each sub-basin in the Snowbasin master plan area. The time of concentration was calculated by using the SCS Lag equation. This equation is often used in large naturally vegetated basins and uses the average flow length, slope, and SCS curve number as input.

For the Snowbasin master plan area, times of concentration were assumed to be the same for pre-development and post-development conditions. This assumption was required due to the large scale of the model and large number of basins. More accurate post-development times of concentration may be developed when more specific development plans are created. Time of concentration will change under development conditions as paved areas and stormwater collection systems increase runoff and change the travel time within a basin.

4.1.10 Proposed Land Use and Hydrologic Characteristics

Proposed land use for all non-developed areas will remain unchanged with respect to significant development. The development areas consist of low to medium density residential and small areas of commercial land use with associated landscaping and open space.

4.2 STORM DRAIN MODEL RESULTS

4.2.1 Drainage Basins

Two-year, Ten-year and 100-yr peak flow rates have been determined for each sub-basin and proposed hydraulic element at all locations requiring flow estimates. See Table 18 for the existing peak discharge rates. Estimates were made for both existing conditions and proposed conditions. Pre-development peak discharge rates are presented in Table 18.

Table 18: Existing Conditions Sub-basin Peak Flows

Basins	Area	Runoff Volume			Peak Runoff		
	(acre)	(ac-ft)			(cfs)		
		2-yr	10-yr	100-yr	2-yr	10-yr	100-yr
Dry Creek 1	1,039.3	1.9	12.3	43.4	2.3	15.2	70.0
Dry Creek 2	634.8	0.0	0.0	4.2	0.0	0.0	5.1
Dry Creek T1	210.8	0.52	2.9	9.5	0.64	7.0	44.2
Dry Creek T1.1	2,364.5	3.1	24.3	90.9	3.8	25.7	116.2
Dry Creek T2	390.6	0.0	0.6	6.3	0.0	0.87	11.8
Dry Creek T3	788.7	0.0	1.2	12.8	0.0	1.7	18.4
Dry Creek T4	166.4	0.0	0.85	2.0	0.0	0.2	3.0
Dry Creek T5	303.1	0.0	0.46	4.9	0.0	0.7	7.9
Dry Creek T6	200.0	0.0	0.1	2.4	0.0	0.2	3.3
Dry Creek T7	249.9	0.0	0.1	2.5	0.0	0.2	3.3
Dry Creek T8	41.6	0.0	0.0	0.4	0.0	0.0	0.6
Dry Creek T9	372.9	0.0	0.0	2.5	0.0	0.0	2.8
East Fork T1	353.0	0.0	0.1	3.5	0.0	0.2	4.6
EF Dry Creek T1	28.8	0.0	0.0	0.3	0.0	0.0	0.4
EF Gordon Creek 1	299.5	0.0	0.0	1.2	0.0	0.1	1.8
Hawkins Creek	1,129.1	0.0	0.2	11.3	0.0	0.5	11.8
Hawkins Creek T1	446.3	0.6	4.6	17.2	0.8	7.0	42.6
Middle Fork T1	143.9	0.0	0.0	1.4	0.0	0.1	1.8
Middle Fork T2	332.3	0.0	0.1	3.3	0.0	0.2	4.9
Middle Fork T3	92.9	0.0	0.0	1.0	0.0	0.1	1.4
Middle Fork T4	87.1	0.0	0.0	0.9	0.0	0.1	1.2
R1	26.1	0.0	0.0	0.3	0.0	0.0	0.4
R2	13.8	0.0	0.0	0.2	0.0	0.0	0.2
R3	195.3	0.5	2.7	8.8	0.6	7.1	46.1
R4	62.9	0.1	0.7	2.4	0.1	1.5	17.6
Snow Basin	2,094.0	0.0	1.0	25.0	0.0	2.3	31.6
WF Dry Creek T1	92.8	0.0	0.0	1.1	0.0	0.1	1.8
Wheeler Creek T1	302.5	0.0	0.1	3.0	0.0	0.2	3.8

Post-development peak discharge rates are presented in Table 19. See Figure 16 and Figure 17 for the Proposed Land Use Map and Proposed Hydrologic Basins. These post-development discharge rates will need to be detained to pre-development peak flow rates.

Table 19: Proposed Conditions Sub-basin Peak Flows

Basins	Area (acre)	Runoff Volume (ac-ft)			Peak Runoff (cfs)		
		2-yr	10-yr	100-yr	2-yr	10-yr	100-yr
Dry Creek 1	1,039.3	13.2	35.3	84.6	18.2	59.2	159.3
Dry Creek 2	634.8	0.0	1.4	11.8	0.0	1.7	14.5
Dry Creek T1	210.8	1.3	4.5	12.7	2.0	16.4	68.1
Dry Creek T1.1	2,364.5	4.4	28.1	98.8	5.0	30.5	128.1
Dry Creek T2	390.6	0.3	3.4	13.8	0.6	5.4	44.5
Dry Creek T3	788.7	0.7	6.9	27.8	1.1	9.0	55.5
Dry Creek T4	166.4	0.1	1.2	5.4	0.2	1.7	15.3
Dry Creek T5	303.1	0.0	0.9	6.4	0.0	1.1	11.7
Dry Creek T6	200.0	0.0	0.1	2.4	0.0	0.2	3.3
Dry Creek T7	249.9	0.5	3.0	10.4	0.6	5.1	29.5
Dry Creek T8	41.6	0.0	0.0	0.4	0.0	0.0	0.7
Dry Creek T9	372.9	0.5	3.8	14.3	0.7	5.1	27.9
East Fork T1	353.0	0.0	1.1	7.4	0.0	1.3	13.9
EF Dry Creek T1	28.8	0.8	1.7	3.5	4.6	11.5	25.5
EF Gordon Creek 1	299.5	0.0	0.9	6.3	0.0	1.1	13.2
Hawkins Creek	1,129.1	0.0	1.7	18.3	0.0	2.3	20.1
Hawkins Creek T1	446.3	3.7	11.7	30.5	6.0	28.6	95.4
Middle Fork T1	143.9	0.0	0.9	4.2	0.1	1.1	8.6
Middle Fork T2	332.3	0.6	4.0	13.9	0.8	8.2	56.0
Middle Fork T3	92.9	0.0	0.0	0.9	0.0	0.1	1.4
Middle Fork T4	87.1	0.4	1.5	4.6	0.5	4.0	18.8
R1	26.1	0.3	0.7	1.9	0.7	4.3	14.7
R2	13.8	0.1	0.3	0.9	0.2	1.3	5.1
R3	195.3	1.9	5.6	14.2	4.9	27.3	93.4
R4	62.9	0.7	2.0	4.8	2.8	15.8	50.3
Snow Basin	2,094.0	0.0	3.2	33.9	0.0	4.5	47.5
WF Dry Creek T1	92.8	0.0	0.6	2.7	0.1	0.8	9.1
Wheeler Creek T1	302.5	0.0	0.4	5.4	0.0	0.6	7.6

4.2.2 Peak Off-site Flow Rates

Pre-development peak run-off discharge rates are shown below in Table 20. Each of these locations is a basin outlet that discharges into a receiving stream such as Dry Creek, Wheeler Creek, Hawkins Creek, or Gordon Creek. Refer to Figure 15 – Existing Hydrologic Basins, for the outfall and basin locations. These peak flow rates were developed using existing land use, topography, soils and vegetation types.

Table 20: Pre-Development Conditions Hydrograph Volumes and Flows

Site Location	Peak Flow (cfs)		
	2-yr	10-yr	100-yr
Dry Creek Outlet	6.43	42.77	227.45
EF Gordon Creek Outlet	0.0	0.0	1.5
Hawkins Creek Outlet	0.8	6.8	42.7
Snow Basin Outlet	0.0	2.5	35.4
WF Dry Creek Outlet	0.0	0.1	1.8
R1 Outlet	0.0	0.0	0.4
R2 Outlet	0.0	0.0	0.2
R3 Outlet	0.6	7.1	46.1
R4 Outlet	0.1	1.5	17.6

*Totals do not equal the sum of the individual flows due to variations in peak time and exclusion of unrelated flows.

Post-development peak runoff discharge rates are shown below in Table 21. These discharge rates were determined at the same locations as the pre-development discharges. These tables can be used as a tool to determine the approximate amount of detention storage required within the development area to limit post-development discharge rates to the pre-development level.

Table 21: Post-Development Conditions Release Rates

Site Location	Peak Flow (cfs)		
	2-yr	10-yr	100-yr
Dry Creek Outlet	19.9	105.5	411.2
EF Gordon Creek Outlet	0.0	1.1	13.2
Hawkins Creek Outlet	5.7	27.4	96.8
Snow Basin Outlet	0.0	5.1	55.0
WF Dry Creek Outlet	0.1	0.8	9.1
R1 Outlet	0.7	4.3	14.7
R2 Outlet	0.2	1.3	5.1
R3 Outlet	4.9	27.3	93.4
R4 Outlet	2.8	15.8	50.3

*Totals do not equal the sum of the individual flows due to variations in peak time and exclusion of unrelated flows.

4.2.3 Preliminary Detention Requirements

Pond volumes were estimated using Pond Pack 10.0 via the Estimated Storage Calculator. This calculator takes a pre-defined hydrograph with a target release rate and sizes a pond using five different estimation methods. These estimations include: Linear Outflow Estimate, Lower Boundary, Upper Boundary, Total Inflow Volume and Curvilinear Outflow Estimate. The Curvilinear method was chosen because it approximates the outflow hydrograph with a curvilinear discharge rate versus time. This outflow model is typical of detention pond outflow hydrographs where discharge will vary with the pond water surface elevation.

For the purposes of this study, hydrographs from the proposed model were used as the input hydrograph. Target release rates were chosen as the 100 yr - 24 hr peak flow from the existing model results. The volume estimates reported in Table 22 are the results from the curvilinear method. It is recommended that the detention pond sizing be updated with each phase of development when more detailed models can be created based on the actual development plans.

Table 22: Post Development Conditions Pond Volumes

Basin	Volume Estimate (ac-ft)	Basin	Volume Estimate (ac-ft)
Dry Creek 1*	72.0	East Fork T1	7.9
Dry Creek T1	4.9	Hawkins Creek	19.3
Dry Creek T1.1*	16.0	Hawkins Creek T1	20.4
Dry Creek T2	11.2	Middle Fork T1	5.5
Dry Creek T3*	27.0	Middle Fork T2	18.5
Dry Creek T4	5.9	Middle Fork T3	0.0
Dry Creek T5	3.3	Middle Fork T4	6.2
Dry Creek T6	0.0	R1	2.6
Dry Creek T7	13.8	R2	1.2
Dry Creek T8	0.1	R3	6.8
Dry Creek T9	5.2	R4	2.2
Dry Creek 2	14.5	Snow Basin*	24.1
East Fork Dry Creek	4.8	West Fork Dry Creek T1	2.8
East Fork Gordon Creek 1	8.5	Wheeler Creek T1	5

* More detailed analysis required to size detention in this basin.

4.3 WATER QUALITY MAINTENANCE

The Snowbasin stormwater master plan aims to maintain downstream water quality by implementing water quality best management practices and maintaining pre-development flow rates. These strategies are discussed in further detail in the following paragraphs.

4.3.1 Stormwater Conveyance and Detention

The Snowbasin storm drainage master plan analyzed the development areas and total drainage basins as a whole. It also provided estimates of total pre-development and post-development runoff quantities. Detention storage will be required to limit peak discharges to pre-development conditions. The stormwater detention and conveyance will need to be located within each development area and drainage basin during the design phase of that area.

The collection system will be designed to maximize open channel conveyance. This will improve water quality and reduce long term maintenance costs for the system. Pipes and culverts will be incorporated into the design in areas where open channel conveyance is not feasible. Given the existing soil types present through much of the development, special consideration will be required when designing open channel conveyance and detention. In some cases, detention ponds may require an impermeable liner to promote slope stability.

4.3.2 Construction Best Management Practices

Best management practices (BMPs) are recommended to be implemented and maintained during any construction activities occurring adjacent to the onsite drainages or onsite wetland areas to minimize sedimentation, erosion of existing banks and needless damage or alteration to the existing drainages or wetland areas.

It is recommended to properly clean machinery and fuel machinery offsite prior to construction. Onsite fueling stations may be provided with appropriate environmental controls. Heavy equipment should avoid crossing and/or disturbing any onsite wetland or riparian areas in the project area. Construction materials, bedding material, excavated material, etc. may not be stockpiled in or adjacent to wetland or riparian areas. Construction BMP's are discussed in further detail in Section 5.0 – Sustainable Infrastructure.

4.3.3 Post Construction Best Management Practices

The Snowbasin development areas will be designed to include appropriate water quality controls. Such controls include:

- Extended catch basins to trap sediment
- Sediment forebays on detention ponds
- Hooded outlets on catch basins to trap oil and floatables

- Oil/water separators or hydrodynamic separators for large paved areas to trap oils, sediments and floatables

- Use of vegetated swales to trap sediments and absorb nutrients

Best management practices are discussed in further detail in Section 5.0 – Sustainable Infrastructure.

4.3.4 Vegetation Removal

Vegetation provides aesthetic appeal, as well as habitat for wildlife. It also provides root systems that help to maintain soil integrity and reduce erosion, particularly on steep slopes and areas adjacent to waterways. Vegetation provides groundwater recharge areas for natural aquifers and reduces surface water runoff. Large trees, especially in groupings, are a particularly valuable environmental resource.

Attempts should be made to preserve existing vegetation, especially large stands of trees. Should vegetation be removed, new trees and vegetation are to be incorporated into the overall landscaping plan to moderate temperatures, minimize energy consumption, and mitigate stormwater runoff. Removal of some trees will be required along primary access roads; however protection and care of remaining trees shall be a primary goal.

It is recommended to maintain and preserve woodlands and vegetated areas on steep slopes and areas adjacent to waterways to aid in the control of erosion and sedimentation. Native plant species should also be incorporated to the maximum extent practicable.

5.0 Sustainable Infrastructure

Sustainable engineering is the evaluation and selection of techniques and equipment that minimizes the single consumption of resources, especially water. Incorporation of sustainable design practices lessens the operational requirements such as pumping and processing of resources to reduce consumption of energy and impacts on natural resources. This section discusses strategies to minimize water and wastewater system demands, reuse treated wastewater effluent and maintain stream water quality for the Snowbasin development.

5.1 POTABLE WATER

The following goals have been incorporated into the Snowbasin Infrastructure Master Plan to provide a sustainable water system:

- Use onsite water resources to reduce the amount of energy required to supply water to the system.
- Minimize the total water required by the development

5.1.1 Water Source and Storage

Potable water for the proposed development area will be provided by a combination of existing wells, future wells and surface water diversions. The wells can provide potable water to Areas A, B and a portion of C and will be stored in existing and future potable water storage tanks. Wells will generally be pumped at 50% of the reduced peak day pumping capacity to prevent excessive drawdown of the aquifer and maintain a sustainable flow rate for year-round use (refer to Section 2.2.2 for more details). In order to meet peak day demands the wells will be equipped for peak day capacity which is 66% of the maximum 24-hour flow rate.

Potable water for the remainder of the development could be provided by the diversion of surface water from the Weber River and/or Dry Creek or by additional groundwater wells. Water diverted from Dry Creek would be conveyed by gravity to open water reservoirs prior to treatment. The water from Dry Creek and onsite groundwater wells would be onsite, limiting the pumping requirements of the system and reducing energy consumption. Water from the Weber River would require pumping water up to open water reservoirs or if no reservoir is constructed, water must be pumped at a higher rate from the Weber River diversion to meet peak day demands. The use of onsite reservoirs allows water to be pumped at a lesser rate and peak day demands can be met out of the storage reservoirs.

It is recommended to use onsite groundwater sources and existing infrastructure to the greatest extent practicable to minimize energy consumption and environmental impacts. Well rates must be maintained at suitable rates to prevent degradation of the aquifer and maintenance of potable water quality.

5.1.2 Residential Indoor Use

It is estimated that with the addition of water efficient plumbing and appliances, the indoor potable water demand for the development can be reduced by approximately 30% (see Appendix A). It is recommended that project wide Covenants, Conditions and Restrictions (CC&R's) require the use of water efficient plumbing and appliances for new residential construction. If is not feasible to make such installations mandatory for the development, incentives can be offered such as reduced rates and rebates to encourage the use of low flow plumbing. In addition, water rates developed for the project should impose higher rates on consumers for excessive water use. Estimates of potential water savings after implementation are described in the following paragraphs.

Plumbing and Fixtures
The LEED-NC 2.2 Submittal Template was used to estimate potential water reduction through the use of water efficient toilets, showers and sinks for residential purposes. The template calculates water use for both conventional and water efficient plumbing to determine an overall percent reduction (see Appendix A). Conventional toilets use approximately 1.6 gpm, with many using between 3 to 5 gallons. Options for water-efficient toilets include low-flow toilets with a flow rate of 1.1 gpm and dual-flush toilets with rates of 1.6 gpm and 0.8 gpm. As a conservative estimate low-flow toilets were assumed, resulting in a water reduction of 31% over conventional models.

In the fixture analysis, conventional bathroom sinks, showers and kitchen sinks had an estimated use of approximately 2.5 gpm. With the use of low-flow fixtures, water savings of 28% can be observed. Low-flow lavatories with a rate of 1.8 gpm were assumed for a conservative estimate rather than ultra low-flow lavatories with a rate of 0.5 gpm.

Appliances
The USEPA Energy Star Life Cycle Cost Estimate worksheets were used to determine potential water reductions by using Energy Star qualified appliances in residences. It was estimated that using an Energy Star dishwasher results in water savings of approximately 33% (see Appendix A). Savings of approximately 55% were observed with the use of Energy Star horizontal-axis (front loading) washing machines. Greater reductions can be achieved by using higher end models.

5.1.3 Commercial Indoor Use

Potential water reductions may be even greater for commercial buildings and hotels with the installation of automatic faucets and low-flow or non-water urinals. It is recommended to require the use of water efficient plumbing and appliances in all commercial buildings, including hotels and restaurants.

5.2 IRRIGATION WATER

The Utah Division of Water Rights estimates that 67% of water use in residential areas is used for outside irrigation (Utah Division of Water Rights 2003). A large portion of this water is wasted due to runoff and other factors. To reduce irrigation water demands, it is recommend to limit the amount of irrigated area allowed for each land use. Coupled with efficient irrigation methods, outdoor water use will maximize beneficial use, minimizing overall usage.

It is recommended to require residential and commercial development to use high-efficiency irrigation systems, water efficient landscaping techniques and secondary water where possible. The following paragraphs discuss conservation measures recommended for implementation.

5.2.1 Irrigation Systems

Smart controllers and high-efficiency irrigation systems are recommended for installation in all irrigated areas. Smart controllers automatically change the watering schedule based on weather or soil sensors and have the capacity to run multiple shorter cycles to allow for greater infiltration, less runoff and lower water usage. Depending on the unit installed, water use can be decreased by approximately 30-50%. Rebates are being provided by many states and counties for purchasing smart controllers and other irrigation components including high-efficiency spray heads, bubblers and drip emitters and pressure regulating valves.

5.2.2 Water Efficient Landscape

The following measures are recommended for incorporation into the development plan:

- Limit singe family homes to a smaller irrigated area.
- Limit commercial and public areas to small areas of turf and a smaller irrigated area.
- Use native plants, shrubs and trees.

5.2.3 Secondary Water

Treated wastewater effluent and water diverted from Dry Creek and potentially the Green Pond/Bear Wallow area during periods of peak flow are potential sources of secondary water. The use of secondary water minimizes the storage required in the potable water system and the quantity of water required for treatment. The secondary system will require separate storage and distribution systems. Secondary water use should be limited to areas in close proximity to the source to minimize transmission lines and pumping required to receive the greatest benefit.

Water in the Green Pond/Bear Wallow area is recommended for potential irrigation onsite in Area B. Water from Dry Creek can be diverted and stored in reservoirs in Area D to provide irrigation for golf courses and for some single family homes in Area D. Reuse water will require advanced treatment and must be pumped from the water reclamation facility. It is recommended

to limit pumping to reservoirs east of Trappers Loop Road to minimize pumping and lengths of transmission lines required.

5.2.4 Snowmaking Water

Snowmaking water will be provided by the non-potable High Span Well. A reservoir or multiple reservoirs are recommended for construction to store snowmaking water to satisfy peak demands in winter. The construction of the reservoirs will reduce peak source demands on the potable water system by providing water supply independent of the well system. It also reduces the overall storage required for the potable water system. Snowmaking water can potentially be recovered in the spring by collecting surface water runoff and routing the water back to the snowmaking storage ponds.

5.3 WASTEWATER

The primary concepts that have been incorporated into the Snowbasin Infrastructure Master Plan to provide an efficient wastewater system consist of the following:

- Reuse treated wastewater effluent water for irrigation to minimize the potable water demand.
- Minimize pumping for wastewater collection.

Many municipalities across the country and in Utah are turning towards water reuse as water quality standards for wastewater effluent discharge become more stringent and water resources continue to be stressed. Onsite wastewater treatment would allow water reuse to be a feasible alternative provided lengths of transmission lines and pumping requirements are not excessive. It is recommended to use advanced wastewater treatment techniques and use reuse water for areas east of Trappers Loop Road. Refer to Section 2.2 – Proposed Water System for and Section 3.2 – Proposed Wastewater System for more information on secondary water.

5.4 SURFACE WATER RUNOFF AND STORMWATER

The stormwater system for the development will be designed based on the following goals:

- Minimize disturbance of natural hydrology
- Localize controls where possible to reduce overall impacts

Runoff from construction sites and developed areas has the potential to gather sediment, debris, oil and grease and other pollutants that are harmful to receiving waters. Water quality impacts from new development can be minimized by implementing Low Impact Design (LID) techniques and structural and non-structural Best Management Practices (BMP's). Examples of structural BMP's include detention ponds, catch basins, vegetated swales and oil/water separators. Non-structural BMP's include management and design practices such as open

space design, elimination of curbs and gutters, minimization of impervious areas, green parking and implementation of local ordinances. Water quality protection has been a primary concern during the infrastructure design process. Through proper planning, implementation and maintenance, developed areas can be designed to simulate existing natural conditions and prevent degradation of receiving waters. The following stormwater management controls are recommended.

5.4.1 Stormwater Management during Construction Activities

A Stormwater Pollution Prevention Plan (SWPPP) and Erosion Control Plan must be prepared prior to construction activities for compliance with the National Pollutant Discharge Elimination System (NPDES). Contractors must apply for a State of Utah Stormwater General Permit for Construction Activities prior to construction. The SWPPP and Erosion Control Plan will include Best Management Practices (BMP's) to be implemented during construction for each specific development area. Typical BMP's that are recommended for erosion control include stabilized construction entrances for prevention of off-site tracking, temporary sediment ponds, silt fence or straw wattles and inlet protection. An inspection sheet will be provided. Inspections are required to be conducted a minimum of once every seven days or at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. Maintenance is a critical element for successful stormwater management and routine maintenance is recommended to ensure BMP's are functioning properly.

5.4.2 Post Construction Stormwater Management

New development inevitably causes an increase in impervious area, resulting in greater stormwater volumes and surface water runoff that can alter the natural hydrology of receiving waters. Through the use of Low Impact Design and BMP's, natural conditions can be simulated by allowing additional time for infiltration and pollutant removal prior to conveyance to the storm drain system. The following site specific BMP's are recommended for implementation to prevent downstream water quality degradation and minimize the effective impervious area.

5.4.2.1 Vegetated Swales

A vegetated swale consists of a broad shallow channel with a vegetated bottom and side slopes. Swales are implemented as an alternative to typical curb and gutter installations and drainage ditches. They are capable of treating stormwater runoff by filtering particulate pollutants through vegetation and reducing the flow velocity rather than conveying stormwater runoff directly to the storm drain system without pollutant removal.

5.4.2.2 Extended Catch Basins

Catch basins collect debris, sediment and associated pollutants found in stormwater runoff. Extended catch basins are recommended for installation rather than standard catch basins. The extended basins have a greater area for sediment deposition thus minimizing the potential for resuspension and transport of sediments.

5.4.2.3 Oil/water Separators

Oil/water separators are recommended for installation on catch basins in large paved areas that have potential for the presence of oil and grease in stormwater runoff. Many different types of oil/water separators are available in today's market that are capable of effectively capturing oil, grease and Total Suspended Solids (TSS).

5.4.2.4 Detention Ponds

Detention ponds will be constructed at the site for flood control and stormwater treatment. The ponds will be used in conjunction with inlet and outlet structures to control flow rate and allow sediment and associated pollutants to settle out prior to discharge. Outlet control minimizes flood hazard and erosion caused by peak flows during large storm events. Pre and post development discharge rates are discussed in Section 4.0 – Stormwater System.

The use of retention ponds is not recommended for use. Infiltration rates on the site are low and it is unlikely that volumes during spring runoff would have sufficient time to infiltrate.

5.4.2.5 Rainwater Harvesting

Rainwater harvesting is the practice of collecting water from rooftops and other impervious surfaces. This water is often stored and used to supplement irrigation water or directed to a pervious area for infiltration. Rainwater harvesting effectively minimizes the total amount of impervious area on the site and decreases irrigation water demands. This may be a suitable application for commercial/public areas that have large impervious areas and smaller irrigated areas. It is also an option for home owners.

There are water right implications associated with rainwater harvesting. In Utah, a landowner must have the right to divert water for beneficial use. It is recommended that rainwater harvesting be evaluated on a case by case basis.

6.0 Dry Utilities (Gas, Power, and Communications)

Stantec has completed a preliminary investigation for the existing dry utility infrastructure (gas, power, and communications) in the vicinity of the Snowbasin development project area. Questar, Rocky Mountain Power and Qwest were contacted as part of this research and potential points of connection were identified as part of the review. No formal meetings were held and project specifics were not addressed. Existing Dry Utilities maps are provided in Figures 20 and 21 following this section.

6.1 QUESTAR NATURAL GAS

Matt Bartol of Questar Natural Gas was contacted by Stantec in May 2009. Contact information for Mr. Bartol is provided below:

Key Contact: Matt Bartol
Title: Region Engineer
Email address: matt.bartol@questar.com
Phone Number: (801) 395-6773

6.1.1 Existing Infrastructure

There is an existing 8-inch diameter high pressure gas main located east of Trappers Loop Road. Currently, the ski resort takes delivery from this high pressure main south of the intersection of Trappers Loop Road and the new Snowbasin Road. The gas line parallels the existing 8-inch & 12-inch diameter sewer lines from Trappers Loop Road to the base of Strawberry (see Figure 20 and 21 for Existing Dry Utilities). From the Strawberry base area, the gas main heads north to the John Paul base area. West of Trappers Loop Road the gas line is private but could be transferred to Questar as development progresses. The high pressure main is served from the Mountain Green side where the pressure is regulated from a larger diameter transmission main.

Mr. Bartol was familiar with the previous master planning work that was completed in 2000 – 2001 for this area. He stated that the existing high pressure gas main is likely adequate for the densities that were planned at that time, but that he would need detailed land use information to confirm the available capacity.

6.1.2 Point of connection

For areas A, B and C and possibly D, E and F, the existing connection could be modified to meet the needs of the Snowbasin development. Regulator stations will be required to convert the high pressure gas to intermediate pressures required for servicing the individual units. The location and number of regulator stations will need to be coordinated with Questar based on the land use plan.

Questar will require easements for primary regulating facilities as well as for the linear infrastructure. Installation of the gas mains will be completed by Questar or their contractor.

6.2 ROCKY MOUNTAIN POWER

Nancy Burrell of Rocky Mountain Power (RMP) was contacted by Stantec in May 2009. Contact information for Ms. Burrell is provided below:

Key Contact: Nancy Burrell
Title: Estimator
Email address: nancy.burrell@pacificorp.com
Phone Number: (801) 629-4429

6.2.1 Existing Infrastructure

Currently the ski resort has a 46 kV service from Rocky Mountain Power (RMP). Based on conversations with RMP, the power facilities and substation are privately owned and operated by Snowbasin. The ski resort substation is not allowed to serve customers outside of the resort. There are existing primary voltage services (7.2 – 12.5 kV) to both Mountain Green and Huntsville.

The existing power capacity in the area between Mountain Green and Huntsville is controlled by the El Monte Substation located at the mouth of Ogden Canyon. There is approximately 2.0 MW of capacity left in this substation. RMP uses a nominal value of 23 kW/single family home when dedicating capacity. This leaves little room for new connections on the existing infrastructure (approximately 85 units).

6.2.2 Point of connection

In order to fully evaluate potential demands versus existing capacities, the design team will need to meet with Rocky Mountain Power to discuss unit types, proposed densities and development locations. Preliminary indications from RMP suggest that the ski resort service may be adequate for the areas around the resort however; there are issues with using the existing private substation to serve users outside of the ski resort.

RMP requires cost sharing for improvements that are outside of their current master plan. This cost sharing is negotiable and will require involvement from the Sun Valley Company and potentially Sinclair Oil. The extent of the required improvements is not known at this time and will require sharing specific development information with RMP. It is recommended that a meeting be set up with Nancy Burrell to initiate discussions related to serving power to the project.

6.3 QWEST COMMUNICATIONS

Matt Ivester and Mike Hughes of Qwest Communications were contacted by Stantec in May 2009. Contact information for Mr. Ivester and Mr. Hughes is provided below:

Key Contact A: Matt Ivester (Morgan County)
Phone Number A: 801-626-5401
Key Contact B: Mike Hughes (Weber County)
Phone Number B: 801-626-5402

6.3.1 Existing Infrastructure

There is an existing 48-strand fiber optic line that is installed along Trappers Loop Road from Mountain Green to Huntsville. The existing fiber optic line has capacity for the proposed Snowbasin development.

6.3.2 Point of connection

Points of connection will need to be coordinated with Qwest to take advantage of the existing manholes and splice points on the 48 strand fiber optic line. Qwest requires the developer to provide easements for distribution points as well as linear infrastructure. The developer and his contractor will install conduits and Qwest will pull the fiber optic strands and copper wires.

7.0 Conclusions

The Snowbasin Infrastructure Master Plan provides the conceptual infrastructure plans for water, wastewater and stormwater as required by the Morgan County Master Plan Development Reserve process. The proposed infrastructure provides the utility services to meet the demands of the development while conserving natural resources. Infrastructure for the development was determined based on the densities provided in the land use plan and are summarized in the following paragraphs.

7.1 WATER SYSTEM

The existing Snowbasin water system can provide fire flow, potable and irrigation water to the Snowbasin Resort and portions of Areas A and B with the existing water storage tanks and wells. To provide water for Service Area 1, it was assumed that a minimum of four groundwater wells will be developed and five four water storage tanks will be constructed. The remaining source capacity needed for the development will be provided by additional groundwater sources or diversions from the Weber River and potentially Dry Creek. If a surface water diversion is necessary, the raw water will be pumped from the Weber River diversion or gravity fed from Dry Creek to potential raw water storage reservoirs that will feed into the proposed water treatment plant. A dual zone booster pump station will pump water up to the water storage tanks. Service Area 2 will require one well source and one water storage tank to serve Area H.

It is anticipated that the development will form a private water and sewer company under Weber and Morgan counties that will operate and maintain the system for the development area. The Snowbasin development will need 2,364 ac-ft of water rights to complete the development plan, of which 1,418 ac-ft is in Morgan County and 946 ac-ft is in Weber County.

7.2 WASTEWATER SYSTEM

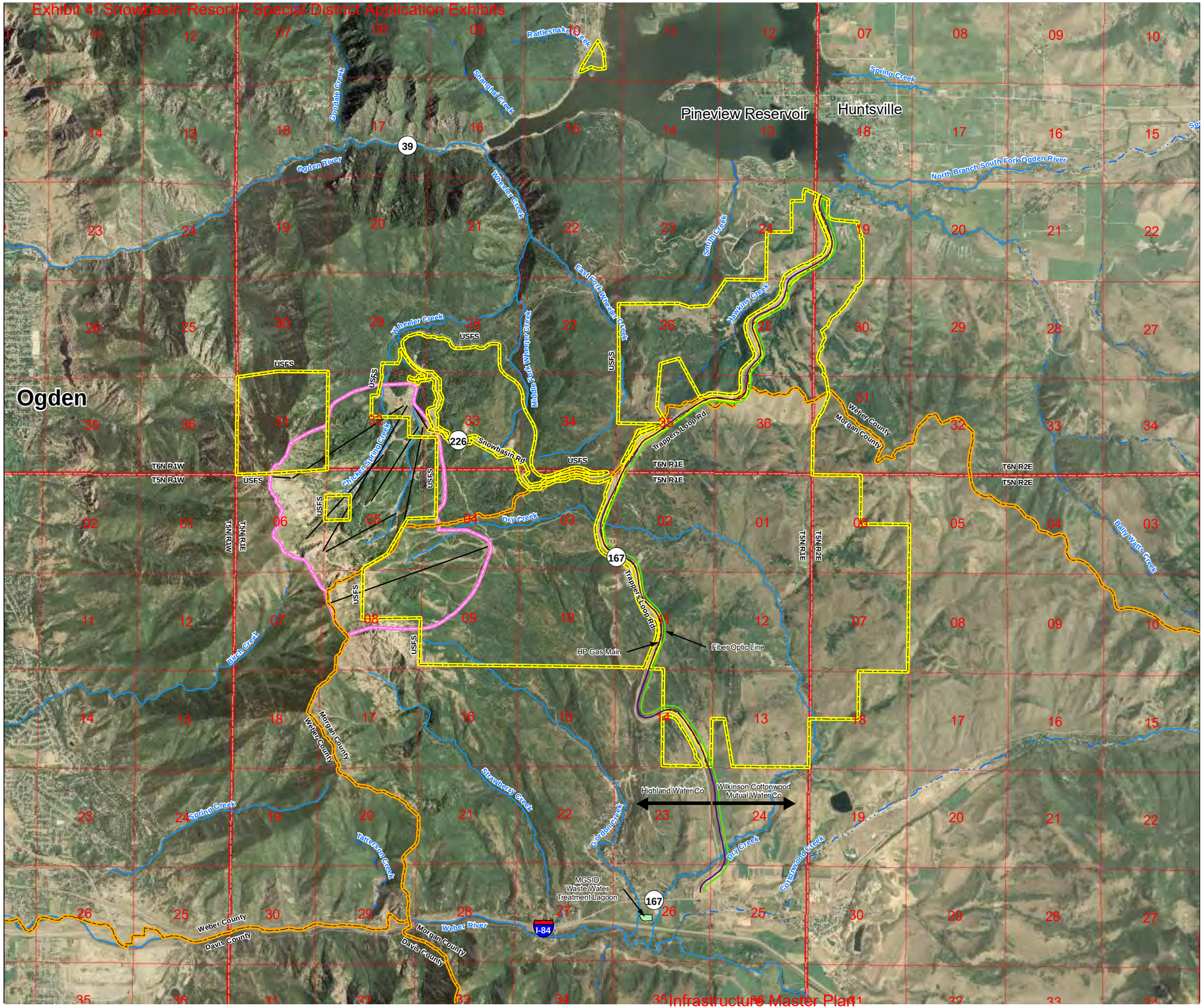
The existing wastewater collection system will be expanded with minor upgrades to serve the Snowbasin Resort and Areas A, B and C. The existing lagoons are at capacity and additional treatment will be required in the initial phase of development. Additional infrastructure will be required for wastewater collection for Areas D through F. A water reclamation facility with a membrane bioreactor system is proposed for wastewater treatment to provide Type I wastewater effluent suitable for reuse. This plant is expandable and can be phased according to the construction schedule. Secondary water is planned to irrigate the golf courses and open space areas. Eight lift stations are required to serve Collection Area 1, and two lift stations are proposed for Collection Area 2. Collection Areas 1-3 will each require their own water reclamation facility provided they cannot connect to existing wastewater systems.

7.3 STORMWATER SYSTEM

A hydrologic model was created to determine pre-development and post-development runoff volumes and rates and preliminary detention sizing. Detention will be required to limit stormwater discharges to pre-development conditions. Best management practices will also be implemented to maintain downstream water quality. More detailed models can be developed as development progresses to determine specific detention pond volumes.

7.4 DRY UTILITIES

Preliminary research shows that there is adequate capacity for both natural gas and communications available to the site, but there is limited capacity to serve power to the site. In all cases, it is recommended that the design team set up formal meetings with the dry utility providers to identify locations for key infrastructure and to discuss offsite requirements for power.



snowbasin

Morgan County, Utah

FIGURE 1 - REGIONAL EXISTING CONDITIONS MAP

Figure Description

The Regional Existing Conditions Map illustrates the proximity of the project to the nearby towns of Mountain Green and Huntsville.

Legend

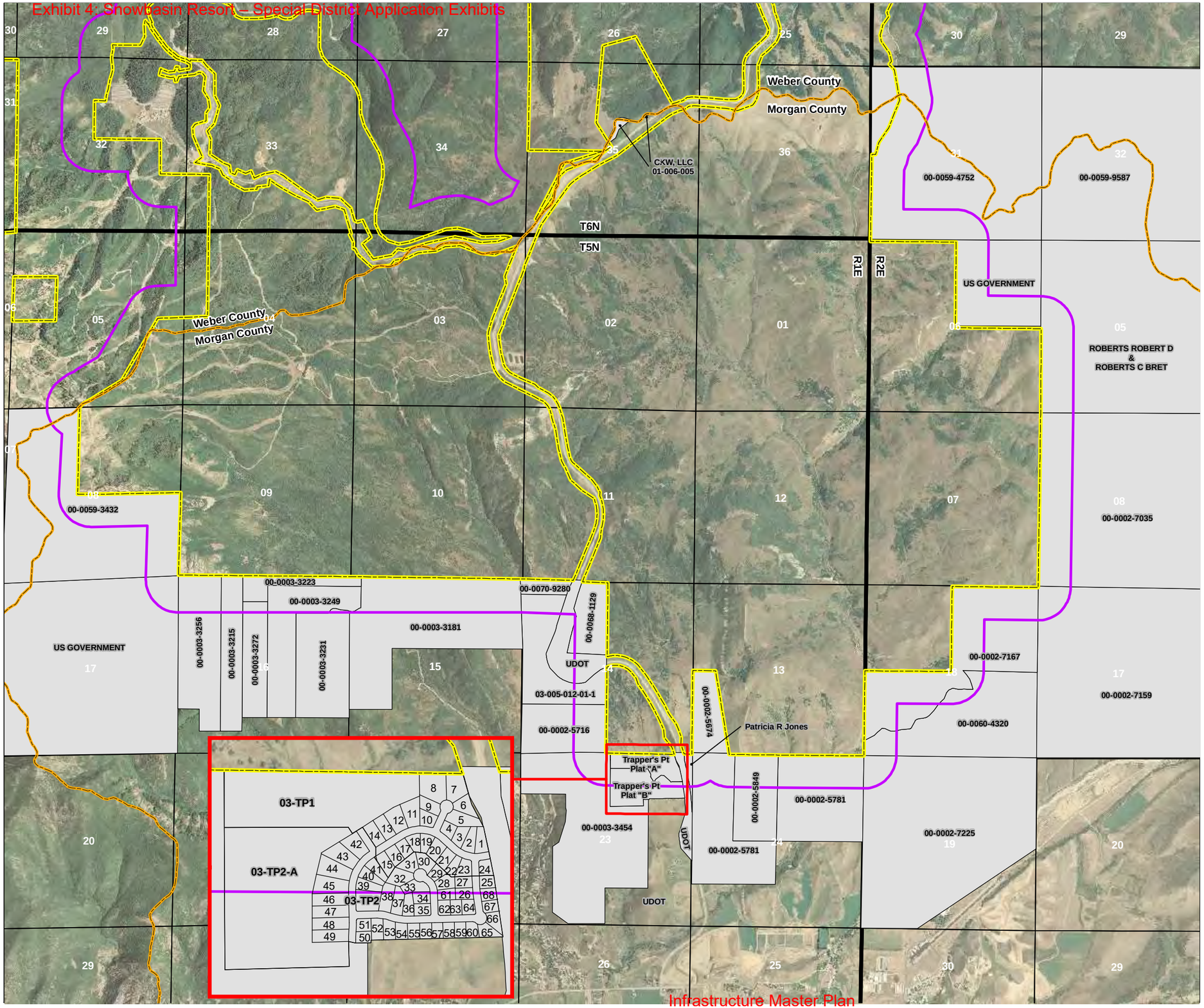
- Existing Ski Lifts
- Fiber Optic Line
- HP Gas Line
- Snowbasin Ski Boundary
- Snowbasin Property Boundary
- County Boundary
- Townships & Ranges
- Sections

0 0.5 1 2

1 in = 1 miles

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)



Morgan County, Utah

FIGURE 2A - LAND OWNERSHIP MAP

Figure Description

The Land Ownership Map exhibits the property owners in Morgan County that are adjacent to the Snowbasin development. The land ownership information was obtained from the Morgan County Recorder via County Land Ownership Plats.

Legend

- County Boundary
- Property Boundary
- 1000 FT Offset
- Morgan County Land Owners

0 1,500 3,000 6,000

1 in = 3,000 ft

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)

2. Parcel Data Collected from
   Morgan County Recorder's Office

Stantec

PARCEL NUMBER	SERIAL NUMBER	OWNER NAMES
00-0002-7035	01-005-087	SULPHUR SPRING LLC
00-0002-7159	01-005-098	SULPHUR SPRING LLC
00-0002-7167	01-005-099	LEE B ROLLINS FMLY REVOCABLE T
		LEE ROLLINS FMLY REVOCABLE TRUST
00-0060-4320	01-005-101-02	BURTON PASTURE LLC
00-0002-7217	01-005-102	LITTLE AMERICA REFINING
00-0002-7233	03-005-103-NA	NORTHWEST IRRIGATION COMPANY
00-0002-7225	03-005-103	BROWNING ARMS COMPANY
00-0068-1129	03-005-011-01-8	DEBORAH ANN SMITH LIVING TRUST
		GREGORY W SMITH LIVING TRUST
00-0059-4752	01-006-011	SULPHUR SPRING LLC
00-0059-9587	01-006-017	DIAMOND F RANCH LLC
00-0002-5674	03-005-010	PATRICIA R MALMROSE TRUST
		WATERSPRINGS LLC
		BARLOW STEWART E
		KENT SMITH INVESTMENT LIMITED CO
		BARLOW CORPORATION
00-0002-5716	03-005-011-03	BARLOW STEWART E
		BARLOW STEWART E
		SERVICE CREDIT CORP
		SERVICE MORTGAGE CORP
		JOANN L SMITH LIMITED COMPANY
		BARLOW CORPORATION
00-0070-9280	03-005-011-01-2-1	GORDON CREEK INVESTORS LLC
00-0003-3454	03-005-018	BARLOW STEWART E
		BARLOW STEWART E
		SERVICE CREDIT CORP
		SERVICE MORTGAGE CORP
		JOANN L SMITH LIMITED COMPANY
		BARLOW CORPORATION
		SERVICE MORTGAGE CORP
00-0002-5781	03-005-021	WATERSPRINGS LLC
		BARLOW STEWART E
		KENT SMITH INVESTMENT LIMITED CO
		BARLOW CORPORATION
		PATRICIA R MALMROSE TRUST
00-0002-5849	03-005-023-01	PAUL & BEVERLY WARNER FAMILY TRUST
00-0003-3181	02-005-012	GORDON CREEK INVESTORS LLC
00-0003-3223	02-005-013-01	GORDON CREEK INVESTORS LLC
00-0003-3249	02-005-013-03	GORDON CREEK INVESTORS LLC
00-0003-3231	02-005-013-02	GORDON CREEK INVESTORS LLC
00-0003-3256	02-005-013-04	GORDON CREEK INVESTORS LLC
00-0003-3215	02-005-013	GORDON CREEK INVESTORS LLC
00-0003-3272	02-005-013-06	BINDRUP FAMILY TRUST
00-0059-3432	01-005-017-NA	UNITED STATES OF AMERICA
	01-006-005	CKW, LLC
	03-005-020-01-1	PATRICIA R MALMROSE TRUST
		ROBERTS, ROBERT D, ROBERTS C BRET
	03-005-012-01-1	SPRING MOUNTAIN RANCH

TRAPPER'S POINT PRUD

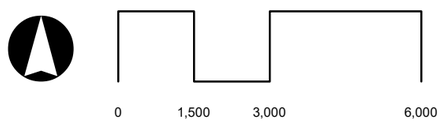
LOT NO.	PARCEL NUMBER	SERIAL NUMBER	OWNER NAMES
1	00-0056-9507	03-TP1-0001	TURNER KEN H
2	00-0056-9762	03-TP1-0002	RICE ARTHUR E & SANDI CAROL
3	00-0056-9929	03-TP1-0003	S&L BUCHANAN FAMILY TRUST
			BUCHANAN STANLEY J
4	00-0057-0166	03-TP1-0004	GUFFEY SHAD THOMAS
5	00-0057-0323	03-TP1-0005	WIGGINS RAY A
6	00-0057-0570	03-TP1-0006	SMITTLE JACK E
7	00-0057-0737	03-TP1-0007	WAMSLEY JAY D & KAREN M
8	00-0057-0992	03-TP1-0008	MIDDLETON RUSSELL & TAMMY
9	00-0057-1156	03-TP1-0009	HUDDLESTON ROBERT J
10	00-0057-1313	03-TP1-0010	PETERSEN DAVID K & M JANE
11	00-0057-1560	03-TP1-0011	WORTHEN TRUST
			WORTHEN RAY & SHELLEY
12	00-0057-1727	03-TP1-0012	HOLLAND GARY
13	00-0057-1982	03-TP1-0013	HAZARD MARY
14	00-0057-2147	03-TP1-0014	VANCE R & GLORIA G RHEAD LIVING TRUST
			RHEAD VANCE R
15	00-0057-2303	03-TP1-0015	WOODBURY KAREN S
			WOODBURY ROBERT U
16	00-0057-2550	03-TP1-0016	KENNETH L LOVELL TRUST
			LOVELL KEN & JODY
17	00-0057-2717	03-TP1-0017	HISLOP DENNIS G
18	00-0057-2972	03-TP1-0018	WEST WILLIAM J
19	00-0057-3137	03-TP1-0019	SCOTT DAVID W
20	00-0057-3392	03-TP1-0020	WALTON SHANE A
21	00-0057-3541	03-TP1-0021	WALKER JAMES BRUCE
22	00-0057-3707	03-TP1-0022	ROBERT B DOMAN TRUST
23	00-0057-3962	03-TP1-0023	VOGT ROBERT B JR
24	00-0057-4127	03-TP2-0024	FAWCETT WILLIAM E
	00-0058-5354	03-TP2	TRAPPERS POINTE #B HOMEOWNERS C/O GEORGE SOUSA
25	00-0058-1544	03-TP2-0025	LONNIE L & KIM F MCCLELLAND REV LIV
			MCCLELLAND LONNIE & KIM
26	00-0058-1700	03-TP2-0026	OLDHAM MARRINER V
27	00-0058-1965	03-TP2-0027	HELLSTROM ERIC K
28	00-0058-2120	03-TP2-0028	RAY RONALD C
29	00-0058-2385	03-TP2-0029	TONYA C SMITH LIVING TRUST
			SMITH TONYA C
30	00-0058-2534	03-TP2-0030	MONGKOL & NANCY TUNGMALA FAMILY TRUST
			TUNGMALA MONGKOL & NANCY E
31	00-0058-2799	03-TP2-0031	NELSON GLENDON D
			NELSON GLENDON & SUSAN
32	00-0058-2955	03-TP2-0032	FRANCIS RICHARD S
33	00-0058-3110	03-TP2-0033	KUNS RANDALL D & SUE J
34	00-0058-3375	03-TP2-0034	ROYSTER RODNEY K & CONNIE
35	00-0058-3524	03-TP2-0035	MCFARLAND FAMILY REVOCABLE TRUST
			MCFARLAND THOMAS L & CHRISTINE A
36	00-0058-3789	03-TP2-0036	TRAPANI MICHAEL A III
37	00-0058-3946	03-TP2-0037	TOOMER MALLORY H
			TOOMER MALLORY & GLEN
38	00-0058-4100	03-TP2-0038	PARKINSON SHANE K
39	00-0057-9415	03-TP2-0039	MARKHAM TROY
40			
41	00-0058-0066	03-TP2-0041	CANNON DAVID
42	00-0058-0223	03-TP2-0042	WEEKS TROY P
43	00-0058-0488	03-TP2-0043	BOWDEN RYAN
44	00-0058-5768	03-TP2-0044	FAIRBOURN CARY R
45	00-0058-0637	03-TP2-0045	JONES MICHAEL D
46	00-0058-0892	03-TP2-0046	DERU TERESA K
47	00-0058-1056	03-TP2-0047	KATHERN N HAWS REVOCABLE TRUST
			HAWS KATHY N
48	00-0058-1213	03-TP2-0048	SOUSA GEORGE A
49	00-0058-1478	03-TP2-0049	JONATHAN & CHRISTINE PACE FAMILY TF
			PACE JONATHAN B & CHRISTINE R
50	00-0058-1627	03-TP2-0050	LARKIN CHRIS
51	00-0058-1882	03-TP2-0051	SHERIDAN RUSSELL L
52	00-0058-2047	03-TP2-0052	SVAGR BONUS
53	00-0058-2203	03-TP2-0053	SUTTON FAMILY TRUST
			SUTTON ERNEST B & ELLEN W
54	00-0058-2468	03-TP2-0054	MORTENSEN RICHARD P
55	00-0058-2617	03-TP2-0055	HENDRICKS REVOCABLE LIVING TRUST
56	00-0058-2872	03-TP2-0056	KUNCL ERNEST W
57	00-0058-3037	03-TP2-0057	ELIASON MARTIN S
58	00-0058-3292	03-TP2-0058	WARNER WADE P
59	00-0058-3458	03-TP2-0059	EVE RLEY WAYNE L
60	00-0058-3607	03-TP2-0060	ROUNDY MICHAEL S
			ROUNDY KELLY
61	00-0058-3862	03-TP2-0061	MILLER KIRK A
			MILLER KIRK A & HEIDI A
62	00-0058-4027	03-TP2-0062	HITE TAMERRA R
			HITE JEFF & TAMERRA
63	00-0058-4282	03-TP2-0063	BLAKE RANDALL D
64	00-0058-4365	03-TP2-0064	MILLER JAMES C
65	00-0058-4514	03-TP2-0065	KOSKI RICHARD & CAROL A
66	00-0058-4779	03-TP2-0066	DONALD J BIDWELL DEC OF TRUST
			BIDWELL DONALD J
67	00-0058-4936	03-TP2-0067	JOHNSON JANA S
			JOHNSON JASON P
68	00-0058-5198	03-TP2-0068	KUNCL ERNEST W & NANCY D
	00-0058-5503	03-TP2-A	TRAPPERS POINTE #B HOMEOWNERS C/O GEORGE SOUSA
	00-0058-5354	03-TP2	TRAPPERS POINTE #B HOMEOWNERS C/O GEORGE SOUSA
		03-TP2	TRAPPERS POINTE #A HOMEOWNERS C/O GEORGE SOUSA

Morgan County, Utah

FIGURE 2B - LAND OWNERSHIP TABLE

Figure Description

The Land Ownership Table exhibits the property owners in Morgan County that are adjacent to the Snowbasin development. The land ownership information was obtained from the Morgan County Recorder via County Land Ownership Plats.



Notes

1. Parcel Data Collected from Morgan County Recorder's Office

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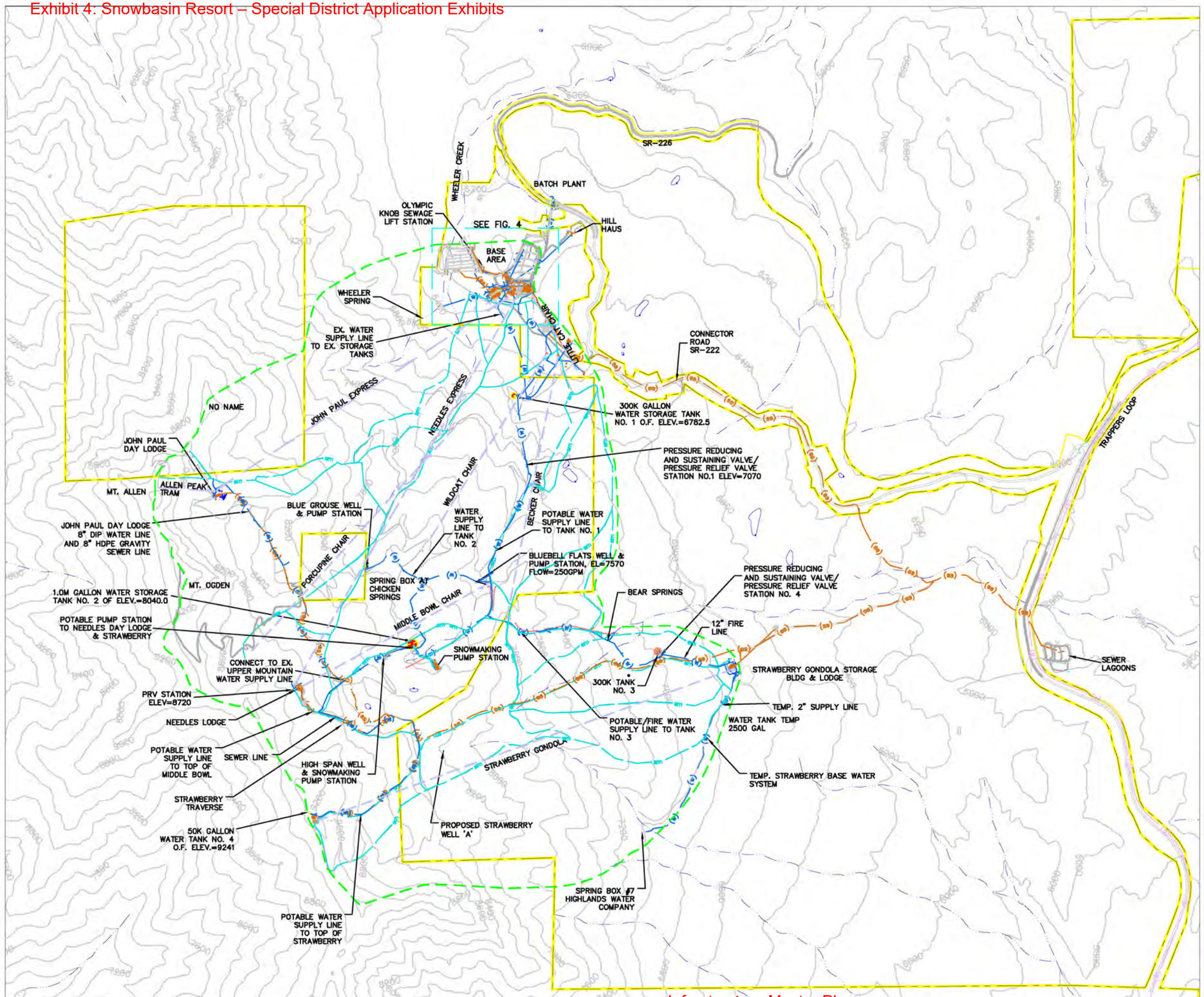
Morgan County, Utah

FIGURE 3 - EXISTING WET UTILITIES

Figure Description:

The Existing Wet Utilities figure illustrates the existing water, wastewater, and storm drain infrastructure onsite at Snowbasin. The majority of the existing infrastructure is located in and around the Snowbasin Resort.



- Existing Ski Lifts
- Snowmaking Water Line
- Water Line
- Sewer Line
- Storm Drain Line
- Water Tank
- Stream
- Pond
- Ski Area Boundary

0 100 200 400

1 inch = 200 feet

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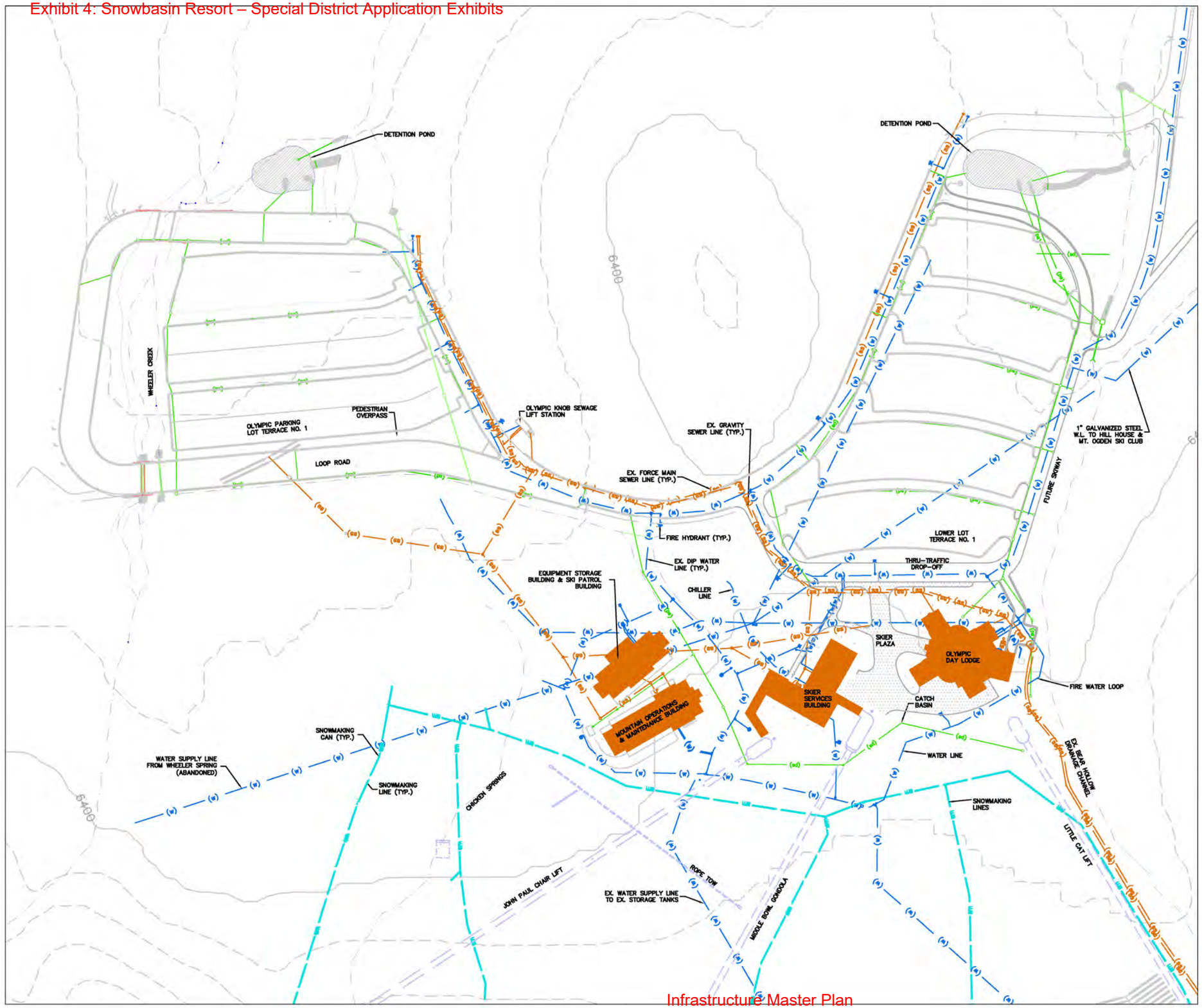
FIGURE 4 - EXISTING WET UTILITIES BASE AREA

Figure Description:

The Existing Wet Utilities - Base Area figure displays the water, wastewater and storm drain infrastructure at the John Paul base area of the Snowbasin Resort.



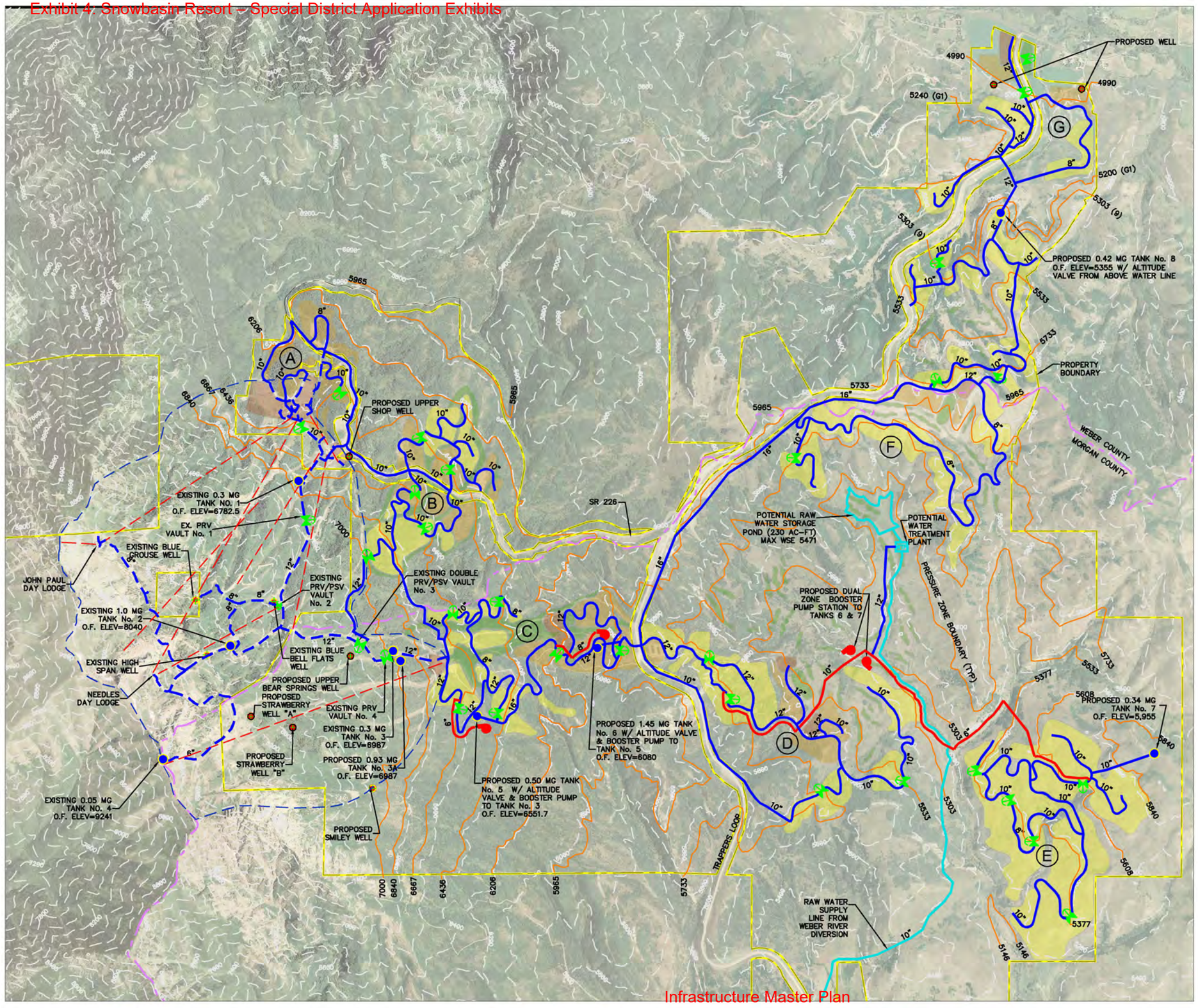


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FIGURE 6 - WATER SYSTEM MASTER PLAN

Figure Description:

The Water System Master Plan illustrates the proposed locations for key infrastructure to serve water to the Snowbasin development. New wells, tanks, booster pump stations, pressure reducing valve vaults, transmission lines, and distribution lines will be required to serve potable water to the development areas. The plan also includes a future diversion from the Weber River to supplement the future demands. A primary goal of the project is to reduce indoor and outdoor water usage through sustainable development practices.

- Existing Ski Lifts
- Ski Area Boundary
- Existing Water Line
- Proposed Water Line
- Dedicated Pump Line
- Raw Water Supply Line
- Property Boundary
- County Line
- 7000 Pressure Zone Boundary
- Proposed Well
- Existing Well
- Tank
- Booster Pump Station
- Pressure Reducing Valve (prv)

0 1500 3000 6000

1 inch = 3000 feet

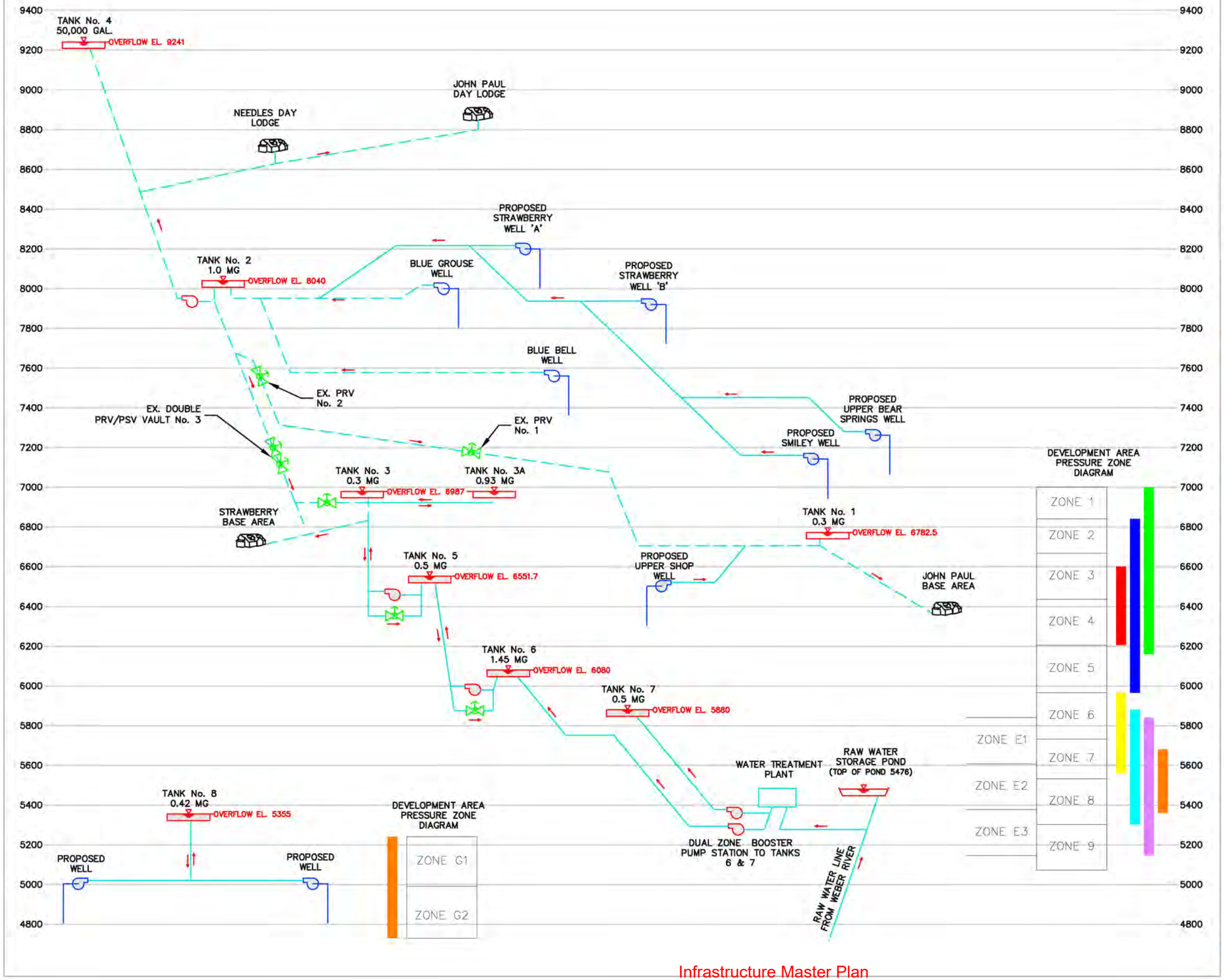

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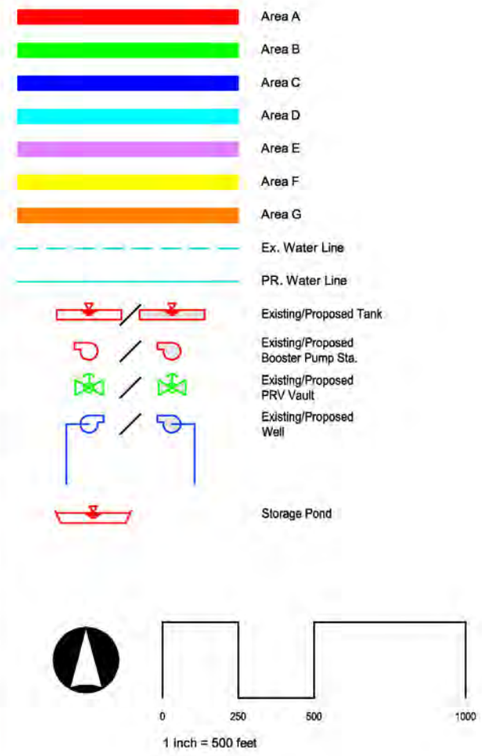
FIGURE 7 - WATER SYSTEM PROFILE

Figure Description:

The Water System Profile illustrates the components of the proposed water system infrastructure and their relationships vertically. Placement of tanks, pressure reducing valves, storage ponds and pump stations are strategically located to provide the necessary service pressures to the residential and commercial developments.



Stantec

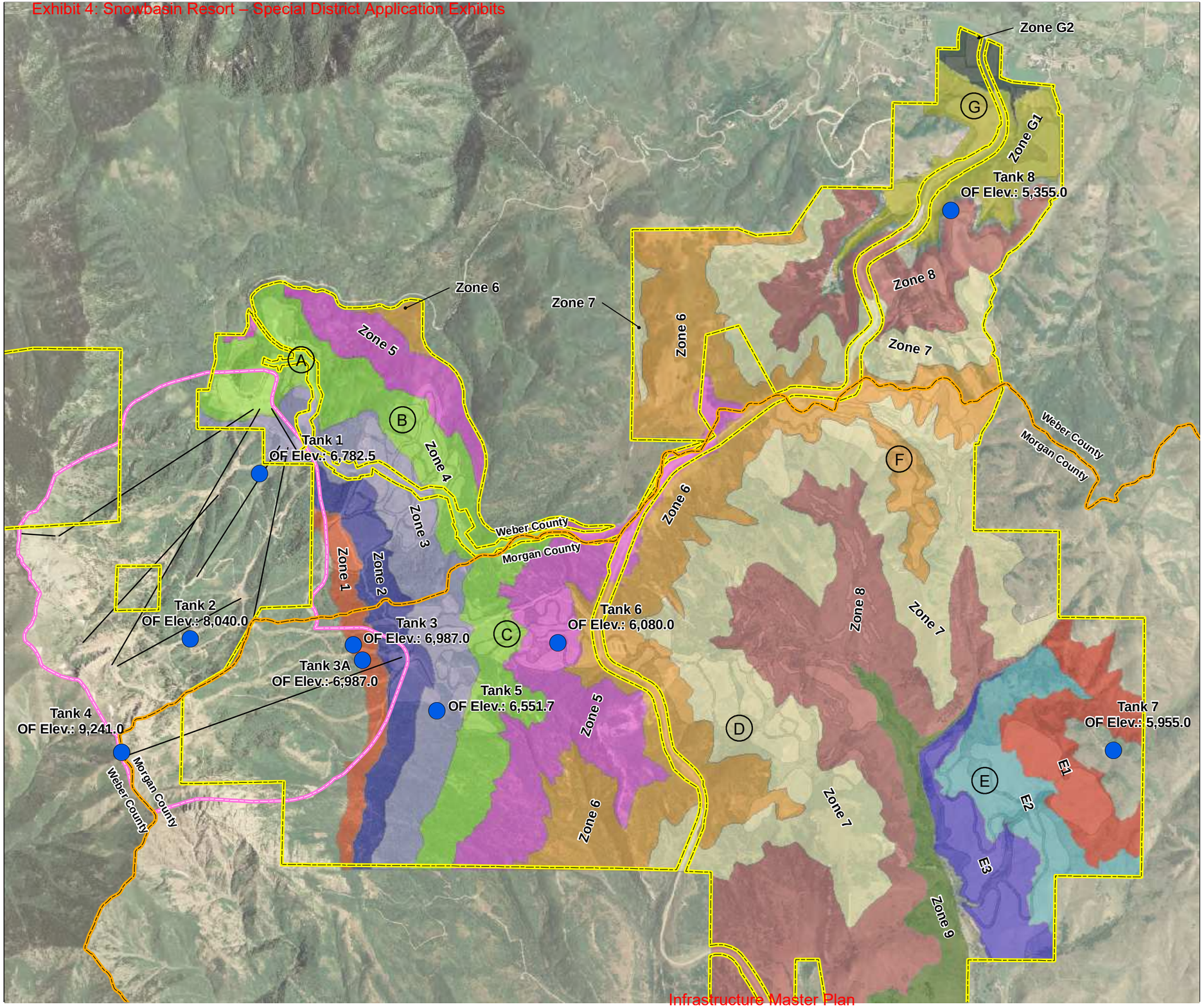


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FIGURE 8 - PRESSURE ZONE MAP

Figure Description

The Pressure Zone Map shows the proposed water tanks and division of pressure zones within the development areas. Using these pressure zones to place tanks and pressure reducing valves ensures that adequate water pressures can be provided to residential and commercial developments.

Legend

- Water Tanks
- Existing Ski Lifts
- Snowbasin Ski Boundary
- Snowbasin Property Boundary
- County Boundary

Pressure Zones

- Pressure Zone 1 (7,000 ft - 6,840 ft)
- Pressure Zone 2 (6,840 ft - 6,667 ft)
- Pressure Zone 3 (6,667 ft - 6,436 ft)
- Pressure Zone 4 (6,436 ft - 6,205 ft)
- Pressure Zone 5 (6,205 ft - 5,965 ft)
- Pressure Zone 6 (5,965 ft - 5,733 ft)
- Pressure Zone 7 (5,733 ft - 5,533 ft)
- Pressure Zone 8 (5,533 ft - 5,303 ft)
- Pressure Zone 9 (5,303 ft - 5,050 ft)
- Pressure Zone E1 (5,608 ft - 5,840 ft)
- Pressure Zone E2 (5,377 ft - 5,608 ft)
- Pressure Zone E3 (5,146 ft - 5,377 ft)
- Pressure Zone G1 (5,240 - 4,990 ft)
- Pressure Zone G2 (4,990 - 4,890 ft)

0 1,500 3,000 6,000

1 in = 3,000 ft

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)

2. Contour Data Courtesy of:
   Utah AGRC 2 Meter Bare Earth LiDAR

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Morgan County, Utah

FIGURE 9 - WATER SYSTEM MASTER PLAN AREA H

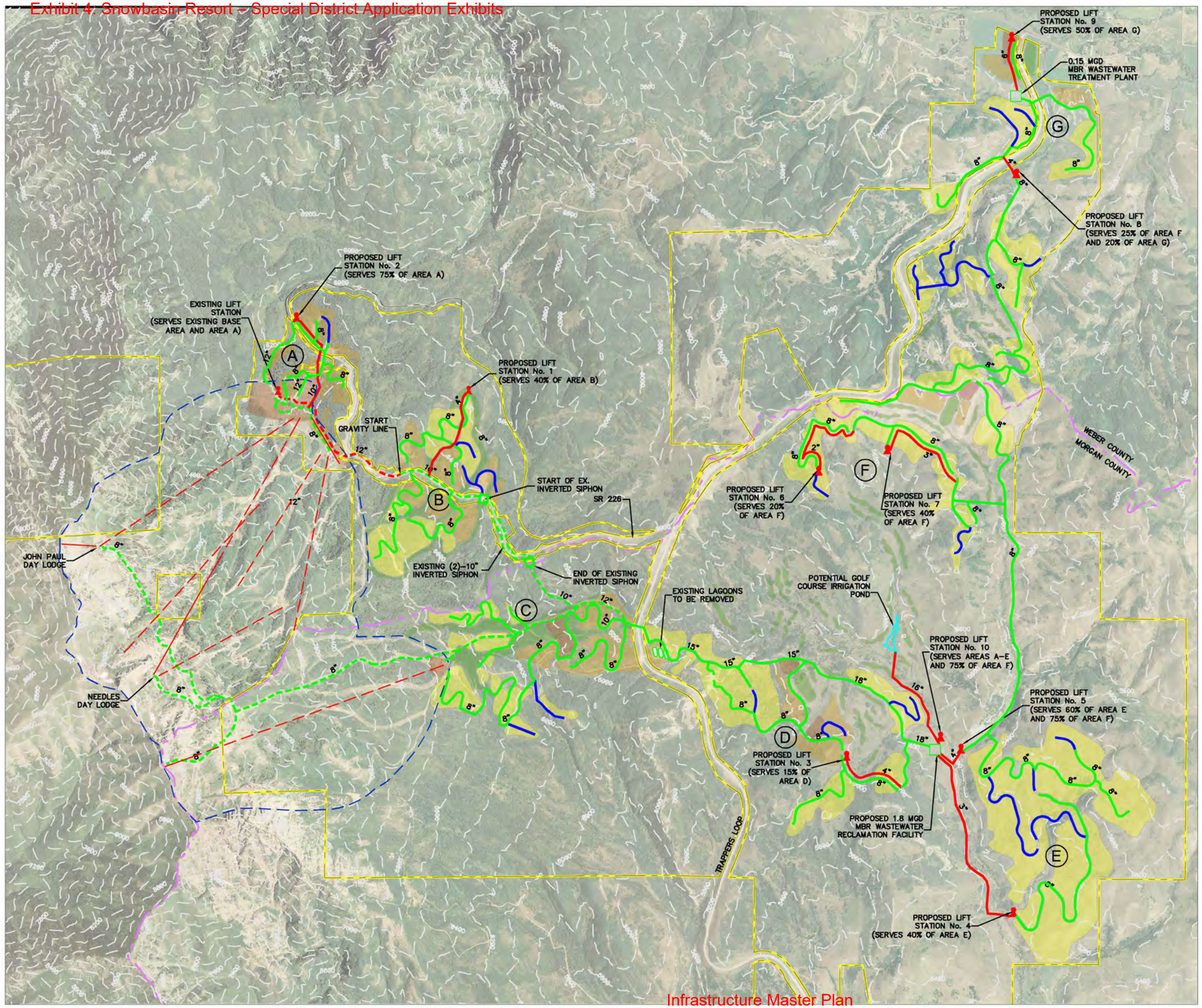
Figure Description:

The Water System Master Plan - Area H figure illustrates the proposed locations for key infrastructure to serve water to Area H based on the land use plan. The Area H water system is proposed as a standalone system with a well and storage tank sized to meet the demands of the area.

- Ex. Water Line
- Proposed Water Line
- Dedicated Pump Line
- Raw Water Supply Line
- Property Boundary
- County Line
- 7000 Pressure Zone Boundary
- Prop. Well
- Ex. Well
- Tank
- Booster Pump Station
- Prv

0 150 300 600

1 inch = 300 feet



snowbasin

Morgan County, Utah

FIGURE 13 - WASTEWATER SYSTEM MASTER PLAN

Figure Description:

The Wastewater System Master Plan figure illustrates the proposed locations for key wastewater improvements. The development plan and site topography were used in the development of this plan. Each development area will require a combination of gravity collection, low pressure sewer collection, lift stations and wastewater reclamation facilities (WRF's) to collect and treat wastewater. This plan requires the formation of a new sewer district.

snowbasin

Morgan County, Utah

FIGURE 14 - WASTEWATER SYSTEM MASTER PLAN AREA H

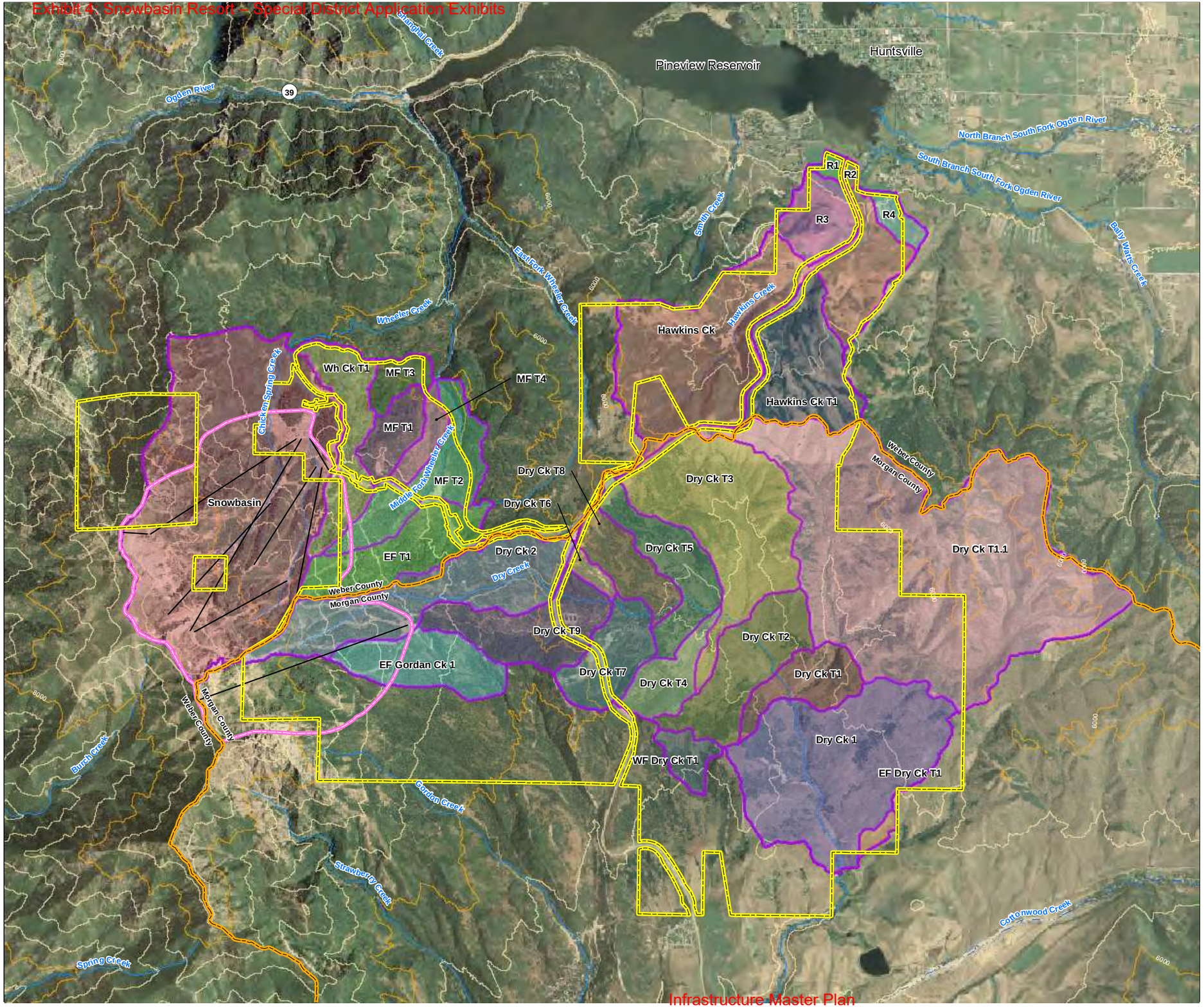
Figure Description:

This figure illustrates the proposed wastewater infrastructure to serve Area H based on the land use plan. Area H will require a stand alone system for wastewater collection and treatment and will be part of the Snowbasin Sewer District.

- Existing Force Main Sewer
- Existing Gravity Sewer
- Proposed Force Main
- Proposed Gravity Sewer
- Proposed Low Pressure Sewer
- Property Boundary
- County Line
- Lift Station
- Existing Lagoons
- Proposed Wastewater Reclamation Facility

0 150 300 600

1 inch = 300 feet



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Morgan County, Utah

FIGURE 15 - EXISTING HYDROLOGIC BASINS

Figure Description

The Existing Hydrologic Basins figure illustrates the basins that were delineated to estimate pre-development stormwater volumes.

Legend

- County Boundary
- Property Boundary
- Snowbasin Ski Boundary
- Existing Ski Lifts
- Hydrologic Basins

Abbrevations

Ck - Creek
MF - Middle Fork
EF - East Fork
R - Residential
T - Tributary
WF - West Fork
Wh - Wheeler

0 2,000 4,000 8,000

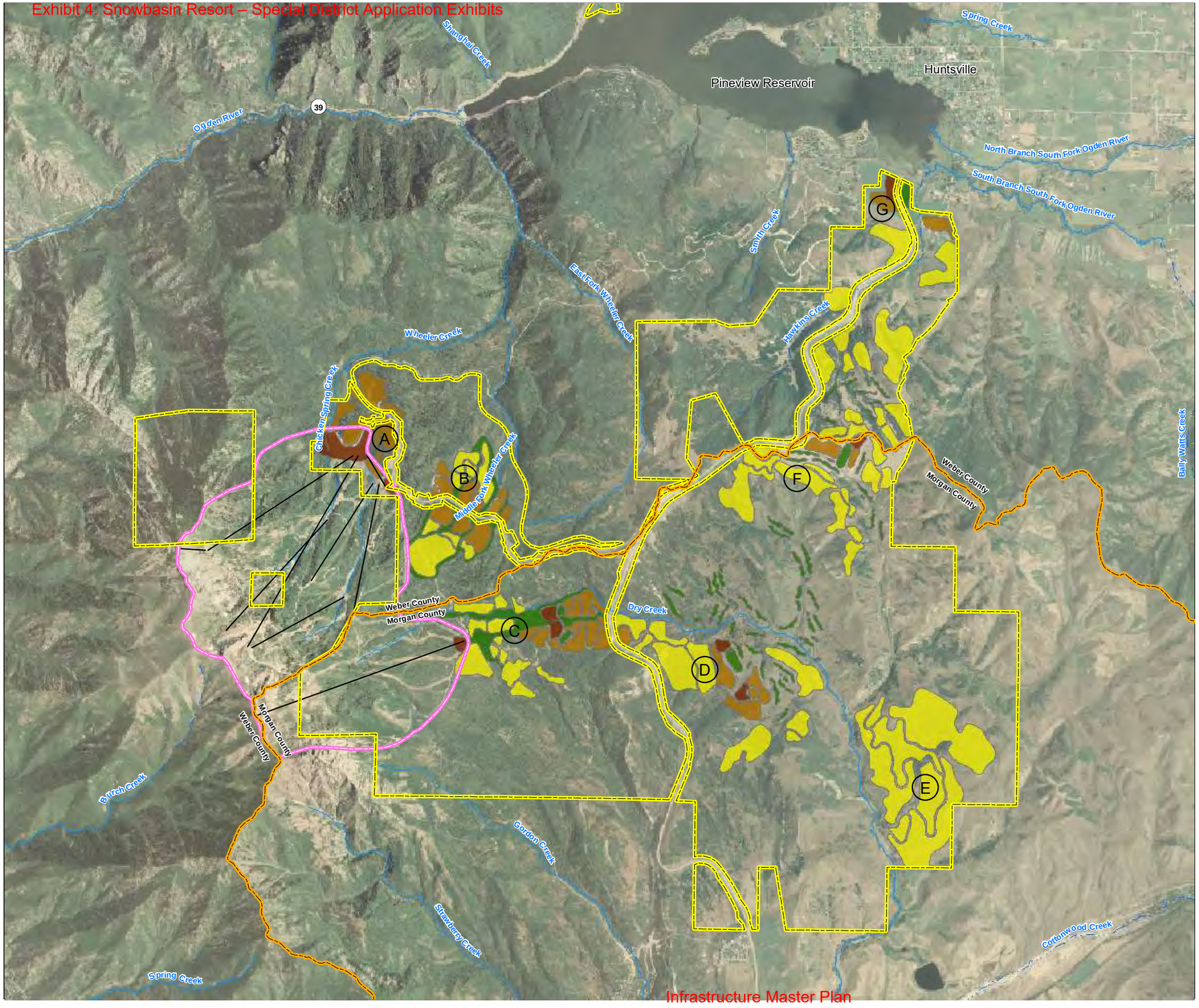
1 in = 4,000 ft

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)

2. Contour Data Courtesy of:
   Utah AGRC 2 Meter Bare Earth LiDAR

Stantec



snowbasin

Morgan County, Utah

FIGURE 16 - PROPOSED LAND USE MAP

Figure Description

This figure exhibits the proposed land use areas and their planned development densities.

Legend

- Existing Ski Lifts
- Snowbasin Ski Boundary
- Property Boundary
- County Boundary

Snowbasin Land Use

- Open Space
- Single Family (SF)
- Townhome (TH)/Condo
- Village

Abbrevations

Ck - Creek
MF - Middle Fork
EF - East Fork
R - Residential
T - Tributary
WF - West Fork
Wh - Wheeler

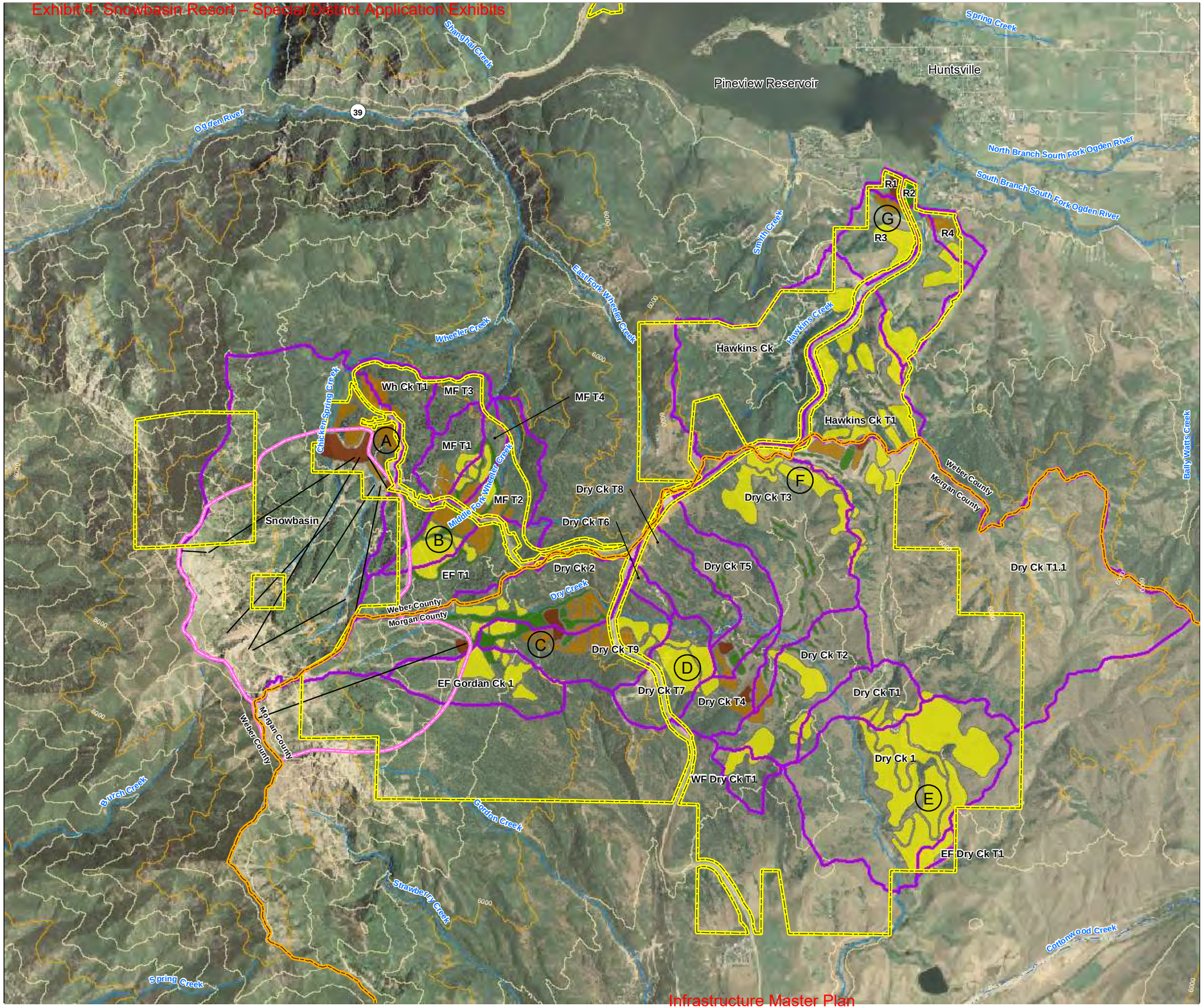
0 2,000 4,000 8,000

1 in = 4,000 ft

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)

2. Contour Data Courtesy of:
   Utah AGRC 2 Meter Bare Earth LiDAR



Morgan County, Utah

FIGURE 17 - EXISTING HYDROLOGIC BASINS WITH PROPOSED LAND USES

Figure Description

This figure illustrates the delineated basins and the land use for the development areas which are used in conjunction with one another to determine post-development runoff volumes.

Legend

- Existing Ski Lifts
- Snowbasin Ski Boundary
- Property Boundary
- County Boundary

Snowbasin Land Use

- Open Space
- Single Family (SF)
- Townhome (TH)/Condo
- Village

Abbrevations

Ck - Creek
MF - Middle Fork
EF - East Fork
R - Residential
T - Tributary
WF - West Fork
Wh - Wheeler

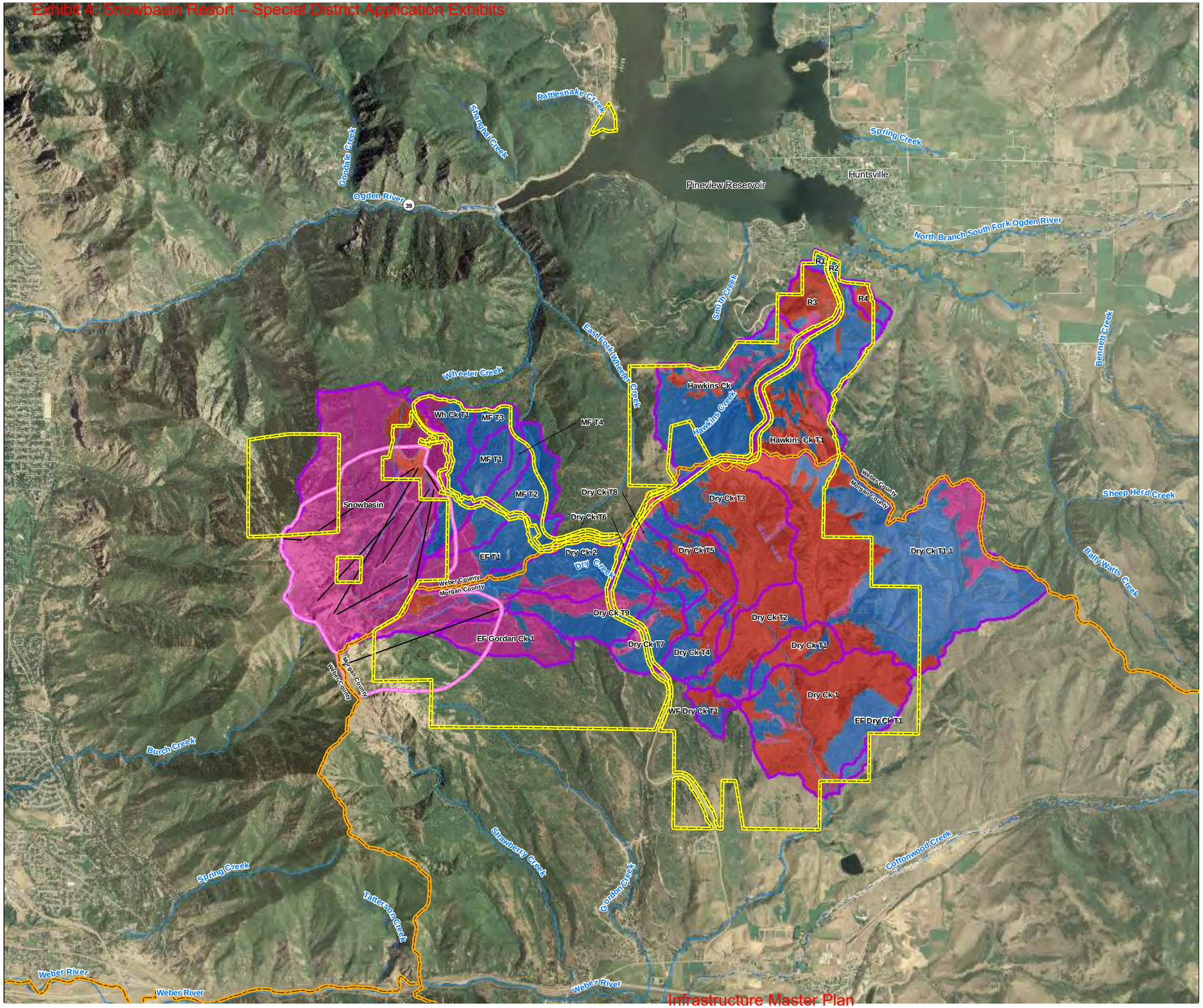
0 2,000 4,000 8,000

1 in = 4,000 ft

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National Agricultural Imagery Program (NAIP) (Morgan & Weber County)
2. Contour Data Courtesy of:
   Utah AGRC 2 Meter Bare Earth LiDAR

Stantec



snowbasin

Morgan County, Utah

FIGURE 19 - HYDROLOGIC SOIL GROUP MAP

Figure Description

The Hydrologic Soil Group Map exhibits the different soil types within the development area. The soil types are used to provide estimates of infiltration and runoff rates for surface water.

Legend

- Existing Ski Lifts
- Hydrologic Basins
- Snowbasin Ski Boundary
- Property Boundary
- County Boundary

Hydrologic Soil Groups

- B
- C
- D
- W

Abbrevations

Ck - Creek
MF - Middle Fork
EF - East Fork
R - Residential
T - Tributary
WF - West Fork
Wh - Wheeler

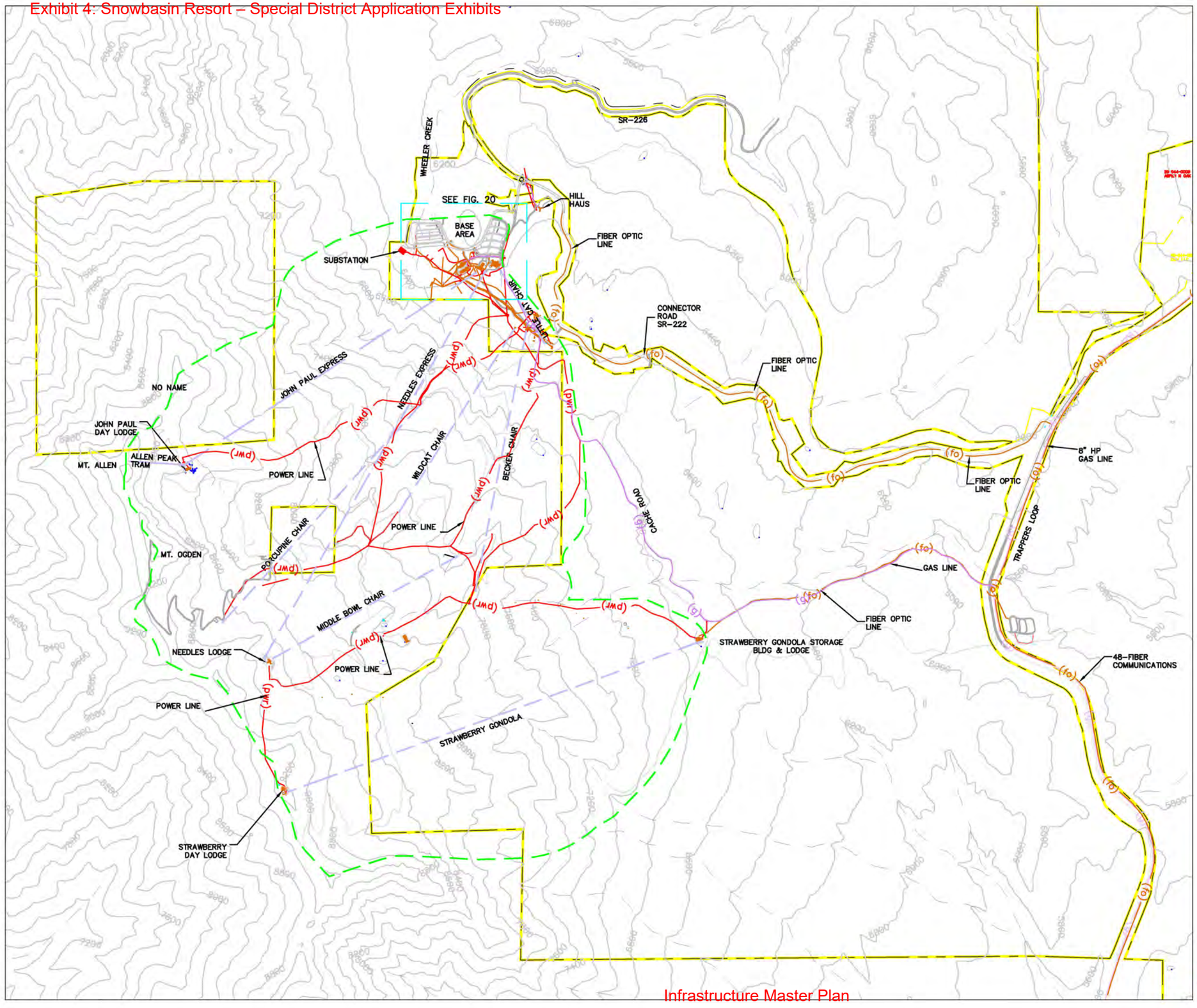
0 0.5 1 2

1 in = 1 miles

Notes

1. Aerial Courtesy of:
   Utah AGRC 2006 National
   Agricultural Imagery Program (NAIP)
   (Morgan & Weber County)

2. Contour Data Courtesy of:
   Utah AGRC 2 Meter Bare Earth LiDAR



snowbasin

Morgan County, Utah

FIGURE 20 - EXISTING DRY UTILITIES

Figure Description:

The Existing Dry Utilities figure shows existing onsite and offsite power, gas, and communications infrastructure at the Snowbasin Resort.

- Existing Ski Lifts
- (pwr) Underground Electrical Power
- Transformer
- Pull Box
- (g) Gas Line
- (fo) Fiber Optic Line
- Stream
- Pond
- Ski Area Boundary

0 1000 2000 4000

1 inch = 2000 feet

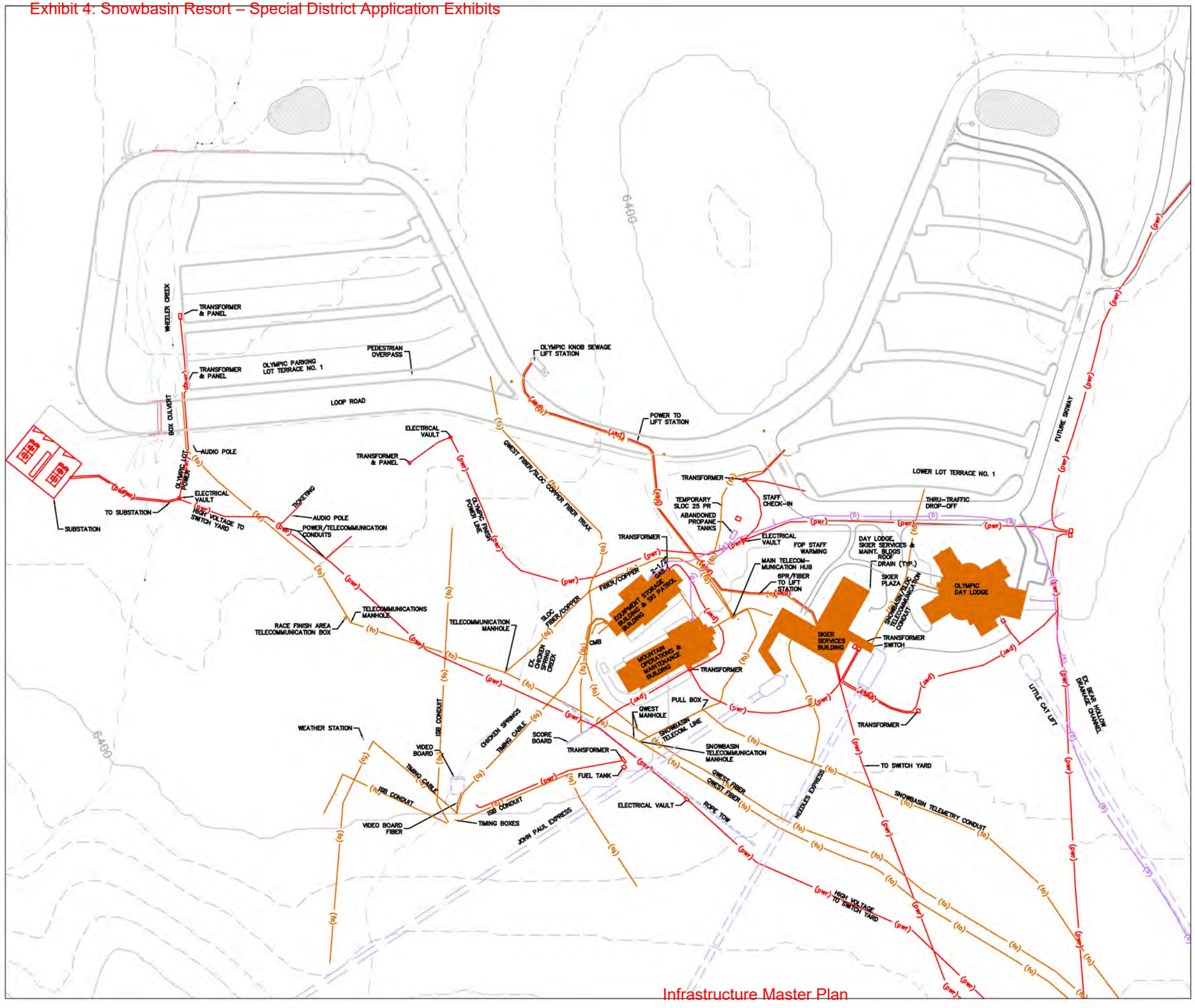
snowbasin

Morgan County, Utah

FIGURE 21 - EXISTING DRY UTILITIES BASE AREA

Figure Description:

This figure shows the existing power, gas and communications at the John Paul base area of the Snowbasin Resort.



- Existing Ski Lifts
- (pwr) Underground Electrical Power
- Transformer
- Pull Box
- (g) Gas Line
- (fo) Fiber Optic Line
- Stream
- Pond

0 100 200 400

1 inch = 200 feet

REPORT

LANDSLIDE HAZARD SERVICES

SNOWBASIN RESORT

WEBER AND MORGAN COUNTIES, UTAH

Chris T. Garris, P.E.
Professional Service Industries, Inc.
2779 South 600 West
Salt Lake City, Utah 84115

July 7, 2011

Prepared by

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Geotech Report

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July 7, 2011

Chris T. Garris, P.E.
Professional Service Industries, Inc.
2779 South 600 West
Salt Lake City, Utah 84115

SUBJECT: Landslide Hazards Services
Snowbasin Resort
Weber and Morgan Counties, Utah

Dear Mr. Garris:

This report presents results of a reconnaissance-level engineering geology and landslide hazards review conducted by Western GeoLogic, LLC (Western GeoLogic) for the proposed Snowbasin Resort expansion project in Weber and Morgan Counties, Utah (Figures 1A and 1B – Project Location). The site is in the Wasatch Range between Ogden and Morgan Valleys, in all or parts of Sections 24-26, 28, 29, and 32-36, Township 6 North, Range 1 East; Sections 19, 30, and 31, Township 6 North, Range 2 East; Sections 1-5, and 8-14, Township 5 North, Range 1 East; and Sections 6, 7, and 18, Township 5 North, Range 2 East (Salt Lake Base Line and Meridian). Elevation of the site ranges between about 4,920 to 8,480 feet above sea level.

PURPOSE AND SCOPE

The purpose of our investigation was to identify and interpret surficial geologic conditions at the site and evaluate the potential risk from landslides to planned development areas at the project. Our investigation is at a reconnaissance level and intended primarily to: (1) preliminarily assess landslide risk in the project area; and (2) evaluate readily accessible locations where long-term slope monitoring may provide useful slope stability information. No detailed evaluations were conducted. The following services were performed in accordance with that purpose:

- A site reconnaissance conducted by an experienced certified engineering geologist to assess the site setting and look for evidence of adverse geologic conditions,
- Review of available geologic maps and reports, and
- Evaluation of available data and preparation of this report, which presents the results of our study.

DesignWorkshop (2011) previously prepared a sketch plan application for the project that identified seven mixed development areas (A through G). Areas A, B, and G are in Weber County; C, D, and E are in Morgan County; and area F is in both counties. We show generalized outlines of these development areas on Figures 1A and 1B (black dashed line shaded in blue), not including parks and golf courses. However, we note that our general outlines are not meant to be detailed or specific, and the development areas shown may include subareas where no development is planned. DesignWorkshop (2011) also identified locations of existing wet and dry utilities at the Project, but we could not confidently trace the utilities based on the provided mapping.

HYDROLOGY

The U.S. Geological Survey (USGS) topographic map of the Snow Basin Quadrangle shows the site is located in the Wasatch Range between Ogden and Morgan Valleys. The north half of the Project (Figure 1A) extends from the south margin of Ogden Valley to near the Weber/Morgan County line, which marks the mountainous hydrologic divide between Ogden and Morgan Valleys. The north half is traversed by the Middle and East Forks of Wheeler Creek and Hawkins Creek, all of which flow generally northward into Ogden Valley and are partly fed by numerous mountain springs in the area. The south half of the project (Figure 1B) extends from near the Weber/Morgan County line to the north margin of Morgan Valley. The south half is traversed by Gordon Creek and Dry Creek, which flow generally southward into Morgan Valley and are also partly fed by mountain springs.

Avery (1994) indicates groundwater in Ogden Valley occurs under perched, confined, and unconfined conditions in the valley fill to depths of 750 feet or more. A well-stratified lacustrine silt layer forms a leaky confining bed in the upper part of the valley-fill aquifer. The aquifer below the confining beds is the principal aquifer, which is in primarily fluvial and alluvial-fan deposits. The principal aquifer is recharged from precipitation, seepage from surface water, and subsurface inflow from bedrock into valley fill along the valley margins (Avery, 1994). The confined aquifer is typically overlain by a shallow, unconfined aquifer recharged from surface flow and upward leakage. Groundwater flow in Ogden Valley is generally from the valley margins into the valley fill, and then toward the head of Ogden Canyon (Avery, 1994).

Gates and others (1984) indicate groundwater in Morgan Valley is found in alluvium and in older semi-consolidated to consolidated bedrock units, including the Norwood Tuff. This aquifer is recharged from precipitation, seepage from surface water, seepage from bedrock into alluvium along the valley margins, and underflow into the area in alluvium along the Weber River (Gates and others, 1984. Groundwater flow in Morgan Valley is from the valley margins toward drainages leading downstream into the Weber River (Gates and others, 1984).

The site is in a recharge zone between Ogden and Morgan Valleys. Given the large project size, depth to shallow groundwater at the site would vary and may range from near surface to greater than 100 feet. Elevation of the shallow aquifer likely varies based on seasonal and climatic fluctuations, and may mimic flow trends of active drainages crossing the project (elevation decreases as flow decreases). Perched zones may also be found locally over relatively

impermeable sedimentary layers, such as clayey weathered bedrock intervals in the Norwood Tuff. We anticipate regional groundwater flow direction to be northward in the Weber County portion, and southward in the Morgan County side, though locally it may mimic topography. Site-specific hydrologic evaluations in each development area will be needed to determine seasonal and long-term groundwater depths and flow direction.

GEOLOGY

Seismotectonic Setting

The site is located on the east flank of the Wasatch Mountains between Ogden and Morgan Valleys, which are to the north and south respectively. Both valleys are structural troughs described by Gilbert (1928) as back valleys of the Wasatch Range similar to Cache Valley to the north. The back valleys are in a transition zone between the Basin and Range and Middle Rocky Mountains physiographic provinces (Stokes, 1977, 1986), and are morphologically similar to valleys in the Basin and Range but with less structural relief (Sullivan and others 1988). The Basin and Range is characterized by a series of generally north-trending elongate mountain ranges, separated by predominately alluvial and lacustrine sediment-filled valleys and typically bounded on one or both sides by major normal faults (Stewart, 1978). The boundary between the Basin and Range and Middle Rocky Mountains provinces is the prominent, west-facing escarpment along the Wasatch fault zone at the western base of the Wasatch Range. Late Cenozoic normal faulting, a characteristic of the Basin and Range, began between about 17 and 10 million years ago in the Nevada (Stewart, 1980) and Utah (Anderson, 1989) portions of the province. The faulting is a result of a roughly east-west directed, regional extensional stress regime that has continued to the present (Zoback and Zoback, 1989; Zoback, 1989). Morgan Valley is bounded on the east by the Morgan fault, which shows evidence for possible Holocene (past 10,000 years) displacement (Sullivan and Nelson, 1992). Ogden Valley is bounded by pre-Holocene normal faults on the east and west sides that show up to 2,000 feet of displacement (Sullivan and others, 1986).

The project is also situated near the central portion of the Intermountain Seismic Belt (ISB), a generally north-south trending zone of historical seismicity along the eastern margin of the Basin and Range province extending from northern Arizona to northwestern Montana (Sbar and others, 1972; Smith and Sbar, 1974). At least 16 earthquakes of magnitude 6.0 or greater have occurred within the ISB since 1850; the largest of these earthquakes was a M_S 7.5 event in 1959 near Hebgen Lake, Montana. However, none of these earthquakes occurred along the Wasatch fault or other known late Quaternary faults (Arabasz and others, 1992; Smith and Arabasz, 1991). The closest of these events was the 1934 Hansel Valley (M_S 6.6) event north of the Great Salt Lake.

Unconsolidated Deposits and Bedrock

The site is located on the eastern flank of the Wasatch Mountains between Ogden and Morgan Valleys, two sediment-filled intermontane valleys within the Wasatch Range. Surficial geology of the site was mapped by King and others (2008), and is shown on Figures 2A and 2B.

Surficial geologic units in the site area are described by King and others (2008) as follows:

Qal, Qal2 - Stream alluvium and flood-plain deposits (Holocene). Sand, silt, clay, and gravel in channels, flood plains, and terraces less than 10 feet (3 m) above the Ogden and Weber Rivers and larger creeks; locally includes muddy, organic overbank and oxbow lake deposits; composition depends on source area; 0 to 20 feet (0-6 m) thick; suffix 2 indicates slightly older deposits in Ogden Valley that are 5 to 10 feet (1-3 m) above present drainages and low terraces about 10 feet (3 m) above the Weber River.

Qaf - Alluvial-fan deposits, undivided (Holocene and Pleistocene). Mostly sand, silt, and gravel that is poorly bedded and poorly sorted; includes debris flows, particularly in drainages and at drainage mouths (fan heads); generally less than 60 feet (18 m) thick. Mapped where fan age uncertain or for composite fans where portions of fans with different ages cannot be shown separately at map scale.

Qaf1, Qafy - Younger alluvial-fan deposits (Holocene and uppermost Pleistocene). Mostly sand, silt, and gravel that is poorly bedded and poorly sorted; includes debris flows, particularly in drainages and at drainage mouths (fan heads); generally less than 40 feet (12 m) thick. Near late Pleistocene Lake Bonneville, deposits with suffixes 1 and y are younger than Lake Bonneville (mostly Holocene), are active, and impinge on present-day drainages like the Weber River and Cottonwood Creek; Qafy fans may be partly older than Qaf1 fans, and may be as old as uppermost Pleistocene Provo shoreline.

Qafp, Qafb, Qafo - Older alluvial-fan deposits (upper and middle(?) Pleistocene). Incised fans of mostly sand, silt, and gravel that is poorly bedded and poorly sorted; includes debris flows, particularly in drainages and at drainage mouths (fan heads); generally less than 60 feet (18 m) thick. Fans labeled Qafp and Qafb are graded to the Provo (and slightly lower) and Bonneville shorelines of late Pleistocene Lake Bonneville, respectively. Near Lake Bonneville, unit Qafo is older than (above and typically incised/eroded at) the Bonneville shoreline; upstream unit Qafo is topographically higher than fans graded to the Bonneville shoreline (Qafb). Elsewhere relative-age letters only apply to local drainages. Like Qa and Qat suffixes, ages are partly based on heights above present drainages (table 1), in this case heights at drainage-eroded edge of fan, with Qafp about 35 to 45 feet (10 to 12 m) above, Qafb 50 to 75 feet (15-23 m) above, and Qafo about 70 to 110 feet (20-35 m) above present drainages. Dates presented in Sullivan and Nelson (1992) imply Qafo to southeast in Morgan quadrangle considerably predates Lake Bonneville and is middle Pleistocene in age (300-600 ka). This means these older fans could be related to Pokes Point lake cycle (at about 200 ka, after McCoy, 1987) (Kansan continental glaciation?, 300-400 ka) and/or pre Pokes Point (Nebraskan continental glaciation?, >500 ka); however, the Bonneville shoreline is obscure on this fan.

Qafoe - Eroded old alluvial-fan deposits (middle and lower Pleistocene). Eroded fans located above and apparently older than pre-Lake Bonneville older alluvial deposits (Qafo, Qao); contains mostly sand, silt, and gravel that is poorly bedded and poorly sorted; less bouldery and lower relative to high-level alluvium (for example QTao, QTaf); more than 120 feet (35 m) above present streams on east side of Morgan Valley and over 400 feet (120 m) above Weber River in southeast Snowbasin quadrangle; 0 to 60 feet, or more (0-18+ m) thick; likely same age as Qaoe (>730ka-pre Pokes Point lake cycle, Nebraskan continental glaciation?).

Qa, Qay, Qap, Qab, Qao - Alluvium, undivided (Holocene and Pleistocene). Sand, silt, clay, and gravel in stream and alluvial-fan deposits; composition depends on source area; deposits lack fan shape and are distinguished from terraces based on upper surface sloping toward adjacent drainage like an alluvial fan; relative ages indicated by letter suffixes; Qa with no suffix used where age uncertain or alluvium of different ages cannot be shown separately at map scale; generally 0 to 20 feet (0-6 m) thick, but Qap is up to about 50 feet (15 m) thick. Near late Pleistocene Lake Bonneville, alluvium labeled y is mostly Holocene in age; alluvial deposits labeled Qap and Qab are graded to the Provo and Bonneville shorelines, respectively; here, letter o suffix means the alluvium is older than Lake Bonneville. Elsewhere relative-age letters y and o only apply to local drainages. In this and adjacent quadrangles, ages of alluvium, including terraces and fans, are partly based on heights above present drainages (table 1); here Qay is about 15 to 20 feet (5-6 m) above, Qap is about 25 to 45 feet (8-14 m) above, and Qab is 50 to 90 feet (15-27 m) above; Qao is 100 to 145 feet (30-45 m) above present drainages and is likely the same age as Qafo (300-600 ka). A prominent surface ("bench") is present on Qap at about 4900 feet (1494 m) along the South Fork of the Ogden River and along the Weber River in Morgan Valley (Snowbasin, Peterson, Durst Mountain, and Morgan quadrangles), about 25 to 40 feet (8-14 m) above the Weber River, with the Provo shoreline at elevations of 4800 to 4840 feet (1463-1475 m) near the head of Weber Canyon and in uppermost Ogden Canyon, respectively.

Qaoe - Pleistocene alluvium (middle and lower Pleistocene). Eroded alluvium located above the Bonneville shoreline (at 5180 feet [1580 m] in area) and apparently above and older than pre-Lake Bonneville older alluvium (Qao and Qafo); mapped on benches about 160 to 215 feet (50-65 m) above Weber River on west side of Morgan Valley in Peterson quadrangle, at an elevation of about 5300 to 5350 feet (1615-1630 m); this is slightly higher than on east side of Morgan Valley (120-200 feet [35-60 m] above), Snowbasin, Durst Mountain, and Morgan quadrangles; unit contains mostly sand, silt, and gravel in stream and alluvial-fan deposits; about 10 feet (3 m) thick; west of Weber River in Morgan quadrangle, dated by Sullivan and others (1988) as older than 730 ka, based on reversed paleomagnetism.

Qly - Young lacustrine deposits (Holocene). Deposits in marshy area near Maples recreation area; may be underlain by glacial deposits; lake may have formed due to landslide damming; likely less than 20 feet (6 m) thick.

Ql - Lake Bonneville deposits, undivided (upper Pleistocene). Silt, clay, sand, and cobbly gravel; mapped where grain size is mixed or surface weathering obscures grain size and deposits are not exposed in scarps and construction cuts; thickness uncertain.

Qlf - Lake Bonneville fine-grained deposits (upper Pleistocene). Mostly silt, clay, and fine sand (typically eroded from shallow Norwood Formation) in Ogden and Morgan Valleys; deposited near- and off-shore in lake; red laminated claystone at least 30 feet (9 m) thick on Frontier Drive in Snowbasin quadrangle (Rogers, 1986, borehole 1).

Qg, Qga - Glacial till and outwash, age not known (Holocene and upper and middle Pleistocene). Qg is undivided glacial deposits (till and outwash) of various ages; till is non-stratified, poorly sorted clay, silt, sand, and gravel, to boulder size; Qgm (moraines of unknown age) are not mapped separately from Qg in this quadrangle; outwash (Qga) is stratified and variably sorted, but better sorted and bedded than till due to alluvial reworking; Qga is mapped directly downslope from other glacial deposits where it is thick enough to

obscure older deposits and bedrock, and where it can be separated from ground moraine (mapped as Qg) and alluvium (Qa_); all glacial deposits locally include mass-movements (Qms, Qmt, Qct) and rock glaciers (Qgr) that are too small to show at map scale; 0 to 150? feet (0-45? m) thick. Even where undivided are mostly Pinedale-age, that is younger deposits (Qgy); correlations of outwash with alluvial deposits have not been determined.

Qgy, Qgmy, Qgay - Younger glacial till and outwash (Holocene and upper Pleistocene). Mostly Pinedale-age (~15,000 to 30,000 years old, upper Pleistocene) deposits mapped as undivided (Qgy), distinct moraines (Qgmy), and outwash (Qgay); moraines are mapped where distinct shapes of end, recessional, and lateral moraines are visible; mapped moraines have poorly developed soil and moderate to sharp moraine morphology (m5 and m4 moraine crests); upslope these younger units include vegetated recessional deposits from glacial stillstands and/or minor advances (deglacial pauses) about 13,000 to 14,000 years ago (m3 moraine crests); in cirques include 8,000- to 10,000-year-old and possibly middle Holocene (about 5,000 years old) deposits with very poorly developed soil and sharp, mostly non-vegetated moraines (m2 and m1 crests, respectively; m1 only present to west in Ogden 7.5' quadrangle); downslope from Pinedale moraine are likely older glacial deposits (Qgo, Qgmo, Qgao). M5 moraines may be Bull Lake age (see Madsen and Currey, 1979).

Qgo, Qgmo, Qgao - Older glacial till and outwash (middle[?] Pleistocene). Mapped down drainage from and locally laterally above Pinedale deposits as undivided (Qgo), till in distinct vegetated moraines (Qgmo), and outwash (Qgao); see differences under undivided and younger glacial units; mapped moraines have well-developed soil and subdued moraine morphology (BL and possibly m5 moraine crests); likely Bull Lake age (~110,000 to 150,000 yrs old; see for example Chadwick and others, 1997, and Phillips and others, 1997); 0 to 150? feet (0-45? m) thick. Deposits in Maples area are much farther from cirques that any other deposits and might be related to Kansan continental glaciation (300-400 ka) (Pokes Point lake cycle, >200 ka - McCoy, 1987), or be some pre-Pokes Point glaciation (possibly Nebraskan continental glaciation, >500 ka; or Sacagawea Ridge age, ~600 ka - Chadwick and others, 1997) (see also Phillips and others, 1997). Qgo near Strawberry Bowl base lodge seems to "lie on" Qafoe, so could be pre Pokes Point or unit is Qafo rather than Qafoe.

Qgr - Rock glacier deposits (Holocene and uppermost Pleistocene). Angular, mostly cobble- to boulder-sized debris with little matrix in un-vegetated mounds with lobate crests; includes pro-talus ramparts; probably inactive (no ice matrix); mapped separately near Strawberry Bowl; may be as much as about 10,000 years old and as young as Little Ice Age (A.D. 1500 to 1800); likely 0 to 30 feet (0-9) thick.

Qmdf - Debris- and mud-flow deposits (Holocene and uppermost Pleistocene). Poorly sorted, clay- to boulder-sized material, typically with distinct natural lateral levees, channels, and lack of vegetation; older deposits can be vegetated; 0 to 40 feet (0-12 m) thick.

Qms, Qms1, Qmsy, Qmso - Landslide and slump deposits (Holocene and Pleistocene). Poorly sorted clay- to boulder-sized material; locally includes flow deposits; generally characterized by hummocky topography, main and internal scarps, and chaotic bedding in displaced blocks; composition depends on local sources; morphology becomes more subdued with time and amount of water in deposits; Qms may be in contact with Qms when two different slide/slumps abut; locally, unit involved in slide/slump is shown in parentheses where a nearly intact block is visible; Qms and Qmso queried (?) where bedrock block may

be in place; thickness highly variable, boreholes in Rogers (1986) show thicknesses of about 20 to 30 feet (6-9 m) on small slides/flows. Qms without suffix is mapped where age uncertain (though likely Holocene and/or upper Pleistocene), where portions of slide/slump complexes have different ages but cannot be shown separately at map scale, or where boundaries between slides/slumps of different ages are not distinct. Estimated time of emplacement indicated by relative age number and letter suffixes with: 1 - likely emplaced in the last 80 to 150 years, mostly historical; y - post- Lake Bonneville in age and mostly pre-historic; and o – likely emplaced before Lake Bonneville transgression. Suffixes y (as well as 1) and o indicate probable Holocene and Pleistocene ages, respectively. Qmso typically mapped where rumpled morphology typical of mass movements has been diminished and/or younger surficial deposits cover or cut Qmso. These older deposits are as unstable as other landslides and slumps, and are easily reactivated with the addition of water, be it irrigation or septic tank drain fields.

Qmc - Landslide and slump, and colluvial deposits, undivided (Holocene and Pleistocene). Mapped where landslides and slumps are difficult to distinguish from colluvium (slopewash and soil creep) and where mapping separate, small, intermingled areas of slides and slumps, and colluvial deposits is not possible at map scale; locally includes talus and debris flows; typically mapped where landslides and slumps are thin ("shallow"); also mapped where the blocky or rumpled morphology that is characteristic of landslides and slumps has been diminished ("smoothed") by slopewash and soil creep; composition depends on local sources; 0 to 40 feet (0-12 m) thick. These deposits are as unstable as other landslides and slumps units (Qms_).

Qmt - Talus (Holocene and Pleistocene). Angular debris at the base of and on steep slopes; only larger debris fields can be shown at map scale and include colluvium locally; grades laterally into Qct; 0 to 30 feet (0-9 m) thick.

Qct - Colluvium and talus (Holocene and Pleistocene). Angular debris at the base of and on steep, typically vegetated slopes; prominent in cirques on the east flank of the Wasatch Mountains; 0 to 30 feet (0-9 m) thick.

Qc - Colluvium (Holocene and Pleistocene). Includes materials moved by slopewash and soil creep; composition depends on local sources; generally 6 to 20 feet (2-6 m) thick; not mapped where less than 6 feet (2 m) thick.

Qac - Alluvium and colluvium (Holocene and Pleistocene). Includes stream and fan alluvium, colluvium, and, locally, mass-movement deposits; 0 to 20 feet (0-6 m) thick.

Qmg - Mass-movement and glacial deposits, undivided (Holocene and Pleistocene). Mapped where glacial deposits lack typical moraine morphology, and appear to have failed and moved down slope; also mapped in upper Strawberry Bowl where glacial deposits have lost their distinct morphology and the contacts between them and colluvium and talus in the cirques cannot be mapped; likely less than 30 feet (9 m) thick.

Qmtr - Talus and rock glaciers, with some colluvium (Holocene and Pleistocene). Angular debris at the base of and on steep slopes and lobate mounds at the base of talus slopes in cirques; mounds called pro-talus ramparts by some workers and rock glaciers by others; 0 to 30 feet (0-9 m) thick

Qh - Human disturbance (Historical). Obscures original deposits by cover or removal; mostly fill along railroad and highway grades, and some large gravel pits that predate 1986 aerial photographs.

QTaf - High-level alluvial-fan deposits (lower Pleistocene and/or Pliocene). Gravel, sand, silt, and clay above other stream-terrace and alluvial-fan deposits (including QTa in adjacent quadrangles); typically more bouldery than alluvium lower than QTao (and QTa in adjacent quadrangles) (including units Qafoe and Qaoe); at least locally gravel-armored and poorly sorted; present about 320 to 1000 feet (100-300 m) above the Weber River in Morgan Valley and decreasing up slope to about 235 feet (70 m) above adjacent streams; label used on recognizable fan south of Weber River and on margin of this fan over Norwood Formation (QTaf/Tn), though the margin may be older; 30 to 80 feet (9-25 m) thickness measured on stereo plotter to top of mass movement failure zone/white zone/ "bedding plane", with another failure zone about 160 feet (50 m) below surface of fan (exposed in eroded fan edge near Weber River). QTaf label also used on fan-head remnants north of Weber River near head of Strawberry Creek; estimate 30 to 160 feet (9-50 m) thick. Upper surfaces of these high-level deposits with other high-level alluvium (QTa_) in the Durst Mountain, Peterson, and Snowbasin quadrangles appear to be the Weber Valley surface of Eardley (1944); however, high-level alluvial fans (QTaf) extend to the mountain front at elevations of about 6800 to 7200 feet (2070-2195 m), rather than to the mountain ridgelines as suggested by Eardley (1944). Thin remnants of high-level alluvial deposits (QTao, QTaf) (boulder lags with unmappable extents) are present on some ridges in the Snowbasin quadrangle, for example between the new and old Snowbasin ski area access roads (southeast T. 6N., R. 1E.) and in NW1/4 section 14, T. 5N., R. 1E..

Ts - Tertiary strata, undivided. Used in landslide blocks, for example near Snowbasin Resort and on the east margin of the quadrangle where multiple units are in blocks or exact unit is uncertain.

Tcg - Unnamed Tertiary conglomeratic rocks (Oligocene?). Characterized by rounded, pebble- to boulder-sized, quartzite-clast conglomerate with less than 10 to more than 50 percent gray, tan, or reddish claystone/mudstone matrix; interbedded with tan, gray and reddish brown, pebble-bearing mudstone to sandstone and some claystone (altered tuff); most beds poorly indurated and poorly exposed; some non-conglomeratic beds in Tcg look like the gray upper Norwood Formation (Tn) and are locally tuffaceous; some pebble beds have carbonate and chert (like Norwood) and lesser quartzite clasts; quartzite clasts are recycled Wasatch Formation clasts; to east in Durst Mountain quadrangle, conglomerates include rare altered tuff clasts from Norwood Formation (Tn); locally erodes to gravel-covered slopes with stone stripes in southeast corner of Snowbasin quadrangle; locally includes landslides, slumps, and flows that are too small to show at map scale; only base of unit is exposed in Snowbasin quadrangle and thickness is uncertain. In better exposures in the Durst Mountain quadrangle, conglomeratic strata (Tcg, as well as units Tcw, Tct, Tca) are an estimated 500 feet (150 m) thick in aggregate and thicken northward to possibly 3000 feet (900 m) thick, though faulting may make this estimate too large (see Coogan and King, 2006); previously included in Huntsville fanglomerate (compare Eardley, 1955; Lofgren, 1955; and Coody, 1957 to Coogan and King, 2006). In most of the Snowbasin and Durst Mountain quadrangles north of Cottonwood Creek, the Tcg-Norwood (Tn) contact is placed at the bottom of the lowest quartzite cobble bed that is at least 6 feet (2 m) thick and is partly based on regular bedding and reddish-brown strata in Tcg. This contact is problematic because the relatively

thin, nonresistant, quartzite-clast beds are in a thick interval that looks like interbedded upper Norwood Formation and quartzite-clast conglomeratic strata, and the quartzite-clast beds grade northward in the quadrangles into Norwood sandstone and pebble beds (see also Coogan and King, 2006). In the northeast part of the Snowbasin quadrangle the Tcg-Tn contact is placed at the top of a light-colored claystone bed as the quartzite-cobble bed defining the contact thins below 6 feet (2 m) in thickness and clasts become less abundant and smaller than cobble size. Based on bedding dips, this claystone bed should be present west of Strong Hollow, but it is not identifiable there nor are cobbles present. Therefore the Tcg-Tn contact is somewhat arbitrarily placed in Strong Hollow. The lack of an angular unconformity at any of these quartzite-clast beds means the Norwood and at least the lower part of this unit (Tcg) are interbedded.

Tn - Norwood Formation (lower Oligocene and upper Eocene). Typically light-gray to light-brown, altered tuff (claystone), tuffaceous siltstone, sandstone, and conglomerate; locally colored light shades of red and green; variable calcareous cement and zeolitization, that is less common to south of Snowbasin quadrangle; zeolite marker beds mapped as an aid to recognizing geologic structure; locally includes landslides and slumps that are too small to show at map scale. Upper Norwood Formation, as exposed on east margin of Snowbasin quadrangle and to east in Durst Mountain quadrangle, contains interbedded claystone (tuffaceous beds), fine- to coarse-grained sandstone, gray granule to small pebble conglomerate, with chert and carbonate clasts, as well as conglomerate interbeds with quartzite pebble clasts like those in unit Tcg; interbedded with more extensive quartzite-clast conglomerate, some mapped as Tcg, to east in Durst Mountain quadrangle (see Coogan and King, 2006); north of Wasatch Formation (Tw) knob on Snowbasin-Durst Mountain quadrangle boundary, the Norwood contains intermittent quartzite gravel quartzite-richest exposures mapped as Tcg?); also, gravel-rich beds containing mostly chert and carbonate clasts are common north of the knob, and with quartzite-bearing beds, are involved in multiple landslides that obscure bedding and structure; these variations and disruptions make it difficult to map a consistent Tcg-Tn contact (see also unit Tcg description above and in Coogan and King, 2006); based on outcrop pattern, dip, and topography, Norwood is at least 7000 feet (2135 m) thick in Snowbasin quadrangle; it thins to the south, so is about 5000 feet (1525 m) thick north of Morgan, and only about 1500 feet (460 m) thick east of East Canyon Creek in the type area in Porterville quadrangle (Eardley, 1944) (not 2500+ feet [800+ m] inferred by Bryant and others, 1989, p. K6). Zeolite beds mapped in the Norwood indicate a generally east-dipping homocline with minor faulting. A broad, north-south-oriented, doubly plunging syncline is superimposed on the homocline but the east limb of the syncline and companion anticline are obscured by landslide complexes. The common fold limb may dip steeply to the west. Also the zeolite beds become obscure to the east, due to the increased abundance of clastic sediment, making the zeolite beds thinner and less pure, and therefore less distinct. Norwood generally considered younger than the Fowkes Formation, but not well dated due to alteration. Corrected Norwood K-Ar ages are 38.4 Ma (sanidine) from Norwood type area (Evernden and others, 1964) and 39.3 Ma (biotite) from farther south in East Canyon (Mann, 1974), while Fowkes 40Ar/39Ar ages are 40.41 Ma and 38.78 Ma on biotite and hornblende, respectively, from Utah to east near Wyoming (Coogan and King, unpublished). To north in southern Cache Valley, basal part of unit similar to Fowkes and Norwood ("resting" on Wasatch and less than 600 feet [180 m] or about 1200 feet [260 m] thick) dated at 44.2 + 1.7 Ma and 48.6 + 1.3 Ma K-Ar on hornblende and biotite, respectively (Smith, 1997; King and Solomon, 2008); though the biotite date is suspect, its age is similar to older dates on the Fowkes Formation in Wyoming, which are: 47.94 + 0.17 Ma

(40Ar/39Ar, sanidine) at the northeast end of the Crawford Mountains (Smith and others, 2008, p. 67), south of the Fowkes type area (see Oriel and Tracey, 1970); 49.1 Ma (biotite; recalculated; dated in 1977, but decay constant not reported, so may not need to be recalculated), reported as 47.9 + 1.9 Ma by Nelson (1979) and likely from near the base of the Fowkes near Evanston, Wyoming (Nelson, 1973); and 48.9 Ma K-Ar (hornblende; recalculated) from the Fowkes type area near Leefe, Wyoming (47.7 + 1.5 Ma, Oriel and Tracey, 1970). The Norwood is different in the southern Peterson and Morgan quadrangles, near the type area (see Eardley, 1944), where it contains extensive unaltered tuff (hence the name Norwood Tuff), has cut-and-fill structures (fluvial), and includes volcanic-clast conglomerate; in the Morgan quadrangle, it also contains local limestone and silica-cemented rocks. Unit referred to here as Norwood Formation, rather than Norwood Tuff, because the type area includes only part of the formation (see thickness in following paragraph), the Norwood contains many lithologies, and this emphasizes that it is not tuffaceous away from the type area.

Tw - Wasatch Formation (Eocene and uppermost Paleocene). Typically red-weathering conglomerate, as well as lesser sandstone, siltstone, and mudstone; clasts typically rounded and from Precambrian and Paleozoic rocks; lighter shades of red, yellow/tan, and light gray more common in upper Wasatch near contact with Norwood; basal conglomerate less likely to be red since dominated by locally derived material, with clasts of lower Paleozoic carbonates in the Maples area, and Precambrian crystalline rocks and Cambrian Tintic Quartzite west of Strawberry Creek; Wasatch knob on east margin of Snowbasin quadrangle is light-gray to brownish-gray, variably cemented conglomerate that contains angular pebble-sized Tintic clasts; thickness varies due to relief on basal and overlying erosional surfaces; thickness uncertain, in the Snowbasin quadrangle about 560 feet (170 m) exposed west of Strawberry Creek, additional estimated (partially exposed) 750 feet (230 m) east of creek may be fault repetition; on opposite (east) side of Morgan Valley in southeast Morgan quadrangle and southwest Devils Slide quadrangle, total thickness estimated by King as 5000 to 6000 feet (1500-1800 m), based on dip (20- 25o), outcrop pattern, and topography; locally includes landslides and slumps that are too small to show at map scale. On east margin of Snowbasin quadrangle near knob of Wasatch Formation, a light-gray to light-brown, carbonate and quartzite (mixed) clast, pebble conglomerate that might be Tw or Tcg is mapped as Tw?. On this knob, the Wasatch Formation, possibly along with Norwood strata, is apparently draped over a paleo-topographic high of intensely fractured Cambrian Tintic Quartzite. This knob is: (1) an exotic block emplaced before or during Wasatch deposition; (2) an exposure of the Cretaceous Ogden thrust fault zone; or (3), and more likely, a part of the Tertiary (post-Wasatch) normal fault zone that is better exposed on the west flank of Durst Mountain, about 2 to 3 miles (3-5 km) to the southeast (see Coogan and King, 2006).

KXc - Chloritic gneiss, cataclasite, mylonite, and phyllonite (Cretaceous and[?] Proterozoic). Dark- to gray-green, variably fractured and altered rock with local micaceous cleavage; contains variable amounts of fine-grained, recrystallized chlorite, muscovite, and epidote; present in shear and fracture zones, and in diffuse altered zones associated with quartz pods that crosscut basement rocks (Yonkee, 1992; Yonkee and others, 1997); locally includes quartz veins in Snowbasin quadrangle (see Bryant, 1988, p. 5-6, 8); some linear zones of this unit mapped as faults by Bryant (1988); produced by mostly Cretaceous deformation and greenschist facies alteration that overprints various Farmington Canyon complex protoliths (Yonkee and Lowe, 2004); however, Bryant (1988) indicated that some quartz veins and pods may be related to Precambrian alteration.

Mh - Humbug Formation (Missippian). Gray- to tan-weathering, thin- to thick-bedded, variably dolomitic sandstone, dolomite, limestone, and minor black shale; forms ledges and cliffs; local black chert, mostly in pods; about 700 to 1000 feet (215-300 m) thick in area (see for example Sorensen and Crittenden, 1974), but top not exposed in quadrangle; thickness uncertain because of complex folding (see Pavlis, 1979); about 700 feet (215 m) thick to east on Durst Mountain (Coogan and King, 2006).

Mde - Deseret Limestone (Missippian). Pale-brown-weathering, thin-bedded dolomite and limestone, with phosphatic shale at base (Delle Phosphatic Shale Member); forms ledges; shale covers Gardison bench or forms non-resistant recess; reportedly 200 to 250 feet (60-75 m) thick in Ogden Canyon area (Sorensen and Crittenden, 1972, 1974), with about 18 feet (5 m) of Delle (after Cheney, 1957, p. 37; Eriksson, 1960; Schell and Moore, 1970); thickness uncertain in Snowbasin quadrangle, because about 500 feet (150 m) thick to east on Durst Mountain (Coogan and King, 2006) and estimate Deseret and Gardison together are about 660 feet (200 m) thick in Ogden Canyon area (this report).

Mg - Gardison Limestone (Missippian). Medium- to dark-gray, thin- to thick-bedded, fossiliferous limestone and dolomitic limestone; typically forms upper and lower cliff and middle slope and ledges; contains gray to black chert pods and stringers, and widespread crinoid and brachiopod fossil fragments; bedding becomes thicker upward; about 300 to 850 feet (90-260 m) thick in Ogden Canyon area (Sorensen and Crittenden, 1974), but typically 500 to 800 feet (150-245 m) thick (Eardley, 1944; Sorensen and Crittenden, 1972; Yonkee and Lowe, 2004). Called Lodgepole on Durst Mountain and 650 to 800 feet (200-245 m) thick (Coogan and King, 2006).

Db - Beirdneau Sandstone (Devonian). Buff- to orange-yellow- to red-weathering, calcareous, fine- to medium-grained sandstone and siltstone, interbedded with silty to sandy dolomite and limestone, and with some shale and flat-pebble conglomerate; slope forming; about 165 to 330 feet (50-100 m) thick in Ogden Canyon area (see Yonkee and Lowe, 2004); in less deformed areas, likely 250 to 300 feet (75-90 m) thick (see Sorensen and Crittenden, 1972, 1974). Argillaceous uppermost part reported in Huntsville quadrangle by Yonkee and Lowe (2004) not recognized in Snowbasin quadrangle.

Dhw - Hyrum and Water Canyon Formations (Devonian). Total thickness of 165 to 330 feet (50 to 100 m) reported by Yonkee and Lowe (2004) in Ogden Canyon area seems too thin given individual thicknesses. Hyrum Dolomite - Medium- to dark-gray, brownish-weathering, medium- to thick-bedded, ledge-forming dolomite and minor silty limestone; about 200 to 350 feet (60-107 m) thick (after Sorensen and Crittenden, 1972, 1974; Yonkee and Lowe, 2004); unconformably overlies Water Canyon. Water Canyon Formation - Light-yellow- to medium-gray, thin- to medium-bedded, interlayered, variably silty to sandy dolomite and lesser limestone and calcareous siltstone, and minor calcareous sandstone; less resistant than underlying and overlying units; 30 to 100 feet (9-30 m) thick in Ogden Canyon area (Yonkee and Lowe, 2004), too thin to map separately; unconformably overlies Fish Haven with Laketown Dolomite missing; Water Canyon about 200 feet (60 m) thick to east on Durst Mountain, but other Devonian units are about the same thickness, and Silurian and Ordovician strata are absent (Coogan and King, 2006).

Csn - St. Charles and Nounan Formations (Cambrian). St. Charles Formation - Light- to medium-gray, medium- to thick-bedded, cliff-forming dolomite; about 20- to 40-foot (6-12 m) thick, calcareous sandstone and sandy dolomite that is the Worm Creek Member is locally present at base (after Rigo, 1968; Sorensen and Crittenden, 1972, 1974); 400 to 660 feet (120-200 m) thick (Rigo, 1968; Sorensen and Crittenden, 1972). Nounan Dolomite - Medium- to light-gray, medium- to thick-bedded, cliff-forming dolomite; local "twiggy" structures; about 500 to 750 feet (150-230 m) thick in Ogden Canyon area (Yonkee and Lowe, 2004); only about 350 feet (105 m) thick 12 miles (20 km) to east on Durst Mountain (Rigo, 1968; Sorensen and Crittenden, 1979; Coogan and King, 2006), since Nounan and overlying Cambrian and Ordovician units there removed from Tooele arch and/or Stansbury uplift (see Hintze, 1959; Rigby, 1959).

Cb - Bloomington Formation (Cambrian). Olive-brown- to orange-brown-weathering, silty argillite interlayered with gray- to orange-gray-weathering, thin- to medium-bedded, silty limestone, flat-pebble conglomerate, oncolitic limestone, and oolitic limestone; contains nodular and wavy-bedded (ribbon) limestone; slope-forming; lithologically similar to Calls Fort (upper) and Hodges (lower) Shale Members of Bloomington Formation; *Eldoradia* sp. trilobite fossil in Ogden Canyon (Rigo, 1968) supports correlation with Calls Fort Member; estimate 66 to 165 feet (20-50 m) thick in less deformed areas, with apparent thicknesses of 40 to 200 feet (10-60 m)(after Sorensen and Crittenden, 1972; Yonkee and Lowe, 2004); not present on Durst Mountain (Coogan and King, 2006).

Cm, Cmu, Cmm, Cml - Maxfield Limestone, undivided (Middle Cambrian). Cross section unit; about 600 to 900 feet (180-270 m) thick in Ogden Canyon area (Rigo, 1968; after Yonkee and Lowe, 2004); only 300 feet (90 m) thick about 12 miles (20 km) east on Durst Mountain (Coogan and King, 2006); divided into subunits. Upper members - Cliff- and ledge-forming; total about 300 to 525 feet (90-160 m) thick in area (this report). Dolomite member - Light- to dark-gray, medium- to thick-bedded dolomite, some oolitic dolomite, and minor limestone; widespread "twiggy" structures; locally contains light-gray, silty ribbons; distinctive dark-gray, cherty dolomite and light-gray boundstone near top; 200 to 425 feet (60-130 m) thick (this report). Upper limestone member - Light- to medium-gray, thin- to thick-bedded, oolitic limestone, micritic limestone (with light-yellowish-gray-weathering silty ribbons), and minor dolomite; about 100 to 165 feet (30-50 m) thick (this report). Middle (argillaceous limestone) member - Includes several interbedded rock types: light- to orange-gray-weathering, wavy-bedded, argillaceous to silty limestone, with silty shale partings; olive-brown- to orange-brown-weathering, laminated argillite and silty argillite containing limestone nodules; and orange-gray-weathering, thin- to medium-bedded, oolitic limestone, oncolitic limestone, and flat-pebble conglomerate; overall slope forming with thin limestone ledges; 150 to 300 feet (45-90 m) thick (this report). Lower limestone member - Light- to medium-gray, thin- to medium-bedded, cliff-forming, micritic limestone with abundant orange-gray-weathering, wavy, silty layers, and minor oolitic limestone; slope-forming, argillaceous limestone interval near middle; sharp contact with underlying upper Ophir member; about 100 to 200 feet (30-60 m) thick (Rigo, 1968; Yonkee this report). According to Yonkee and Lowe (2004), the limestone, in which Rigo (1968) reported *Elrathia* sp. trilobite fossils in Ogden Canyon, is in this member of the Maxfield, rather than in the middle member of the Ophir Formation, as Rigo (1968) reported; *Elrathia* can be used as a proxy for the Middle Cambrian *Bolaspidella* zone (see Robison, 1976, figure 4).

Co, Cou, Com, Col - Ophir Formation, undivided (Middle Cambrian). Cross section unit; highly deformed in most outcrops, total apparent thickness as little as about 200 feet (60 m) (see Rigo, 1968); total thickness about 450 to 650 feet (140-200 m) (Sorensen and Crittenden, 1972) where likely less deformed; about the same thickness to east on Durst Mountain (Coogan and King, 2006); divided into subunits. Upper argillite member - Brown-weathering, dark-brown-gray to olive-gray, variably calcareous and micaceous argillite to slate with some intercalated medium-gray, silty limestone beds; slope-forming and rarely exposed; thickness highly variable but likely about 130 to 260 feet (40-80 m) thick (Yonkee and Lowe, 2004). Middle limestone member - Light- to medium-gray, thin- to medium-bedded, ledge-forming, micritic limestone with local orange-gray-weathering, silty ribbons and minor oolitic limestone; forms thin ledge but locally thickened by minor folds; apparent thickness 15 to 65 feet (5-20 m) (Yonkee this report). Lower argillite member - Not exposed in Snowbasin quadrangle, but likely present in shallow subsurface. Brown-weathering, dark-brown, orange-brown, and olive-gray, micaceous to silty argillite and slate; slope forming; interbedded thin siltstone and sandstone layers at base, grading downward over 33 feet (10 m) into Tintic Quartzite; apparent thickness highly variable (about 100 to 370+ feet [30-115+ m]) (after Rigo, 1968; Crittenden and Sorensen, 1985; Yonkee and Lowe, 2004) but actual thickness likely about 100 to 145 feet (30-45 m) (this report); contains *Ehmaniella* sp. Trilobite fossils in Ogden Canyon (Rigo, 1968).

Ct - Tintic Quartzite (Middle and Lower Cambrian). Tan-weathering, cliff-forming, thin- to thick-bedded, very well cemented, quartz-rich sandstone, with lenses and beds of quartz-pebble conglomerate and lesser thin argillite layers; sandstone is tan, white, reddish tan and pale-orange tan with abundant cross-bedding; argillite more abundant at top and quartz-pebble conglomerate increases downward; has greenish to purplish to tan, arkosic sandstone, poorly sorted conglomerate, and micaceous argillite at base that is reportedly up to 200 feet (60 m) thick in Ogden 7.5' quadrangle (Yonkee and Lowe, 2004); unconformably overlies Farmington Canyon Complex; about 1100 to 1500 feet (335-450 m) thick in Ogden Canyon area (Sorensen and Crittenden, 1972; this report); thinner to east on Durst Mountain (~1000 feet [300 m])(Coogan and King, 2006). On the east margin of the Snowbasin quadrangle, Wasatch and Norwood Formations are apparently draped over a knob of highly fractured, white (bleached?) Tintic Quartzite, either in an exotic block or as fault zone rocks, indicating exposure of the Ogden thrust faults or the normal fault zone on the west flank of Durst Mountain about 2 to 3 miles (3-5 km) southeast.

Xfc, Xfcm, Xfcb, Xfcg - Farmington Canyon complex, undivided (lower Proterozoic). Granitic and migmatitic gneiss with quartz-rich gneiss and biotite-rich schist, and lesser meta-gabbro, amphibolite, and meta-ultramafic rock; includes small mafic and pegmatitic pods and dikes that are too small to show at map scale. Barnett and others (1993) reported the various isotopic ages of the complex and concluded it was Early Proterozoic (about 1700 Ma) in age. More detailed information on the complex in the adjacent Ogden 7.5' quadrangle is available in Yonkee and Lowe (2004); see also Bryant (1988) for Bountiful Peak quadrangles. Locally includes landslides and slumps that are too small to show at map scale. Where possible rock types in complex divided. Migmatitic gneiss - Medium- to light-pink-gray, strongly foliated and layered (migmatitic) quartzo-feldspathic rock with widespread garnet and biotite; cut by variably deformed pegmatite dikes; unit also contains unmapped widespread amphibolite bodies, granitic gneiss pods, and some thin layers of sillimanite-bearing, biotite-rich schist; contact with granitic gneiss is gradational (after Yonkee and Lowe, 2004) and migmatitic gneiss seems to be interlayered with granitic gneiss west of Middle Peak (sections 17 and 20, T. 5 N., R. 1 E.). Biotite-rich schist - Medium-gray to dark-brown, strongly foliated, biotite-rich schist with widespread garnet and sillimanite; displays alternating biotite-rich and quartz-

feldspar-rich bands that are rotated into complex fold patterns; unit cut by variably deformed, garnet-bearing pegmatite dikes; this schist unit also contains some thin layers of amphibolite, quartz-rich gneiss, and granitic gneiss; gradational contacts with migmatitic gneiss (after Yonkee and Lowe, 2004). Granitic gneiss - Light- to pink-gray, moderately to strongly foliated, fine- to medium-crystalline, hornblende-bearing, quartzo-feldspathic rock with minor orthopyroxene; cut by variably deformed, light-colored, pegmatite dikes; unit also contains unmapped, widespread small pods of amphibolite; contact with migmatitic gneiss is gradational (after Yonkee and Lowe, 2004) and granitic gneiss seems to be interlayered with migmatitic gneiss west of Middle Peak (sections 17 and 20, T. 5 N., R. 1 E.).

ZYp, ZYpp - Formation of Perry Canyon (upper and possibly middle Proterozoic). Slate to micaceous argillite and meta-sandstone to meta-gritstone to meta-diamictite; typically non-resistant and tan weathering such that gray to green to dark-gray fresh color is seldom seen except in cut slopes and excavations; meta-sandstone contains poorly sorted lithic, quartz, and feldspar grains in silty to micaceous matrix; meta-diamictite rare in map area, north of Pineview Reservoir (north of map area) contains pebble- to boulder-sized, quartzite and granitoid clasts in sandy to micaceous argillite matrix; regionally divided into multiple members (see Crittenden and Sorensen, 1985); in map area, previously mapped as graywacke member, with 1500 feet (460 m) thickness reported in Huntsville quadrangle by Sorensen and Crittenden (1979); in present map area includes phyllite subunit (ZYpp) that is mapped separately because it was not previously reported and is very susceptible to slides, slumps, and flows; total thickness likely less than 2000 feet (600 m). Locally includes landslides and slumps that are too small to show at map scale.

Lake Bonneville History

Lakes occupied nearly 100 basins in the western United States during late-Quaternary time, the largest of which was Lake Bonneville in northwestern Utah. The Bonneville basin consists of several topographically closed basins created by regional extension in the Basin and Range (Gwynn, 1980; Miller, 1990), and has been an area of internal drainage for much of the past 15 million years. Lake Bonneville consisted of numerous topographically closed basins, including the Salt Lake and Cache Valleys (Oviatt and others, 1992). Sediments from Lake Bonneville comprise some of the unconsolidated deposits at lower elevations in Ogden and Morgan Valleys.

Timing of events related to the transgression and regression of Lake Bonneville is indicated by calendar age estimates of significant radiocarbon dates in the Bonneville Basin (Donald Currey, University of Utah; written communication to the Utah Geological Survey, 1996; and verbal communication to the Utah Quaternary Fault Parameters Working Group, 2004). Approximately 32,500 years ago, Lake Bonneville began a slow transgression (rise) to its highest level of 5,160 to 5,200 feet above mean sea level. The lake rise eventually slowed as water levels approached an external basin threshold in northern Cache Valley at Red Rock Pass near Zenda, Idaho. Lake Bonneville reached the Red Rock Pass threshold and occupied its highest shoreline, termed the Bonneville beach, after about 18,000 years ago. During the transgression and highstand, major drainages that emanate from within the Wasatch Range (such as the Weber River) formed large deltaic complexes in the lake at their canyon mouths. The lake remained at its highest level until 16,500 years ago, when headward erosion of the Snake River-Bonneville basin drainage divide caused a catastrophic incision of the threshold and the lake level lowered by roughly 360 feet in fewer than two months

(Jarrett and Malde, 1987; O'Conner, 1993). Following the Bonneville flood, the lake stabilized and formed a lower shoreline referred to as the Provo shoreline. The drainages feeding the lake also began downcutting through stranded deltaic complexes. Climatic factors then caused the lake to regress rapidly from the Provo shoreline, and by about 13,000 years ago the lake had eventually dropped below historic levels of Great Salt Lake. Oviatt and others (1992) deem this low stage the end of the Bonneville lake cycle. Great Salt Lake experienced a brief transgression between 12,800 and 11,600 years ago to the Gilbert level at about 4,250 feet before receding to and remaining within about 20 feet of its historic average level (Lund, 1990).

SITE CHARACTERIZATION

Previous Studies

AGEC (2009) previously conducted a preliminary geologic hazards evaluation for the site and identified potential geologic hazards in various project areas from slope instability, seismicity, expansive soil, avalanches, and shallow groundwater. With regard to landslide hazards, AGEC (2009) indicates that the project was conservatively mapped by King and others (2008) as being mostly underlain by mass movement deposits, but that landslide in the area were difficult to identify due to rapid weathering of the clay-rich deposits. AGEC (2009) therefore re-mapped active and potential landslides at the project from air photo evidence and site reconnaissance. This mapping was incorporated in DesignWorkshop (2011).

Empirical Observations

On June 27, 2011 Mr. Bill D. Black of Western GeoLogic conducted a brief reconnaissance of development areas A through D and intervening land. The reconnaissance was limited to readily accessible areas viewable from existing roads, and thus not all areas were observed. Mapping by King and others (2008) and AGEC (2009) was consulted during the site reconnaissance to verify surficial geology. Weather at the time of the site reconnaissance was clear and sunny with temperatures in the 90's (°F).

The site is on the east flank of the Wasatch Mountains between Ogden and Morgan Valleys. Native vegetation in the site area consists mainly of pine trees, aspen trees, and various brush at higher elevations and along drainages; with various brush, grasses, and scattered trees at lower elevations. Vegetation is generally thicker in the north half of the project (Weber County side) than the south half (Morgan County side). Area A encompasses the existing Snowbasin Resort development slightly north of the ski area (Figure 1A). Area B is to the southeast of area A along Old Snow Basin Road, and is flanked by Bear Wallow to the west and Green Pond to the east (Figure 1A). Areas C and D are to the southeast of area B flanking the west and east sides of Trappers Loop Road. Access to these areas is currently limited to existing dirt roads. The central part of Bear Wallow below (slightly north of) Snow Basin Road showed two instrument boxes from prior or ongoing slope monitoring, one of which was locked and appeared operational. One area of recent landsliding was also observed along Snow Basin Road east of Green Pond, including a broad road section that appeared to be down dropped a few inches and a smaller area of arcuate cracking and subsidence on the downslope road side. No evidence for recent or ongoing slope instability was observed in areas C and D. However, we observed hummocky topography consistent with a landslide interpretation in some areas mapped as slope movement deposits by King and others (2008) but not as landslides by AGEC (2009).

Air Photo Observations

High-resolution 2006 digital orthophoto aerial photography (various frames, one foot resolution) was reviewed to obtain information about the geomorphology of the site and surrounding area. Figures 3A and 3B show a mosaic of the aerial photography at a scale of 1:24,000 (1 inch equals 2000 feet). Areas of slope movement deposits compiled from King and others (2008) are shown shaded in red, and include map units Qms, Qms1, Qmsy, Qmso, Qmdf, Qmc, and Qmg (Figures 2A and 2B, described above). Queried units on Figures 2A and 2B (representing deposits that could not be confidently classified by King and others, 2008) were included in landslide areas where air photo evidence leaned toward a slope movement origin. Landslide scarps mapped by King and others (2008) are shown as solid red lines. Generalized outlines of planned development areas are shown with a dashed white line and shaded yellow. Areas where landslide deposits and development overlap are shaded orange. The air photo evidence generally appears to support the mapping of King and others (2008). Many landslide areas appear to be complex zones of multiple contiguous and overlapping slope failures of varying ages, rather than large discrete slides.

LANDSLIDE HAZARDS

Slope stability hazards such as landslides, slumps, and other mass movements can develop along moderate to steep slopes where a slope has been disturbed, the head of a slope loaded, or where increased ground-water pore pressures result in driving forces within the slope exceeding restraining forces. Slopes exhibiting prior failures, and also deposits from large landslides, are particularly vulnerable to instability and reactivation.

Given the geologic mapping and air photo evidence, risk from landsliding at the project appears high. Most landslides in the project area appear to source in the Tertiary Norwood Formation (unit Tn, Figures 2A and 2B). The Norwood Formation is a failure-prone unit that is a significant source for landslides in northern Utah, and its stability in the area is suspect and likely low. Claystone (tuffaceous) layers in the Norwood Formation are typically involved because they are weaker rocks and also act as impermeable layers where infiltrating groundwater can perch. In our experience, landslides in the Norwood Formation are common where these clayey tuffaceous layers are present and bedrock dips and slope aspects are roughly similar. Other slope areas in Norwood Formation also are prone to landsliding, but the slides are typically smaller and less frequent.

AGEC (2009) indicates that two large areas of landsliding are in the northwest portion of the property, including the Bear Wallow and Green Pond slides (Figures 3A and 3B). They further indicate that these landslides show evidence of shallow groundwater and form on 6.5:1 (horizontal to vertical) slopes. Both slides appear to involve glacial sediments overlying Norwood Formation and Wasatch Formation (units Qg, Tn, and Tw, respectively; Figures 2A and 2B, 3A, and 3B). During our site reconnaissance, we observed a damaged section of Old Snow Basin Road along the south flank of the Green Pond slide that may be from partial reactivation of this slide or a new failure. Figures 3A and 3B show development areas that overlap with mapped landslide deposits. Based on the degree of overlap (orange shaded coverage), areas A and G would appear to have the lowest relative landslide hazard, whereas areas D and E, which are mostly underlain by landslide deposits, would have the highest hazard.

Area B overlaps landslide deposits from the Bear Wallow and Green Pond slides and an unnamed intervening landslide area. Various parts of area F and most of the lower (eastern) half of area C are also in mapped landslide deposits.

Based on existing road access, landslide mapping, air photo evidence, and observations during our site reconnaissance, we have identified nine locations for subsurface exploration and installation of slope monitoring instrumentation. In addition to long-term stability information, these locations may also provide information regarding typical subsurface geology and groundwater levels to anticipate conditions in similar nearby areas for future site-specific evaluations. A summary of these locations is provided in Table 1 below. Borings 1 through 3, and 9 are in the north half of the site on Figure 3A; borings 4 through 8 are in the south half (Figure 3B). Boring 1 is in the Bear Wallow slide area below (north of) Old Snow Basin Road, and could be replaced by the existing monitoring if it is still active. Boring 2 is in a slide area in the north-central part of development area B along Old Snow Basin Road. Boring 3 is in the Green Pond slide area along Old Snow Basin Road east of development area B, and could be placed anywhere along the downslope side of the damaged road section. Boring 4 is in a slide area in the central part of development area C about 1,200 feet east of and below a set of head scarps on Figure 3B; this location would be more effective about 800 feet further west (closer to the head scarps) if access can be improved. Boring 5 is in a slide area in the western part of development area D below (east of) the existing sewer ponds. Boring 6 is along the west-central border of development area D in an area of hummocky topography observed during our reconnaissance. This location was selected because of the surficial evidence and because it appears to be an east-west access chokepoint. Borings 7 and 8 are in slide areas below scarps in development area E. Boring 9 is in a slide area below scarps in development area F.

Table 1. *Proposed boring and slope monitoring locations at project.*

Boring Location	Latitude	Longitude	Surficial Geologic Unit	Description
1	41.2109	-111.8481	Qmsy	Bear Wallow slide area.
2	41.2097	-111.8412	Qmc	Slide area in area B along Old Snow Basin Road.
3	41.2061	-111.8349	Qmdf	Along damaged road section in Green Pond slide area .
4	41.1957	-111.8300	Qms	Slide area in central part of area C.
5	41.1956	-111.8130	Qms	Area D in slide area east of and below sewage ponds.
6	41.1861	-111.7990	Qms	Area D in slide area at east-west access chokepoint.
7	41.1818	-111.7763	Qms	Slide area in west part of area E.
8	41.1774	-111.7675	Qms	Slide area in east part of area E.
9	41.2280	-111.7858	Qms	Slide area in area F.

CONCLUSIONS AND RECOMMENDATIONS

The project is located on the eastern flank of the Wasatch Mountains between Ogden and Morgan Valleys to the north and south, respectively. Prior mapping indicates extensive landslide deposits that suggest that the site is in landslide-prone terrain, although the mapping varies. Based on our review of existing geologic information, evidence from aerial photographs, and observations during our site reconnaissance, we recommend using the mapping of King and others (2008). At a development planning level, this mapping provides a more conservative basis for: (1) considering existing potential risk from landsliding to planned infrastructure routes, and (2) assessing need for future site-specific evaluations. Without careful engineering and detailed investigation, future development could experience substantial damage from slope instability, not only in mapped slide areas but also in previously undeformed landslide-prone terrain.

Based on the above, we selected nine locations for subsurface exploration and long-term stability monitoring where identified slide areas overlap development areas at the project. We expect that these locations will provide not only useful site-specific information, but also information that may be projected to nearby locations to gain an idea of expected conditions. With regard to landslide hazards at the project, we further recommend the following:

- Geologic evaluations for each development area should be conducted following guidelines in Hylland (1996) and in accordance with Weber and Morgan County development requirements. Given the large project size, it is possible that such studies will initially be broad and become more focused over time, which may require multiple investigations that each build upon previous data. Additional GIS analyses that combines slope aspect with slope steepness, bedrock dips, existing mapped landslide deposits, and proposed development could also prove useful to assess overall risk and identify critical areas for further investigation.

- Design-level geotechnical engineering studies should be conducted for each development area during planning stages to:

    1. Address soil conditions at the site for developing recommendations regarding site grading, drainage, and cut-slope stability; and

    2. Evaluate stability of slopes at the site in landslide-prone areas, including incorporating data from the geologic evaluations and providing recommendations for reducing the risk from landsliding if factors of safety are unsuitable. Site-specific subsurface information (such as from borings and/or ReMi), sampling, and strength testing will be needed to provide data for the stability evaluations (including cross-section profiles, shear strengths, and expected groundwater levels). Multiple stability evaluations will likely be needed once infrastructure routes are established and the development areas are confirmed.

- No unplanned cuts or site modifications should be performed without design, inspection, and approval of the project geotechnical and civil engineers.

Availability of Report

The report should be made available to architects, building contractors, and in the event of a future property sale, real estate agents and potential buyers. This report should be referenced for information on technical data only as interpreted from observations and not as a warranty of conditions throughout the site. The report should be submitted in its entirety, or referenced appropriately, as part of any document submittal to a government agency responsible for planning decisions or geologic review. Incomplete submittals void the professional seals and signatures we provide herein. Although this report and the data herein are the property of the client, the report format is the intellectual property of Western Geologic and should not be copied, used, or modified without express permission of the authors.

LIMITATIONS

This investigation was performed at the request of the Client using the methods and procedures consistent with good commercial and customary practice designed to conform to acceptable industry standards. The analysis and recommendations submitted in this report are based upon the data obtained from site-specific observations and compilation of known geologic information. This information and the conclusions of this report should not be interpolated to adjacent properties without additional site-specific information. In the event that any changes are later made in the location of the proposed site, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or approved in writing by the engineering geologist.

This report has been prepared by the staff of Western GeoLogic for the Client under the professional supervision of the principal and/or senior staff whose seal(s) and signatures appear hereon. Neither Western GeoLogic, nor any staff member assigned to this investigation has any interest or contemplated interest, financial or otherwise, in the subject or surrounding properties, or in any entity which owns, leases, or occupies the subject or surrounding properties or which may be responsible for environmental issues identified during the course of this investigation, and has no personal bias with respect to the parties involved.

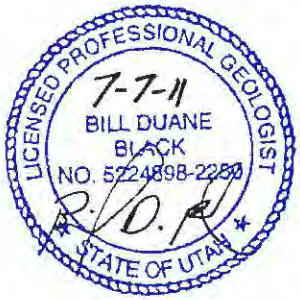
The information contained in this report has received appropriate technical review and approval. The conclusions represent professional judgment and are founded upon the findings of the investigations identified in the report and the interpretation of such data based on our experience and expertise according to the existing standard of care. No other warranty or limitation exists, either expressed or implied.

The investigation was prepared in accordance with the approved scope of work outlined in our proposal for the use and benefit of the Client; its successors, and assignees. It is based, in part, upon documents, writings, and information owned, possessed, or secured by the Client. Neither this report, nor any information contained herein shall be used or relied upon for any purpose by any other person or entity without the express written permission of the Client. This report is not for the use or benefit of, nor may it be relied upon by any other person or entity, for any purpose without the advance written consent of Western GeoLogic.

In expressing the opinions stated in this report, Western GeoLogic has exercised the degree of skill and care ordinarily exercised by a reasonable prudent environmental professional in the same community and in the same time frame given the same or similar facts and circumstances. Documentation and data provided by the Client, designated representatives of the Client or other interested third parties, or from the public domain, and referred to in the preparation of this assessment, have been used and referenced with the understanding that Western GeoLogic assumes no responsibility or liability for their accuracy.

It has been a pleasure working with you on this project. Should you have any questions please call.

Sincerely,
Western GeoLogic, LLC



Bill. D. Black, P.G.
Senior Engineering Geologist

Reviewed by:

Craig V Nelson, P.G., C.E.G.
Principal Engineering Geologist

ATTACHMENTS

Figure 1A-B. Location Map
Figure 2A-B. Geologic Map
Figure 3A-B. Air Photo

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Western Geologic Project No. 2839

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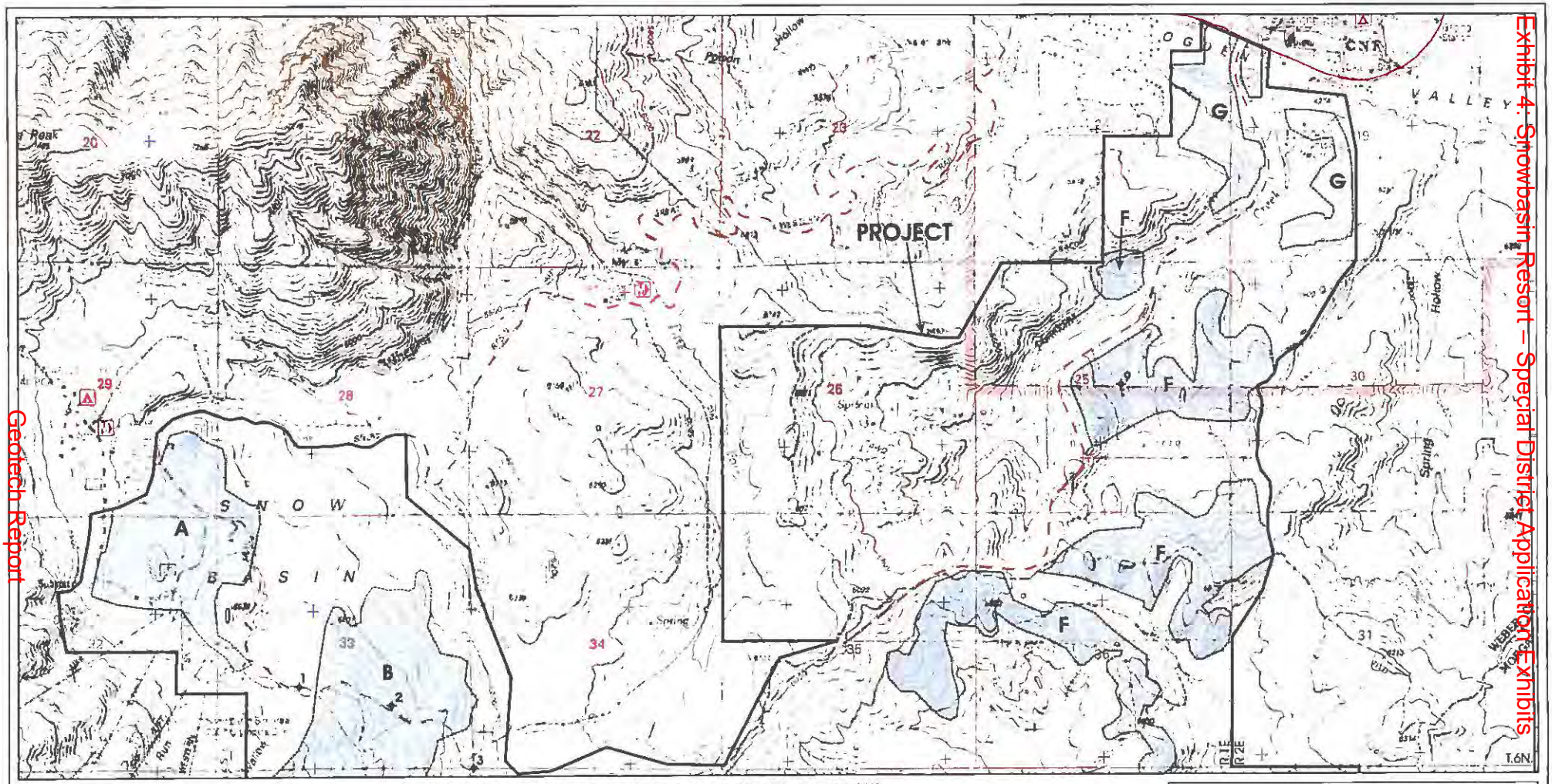

Source: U.S. Geological Survey 7.5 Minute Series Topographic Map, Utah - Snow Basin, 1998

✦ Proposed boring and slope monitoring location

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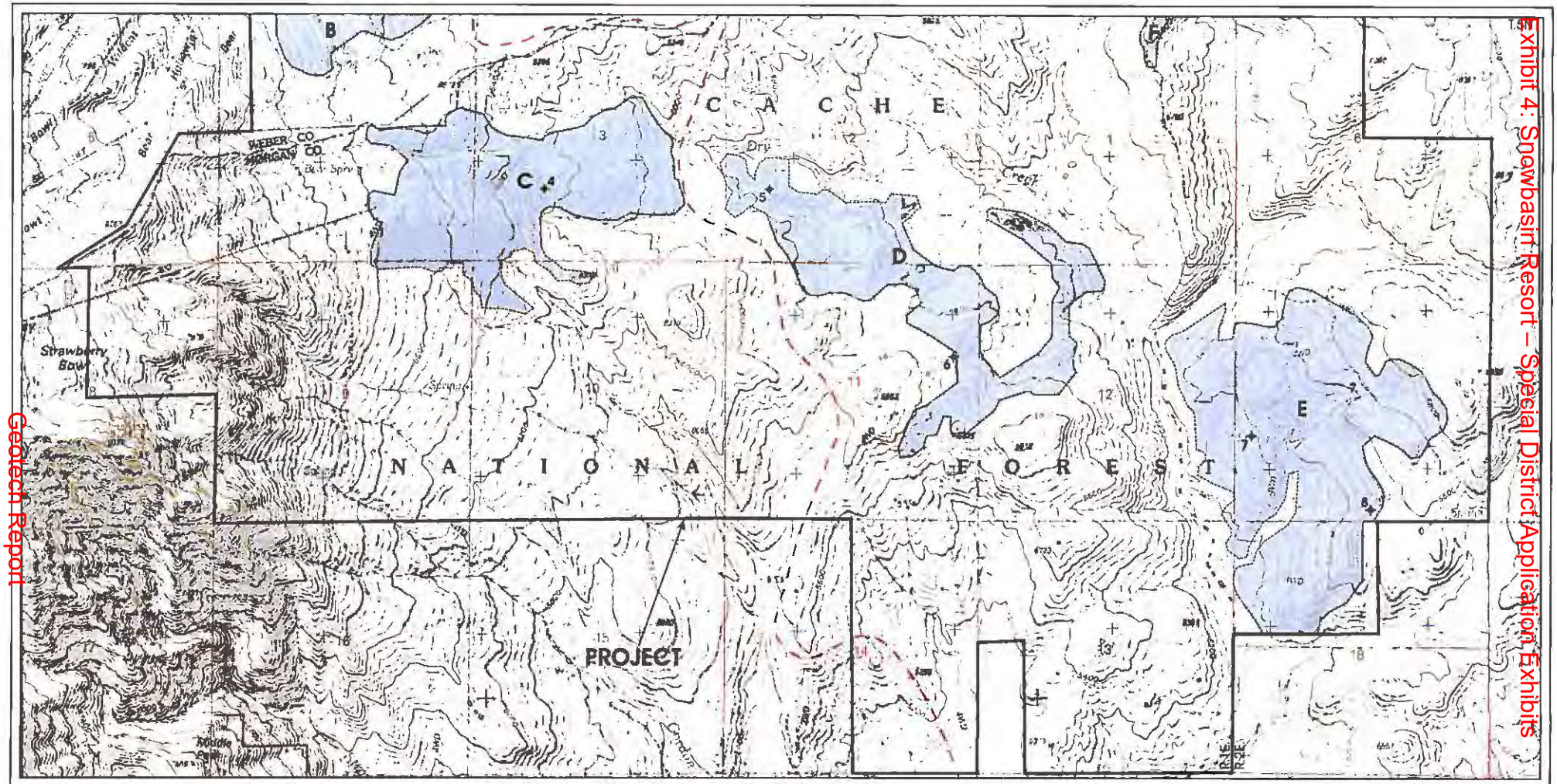
Scale 1:24,000
(1 inch = 2000 feet)

WESTERN GEOLOGIC

LOCATION MAP, NORTH HALF

LANDSLIDE HAZARD SERVICES
Snowbasin Resort
Weber and Morgan Counties, Utah

FIGURE 1A



Source: U.S. Geological Survey 7.5 Minute Series Topographic Map, Utah - Snow Basin, 1998

WESTERN GEOLOGIC

✦ Proposed boring and slope monitoring location

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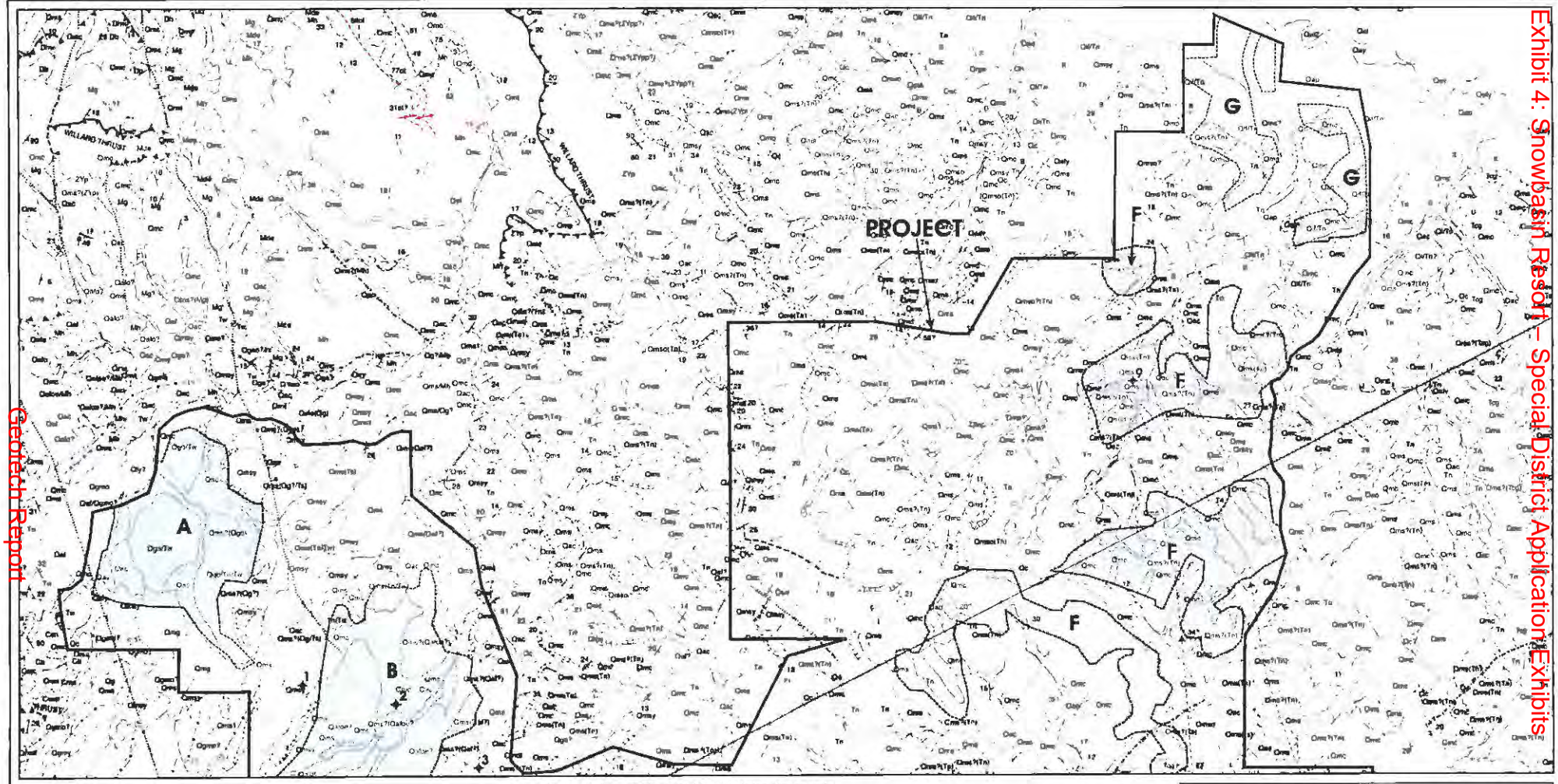
Scale 1:24,000
(1 inch = 2000 feet)

LOCATION MAP, SOUTH HALF

LANDSLIDE HAZARD SERVICES
Snowbasin Resort
Weber and Morgan Counties, Utah

FIGURE 1B



Source: King and others, 2008; see text for description of map units.

✦ Proposed boring and slope monitoring location

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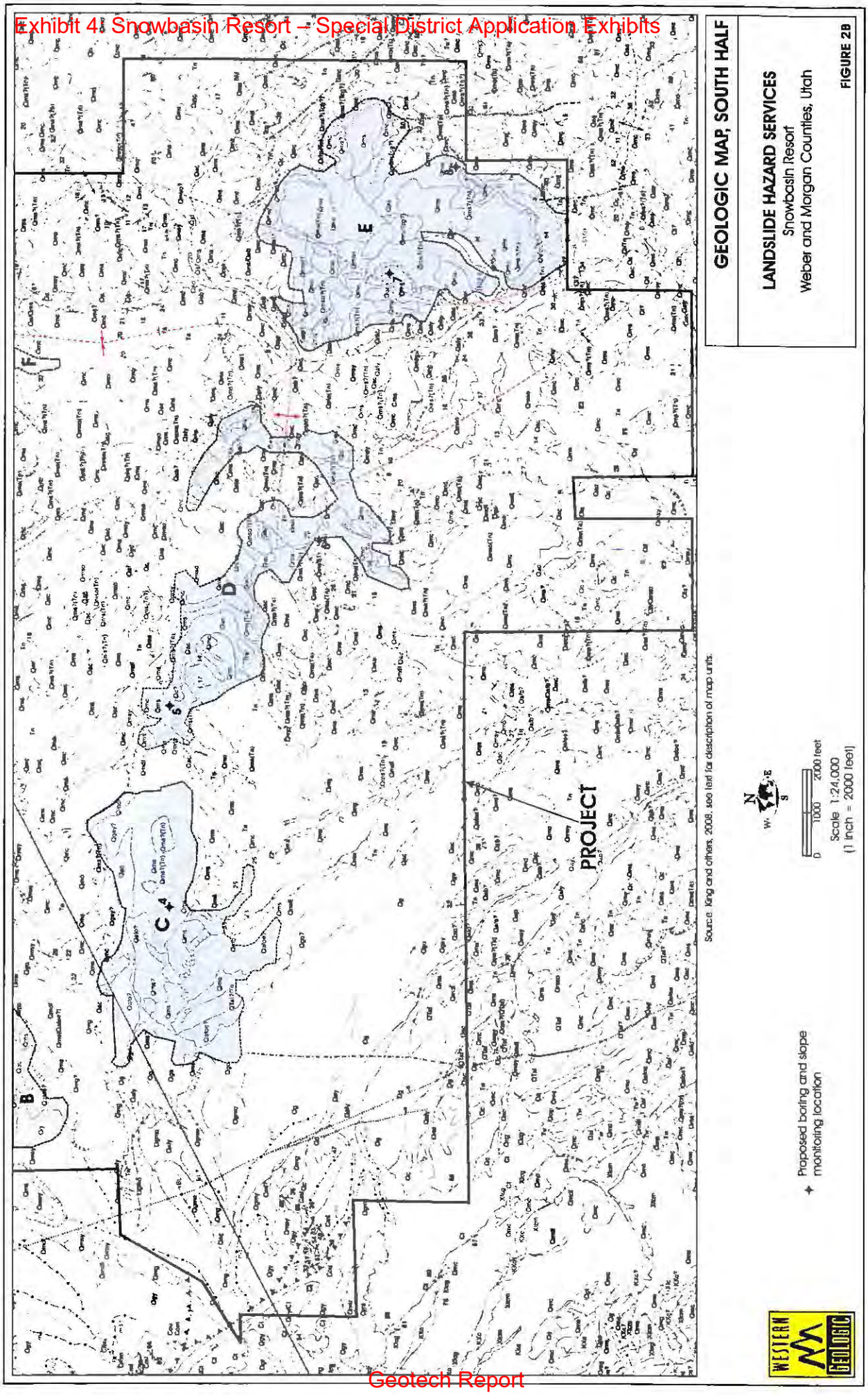
Scale 1:24,000
(1 inch = 2000 feet)

WESTERN GEOLOGIC

GEOLOGIC MAP, NORTH HALF

LANDSLIDE HAZARD SERVICES
Snowbasin Resort
Weber and Morgan Counties, Utah

FIGURE 2A


GEOLOGIC MAP, SOUTH HALF
LANDSLIDE HAZARD SERVICES
Snowbasin Resort
Weber and Morgan Counties, Utah
FIGURE 2B
PROJECT
B
C
D
E
F
Source: King and others, 2008, see text for description of map units.
Proposed boring and slope monitoring location
Scale 1:24,000
(1 inch = 2000 feet)
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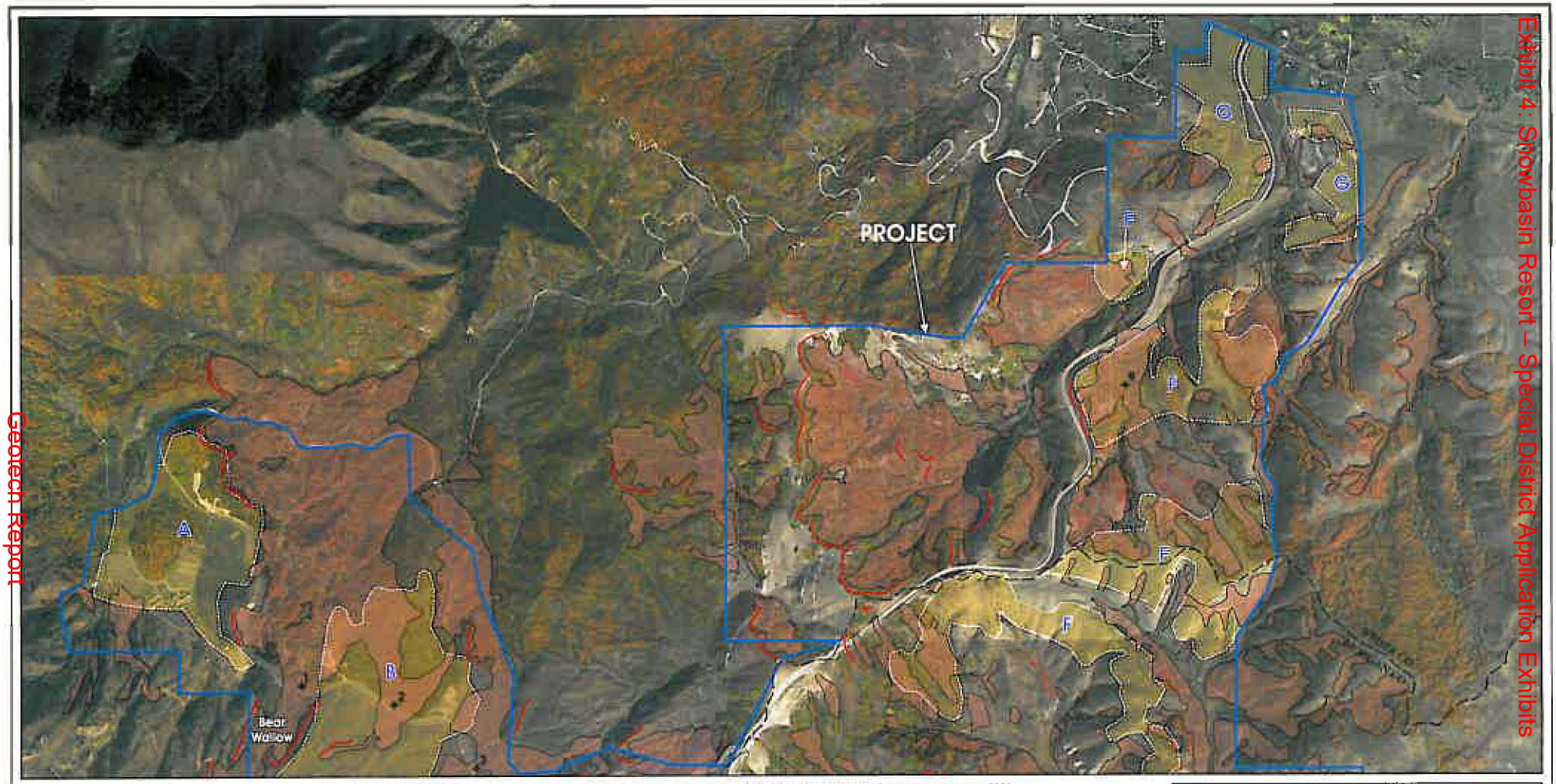
2000 feet
WESTERN GEOLOGIC



Source. Utah AGRC 2006 high-resolution orthophotos, various frames, one foot resolution, landslides and scarps in red from King and others, 2008, land-use areas in yellow generalized from Designworkshop, 2011, orange areas are where landslides and proposed development overlap

WESTERN GEOLOGIC

✦ Proposed boring and slope monitoring location

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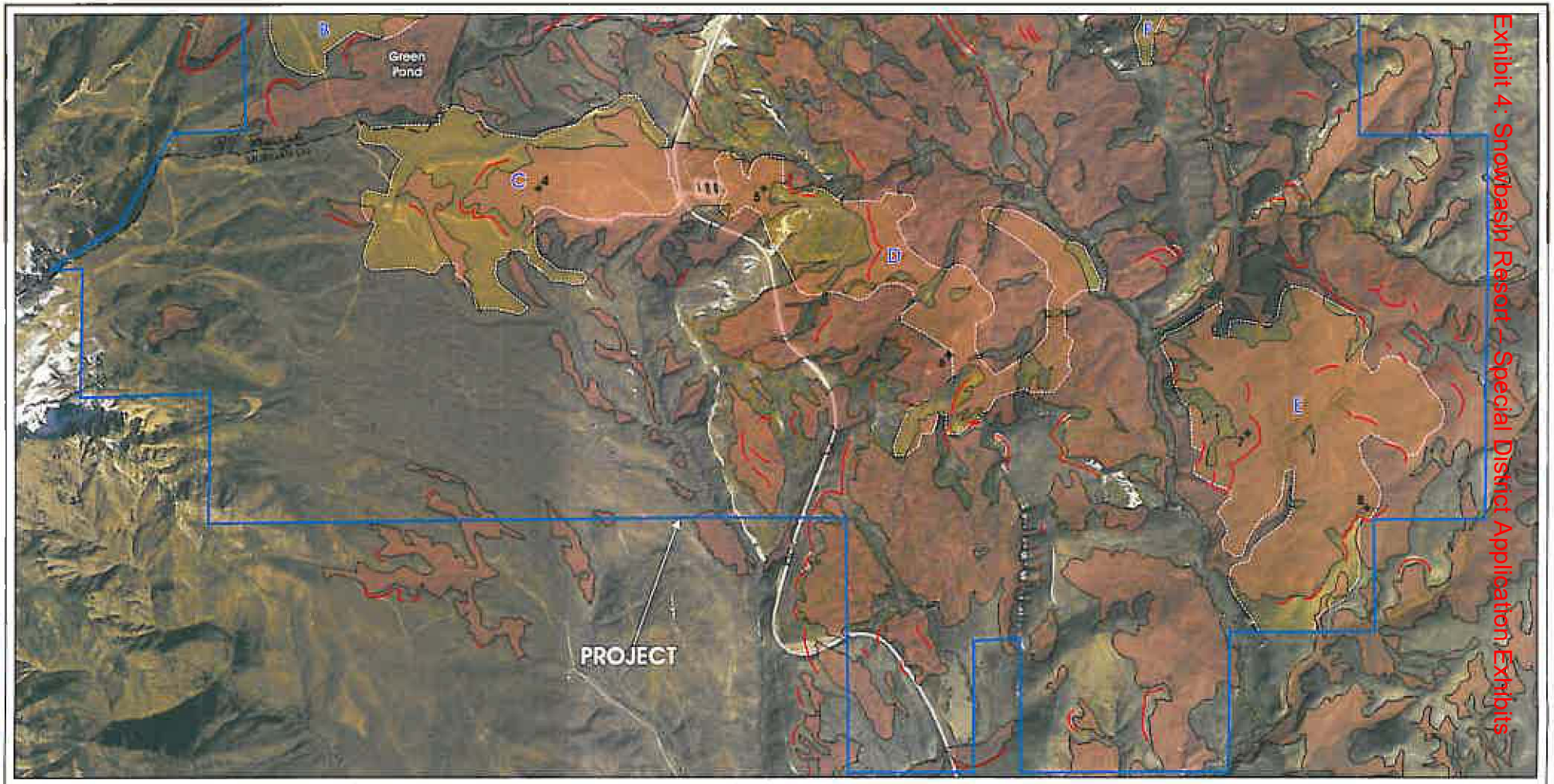
Scale 1:24,000
(1 inch = 2000 feet)

AIR PHOTO, NORTH HALF

LANDSLIDE HAZARD SERVICES
Snowbasin Resort
Weber and Morgan Counties, Utah

FIGURE 3A



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Scale 1:24,000
(1 inch = 2000 feet)

✦ Proposed boring and slope monitoring location

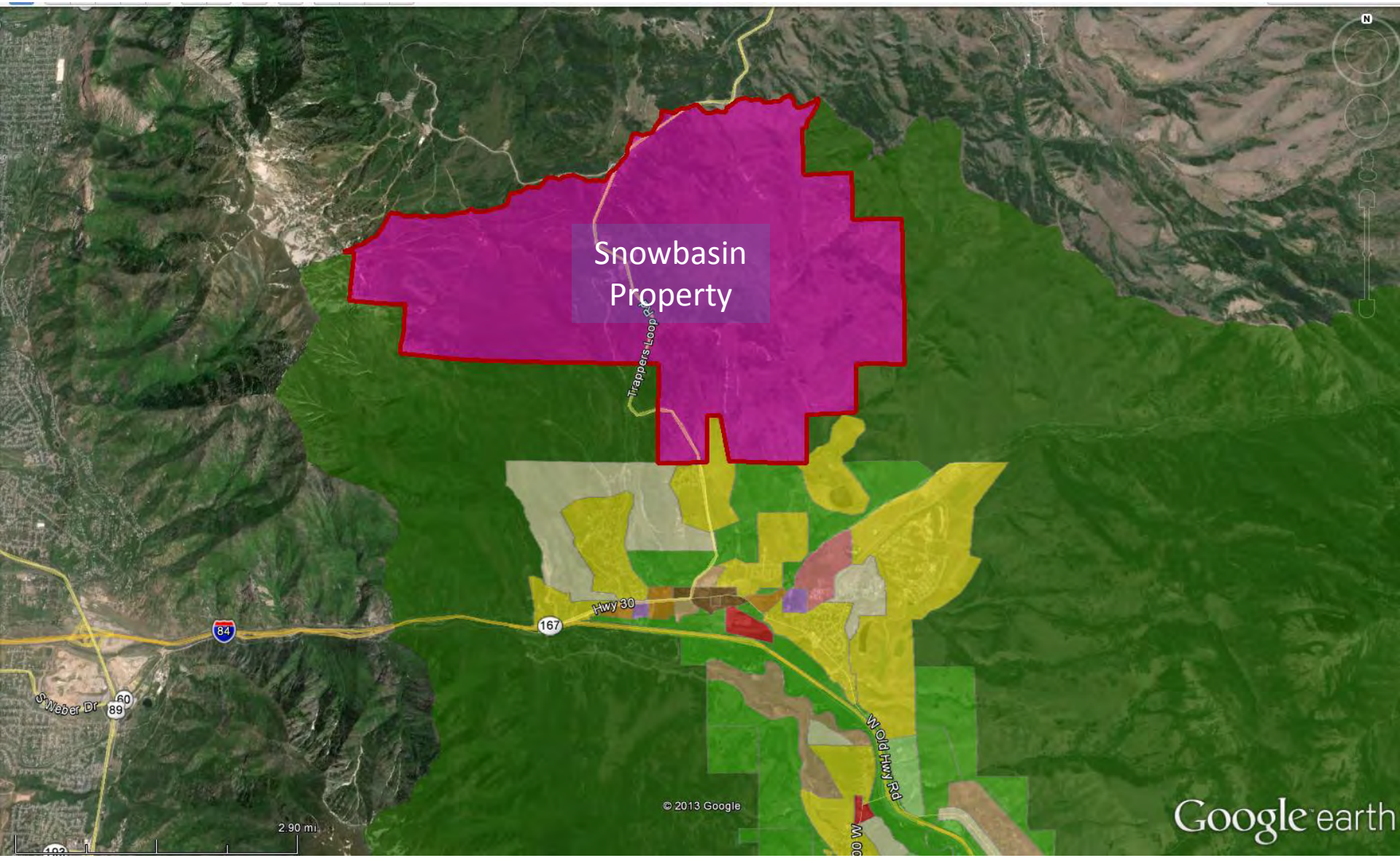
AIR PHOTO, SOUTH HALF

LANDSLIDE HAZARD SERVICES
Snowbasin Resort
Weber and Morgan Counties, Utah

FIGURE 3B

Geotech Report

Exhibit 5: General Plan Future Land Use Map



MORGAN COUNTY
Planning and Development Services

Memo

TO: **Planning Commission**

FROM: **Charles Ewert, Planning Director**

DATE: **September 5, 2013**

SUBJECT: **The creation of the RSD-Snowbasin District**

Agenda item #6 of the September 12, 2013 Planning Commission meeting is for the proposal of a text amendment to Morgan County Code (MCC) to establish a RSD-Snowbasin district to which the Snowbasin project can then be rezoned. The language in the attached Exhibit A is the proposed language. It is a simple reference to the Snowbasin development agreement – which has yet to be executed by the County Council.

This method of zone district creation and development requirement/standards implementation is intended to assist the County in providing for the effective execution of the Snowbasin zone with all applicable requirements of the development agreement simultaneously.

The order of operation is important. The zone district must be created before the Snowbasin rezone can be executed. Staff recommend approval of the text amendment.

MODEL MOTION:

A Motion Recommending Approval – "I move we forward a recommendation of approval to the County Council for the creation of the RSD-Snowbasin zone district, as attached as Exhibit A to the Planning Commission Memo dated September 5, 2013, a part of application #12.153, creating a resort special district for the proposed Snowbasin Resort project, based on the following findings:

1. As required by MCC Section 8-3-4(D) the amendment is in accordance with the county's general plan, goals, and policies of the county; and changed or changing conditions make the proposed amendment reasonably necessary to carry out the purposes of County Code.
2. The zoning district application materials, and the schematic development plan (concept plan), provided by Snowbasin;
    a. Conforms to applicable provisions of the county's general plan.
    b. Conforms to applicable provisions of the Management Code.

c. Will better preserve the property and neighborhood by integrated planning and design than would be possible under other zoning regulations.
d. Development of the property will contribute positively to the county's long term economic stability, and
e. The infrastructure plan will not be detrimental to the County's health, safety, and welfare.

3. List any additional findings…

A Motion Recommending Denial – "I move we forward a recommendation of denial to the County Council for the creation of the RSD-Snowbasin zone district, as attached as Exhibit A to the Planning Commission Memo dated September 5, 2013, a part of application #12.153, creating a resort special district for the proposed Snowbasin Resort project, based on the following findings:

1. List findings.

Exhibit A: Text Amendment Repealing the Central Development (CD) Zone District

All sections of code not specifically addressed herein shall remain unchanged.

ARTICLE J. RESORT SPECIAL DISTRICTS

8-5J-1: PURPOSE:

The purpose of each resort special district (RSD) zone is to permit a compatible, master planned mix of various types of residential and commercial land uses in combination with open space and recreational components on land that has characteristics that warrant customized development requirements. Although residential dwelling type and development size will vary from location to location, each development is intended to consist of well designed, architecturally integrated structures which are appropriately landscaped and buffered from surrounding land uses. (Ord. 11-17, 12-6-2011)

…

8-5J-2: ESTABLISHMENT OF RSD ZONES:

…

8-5J-3: RESORT SPECIAL DISTRICT-SNOWBASIN:

The Resort Special District-Snowbasin zoning district designation ("RSD-Snowbasin") is established as allowed by this Title.

All necessary land use regulations, and all other standards, provisions and requirements, applicable to the RSD-Snowbasin zone, are provided by the adopted Snowbasin Development Agreement, which is on file in the Office of the County Recorder.

MORGAN COUNTY
Planning and Development Services

Memo

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ARTICLE J. RESORT SPECIAL DISTRICTS

8-5J-1: PURPOSE:

The purpose of each resort special district (RSD) zone is to permit a compatible, master planned mix of various types of residential and commercial land uses in combination with open space and recreational components on land that has characteristics that warrant customized development requirements. Although residential dwelling type and development size will vary from location to location, each development is intended to consist of well designed, architecturally integrated structures which are appropriately landscaped and buffered from surrounding land uses. (Ord. 11-17, 12-6-2011)

…

8-5J-2: ESTABLISHMENT OF RSD ZONES:

…

8-5J-3: RESORT SPECIAL DISTRICT-SNOWBASIN:

The Resort Special District-Snowbasin zoning district designation ("RSD-Snowbasin") is established as allowed by this Title.

All necessary land use regulations, and all other standards, provisions and requirements, applicable to the RSD-Snowbasin zone, are provided by the adopted Snowbasin Development Agreement, which is on file in the Office of the County Recorder.

MORGAN COUNTY
Planning and Development Services

Memo

TO: **Planning Commission**

FROM: **Charles Ewert, Planning Director**

DATE: **September 5, 2013**

SUBJECT: **Rezoning Approximately 8,140 acres from MU-160 to RSD-Snowbasin**

To ensure proper clarity is provided in the organization of the September 12, 2013 Planning Commission Agenda, this memo is intended to direct the Planning Commission's attention to the model motion provided in the Consultant Planner Staff Report dated September 5, 2013 for discussion/decision on agenda item #7.

The Consultant Planner Staff Report was provided for agenda item #5 first as a basis from which the Planning Commission may entertain a public hearing on the complete story of the Snowbasin rezone, but staff felt is necessary to provide a clear distinction between the creation of the RSD-Snowbasin zoning district and the rezone of land to that zone, hence the separation of those decisions on the agenda.

Please use the model motion of the Consultant Planner Staff Report for decision on item #7.

Exhibit A: Text Amendment Repealing the Central Development (CD) Zone District

All sections of code not specifically addressed herein shall remain unchanged.

ARTICLE J. RESORT SPECIAL DISTRICTS

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Planning and Development Services
48 West Young Street
Morgan, UT 84050
(801) 845-4015

STAFF REPORT
September 4, 2013

To: Morgan County Planning Commission
Business Date – September 12, 2013

From: Ronda Kippen

Re: **Porter's Place Subdivision Amendment# 1**

Application No.: 13.044
Applicant: John P. Porter/Mike Carlton (Wilding Engineering)
Location: Approximately 3385 South Highway 66
Current Zoning: RR-1 and A-20 Zones
Acreage: Approximately 43.371 acres (1,889,266.47 Sq. Ft.)
Request: Final plat approval for an Amendment to the Porter's Place Subdivision, a two lot Subdivision, adding a third lot.

SUMMARY & BACKGROUND

The applicant is seeking approval of a subdivision. The amendment will add a third lot to an existing two lot subdivision. The subdivision has two single family dwelling units and is seeking approval for an additional building lot. The subdivision has been planned to utilize the required frontage and setbacks of the RR-1 zone for the additional lot, as well as preserve the setbacks in the A-20 zone. The proposal is both an amendment to an existing subdivision and a re-subdivision of land, and was reviewed for process steps and standards of both.

With the requested conditions herein, the request appears to meet the requirements of the zoning ordinance and the subdivision ordinance, and staff is recommending approval. Staff's evaluation of the request is as follows.

ANALYSIS

General Plan and Zoning. The subject property is located along Highway 66 in the Porterville Area of unincorporated Morgan County. The 2010 Morgan County General Plan and Future Land Use Map (Exhibit A) has designated this area along Highway 66 as a maximum of one dwelling unit per acre (DUA) area, which is considered a Rural Residential designation. The purpose of the Rural Residential designation is:

> The Rural Residential category designation accommodates semi-rural large lot development, with generous distances to streets and between residential dwelling units in a viable semi-rural character setting. Residential density in rural residential areas is a maximum of 1 unit per acre.

The property located outside of the Rural Residential area in the Porterville area has been identified in the 2010 Morgan County General Plan as a Ranch Residential 10. The purpose of the Ranch Residential 10 designation is:

> The Ranch Residential designation accommodates rural large lot development with generous distances to streets and between residential dwelling units and a viable semi-rural character setting. Livestock privileges are a part of this character. Areas in this category are generally larger lots with accessory structures that may be used for livestock. The residential density is a maximum of 1 unit per 10 acres.

The proposal is in compliance with the general plan by providing density under these limits.

The current zoning designations on the property are RR-1 and A-20 (Exhibit B). There are approximately 6.26 acres of the 43.37 acre property in the RR-1 zone. There are approximately 37.11 acres in the A-20 zone.

The purpose of the RR-1 zone is:

1. The purposes of providing a rural residential district are:
    a. To promote and preserve in appropriate areas conditions favorable to large lot family life;
    b. Maintaining a rural atmosphere;
    c. The keeping of limited numbers of animals and fowl; and
    d. Reduced requirements for public utilities, services and infrastructure.
2. These districts are intended to be primarily residential in character and protected from encroachment by commercial and industrial uses.

The purpose of the A-20 zone is:

> Agriculture district is to promote and preserve in appropriate areas conditions favorable to agriculture and to maintain greenbelt spaces. These districts are intended to include activities normally and necessarily related to the conduct of agriculture and to protect the district from the intrusion of uses inimical to the continuance of agricultural activity.

The proposal is incompliance with these purpose statements.

The purpose statements in the General Plan and Zoning Ordinance do not provide actual development regulations, but present the zoning context in which the proposed subdivision is located. The specific regulations found in the adopted County Code govern development of the subject property.

Layout. The Subdivision is three lots along Highway 66 in the Porterville area (Exhibit C). Lot 1 is approximately 22.62 acres of land, Lot 2 is approximately 19.16 acres of land, and Lot 3 is approximately 1.59 acres of land. Lot 3 is located in between Lot 1 and Lot 2 along Highway 66 on the East side of East Canyon Creek. There are currently homes on both Lot 1 and Lot 2. The proposed lot lines appear to conform to the existing RR-1 and A-20 zone standards for lots, including setbacks and coverage.

Roads and Access. Highway 66 will serve as frontage and access will be obtained by a shared drive off of Highway 66 for all three lots. There are no proposed access changes from what is in existence today. UDOT has provided a letter of approval for the proposed additional building lot in the Porter's Place Subdivision Amendment# 1.

Highway 66 is considered a State Road; however, it is not built to current County standards in this area. Rather than extending the width of the right of way at this time, as is in most cases required of development approval where the road is not built to County standards, the applicant has opted based on the County Engineer's recommendation, to seek an improvements exception for certain street improvement requirements. The "Improvements Exception" as allowed by Morgan County Code (MCC) 8-12-44(D)(2) must qualify for an improvement exception and the County must find the following:

> Such an exception may be granted upon finding that requiring the full street infrastructure improvements are not roughly proportional, in nature or extent, to the impact of the development on the community; is not beneficial to the county; or may be detrimental to the neighboring property abutting the development; and that the waived improvements are not necessary at this time to protect the public's health, safety, and welfare.

If the Planning Commission cannot make this finding, as provided in the staff recommended findings, then the applicant should be required to install the improvements that are required at this time.

Previous Platting. The property was originally divided as the Porter's Place Subdivision (Exhibit D).

Grading and land disturbance. The land has a gradual positive grade from East Canyon Creek extending eastward toward the rear of the lots. Increased drainage from Lot 3 will be retained by a berm that will be constructed along the North and West side of Lot 3 as per the approved preliminary plat on file in the Planning Department dated August 22, 2013. Minor grading of the lot can be expected, but none so much that it will trigger the excavation review thresholds. Any land owner choosing to re-grade the resulting lots may need additional review and engineering of the proposal at that time.

County Engineer. The County Engineer has reviewed the proposal and is recommending approval with the following conditions:

1. Proof of adequate water for the proposed shared well in accordance with MCC 8-12-46(B)
2. An Improvement Exception for the portion of Highway 66 adjacent to the proposed subdivision in accordance with MCC 8-12-44-(D)(2).

Surveyor. The County Surveyor has reviewed the proposal and is recommending approval with no additional comments and/or recommendations.

Fire Chief. A letter from the Fire Chief was submitted on August 22, 2013 indicating that it meets all terms of the IFC and is exempt from the Wildland Urban Interface requirements (Exhibit E).

Sensitive Areas, Geology, and Geotechnical Considerations. A geologic hazards assessment and geotechnical report has been submitted for the County's consideration. The County Engineer has not indicated that site geology or geotechnical issues are a concern at this point. Based on the findings from the Geotechnical Report, Wilding Engineering has placed a note on the plat requiring an inspection at footing excavation by a Geotechnical Engineer prior to placement of structural fill, concrete or reinforcement steel to verify their suitability for placement of footings. This will be a condition at Building Permit.

Utilities. The County has received will serve letters from Rocky Mountain Power and Questar Gas. Both were conditional letters of approval. The applicant should satisfy all relevant requirements of those entities, and approval of this application should be conditioned on such.

Culinary and residential irrigation water to the existing homes on Lots 1 and 2 are currently being provided by private wells. The applicant is proposing to utilize the well on Lot 2 to provide both culinary and irrigation water for both Lots 2 & 3. The Weber Morgan Health Department requires that a shared well agreement is executed. The applicant is currently in the process of obtaining an additional water right/share through Weber Basin Water Conservancy District and has provided the County with the documentation of the application. As per MCC 8-12-46(B)(1)(d):

> Water rights and well permits are required as a condition of approval for each lot and shall remain with the lot and shall not be transferred separately from the lot.

Staff recommends that proof of the additional water right/share through Weber Basin Water Conservancy District to be utilized with the shared well for Lot 2 and Lot 3 is submitted prior to plat recording.

The Weber-Morgan Health Department has reviewed the plat for private culinary well and septic system considerations and has offered their acceptance of site conditions. Final culinary well and septic approval occurs simultaneous with building permitting.

Flood Plain. There is a flood plain the covers the majority of the subdivision. Development in the flood plain is regulated by adopted flood plain ordinances, and a note has been placed on the plat requiring future development to adhere to Morgan County Code Title 9, Flood Damage Prevention Ordinance (Exhibit F).

STAFF RECOMMENDATION

Staff recommends that the Planning Commission forward a positive recommendation to the County Council for the Porter's Place Subdivision Amendment #1, application# 13.044, subject to the following conditions:

1. That an additional approved water right/share provided by Weber Basin Water Conservancy District for the proposed shared well will be submitted prior to plat recording.
2. That the Shared Well Agreement and easement be recorded prior to plat recording.
3. That inasmuch as Questar Gas, and Rocky Mountain Power have all given conditional will serve letters for the proposal, approval of the plat amendment is conditioned on the fulfillment of the various requirements of those entities. Failure to comply may result in voidance of this approval.
4. That an updated title report is submitted with the final Mylar.
5. That staff can make a positive finding that all administrative corrections and information have been provided to the satisfaction of respective reviewers, and that all conditions have been satisfied upon completion of the above conditions.
6. That all outstanding fees for outside reviews are paid in full prior to recording the final Mylar.

This recommendation is based on the following findings:

1. The nature of the subdivision is in conformance with the current and future land uses of the area.
2. The proposal complies with the Morgan County 2010 General Plan.
3. The proposal complies with current zoning requirements.
4. That sufficient proof of culinary & irrigation water flow has been provided to the Planning and Development Department.

5. Those certain conditions herein are necessary to ensure compliance with adopted laws prior to subdivision plat recording.
6. The infrastructure improvements are not necessary at this time to protect the public's health, safety, and welfare and the required improvements would create a negative impact on abutting unimproved properties, and therefore an Improvement Exception is warranted and approved with this final decision.
7. That the proposal is not detrimental to the health, safety, and welfare of the public.

MODEL MOTIONS

Sample Motion for a Positive Recommendation – "I move we forward a positive recommendation to the County Council for the Porter's Place Subdivision Amendment# 1, application# 13.044, subject to the conditions and based on the findings presented in the staff report dated September 4, 2013, and as modified by the conditions below:"

1. List any additional findings and/or conditions…

Sample Motion for a Negative Recommendation – "I move we forward a negative recommendation to the County Council for the Porter's Place Subdivision Amendment# 1, application# 13.044, based on the following findings:"

1. List all findings…

SUPPORTING INFORMATION

Exhibit A: Future Land Use Map
Exhibit B: Zoning Map
Exhibit C: Porter's Place Subdivision Amendment# 1 Final Plat
Exhibit D: Original Porter's Place Subdivision
Exhibit E: Wildland-Urban Interface
Exhibit F: Flood Plain Boundaries

Exhibit A-Future Land Use Map

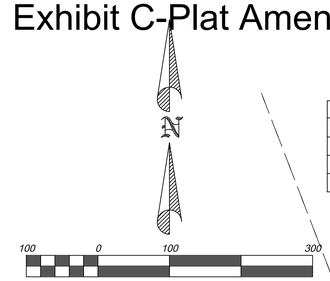
Exhibit B-Current Zoning Map

Exhibit C-Plat Amendment

PORTER'S PLACE SUBDIVISION AMENDMENT #1

LOCATED IN THE SOUTH HALF OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN MORGAN COUNTY, UTAH

CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD DISTANCE
C1	427.49'	2325.00'	10°32'05"	N07°28'31"W	426.89'
C2	201.27'	2325.00'	4°57'36"	N15°13'21"W	201.21'
C3	72.15'	2325.00'	1°46'41"	N18°35'30"W	72.14'



NORTHWEST CORNER SECTION 24 TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN NOT FOUND

S 89°47'45" E 2637.17'

NORTH QUARTER CORNER SECTION 24 TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN FOUND IRON PIPE WITH ALUMINUM CAP

S 00°43'53" W 5343.87'

CREEK SIDE SUBDIVISION

N68°56'13"E 46.36'

FND R/C MOUNTAIN ENGINEERING

S12°37'12"W 157.64'

N68°29'53"E 1418.17'

S12°39'22"E 505.25'

CHARLES R. KIPPEN AND SONS

S08°07'27"E 209.91'

20' CANAL EASEMENT

S32°35'56"E 98.21'

S58°24'47"E 78.00'

FND R/C MOUNTAIN ENGINEERING

51.96'

S05°42'46"E 506.63'

454.67'

FND R/C MOUNTAIN ENGINEERING

S65°05'47"W 248.77'

FOUND REBAR (NO CAP)

RICH NELSON

N68°26'16"E 67.84'

N68°22'42"E 352.24'

FND R/C MOUNTAIN ENGINEERING

RESIDENTIAL ENVELOPE (TYP) SEE NOTE 6

A-20 ZONE RR-1 ZONE

FLOOD ZONE BOUNDARY FLOOD ZONE "A" SEE NOTE 9

LOT 1
3347 SOUTH
22.62 ACRES
985,424 SQ FT

S68°29'53"W 1472.49'

RESIDENTIAL ENVELOPE (TYP) SEE NOTE 6

FND R/C DISTURBED

KENDALL M. WATERBURY

R= 872.00'
L= 55.27'
Δ= 003°37'53"
CB= N21°16'32"W
CD= 55.26'

N70°31'10"E 32.48'

N79°56'20"E 136.16'

98.95'

30' WIDE ACCESS AND UTILITY EASEMENT TO LOTS 2 AND 3

S19°20'05"E 214.38'

N88°32'57"E 124.00'

EX WELL

N19°28'50"W 329.58'

LYNDALL J WATERBURY

STATE HIGHWAY 66

EAST CANYON CREEK

EX WELL HEAD PROTECTION ZONE (100' RADIUS)

N65°50'29"E 106.85'

RESIDENTIAL ENVELOPE (TYP) SEE NOTE 6

R=2311.41' L=107.89' CB=N21°30'00"W 107.88'

S68°29'53"W 333.80'

N17°05'37"W 213.40'

BFE= 5175.0
LFF= 5176.0

LOT 3
3385 SOUTH
1.59 ACRES
68,068 SQ FT

LOT 2
3423 SOUTH
19.16 ACRES
834,774 SQ FT

20' (10' EACH SIDE) WATER SERVICE AND MAINTENANCE EASEMENT FROM PROP CORNER TO WELL

EX WELL HEAD PROTECTION ZONE (100' RADIUS)

30.00'

N68°29'53"E 357.80'

N73°12'26"W 407.88'

M. BLAINE FACKRELL

FUTURE WELL HEAD PROTECTION ZONE (100' RADIUS) SEE NOTE 8

20' EXISTING QUESTAR GAS EASEMENT ENTRY 88101, BOOK 173, PG 438

FLOOD ZONE BOUNDARY FLOOD ZONE "A" SEE NOTE 9

S65°25'34"W 1302.01'

CURTIS D. JONES AND BONNIE F. JONES

ALFRED O. PETERSON

R= 2325.00'
L= 700.91'
Δ= 017°16'22"
CB= N10°50'39"W
CD= 698.26'

RESIDENTIAL ENVELOPE (TYP) SEE NOTE 6

GARY W. LEAK

BENCHMARK FND R/C MOUNTAIN ENGINEERING EL= 5178.42

P.O.B.

S65°19'29"W 176.69'

FOUND NAIL IN POST

S75°02'57"W 85.72'

FND R/C MOUNTAIN ENGINEERING

BENJAMIN BROOKS BLOMQUIST

WEST 2385.63' (TIE)

293.52' (TIE)

S89°24'22"E 84.57'

FOUND REBAR W/ CAP STAMPED "MOUNTAIN ENGINEERING", REFERENCED IN ORIGINAL PLAT AS THE SOUTHWEST CORNER SECTION 24, TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN (AS PER THE ORIGINAL PORTERS PLACE SUBDIVISION PLAT)

SOUTHWEST CORNER SECTION 24 TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN FOUND 1" IRON PIPE IN STONE PILE

G:\DATA\2133 Porter's Place Amended Plat\dwg\Porters Place Final Plat.dwg
PLOT DATE: Sep 04, 2013

NOTES:

1. THIS PLAT WAS PREPARED AT THE REQUEST OF JOHN PORTER, 3423 SOUTH HIGHWAY 66 MORGAN, UTAH 84050.
2. POWER, GAS, AND TELEPHONE ARE LOCATED ON STATE HIGHWAY 66.
3. WASTE DISPOSAL WILL UTILIZE AN ON-SITE WASTE TREATMENT SYSTEM.
4. WATER WILL BE PROVIDED BY A SHARED PRIVATE WELL, LOCATED ON LOT 2.
5. EXISTING ZONING, AS NOTED ON THE MAP, IS RR-1 AND A-20. THE TABLE BELOW SHOWS THE ZONING AREA OF EACH LOT.

	ZONE A-20		ZONE RR-1		TOTAL	
	SQ FT	ACRES	SQ FT	ACRES	SQ FT	ACRES
OVERALL	1,616,574	37.11	272,692	6.26	1,889,266	43.37
LOT 1	834,009	19.15	151,415	3.47	985,424	22.62
LOT 2	760,460	17.44	74,314	1.71	834,774	19.16
LOT 3	22,105	0.51	46,963	1.08	69,068	1.59

6. RESIDENTIAL ENVELOPE IS BASED ON THE FOLLOWING SETBACKS:

	ZONE A-20	ZONE RR-1
FRONT	30'	30'
REAR	60'	30'
SIDE	60'	15'

IN ADDITION, A 20' SETBACK IS SHOWN FROM THE TOP BANK OF EAST CANYON CREEK.

7. INCREASED DRAINAGE FROM LOT 3 WILL BE RETAINED WITH BERM AS SHOWN ON APPROVED PRELIMINARY PLAT FILE# 13.044 DATED AUGUST 22, 2013..
8. THE FUTURE WELL HEAD PROTECTION ZONE AS SHOWN ON THIS PLAT FOR LOT 3 IS TO PROVIDE A LOCATION FOR A NEW WELL, SHOULD ONE BE NEEDED IN THE FUTURE.
9. FLOOD BOUNDARY AS SHOWN IS FROM FEMA MAP 49029C0385C, DATED APRIL 19, 2010. THE BASE FLOOD ELEVATION (BFE) FOR LOT 3 IS NOTED ON THE LOT AS WELL AS THE LOWEST FINISHED FLOOR ELEVATION (LFF), WHICH IS 1 FOOT ABOVE THE BFE.
10. MORGAN COUNTY RESTRICTS THE OCCUPANCY OF BUILDINGS WITHIN DEVELOPMENTS AS OUTLINED IN THE ADOPTED BUILDING AND FIRE CODES. IT IS UNLAWFUL TO OCCUPY A BUILDING LOCATED WITHIN ANY DEVELOPMENT WITHOUT FIRST HAVING OBTAINED A CERTIFICATE OF OCCUPANCY ISSUED BY THE COUNTY (ORD 10-16, 12-14-2010).
11. PER THE GEOTECHNICAL REPORT FOR THIS PROJECT, FOOTING EXCAVATIONS SHALL BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF STRUCTURAL FILL, CONCRETE, OR REINFORCEMENT STEEL TO VERIFY THEIR SUITABILITY FOR PLACEMENT OF THE FOOTINGS.
12. THIS DEVELOPMENT IS REQUIRED TO ADHERE TO MORGAN COUNTY TITLE 9, FLOOD DAMAGE PREVENTION ORDINANCE.

LEGEND

- SECTION CORNER
- FOUND NAIL
- FOUND MONUMENT
- FOUND REBAR AND CAP (BOUNDARY LINE)
- SET 5/8 REBAR AND CAP (WILDING ENGINEERING) (BOUNDARY LINE)
- PROPERTY CORNER NOT FOUND OR SET (BOUNDARY LINE)
- ADJACENT PROPERTY / ROW LINE
- SETBACK / RESIDENTIAL BUILDING ENVELOPE
- DRAINAGE FLOW DIRECTION (LOT 3 ONLY)

WILDING ENGINEERING
14721 SOUTH HERITAGE CREST WAY - BLUFFDALE, UT 84065 - 801-553-8112

WEBER-MORGAN HEALTH DEPARTMENT

THE WASTE DISPOSAL SYSTEM AND THE CULINARY WATER SYSTEM ARE HEREBY APPROVED.

SIGNED THIS _____ DAY OF _____ , 20___.

DISTRICT HEALTH OFFICER

MORGAN COUNTY ATTORNEY

I HAVE EXAMINED THIS SUBDIVISION PLAT AND IN MY OPINION, IT CONFORMS TO THE COUNTY ORDINANCE APPLICABLE THERETO AND NOW IN FORCE AND EFFECT.

SIGNED THIS _____ DAY OF _____ , 20___.

MORGAN COUNTY ATTORNEY

MORGAN COUNTY SURVEYOR

I HEREBY CERTIFY THAT THE MORGAN COUNTY SURVEYOR'S OFFICE HAS REVIEWED THIS PLAT FOR MATHEMATICAL CORRECTNESS, SECTION CORNER DATA AND FOR HARMONY WITH LINES AND MONUMENTS ON RECORD IN THE MORGAN COUNTY OFFICES. THE APPROVAL OF THIS PLAY BY THE MORGAN COUNTY SURVEYOR DOES NOT RELIEVE THE LICENSED LAND SURVEYOR WHO EXECUTES THIS PLAT FROM THE RESPONSIBILITIES AND/OR LIABILITIES ASSOCIATED THEREWITH.

SIGNED THIS ___ DAY OF _____, 20___.

MORGAN COUNTY SURVEYOR

MORGAN COUNTY COUNCIL

THIS IS TO CERTIFY THAT THIS SUBDIVISION PLAT AND THE OWNER'S DEDICATION ARE HEREBY APPROVED AND ACCEPTED BY THE COUNCIL OF MORGAN COUNTY, UTAH.

SIGNED THIS _____ DAY OF _____ , 20___.

CHAIRMAN, MORGAN COUNTY COUNCIL

MORGAN COUNTY ENGINEER

I HEREBY CERTIFY THAT I HAVE HAD THIS PLAT EXAMINED AND FIND IT IS CORRECT AND IN ACCORDANCE WITH THE INFORMATION ON FILE IN THIS OFFICE.

MORGAN COUNTY ENGINEER

ACKNOWLEDGMENT

STATE OF UTAH
COUNTY OF _____

ON THE ___DAY OF _____,20___A.D. PERSONALLY APPEARED BEFORE ME, _____ WHO BEING DULY SWORN OR AFFIRMED, DID SAY THAT HE/SHE/THEY IS/ARE THE _____OF _____AND THAT THE WITHIN OWNER'S DEDICATION WAS SIGNED BY THEM FREELY AND VOLUNTARILY AND FOR THE PURPOSES THEREIN STATED.

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

ACKNOWLEDGMENT

STATE OF UTAH
COUNTY OF _____

ON THE ___DAY OF _____,20___A.D. PERSONALLY APPEARED BEFORE ME, _____ WHO BEING DULY SWORN OR AFFIRMED, DID SAY THAT HE/SHE/THEY IS/ARE THE _____OF _____AND THAT THE WITHIN OWNER'S DEDICATION WAS SIGNED BY THEM FREELY AND VOLUNTARILY AND FOR THE PURPOSES THEREIN STATED.

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

MORGAN COUNTY PLANNING COMMISSION

THIS IS TO CERTIFY THAT THIS SUBDIVISION PLAT WAS DULY APPROVED BY THE MORGAN COUNTY PLANNING COMMISSION.

SIGNED THIS ___ DAY OF _____, 20___.

CHAIRMAN, MORGAN COUNTY PLANNING COMMISSION

SURVEYOR'S CERTIFICATE

I, SCOTT W. DERBY, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR, AND THAT I HOLD CERTIFICATE NO. 186126 AS PRESCRIBED BY THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT BY THE AUTHORITY OF THE OWNERS, I HAVE MADE A SURVEY OF THE TRACT OF LAND SHOWN ON THIS MAP, AND THAT I HAVE SUBDIVIDED THE PROPERTY INTO STREETS AND LOTS HEREAFTER KNOWN AS:

PORTER'S PLACE SUBDIVISION AMENDMENT #1

AND THAT THE SAME HAS BEEN CORRECTLY SURVEYED AS SHOWN ON THIS MAP.

PROFESSIONAL LAND SURVEYOR
No. 186126
SCOTT W. DERBY
STATE OF UTAH

BOUNDARY DESCRIPTION

ALL OF LOT 1, PORTERS PLACE SUBDIVISION, ACCORDING TO THE OFFICIAL PLAT THEREOF ON FILE AND OF RECORD IN THE OFFICE OF THE MORGAN COUNTY RECORDER AND ALL OF LOT 2, PORTERS PLACE SUBDIVISION, ACCORDING TO THE OFFICIAL PLAT THEREOF ON FILE AND OF RECORD IN THE OFFICE OF THE MORGAN COUNTY RECORDER. TOGETHER WITH AN EASEMENT ACROSS LOT 1, FOR INGRESS AND EGRESS TO LOT 2, AS SHOWN ON PLAT, MORE PARTICUARLY DESCRIBED AS FOLLOWS:

A TRACT OF LAND SITUATE IN THE SOUTHEAST QUARTER OF SECTION 24, AND THE SOUTHWEST QUARTER OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, MORGAN COUNTY, UTAH, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 24, A REBAR W/CAP IN A STONE PILE: THENCE NORTH 00°42'53" WEST 293.52 FEET ALONG THE WEST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 24; THENCE NORTH 90°00'00" EAST 2385.63 FEET TO A POINT ON THE EAST LINE OF STATE HIGHWAY NO. 66, A REBAR W/CAP PLACED IN A FENCE LINE, THE TRUE POINT OF BEGINNING.

THENCE 700.91 FEET ALONG SAID STATE HIGHWAY NO. 66, A CURVE TO THE LEFT, HAVING A RADIUS OF 2325.00 FEET TO A LONG CHORD BEARING NORTH 10°50'39" WEST 698.26 FEET TO A REBAR W/CAP; THENCE NORTH 19°28'50" WEST 329.58 FEET ALONG SAID EASTERLY LINE OF STATE HIGHWAY NO. 66 TO A REBAR W/CAP; THENCE 55.27 FEET ALONG SAID STATE HIGHWAY 66, A CURVE TO THE LEFT, HAVING A RADIUS OF 872.00 FEET, AND A LONG CHORD BEARING NORTH 21°16'32" WEST 55.26 FEET TO THE PROJECTION OF A FENCE LINE EXTENDING TO THE EAST AND A REBAR W/CAP; THENCE NORTH 68°22'42" EAST 352.24 FEET ALONG SAID FENCE LINE TO THE SOUTHWESTERLY CORNER OF "CREEK SIDE SUBDIVISION", A FENCE CORNER AND A REBAR W/CAP; THENCE NORTH 68°26'16" EAST 67.84 ALONG THE SOUTH LINE OF SAID SUBDIVISION TO A FENCE CORNER AND A REBAR W/CAP; THENCE NORTH 68°29'53" EAST 1418.17 FEET ALONG SAID SOUTH LINE TO THE SOUTHEAST CORNER OF SAID SUBDIVISION, A FENCE CORNER AND REBAR W/CAP; THENCE NORTH 68°56'13" EAST 46.36 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A REBAR W/CAP; THENCE SOUTH 12°39'22" EAST 505.25 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A REBAR W/CAP; THENCE SOUTH 05°42'46" EAST 506.63 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A REBAR W/CAP; THENCE SOUTH 65°05'47" WEST 248.77 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A REBAR W/CAP; THENCE SOUTH 65°25'34" WEST 1302.01 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A NAIL AND WASHER SET IN THE TOP OF A FENCE CORNER POST; THENCE SOUTH 65°19'29" WEST 176.69 FEET ALONG A FENCE LINE TO A REBAR W/CAP; THENCE SOUTH 75°02'57" WEST 85.72 FEET ALONG A FENCE LINE TO A POINT ON THE EASTERLY LINE OF STATE HIGHWAY NO. 66, A REBAR W/CAP AND THE POINT OF BEGINNING;

THE ABOVE DESCRIBED TRACT CONTAINS 43.371 ACRES OR 1,889,266.47 SQUARE FEET.

BOUNDARY NARRATIVE

THIS AMENDED PLAT WAS PREPARED USING THE FINAL PLAT FOR 'PORTER'S PLACE SUBDIVISION', RECORDED AS ENTRY 82604, BOOK M160, PAGE 427 OF THE MORGAN COUNTY RECORDERS OFFICE. REFER TO THE ORIGINAL PLAT FOR MORE DETAILS. THE FLOOD ZONE DEPICTED ON THIS PLAT WAS UPDATED TO REFLECT CURRENT INFORMATION. THE ORIGINAL PLAT HAS BEEN AMENDED TO CREATE LOT 3, AND MODIFY THE ACCESS AND UTILITY EASEMENT LOCATION.

BASIS OF BEARING

THE BASIS OF BEARING FOR THIS PLAT IS NORTH 68°29'53" EAST ALONG THE SOUTH LINE OF CREEK SIDE SUBDIVISION AS PER THE ORIGINAL PLAT.

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT WE THE UNDERSIGNED OWNERS OF THE ABOVE DESCRIBED TRACT OF LAND, HAVING CAUSED SAME TO BE SUBDIVIDED INTO LOTS, TOGETHER WITH EASEMENTS AS SET FORTH ON THE ATTACHED PLAT, TO BE HEREAFTER KNOWN AS

PORTER'S PLACE SUBDIVISION AMENDMENT #1

IN WITNESS WHEREOF, WE HAVE HEREUNTO SET OUR HANDS THIS _____ DAY OF _____, A.D. 20___.

BY: _____ ITS: _____
LOT 1: SANFORD'S PLACE, LTD:, A UTAH LIMITED PARTNERSHIP

_____ _____
LOT 2: CONNIE W PORTER

PORTER'S PLACE SUBDIVISION AMENDMENT #1

LOCATED IN THE SOUTH HALF OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN

RECORDER'S OFFICE

STATE OF UTAH, COUNTY OF MORGAN, RECORDED AND FILED AT THE REQUEST OF _____

DATE_____ TIME_____

ENTRY_____BOOK_____PAGE_____

_____ _____
FEE MORGAN COUNTY RECORDER

FINAL PLAT

PORTER'S PLACE SUBDIVISION

A PART OF THE SE 1/4 AND THE SW1/4 OF SEC. 24
T3N, R2E, SALT LAKE BASE AND MERIDIAN,
U.S. SURVEY, MORGAN COUNTY, UTAH
MAY, 2000

CREEK SIDE SUBDIVISION

(S 48°47'00" E) (405.70')
(N82°00'00"W) (60.00')
(S45°47'00"W) (83.00')
(N59°00'00"W) (75.00')
(N31°30'00"W) (100.00')
(N89°00'00"W) (N88°48'22"E) (342.17') (339.90')
STA. 18+94
(S16°40'00"E) (320.70')
(N15°00'00"W) (N14°43'22"W) (197.76') (197.20')
(S68°26'16"W) N 68°26'16" E 67.84' (67.84')
(S68°29'53"W) CREEK SIDE SUB. N 68°29'53" E
EXISTING FENCE (N 69°10'00" E) PORTER
(1418.17') 1418.17 (1782.00')
DEED LINE
(308.22') 352.24'
(N69°00'00"E) N 68°22'42" E
M. BLAINE FACKERELL ET. UX.
NO MONUMENT FOUND
NORTHWEST CORNER
SECTION 24, T3N, R2E.
(S89°47'45"E) (2637.17') S 89°47'45" E 2637.17'
FOUND ORIGINAL STONE
USED CENTER OF STONE
IRON PIPE WITH ALLUMINUM CAP
LIES N 76°53'30" W 0.56'
NORTH QUARTER CORNER
SECTION 24, T3N, R2E.
C4 L=440.70'
STA. 23+34.7
STA. 23+93.8 AHEAD
STATE HIGHWAY NO. 66
R100.00'
N88°32'57"E 124.00
N70°31'10"E 32.48'
N 75°36'20" E 136.16'
30' WIDE ACCESS AND UTILITY EASEMENT TO LOT 2
EXISTING WELL WELL PROTECTION ZONE
N 19°28'39" W 329.58'
(N 19°43'53" W) (329.58')
EAST CANYON CREEK
CB L=164.67'
3347 SOUTH
3423 SOUTH
289.89
30.00'
FLOOD ZONE BOUNDARY "FLOOD ZONE A"
N 68°29'53" E
1816.24'
43.371 ACRES (AS SURVEYED)
(40.08 ACRES)
A-20 ZONE
LOT 1
23.340 ACRES
EXISTING HOME
(1418.17') 1418.17 (1782.00')
DEED LINE
S 12°39'22" E EXISTING FENCE
OLD FENCE
(S 12°39'22" E) (505.25')
20.00' CANAL EASEMENT
S 68°29'53" W 208.31'
S 68°29'53" W 208.31'
20.00'
5.90'
SET REBAR AND CAP IN FENCE CORNER ON SOUTHERLY BANK OF CANAL
N 68°56'13" E 46.36'
(S 67°20'00" E) (3.02) (S 67°20'00" E) (3.02)
(S 52°04') (3.02)
CHARLES R. KIPPEN AND SONS
S 05°42'46" E EXISTING FENCE 506.63'
S 05°42'46" E 506.63'
51.96'
S 65°05'47" W 248.77'
DEED LINE
LOT 2
20.031 ACRES
R100.00'
WELL PROTECTION ZONE
1302.01'
DEED LINE
EXISTING FENCE
S 65°25'34" W
(1584.00') PORTER
(1402.50') JONES
(S 75°00'00" W) (N 75°00'00" E)
CURTIS JONES AND BONNIE F. KIPPEN
S 65°10'29" W 176.69'
S 75°02'57" W 85.72'
SET NAIL AND WASHER IN TOP OF FENCE POST.
P.O.B.
ROBERT WINGATE
(330.00') (N 00°00'00" W)
N 90°00'00" E 2385.63'
293.52'
S 00°24'22" E 84.57'
FOUND REBAR W/CAP IN STONE PILE STAMPED "MOUNTAIN ENGINEERING" SAID REBAR WAS SET BASED ON EXISTING FENCES AS INDICATED ON "J & J MARTIN SUBDIVISION" SOUTHWEST CORNER SECTION 24, T3N, R2E.
FOUND 1" IRON PIPE IN STONE PILE PREVIOUS LOCATION OF CORNER AS INDICATED ON "J & J MARTIN SUBDIVISION" SOUTHWEST CORNER SECTION 24, T3N, R2E.
STA. 35+87.7
CB L=237.10'
C3 L=700.91'
C2 L=924.70'
C1 L=403.40'
(N 00°43'53" W) (5382.87')
5374.87'
SCALE 1"=100'

LOT 2 — WASTE SYSTEM
TEST HOLE NO. 1 PERK @ 26" 8.0 MIN/INCH
TEST HOLE NO. 1A PERK @ 44" 1.7 MIN/INCH

LEGEND:
- "●" SET 5/8 REBAR W/CAP OR AS INDICATED
- "⊙" SET NAIL AND WASHER
- "⊕" SECTION CONTROL AS INDICATED
- ( ) RECORD DATA

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD
C1	440.70	839.00	30°05'44"	N34°32'58"W	435.65
C2	924.70	2292.00	23°06'57"	N07°55'22"W	918.44
C3	403.40	872.00	26°30'22"	N36°20'39"W	399.81
C4	55.27	872.00	3°37'53"	N21°16'32"W	55.26
C5	700.91	2325.00	17°16'22"	N10°50'39"W	698.26
C6	164.61	2325.00	4°03'23"	N17°27'08"W	164.57
C7	536.30	2325.00	13°12'59"	N08°48'57"W	535.11
C8	237.10	2325.00	5°50'35"	N00°42'49"E	237.00

NOTE:
A NEW FENCE LINE HAS BEEN CONSTRUCTED APPROXIMATELY 2' EASTERLY OF THE PREVIOUS FENCE LINE AS INDICATED BY OLD FENCE POSTS.

BOUNDARY DESCRIPTOIN — "PORTER'S PLACE SUBDIVISION"

A TRACT OF LAND SITUATE IN THE SOUTHEAST QUARTER OF SECTION 24, AND THE SOUTHWEST QUARTER OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN, U.S. SURVEY, MORGAN COUNTY, UTAH, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 24, A REBAR W/CAP IN A STONE PILE:
THENCE NORTH 00°43'53" WEST 293.52 FEET ALONG THE WEST LINE OF THE NORTHWEST QUARTER OF SAID SECTOIN 24;
THENCE NORTH 90°00'00" EAST 2385.63 FEET TO A POINT ON THE EAST LINE OF STATE HIGHWAY NO. 66, A REBAR W/CAP PLACED IN A FENCE LINE, THE TRUE POINT OF BEGINNING;
THENCE 700.91 FEET ALONG SAID STATE HIGHWAY NO. 66, A CURVE TO THE LEFT, HAVING A RADIUS OF 2325.00 FEET AND A LONG CHORD BEARING NORTH 10°50'39" WEST 698.26 FEET TO A REBAR W/CAP;
THENCE NORTH 19°28'50" WEST 329.58 FEET ALONG SAID EASTERLY LINE OF STATE HIGHWAY NO. 66 TO A REBAR W/CAP;
THENCE 55.27 FEET ALONG SAID STATE HIGHWAY NO. 66, A CURVE TO THE LEFT, HAVING A RADIUS OF 872.00 FEET, AND A LONG CHORD BEARING NORTH 21°16'32" WEST 55.26 FEET TO THE PROJECTION OF A FENCE LINE EXTENDING TO THE EAST AND A REBAR W/CAP;
THENCE NORTH 68°22'42" EAST 352.24 FEET ALONG SAID FENCE LINE TO THE SOUTHWESTERLY CORNER OF "CREEK SIDE SUBDIVISION", A FENCE CORNER AND A REBAR W/CAP;
THENCE NORTH 68°26'16" EAST 67.84 ALONG THE SOUTH LINE OF SAID SUBDIVISION TO A FENCE CORNER AND A REBAR W/CAP;
THENCE NORTH 68°29'53" EAST 1418.17 FEET ALONG SAID SOUTH LINE TO THE SOUTHEAST CORNER OF SAID SUBDIVISION, A FENCE CORNER AND REBAR W/CAP;
THENCE NORTH 68°56'13" EAST 46.36 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A REBAR W/CAP;
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THENCE SOUTH 05°42'46" EAST 506.63 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A REBAR W/CAP;
THENCE SOUTH 65°05'47" WEST 248.77 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A REBAR W/CAP;
THENCE SOUTH 65°25'34" WEST 1302.01 FEET ALONG A FENCE LINE TO A FENCE CORNER AND A NAIL AND WASHER SET IN THE TOP OF A FENCE CORNER POST;
THENCE SOUTH 65°19'29" WEST 176.69 FEET ALONG A FENCE LINE TO A; REBAR W/CAP;
THENCE SOUTH 75°02'57" WEST 85.72 FEET ALONG A FENCE LINE TO A POINT ON THE EASTERLY LINE OF STATE HIGHWAY NO. 66, A REBAR W/CAP AND THE POINT OF BEGINNING;

THE ABOVE DESCRIBED TRACT CONTAINS 2 LOTS AND 43.371 ACRES.

THE BASIS OF BEARING IS THE SOUTH LINE OF CREEK SIDE SUBDIVISION CALLED: NORTH 68°29'53" EAST,

OWNER'S ACKNOWLEDGEMENT OF RESPONSIBILITY

KNOW ALL MEN BY THESE PRESENTS THAT WE, THE UNDERSIGNED OWNERS OF THE TRACT(S) OF LAND CONTAINED WITHIN THE SUBDIVISION BOUNDARY DESCRIBED HEREON, ACKNOWLEDGE THAT FAILURE OF THE LOCAL JURISDICTION OR PLANNING COMMISSION TO OBSERVE OR RECOGNIZE HAZARDOUS, UNKNOWN OR UNSIGHTLY CONDITIONS, OR TO RECOMMEND DENIAL OF THE SUBDIVISION BECAUSE OF SAID UNRECOGNIZED HAZARDOUS, UNKNOWN OR UNSIGHTLY CONDITIONS SHALL NOT RELIEVE THE DEVELOPER OR OWNER FROM RESPONSIBILITY FOR THE CONDITION OR DAMAGES RESULTING THEREFROM, AND SHALL NOT RESULT IN THE LOCAL JURISDICTION OR PLANNING COMMISSION, ITS OFFICERS OR AGENTS, BEING RESPONSIBLE FOR THE CONDITIONS AND DAMAGES RESULTING THEREFROM.

IN WITNESS THEREOF, WE HAVE HEREUNTO SET OUR HANDS THIS 22 DAY OF May, 2000.

SANFORD'S PLACE LTD.

L. ALDIN PORTER, PARTNER — SHIRLEY P. PORTER, PARTNER

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT WE, THE UNDERSIGNED OWNERS OF THE TRACT OF LAND HEREON DESCRIBED TO BE SUBDIVIDED INTO TWO LOTS, TO BE KNOWN HEREAFTER AS:

PORTER'S PLACE SUBDIVISION

AND DO HEREBY CERTIFY THAT WE HAVE CAUSED SAID TRACT OF LAND TO BE SUBDIVIDED INTO TWO LOTS AS SHOWN HEREON.

IN WITNESS WHEREOF WE HAVE HEREUNTO SET OUR HANDS THIS 22nd DAY OF May, 2000.

SANFORD'S PLACE LTD.
A UTAH LIMITED PARTNERSHIP

L. ALDIN PORTER, PARTNER — SHIRLEY P. PORTER, PARTNER

ACKNOWLEDGEMENT

STATE OF UTAH } SS
COUNTY OF MORGAN }

ON THIS 22 DAY OF May, 2000, PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC IN AND FOR SAID STATE AND COUNTY, THE SIGNERS OF THE ABOVE OWNER'S DEDICATION, WHO DULY ACKNOWLEDGED TO ME THAT THEY SIGNED IT FREELY AND VOLUNTARILY AND FOR THE USES AND PURPOSES THEREIN MENTIONED.

NOTARY PUBLIC Susan Williamson
RESIDING IN Cache COUNTY, UTAH
MY COMMISSION EXPIRES 3-2004

NOTARY PUBLIC SUSAN WILLIAMSON 1121 30TH ST OGDEN, UT 84401 MY COMMISSION EXPIRES MARCH 22ND, 2001 STATE OF UTAH

SURVEY NARRATIVE:

1. THIS CONCEPT PLAT WAS PREPARED AT THE REQUEST OF JOHN PORTER, 3347 SOUTH HIGHWAY 66, MORGAN, UTAH, 84050 TEL. (801)-829-3572.
2. POWER, GAS AND TELEPHONE ARE LOCATED ON STATE HIGHWAY 66.
3. WASTE DISPOSAL WILL UTILIZE AN ON-SITE WASTE TREATMENT SYSTEM.
4. WATER WILL BE PROVIDED BY A PRIVATE WELL.
5. THE BASIS OF BEARING IS THE SOUTH LINE OF "CREEK SIDE SUBDIVISION" CALLED: NORTH 68°29'53" EAST.
6. ALL REBARS CALLED FOR IN THE BOUNDARY DESCRIPTION ALONG "CREEK SIDE SUBDIVISION" ARE "MOUNTAIN ENGINEERING" REBARS AND CAPS, AS "CREEK SIDE SUBDIVISION" HAS NOT BEEN MONUMENTED.
7. "CREEK SIDE SUBDIVISION" WAS ESTABLISHED BASED ON EXISTING FENCES INDICATED ON THE OFFICIAL PLAT THEREOF.
8. DISCREPANCIES BETWEEN DEED CALLS AND THE SURVEYED BOUNDARY HAVE BEEN RESOLVED THROUGH THE ACQUISITION OF QUIT CLAIM DEEDS OR BOUNDARY LINE AGREEMENTS, WHICHEVER IS APPLICABLE, FROM ADJOINERS.

WELL PROTECTION ZONES:

MOUNTAIN ENGINEERING, OR ITS EMPLOYEES, MAKES NO CERTIFICATION AS TO THE AVAILABILITY OF WATER AT THE INDICATED WELL SITE. IF THE WELL IS NOT DRILLED AT THE INDICATED LOCATION, IT IS THE DEVELOPERS RESPONSIBILITY TO OBTAIN WELL PROTECTION AGREEMENTS TO ACCOMMODATE THE REQUIRED WELL PROTECTION ZONE FROM ANY ADJOINING PROPERTY OWNERS.

MORGAN COUNTY ATTORNEY

I HAVE EXAMINED THIS SUBDIVISION PLAT AND IN MY OPINION IT CONFORMS TO THE COUNTY ORDINANCE APPLICABLE THERETO AND NOW IN FORCE AND EFFECT.

SIGNED THIS 17th DAY OF May, 2000

Kelly W. Wright
MORGAN COUNTY ATTORNEY

MORGAN COUNTY PLANNING COMMISSION

THIS IS TO CERTIFY THAT THIS SUBDIVISION PLAT WAS DULY APPROVED BY THE MORGAN COUNTY PLANNING COMMISSION.

SIGNED THIS 7th DAY OF June, 2000

CHAIRMAN, MORGAN COUNTY PLANNING COMMISSION

MORGAN COUNTY ENGINEER/~~SURVEYOR~~

I CERTIFY THAT I HAVE HAD THIS PLAT EXAMINED AND FIND THT IT IS CORRECT AND IN ACCORDANCE WITH THE INFORMATION ON FILE IN THIS OFFICE.

SIGNED THIS 17th DAY OF May, 2000

P.E.
HANSEN & ASSOCIATES, INC. MORGAN COUNTY ENGINEER

WEBER-MORGAN HEALTH DISTRICT

THE WASTE DISPOSAL SYSTEM AND THE CULINARY WATER SYSTEM ARE HEREBY APPROVED.

SIGNED THIS 17th DAY OF May, 2000

DISTRICT HEALTH OFFICER

MORGAN COUNTY COUNCIL

THIS IS TO CERTIFY THAT THIS SUBDIVISION PLAT AND THE OWNER'S DEDICATION ARE HEREBY APPROVED AND ACCEPTED BY THE COUNCIL OF MORGAN COUNTY, UTAH.

SIGNED THIS 20 DAY OF June, 2000

CHAIRMAN, MORGAN COUNTY COUNCIL

CERTIFICATE OF SURVEYOR

I, WILLIAM L. HOLYOAK, A REGISTERED LAND SURVEYOR IN THE STATE OF UTAH, DO HEREBY CERTIFY THAT THIS PLAT OF *PORTER'S PLACE SUBDIVISION* IN MORGAN COUNTY, UTAH, HAS BEEN DRAWN TO THE DESIGNATED SCALE AND IS A TRUE AND CORRECT REPRESENTATION OF THE HEREIN DESCRIBED LANDS INCLUDED IN SAID SUBDIVISION BASED ON THE DATA COMPILED FROM RECORDS IN THE MORGAN COUNTY RECORDER'S OFFICE AND FROM A SURVEY MADE BY ME OR UNDER MY DIRECTION.

SIGNED THIS 17 DAY OF MAY, 20

WILLIAM L. HOLYOAK, PE & RLS
UTAH LAND SURVEYOR REGISTRATION NO. 167461

REGISTERED LAND SURVEYOR 167461 WILLIAM L. HOLYOAK STATE OF UTAH

MORGAN COUNTY RECORDER

ENTRY NO. 826049 FEE PAID 32.00
FILED FOR RECORD AND RECORDED
JOHN PORTER 6-22-00 AT 11:30
IN BOOK M160 OF THE OFFICIAL RECORDS,
PAGE 427

RECORDED FOR: JOHN PORTER

Brenda D. Nelson
MORGAN COUNTY RECORDER
BY: _____ DEPUTY.

MOUNTAIN ENGINEERING

REVISIONS		
DATE	BY	COMMENTS

REGISTERED LAND SURVEYOR 167461 WILLIAM L. HOLYOAK STATE OF UTAH

DESIGNED J.W.
DRAWN J.W.
DATE MAY, 2

PORTER'S PLACE SUBDIVISION
FINAL PLAT
A PART OF THE SOUTHEAST QUARTER OF SECTION 24, AND A PART OF THE SOUTHWEST QUARTER OF SECTION 24,

DRAWING
ME 00-54
SHEET 1
FILE:porter_p

Exhibit D-Current Porter's Place Subdivision

P:\porter_john\dwg\porter_place_final.dwg Wed May 17 08:06:29 2000 MOUNTAIN ENGINEERING

Exhibit E-Wildland Urban Interface

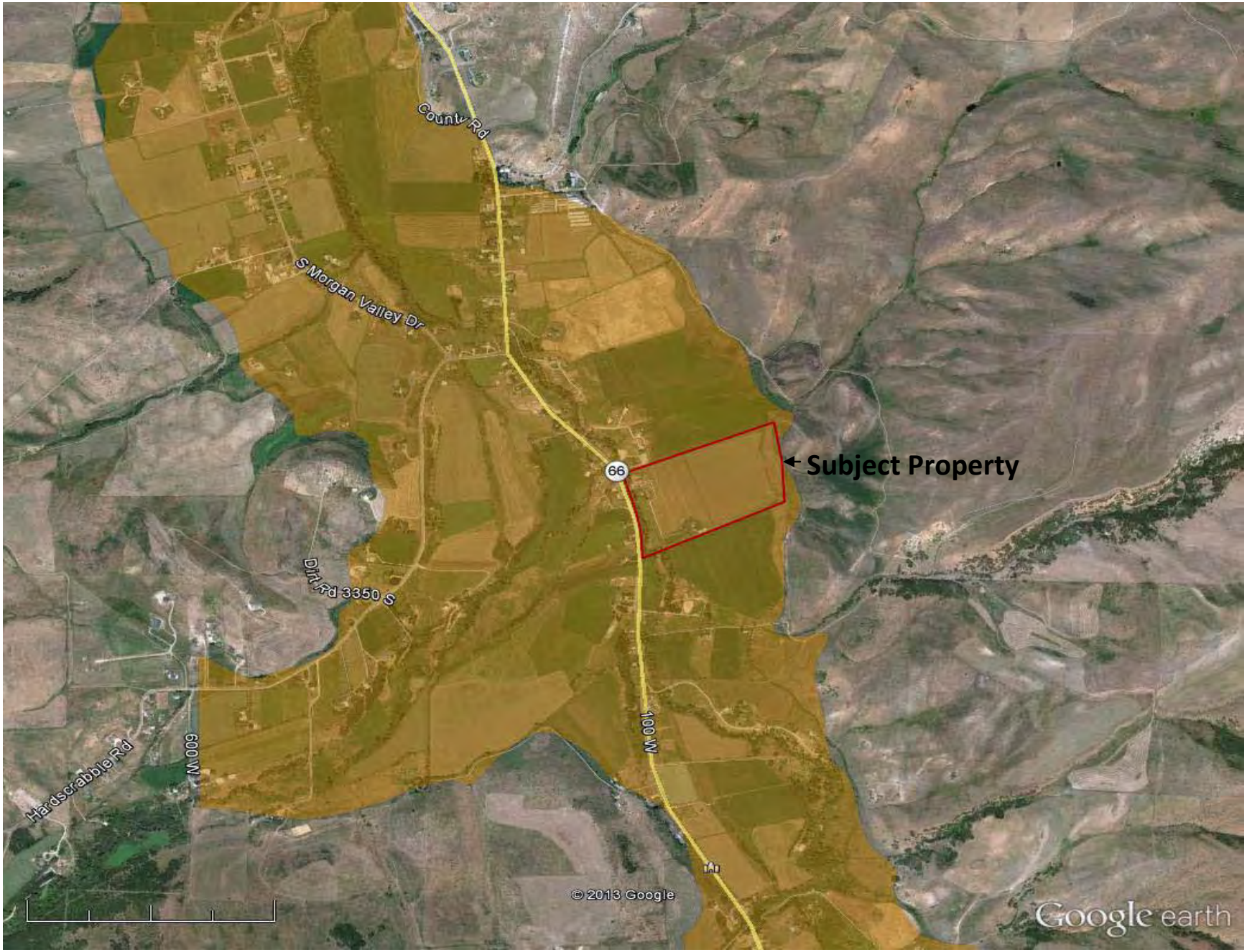

Exhibit F-Flood Zone