EAGLE MOUNTAIN CITY

AMENDED AND RESTATED MASTER DEVELOPMENT AGREEMENT FOR THE OQUIRRH MOUNTAIN DEVELOPMENT

This Master Development Agreement for the Oquirrh Mountain Development (this "Agreement") is entered into this 8th day of June, 2016 between Oquirrh Mountain West, LLC ("Developer") and Eagle Mountain City, a municipal corporation of the State of Utah (the "City").

This Agreement is made with reference to the following facts.

A. Developer has submitted to the City an application for a development known as Oquirrh Mountain (the "Project").

B. A parcel of property within the Project boundaries, designated as Parcel No. 58:048:0075, has been sold for and designated as a church site and is not included in this Agreement.

C. The Project consists of approximately 120.4 acres of land (the "Property") located west of Pony Express Parkway, south of the existing Lone Tree Subdivision, and north of the proposed SITLA Master Development. A legal description of the Property is attached as Exhibit "**A**."

D. The Project will be zoned as residential in accordance with Chapter 17.25 of the Municipal Code of Eagle Mountain City and improved in compliance with procedures and standards in the Development Code and the terms of this Master Development Agreement.

E. Developer has received approval of the Land Use Element and Concept Plan for the Project from the Planning Commission and City Council of Eagle Mountain City. The approved land use map, which depicts the zoning for the Project and land uses which will be allowed by the City, is attached as Exhibit "**B**" (the "Land Use Map").

F. The parties wish to define the rights and responsibilities of the parties with respect to the development of the land and funding of improvements in the Master Development Plan

area which is approved by the City in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and promises of the parties contained herein, the parties agree as follows:

1 Governing Standards. The Project shall be governed by the procedures, standards and requirements of the Eagle Mountain Municipal Code (the "City Code").

2 Zoning, Density and Land Use Standards. The Project will be zoned as residential in accordance with Chapter 17.25 of the City Code. The residential zone must be a predominately residential use, but certain commercial and mixed-use developments are allowed as a conditional use within the Project. The Land Use Map is the zoning map for the Property.

2.1 Planning Areas and Densities. The total Project densities are as follows:

Total Land Area:	120.4 acres
Total Buildable Acres:	104.2 acres
Maximum Residential Units:	346 units
Improved Open Space:	Not less than 5.5 acres fully improved; 14.2 acres partially improved (with trails, petroglyph park, Frisbee golf, and some improved areas; 32.4 acres improved with trails and viewing towers.

The overall density of the Project may not exceed the lesser of an average of 5.3 residential units per buildable residential acre or a total of 346 residential units (the "Maximum Density"). In addition, the Property is divided into twelve planning areas (the "Planning Areas") which permit a maximum number of units per acre within each Planning Area. The location of each of Planning Area is depicted on Exhibit "**B**." The development of each Planning Area must contain improvements to meet the City's current Tier II, Tier III or Tier IV requirements concurrent with the density for that particular Planning Area, or such other requirements as adopted by the City in the future. The City shall not issue any final subdivision plat until Developer has demonstrated how it will meet the City's Tier II, Tier III, or Tier IV requirements for that particular Planning Area. The size and densities of the Planning Areas are as follows:

Planning Area	Proposed Land Use	Area (Acres)	Development Units	Maximum Density Units / Acre	Res. Tier
PA-1	Church Site	3.3	0	0	-
PA-2a	Single-Family Detached	3.7	12	3.2	II

PA-2b	Single-Family Detached Cluster	3.5	21	6.0	III
PA-3	Multifamily	2.2	24	10.9	III
PA-5	Multifamily	1.0	12	12.0	III
PA-6	Multifamily – Twinhomes	4.8	28	5.8	III
PA-7	Single-Family Detached	17.0	62	3.6	II
PA-8	Multifamily	3.0	36	12.0	III
P-9a	Single-Family Detached	7.8	39	5.1	II
PA-9b	Single-Family Attached - Triplex	2.5	21	8.4	III
PA-10	Multifamily	2.0	30	15	IV
PA-11	Single-Family Detached	16.6	61	3.7	II
Totals		**67.4**	**346**	**5.39**	

2.2 Maximum Density. Developer shall be entitled to develop up to the Maximum Density provided that Developer has complied with applicable provisions of the City's Code. Developer acknowledges that the City may enact future ordinances, amendments, or other development standards which increase or otherwise modify minimum lot size requirements, setbacks, frontage requirements, or other similar standards which relate to or have an effect on densities. Notwithstanding anything to the contrary herein, any City ordinance, amendment to the City's Code, or other development standard enacted, implemented, regulated and/or enforced by the City on or after the date of this Agreement which has the effect of prohibiting and/or unreasonably restricting Developer's ability to develop the vested densities set forth herein shall be inapplicable to the Property, unless the City Council, on the record, finds that a compelling, countervailing public interest would be jeopardized without applying such ordinance, amendment or standard to the Property. The City makes no guarantee or warranty that the entitled Maximum Density can be achieved, and the parties acknowledge that as development progresses certain market, infrastructure, and/or other similar constraints beyond the control of the parties may be presented which could prevent the practical use of all vested densities.

2.3 Proposed Land Uses. The Proposed Land Uses set forth above and included in Conceptual Site Plan, Exhibit "**C**," are conceptual and do not dictate the final type or layout of buildings within the Project. Nevertheless, it is the expectation of the City and the Developer that the end product will resemble the type of buildings set forth above.

2.4 Development Requirements. Unless the City Code is amended to require other improvements, Developer shall construct improvements to meet the City's Tier II, Tier III,

and Tier IV requirements for the approved density within each Planning Area. A copy of Table 17.30.110 of the Development Code, which sets forth the necessary improvements to acquire the approved density, is attached hereto as Exhibit "**D**."

3. Design Guidelines. The Project will be subject to The Ranches Design Guidelines, but the guidelines are not intended to replace or supersede the City's Tier II, Tier III, and Tier IV requirements for the approved density within each Planning Area, and in the event of any conflict between the City's Tier II, Tier III, and Tier IV requirements and the Design Guidelines, the City's requirements shall control.

4. Improved Open Spaces and Trails. The Project contains seven (7) parks and open space areas as described on the Parks and Open Space Plan attached hereto as Exhibit "**E**." The Project contains a total of 53.5 acres of total open space. As set forth on the Parks and Open Space Plan, the open space consists of the following: (1) 32.4 acres of hillside open space to be left in its native conditions except for the inclusion of trails and paths, (2) 14.2 acres of partially improved park space, to be improved for petroglyph viewing, Frisbee golf, and hillside trail systems, and (3) 5.5 acres of improved open space located on slopes of 15 percent or less.

4.1 Improved Open Space. As indicated on the Parks and Open Space Plan, the improved open space is divided among various improved open space areas. These areas shall be improved substantially similar to the Parks and Open Space designs attached as Exhibit "**F**," as the creativity and uniqueness of these designs was a key feature to the approval of this community. Each improved open space area is also required to comply with EMMC Chapter 16.35 or other future park improvement requirements found in the City Code. The improved open space areas are as follows:

A. Community Park (OS-1). This 3.5-acre community park is conceptualized to contain an all-purpose ballfield, tennis courts, and a community pool. A landscape and irrigation plan for the Community Park shall be reviewed for approval along with the first preliminary plat that includes lots in PA-3, PA-5, PA-6, or PA-7. The Community Park shall be fully improved prior to recording the first final plat containing lots in any of those planning areas, or the cost of the improvements shall be divided amongst the lots within those areas (24+12+28+62 = 126 total) and a separate cash deposit or cash escrow must be put in place with the City with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the cost of the Community Park is $1,000,000, then the cash escrow/deposit per lot (150%) shall be $11,905.

B. Retention Pond Area (OS-2). This area consists of .8 acres of improved open space around the retention pond. The total site, including the retention pond, equals 2.2 acres. This site includes a community trailhead

with parking. The entire Retention Pond Area shall be fully improved prior to recording the first final plat containing lots in PA-3 or PA-5, or the cost of the improvements shall be divided amongst the lots within those areas (24+12 = 36 total), and a separate cash deposit or cash escrow must be put in place with the City with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the cost of the park improvements is $200,000, then the cash escrow/deposit per lot (150%) shall be $8,334.

C. Petroglyph Park, Constellation Overlook, and Neighborhood Trail (OS-3). This 4.2 acre park area consists of an improved trail system leading through the Petroglyph Park area to the Constellation Overlook, protection and display of the historical petroglyph rock art, benches, shade structures, signs and other features to create an improved feel to the area. Refer to Section 7 for details of park improvement timing. Subject to approval by the City, it is anticipated that the Community Improvement funds may be used to pay for improvements in the petroglyph park that are greater than the improvements that would normally be required to receive improved open space credit. Refer to Section 8 for more information.

D. Neighborhood Park (OS-4). This neighborhood park includes a tot lot, benches, and other improvements. A landscape and irrigation plan shall be reviewed for approval along with a preliminary plat review for PA-9a or PA-2a. The park shall be fully improved prior to recording the first final plat containing lots in PA-2a, or the cost of the improvements shall be divided amongst the lots within PA-2a (12 lots), and a separate cash deposit or cash escrow must be put in place with the City with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the cost of the landscaping is $80,000, and area PA-2a contains 12 lots, then the cash escrow/deposit per lot (150%) shall be $10,000.

E. Trailhead Park, Frisbee Disc Golf Course, and Neighborhood Trail (OS-6). This 10 acre park and open space area consists of a parking lot, improved park area, benches, trail connections, and access to a Frisbee golf course. A landscape and irrigation plan for this area shall be reviewed for approval along with a preliminary plat review for PA-9b or PA-10. The Trailhead Park, Frisbee Disc Golf Course, and Neighborhood Trail shall be fully improved prior to recording the first final plat containing lots within PA-9b or PA-10, or the cost of the improvements shall be divided amongst the lots within those areas (21+30 = 51 lots), and a separate cash deposit or cash escrow must be put in place with the City

with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the cost of the park improvements is $200,000, then the cash escrow/deposit per lot (150%) shall be $5,882.

F. Hilltop Native Park and Open Space (OS-7). This 32.4 acre open space area consists of an improved trail and walking path, shade structures and benches, and a lookout tower. The lookout tower shall be substantially similar to the towers included on Exhibit "**G**." A landscape plan for this area shall be reviewed for approval along with a preliminary plat review for PA-7 or PA-11. The Hilltop Native Park and Open Space shall be fully improved prior to recording the first final plat containing lots within PA-7 or PA-11, or the cost of the improvements shall be divided amongst the lots within those areas (62 + 61 = 123), and a separate cash deposit or cash escrow must be put in place with the City with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the cost of the improvements is $200,000, then the cash escrow/deposit per lot (150%) shall be $2,439.

G. Bird and Butterfly Garden Park (Park within PA-11). This 0.2 acre park area inside PA-11 utilizes unique bird and butterfly-friendly plantings, sculptural elements, as well as benches and other landscaped areas. A landscape and irrigation plan for this park shall be reviewed for approval along with a preliminary plat for PA-11. The Bird and Butterfly Garden Park shall be fully improved prior to recording the first final plat containing lots within PA-11, or the cost of the improvements shall be divided amongst the lots within PA-11 (61 lots), and a separate cash deposit or cash escrow must be put in place with the City with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the cost of the park improvements is $100,000, then the cash escrow/deposit per lot (150%) shall be $2,459.

H. Tot Lot/Creative Play Area and Trailhead Park A (Park within PA-7). This 0.2 acre pocket park is a creative tot lot area with a shade structure, seating areas, and a trailhead with a trail that connects to the Hilltop Native Park trail system. A landscape and irrigation plan for this park shall be reviewed for approval along with a preliminary plat for PA-7. This park shall be fully improved prior to recording the first final plat containing lots within PA-7, or the cost of the improvements shall be divided amongst the lots within PA-7 (62 lots), and a separate cash deposit or cash escrow must be put in place with the City with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the cost of the park improvements is $100,000, then the cash

escrow/deposit per lot (150%) shall be $2,420.

I. Trailhead Park. This open space is located at the southeast entrance to the project, and shall include a community entrance sign, a trailhead, and other improvements. A landscape and irrigation plan for this area shall be reviewed for approval along with a preliminary plat containing lots within PA-2a. This open space area shall be fully improved prior to issuing any building permits in PA-2a.

J. Trails. Neighborhood trails are shown through portions of the project in development areas and on hillsides and native areas. The trails through the neighborhoods shall be a minimum of six foot wide asphalt or concrete. The "development" trails shall be built along with the infrastructure for each associated subdivision.

K. Pony Express Parkway ROW. A landscape plan for the landscaping within the Pony Express Parkway right-of-way shall be reviewed for approval along with a preliminary plat review of PA-9a. The ROW landscaping adjacent to the first plat, including project entrance monument sign, shall be fully improved prior to recording the first final plat in the project, or the cost of the improvements shall be divided amongst the lots within the first final plat, and a separate cash deposit or cash escrow must be put in place with the City with each final plat to cover 150% of the pro rata anticipated cost of the improvements. For example, if the first final plat is 30 lots, and the cost of the landscaping is $200,000, then the cash escrow/deposit per lot (150%) shall be $10,000. The same applies to the remaining portion of the ROW. The ROW landscaping shall be fully improved with each adjacent plat.

5 Ownership and Maintenance of Open Space. All improved and unimproved open space shall be dedicated to the City and shall be included in the Ranches Home Owners' Association maintenance agreement. The HOA shall be solely responsible for all maintenance of the improvements and open space, unless the City chooses to take over maintenance of any specific area based on the HOA's failure to adequately maintain such improvements or open space. The HOA shall at all times provide access to all improved and unimproved open space for emergency services, including fire and police services.

6. Vesting of Improved Open Space, Parks and Trails. In accordance with Chapter 17.30 of the City Code, bonus density entitlements, or increases in the number of residential units a developer is entitled to build on an acre (above the 0.8 residential dwelling units per acre base density of the residential zone), are permitted when a project provides additional improvements and amenities as outlined in Chapter 17.30 of the City Code. These additional

improvements and amenities include Improved Open Space, Parks and Trails. The City agrees that that the proposed Improved Open Space, Parks, and Trails, as set forth in paragraph 4 of this Agreement, satisfy the Improved Open Space, Parks and Trails requirement for the Maximum Density, and the City shall not require the Developer to build or develop additional Open Space, Parks or Trails in order to develop up to the Maximum Density.

7. Petroglyphs/Rock Art. This site contains historic rock art that is intended to be preserved and displayed for public viewing primarily in the Petroglyph Park area. Prior to recording any final plat, Developer shall submit and receive approval from the City for a Petroglyph landscape and preservation plan. The plan shall detail the location of all petroglyphs within the Project, the methods to protect Petroglyphs during development activity, anticipated relocation of petroglyphs within the Project, and methods of relocation to assure safety of petroglyphs during relocation. The plan shall include phases of improvement and include, at a minimum, the following elements:

- Phase 1 (to be fully completed within 90 days after the first plat is recorded, weather permitting):
  - 3-foot high wrought iron fencing (or other approved fencing) surrounding the petroglyphs;
  - Gravel pathways around the fencing;
  - Security system;
  - Signs deterring vandalism and theft, including detailing fines and penalties.
- Phase 2 (to be fully completed within 90 days after the second plat is recorded):
  - Asphalt trails leading directly to the Petroglyph Park;
  - Interpretive and directional signs;
  - Benches.
- Phase 3 (to be fully completed within 90 days after a plat is recorded in PA-8, PA-2b, or any other planning area to the west of these):
  - Pavilion;
  - Off-street parking;
  - Landscape improvements (to be determined in the landscape plan).

If the City determines that any petroglyph should not be relocated, City shall cooperate with developer to minimize the impact on the size and configuration of adjacent lots.

8. Community Improvements. In conjunction with Chapter 17.30 of the Development Code, Developer must contribute $2,000 per buildable acre of land within the Project to fund construction of community wide improvements, for a total of $208,400.00. Developer agrees that prior to recording each subdivision plat, Developer shall either place into a community improvement escrow fund for the Project (the "Improvement Fund") established with the City sufficient funds to meet the required community improvements, or otherwise demonstrate that a sufficient amount of community improvements have been constructed to meet

the requirement. For example, if the first subdivision plat is for 10 acres, Developer will place $20,000 in the Improvement Fund or demonstrate that $20,000 of community improvements have been constructed to meet the requirements. Developer and City agree that certain amenities within the Project, specifically the Petroglyph Park, trails, and lookout towers described in Section 4.1.C, 4.1.E, and 4.1.F, were planned with broader community use in mind and the cost of developing the areas will be greater than the improvements that would normally be required to receive improved open space credit. As such, Developer will likely request that the City approve the additional costs of developing these areas be credited toward the community improvements contribution referenced in this paragraph. Developer agrees to execute agreements necessary to secure the public use of all trails and lookout towers within these areas. Any remaining funds must be placed into an escrow fund under the timing stated in this paragraph to be used for regional parks or other public improvements that will benefit the residents of this development.

9. Home Owners' Association. Prior to approval of any development within the Project, verification shall be received that this project has been included in The Ranches HOA, or the Developer shall create an HOA for the Project with legal authority to collect assessments and to maintain the improvements.

10. Transitioning and Setback Requirements. Developer agrees to comply with all transitioning requirements set forth in Section 12.15 of the Development Code. In addition, a 20-foot building setback shall be required along the project's southern boundary, including a ten foot landscaped corridor to be planned cooperatively with the neighboring property owner (SITLA), which will provide both the other 10-foot landscaped portion of the corridor and the trail.

11. Utility Services and Infrastructure Improvements.

A. Sewer. The Project will require off-site sewer improvements to extend sewer lines to the south along Pony Express Parkway. Developer acknowledges that the Developer may be required to construct or pay for the cost to construct sewer infrastructure improvement necessary to service the Project. In the event the City requires sewer infrastructure to be sized to accommodate other development, Developer may request the City enter into a reimbursement agreement with Developer to reimburse Developer for excess capacity. Plans for sewer improvements must be approved by the City Engineer prior to installation.

B. Roads and Cul-De-Sacs. Road grades within the Project shall not exceed 10%, and must be verified with preliminary and final plat approval. A traffic study has been submitted and reviewed by the City Engineer. A copy of the traffic study is attached hereto as Exhibit "**H**." The construction of all roads must comply with the traffic study and the Development Code. Cul-de-sacs are discouraged in the city, and the maximum length of any cul-de-sac in the Project may not exceed 500 feet or serve more than 30 residential units. The Developer must provide a minimum of two road accesses to the property to the south, and at

least two to the property to the west.

C. Other Utilities. Developer shall be responsible to install or pay the cost to install all utilities necessary to service the Project. All utilities shall meet the City's Standards and Specifications. Any off-site utility improvements necessary to service each plat within the Project must be completed by Developer prior to final approval of the plat. .

12. Dedication of Facilities. Except as provided in a reimbursement agreement which may be entered between the City and the Developer, the Developer agrees to dedicate and donate free and clear of all encumbrances to the City all required spaces for the location of City owned utilities, utility facilities and improvements for the construction and use of utilities, roads, and other public ways.

13. Water Rights. Developer shall comply with the City Code, as amended, related to providing water or water rights to the City for the Project.

14. Withholding Approval Upon Default. The parties agree that the City may withhold approval or recording of any subdivision in the Project if the Developer is in default on any obligation to the City which requires the construction of roads and completion of public improvements or other utility infrastructure to serve the Project. In addition, the City may withhold approval of building permits to construct any building or structure within the Project if the Developer is not current with all obligations to the City at the time of application for the development approval and/or has not completed all required improvements within the time to complete required improvements approved by the City Council.

15. Reserved Powers. The parties agree that the City reserves certain legislative powers to amend its Development Code to apply standards for development and construction generally applicable throughout the City. It is the intent of the parties to vest the Developer with the specific land uses and development density defined specifically on the Land Use Map (Exhibit B) and to require compliance by the Developer with all other generally applicable standards, conditions and requirements enacted by the City to protect the safety, health and welfare of the current and future inhabitants of the City.

16. Impact Fees. Developer agrees to pay all impact fees when due at subdivision approval, subdivision recordation or upon application for building permits from the City as set forth more specifically in the City Impact Fee Ordinance as it may be amended from time to time. The parties may enter into a separate Reimbursement Agreement upon the enactment of impact fee requirements which shall provide for reimbursement to the Developer for certain improvements transferred to the City by the Developer as provided more specifically in the Reimbursement Agreement.

17. Annual Review of Compliance. The parties agree that the City may conduct an

annual review of compliance by the Developer within the terms of this Agreement. It shall be an event of default if the Developer has failed to fund roads, parks or other utility infrastructure facilities required by this Agreement or by the City Development Standards, or if work remains incomplete on public infrastructure facilities without having received an adequate extension of time for the completion of such facilities from the City. It shall be an event of default if the Developer fails to deposit adequate collateral for the improvements required by this Agreement or fails to cure any defect discovered by the City upon inspection of any infrastructure utility facilities.

18. Default Notice. Upon the occurrence of an event of default, the City shall provide not less than fifteen (15) days notice to the Developer of a meeting of the City Council where the Developer's default shall be heard and reviewed by the City Council. The Developer shall be entitled to attend the hearing and comment on the evidence presented concerning the default. Upon a finding by the City Council that the Developer is in default, the City Council may order that work in the Project be terminated until the default is cured or may issue such further directions to City staff and to the Developer as deemed appropriate under the circumstances.

19. Binding Effect. This Agreement shall be binding upon and inure to the benefit of the successors, heirs and assigns of the parties hereto, and to any entities resulting from the reorganization, consolidation, or merger of any party hereto.

20. Integration. This Agreement constitutes the entire understanding and agreement between the parties, and supersedes any previous agreement, representation, or understanding between the parties relating to the subject matter hereof; provided however, that the Development Code of the City shall govern the procedures and standards for approval of each subdivision and public improvement.

21. Not Severable. The provisions of this Agreement are not severable, and should any provision hereof be deemed void, unenforceable or invalid, such provision shall affect the remainder of this Agreement, and shall provide grounds for dissolution of the Agreement at the option of the parties in the exclusive discretion of each of them.

22. Waiver. Any waiver by any party hereto of any breach of any kind or character what so ever by the other party, whether such waiver be direct or implied, shall not be construed as a continuing waiver of or consent to any subsequent breach of this Agreement on the part of the other party.

23. No Modification. This Agreement may not be modified except by an instrument in writing signed by the parties hereto.

24. Governing Law. This Agreement shall be interpreted, construed and enforced according to the laws of the State of Utah.

25. Developer's Remedies Upon Default. Developer acknowledges and agrees that Developer's sole and exclusive remedy under this Agreement shall be specific performance of the development rights granted in this Agreement. IN NO EVENT SHALL CITY BE LIABLE TO DEVELOPER, ITS SUCCESSORS OR ASSIGNS, FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS, COSTS OF DELAY, OR LIABILITIES TO THIRD PARTIES.

26. Agreement to Run With the Land. This Agreement, or an abstract of this Agreement, shall be recorded against the Property and shall be deemed to run with the land and shall be binding on Developer and all successors and assigns of any of the foregoing. Developer agrees to execute an abstract prepared by the City.

DATED this 8 day of June, 2016.

OQUIRRH MOUNTAIN WEST, LLC

By: _____

Print Name: Scott Kirkland

Title: Manager

(Remainder of page intentionally left blank.)

DATED this 24 day of August, 2015.

ATTEST:

Fionnuala B. Kofoed, MMC
City Recorder

Approved as to form:

City Attorney

EAGLE MOUNTAIN CITY

Christopher Pengra, Mayor

CORPORATE SEAL
EAGLE MOUNTAIN
EST. 1996
STATE OF UTAH

Exhibit A

[Legal Description]

LILD * * * Land Information System * * *

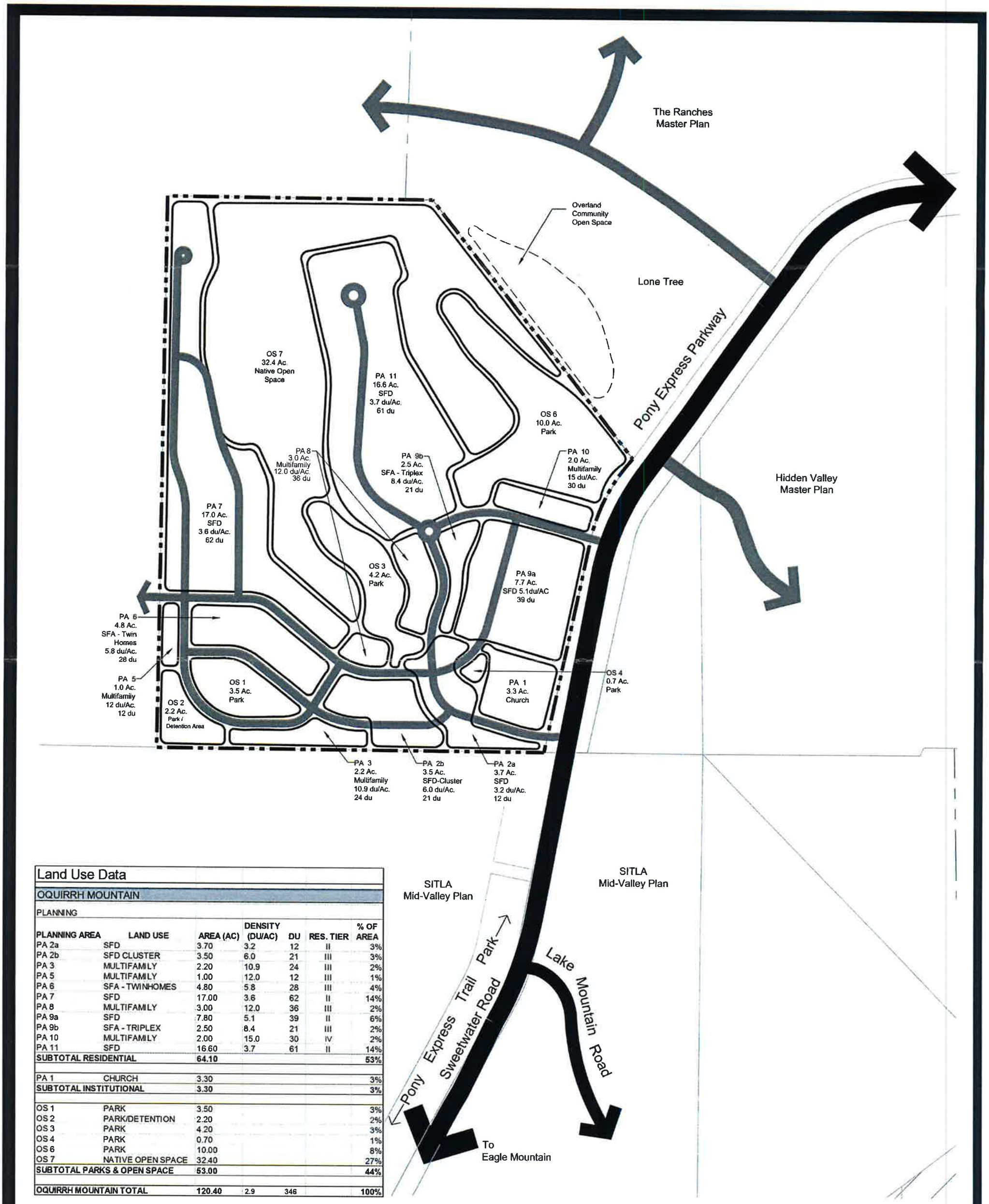
Year: 2007.....
Property Serial Number: 58:048:0050 Tax District #: 038
Locator / Alpha Serial: EM / Acres: 120.31
Owner Name: VESTIN MORTGAGE INC
JASONLT 20060216 CODED
Taxing Description: (Not For Legal Documents) Page: 1

COM AT S 1/4 COR. SEC. 25, T5S, R2W, SLB&M.; N 0 DEG 50'24"E 2709.62 FT; S 89 DE G 31'55"E 1296.92 FT; S 38 DEG 0'30"E 1603.87 FT; S 35 DEG 53'48"W 117.01 FT; AL ONG A CURVE TO L (CHORD BEARS: S 23 DEG 54'51"W 332.19 FT,RADIUS=802.79 FT) ARC LENGTH = 334.60 FT; S 12 DEG 1'20"W 1072.87 FT; N 89 DEG 36'51"W 1897.52 FT TO B EG. AREA 120.306 AC.

* * * Search Completed * * *

Exhibit B

[Land Use Map]



Land Use Data

OQUIRRH MOUNTAIN

PLANNING

PLANNING AREA	LAND USE	AREA (AC)	DENSITY (DU/AC)	DU	RES. TIER	% OF AREA
PA 2a	SFD	3.70	3.2	12	II	3%
PA 2b	SFD CLUSTER	3.50	6.0	21	III	3%
PA 3	MULTIFAMILY	2.20	10.9	24	III	2%
PA 5	MULTIFAMILY	1.00	12.0	12	III	1%
PA 6	SFA - TWINHOMES	4.80	5.8	28	III	4%
PA 7	SFD	17.00	3.6	62	II	14%
PA 8	MULTIFAMILY	3.00	12.0	36	III	2%
PA 9a	SFD	7.80	5.1	39	II	6%
PA 9b	SFA - TRIPLEX	2.50	8.4	21	III	2%
PA 10	MULTIFAMILY	2.00	15.0	30	IV	2%
PA 11	SFD	16.60	3.7	61	II	14%
SUBTOTAL RESIDENTIAL		**64.10**				**53%**
PA 1	CHURCH	3.30				3%
SUBTOTAL INSTITUTIONAL		**3.30**				**3%**
OS 1	PARK	3.50				3%
OS 2	PARK/DETENTION	2.20				2%
OS 3	PARK	4.20				3%
OS 4	PARK	0.70				1%
OS 6	PARK	10.00				8%
OS 7	NATIVE OPEN SPACE	32.40				27%
SUBTOTAL PARKS & OPEN SPACE		**53.00**				**44%**
OQUIRRH MOUNTAIN TOTAL		**120.40**	2.9	346		**100%**

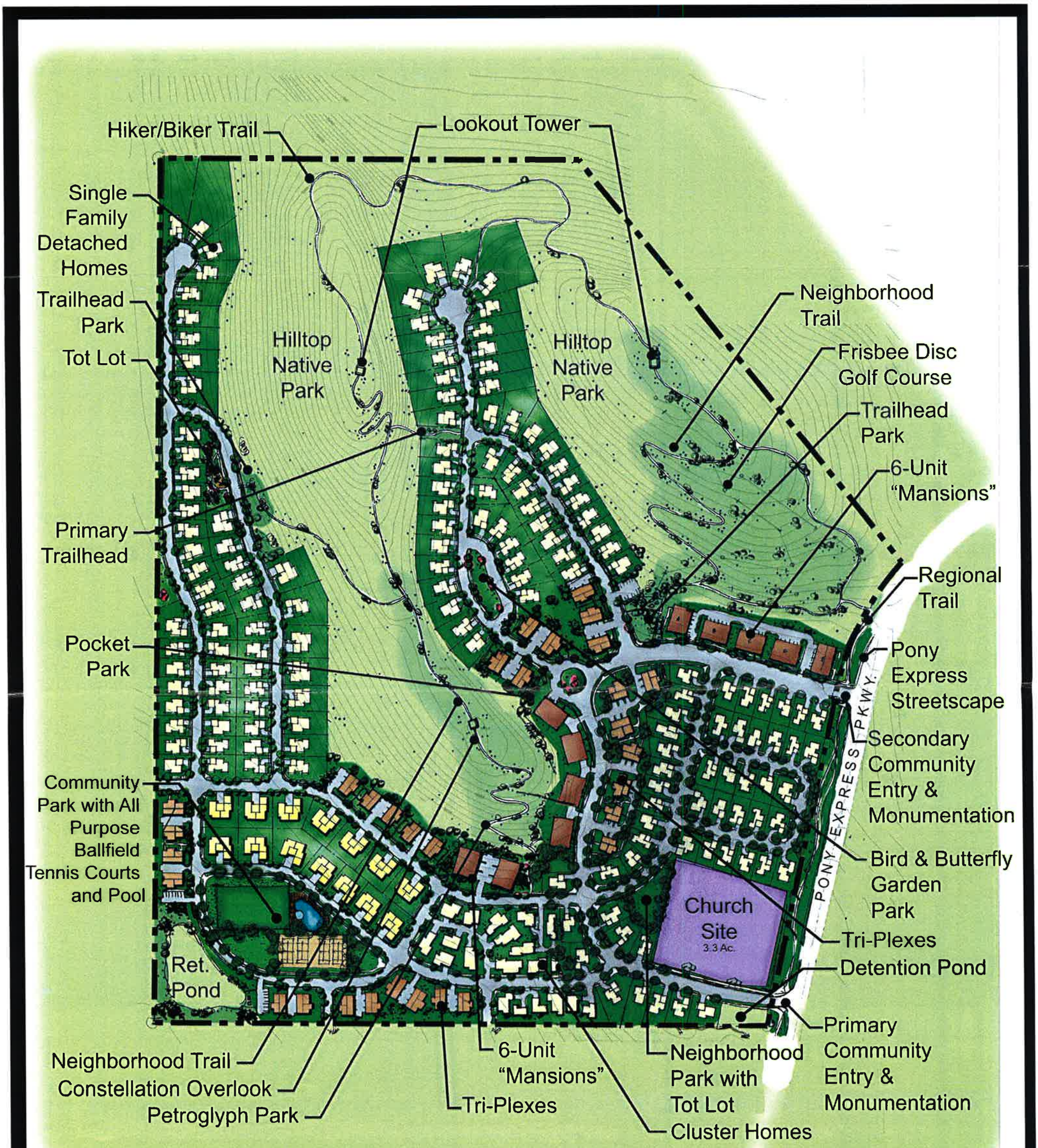
Oquirrh Mountain
Master Development Plan

Scale: 1" = 100'
February 28th, 2014

SAGE COMMUNITIES

Exhibit C

[Conceptual Site Plan]



Illustrative graphics are conceptual and are subject to change.

Oquirrh Mountain Ranch

Conceptual Site Plan

Scale: 1"=150'-0"

February 28th, 2014

SAGE COMMUNITIES

Exhibit D

[Development Code – Bonus Density Tables 17.30.110]

Exhibit D

17.30.110 Tables.

Table 17.30.110(a) Tier I Residential Bonus Density Entitlements (Required)

Bonus Density	Improvement	Required/Optional
0.8	*Base Density Improvements*	*Required*
0.8	Improved open space: 4% improved open space (total buildable acres)	Required
	Fund or construct community improvements/amenities	Required
	Entryways and monuments	Required
	Professional land planning	Required
1.6	**Total density granted required to do all improvements noted above**	

0.81 to 1.6 dwelling units per acre: Tier I.

Table 17.30.110(b) Tier II Residential Bonus Density Entitlements (Optional)

Bonus Density	Improvement	Required/Optional
0.8	*Base Density Improvements*	*Required*
0.8	*Tier I Improvements*	*Required*
	Improved open space: 8% improved open space (total buildable acres)	
0.5	Architectural and landscape guidelines/CC&Rs/design review committee	Optional
0.7	Street trees, enlarged park strips, fencing, and street signposts	Optional
1.0	Masonry materials (75% of the exterior)	Optional
Up to 1.5	Residential lot landscaping (1 front and sides, 0.5 rear)	Optional
0.1 – 0.6	Recreational amenities	Optional
5.9	**Total available (cannot exceed 5.2 dwelling units per acre)**	

1.61 to 5.2 dwelling units per acre: Tier II.

Table 17.30.110(c) Tier III Residential Bonus Density Entitlements (Required)

Bonus Density	Improvement	Required/Optional
0.8	*Base Density Improvements*	*Required*
0.8	*Tier I Improvements*	*Required*
3.6	*Tier II Improvements*	*Required*
7.0	Improved open space: 8% improved open space (total buildable acres) *plus* 10% of Tier III development acreage	Required
	Clubhouse (all multifamily development)	Required
	Swimming pool	Required
12.2	**Total density granted required to do all improvements noted above**	

5.21 to 12.2 dwelling units per acre: Tier III.

Table 17.30.110(d) Tier IV Residential Bonus Density Entitlements (Optional)

Bonus Density	Improvement	Required/Optional
0.8	*Base Density Improvements*	*Required*
0.8	*Tier I Improvements*	*Required*
3.6	*Tier II Improvements*	*Required*
7.0	*Tier III Improvements*	*Required*
	Improved open space: 8% improved open space (total buildable acres) *plus* 10% of Tier III and Tier IV development acreage	
1.5	Covered parking	Optional
3.5	Garages	Optional
3.5	Masonry materials (75%)	Optional
3.5	Storage units (100 square feet)	Optional
24.2	**Total available (cannot exceed 22.7 dwelling units per acre)**	

12.21 to 22.7 dwelling units per acre: Tier IV.

[Ord. O-24-2008 § 2 (Exh. A Tables 6.1 – 6.4); Ord. O-27-2006 § 2 (Exh. A Tables 6.1 – 6.4); Ord. O-23-2005 § 3 (Exh. 1(1) Tables 6.1 – 6.4)].

17.30.120 Improved open space calculations.

Example 1

Total Land Area: 160 Acres

Total Buildable Land: 100 Acres

Tier I and II: 80 Acres

Tier III and IV: 20 Acres

8% x 100 = 8 Acres

10% x 20 = 2 Acres (to be built within Tier III and IV areas)

Total Improved Open Space Required = 10 Acres (10% of buildable land)

Example 2

Total Land Area: 160 Acres

Total Buildable Land: 100 Acres

Tier I and II: 50 Acres

Tier III and IV: 50 Acres

8% x 100 = 8 Acres

10% x 50 = 5 Acres (to be built within Tier III and IV areas)

Total Improved Open Space Required = 13 Acres (±13% of buildable land)

Example 3

Total Land Area: 30 Acres

Total Buildable Land: 30 Acres

Tier I and II: 25 Acres

Tier II and III: 5 Acres

8% x 30 = 2.4 Acres

10% x 5 = 0.5 Acres (to be built within Tier III and IV areas)

Total Improved Open Space Required = 2.9 Acres (±10% of buildable land)

Example 4

Total Land Area: 30 Acres

Total Buildable Land: 30 Acres

Tier I and II: 0 Acres

Tier III and IV: 30 Acres

8% x 30 = 2.4 Acres

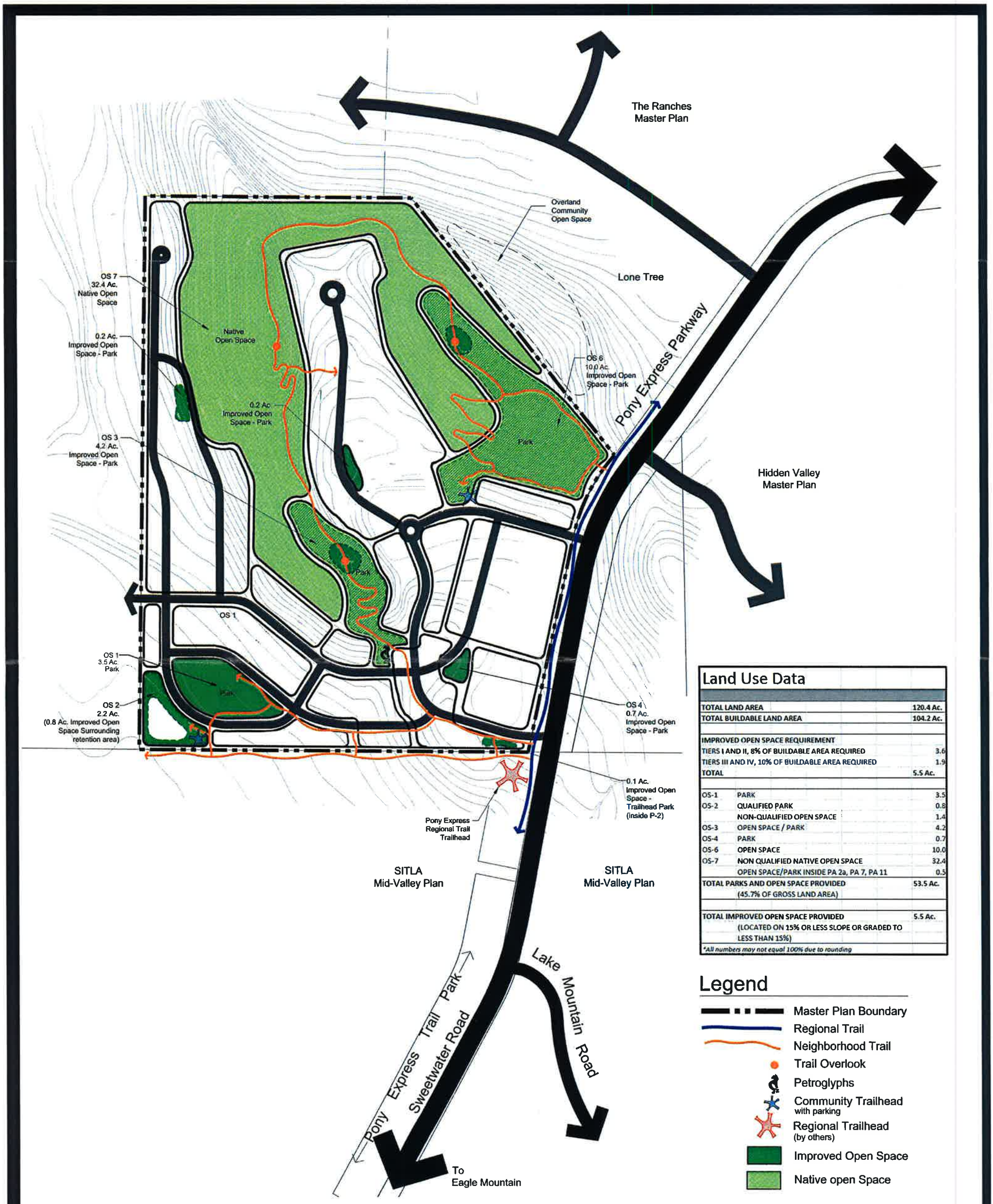
10% x 30 = 3.0 Acres (to be built within Tier III and IV areas)

Total Improved Open Space Required = 5.4 Acres (± 18% of buildable land)

[Ord. O-24-2008 § 2 (Exh. A, Exh. 6.5)].

Exhibit E

[Parks and Open Space Plan]



Land Use Data

TOTAL LAND AREA		120.4 Ac.
TOTAL BUILDABLE LAND AREA		104.2 Ac.
IMPROVED OPEN SPACE REQUIREMENT		
TIERS I AND II, 8% OF BUILDABLE AREA REQUIRED		3.6
TIERS III AND IV, 10% OF BUILDABLE AREA REQUIRED		1.9
TOTAL		5.5 Ac.
OS-1	PARK	3.5
OS-2	QUALIFIED PARK	0.8
	NON-QUALIFIED OPEN SPACE	1.4
OS-3	OPEN SPACE / PARK	4.2
OS-4	PARK	0.7
OS-6	OPEN SPACE	10.0
OS-7	NON QUALIFIED NATIVE OPEN SPACE	32.4
	OPEN SPACE/PARK INSIDE PA 2a, PA 7, PA 11	0.5
TOTAL PARKS AND OPEN SPACE PROVIDED (45.7% OF GROSS LAND AREA)		53.5 Ac.
TOTAL IMPROVED OPEN SPACE PROVIDED (LOCATED ON 15% OR LESS SLOPE OR GRADED TO LESS THAN 15%)		5.5 Ac.

*All numbers may not equal 100% due to rounding

Legend

- Master Plan Boundary
- Regional Trail
- Neighborhood Trail
- Trail Overlook
- Petroglyphs
- Community Trailhead with parking
- Regional Trailhead (by others)
- Improved Open Space
- Native open Space

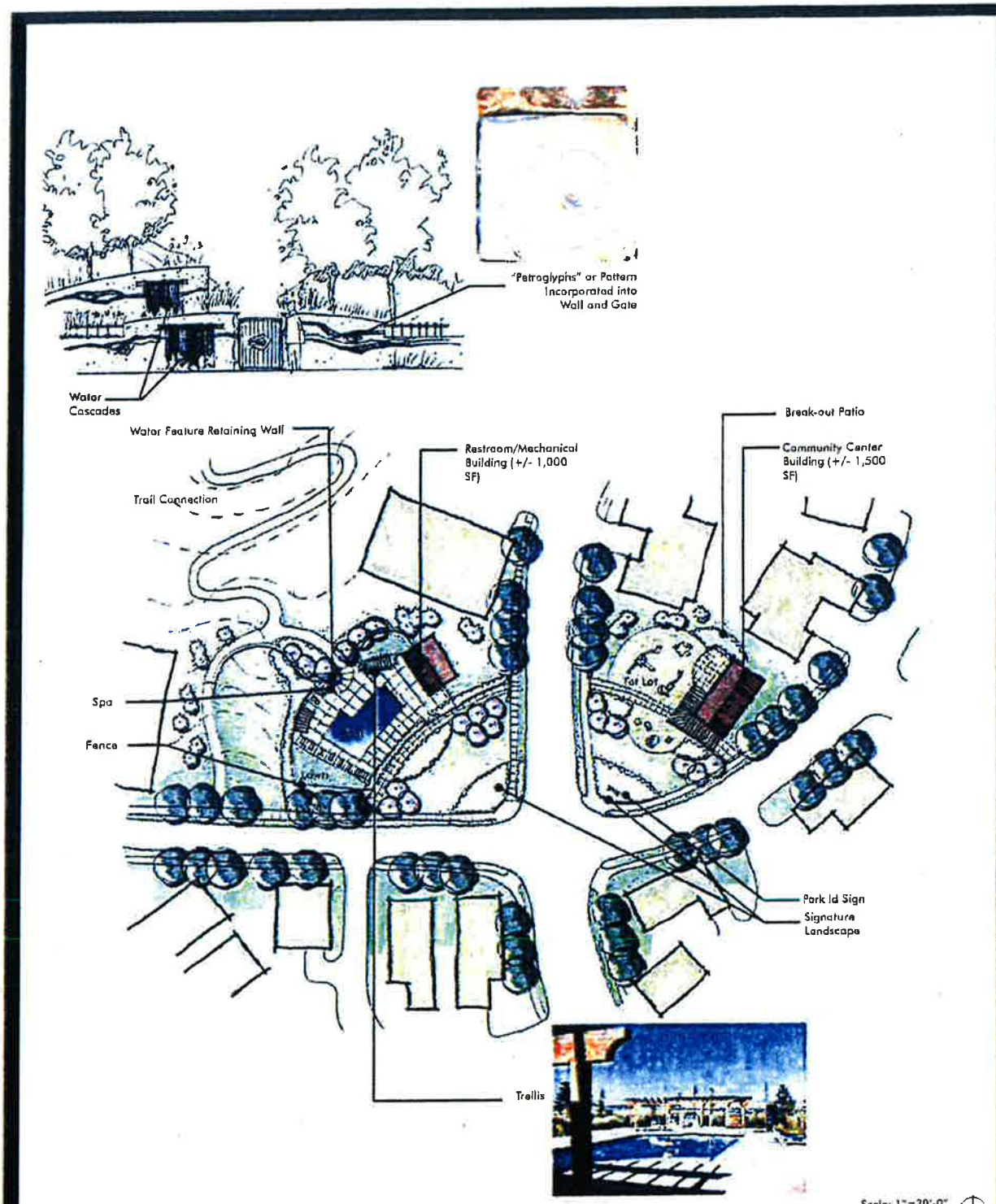
Oquirrh Mountain
Parks & Open Space Plan

Scale: 1" = 100'
February 28th, 2014

SAGE COMMUNITIES

Exhibit F

[Parks and Open Space Design Drawings]



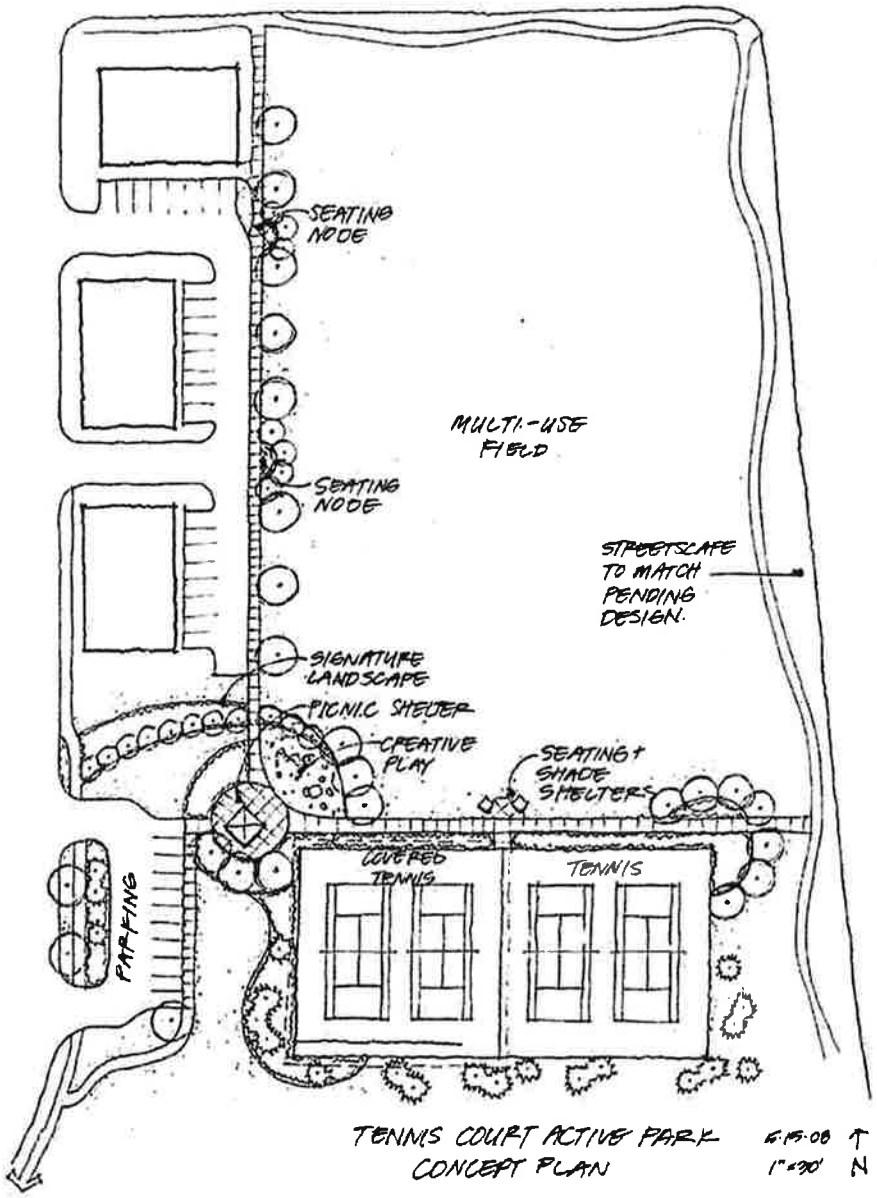
Community Center A/Tot Lot (East Side) and Pool Area (West Side)

Oquirrh Mountain Ranch

Parks and Open Space

SAGE

May 19, 2008



Tennis Court Active Park

Oquirrh Mountain Ranch

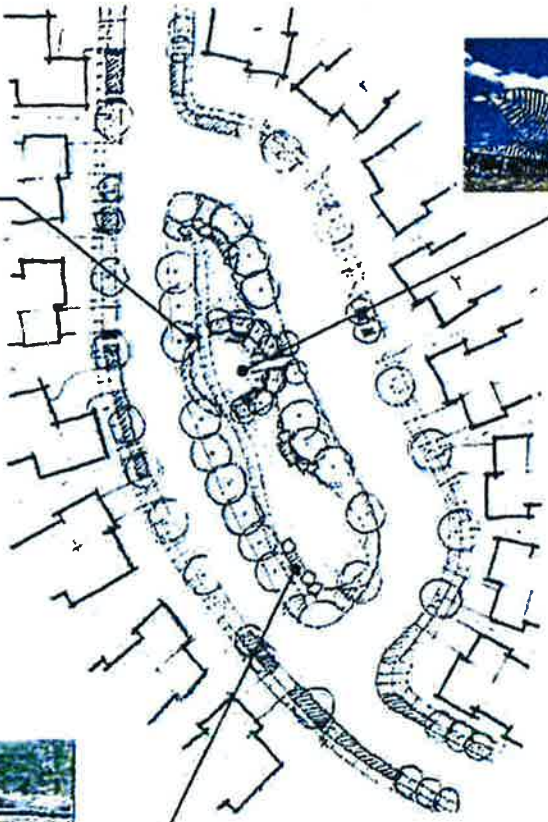
Parks and Open Space

SAGE

May 19, 2008

"Butterfly-friendly" Plant Palette
(Butterfly Bush shown)

Bird & Butterfly Garden - with
Sculptural Benches and Birdhouse
Elements



3 Bench Seat/Stone Wall and Boulder
"Outcroppings" located throughout the Garden Park

Bird & Butterfly Garden Park (New "Eyebrow" Park)

Scale: 1"=20'-0"
0 10 20 40 NORTH

Oquirrh Mountain Ranch

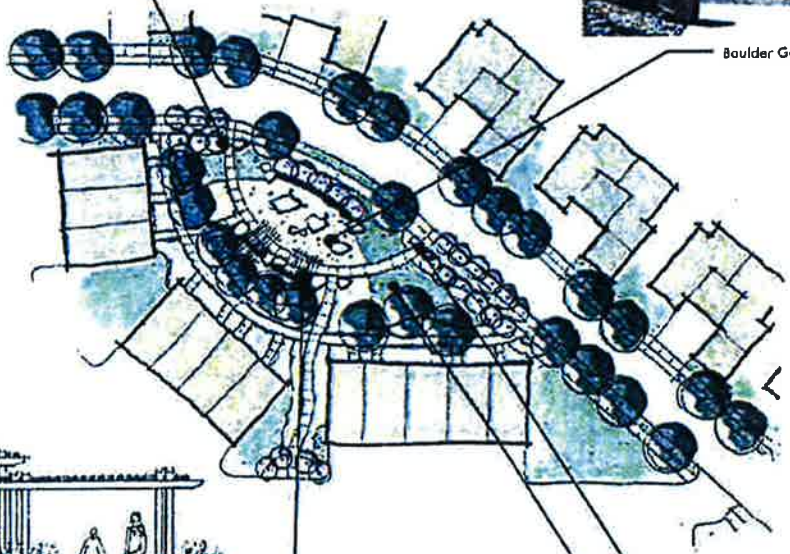
Parks and Open Space

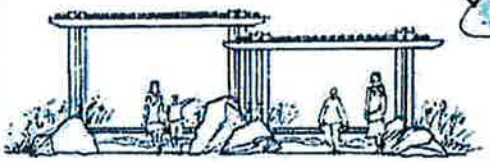
SAGE

May 9, 2008

Informal Boulder Gateway and Signature Landscape

Boulder Garden/Play Area





Shade Structure with Stone + Bench Seating

Informal Boulder Gateway and Signature Landscape

Play Lawn

Bench Seat Incorporated into Stone Wall and Boulder "Outcroppings"

Boulder Garden Play Area

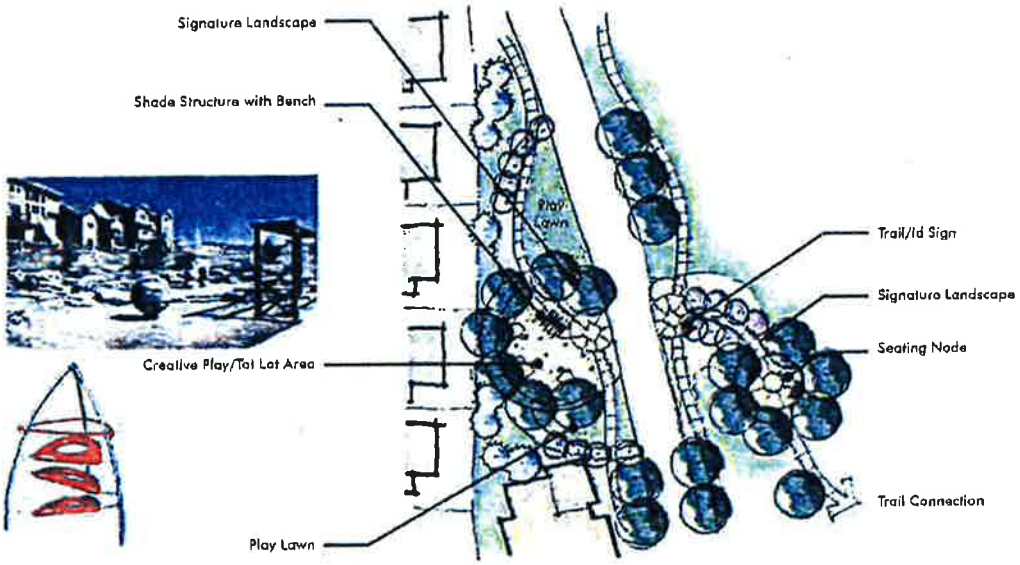
Scale: 1"=30'-0"
0 15 30 60 NORTH

Oquirrh Mountain Ranch

Parks and Open Space

SAGE

May 19, 2008



Tot Lot/Creative Play Area (West Side) and Trailhead Park A

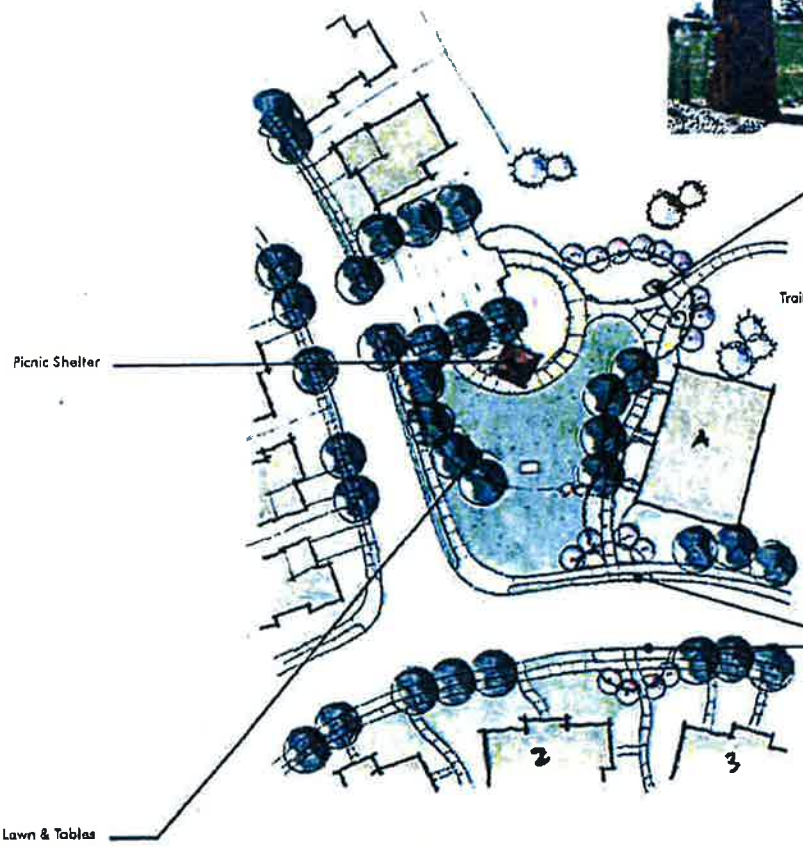
Scale: 1"=30'-0"
0 15 30 60 NORTH

Oquirrh Mountain Ranch

Parks and Open Space

SAGE

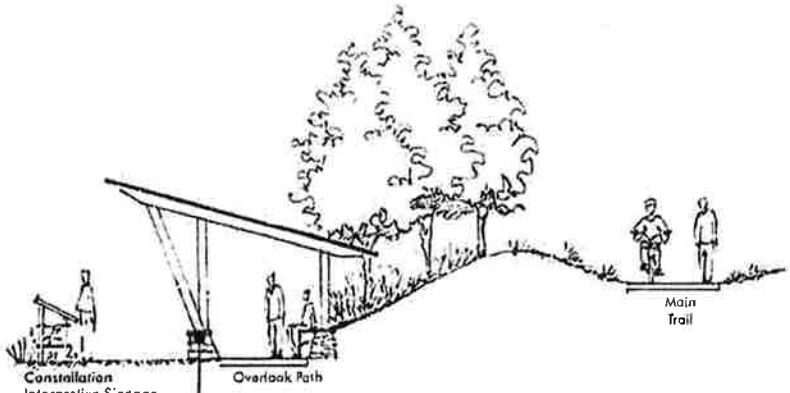
May 19, 2008

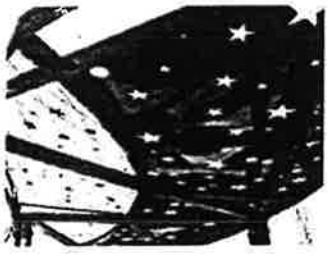


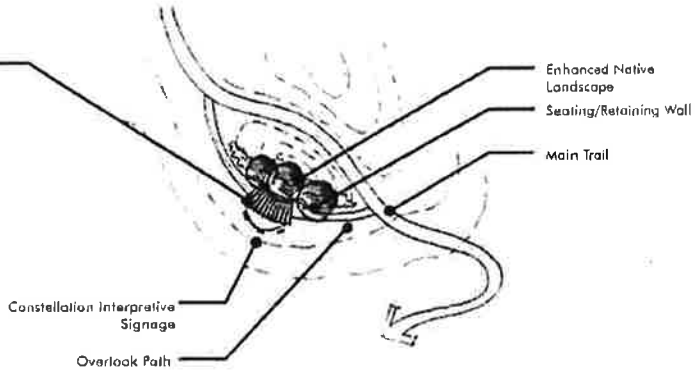
Trailhead Park B

Oquirrh Mountain Ranch
Parks and Open Space

SAGE



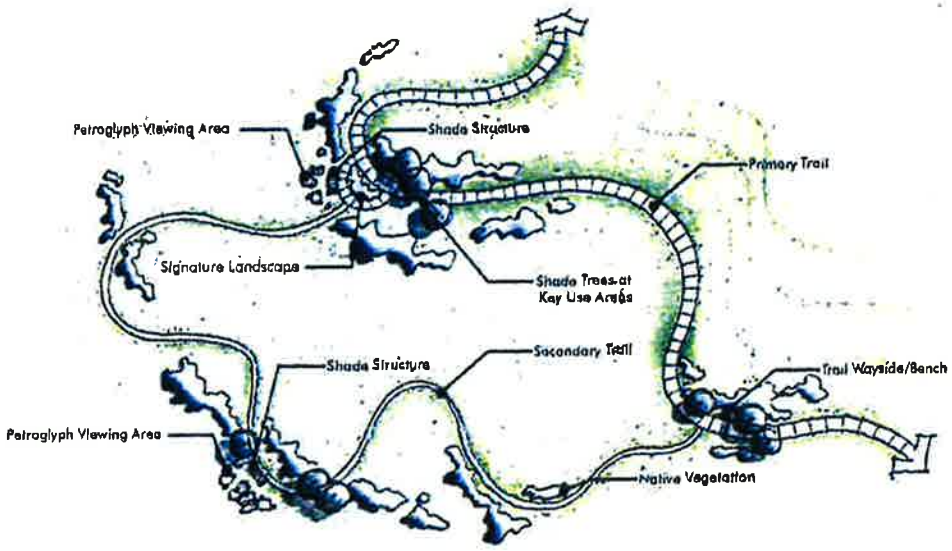




Constellation Overlook

Oquirrh Mountain Ranch
Parks and Open Space

SAGE



Petroglyph Park

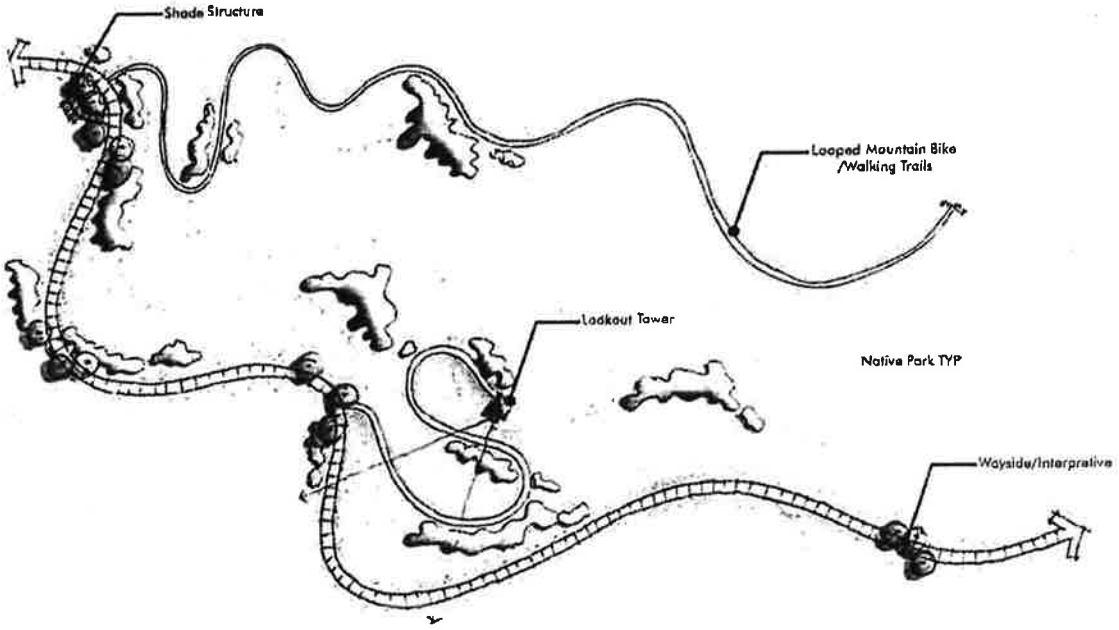
Scale: 1"=40'-0"
0 20 40 80 NORTH

Oquirrh Mountain Ranch

Parks and Open Space

SAGE

May 19, 2008



Hilltop Native Park

Scale: 1"=40'-0"
0 20 40 80

Oquirrh Mountain Ranch

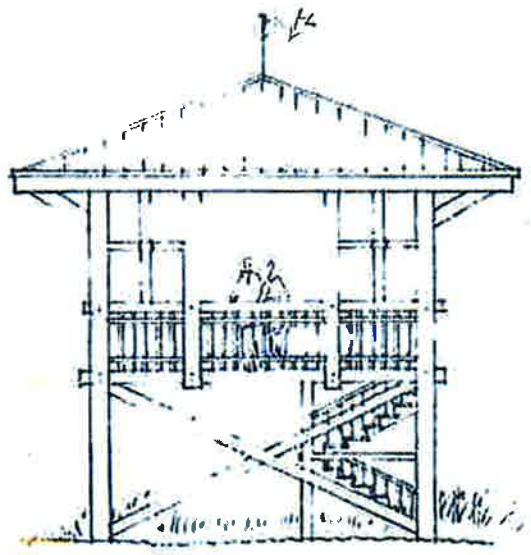
Parks and Open Space

SAGE

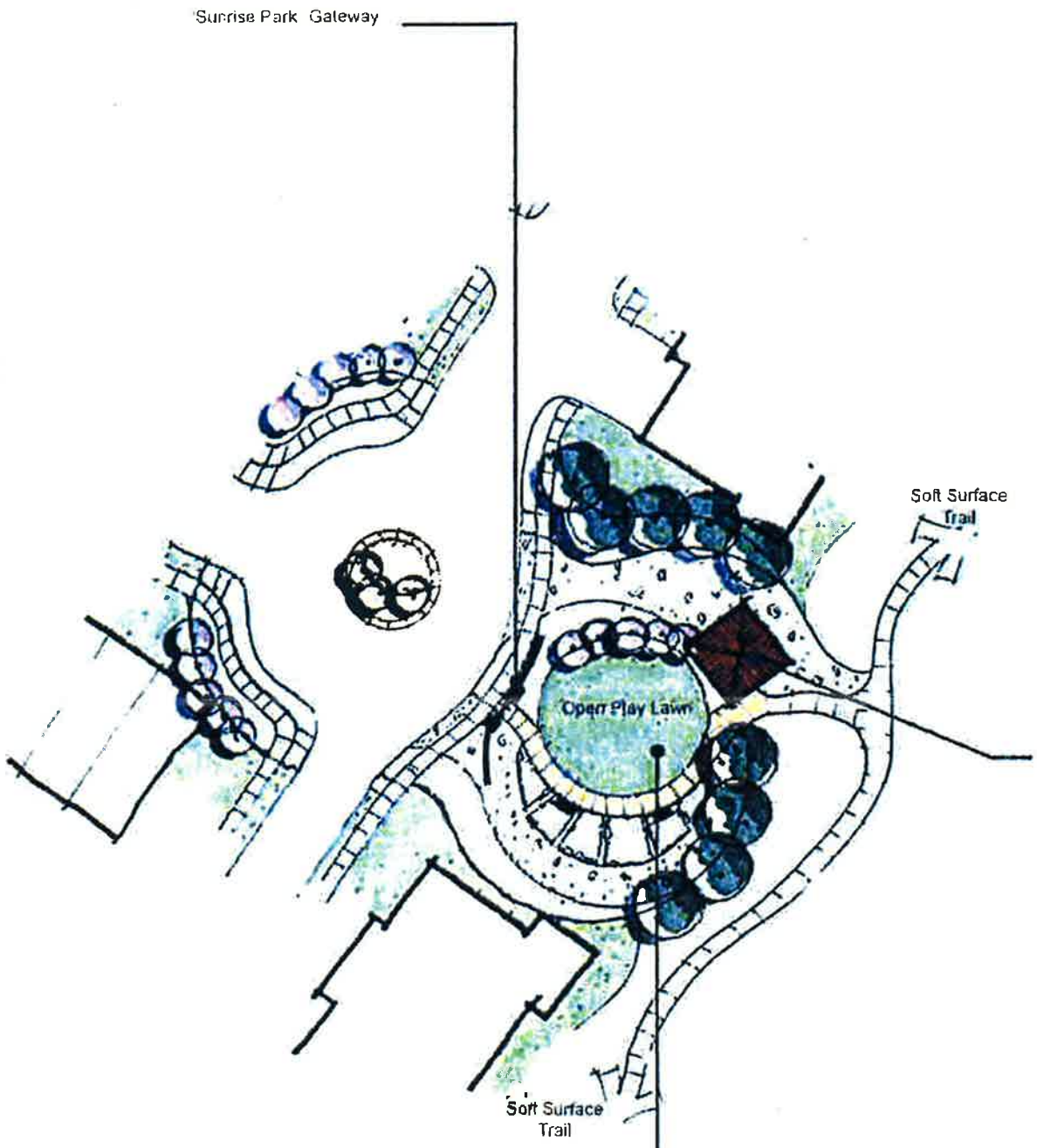
May 19, 2008

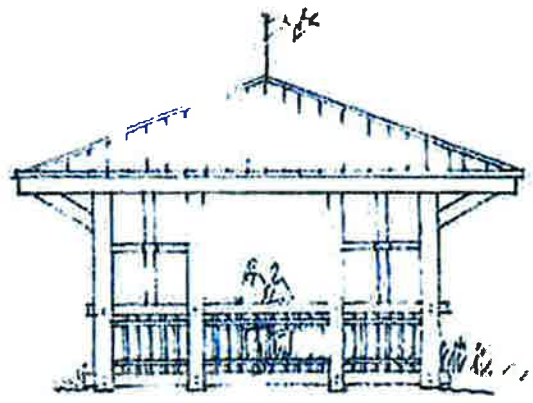
Exhibit G

[Lookout Tower Design Drawing]



Revised
Sage Communities Overlook Tower





Scenic Mountain Overlook Pavillion

Example of Fixed Metal Pennant

'Sun Garden' with Benches

Sunrise Park

These are graphic representations and are subject to change

Scenic Mountain
Park Concepts

Scale: 1"=20'-0"
June 25, 2008

SAGE COMMUNITIES

Exhibit H

[Traffic Study]

HALES ENGINEERING
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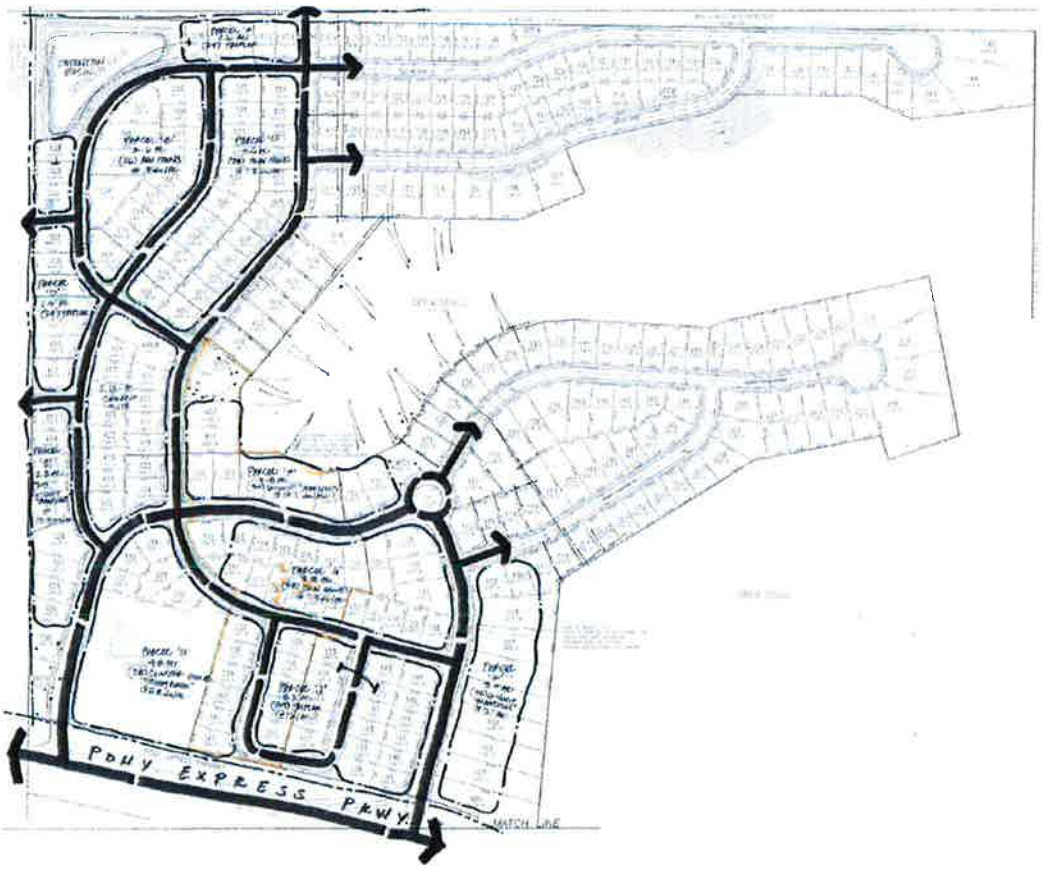
Oquirrh Mountain Ranch

Traffic Impact Study



Eagle Mountain, Utah

October 2014

UT14-653

2975 West Executive Pkwy, Ste. 151 Lehi, Utah 84043 p. 801/ 766.4343
www.halesengineering.com

HALES ENGINEERING
innovative transportation solutions

EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Oquirrh Mountain Ranch in Eagle Mountain, Utah. The proposed development is located on the Pony Express Parkway, approximately 3 miles north of Eagle Mountain Boulevard.

Included within the analyses for this study are the traffic operations and recommended mitigation measures for existing conditions and plus project conditions (conditions after development of the proposed project) at key intersections and roadways in the vicinity of the site. Future (2020) conditions are also analyzed.

TRAFFIC ANALYSIS

The following is an outline of the traffic analysis performed by Hales Engineering for the traffic conditions of this project.

Existing (2014) Background Conditions Analysis

Hales Engineering performed weekday morning (7:00 – 9:00 a.m.) and afternoon (4:00 to 6:00 p.m.) peak period traffic counts at the following intersections:

- Red Pine Road / Pony Express Parkway

These counts were performed on Wednesday, October 22, 2014. The a.m. peak hour was determined to be between the hours of 7:15 – 8:15 a.m. and the p.m. peak hour between the hours of 5:00 and 6:00 p.m. Traffic volumes were approximately 15% higher during the a.m. peak hour, so the analysis was completed using a.m. peak hour conditions only. Detailed count data are included in Appendix A.

As shown in Table ES-1, the study intersection is currently operating at an acceptable levels of service during the a.m. peak hour. No significant queuing was observed at the study intersection.

Project Conditions Analysis

The project is planned to be built in several phases. For the purposes of this study, it was assumed that the project will be completed in two major phases. A site plan for the proposed development has been included in Appendix C.

The proposed land use for the development has been identified as follows:

Phase 1

- Single Family Detached Housing: 50 dwelling units

Phase 2

- Single Family Detached Housing: 74 dwelling units
- Twin Homes: 56 dwelling units
- Triplex Homes: 87 dwelling units
- Row Townhomes: 26 dwelling units
- 6-unit "Mansion Homes": 96 dwelling units
- Cluster Homes "Stoneybrook": 28 dwelling units

The total trip generation for the development is as follows:

- Daily Trips: 3,398
- a.m. Peak Hour Trips: 263
- p.m. Peak Hour Trips: 333

Existing (2014) Plus Project Conditions Analysis

As shown in Table ES-1, all study intersections are anticipated to continue to operate at acceptable levels of service. No significant queuing is anticipated at any of the study intersections.

Future (2020) Background Conditions Analysis

As shown in Table ES-1, all study intersections are anticipated to continue to operate at acceptable levels of service. No significant queuing is anticipated.

Future (2020) Plus Project Conditions Analysis

As shown in Table ES-1, all study intersections are anticipated to continue to operate at acceptable levels of service during the a.m. peak hour. The 95th percentile queue lengths for the Bald Eagle Way access are anticipated to be approximately 100 feet (approximately 5 vehicles) during the a.m. peak hour. No other significant queuing is anticipated.

TABLE ES-1 A.M. Peak Hour Eagle Mountain - Oquirrh Mountain Ranch TIS				
Intersection	Existing 2014 Background	Existing 2014 Plus Project	Future 2020 Background	Future 2020 Plus Project
Description	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])
Red Pine Road / Pony Express Pkwy	**A (5.9) / EB**	**A (5.6) / EB**	**B (10.6) / EB**	**B (14.9) / EB**
Bald Eagle Way / Pony Express Pkwy[2]	-	**A (7.2) / EB**	-	**C (19.3) / EB**
Oquirrh Ranch Pkwy / Pony Express Pkwy[2]	-	**A (6.4) / EB**	-	**B (13.2) / EB**

1. Intersection LOS and delay (seconds/vehicle) values represent the overall intersection average for signalized and all-way stop controlled intersections and the worst approach for all other unsignalized intersections.

2. Project accesses were only analyzed in "plus project" scenarios.

Source: Hales Engineering, October 2014

RECOMMENDATIONS

The following mitigation measures are recommended:

Existing (2014) Background Conditions Analysis

No mitigation measures are recommended.

Existing (2014) Plus Project Conditions Analysis

No mitigation measures are recommended.

Future (2020) Background Conditions Analysis

No mitigation measures are recommended.

Future (2020) Plus Project Conditions Analysis

No mitigation measures are recommended.

SUMMARY OF KEY FINDINGS/RECOMMENDATIONS

The following is a summary of key findings and recommendations:

- All of the study intersections are currently operating at acceptable levels of service.
- With project traffic added, the study intersections are anticipated to continue to operate at acceptable levels of service.
- Pony Express Parkway is planned to be widened to a 4-lane roadway as a 1 – 5 year project, according to the Eagle Mountain Capital Facilities Plan. It was assumed that this is completed by 2020.
- All study intersections are anticipated to operate at acceptable levels of service during the future 2020 conditions, both in the background and plus project scenarios.
- No mitigation measures are recommended.

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HALES ENGINEERING
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I. INTRODUCTION

A. Purpose

This study addresses the traffic impacts associated with the proposed Oquirrh Mountain Ranch in Eagle Mountain, Utah. The proposed development is located on the Pony Express Parkway, approximately 3 miles north of Eagle Mountain Boulevard. Figure 1 shows a vicinity map of the proposed development.

Included within the analyses for this study are the traffic operations and recommended mitigation measures for existing conditions and plus project conditions (conditions after development of the proposed project) at key intersections and roadways in the vicinity of the site. Future (2020) conditions are also analyzed.

Figure 1 Vicinity map showing the project location in Eagle Mountain, Utah

B. Scope

The study area was defined based on conversations with the development Team. This study was scoped to evaluate the impacts of the project on the adjacent intersection and the project accesses. The proposed project will eliminate three existing accesses that will be accounted for in trip generation but will not be evaluated for level of service. This study will evaluate the traffic operational performance of the following intersections:

- Red Pine Road / Pony Express Parkway
- Bald Eagle Way / Pony Express Parkway (proposed)
- Oquirrh Ranch Parkway / Pony Express Parkway (proposed)

C. Analysis Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections.

The Highway Capacity Manual 2010 (HCM 2010) methodology was used in this study to remain consistent with "state-of-the-practice" professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized, roundabout, and all-way stop controlled intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). For all other unsignalized intersections LOS is reported based on the worst approach.

D. Level of Service Standards

For the purposes of this study, a minimum overall intersection performance for each of the study intersections was set at LOS D. If LOS E or F conditions exist, an explanation and/or mitigation measures will be presented. An LOS D threshold is consistent with "state-of-the-practice" traffic engineering principles for urbanized areas.

Table 1 Level of Service Descriptions

Level of Service	Description of Traffic Conditions	Average Delay (seconds/vehicle)
	Signalized Intersections	**Overall Intersection**
A	Extremely favorable progression and a very low level of control delay. Individual users are virtually unaffected by others in the traffic stream.	0 ≤ 10.0
B	Good progression and a low level of control delay. The presence of other users in the traffic stream becomes noticeable.	> 10.0 and ≤ 20.0
C	Fair progression and a moderate level of control delay. The operation of individual users becomes somewhat affected by interactions with others in the traffic stream.	>20.0 and ≤ 35.0
D	Marginal progression with relatively high levels of control delay. Operating conditions are noticeably constrained.	> 35.0 and ≤ 55.0
E	Poor progression with unacceptably high levels of control delay. Operating conditions are at or near capacity.	> 55.0 and ≤ 80.0
F	Unacceptable progression with forced or breakdown operating conditions.	> 80.0
	Unsignalized Intersections	**Worst Approach**
A	Free Flow / Insignificant Delay	0 ≤ 10.0
B	Stable Operations / Minimum Delays	>10.0 and ≤ 15.0
C	Stable Operations / Acceptable Delays	>15.0 and ≤ 25.0
D	Approaching Unstable Operations / Tolerable Delays	>25.0 and ≤ 35.0
E	Unstable Operations / Significant Delays	>35.0 and ≤ 50.0
F	Forced or Unpredictable Operations / Excessive Delays	> 50.0

Source: Hales Engineering Descriptions, based on Highway Capacity Manual, 2010 Methodology (Transportation Research Board, 2010)

II. EXISTING (2014) BACKGROUND CONDITIONS

A. Purpose

The purpose of the existing (2014) background analysis is to study the intersections and roadways during the peak travel periods of the day with background traffic and geometric conditions. Through this analysis, background traffic operational deficiencies can be identified and potential mitigation measures recommended. This analysis will provide a baseline condition that may be compared to the build conditions to identify the impacts of the development.

B. Roadway System

The primary roadway that will provide access to the project site is described below:

Pony Express Parkway: is a city maintained Major arterial. Pony Express Parkway has one lane in each direction and a landscaped median with a posted speed limit of 40 mph.

C. Traffic Volumes

Hales Engineering performed weekday morning (7:00 – 9:00 a.m.) and afternoon (4:00 to 6:00 p.m.) peak period traffic counts at the following intersections:

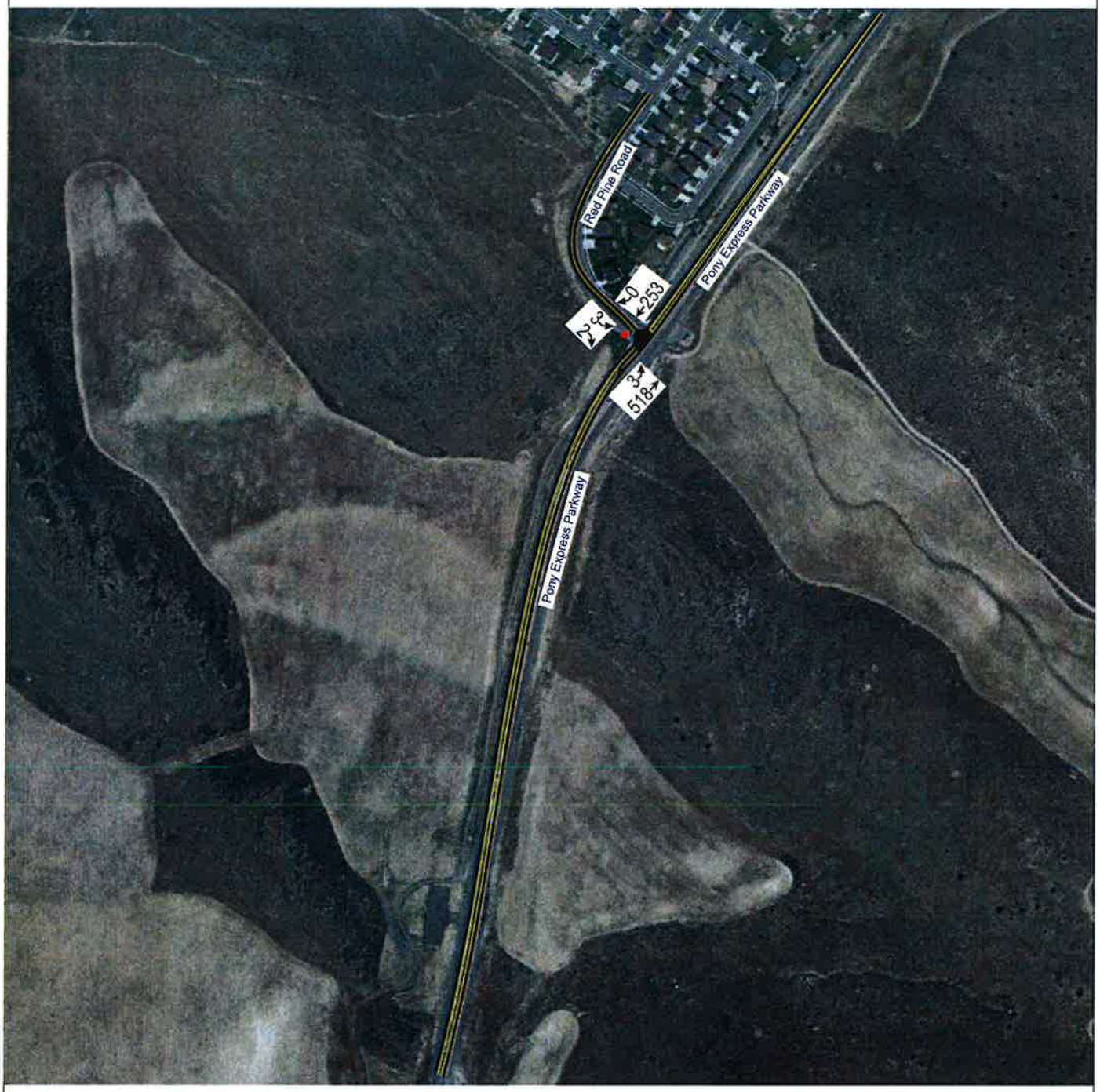
- Red Pine Road / Pony Express Parkway

These counts were performed on Wednesday, October 22, 2014. The a.m. peak hour was determined to be between the hours of 7:15 – 8:15 a.m. and the p.m. peak hour between the hours of 5:00 and 6:00 p.m. Traffic volumes were approximately 15% higher during the a.m. peak hour, so the analysis was completed using a.m. peak hour conditions only, see Appendix A.

Figure 2 shows the existing a.m. peak hour volume as well as intersection geometry at the study intersections.

D. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2010 methodology introduced in Chapter I, the a.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 2 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a baseline condition for the impact analysis of the proposed development during existing (2014) conditions. As shown in Table 2, the study intersection is currently operating at an acceptable level of service during the a.m. peak hour.


Red Pine Road
Pony Express Parkway
Pony Express Parkway
0
253
3
2
3
518

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for the study intersection. The queue reports can be found in Appendix D. No significant queuing was observed at the study intersection.

F. Mitigation Measures

No mitigation measures are recommended.

Table 2 Existing (2014) Background a.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1,3]	Aver. Delay (Sec/Veh)[1]	LOS[1]	Aver. Delay (Sec/Veh)[2]	LOS[2]
Red Pine Road / Pony Express Parkway	EB Stop	EB	5.9	A	-	-

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle) and is reported for roundabout, all-way stop and signal controlled intersections.
3. Southbound = Southbound approach, etc.

Source: Hales Engineering, October 2014

III. PROJECT CONDITIONS

A. Purpose

The project conditions analysis explains the type and intensity of development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in the Introduction.

B. Project Description

This study addresses the traffic impacts associated with the proposed Oquirrh Mountain Ranch in Eagle Mountain, Utah. The proposed development is located on Pony Express Parkway, approximately three miles north of Eagle Mountain Boulevard. The project is planned to be built in several phases. For the purposes of this study, it was assumed that the project will be completed in two major phases. A site plan for the proposed development has been included in Appendix C.

The proposed land use for the development has been identified as follows:

Phase 1

- Single Family Detached Housing: 50 dwelling units

Phase 2

- Single Family Detached Housing: 74 dwelling units
- Twin Homes: 56 dwelling units
- Triplex Homes: 87 dwelling units
- Row Townhomes: 26 dwelling units
- 6-unit "Mansion Homes": 96 dwelling units
- Cluster Homes "Stoneybrook": 28 dwelling units

C. Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation (9th Edition, 2012)*. Trip Generation for the proposed project is included in Table 3.

Table 3
Eagle Mountain - Oquirrh Mountain Ranch TIS
Trip Generation

Weekday Daily	Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total Daily Trips
Phase 1	Single-Family Detached Housing (210)	50	Dwelling Units	555	50%	50%	278	278	**555**
Phase 2	Residential Condominium/Townhouse (230)	82	Dwelling Units	541	50%	50%	271	271	**541**
Phase 2	Apartment (220)	183	Dwelling Units	1,233	50%	50%	616	616	**1,233**
Phase 2	Single-Family Detached Housing (210)	102	Dwelling Units	1,070	50%	50%	535	535	**1,070**
	Project Total Daily Trips						**1,699**	**1,699**	**3,398**
A.M. Peak Hour	Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total a.m. Trips
Phase 1	Single-Family Detached Housing (210)	50	Dwelling Units	45	25%	75%	11	34	**45**
Phase 2	Residential Condominium/Townhouse (230)	82	Dwelling Units	44	17%	83%	7	37	**44**
Phase 2	Apartment (220)	183	Dwelling Units	93	20%	80%	19	75	**93**
Phase 2	Single-Family Detached Housing (210)	102	Dwelling Units	81	25%	75%	20	61	**81**
	Project Total a.m. Peak Hour Trips						**58**	**206**	**263**
P.M. Peak Hour	Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total p.m. Trips
Phase 1	Single-Family Detached Housing (210)	50	Dwelling Units	56	63%	37%	35	21	**56**
Phase 2	Residential Condominium/Townhouse (230)	82	Dwelling Units	51	67%	33%	34	17	**51**
Phase 2	Apartment (220)	183	Dwelling Units	118	65%	35%	77	41	**118**
Phase 2	Single-Family Detached Housing (210)	102	Dwelling Units	107	63%	37%	67	40	**107**
	Project Total p.m. Peak Hour Trips						**214**	**119**	**333**

1. Land Use Code from the Institute of Transportation Engineers Trip Generation Manual (9th Edition - 2012).

SOURCE: Hales Engineering, October 2014

D. Trip Distribution and Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing these distribution percentages, especially in close proximity to the site. The resulting distribution of project generated trips is as follows:

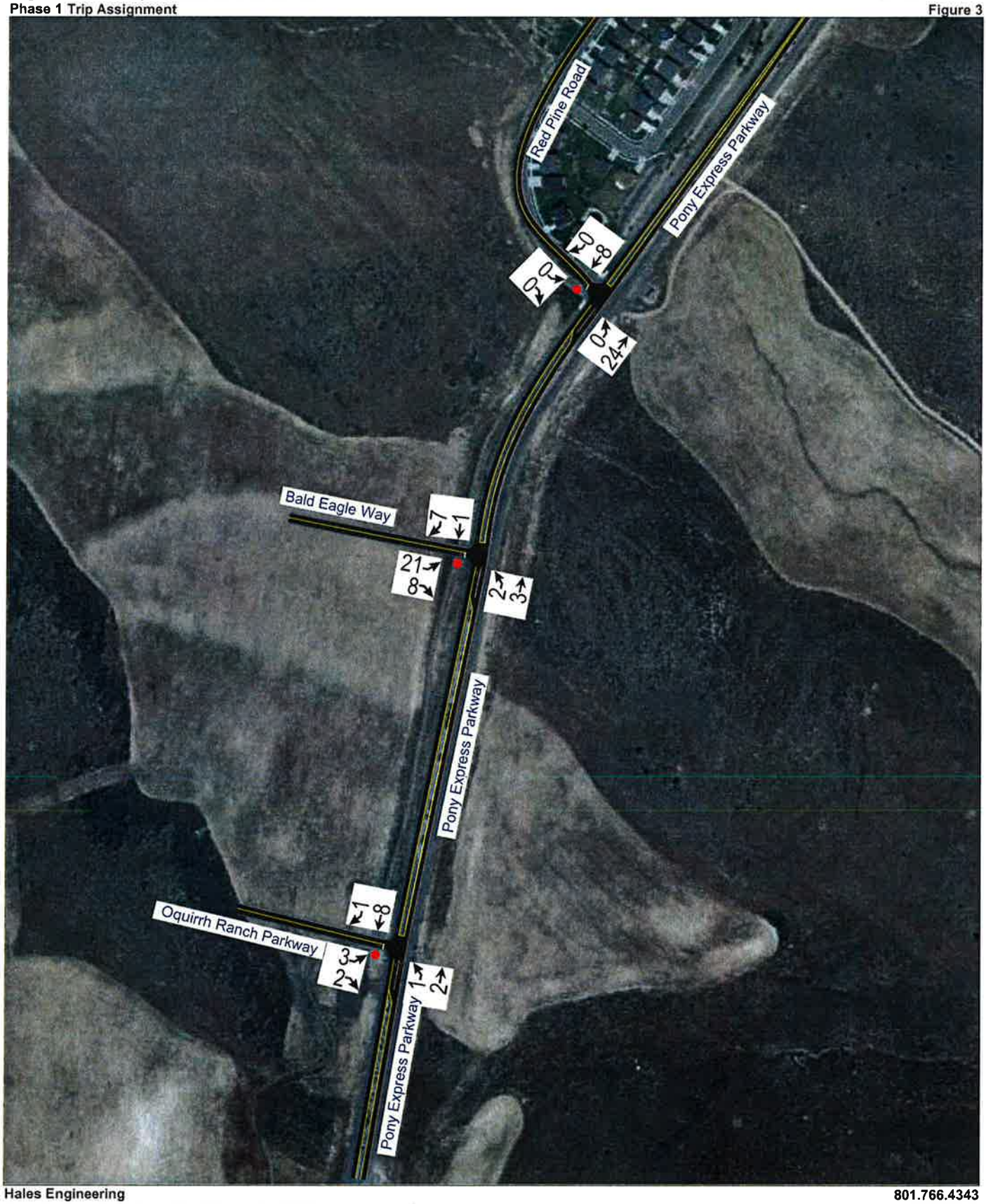
To/From Project a.m. Peak Period:

- 70% North
- 30% South

These trip distribution assumptions and the prevailing movements at each intersection were used to assign the a.m. peak hour generated traffic at the study intersections to create trip assignment for the proposed development. Trip assignment for Phases 1 and 2 of the development are shown in Figures 3 and 4.

Eagle Mountain - Oquirrh Mountain Ranch TIS
Phase 1 Trip Assignment

a.m. Peak Hour
Figure 3



Hales Engineering
2975 W. Executive Pkwy. Ste 151 Lehi UT 84043

801.766.4343
10/24/2014

Eagle Mountain - Oquirrh Mountain Ranch TIS
Phase 2 Trip Assignment

a.m. Peak Hour
Figure 4

Hales Engineering
2975 W. Executive Pkwy. Ste 151 Lehi UT 84043

801.766.4343
10/24/2014

E. Access

The proposed accesses for the site will be gained at the following locations (see also site plan in Appendix C):

Oquirrh Ranch Parkway: This is a proposed full movement access on Pony Express Parkway approximately 50 feet north of the southern property line. It is approximately 600 feet south of the proposed Bald Eagle Way. There is an existing median opening with a left-turn pocket at the proposed roadway location.

Bald Eagle Way: This is a proposed full movement access on Pony Express Parkway on the northern property line. It is approximately 600 feet north of the proposed Oquirrh Ranch Parkway. There is an existing median opening with a left-turn pocket at the proposed roadway location.

IV. EXISTING (2014) PLUS PROJECT CONDITIONS

A. Purpose

This section of the report examines the traffic impacts of the proposed project at each of the study intersections. The net trips generated by the proposed development were combined with the existing background traffic volumes to create the existing plus project conditions. This scenario provides valuable insight into the potential impacts of the proposed project on background traffic conditions.

B. Traffic Volumes

Project trips were assigned to the study intersections based on the trip distribution percentages, trip assignment calculations, and permitted intersection turning movements as discussed in Chapter III. The existing (2014) plus project a.m. peak hour volumes were generated for the study intersections and are shown in Figure 5.

C. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2010 methodology introduced in Chapter I, the a.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 4 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. As shown in Table 4, all study intersections are anticipated to continue to operate at acceptable levels of service.

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. The queue reports can be found in Appendix D. No significant queuing is anticipated at any of the study intersections.

E. Mitigation Measures

No mitigation measures are recommended.

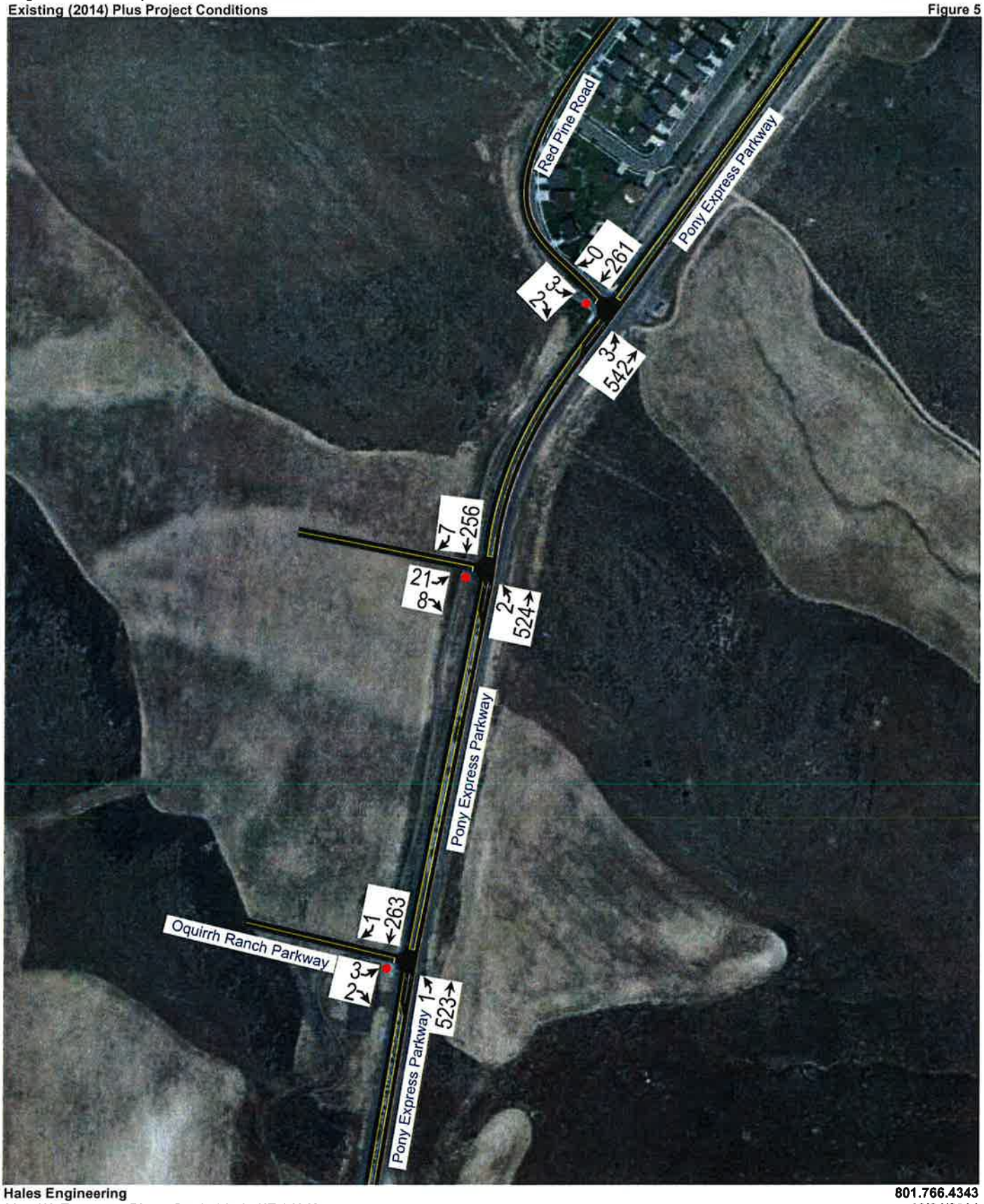

Red Pine Road
Pony Express Parkway
0
261
2
3
3
542
7
256
21
8
2
524
Pony Express Parkway
1
263
Oquirrh Ranch Parkway
3
2
Pony Express Parkway
1
523

Table 4 Existing (2014) Plus Project p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1,3]	Aver. Delay (Sec/Veh)[1]	LOS[1]	Aver. Delay (Sec/Veh)[2]	LOS[2]
Red Pine Road / Pony Express Parkway	EB Stop	EB	5.6	A	-	-
Bald Eagle Way / Pony Express Parkway	EB Stop	EB	7.2	A	-	-
Oquirrh Ranch Parkway / Pony Express Parkway	EB Stop	EB	6.4	A	-	-

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle) and is reported for roundabout, all-way stop and signal controlled intersections.
3. Southbound = Southbound approach, etc.

Source: Hales Engineering, October 2014

V. FUTURE (2020) BACKGROUND CONDITIONS

A. Purpose

The purpose of the future (2020) background analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions. Through this analysis, future background traffic operational deficiencies can be identified and potential mitigation measures recommended.

B. Traffic Volumes

Hales Engineering obtained future (2020) forecasted volumes using the Wasatch Front Regional Council (WFRC) travel demand model. Peak period turning movement counts were estimated using NCHRP 255 methodologies which utilize existing peak period turn volumes and future ADT volumes to project the future turn volumes at the major intersections.

According to the Eagle Mountain Capital Facilities Plan (Nov. 2012), Pony Express Parkway is planned to be widened to two lanes each direction as a 1 – 5 year project. It was assumed that this project is completed by 2020. The future (2020) background a.m. peak hour volumes were generated for the study intersections and are shown in Figure 6.

C. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2010 methodology introduced in Chapter I, the a.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 5 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a baseline condition for the impact analysis of the proposed development for future (2020) conditions. As shown in Table 5, all study intersections are anticipated to continue to operate at acceptable levels of service.

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. The queue reports can be found in Appendix D. No significant queuing is anticipated.

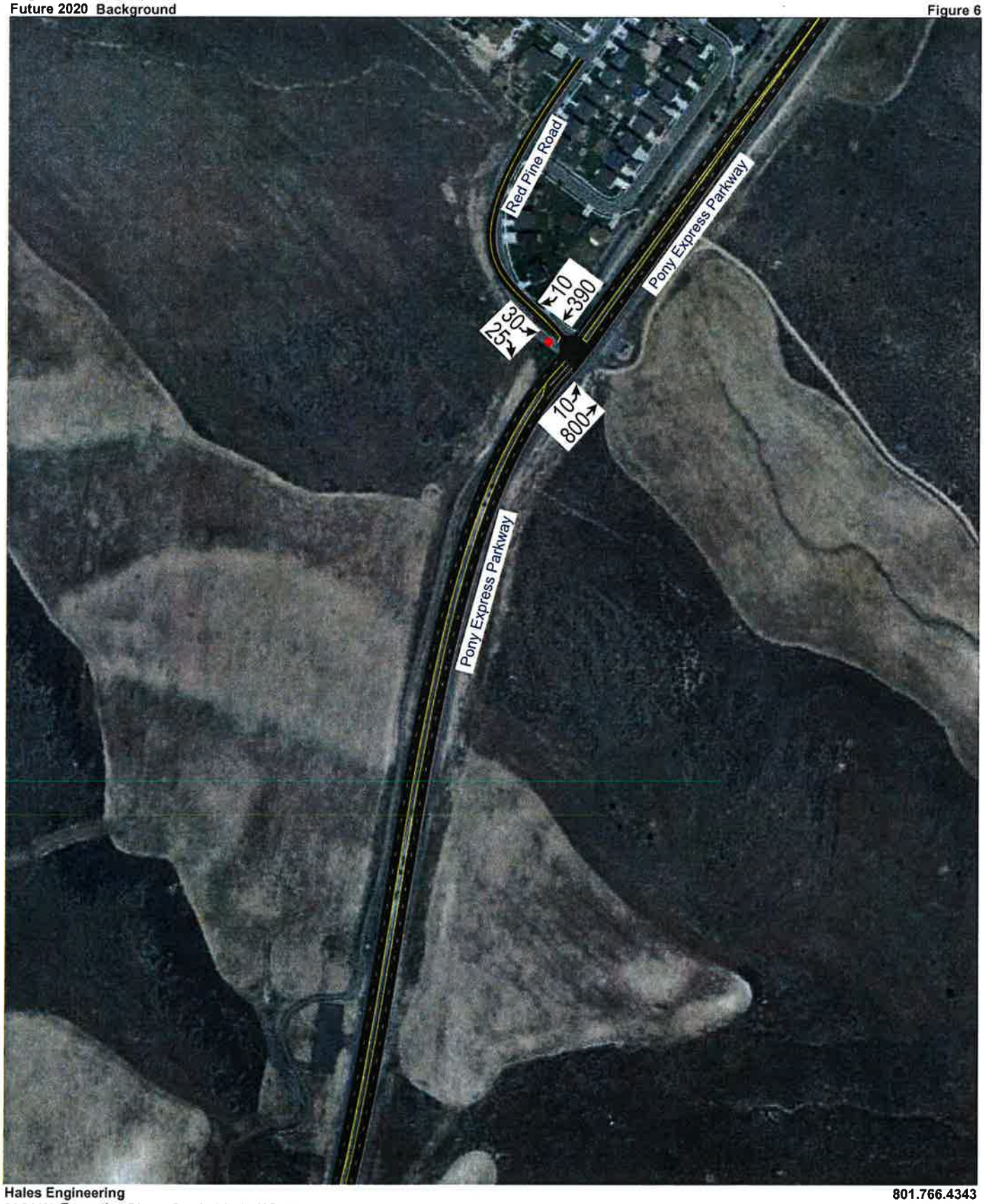

Red Pine Road
Pony Express Parkway
10
390
30
25
10
800
Pony Express Parkway

Table 5 Future (2020) Background p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1,3]	Aver. Delay (Sec/Veh)[1]	LOS[1]	Aver. Delay (Sec/Veh)[2]	LOS[2]
Red Pine Road / Pony Express Parkway	EB Stop	EB	10.6	B	-	-

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle) and is reported for roundabout, all-way stop and signal controlled intersections.
3. Southbound = Southbound approach, etc.

Source: Hales Engineering, October 2014

E. Mitigation Measures

No mitigation measures are recommended.

VI. FUTURE (2020) PLUS PROJECT CONDITIONS

A. Purpose

This section of the report examines the traffic impacts of the proposed project during future (2020) conditions. The trips generated by the proposed development were combined with the future 2020 background traffic volumes to create the future plus project conditions. The future plus project scenario evaluates the impacts of the project traffic on the surrounding roadway network as discussed in Chapter III of this report. This scenario provides valuable insight into the potential impacts of the proposed project on future background traffic conditions.

B. Traffic Volumes

Trips were assigned to the study intersections based on the trip distribution percentages discussed in Chapter III and permitted intersection turning movements. These trips were added to the future (2020) background conditions traffic volumes. The future (2020) plus project a.m. peak hour volumes were generated for the study intersections and are shown in Figure 7.

C. Level of Service Analysis

Using the Synchro/SimTraffic Software which follow the Highway Capacity Manual (HCM) 2010 methodology introduced in Chapter I, the future 2020 plus project a.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 6 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used for the analysis to provide a statistical evaluation of the interaction between the intersections. As shown in Table 6, all study intersections are anticipated to continue to operate at acceptable levels of service during the a.m. peak hour.

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. The queue reports can be found in Appendix D. The 95th percentile queue lengths for the Bald Eagle Way access are anticipated to be approximately 100 feet (approximately 5 vehicles) during the a.m. peak hour. No other significant queuing is anticipated.

E. Mitigation Measures

No mitigation measures are recommended.

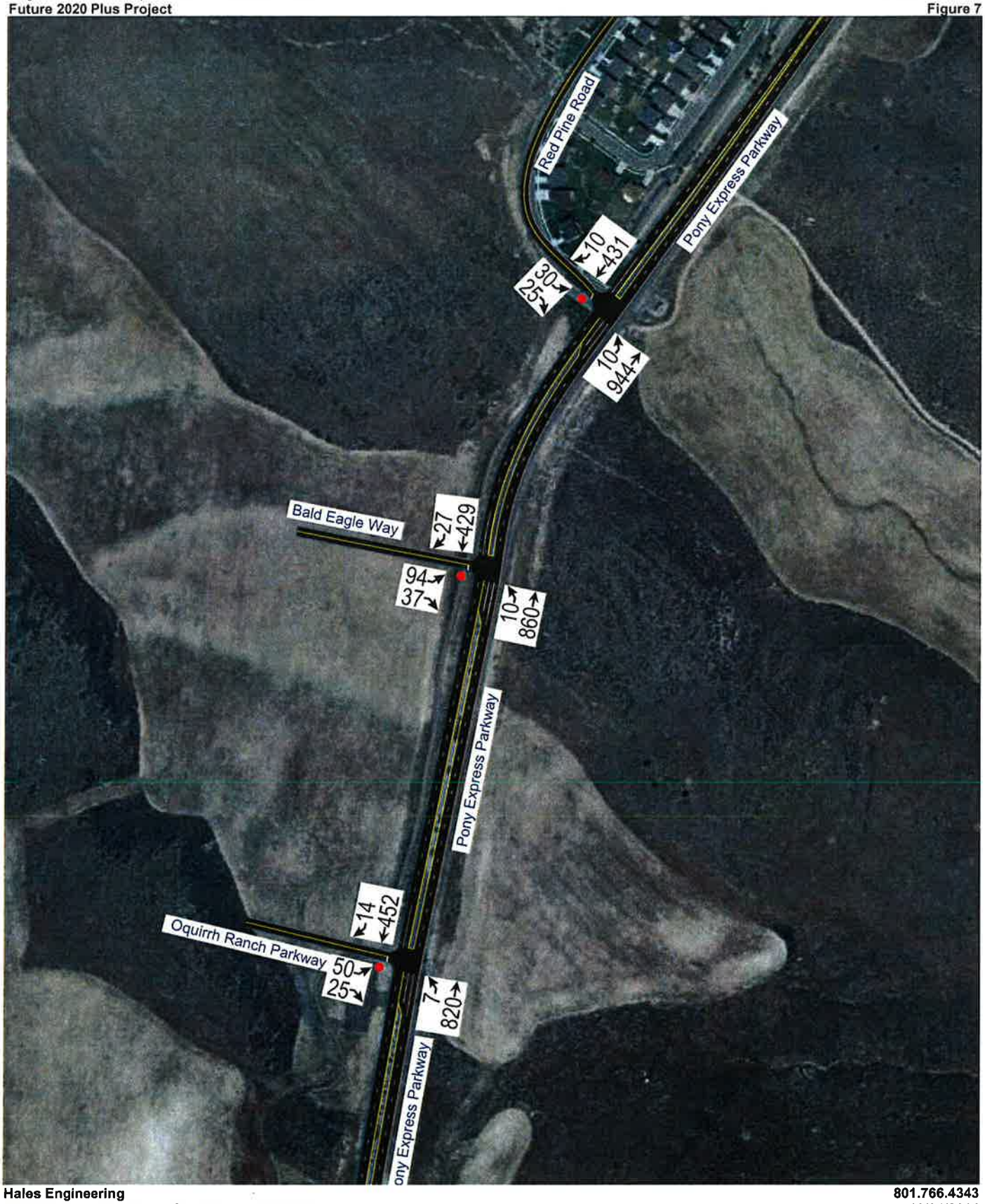

Red Pine Road
Pony Express Parkway
10
431
30
25
10
944
Bald Eagle Way
27
429
94
37
10
860
Pony Express Parkway
14
452
Oquirrh Ranch Parkway
50
25
7
820
ony Express Parkway

Table 6 Future (2020) Plus Project p.m. Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach[1,3]	Aver. Delay (Sec/Veh)[1]	LOS[1]	Aver. Delay (Sec/Veh)[2]	LOS[2]
Red Pine Road / Pony Express Parkway	EB Stop	EB	14.9	B	-	-
Bald Eagle Way / Pony Express Parkway	EB Stop	EB	19.3	C	-	-
Oquirrh Ranch Parkway / Pony Express Parkway	EB Stop	EB	13.2	B	-	-

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way stop unsignalized intersections.
2. This represents the overall intersection LOS and delay (seconds / vehicle) and is reported for roundabout, all-way stop and signal controlled intersections.
3. Southbound = Southbound approach, etc.

Source: Hales Engineering, October 2014

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APPENDIX A

Turning Movement Counts

TrafficCounts
2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

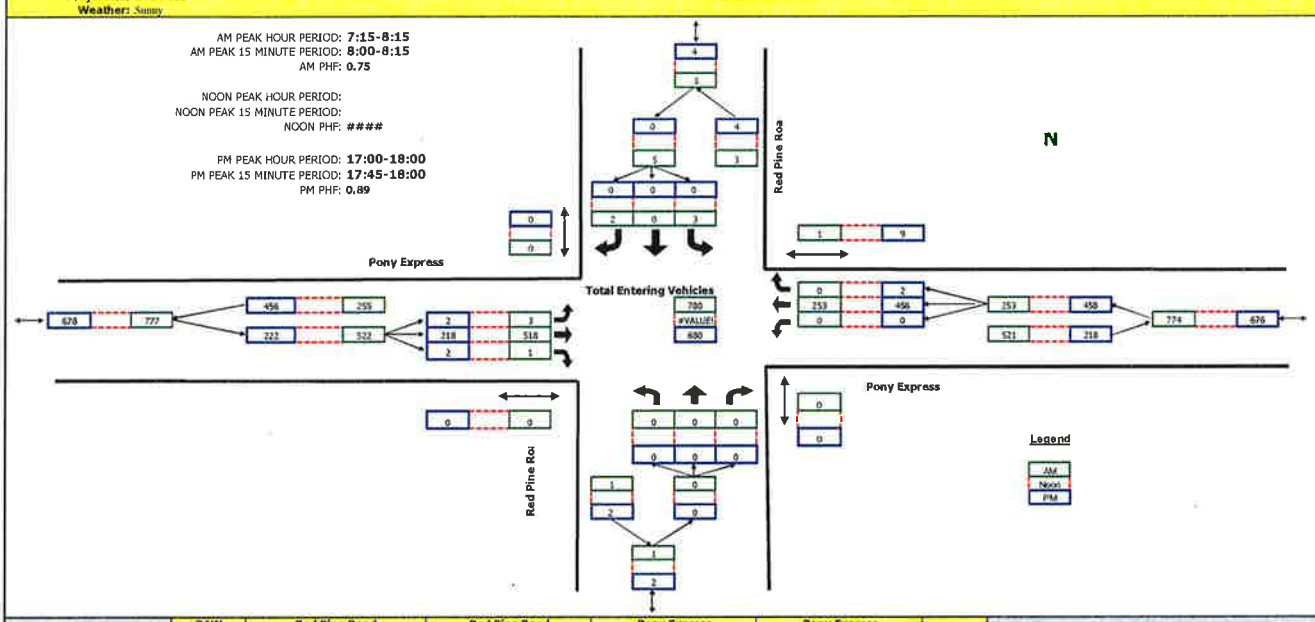
Intersection: Red Pine Road / Pony Express
North/South: Red Pine Road
East/West: Pony Express
Jurisdiction: Eagle Mountain
Project Title: Eagle Mountain - Oquirrh Mountain Ranch TIS
Project No: UT14-653
Weather: Sunny

Date: 10-22-14, Wed
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 100.0%
Adjustment Station #: 0
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD: **7:15-8:15**
AM PEAK 15 MINUTE PERIOD: **8:00-8:15**
AM PHF: **0.75**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **17:00-18:00**
PM PEAK 15 MINUTE PERIOD: **17:45-18:00**
PM PHF: **0.89**



RAW COUNT SUMMARIES	Red Pine Road Northbound				Red Pine Road Southbound				Pony Express Eastbound				Pony Express Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
7:00-7:15	0	0	0	0	0	0	0	0	2	124	0	0	0	29	0	1	155
7:15-7:30	0	0	0	0	1	0	0	0	1	136	0	0	0	56	0	0	194
7:30-7:45	0	0	0	0	0	0	0	0	0	110	1	0	0	53	0	1	164
7:45-8:00	0	0	0	0	1	0	2	0	1	93	0	0	0	65	0	0	162
8:00-8:15	0	0	0	0	1	0	0	0	1	179	0	0	0	79	0	0	260
8:15-8:30	0	0	0	0	1	0	0	0	0	79	0	0	0	37	0	0	117
8:30-8:45	0	0	0	0	0	0	0	0	0	61	0	0	0	17	0	1	78
8:45-9:00	0	0	0	0	2	0	1	0	1	61	0	0	0	34	1	2	100
NOON PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
11:30-11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00-13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15-13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
16:00-16:15	0	0	0	0	1	0	0	0	0	72	0	0	0	79	2	0	154
16:15-16:30	0	0	0	0	0	0	0	0	0	67	0	0	0	96	0	3	163
16:30-16:45	0	0	0	0	0	0	0	0	0	75	0	0	0	93	0	0	168
16:45-17:00	0	0	0	0	0	0	0	0	2	57	0	0	0	93	2	0	154
17:00-17:15	0	0	0	0	0	0	0	0	0	61	1	0	0	104	0	6	166
17:15-17:30	0	0	0	0	0	0	0	0	1	54	0	0	0	103	0	1	158
17:30-17:45	0	0	0	0	0	0	0	0	1	51	0	0	0	112	1	0	165
17:45-18:00	0	0	0	0	0	0	0	0	0	52	1	0	0	137	1	2	191

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APPENDIX B

Level of Service Results

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SimTraffic LOS Report

Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Analysis Period: *Existing (2014) Conditions*
Time Period: *a.m. Peak Hour* **Project #:** *UT14-653*

Intersection: Pony Express Parkway & Red Pine Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SE	L	3	2	62	8.2	A
	R	2	2	89	3.6	A
	Subtotal	***5***	***4***	***80***	***5.9***	***A***
NE	L	3	3	92	2.1	A
	T	518	519	100	1.6	A
	Subtotal	521	522	100	1.6	A
SW	T	253	255	101	0.3	A
	Subtotal	253	255	101	0.3	A
Total		780	781	100	1.2	A

Intersection:
Type:

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
Total						

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #1 5:00

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)			1.3	0.4	0.2	0.3
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)			1.4	1.3	0.3	1.0
Vehicles Entered	0	0	1	118	55	174
Vehicles Exited	0	0	1	118	56	175
Hourly Exit Rate	0	0	4	472	224	700
Input Volume	3	2	3	460	225	693
% of Volume	0	0	133	103	100	101

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #2 5:15

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1			0.3	0.2	0.3
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	3.0			1.4	0.3	1.1
Vehicles Entered	1	0	0	118	52	171
Vehicles Exited	1	0	0	118	52	171
Hourly Exit Rate	4	0	0	472	208	684
Input Volume	3	2	3	460	225	693
% of Volume	133	0	0	103	92	99

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #3 5:30

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	2.7	0.5	0.3	0.4
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	10.8	3.5	2.9	2.0	0.4	1.5
Vehicles Entered	1	1	1	171	87	261
Vehicles Exited	1	1	1	170	86	259
Hourly Exit Rate	4	4	4	680	344	1036
Input Volume	4	3	4	691	337	1039
% of Volume	100	133	100	98	102	100

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #4 5:45

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1		0.3	0.2	0.3
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		1.9		1.2	0.3	0.9
Vehicles Entered	0	1	0	112	60	173
Vehicles Exited	0	1	0	112	61	174
Hourly Exit Rate	0	4	0	448	244	696
Input Volume	3	2	3	460	225	693
% of Volume	0	200	0	97	108	100

3: Pony Express Parkway & Red Pine Road Performance by movement Entire Run

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	1.8	0.4	0.2	0.3
Total Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.3
Total Del/Veh (s)	8.2	3.6	2.1	1.6	0.3	1.2
Vehicles Entered	2	2	3	520	255	782
Vehicles Exited	2	2	3	519	255	781
Hourly Exit Rate	2	2	3	519	255	781
Input Volume	3	2	3	518	253	780
% of Volume	62	89	92	100	101	100

Total Zone Performance By Interval

Interval Start	5:00	5:15	5:30	5:45	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.3	0.3	0.4	0.3	0.3
Total Delay (hr)	0.1	0.1	0.2	0.1	0.5
Total Del/Veh (s)	1.9	2.0	2.7	1.8	2.3
Vehicles Entered	174	171	261	173	782
Vehicles Exited	174	172	257	178	782
Hourly Exit Rate	696	688	1028	712	782
Input Volume	1386	1386	2078	1386	1559
% of Volume	50	50	49	51	50

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #1

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	12	6
Average Queue (ft)	2	1
95th Queue (ft)	12	9
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #2

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	12	3
Average Queue (ft)	2	0
95th Queue (ft)	14	6
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #3

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	21	6
Average Queue (ft)	7	1
95th Queue (ft)	25	11
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #4

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	19	5
Average Queue (ft)	4	1
95th Queue (ft)	18	8
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, All Intervals

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	24	17
Average Queue (ft)	4	1
95th Queue (ft)	18	8
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty, Interval #1: 0
Zone wide Queuing Penalty, Interval #2: 0
Zone wide Queuing Penalty, Interval #3: 0
Zone wide Queuing Penalty, Interval #4: 0
Zone wide Queuing Penalty, All Intervals: 0

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SimTraffic LOS Report

Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Analysis Period: *Existing (2014) Plus Project Conditions*
Time Period: *a.m. Peak Hour* **Project #:** *UT14-653*

Intersection: Pony Express Parkway & Red Pine Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SE	L	3	3	92	7.7	*A*
	R	2	2	89	2.5	*A*
	Subtotal	***5***	***5***	***100***	***5.6***	***A***
NE	L	3	3	92	2.0	*A*
	T	575	575	100	0.7	*A*
	Subtotal	578	578	100	0.7	*A*
SW	T	261	252	97	0.3	*A*
	Subtotal	261	252	97	0.3	*A*
Total		845	835	99	0.6	*A*

Intersection: Pony Express Parkway & Bald Eagle Way
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	2	1	50	3.2	*A*
	T	524	522	100	0.7	*A*
	Subtotal	526	523	99	0.7	*A*
SB	T	272	264	97	0.3	*A*
	R	7	6	83	0.1	*A*
	Subtotal	279	270	97	0.3	*A*
EB	L	21	23	111	8.8	*A*
	R	8	9	109	3.2	*A*
	Subtotal	***29***	***32***	***110***	***7.2***	***A***
Total		835	825	99	0.9	*A*

HALES ENGINEERING
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SimTraffic LOS Report

Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Analysis Period: *Existing (2014) Plus Project Conditions*
Time Period: *a.m. Peak Hour* **Project #:** *UT14-653*

Intersection: Pony Express Parkway & Oquirrh Ranch Parkway
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	1	0	0		
	T	523	520	99	0.3	A
	Subtotal	524	520	99	0.3	A
SB	T	264	257	98	0.5	A
	R	1	1	100	0.2	A
	Subtotal	265	258	97	0.5	A
EB	L	3	3	100	8.8	A
	R	2	2	100	2.9	A
	Subtotal	***5***	***5***	***100***	***6.4***	***A***
Total		794	783	99	0.4	A

Intersection:
Type:

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
Total						

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #1 5:00

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)			0.0	0.0	0.2	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)			1.0	0.6	0.3	0.5
Vehicles Entered	0	0	1	131	55	187
Vehicles Exited	0	0	1	131	55	187
Hourly Exit Rate	0	0	4	524	220	748
Input Volume	3	2	3	526	232	766
% of Volume	0	0	133	100	95	98

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #2 5:15

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1		0.0	0.0	0.2	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.2		1.2	0.6	0.3	0.5
Vehicles Entered	1	0	1	136	55	193
Vehicles Exited	1	0	1	137	55	194
Hourly Exit Rate	4	0	4	548	220	776
Input Volume	3	2	3	526	232	766
% of Volume	133	0	133	104	95	101

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #3 5:30

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.4	0.1	0.3	0.2
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	9.9	1.6	2.6	0.9	0.4	0.7
Vehicles Entered	1	1	1	177	83	263
Vehicles Exited	1	1	1	176	82	261
Hourly Exit Rate	4	4	4	704	328	1044
Input Volume	4	3	4	723	348	1082
% of Volume	100	133	100	97	94	96

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #4 5:45

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.2	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.7	1.5	1.2	0.6	0.3	0.5
Vehicles Entered	1	1	1	131	59	193
Vehicles Exited	1	1	1	131	60	194
Hourly Exit Rate	4	4	4	524	240	776
Input Volume	3	2	3	526	232	766
% of Volume	133	200	133	100	103	101

3: Pony Express Parkway & Red Pine Road Performance by movement Entire Run

Movement	SEL	SER	NEL	NET	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.2	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	7.7	2.5	2.0	0.7	0.3	0.6
Vehicles Entered	3	2	3	575	252	835
Vehicles Exited	3	2	3	575	252	835
Hourly Exit Rate	3	2	3	575	252	835
Input Volume	3	2	3	575	261	845
% of Volume	92	89	92	100	97	99

4: Pony Express Parkway Performance by movement Interval #1 5:00

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1		0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.0	3.1		0.7	0.4	0.0	0.8
Vehicles Entered	4	3	0	128	61	1	197
Vehicles Exited	4	3	0	128	61	1	197
Hourly Exit Rate	16	12	0	512	244	4	788
Input Volume	20	8	2	509	249	7	795
% of Volume	80	150	0	101	98	57	99

4: Pony Express Parkway Performance by movement Interval #2 5:15

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1		0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.2	3.8		0.7	0.3	0.1	0.8
Vehicles Entered	6	2	0	131	59	2	200
Vehicles Exited	6	2	0	132	58	2	200
Hourly Exit Rate	24	8	0	528	232	8	800
Input Volume	20	8	2	509	249	7	795
% of Volume	120	100	0	104	93	114	101

4: Pony Express Parkway Performance by movement Interval #3 5:30

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1		0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	9.8	2.5		0.7	0.3	0.0	0.9
Vehicles Entered	8	2	0	136	81	1	228
Vehicles Exited	8	2	0	136	81	1	228
Hourly Exit Rate	32	8	0	544	324	4	912
Input Volume	23	9	2	570	343	8	955
% of Volume	139	89	0	95	94	50	95

4: Pony Express Parkway Performance by movement Interval #4 5:45

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.1	3.5	1.0	0.7	0.3	0.2	0.8
Vehicles Entered	6	2	1	126	64	1	200
Vehicles Exited	6	2	1	126	64	1	200
Hourly Exit Rate	24	8	4	504	256	4	800
Input Volume	20	8	2	509	249	7	795
% of Volume	120	100	200	99	103	57	101

4: Pony Express Parkway Performance by movement Entire Run

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.0	0.2
Total Del/Veh (s)	8.8	3.2	3.2	0.7	0.3	0.1	0.9
Vehicles Entered	24	9	1	522	264	6	826
Vehicles Exited	23	9	1	522	264	6	825
Hourly Exit Rate	23	9	1	522	264	6	825
Input Volume	21	8	2	524	272	7	835
% of Volume	111	109	50	100	97	83	99

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #1 5:00

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1		0.4	0.0	0.0	0.3
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		1.8		0.3	0.5	0.1	0.4
Vehicles Entered	0	1	0	128	63	1	193
Vehicles Exited	0	1	0	128	63	0	192
Hourly Exit Rate	0	4	0	512	252	0	768
Input Volume	3	2	1	508	256	1	771
% of Volume	0	200	0	101	98	0	100

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #2 5:15

Movement	EBL	EBR	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1		0.3	0.0		0.2
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.4		0.3	0.4		0.4
Vehicles Entered	1	0	130	60	0	191
Vehicles Exited	1	0	131	60	0	192
Hourly Exit Rate	4	0	524	240	0	768
Input Volume	3	2	508	256	1	771
% of Volume	133	0	103	94	0	100

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #3 5:30

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1			0.5	0.0		0.3
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.2			0.3	0.5		0.4
Vehicles Entered	1	0	0	135	68	0	204
Vehicles Exited	0	0	0	136	69	0	205
Hourly Exit Rate	0	0	0	544	276	0	820
Input Volume	3	2	1	568	286	1	861
% of Volume	0	0	0	96	97	0	95

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #4 5:45

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1		0.4	0.0		0.2
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.6	1.8		0.3	0.5		0.4
Vehicles Entered	1	1	0	126	65	0	193
Vehicles Exited	1	1	0	126	64	0	192
Hourly Exit Rate	4	4	0	504	256	0	768
Input Volume	3	2	1	508	256	1	771
% of Volume	133	200	0	99	100	0	100

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Entire Run

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.1		0.4	0.0	0.0	0.3
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	8.8	2.9		0.3	0.5	0.2	0.4
Vehicles Entered	3	2	0	521	257	1	784
Vehicles Exited	3	2	0	520	257	1	783
Hourly Exit Rate	3	2	0	520	257	1	783
Input Volume	3	2	1	523	264	1	794
% of Volume	100	100	0	99	98	100	99

Total Zone Performance By Interval

Interval Start	5:00	5:15	5:30	5:45	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.3	0.3	0.4	0.3	0.3
Total Delay (hr)	0.1	0.1	0.2	0.1	0.6
Total Del/Veh (s)	2.2	2.3	2.7	2.3	2.5
Vehicles Entered	197	200	265	202	866
Vehicles Exited	197	201	260	203	863
Hourly Exit Rate	788	804	1040	812	863
Input Volume	3088	3088	3929	3088	3298
% of Volume	26	26	26	26	26

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #1

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	7	3
Average Queue (ft)	1	0
95th Queue (ft)	10	6
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #2

Movement	SE
Directions Served	LR
Maximum Queue (ft)	14
Average Queue (ft)	3
95th Queue (ft)	16
Link Distance (ft)	773
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #3

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	21	6
Average Queue (ft)	4	1
95th Queue (ft)	18	9
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #4

Movement	SE
Directions Served	LR
Maximum Queue (ft)	23
Average Queue (ft)	5
95th Queue (ft)	21
Link Distance (ft)	773
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Pony Express Parkway & Red Pine Road, All Intervals

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	23	6
Average Queue (ft)	3	0
95th Queue (ft)	16	5
Link Distance (ft)	773	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	32	3
Average Queue (ft)	18	0
95th Queue (ft)	41	0
Link Distance (ft)	414	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #2

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	36	3
Average Queue (ft)	19	0
95th Queue (ft)	46	6
Link Distance (ft)	414	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #3

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	49	3
Average Queue (ft)	26	0
95th Queue (ft)	53	6
Link Distance (ft)	414	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #4

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	38	3
Average Queue (ft)	19	0
95th Queue (ft)	45	6
Link Distance (ft)	414	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, All Intervals

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	51	8
Average Queue (ft)	21	0
95th Queue (ft)	47	5
Link Distance (ft)	414	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	21	3
Average Queue (ft)	4	0
95th Queue (ft)	21	6
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #2

Movement	EB
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	5
95th Queue (ft)	22
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #3

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	21	3
Average Queue (ft)	4	0
95th Queue (ft)	20	6
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #4

Movement	EB
Directions Served	LR
Maximum Queue (ft)	21
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, All Intervals

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	30	6
Average Queue (ft)	5	0
95th Queue (ft)	23	4
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty, Interval #1: 0
Zone wide Queuing Penalty, Interval #2: 0
Zone wide Queuing Penalty, Interval #3: 0
Zone wide Queuing Penalty, Interval #4: 0
Zone wide Queuing Penalty, All Intervals: 0

HALES ENGINEERING
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SimTraffic LOS Report

Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Analysis Period: *Future 2020 Background*
Time Period: *a.m. Peak Hour* **Project #:** *UT14-653*

Intersection: Pony Express Parkway & Red Pine Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SE	L	30	30	99	15.5	C
	R	25	24	97	4.5	A
	Subtotal	***55***	***54***	***98***	***10.6***	***B***
NE	L	10	9	90	4.2	A
	T	800	810	101	1.3	A
	Subtotal	810	819	101	1.3	A
SW	T	390	385	99	0.3	A
	R	10	10	100	0.1	A
	Subtotal	400	395	99	0.3	A
Total		1,265	1,268	100	1.4	A

Intersection:
Type:

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
Total						

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #1 5:00

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	1.4	0.1	0.1	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Total Del/Veh (s)	10.7	3.7	4.4	1.0	0.3	0.4	1.1
Vehicles Entered	7	6	2	180	86	2	283
Vehicles Exited	7	6	2	178	86	2	281
Hourly Exit Rate	28	24	8	712	344	8	1124
Input Volume	27	22	9	711	347	9	1125
% of Volume	104	109	89	100	99	89	100

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #2 5:15

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	1.9	0.1	0.1	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Total Del/Veh (s)	10.7	3.3	3.4	1.0	0.3	0.1	1.0
Vehicles Entered	5	5	2	182	88	3	285
Vehicles Exited	6	5	2	182	87	2	284
Hourly Exit Rate	24	20	8	728	348	8	1136
Input Volume	27	22	9	711	347	9	1125
% of Volume	89	91	89	102	100	89	101

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #3 5:30

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	1.6	0.2	0.1	0.1	0.2
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.0	0.2
Total Del/Veh (s)	20.6	6.6	6.0	1.5	0.4	0.1	1.8
Vehicles Entered	11	8	3	268	130	4	424
Vehicles Exited	10	8	3	266	128	4	419
Hourly Exit Rate	40	32	12	1064	512	16	1676
Input Volume	40	33	13	1067	520	13	1686
% of Volume	100	97	92	100	98	123	99

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #4 5:45

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	1.2	0.1	0.1	0.2	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Total Del/Veh (s)	11.0	3.5	2.4	1.1	0.2	0.1	1.2
Vehicles Entered	6	5	2	183	82	2	280
Vehicles Exited	8	5	2	184	84	2	285
Hourly Exit Rate	32	20	8	736	336	8	1140
Input Volume	27	22	9	711	347	9	1125
% of Volume	119	91	89	104	97	89	101

3: Pony Express Parkway & Red Pine Road Performance by movement Entire Run

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	1.5	0.1	0.1	0.1	0.1
Total Delay (hr)	0.1	0.0	0.0	0.3	0.0	0.0	0.5
Total Del/Veh (s)	15.5	4.5	4.2	1.3	0.3	0.1	1.4
Vehicles Entered	30	24	9	813	385	10	1271
Vehicles Exited	30	24	9	810	385	10	1268
Hourly Exit Rate	30	24	9	810	385	10	1268
Input Volume	30	25	10	800	390	10	1265
% of Volume	99	97	90	101	99	100	100

Total Zone Performance By Interval

Interval Start	5:00	5:15	5:30	5:45	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.1	0.1
Total Delay (hr)	0.2	0.1	0.3	0.2	0.8
Total Del/Veh (s)	1.8	1.7	2.7	1.8	2.2
Vehicles Entered	283	285	424	280	1271
Vehicles Exited	280	284	414	287	1267
Hourly Exit Rate	1120	1136	1656	1148	1267
Input Volume	2250	2250	3372	2250	2530
% of Volume	50	50	49	51	50

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #1

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	44	14
Average Queue (ft)	22	2
95th Queue (ft)	47	15
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #2

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	36	16
Average Queue (ft)	20	2
95th Queue (ft)	40	15
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #3

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	65	26
Average Queue (ft)	31	6
95th Queue (ft)	64	27
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #4

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	44	11
Average Queue (ft)	23	2
95th Queue (ft)	48	16
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, All Intervals

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	65	29
Average Queue (ft)	24	3
95th Queue (ft)	51	19
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty, Interval #1: 0
Zone wide Queuing Penalty, Interval #2: 0
Zone wide Queuing Penalty, Interval #3: 0
Zone wide Queuing Penalty, Interval #4: 0
Zone wide Queuing Penalty, All Intervals: 0

HALES ENGINEERING
innovative transportation solutions

SimTraffic LOS Report

Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Analysis Period: *Future 2020 Plus Project*
Time Period: *a.m. Peak Hour* **Project #:** *UT14-653*

Intersection: Pony Express Parkway & Red Pine Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SE	L	30	31	102	22.0	*C*
	R	25	25	101	6.1	*A*
	Subtotal	***55***	***56***	***102***	***14.9***	***B***
NE	L	10	8	80	3.1	*A*
	T	1,002	996	99	0.6	*A*
	Subtotal	1,012	1,004	99	0.6	*A*
SW	T	431	428	99	0.3	*A*
	R	10	11	110	0.1	*A*
	Subtotal	441	439	100	0.3	*A*
Total		1,508	1,499	99	1.1	*A*

Intersection: Pony Express Parkway & Bald Eagle Way
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	10	10	98	2.8	*A*
	T	860	850	99	0.7	*A*
	Subtotal	870	860	99	0.7	*A*
SB	T	458	453	99	0.4	*A*
	R	27	28	105	0.2	*A*
	Subtotal	485	481	99	0.4	*A*
EB	L	94	94	100	22.5	*C*
	R	37	38	103	11.5	*B*
	Subtotal	***131***	***132***	***101***	***19.3***	***C***
Total		1,485	1,473	99	2.3	*A*

HALES ENGINEERING
innovative transportation solutions

SimTraffic LOS Report

Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Analysis Period: *Future 2020 Plus Project*
Time Period: *a.m. Peak Hour* **Project #:** *UT14-653*

Intersection: Pony Express Parkway & Oquirrh Ranch Parkway
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	7	6	83	2.3	*A*
	T	820	810	99	0.3	*A*
	Subtotal	827	816	99	0.3	*A*
SB	T	452	447	99	0.4	*A*
	R	14	16	112	0.3	*A*
	Subtotal	466	463	99	0.4	*A*
EB	L	50	50	100	17.0	*C*
	R	25	26	105	6.0	*A*
	Subtotal	***75***	***76***	***101***	***13.2***	***B***
Total		1,368	1,355	99	1.1	*A*

Intersection:
Type:

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
Total						

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #1 5:00

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	12.5	2.9	2.8	0.5	0.3	0.1	0.8
Vehicles Entered	7	7	2	223	95	2	336
Vehicles Exited	8	6	2	225	95	2	338
Hourly Exit Rate	32	24	8	900	380	8	1352
Input Volume	27	22	9	917	383	9	1367
% of Volume	119	109	89	98	99	89	99

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #2 5:15

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	14.4	3.6	2.4	0.5	0.3	0.3	0.8
Vehicles Entered	7	6	3	230	98	3	347
Vehicles Exited	7	6	3	229	97	3	345
Hourly Exit Rate	28	24	12	916	388	12	1380
Input Volume	27	22	9	917	383	9	1367
% of Volume	104	109	133	100	101	133	101

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #3 5:30

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.7	0.0	0.1	0.1	0.1
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.0	0.2
Total Del/Veh (s)	33.6	12.0	4.0	0.8	0.4	0.0	1.6
Vehicles Entered	11	8	2	313	141	4	479
Vehicles Exited	10	8	2	312	139	4	475
Hourly Exit Rate	40	32	8	1248	556	16	1900
Input Volume	40	33	13	1259	575	13	1933
% of Volume	100	97	62	99	97	123	98

3: Pony Express Parkway & Red Pine Road Performance by movement Interval #4 5:45

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	18.9	3.0	2.0	0.5	0.3	0.0	0.8
Vehicles Entered	6	4	2	229	95	3	339
Vehicles Exited	6	5	2	230	97	3	343
Hourly Exit Rate	24	20	8	920	388	12	1372
Input Volume	27	22	9	917	383	9	1367
% of Volume	89	91	89	100	101	133	100

3: Pony Express Parkway & Red Pine Road Performance by movement Entire Run

Movement	SEL	SER	NEL	NET	SWT	SWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.1	0.1	0.0
Total Delay (hr)	0.2	0.0	0.0	0.2	0.0	0.0	0.4
Total Del/Veh (s)	22.0	6.1	3.1	0.6	0.3	0.1	1.1
Vehicles Entered	31	25	8	995	428	11	1498
Vehicles Exited	31	25	8	996	428	11	1499
Hourly Exit Rate	31	25	8	996	428	11	1499
Input Volume	30	25	10	1002	431	10	1508
% of Volume	102	101	80	99	99	110	99

4: Pony Express Parkway Performance by movement Interval #1 5:00

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	21.8	12.7	2.4	0.7	0.4	0.2	2.3
Vehicles Entered	22	10	2	202	106	6	348
Vehicles Exited	23	10	2	203	106	6	350
Hourly Exit Rate	92	40	8	812	424	24	1400
Input Volume	91	36	10	835	417	26	1415
% of Volume	101	111	80	97	102	92	99

4: Pony Express Parkway Performance by movement Interval #2 5:15

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	17.4	7.8	3.4	0.7	0.4	0.1	1.9
Vehicles Entered	23	8	2	209	105	6	353
Vehicles Exited	23	8	2	209	105	6	353
Hourly Exit Rate	92	32	8	836	420	24	1412
Input Volume	91	36	10	835	417	26	1415
% of Volume	101	89	80	100	101	92	100

4: Pony Express Parkway Performance by movement Interval #3 5:30

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.1	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	25.5	16.5	3.0	0.8	0.3	0.2	2.6
Vehicles Entered	25	11	3	231	139	8	417
Vehicles Exited	25	11	3	231	138	8	416
Hourly Exit Rate	100	44	12	924	552	32	1664
Input Volume	102	40	11	935	579	29	1696
% of Volume	98	110	109	99	95	110	98

4: Pony Express Parkway Performance by movement Interval #4 5:45

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	22.3	7.9	3.5	0.8	0.4	0.3	2.3
Vehicles Entered	23	9	2	207	104	8	353
Vehicles Exited	24	9	2	207	104	8	354
Hourly Exit Rate	96	36	8	828	416	32	1416
Input Volume	91	36	10	835	417	26	1415
% of Volume	105	100	80	99	100	123	100

4: Pony Express Parkway Performance by movement Entire Run

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.6	0.1	0.0	0.2	0.0	0.0	1.0
Total Del/Veh (s)	22.5	11.5	2.8	0.7	0.4	0.2	2.3
Vehicles Entered	93	38	10	850	453	28	1472
Vehicles Exited	94	38	10	850	453	28	1473
Hourly Exit Rate	94	38	10	850	453	28	1473
Input Volume	94	37	10	860	458	27	1485
% of Volume	100	103	98	99	99	105	99

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #1 5:00

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	2.6	0.1	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	15.8	5.3	1.8	0.3	0.4	0.4	1.1
Vehicles Entered	13	6	2	192	112	4	329
Vehicles Exited	13	6	2	192	112	4	329
Hourly Exit Rate	52	24	8	768	448	16	1316
Input Volume	49	24	7	796	439	14	1329
% of Volume	106	100	114	96	102	114	99

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #2 5:15

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	3.5	0.1	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	16.4	5.7	2.5	0.3	0.4	0.3	1.1
Vehicles Entered	13	7	1	199	109	4	333
Vehicles Exited	12	7	1	199	110	4	333
Hourly Exit Rate	48	28	4	796	440	16	1332
Input Volume	49	24	7	796	439	14	1329
% of Volume	98	117	57	100	100	114	100

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #3 5:30

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	1.9	0.2	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	17.7	5.4	1.1	0.4	0.4	0.4	1.1
Vehicles Entered	12	7	2	221	118	4	364
Vehicles Exited	13	7	2	222	117	4	365
Hourly Exit Rate	52	28	8	888	468	16	1460
Input Volume	54	27	8	891	491	15	1486
% of Volume	96	104	100	100	95	107	98

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Interval #4 5:45

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	2.1	0.1	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	16.8	7.7	2.7	0.3	0.4	0.3	1.1
Vehicles Entered	11	6	2	198	107	4	328
Vehicles Exited	11	6	2	198	108	4	329
Hourly Exit Rate	44	24	8	792	432	16	1316
Input Volume	49	24	7	796	439	14	1329
% of Volume	90	100	114	99	98	114	99

7: Pony Express Parkway & Oquirrh Ranch Parkway Performance by movement Entire Run

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	2.8	0.1	0.0	0.0	0.1
Total Delay (hr)	0.2	0.0	0.0	0.1	0.1	0.0	0.4
Total Del/Veh (s)	17.0	6.0	2.3	0.3	0.4	0.3	1.1
Vehicles Entered	49	27	6	811	446	16	1355
Vehicles Exited	50	26	6	810	447	16	1355
Hourly Exit Rate	50	26	6	810	447	16	1355
Input Volume	50	25	7	820	452	14	1368
% of Volume	100	105	83	99	99	112	99

Total Zone Performance By Interval

Interval Start	5:00	5:15	5:30	5:45	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.1	0.2	0.1	0.2
Total Delay (hr)	0.5	0.4	0.7	0.5	2.0
Total Del/Veh (s)	4.2	3.8	4.9	4.2	4.5
Vehicles Entered	366	372	501	367	1606
Vehicles Exited	367	372	496	373	1609
Hourly Exit Rate	1468	1488	1984	1492	1609
Input Volume	5515	5515	7021	5515	5892
% of Volume	27	27	28	27	27

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #1

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	41	12
Average Queue (ft)	23	2
95th Queue (ft)	42	13
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #2

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	40	20
Average Queue (ft)	22	4
95th Queue (ft)	45	19
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #3

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	76	18
Average Queue (ft)	38	3
95th Queue (ft)	77	19
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, Interval #4

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	42	9
Average Queue (ft)	22	1
95th Queue (ft)	48	11
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Pony Express Parkway & Red Pine Road, All Intervals

Movement	SE	NE
Directions Served	LR	L
Maximum Queue (ft)	78	24
Average Queue (ft)	26	2
95th Queue (ft)	56	16
Link Distance (ft)	760	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	118	14
Average Queue (ft)	62	2
95th Queue (ft)	124	15
Link Distance (ft)	402	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #2

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	90	11
Average Queue (ft)	51	2
95th Queue (ft)	91	15
Link Distance (ft)	402	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #3

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	114	22
Average Queue (ft)	65	4
95th Queue (ft)	118	20
Link Distance (ft)	402	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, Interval #4

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	95	17
Average Queue (ft)	55	3
95th Queue (ft)	100	18
Link Distance (ft)	402	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Pony Express Parkway, All Intervals

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	137	29
Average Queue (ft)	58	3
95th Queue (ft)	110	17
Link Distance (ft)	402	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	67	14
Average Queue (ft)	36	2
95th Queue (ft)	67	13
Link Distance (ft)	338	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #2

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	61	14
Average Queue (ft)	36	2
95th Queue (ft)	64	12
Link Distance (ft)	338	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #3

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	65	11
Average Queue (ft)	40	1
95th Queue (ft)	68	10
Link Distance (ft)	338	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, Interval #4

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	60	16
Average Queue (ft)	37	3
95th Queue (ft)	70	17
Link Distance (ft)	338	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Pony Express Parkway & Oquirrh Ranch Parkway, All Intervals

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	81	25
Average Queue (ft)	37	2
95th Queue (ft)	67	13
Link Distance (ft)	338	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		70
Storage Blk Time (%)		
Queuing Penalty (veh)		

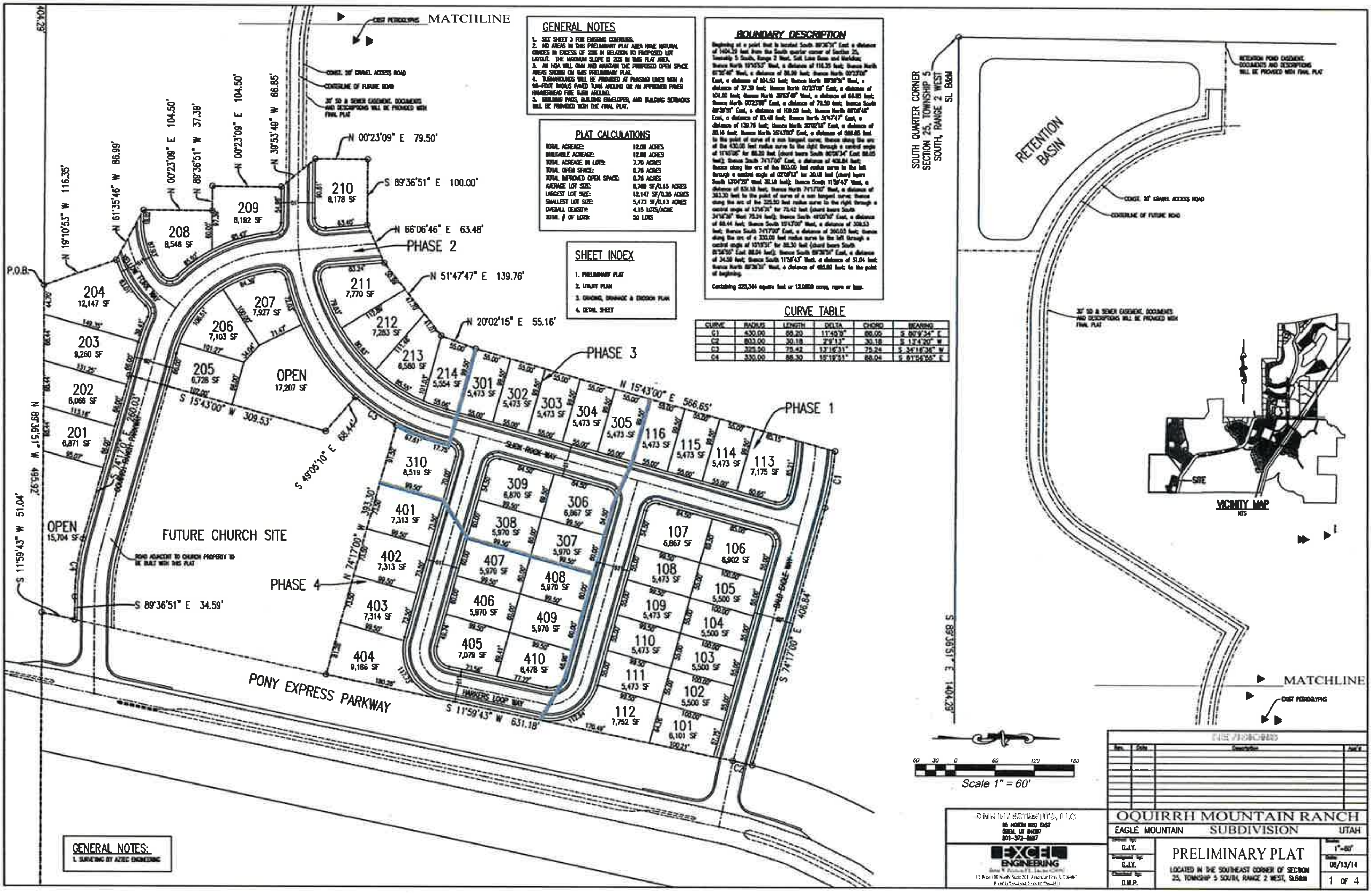
Zone Summary

Zone wide Queuing Penalty, Interval #1: 0
Zone wide Queuing Penalty, Interval #2: 0
Zone wide Queuing Penalty, Interval #3: 0
Zone wide Queuing Penalty, Interval #4: 0
Zone wide Queuing Penalty, All Intervals: 0

HALES ENGINEERING
innovative transportation solutions

APPENDIX C

Project Site Plan



GENERAL NOTES

1. SEE SHEET 3 FOR EXISTING CONTOURS.
2. NO AREAS IN THIS PRELIMINARY PLAT AREA HAVE NATURAL GRADES IN EXCESS OF 25% IN RELATION TO PROPOSED LOT LAYOUT. THE MAXIMUM SLOPE IS 20% IN THIS PLAT AREA.
3. AN HOA WILL OWN AND MAINTAIN THE PROPOSED OPEN SPACE AREAS SHOWN ON THIS PRELIMINARY PLAT.
4. TURNAROUNDS WILL BE PROVIDED AT PHASING LINES WITH A 50-FOOT RADIUS PAVED TURN AROUND OR AN APPROVED PAVED HAMMERHEAD FIRE TURN AROUND.
5. BUILDING PADS, BUILDING ENVELOPES, AND BUILDING SETBACKS WILL BE PROVIDED WITH THE FINAL PLAT.

PLAT CALCULATIONS

TOTAL ACREAGE:	12.00 ACRES
BUILDABLE ACREAGE:	12.00 ACRES
TOTAL ACREAGE IN LOTS:	7.70 ACRES
TOTAL OPEN SPACE:	0.76 ACRES
TOTAL IMPROVED OPEN SPACE:	0.76 ACRES
AVERAGE LOT SIZE:	6,709 SF/0.15 ACRES
LARGEST LOT SIZE:	12,147 SF/0.28 ACRES
SMALLEST LOT SIZE:	5,473 SF/0.13 ACRES
OVERALL DENSITY:	4.15 LOTS/ACRE
TOTAL # OF LOTS:	50 LOTS

SHEET INDEX

1. PRELIMINARY PLAT
2. UTILITY PLAN
3. GRADING, DRAINAGE & EROSION PLAN
4. DETAIL SHEET

BOUNDARY DESCRIPTION

Beginning at a point that is located South 89°36'51" East a distance of 1404.29 feet from the South quarter corner of Section 25, Township 5 South, Range 2 West, Salt Lake Base and Meridian; thence North 19°10'53" West, a distance of 116.35 feet; thence North 61°35'46" West, a distance of 86.99 feet; thence North 00°23'09" East, a distance of 104.50 feet; thence North 89°36'51" West, a distance of 37.39 feet; thence North 00°23'09" East, a distance of 104.50 feet; thence North 39°53'49" West, a distance of 66.85 feet; thence North 00°23'09" East, a distance of 79.50 feet; thence South 89°36'51" East, a distance of 100.00 feet; thence North 66°06'46" East, a distance of 63.48 feet; thence North 51°47'47" East, a distance of 139.76 feet; thence North 20°02'15" East, a distance of 55.16 feet; thence North 15°43'00" East, a distance of 566.65 feet to the point of curve of a non tangent curve; thence along the arc of the 430.00 feet radius curve to the right through a central angle of 11°45'08" for 88.20 feet (chord bears South 80°9'34" East 88.05 feet); thence South 74°17'00" East, a distance of 406.84 feet; thence along the arc of the 803.00 feet radius curve to the left through a central angle of 02°09'13" for 30.18 feet (chord bears South 13°04'20" West 30.18 feet); thence South 11°59'43" West, a distance of 631.18 feet; thence North 74°17'00" West, a distance of 393.30 feet to the point of curve of a non tangent curve; thence along the arc of the 325.50 feet radius curve to the right through a central angle of 13°16'31" for 75.42 feet (chord bears South 34°16'36" West 75.24 feet); thence South 49°05'10" East, a distance of 68.44 feet; thence South 15°43'00" West, a distance of 309.53 feet; thence South 74°17'00" East, a distance of 260.03 feet; thence along the arc of a 330.00 feet radius curve to the left through a central angle of 15°19'51" for 88.30 feet (chord bears South 81°56'55" East 88.04 feet); thence South 89°36'51" East, a distance of 34.59 feet; thence South 11°59'43" West, a distance of 51.04 feet; thence North 89°36'51" West, a distance of 495.92 feet to the point of beginning.

Containing 523,344 square feet or 12.0000 acres, more or less.

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	CHORD	BEARING
C1	430.00	88.20	11°45'8"	88.05	S 80°9'34" E
C2	803.00	30.18	2°9'13"	30.18	S 13°4'20" W
C3	325.50	75.42	13°16'31"	75.24	S 34°16'36" W
C4	330.00	88.30	15°19'51"	88.04	S 81°56'55" E

GENERAL NOTES:
1. SURVEYING BY AZTEC ENGINEERING

REVISIONS

Rev.	Date	Description	Appr.

OMR INVESTMENTS, LLC
85 NORTH 800 EAST
OREM, UT 84097
801-372-8697

EXCEL ENGINEERING
12 West 100 North Suite 201 American Fork, UT 84003

OQUIRRH MOUNTAIN RANCH

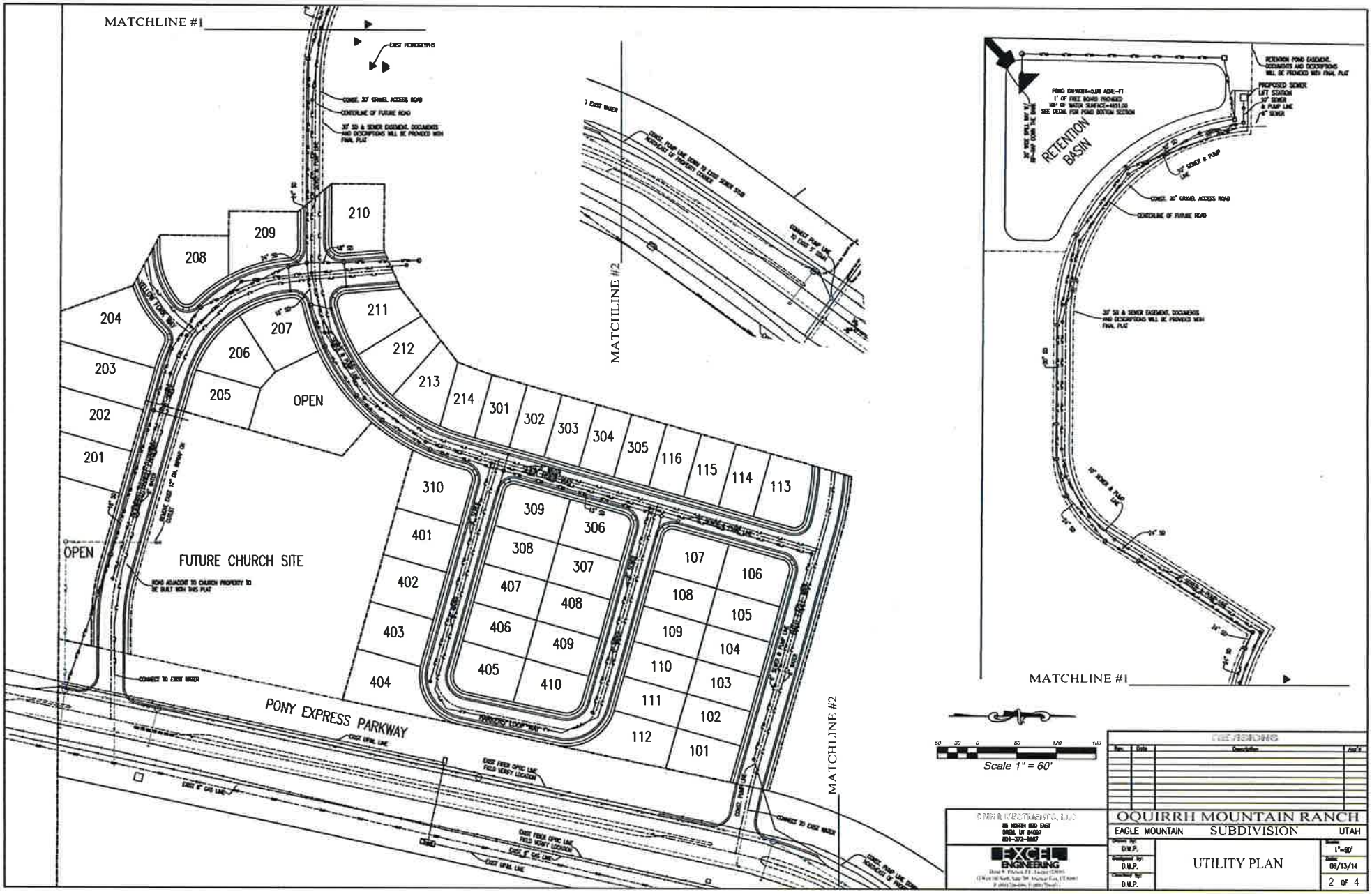
EAGLE MOUNTAIN SUBDIVISION UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

PRELIMINARY PLAT

LOCATED IN THE SOUTHEAST CORNER OF SECTION 25, TOWNSHIP 5 SOUTH, RANGE 2 WEST, SLB&M

Scale: 1"=60'
Date: 08/13/14


MATCHLINE #1
MATCHLINE #2
MATCHLINE #1
MATCHLINE #2
RETENTION BASIN
FUTURE CHURCH SITE
OPEN
OPEN
PONY EXPRESS PARKWAY
201
202
203
204
205
206
207
208
209
210
211
212
213
214
301
302
303
304
305
116
115
114
113
310
401
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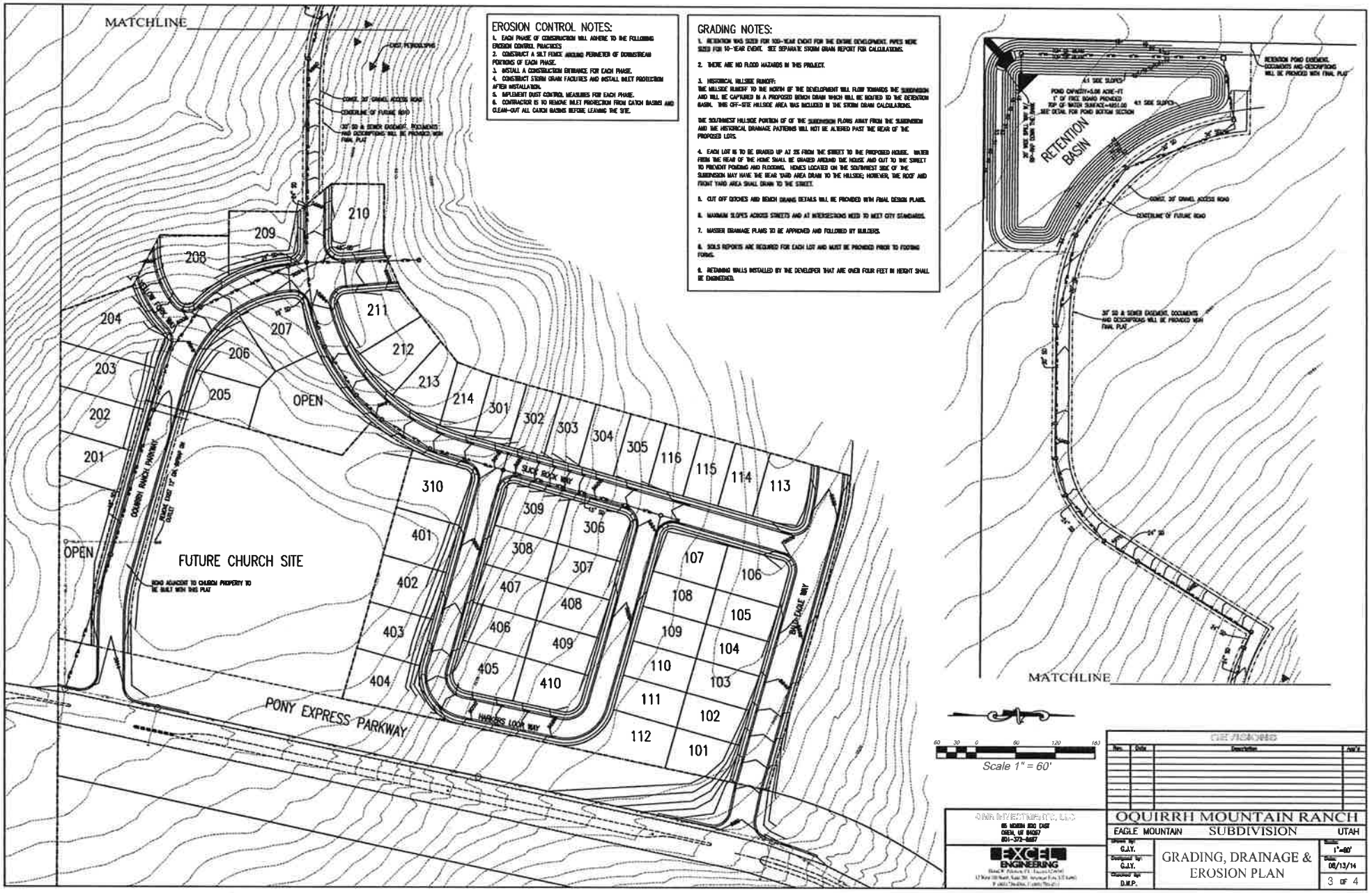
410
107
106
108
105
109
104
110
103
111
102
112
101
Scale 1" = 60'
REVISIONS
OQUIRRH MOUNTAIN RANCH
EAGLE MOUNTAIN SUBDIVISION UTAH
UTILITY PLAN
1"=60'
08/13/14
2 OF 4
EXCEL ENGINEERING


MATCHLINE
EROSION CONTROL NOTES:
1. EACH PHASE OF CONSTRUCTION WILL ADHERE TO THE FOLLOWING EROSION CONTROL PRACTICES
2. CONSTRUCT A SILT FENCE AROUND PERIMETER OF DOWNSTREAM PORTIONS OF EACH PHASE.
3. INSTALL A CONSTRUCTION ENTRANCE FOR EACH PHASE.
4. CONSTRUCT STORM DRAIN FACILITIES AND INSTALL INLET PROTECTION AFTER INSTALLATION.
5. IMPLEMENT DUST CONTROL MEASURES FOR EACH PHASE.
6. CONTRACTOR IS TO REMOVE INLET PROTECTION FROM CATCH BASINS AND CLEAN-OUT ALL CATCH BASINS BEFORE LEAVING THE SITE.
GRADING NOTES:
1. RETENTION WAS SIZED FOR 100-YEAR EVENT FOR THE ENTIRE DEVELOPMENT. PIPES WERE SIZED FOR 10-YEAR EVENT. SEE SEPARATE STORM DRAIN REPORT FOR CALCULATIONS.
2. THERE ARE NO FLOOD HAZARDS IN THIS PROJECT.
3. HISTORICAL HILLSIDE RUNOFF:
THE HILLSIDE RUNOFF TO THE NORTH OF THE DEVELOPMENT WILL FLOW TOWARDS THE SUBDIVISION AND WILL BE CAPTURED IN A PROPOSED BENCH DRAIN WHICH WILL BE ROUTED TO THE DETENTION BASIN. THIS OFF-SITE HILLSIDE AREA WAS INCLUDED IN THE STORM DRAIN CALCULATIONS.
THE SOUTHWEST HILLSIDE PORTION OF OF THE SUBDIVISION FLOWS AWAY FROM THE SUBDIVISION AND THE HISTORICAL DRAINAGE PATTERNS WILL NOT BE ALTERED PAST THE REAR OF THE PROPOSED LOTS.
4. EACH LOT IS TO BE GRADED UP AT 2% FROM THE STREET TO THE PROPOSED HOUSE. WATER FROM THE REAR OF THE HOME SHALL BE GRADED AROUND THE HOUSE AND OUT TO THE STREET TO PREVENT PONDING AND FLOODING. HOMES LOCATED ON THE SOUTHWEST SIDE OF THE SUBDIVISION MAY HAVE THE REAR YARD AREA DRAIN TO THE HILLSIDE; HOWEVER, THE ROOF AND FRONT YARD AREA SHALL DRAIN TO THE STREET.
5. CUT OFF DITCHES AND BENCH DRAINS DETAILS WILL BE PROVIDED WITH FINAL DESIGN PLANS.
6. MAXIMUM SLOPES ACROSS STREETS AND AT INTERSECTIONS NEED TO MEET CITY STANDARDS.
7. MASTER DRAINAGE PLANS TO BE APPROVED AND FOLLOWED BY BUILDERS.
8. SOILS REPORTS ARE REQUIRED FOR EACH LOT AND MUST BE PROVIDED PRIOR TO FOOTING FORMS.
9. RETAINING WALLS INSTALLED BY THE DEVELOPER THAT ARE OVER FOUR FEET IN HEIGHT SHALL BE ENGINEERED.
RETENTION POND EASEMENT DOCUMENTS AND DESCRIPTIONS WILL BE PROVIDED WITH FINAL PLAT
4:1 SIDE SLOPES
POND CAPACITY=5.08 ACRE-FT
1' OF FREE BOARD PROVIDED
TOP OF WATER SURFACE=4851.00
SEE DETAIL FOR POND BOTTOM SECTION
RETENTION BASIN
CONST. 20' GRAVEL ACCESS ROAD
CENTERLINE OF FUTURE ROAD
30' SD & SEWER EASEMENT, DOCUMENTS AND DESCRIPTIONS WILL BE PROVIDED WITH FINAL PLAT
MATCHLINE
CONST. 20' GRAVEL ACCESS ROAD
CENTERLINE OF FUTURE ROAD
30' SD & SEWER EASEMENT, DOCUMENTS AND DESCRIPTIONS WILL BE PROVIDED WITH FINAL PLAT
OPEN
FUTURE CHURCH SITE
ROAD ADJACENT TO CHURCH PROPERTY TO BE BUILT WITH THIS PLAT
OQUIRRH RANCH PARKWAY
SLICK ROCK WAY
BALD EAGLE WAY
HARRIS LOOP WAY
PONY EXPRESS PARKWAY
201
202
203
204
205
206
207
208
209
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211
212
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214
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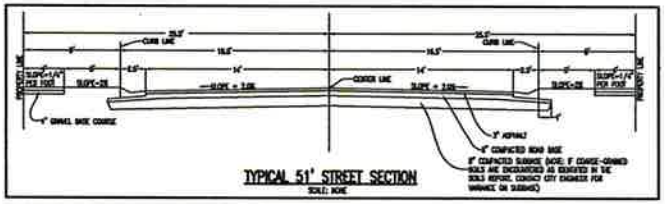
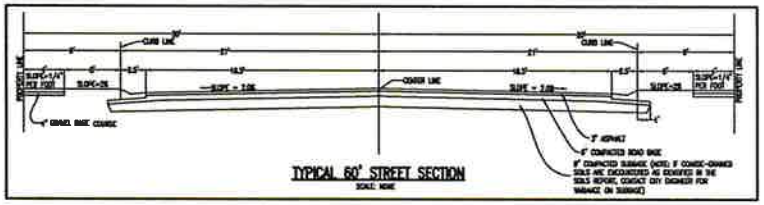
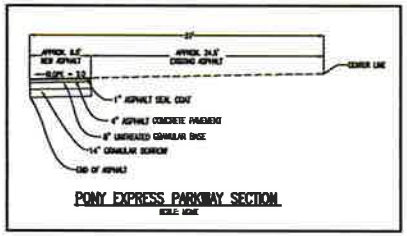
113
114
115
116
60 30 0 60 120 180
Scale 1" = 60'
OQUIRRH MOUNTAIN RANCH
EAGLE MOUNTAIN SUBDIVISION UTAH
GRADING, DRAINAGE & EROSION PLAN
1"=60'
08/13/14
3 OF 4







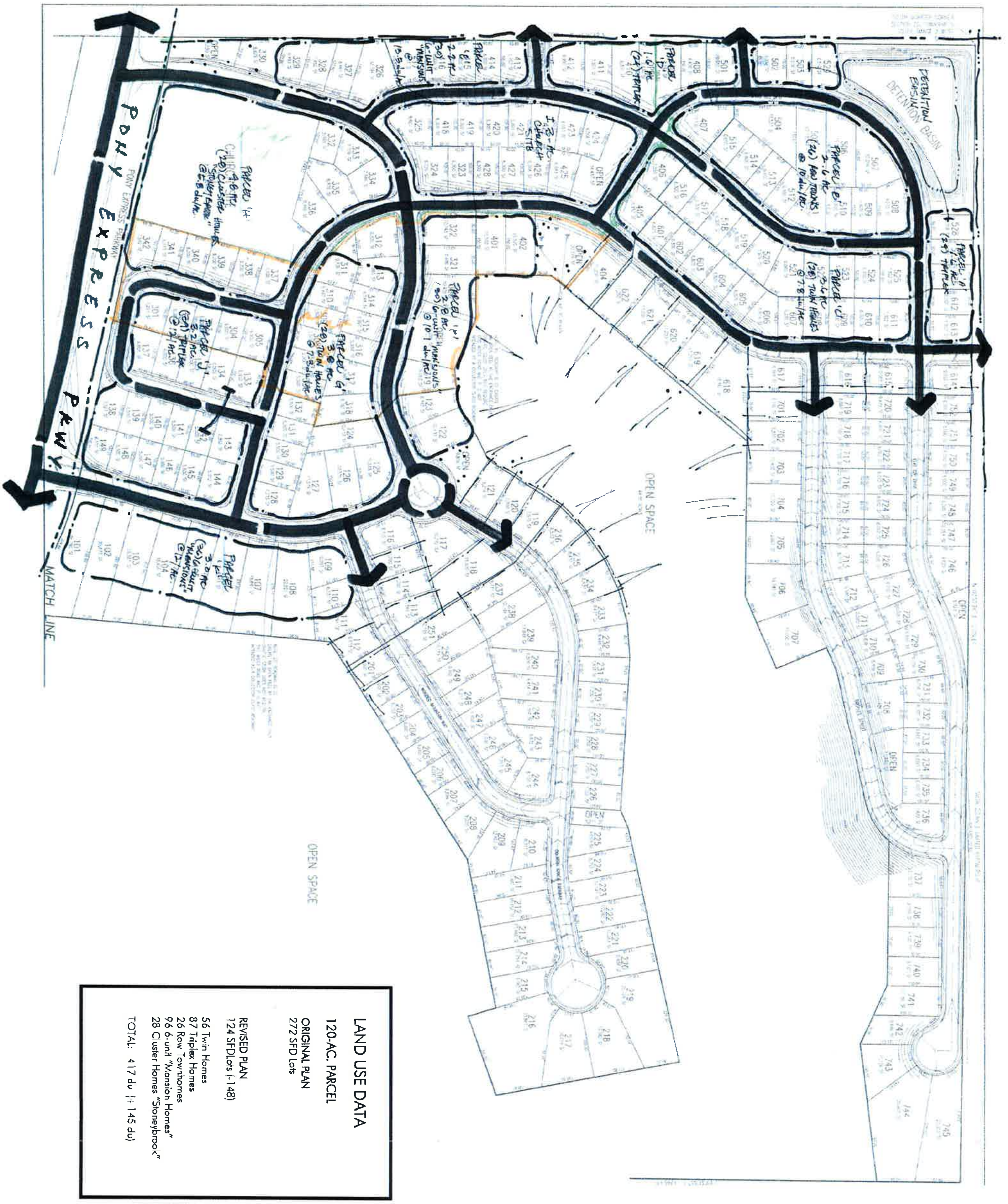
REVISIONS

Num.	Date	Description	Init.

OQUIRRH MOUNTAIN RANCH
EAGLE MOUNTAIN SUBDIVISION UTAH

DETAIL SHEET

Drawn by: C.J.Y.
Designed by: C.J.Y.
Checked by: D.W.P.
Scale: NTS
Date: 08/13/14
4 OF 4



Oquirrh Mountain Subdivision

Conceptual Land Use Plan

Eagle Mountain, Utah

September 10, 2007

SCALE: 1" = 100'

0 50 100 200 300

NORTH

NUSZER KOPATZ

HALES ENGINEERING
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APPENDIX D

95th Percentile Queue Length Reports

SimTraffic Queueing Report
Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Time Period: a.m. Peak Hour
95th Percentile Queue Length (feet)

HALES ENGINEERING
Innovative transportation solutions

Project #: UT14-653

Intersection	Time Period	NE	SE
		L	LR
Pony Express Parkway & Red Pine Road	Existing (2014) Conditions	8	18

SimTraffic Queueing Report
Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Time Period: a.m. Peak Hour
95th Percentile Queue Length (feet)

HALES ENGINEERING
Innovative transportation solutions

Project #: UT14-653

Intersection	Time Period	EB	NB	NE	SE
		LR	L	L	LR
Pony Express Parkway & Bald Eagle Way	Existing (2014) Plus Project Conditions	47	5	--	--
Pony Express Parkway & Oquirrh Ranch Parkway	Existing (2014) Plus Project Conditions	23	4	--	--
Pony Express Parkway & Red Pine Road	Existing (2014) Plus Project Conditions	--	--	5	16

SimTraffic Queueing Report
Project: Eagle Mountain - Oquirrh Mountain Ranch TIS
Time Period: a.m. Peak Hour
95th Percentile Queue Length (feet)

HALES ENGINEERING
Innovative transportation solutions

Project #: UT14-653

Intersection	Time Period	NE	SE
		L	LR
Pony Express Parkway & Red Pine Road	Future 2020 Background	19	51

SimTraffic Queueing Report

Project: Eagle Mountain - Oquirrh Mountain Ranch TIS

Time Period: a.m. Peak Hour

95th Percentile Queue Length (feet)

HALES ENGINEERING
Innovative transportation solutions

Project #: UT14-653

Intersection	Time Period	EB	NB	NE	SE
		LR	L	L	LR
Pony Express Parkway & Bald Eagle Way	Future 2020 Plus Project	110	17	--	--
Pony Express Parkway & Oquirrh Ranch Parkway	Future 2020 Plus Project	67	13	--	--
Pony Express Parkway & Red Pine Road	Future 2020 Plus Project	--	--	16	56