Planning Commission Meeting Minutes
Tuesday July 23, 2019

Planning Commission Member's in Attendance: Trevor Wood, Art Adcock, Kylie Lance, Brad Gunnell, Pamela Colson, and Jessica Tolman.

Other's in Attendance: Community Development Director Jason Bond, Planner Ryan Harris, Robin Stevens, Craig Hone, Bill Gammell, and Wayne Humphries.

Commission Chair Wood called the meeting to order at 7:01 p.m.

Invocation / Inspirational Thought: Commissioner Adcock offered an invocation.

Pledge of Allegiance: Mr. Bond led the Pledge of Allegiance.

Public Forum: Commission Chair Wood opened the Public Hearing at 7:05 p.m. and closed it at 7:05 p.m.

DISCUSSION AND POSSIBLE ACTION ITEMS

PUBLIC HEARING- Fencing Amendment
The Planning Commission will conduct a public hearing to consider modifying Santaquin City Code 10-6-6C5 and 10-7M-11I regarding fencing around multifamily developments.

Mr. Bond explained that this is a proposed amendment to further regulate fencing requirements around multifamily developments. It would apply to the Main Street Business District including; the Main Street Residential (MSR), Main Street Commercial (MSC), and Central Business District (CBD) and the residential R-8 zone.
Mr. Bond provided the following suggested language for the amendment:
Fences And Walls: Developments shall install a decorative wall, constructed of stone, masonry, or concrete along the perimeter of the development where it is adjacent to a single-family residential use. Otherwise, perimeter fencing and landscaping must be in accordance with the city adopted buffering standards. Chainlink is not allowed as a fencing material in front yards.

Commission Chair Wood opened the Public Hearing at 7:09 p.m. and closed it at 7:09 p.m.

Mr. Bond addressed Commissioner Wood's question from the work session regarding the difference in cost between masonry and vinyl fencing. He explained that he consulted City Engineer Beagley who owns a fencing company. He relayed to him that currently, masonry fencing is about 5 times the cost of vinyl per linear foot. Mr. Bond noted that the cost would be increased for the developers which could be passed down to the buyer.

Commissioner Wood asked why a vinyl fence isn't considered sufficient. Mr. Bond relayed the Mayor and City Managers feelings that, a solid wall would help mitigate the impacts of multifamily housing for areas with established single family homes. He also stated that masonry fencing is a better product.

Commissioner Lance pointed out that the possible Bella Vista development would boarder an agricultural zone and she believes it should be required to have a masonry fence boarder. Mr. Bond clarified that Bella Vista would be a Planned Unit Development (PUD) meaning that a masonry fence could be one of the PUD requirements. Commissioner Lance noted that she would like to see this amendment added to the PUD ordinance as well. Commissioner Adcock mentioned that masonry fencing is already required around commercial uses that boarder residential uses.

Commissioner Gunnell determined that requiring masonry fencing around a 30-unit development would roughly cost an extra 27,000 dollars. He doesn't think that the economics will be greatly affected by this change.

Commissioner Wood asked if decorative is a descriptive enough requirement for masonry fencing. The Commissioners expressed that they don't want to see cinder block walls. Mr. Bond suggested that language can be added requiring the Architectural Review Committee (ARC) to review fencing with their architectural review. The Commissioners agreed that they like that idea.

Commissioner Lance asked the other Commissioners if they think that this amendment should be applied to include all bordering uses. Mr. Bond explained that the current language would apply to the R8, CBD, MSR, MSC, and RC zones. Commissioner Adcock stated that he would like to see a buffer between multifamily units regardless of what they are adjacent to. Mr. Bond suggested that the language that states, 'adjacent to single family residential use' could be removed from the ordinance if the Commission would like. Commissioner Wood pointed out that there isn't a necessity to buffer like uses from each other. Commissioner Gunnell stated that he doesn't want this ordinance to inadvertently require a masonry wall along a frontage. The Commission agreed that it wasn't necessary to include other adjacent uses in the ordinance.

Motion: Commissioner Gunnell motioned to forward a positive recommendation to the City Council that the proposed Fencing Amendment be adopted as presented and revised tonight; with the additional language requiring that the masonry fence be reviewed and approved by the Architectural Review Committee. Commissioner Lance seconded.

Roll Call:

Commissioner Lance	Aye
Commissioner Gunnell	Aye
Commissioner Colson	Aye
Commissioner Tolman	Aye
Commissioner Adcock	Aye
Commissioner Wood	Aye

The vote passed unanimously 6 to 0.

PUBLIC HEARING- Mining Zone

The Planning Commission will conduct a public hearing to consider modifying Santaquin City Code Santaquin City Code Title 10 Chapter 2 to include definitions regarding mining. They will also consider the creation of a new mining zone.

Mr. Bond reported that there are two parts to this public hearing; the first is a proposed amendment to provide definitions for mining, blasting, etc. The second is to consider adopting language for a new Mining (M1) zone.
Mr. Bond explained that this language was taken from the existing Mass Grading ordinance. He recounted that this language was started a year and a half ago. It is being looked at again, because of a recent application for mining on SITLA property in Santaquin City. Mr. Bond also pointed out that there is a possible annexation of the Ekins property, for which the owner wants to maintain their mining rights.
Mr. Bond recounted that when working on this previously, the City Council directed that batch plants not be permitted. He mentioned that the hours of operation currently listed need to be clarified, to reflect that mines can't operate between 10 p.m. and 6 a.m. Commissioner Adcock noted that when the Commission worked on this language during Fall of 2017, the hours of operation were listed from 7 a.m. and 7 p.m. He asked why they were changed. Mr. Bond answered that the hours of operation were changed to be consistent with construction hours.

Commission Chair Wood opened the public hearing at 7:40 p.m.

Robin Stevens expressed her concerns regarding the draft proposal for the mining ordinance. She pointed out that the hours of operation are confusing. She believes that the hours of 6 a.m. to 10 p.m. are not acceptable. Ms. Stevens pointed out that if the Ekins annexation happens, it will be adjacent to residential property. As a resident who would be affected by this, she would prefer that the hours of operation be from 7 a.m. to 7 p.m. Ms. Stevens also expressed concerns regarding dust. She noted that while the proposal addresses watering down the dust during the hours of operation, dust is also an issue during non-working hours. Ms. Stevens would like to see dust mitigation happen at all times.

Craig Hone echoed the sentiments of Ms. Stevens. He added that the lighting on mining projects is noisy, and would like the lighting ordinances to be strengthened.

Wayne Humphries reported that he is representing the Sunroc Corporation and is in attendance to answer any questions.

Commission Chair Wood closed the public hearing at 7:44 p.m.

Mr. Bond provided clarification regarding the hours of operation. He explained that they were changed in order to accommodate batch plants, but they aren't allowed in the current proposal. Mr. Bond noted that the hours of operation can be changed. Commissioner Adcock asked if the City wants to accommodate, the applicant or the Citizens. Commissioner Wood stated that he would like to see the hours of operation be reduced.

Commissioner Lance expressed concern with blasting listed as a permitted use, and thinks that it should be conditional. She would also like to address the frequency and duration. Mr. Bond mentioned that any City regulations would be on top of the regulations that are already in place by the Division of Oil Gas and Mining (DOGM). He noted that he isn't familiar with the frequency requirements of blasting, but he can look into it. Commissioner Lance stated that she would like to mitigate blasting and ensure that it's not excessive.

The Commissioners asked for additional information on blasting. Mr. Humphries explained that blasting two times a week is a generous estimate, because usually it is done much less than that.

Commissioner Colson brought up blasting in Eagle Mountain which was believed to negatively impact nearby homes. She asked if this is a cause for concern. Bill Gammell noted that this situation is unique, because the blasting was a site preparation for development and in this case they were removing rock. He explained that Sunroc often fluff's the material to loosen the bedrock. Mr. Gammell noted his support of having a mining zone and thinks it's wise. He explained that it's Sunroc's goal to blast as minimally as possible, and that the Division of Air Quality limits blasts. Commissioner Adcock asked if air quality is determined by season and if the seasons affect blasting. Mr. Gammell explained that market demand is typically higher during the summer, and blasting is limited during the winter in certain facilities. Mr. Gammell provided a 27-page document stating national standards. (See Attachment 'A')

Commissioner Lance asked about Sunroc's feelings about hours of operation. Mr. Humphries stated that the current mass grading project is limited to 7 a.m. to 7 p.m. with no operation on Sunday's or major holiday's. Mr. Gammell noted that the proposal of limiting blasting between the hours of 10 a.m. to 4 p.m. is a tight requirement as there is a lot of setup required.

Mr. Gammell explained that State Law allows projects contacted with UDOT to operate during the night if necessary. He clarified that this only applies to specific contracts, and the City and residents must be notified.

Commissioner Wood asked what an appropriate distance requirement for blasting is, in order to prevent damage to residential property. Mr. Gammell stated that 300 feet is a required distance, depending on the size of the charge. Mr. Bond mentioned that DOGM regulates blasting already.

Commissioner Gunnell suggested that other Cities mining requirements are referenced. Mr. Gammell explained that blasting records must be kept for three years. Commissioner Wood suggested that the data provided is reviewed before a proximity requirement is selected.

Commissioner Tolman asked if the City benefits financially from having a mining operation. Mr. Bond answered that it is dependent upon point of sales. Mr. Gammell noted that batch plants are where the main tax revenue will come from. He thinks that they should be conditional rather than prohibited. Robin Stevens noted that she is in favor of not allowing batch plants. She believes that the tax revenue isn't worth the quality of life for those in close proximity.

Commissioner Wood requested input from the fruit growers to know what regulations should be required so the dust won't negatively affect their crops.

Commissioner Gunnell asked how mud on the roads will be regulated. Mr. Bond explained that that State storm water regulations already address this concern.

The Commissioners agreed that they would like to review the materials regarding blasting and gather more information prior to making a decision.

Motion: Commission Chair Wood motioned to table the Mining Zone discussion; until the Planning Commissioners have been able to review the document provided by Sunroc regarding

blasting and DOGM regulations to ensure that the desired regulations are in effect. Commissioner Lance seconded.
Roll Call:

Commissioner Lance	Aye
Commissioner Gunnell	Aye
Commissioner Colson	Aye
Commissioner Tolman	Aye
Commissioner Adcock	Aye
Commissioner Wood	Aye

The vote passed unanimously 6 to 0.

Mr. Bond suggested that he could ask a member of DOGM to attend the next meeting. Commissioner Lance asked that a local farmer attends the meeting as well.

Marshall's Cove Preliminary Plan
A preliminary review of a 4 lot subdivision located at approximately 500 N. and 100 W.

Commissioner Lance noted that she will be abstaining from Marshall's cove due to a conflict of interest.
Mr. Bond reviewed the proposed Marshall's Cove subdivision. He explained that it previously came through the Planning Commission as the Nicole's Cove subdivision. It has since been sold and the new owner wants to add an additional lot. Mr. Bond clarifies that by adding an additional lot, the full subdivision process is required. This means that the Planning Commission makes a recommendation to the City Council who is the approval body.
Mr. Bond explained that there are few minor engineering redlines that need to be addressed. Staff's recommendation that this subdivision be recommended for approval with condition that engineering redlines be addressed. Commissioner Adcock asked if the frontage is affected due to the storm drainage easement. Mr. Bond answered that it isn't.
Motion: Commissioner Adcock motioned to forward a positive recommendation to the City Council that the Marshall's Cove subdivision be approved, with the condition that the engineering redlines be addressed. Commissioner Tolman seconded.
Roll Call:

Commissioner Lance	Abstained
Commissioner Gunnell	Aye
Commissioner Colson	Aye
Commissioner Tolman	Aye
Commissioner Adcock	Aye
Commissioner Wood	Aye

The vote passed unanimously 5 to 0 with Commissioner Lance abstaining.

Ridley's Grocery Store Parking Reduction Proposal
The Planning Commission will consider reducing the number of required parking stalls for the Ridley's Grocery store.

Mr. Bond presented a grocery store parking reduction proposal. (See attachment 'B') Mr. Bond noted that the Ridley's grocery store site plan has been preliminarily approved by the DRC. The current parking requirement is 5 spaces per 1000 square feet. This equates to 200 square feet per parking stall. The current site plan is short 12 parking stalls. Mr. Bond explained that City code 10-14-4 allows the Planning Commission to decrease required parking based on certain considerations, such as businesses with large floor space.

Mr. Bond referred to aerial images of the parking lots of neighboring Cities grocery stores. He pointed out that most of them have a significant amount of empty parking stalls. He suggested that this could be the reason for a provision in the parking code. Mr. Bond clarified that this is his proposal, not Mr. Ridley's. He also noted that none of the shown examples would meet the Santaquin City requirements of 200 square feet per parking stall.

Mr. Bond's presented his first proposal, which is to replace 39 of the proposed parking stalls with a 5,000 square foot pad. The new pad would then need 25 stalls per code. The new ratio for Grocery store would be 272 square feet per stall. Mr. Bond mentioned that the neighboring pads and the fuel station have additional parking that could be used as well.

Mr. Bond presented his second proposal, which is to replace 26 stalls with a 4,000 square footpad. The pad would then need 20 stalls per code. The new ratio for the grocery store would then be 251 square feet per stall. Mr. Bond explained that he believes that his proposals would efficiently use space, provide another business, and replace empty parking stalls.

Commissioner Wood believes that this is a good idea, but noted that Payson Smiths is a poorly designed parking lot that he would like to avoid. Commissioner Tolman expressed her feelings that the City has given Ridley's a lot of leeway, and she wonders if that it's a dangerous precedent of favoritism. Commissioner Tolman prefers the second proposal in order to avoid congestion.

Mr. Bond relayed that the City Council was in favor of this proposal and preferred the first option with a slightly larger pad. He also noted that the reduction in parking would only apply to the grocery store, all other pads would meet parking requirements. Mr. Bond explained that he discussed this proposal with Mr. Ridley, who agreed that there is usually excessive parking at his grocery stores.

Commissioner Colson asked if appropriate ADA requirements would be met regardless of any parking amendment. Mr. Bond confirmed that the only parking removed would be regular parking.

Commissioner Tolman asked if the space for the cart returns are included in the proposal. Mr. Bond answered that the cart returns aren't shown.

Commissioner Gunnell noted that most retailers want to err on the side of too much parking.

Commissioner Adcock stared that he likes the first option better, and doesn't think the second option is a marketable location. He also expressed concern that the location of the proposed pad may cause traffic concerns. Mr. Bond noted that this proposal would need to be reviewed by the DRC.

The Planning Commissioners members in general were in favor of the proposal. Mr. Bond explained that investing in infrastructure will benefit this whole commercial area of the City, and spark economic development in the area.

Mr. Bond recommended that the Planning Commission make a motion to approve the parking reduction for the Ridley's family market from 286 spaces up to 210 spaces. Commissioner Gunnell suggested that a provision is added to the motion to require that the additional pad be installed in order to have the reduced parking. The Commissioners expressed that they were unclear of the

number of stalls that would need to be removed for the proposal. Mr. Bond clarified that the proposal is to physically remove 39 stalls; the 5,000 Square foot building would then require 25 of the remaining parking stalls, for a total of 64 less stalls. Commissioner's Lance and Wood indicated that they wouldn't like to see a drive through located in the additional pad, as it could be problematic for traffic.

Motion: Commissioner Gunnell motioned that the Planning Commission grant an exception to reduce the parking requirement for Ridley's Grocery Store by 12 stalls: with a further reduction of 64 stalls based on the condition that a pad of at least 4,000 square feet is installed by the property owner. Commissioner Tolman seconded.

Roll Call:

Commissioner Lance	Aye
Commissioner Gunnell	Aye
Commissioner Colson	Aye
Commissioner Tolman	Aye
Commissioner Adcock	Aye
Commissioner Wood	Aye

The vote passed unanimously 6 to 0.

PLANNING COMISSION BUSINESS

Approval of minutes from:
June 25, 2019

Motion: Commissioner Lance motioned to approve the minutes from June 25, 2019. Commissioner Tolman seconded. The vote was unanimous in the affirmative.

Commissioner Tolman asked about the proposed townhomes along Summit Ridge Parkway. Mr. Bond explained that a concept was submitted for townhomes on the East side of the railroad tracks. However, due to the fact that it isn't in harmony with the development agreement it isn't moving forward.

Mr. Bond reported that he and Mr. Reeves met with Utah State University last week to discuss Utah State having a presence in the area for Agra-tourism. They are also working with the University to develop with vision for exit 242.

Commissioner Adcock asked about the status of second Summit Ridge access. Mr. Bond explained that there were delays due to a wet spring however, the project is anticipated to be completed by September.

Commissioner Gunnell asked if a traffic study will be completed at the intersection of Main and Center Street. Mr. Bond explained that studies are conducted at random, but the City has indicated that they would like the study conducted after the access of Summit Ridge Parkway is completed.

Commissioner Colson asked what work has been happening on 900 East. Mr. Bond explained that there is an interest in developing the land, as well as extending the road and connecting to Main Street. A company has been looking at it and it has been surveyed by a third party. Commissioner Colson noted that there is illegal dumping happening in that area, and suggested that the potential owners install a sign.

Commissioner Gunnell asked what the timeline is for Highland Drive to be installed. Mr. Bond explained that once 150 homes are built the builder via the development agreement will be required to put the Frontage Road through.

Adjournment

Commissioner Lance motioned to adjourn at 9:27 p.m.

Trevor Wood, Commission Chair

Kira Petersen

Kira Petersen, Deputy Recorder

planning commission
7-23-19
Attachment 'A'

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April 1, 2019

To Whom It May Concern:

Blasting is a means of rock excavation that is used thousands of times a day across the country. Blasting rock allows for a cost effective and time effective process to facilitate the excavation of rock. Due to the nature of blasting, it is highly scrutinized by the jurisdictions that allow blasting to take place. Because of this scrutiny, there have been dozens of studies on how blasting effects structures in order to determine what limitation should be placed on blasting activities. One of the studies, *"Rock Blasting and Overbreak Control"* summarizes many of these studies and their progression related to blasting and its effects on structures. One of such sited studies was "*Bulletin 656.*" This work concluded, "minor damage is observed for particle velocities of 5.4 inches per second and major damage is observed for peak particle velocities of 7.6 inches per second." This same research work recommended that vibration levels in the vicinity of residential structures should be maintained below a peak velocity of 2.00 inches per second, which is considered a safe limit. The above criterion for safe blasting is considered to hold over a wide variety of soil and rock conditions and their influence on various types of residential structures. A more recent study by the Office of Surface and Mining (OSM) has fine-tuned the threshold at which damage can occur based on the relationship between velocity and frequency; in this we are given three levels of damage thresholds. Which are:

1. Vibration frequencies above 40 Hz should not exceed **2.0-in/sec** velocity.

2. Vibration frequencies between 11-40 Hz should not exceed **0.75-in/sec to 2.0-in/sec** velocity, respectively.

3. Vibration frequencies between 4-11 Hz should not exceed **0.75-in/sec** velocity.

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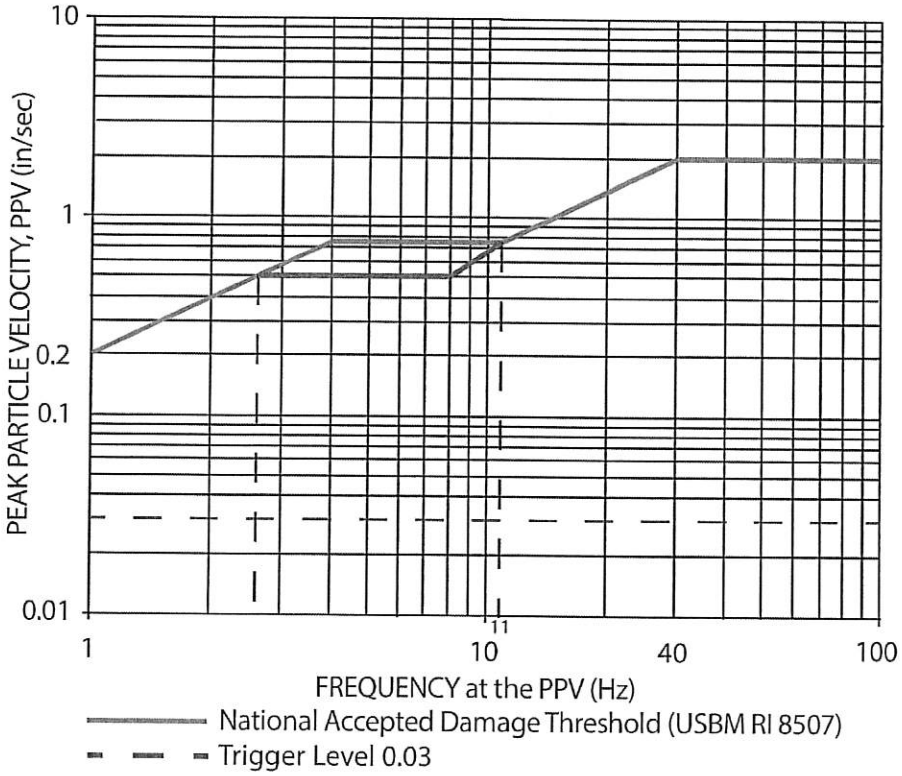

Figure 1

The above criteria is the most widely accepted blasting limitations in the nation and is continually vetted as new information and technologies emerge. Below is Tennessee written law concerning blasting, which puts into use this very criterion amongst several other common sense practices.

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Tennessee Law

TITLE 68, CHAPTER 105, BLASTING AND EXPLOSIVES

68-105-105.

At any dwelling house, public building, school, church, commercial or institutional building normally occupied within three hundred feet (300) of any blast hole, the responsible blasting firm shall offer the owner or occupant a pre-blast survey at no charge. This requirement shall apply only in cases where the standard table of distance is exceeded. The offer shall be made in writing by the blasting firm at least seventy-two (72) hours prior to commencement of the blasting operation. All surveys requested during the offer period shall be completed prior to the commencement of the blasting operation. Complete documentation of surveys, including all photographs, may be requested from the blasting firm by each owner or occupant in writing. Documentation shall be provided by the blasting firm in a timely manner. Each survey shall document all structural and cosmetic flaws noted at that time. Nothing contained in this section shall apply to permanent blasting operations.

68-105-107. Records.

(a) A record of each blast shall be kept.

(b) All records, including seismograph reports, shall be retained at least three (3) years and shall be available for inspection and shall contain the following minimum data:

(1) Name of company or contractor;
(2) Location, date and time of blast;
(3) Name and signature of blaster on charge;
(4) Type of material blasted;
(5) Number of holes, burden and spacing;
(6) Diameter and depth of holes;
(7) Types of explosives used (trade name);
(8) Total weight of explosives used;
(9) Maximum weight of explosives and maximum number of holes per delay period;
(10) Method of firing with overhead diagram of the delay pattern;
(11) Direction and distance in feet to nearest dwelling house, public building, school, church, commercial or institutional building normally occupied neither owned nor leased by the person conducting the blasting;
(12) Weather conditions;
(13) Type and height or length of stemming;
(14) Type of delay blasting caps used and delay periods used (trade name);
(15) Kind of mats or other forms of protection used;
(16) The person taking the seismograph reading shall accurately indicate the location of each seismograph used, and its distance from the blast; and
(17) Name of person and/or firm analyzing the seismograph record.
(18) Name of driller;
(19) Type of material blasted and any anomalous or unusual conditions encountered during drilling;
(20) Locations of holes not loaded or those requiring non-typical loading; and
(21) Documentation of measures taken to compensate for anomalous or unusual conditions.

(c) It is unlawful for any person to make any false entry in any record required to be kept pursuant to this section.

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In order to conform to the law, a blaster must comply with any one of the following three vibration criteria in addition to the air blast criterion:

1) **Maximum Allowable Pounds of Explosives Per Delay**

For Distances Up To 300 Feet

Distance (ft)	Weight (lbs)	Distance (ft)	Weight (lbs)	Distance (ft)	Weight (lbs)
0 - 10	1/8	70	6.00	190	21.00
11 - 15	1/4	80	7.25	210	23.50
16 - 20	1/2	90	8.50	230	26.00
21 - 25	3/4	100	9.75	250	28.50
26 - 30	1.00	110	11.00	270	31.00
40	2.25	130	13.50	290	33.50
50	3.50	150	16.00	300	34.75
60	4.75	170	18.50		

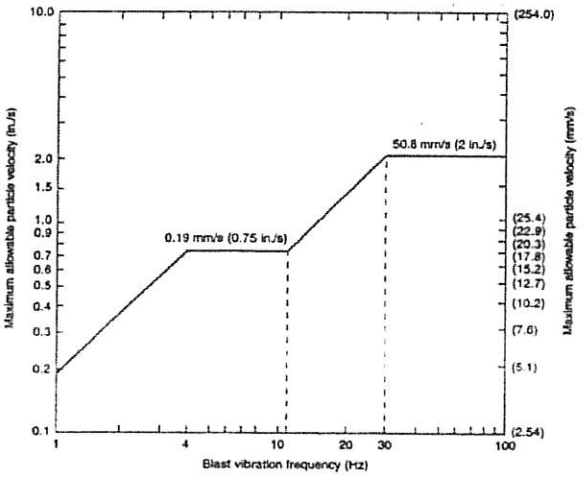
For Distances 301 to 5000 Feet
$W\ (lbs) = (d\ (ft)/55)^2$
For Distances 5001 Feet and Up
$W\ (lbs) = (d\ (ft)/65)^2$

2) **Peak Particle Velocity Limits**

Distance From Blasting Site	Maximum Allowable Peak Particle Velocity[1]
0 to 300 ft (91.4 m)	1.25 in/sec (31.75 mm/sec)
301 to 5000 ft (91.5 m to 1524 m)	1.00 in/sec (25.4 mm/sec)
5001 ft (1525 m) and beyond	0.75 in/sec (19 mm/sec)

[1]*Peak particle velocity must be measured in three mutually perpendicular directions and the maximum allowable limits shall apply to each of these measurements.*

3) **Optional Peak Particle Velocity Graph**



Max PPV (in/s)	Vibration Frequency (Hz)
0.187	1
0.375	2
0.562	3
0.750	4 - 11
0.800	12
0.867	13
0.933	14
1.000	15
1.067	16
1.133	17
1.200	18
1.267	19
1.333	20
1.400	21
1.467	22
1.533	23
1.600	24
1.667	25
1.733	26
1.800	27
1.867	28
1.933	29
2.000	30

Air-blast levels at the closest structure shall not exceed 140 dBL.

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Enclosed is a portion of "Rock Blasting and Overbreak Control," which summarizes the progression of blasting criterion studies over the modern use of explosives for rock excavation. Below is a link to the OSM' s website of study publications.

https://www.osmre.gov/resources/blasting/ARBlast.shtm

Please feel free to contact me with any questions concerning the technical implications and applications of these limits.

Sincerely,

AARON jones
Manager of Field Services
VCE, Inc.
aaron@vceinc.com
www.vceinc.com

Enclosed: "Rock Blasting and Overbreak Control" 10.5 Vibration Standards.

differently in the field. This is especially confusing when two blasts are side by side in what appears to be uniform rock material and the vibrations are measured at a particular home thousands of feet from the blast. It would seem that the vibration should be very similar since the energy is following almost the identical path through the ground from the blast area to the home. Then why then is there such a great difference in our blasting vibration. How do frequencies change from blast to blast? There are many factors which effect vibration transmission. A listing of these factors are given below:

FACTORS EFFECTING VIBRATION

1. Burden
2. Spacing
3. Subdrilling
4. Stemming depth
5. Type of stemming
6. Bench height
7. Number of decks
8. Charge geometry
9. Powder column length
10. Rock type
11. Rock physical properties
12. Explosive energy
13. Actual delivered energy
14. Number of primers
15. Primer Composition
16. Boosters
17. Geologic factors
18. Number of holes in a row
19. Number of rows
20. Type of initiator
21. Row to row delays
22. Inhole delays
23. Initiator accuracy
24. Distance to structure
25. Face angle to structure

The above listing indicates the importance of the execution of the blast design in the field. Changes in burden, spacing, stemming, powder column length, number of rows, number of holes, types of delays can change the vibration generated. Precise execution of the blast design with limitations of the tolerances and deviations from the design hole to hole will drastically reduce vibration. Vibration records will begin to resemble one another if the variability in the design parameter is controlled.

10.5 VIBRATION STANDARDS

The present vibration standards are the result of more than a half century of research and investigation by concerned scientists. The first significant investigation was initiated by the U.S. Bureau of Mines in 1930, and culminated in 1942 with publication of Bulletin 442, Seismic Effects of Quarry Blasting. This and other programs will be briefly described.

Thoenen and Windes. Seismic Effects of Quarry Blasting U.S. Bureau of Mines, Bulletin 442, 1942.

Acceleration Index		
Safe zone	-	less than 0.1 g
Caution zone	-	between 0.1 and 1.0 g
Damage zone	-	greater than 1.0 g

Crandell, F. J. Ground Vibration Due to Blasting and Its Effect Upon Structures. Journal of the Boston Society of Civil Engineers, 1949.

Energy Ratio Index $$ER = \left(\frac{a}{f}\right)^2 \qquad (10.12)$$

where:

a = Acceleration (ft/s^2)
f = Frequency (Hz)

Safe zone = ER less than 3
Caution zone = ER between 3 and 6
Damage zone = ER greater than 6

Energy Ratio has the dimension of velocity and an ER = 1 is equivalent to a particle velocity = 1.9 in/s

Langefors, Westerberg and Kihlstrom. Ground Vibration in Blasting, Parts I-III, Water Power, 1958.

Velocity Index		
No damage	-	less than 2.8 in/s
Fine cracks	-	4.3 in/s
Cracking	-	6.3 in/s
Serious cracking	-	9.1 in/s

Edwards and Northwood. Experimental Blasting Studies on Structures. National Research Council. Ottawa: Canada, 1959.

Velocity Index		
Safe zone	-	Less than 2.0 in/s
Damage	-	4.0 to 5.0 in/s

Nichols, Johnson and Duvall, Blasting Vibration and Their Effects on Structures. U. S. Bureau of Mines, Bulletin, 656, 1971.

Velocity Index		
Safe zone	-	less than 2.0 in/s
Damage zone	-	greater than 2.0 in/s

In addition to the Bureau's own work, Bulletin 656 is also a synthesis of the work of the number of other investigators. Particle velocity is considered to be the best measure of damage potential. The safe vibration criterion was specified in Bulletin 656 as follows:

The safe vibration criterion is based on the measurement of individual components, and if the particle velocity of any component exceeds 2 in/s damage is likely to occur.

Damage means the development of fine cracks in plaster. Very quickly the particle velocity, 2 in/s, became known as the Safe Limit. Many regulations were and continue to be still based on this value. Additional levels of vibration based on the results of other investigations used in Bulletin 656 are the following:

Threshold of damage (4 in/s)
- opening of old cracks
- formation of new cracks
- dislodging of loose objects

Minor damage (5.4 in/s)
- fallen plaster
- broken windows
- fine cracks in masonry
- no weakening structure

Major damage (7.6 in/s)
- large cracks in masonry
- shifting of foundation-bearing walls
- serious weakening of structure

The major damage zone correlates reasonably well with the beginning damage level for natural earthquakes.

10.5.1 RECENT DAMAGE CRITERIA

In 1980, the U.S. Bureau of Mines reported on its most recent investigation of surface mine blasting in R.I. 8507 (Siskind, et al). Structural resonance responding to low frequency ground vibration, resulting in increased displacement and strain, was found to be a serious problem.

This reintroduced the dependence of damage on frequency. Prior to this, the safe limit particle velocity was independent of frequency. Also, measurements were made inside structures rather than just by ground measurements. Inside measurement seems quite reasonable and logical, but data from previous investigations of structural vibration yielded very poor results, hence, the emphasis on ground measurement.

The threshold of damage used in RI 8507 was specified as cosmetic damage of the most superficial type, of interior cracking that develops in all homes, independent of blasting.

The safe vibration level was defined as levels unlikely to produce interior cracking or other damages in residences.

Safe vibration levels as specified in RI 8507 are given in Table 10.5. These criteria are based on a 5% probability of damage.

TABLE 10.5 SAFE PEAK PARTICLE VELOCITY FOR RESIDENTIAL STRUCTURES (RI 8507)

TYPE OF STRUCTURE	f < 40 Hz	f > 40 Hz
Modern homes - drywall interiors	0.75 in/s	2 in/s
Older homes - plaster on wood lath for interior walls	0.50 in/s	2 in/s

These safe vibration levels represent a conservative approach to damage and have been the subject of intense criticism by the blasting industry.

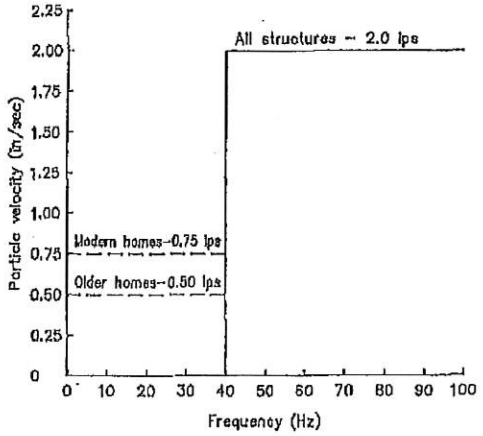


Figure 10.18 Safe Vibration Levels (RI 8507)

10.5.2 ALTERNATIVE BLASTING CRITERIA

RI 8507 also proposed alternative blasting criteria using a combination of displacement and velocity criteria applied over several frequency ranges. These alternative criteria are shown in Figure 10.19.

These criteria using both displacement and velocity over respective frequency ranges have not been accepted by all concerned. Instrumentation will need frequency reading capability in addition to the capability of reading both displacement and velocity in order to cover all ranges. This indicates the state of flux in which the question of safe vibration standards existed, which still exists today.

The problem is associated with the concept of what really constitutes vibration damage. The most superficial type of cracking advocated in RI 8507, while not to be condoned, is scarcely a realistic guide for control. Limiting vibration to a level with a low probability of producing the most superficial type of cracking will cost industry untold millions of dollars. What is the alternative? Damage of this description, if it occurs could be handled through insurance adjustment.

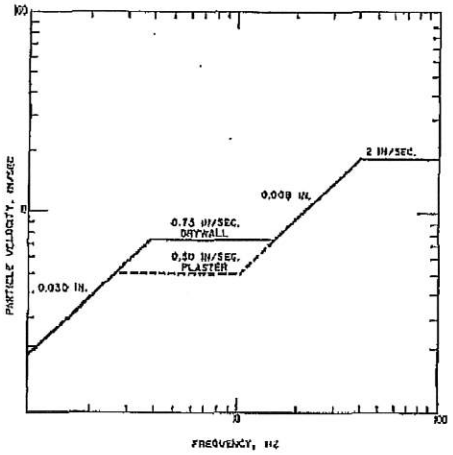


Figure 10.19 Alternative Blasting Level Criteria Source: RI 8507, U.S. Bureau of Mines

An important consideration to be noted is that there probably is no lower limit beyond which damage will not occur, since there will always be structures at the point of failure due to normal environmental stresses. It is not unusual to read of a structure collapsing for no apparent reason.

In RI 8896, (1984), "Effects of Repeated Blasting on a Wood-Frame House" U.S. Bureau of Mines, it indicates that cosmetic cracks occurred during construction of a test house and also during periods when no blasts were detonated. It was further noticed that human activity, temperature, and humidity changes caused strains equivalent to ground particle velocity of 1.2 in/s to 3.0 in/sec.

10.5.3 THE OFFICE OF SURFACE MINING REGULATIONS

The Office of Surface Mining, in preparing its regulations, modified the Bureau of Mines proposed criteria based on counter proposals that it received and came up with a less stringent standard similar to the Bureau of Mines alternative safe blasting criteria. Recognizing a frequency dependence for vibration associated with distance, the Office of Surface Mining Presented its regulation as follows:

TABLE 10.6 OFFICE OF SURFACE MINING, REQUIRED GROUND VIBRATION LIMITS

DISTANCE FROM THE BLASTING SITE (ft)	MAXIMUM ALLOWABLE PEAK PARTICLE VELOCITY (in/s)	SCALED DISTANCE FACTOR TO BE APPLIED WITHOUT SEISMIC MONITORING
0 to 300	1.25	50
301 to 5000	1.00	55
5001 and beyond	0.75	65

This table combines the effects of distance and frequency. At short distances, high frequency vibration predominates. At larger distances, the high frequency vibration has attenuated or died out and low frequency vibration predominates. Buildings have low frequency response characteristics and will resonate and may sustain damage. Therefore, at large distances a lower peak particle velocity, 0.75 in/s, and a larger scaled distance, Ds = 65, are mandated. At the shorter distances, a higher peak particle velocity, 1.25 in/s, and a smaller scaled distance, Ds = 50, are permitted.

The displacement and velocity values and the frequency ranges over which each applies as specified by the Office of Surface Mining are shown in Figure 10.20.

10.5.4 CHARACTERISTIC VIBRATION FREQUENCIES

The Bureau of Mines in RI 8507 distinguished frequencies associated with coal mine blasting, quarry blasting and construction blasting. Coal mine blasting produced the lowest frequencies, quarry blasting was next followed by construction blasting which produced the highest frequencies. This is shown graphically in Figure 10.21.

Although these frequencies are labeled as coal mine, quarry and construction the differences are due to shot size, distance, and rock properties which are characteristic of the operation. Distance is probably the most important factor since low frequency vibration will appear on any blast record if the distance is large enough. High frequency vibration attenuates rapidly because it requires much more energy than low frequency, the energy required varying as the square of the frequency. Thus, low frequency energy propagates to large distances.

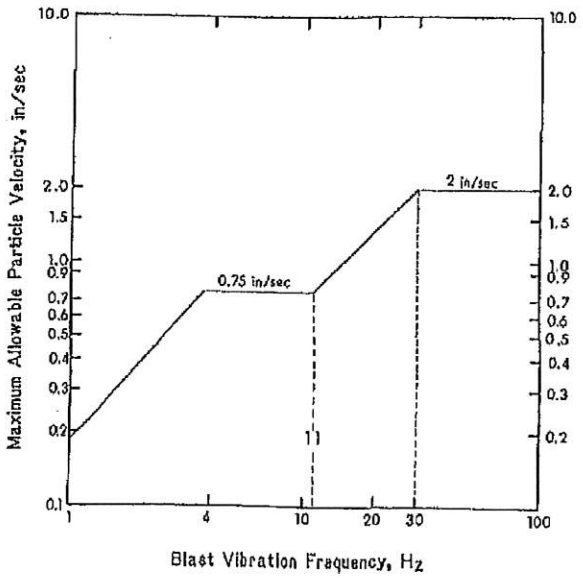


Figure 10.20 OSM Alternative Blasting Level Criteria (Modified from Figure B 1, RI 8507 U.S. Bureau of Mines)

10.5.5 SPECTRAL ANALYSIS

Spectral analysis is a method for analyzing the frequency content of a vibration record. The record of the ground motion is referred to as a time-domain record. This time-domain record is digitized, usually at one millisecond intervals, after which the digitized data are subjected to a computer performed Fourier Analysis of the blast. The data is now said to be in the frequency domain. It shows the vibration levels associated with each frequency.

Figure 10.22 shows a vibration record in the time-domain and the resulting frequency domain plot after Fourier analysis. This is taken from RI 8168, Siskind, et al, 1976.

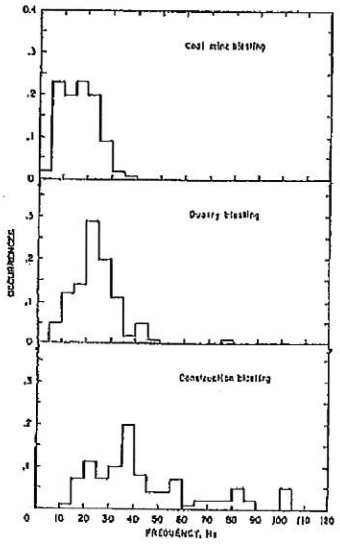


Figure 10.21 Frequencies From Coal Mine, Quarry And Construction Blasting (RI 8507)

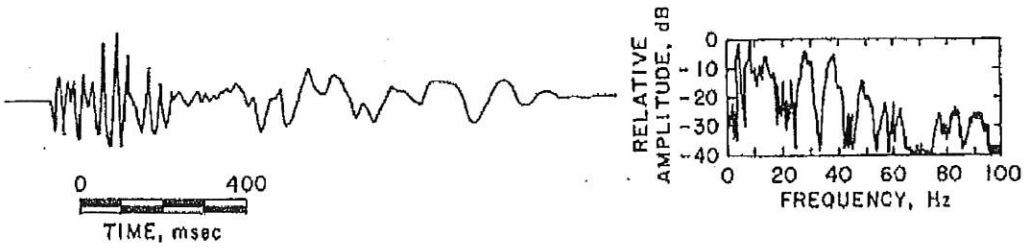


Figure 10.22 Spectral Analysis (RI 8169)

10.5.6 RESPONSE SPECTRA

Response spectra is a methodology in which the response of the structure to a given vibration can be estimated mathematically. Different kinds of blasting generate different frequency spectra. For example, quarry and construction blasting generate higher frequencies than mining blasts. A given structure will respond differently to each of these different frequency generating blasts. Structures also differ, so that two structures may respond differently to the same blast.

A structure is considered as a damped oscillator, with a specific frequency of vibration. The equation of motion of this damped oscillator is programmed into a computer. The digitized data from a blast record is then fed into the computer (impressed on the structure), which calculates the structural response or displacement for each piece of digitized data. The maximum displacement that occurs and the assumed frequency constitute one point (frequency, displacement) of the response-spectra curve.

The process is repeated for additional frequencies and each frequency with its maximum displacement is an additional point for the response spectra curve. When all the frequencies and their maximum displacements have been plotted and the points joined together, the result is the response-spectra curve. This response-spectra curve is a relative displacement curve. It can be converted to a relative velocity response spectra by multiplying by $2 \pi f$.

Response spectrum analysis is important because one can estimate the response of a structure to various impressed frequencies, thus anticipating, and hopefully eliminating problems before they arise.

10.5.7 LONG TERM VIBRATION AND FATIGUE

Blasting vibration is a short term phenomenon. The question of repeated blasting effects arises regularly as a point of concern. These could be included with the effects from pile driving and recurring industrial operations. Generally, the effects are relatively low level vibrations, which individually fall below recommended levels of safe vibration and are not considered as potentially damaging.

There is not much information available on this topic, which is generally not regarded as an important problem. Obviously, if it were a significant problem, there would be many damage claims and a general awareness.

One investigation by Walter, 1967, used impact vibration continuously generated in a structure for approximately thirteen months, twenty-four hours a day. The structure was an ordinary room approximately 8 x 8 x 8 feet of dry wall construction. The vibrator was mounted on the ceiling, generating motion that was transmitted throughout the structure and surrounding area.

The natural frequency of the wall panels was 12.5 Hz and the ceiling panel was 60 Hz. Vibration frequencies measured in the wall panels ranged from 10 to 18 Hz. with particle velocity ranging from 0.05 to 0.16 in/s.

The total time of vibration was of the order of thirty million seconds. No noticeable effects resulted from this extended vibration. It was concluded that low level vibration even in the natural frequency response range of the structure has practically zero potential for causing damage.

The U. S. Army Corp. of Engineers, Civil Engineering Research Laboratory, CERL, conducted a fatigue test for the U.S. Bureau of Mines using a biaxial shake table on which was mounted a typical residential room, 8 x 8 x 8 feet. The shake table was programmed with one horizontal component and the vertical component of a quarry blast from Bulletin 656 whose predominant frequencies were 26 and 30 Hz respectively.

Vibration test levels were 0.1, 0.5, 1.0, 2.0, 4.0, 8.0, and 16.0 in/s. Each was run a series of times starting with 1 run, then 5 runs, then 10, 50, 100, and 500 runs with inspection after each series. No damage occurred until the sixth run at 4.0 in/s. This sixth run was preceded by 2669 prior runs with no damage. In fact, there were 666 runs at 2.0 in/s and 5 at 4.0 in/s. with no damage. It is significant to note that when damage occurred it occurred at a particle velocity in excess of 2.0 in/s.

Koerner tested 1/10 scale block masonry walls at resonant frequencies. Failure was observed after approximately 10,000 cycles at particle velocities of 1.2 to 2.0 in/s. Later tests on 1/4 scale block walls showed cracking after 60,000 to 400,000 cycles at particle velocities 1.69 to 1.95 in/s.

These studies show that fatigue effects such as cracking may occur at vibration levels that are relatively high.

10.5.8 VIBRATION EFFECTS

Cracks produced in structures by natural earthquakes, which are low intensity effects, have a characteristic pattern called the X - crack or vibration crack. These cracks result from the fact that the top of a structure, due to its inertia, lags behind. The structure is deformed from a regular rectangular shape into a parallelogram, with one of its diagonals elongated and the other compressed. If the elongation exceeds the strength of the material, it will fail producing a tension crack. As the earth vibration reverses, the same thing will occur in reverse, with the opposite diagonals being elongated and compressed with the possible formation of another tension crack. When both cracks occur they form an X - crack pattern. Figure 10.23 illustrates the process. If it occurs, the X - crack pattern is most likely to be associated with large blasts.

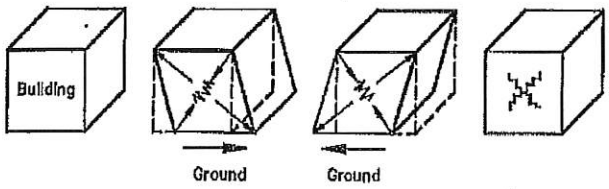


Figure 10.23 Vibration X - Crack Pattern

10.5.8.1 DIRECTIONAL VIBRATIONAL EFFECTS

The energy that moves out from the source of the blast, measured in terms of ground vibration and peak particle velocity, moves out in all directions from the source. If the ground would transmit vibration in the same manner in all directions and if all other factors remain constant, then theoretically at the same distance in any direction from a blast, the vibration levels would be equal. Unfortunately, on true job conditions, vibration transmission is not ideal and because of changes in the earth structure, vibration is transferred differently in different directions. The geologic structure, joints and faults, will change vibration levels and frequency in different directions of the source. Other factors dealing with blasting pattern design can also contribute to these directional vibration effects.

In the past, it was common practice to monitor behind the blast at the nearest structure since it was assumed that in this direction vibration levels would be greatest. Recommendations for monitoring practice have changed and research has shown that the highest vibration levels are commonly, not behind the shot, but to the sides of the blast. In particular, vibration levels are commonly highest in the direction towards which the delays are progressing. For example, if a blast is fired with the first hole on the left hand side of the pattern and the delays are progressing toward the right hand side of the pattern, then in the direction toward the right hand side of the pattern one would commonly find the highest vibration levels.

In order to calibrate the ground and determine site specific transmission characteristics, it is recommended that at least two seismographs be used when blasting in close proximity to structures. One seismograph placed on the end of the shot and one at 90 degrees. For example, behind the blast. After test shooting is completed and the transmission characteristics are known, the second seismograph may be unnecessary since the ground has already been calibrated and vibration levels in one direction can be related to vibration levels in the other direction.

10.5.8.2 FREQUENCY WAVE LENGTH EFFECTS

When a line of increased motion occurs, what are its dimensions and how large an area is affected? It will cover a space of the order of one to two wavelengths. Wavelength is defined as propagation velocity multiplied by the wave period (Eq. 10.2).

$$L = V T$$

where:

L = Wavelength (ft)
V = Propagation velocity (ft/s)
T = Wave period (s)

For a wave of period 1/10 sec and propagation velocity 2,000 ft/s, the wavelength is 200 feet.

Assuming the waves are approximately the same (Fig. 10.24), at maximum coincidence the motion would be doubled but the wave length will be that of either wave since they are the same (Figure 10.25).

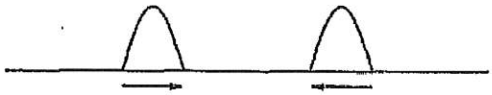


Figure 10.24 Converging Equal Wavelets

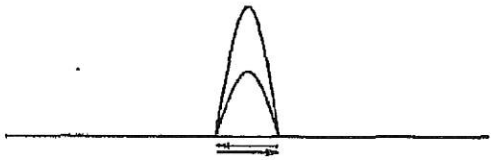


Figure 10.25 Composite Wave Motion at Maximum Coincidence

This form will be repeated after the maximum has occurred when the waves pass complete coincidence and begin to separate each into its own distinct form. Thus, there is a periodicity whose wavelength approaches the sum of the two wavelengths. Also, the wavelength of the composite motion varies from a single wavelength to approximately double the single wavelength. The converging and diverging wavelets are shown in Figure 10.26 and the resulting composite motion is shown in Figure 10.27.

The wave period and the frequency are both effected. At the point of maximum coincidence the period and frequency are those of the single wave. Since the period may approach double that of a single wave, the frequency will be cut approximately in half.

The significant points here are that they can exist.

1. A region of increased seismic motion and hence increased peak particle velocity with maximum at the center, minimum at the edges of the resultant combined waves.

2. The region in which this occurs, the order of two wave lengths wide approximately 400 to 800 feet depending on propagation velocity and wave period.

3. Wave periods will be increased to approximately double with a corresponding lowering of the frequency to half.

4. A region of high-seismic risk because of the increased motion and reduced frequency of vibration.

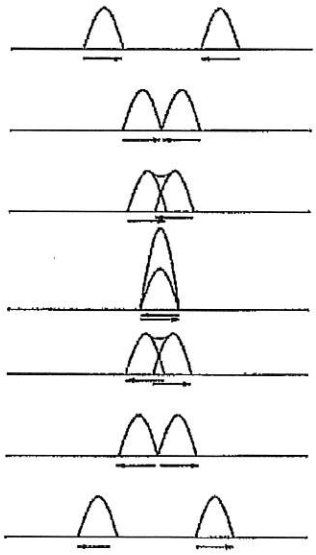


Figure 10.26 Converging and Diverging Wave Interaction

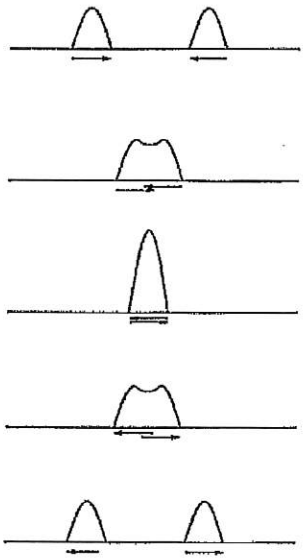


Figure 10.27 Composite Motion

10.5.8.3 NON-DAMAGE EFFECTS

Damage producing vibration seldom occurs, but many other effects occur that are disconcerting and alarming to persons who feel and hear the vibration. Some of these effects are:

- Walls and floors vibrate and make noise.
- Pipes and duct work may rattle.
- Loose objects, plates, etc., may rattle.
- Objects may slide over a table or shelf, and may fall off.
- Chandeliers and hanging objects may swing.
- Water may ripple and oscillate.
- Noise inside a structure is greatly amplified over noise outside.
- Vibration is very disturbing to occupants.

10.5.8.4 CAUSES FOR CRACKS OTHER THAN BLASTING

Cracking is a normal occurrence in the walls and ceilings of structures, and the causes are multiple, ranging from poor construction to normal environmental stress, such as thermal stresses, wind, etc. The Small Home, published by the Architects Small House Service Bureau of the United States, Inc. 1925, gave a list of reasons for the development of cracks, which included the following:

- Building a house on a hill.
- Failure to make the footings wide enough.
- Failure to carry the footings below the frost line.
- Width of footings not made proportional to the loads they carry.
- The posts in the basement not provided with separate footings.
- Failure to provide a base raised above the basement floor line for the setting of wooden posts.
- Not enough cement used in the concrete.
- Dirty sand or gravel used in the concrete.
- Failure to protect beams and sills form rotting through dampness.
- Setting floor joists one end on masonry and the other end on wood.
- Wooden beams used to support masonry over openings.
- Mortar, plaster, or concrete work allowed to freeze before setting.
- Braces omitted in wooden walls.
- Sheathing omitted in wooden walls (excepting in "back- plastered" construction).
- Drainage water from roof not carried away from foundations.
- Floor joists not bridged.
- Supporting posts too small.
- Cross beams too light.
- Sub-flooring omitted.
- Wooden walls not framed so as to equalize shrinkage.
- Poor materials used in plaster.
- Plaster applied too thin.
- Lath placed to close together.
- Lath run behind studs at corners.
- Metal reinforcement omitted in plaster at corners.
- Metal lath omitted where wooden walls join masonry.
- Metal lath omitted on wide expanses of ceiling.
- Plaster applied directly on masonry at chimney stack.

- Plaster applied on lath that is too dry.
- Too much cement in the stucco.
- Stucco not kept wet until set.
- Subsoil drainage not carried away from walls.
- First coat of plaster not properly keyed to backing.
- Floor joists placed too far apart.
- Wood beams spanned too long between posts.
- Failure to use double joists under unsupported partitions.
- Too few nails used.
- Rafters too light or too far apart.
- Failure to erect trusses over wide wooden openings.

* Published in Monthly Service Bulletin 44 of the Architects' Small House Service Bureau of the United States, Inc.

10.5.9 BLAST DESIGN ADJUSTMENT TO REDUCE VIBRATION LEVELS

When vibration levels are too high and it becomes desirable and even necessary to reduce them, there are a number of options.

10.5.9.1 CHARGE REDUCTION

The maximum charge per delay may be reduced by decreasing the number of holes per delay. If the number of holes per delay cannot be reduced then it may be possible to deck load and fire each hole with two or more delays.

10.5.9.2 BLAST DESIGN

The vibration level can be reduced by redesigning the blast so that less energy per hole is necessary to fragment the rock. This may require changing the hole spacing, the burden and even the hole size. A change in explosive may be helpful also. This requires going back to square one and starting over. This is an extreme circumstance and not likely to be necessary.

10.5.9.3 BLASTING STANDARD FOR NON RESIDENTIAL STRUCTURES

Vibration standards can be divided into two other groups in addition to the normal building standards, high level vibration structures and low level vibration sensitive components.

10.5.9.4 BLASTING NEAR CONCRETE STRUCTURES

On many demolition projects, old concrete is near the blasting operation. In fact, it is not uncommon to blast away part of a structure, leaving the other structure intact. This is a common procedure when locks along rivers need to be refurbished. When locks become eroded due to the water and the environmental conditions, approximately two feet of old concrete is blasted away and new concrete is poured in its place. It is obvious that the concrete that remains from the original structure has been subjected to very high peak particle velocity. Oriard measured values of strain and peak particle velocity that produced various types of failure in concrete. His results are given in Table 10.7.

GROCERY STORE PARKING DISCUSSION

CITY COUNCIL MEETING

JULY 16, 2019

Planning Commission
T-23-19
Attachment 'B'

SANTAQUIN RIDLEY'S MARKET

REQUIREMENT: 5 spaces per 1,000 SF

CURRENT PLAN: 57,202 SF needs 286 spaces

PROPOSAL: 274 spaces

SANTAQUIN RIDLEY'S MARKET

REQUIREMENT: 5 spaces per 1,000 SF

CURRENT PLAN: 57,202 SF needs 286 spaces

PROPOSAL: 274 spaces

4% decrease

SANTAQUIN RIDLEY'S MARKET

REQUIREMENT: 5 spaces per 1,000 SF

CURRENT PLAN: 57,202 SF needs 286 spaces

PROPOSAL: 274 spaces

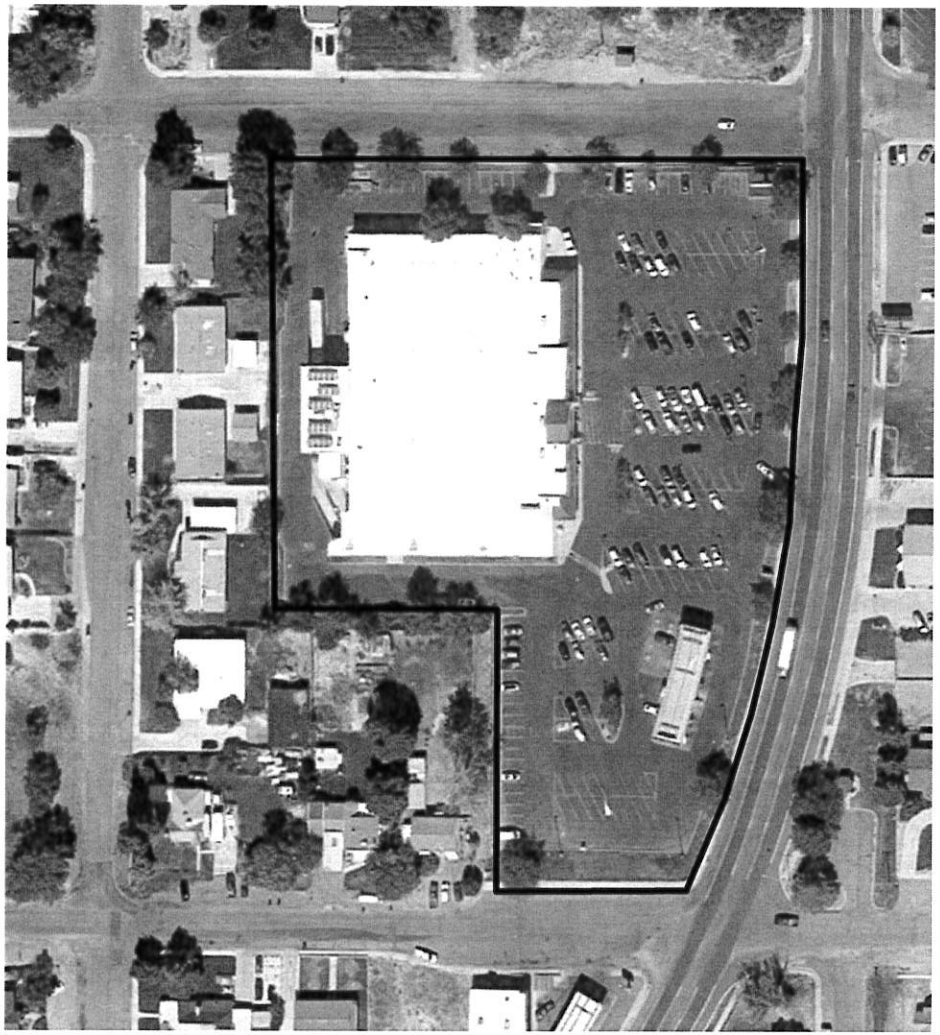
BUT

10-14-4: NUMBER OF PARKING SPACES REQUIRED:

D. Reduction In Parking Requirements: Businesses or mixed use developments seeking a reduction in parking must receive special exception approval by the Planning Commission. Such exceptions shall be based on the following review considerations and conditions:

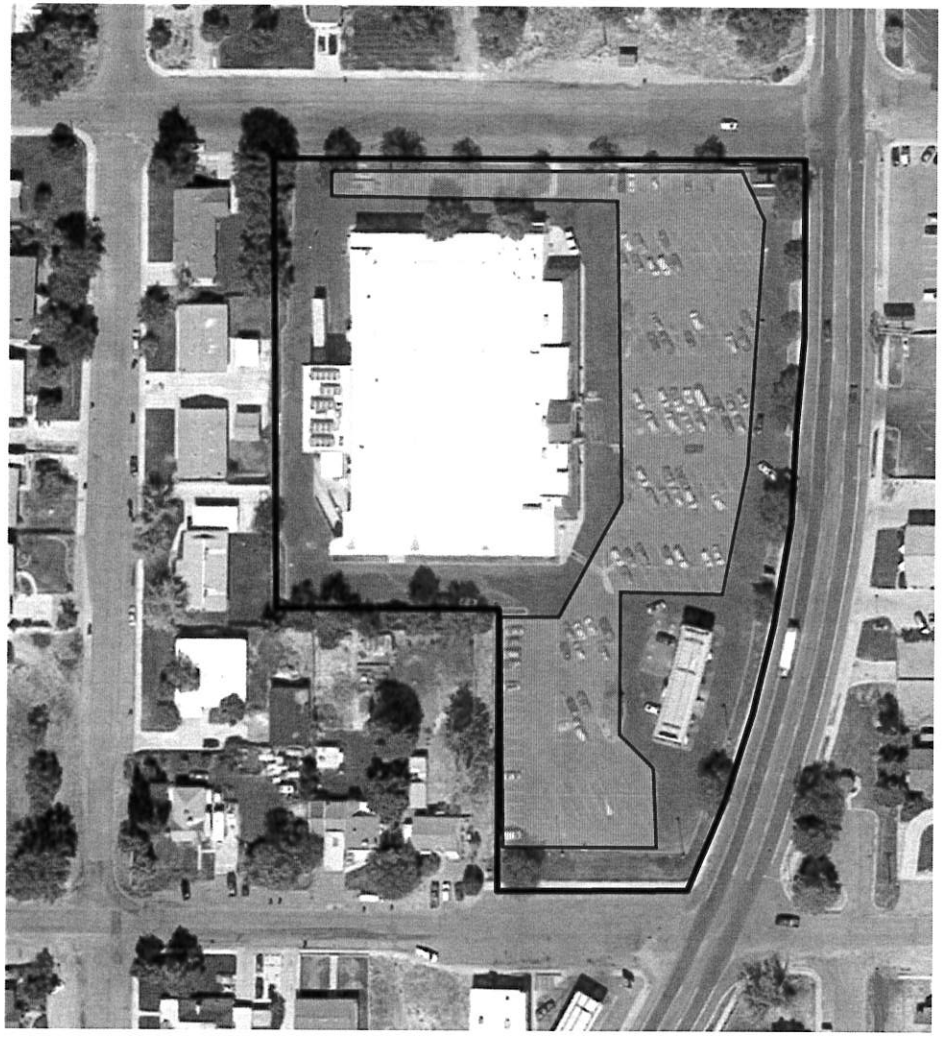
1. Considerations For Reduction:

a. Large Floor Area: The proposed business may have an exceptionally large floor area per volume of sales and customers; e.g., furniture store, car wash, etc.



PAYSON SMITH'S

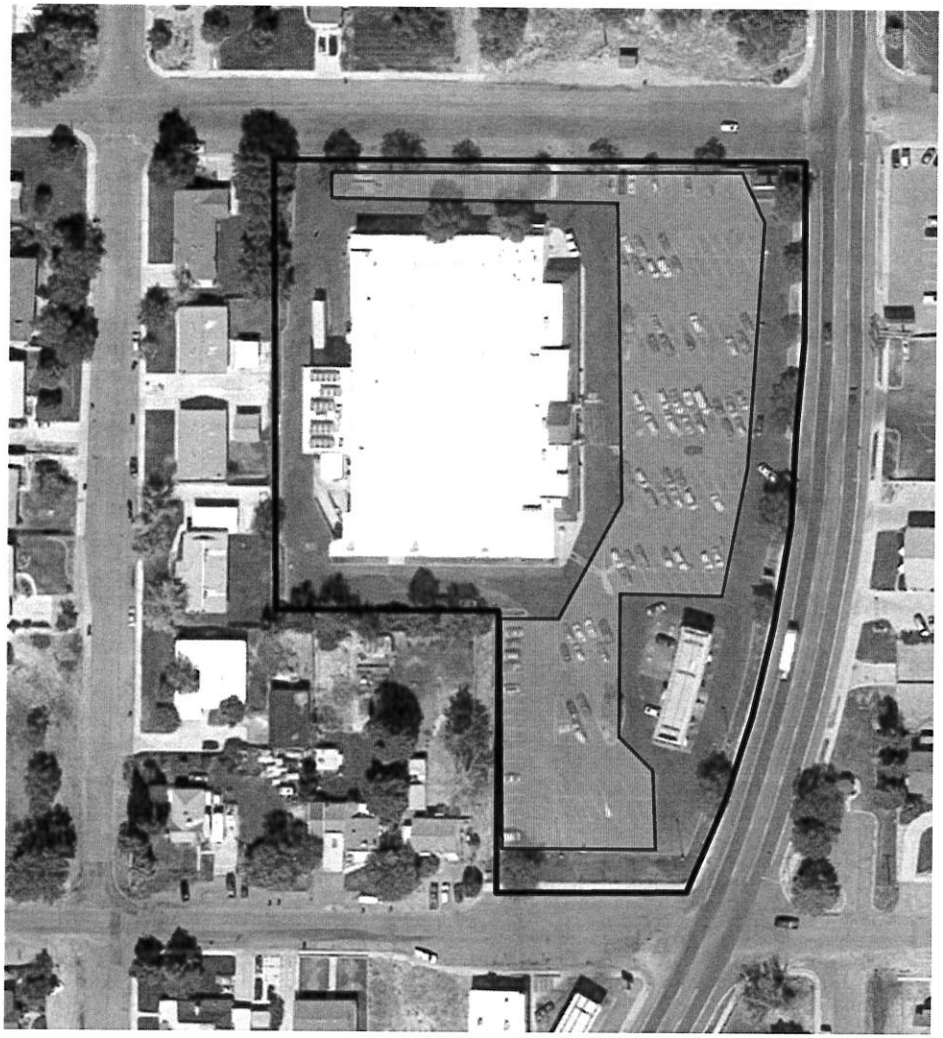
SIZE OF BUILDING: 50,000 SF



PAYSON SMITH'S

SIZE OF BUILDING:
50,000 SF

OF PARKINGS STALLS:
163

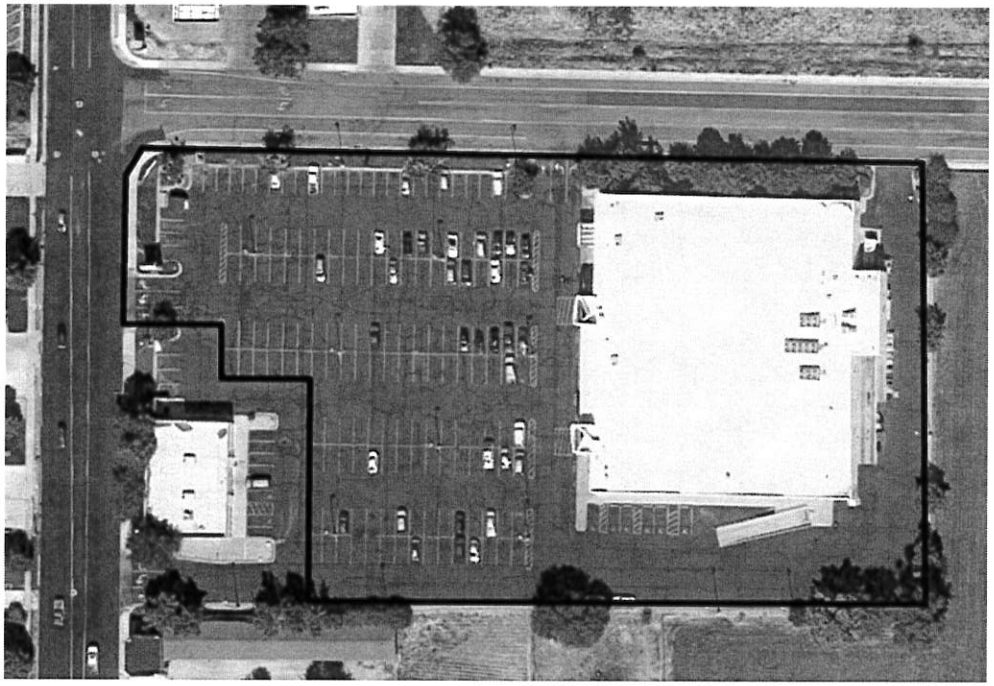


PAYSON SMITH'S

SIZE OF BUILDING:
50,000 SF

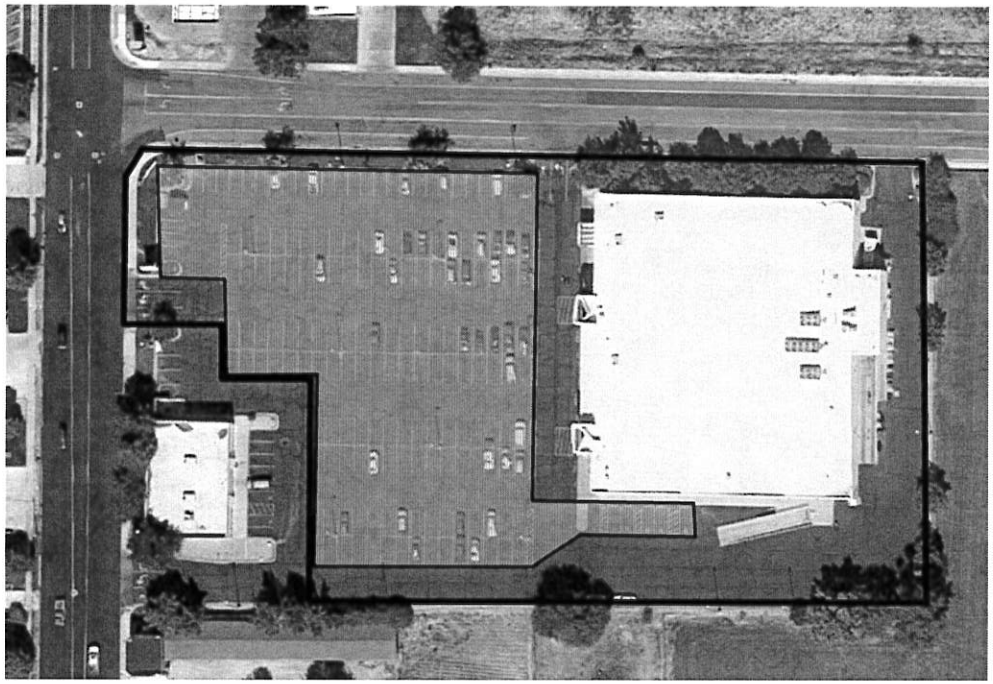
OF PARKINGS STALLS:
163

RATIO:
325 SF per 1 Parking Stall



PAYSON MARKET

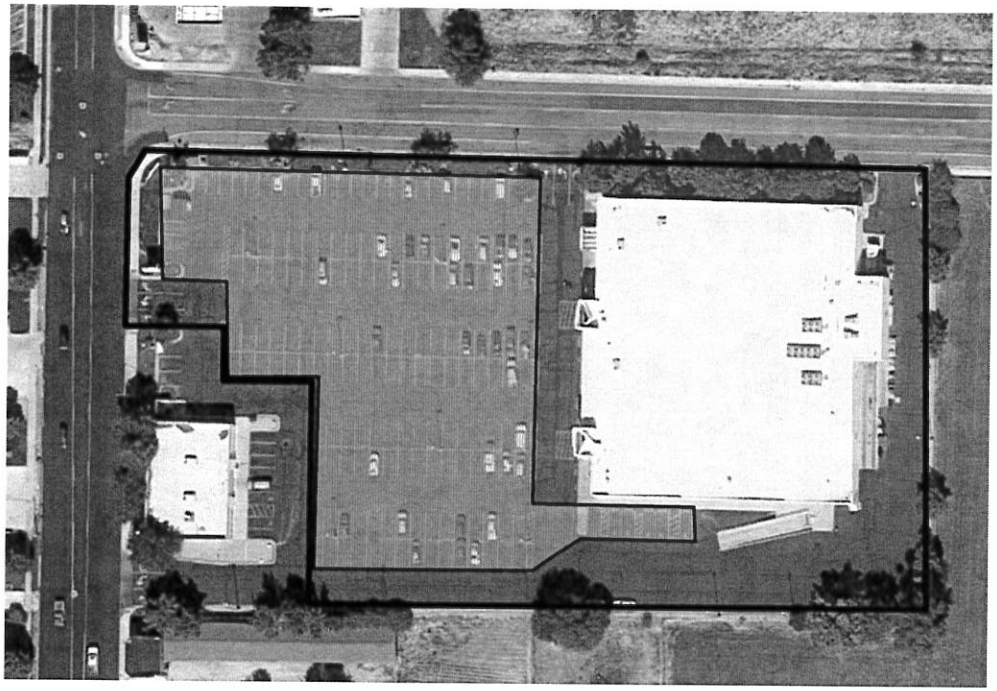
SIZE OF BUILDING: 38,000 SF



PAYSON MARKET

SIZE OF BUILDING:
38,000 SF

OF PARKINGS STALLS:
180

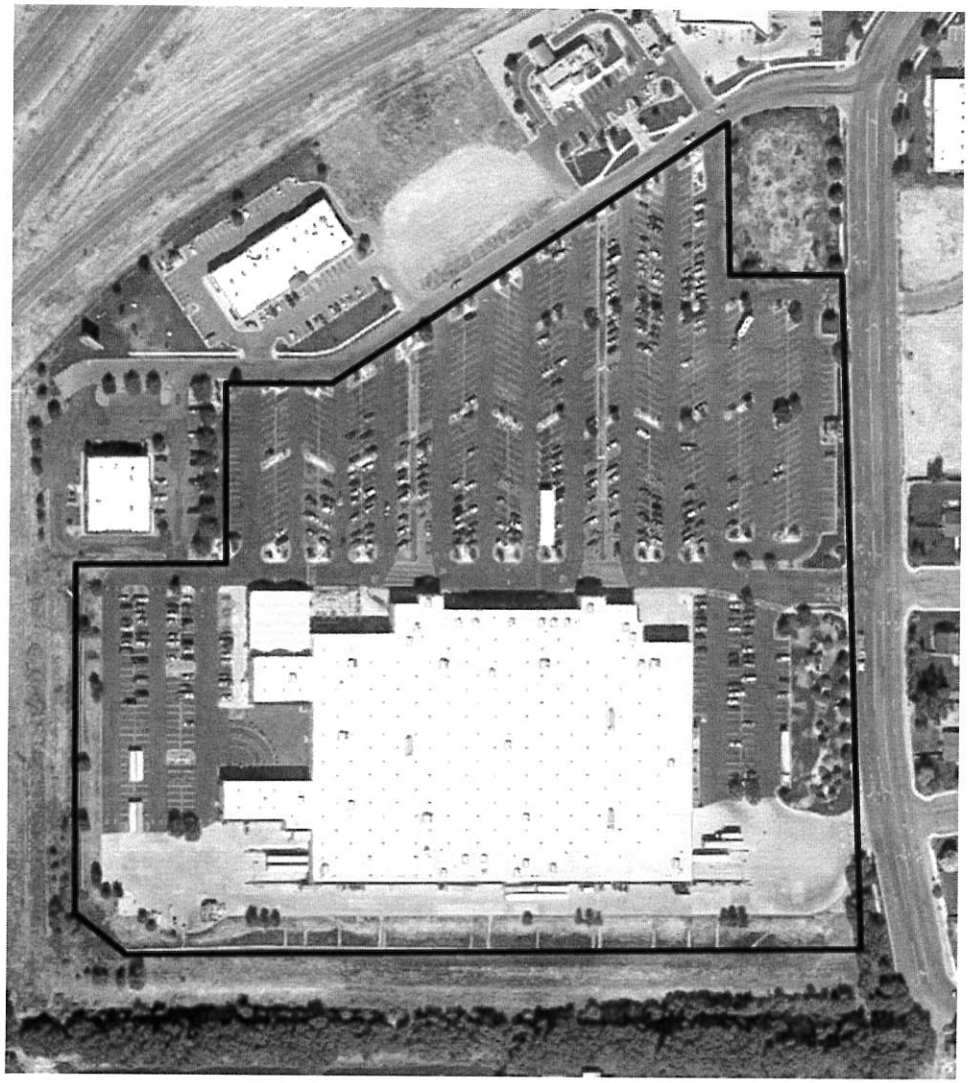


PAYSON MARKET

SIZE OF BUILDING:
38,000 SF

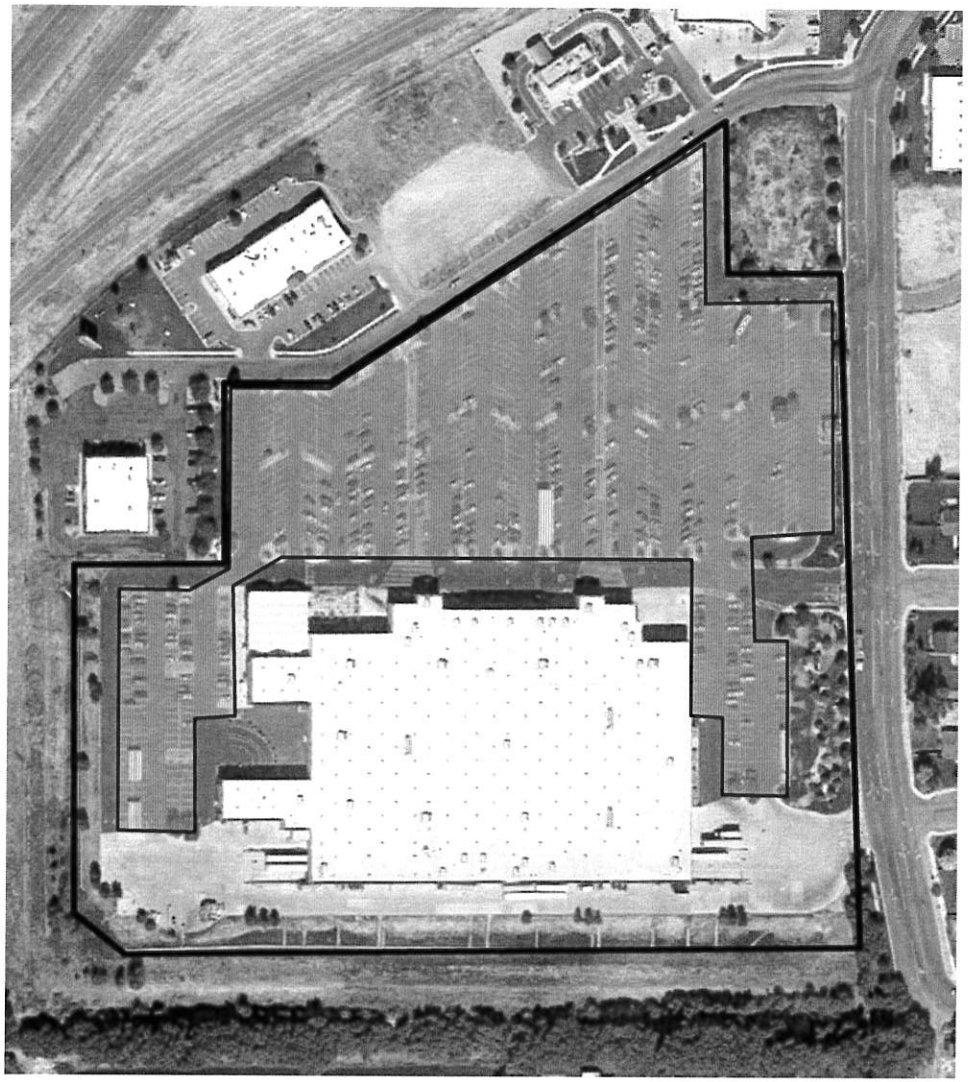
OF PARKINGS STALLS:
180

RATIO:
211 SF per 1 Parking Stall



PAYSON WALMART

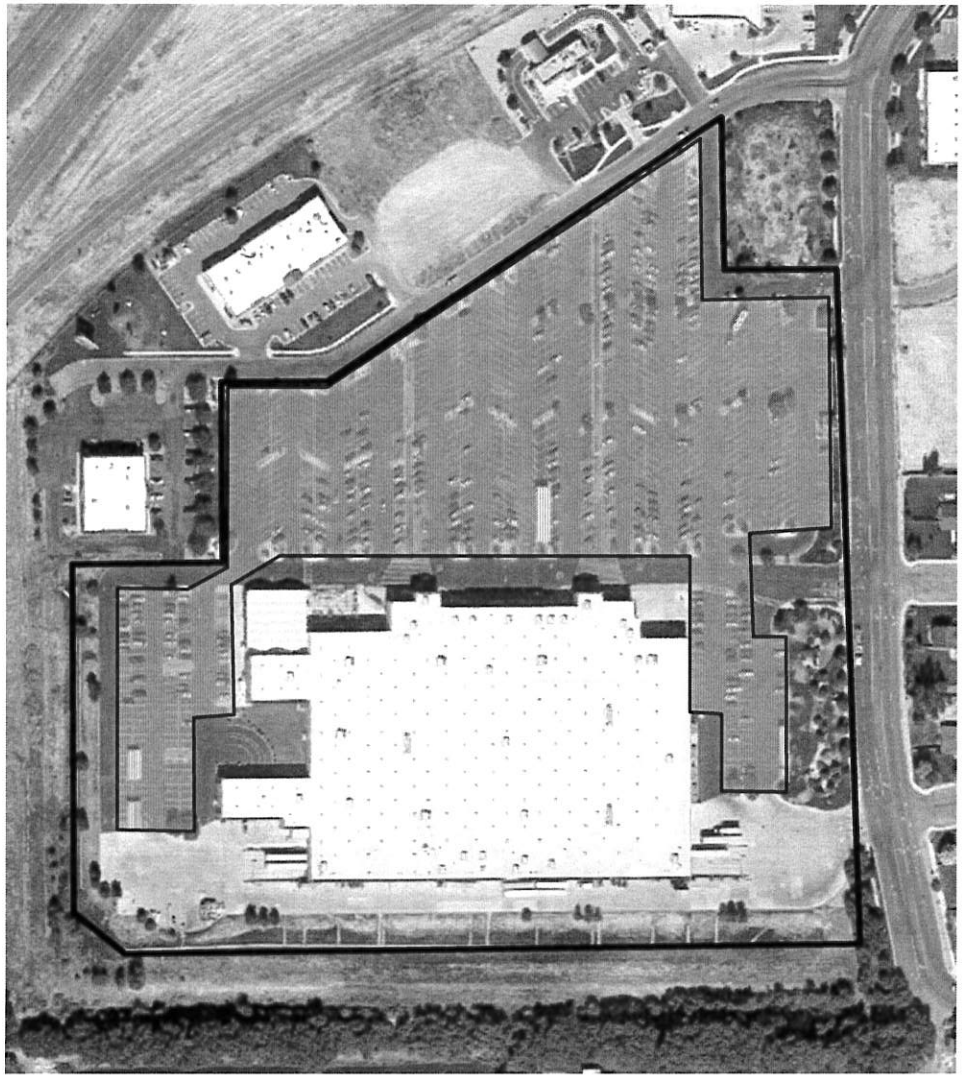
SIZE OF BUILDING: 190,000 SF



PAYSON WALMART

SIZE OF BUILDING:
190,000 SF

OF PARKINGS STALLS:
906



PAYSON WALMART

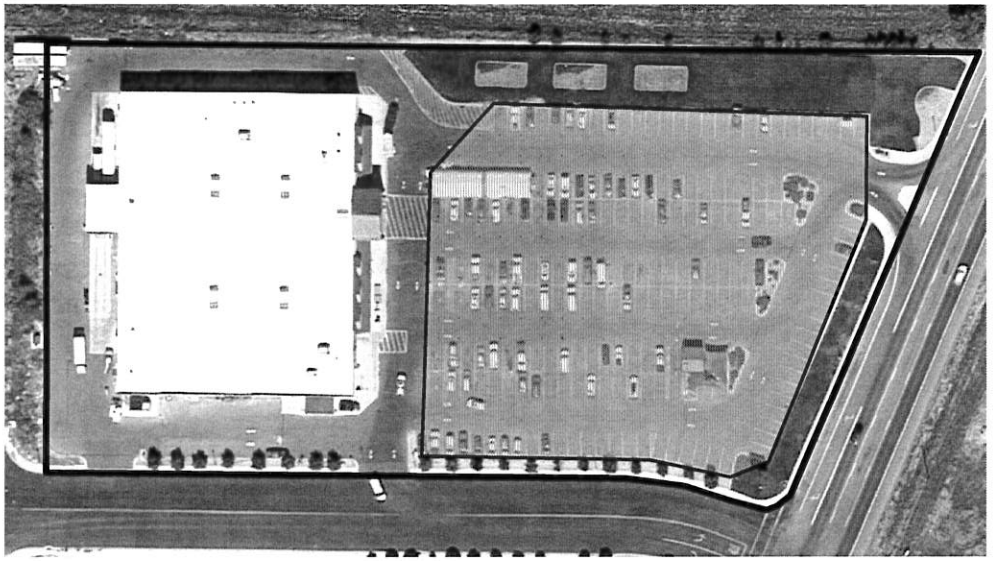
SIZE OF BUILDING:
190,000 SF

OF PARKINGS STALLS:
906

RATIO:
210 SF per 1 Parking Stall

SALEM STOKES

SIZE OF BUILDING:
42,000 SF



SALEM STOKES

SIZE OF BUILDING:
42,000 SF

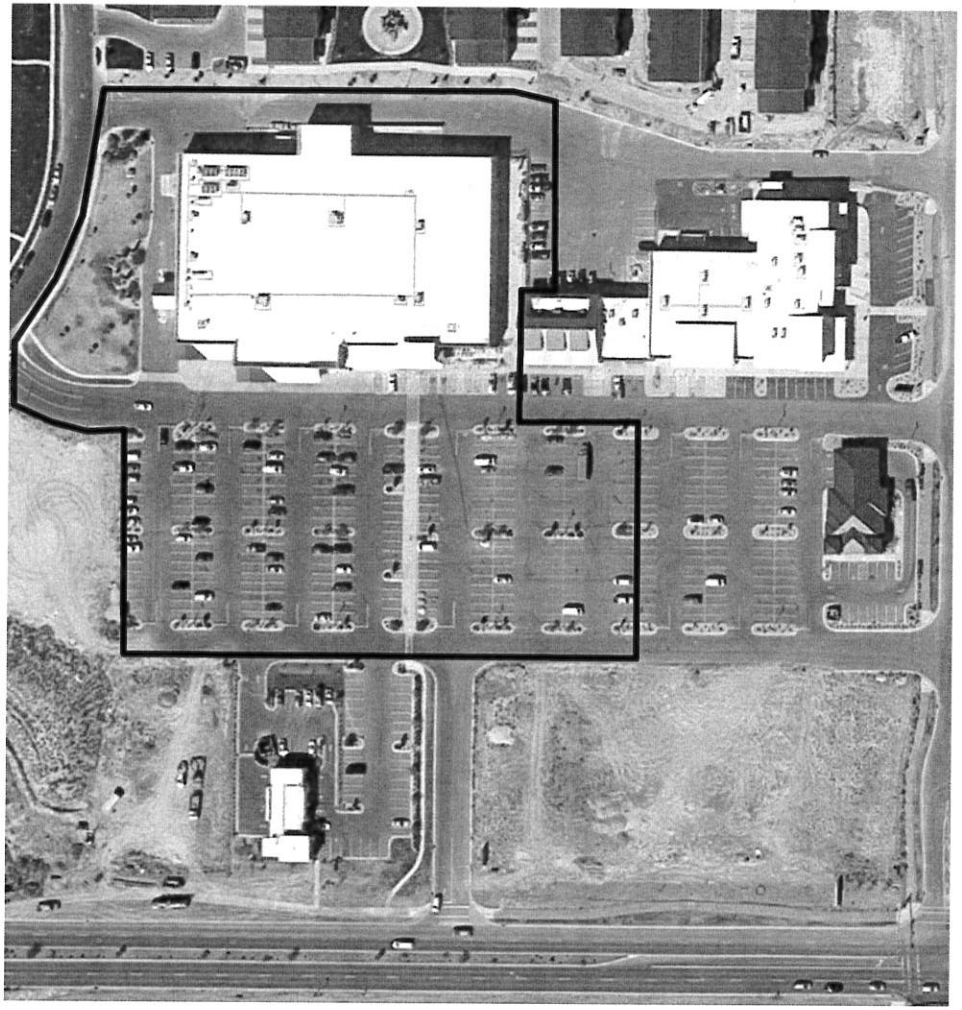
OF PARKINGS STALLS:
207

SALEM STOKES

SIZE OF BUILDING:
42,000 SF

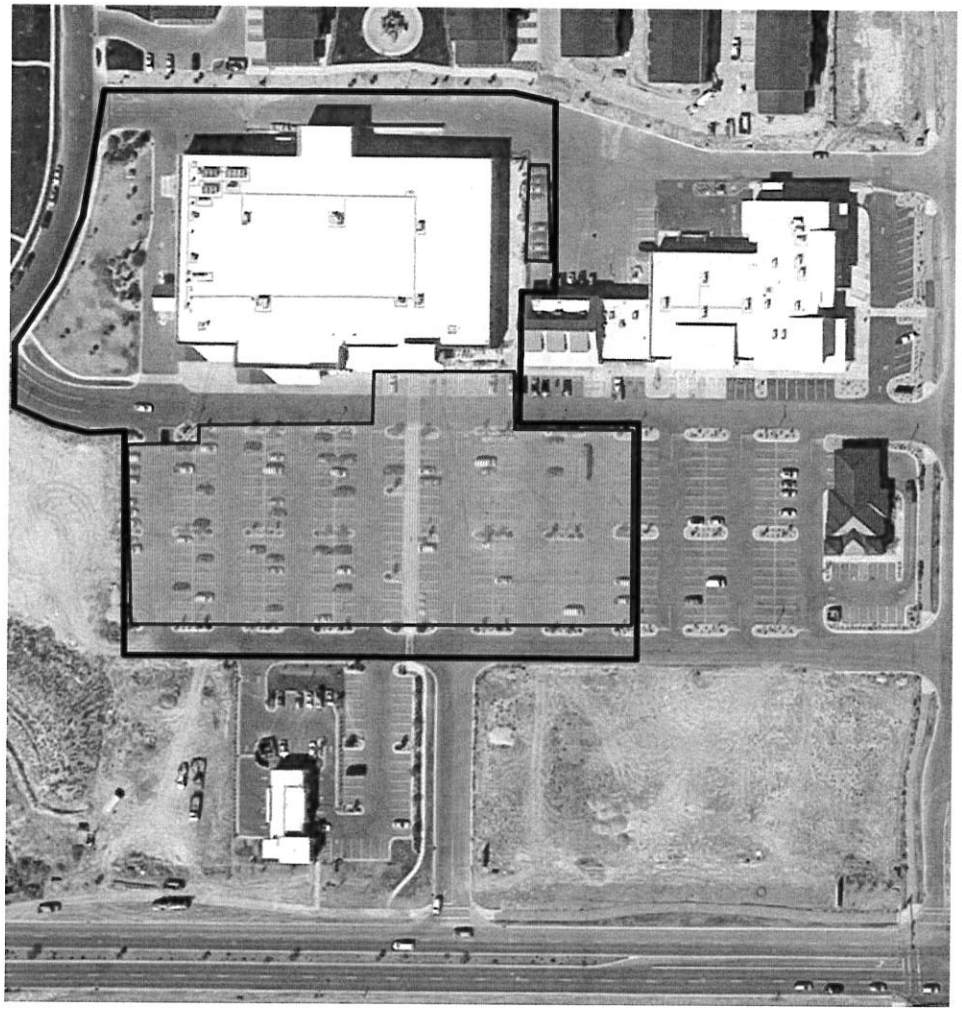
OF PARKINGS STALLS:
207

RATIO:
203 SF per 1 Parking Stall



EAGLE MOUNTAIN
RIDLEY'S

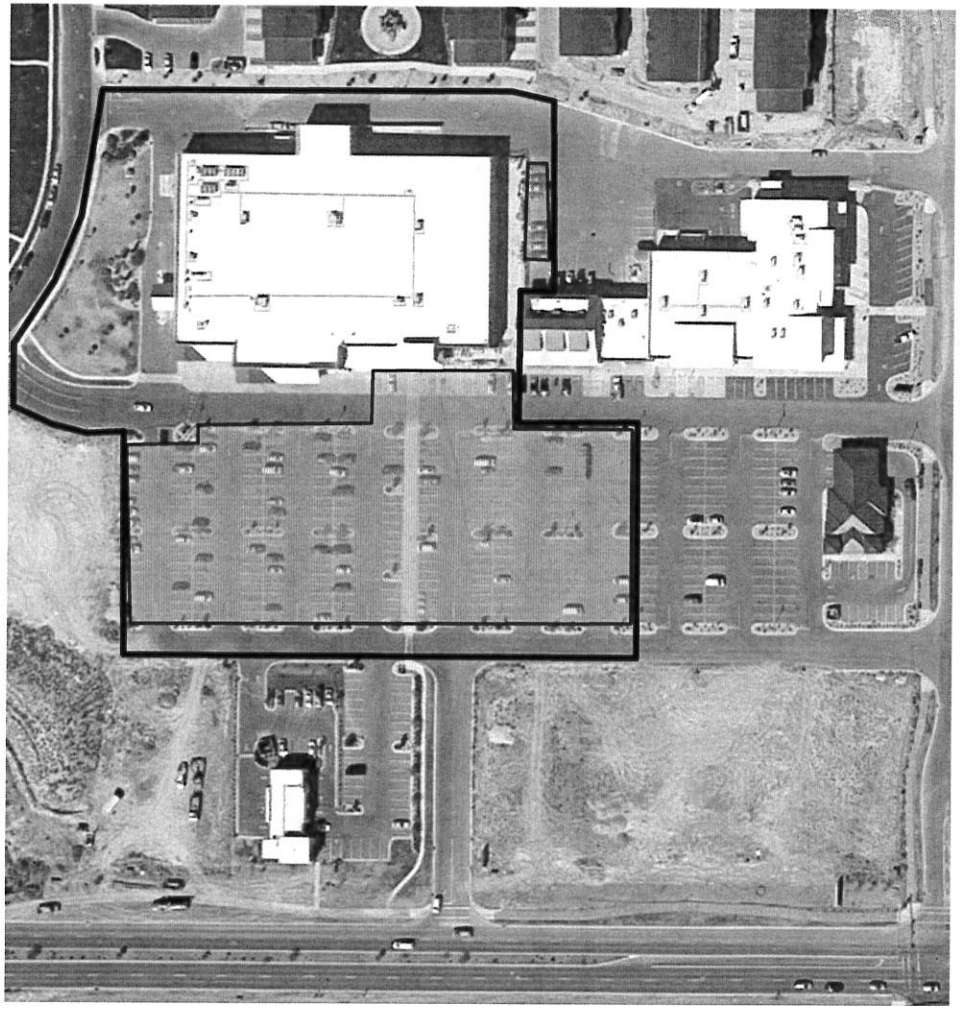
SIZE OF BUILDING:
55,000 SF



EAGLE MOUNTAIN
RIDLEY'S

SIZE OF BUILDING:
55,000 SF

OF PARKINGS STALLS:
270

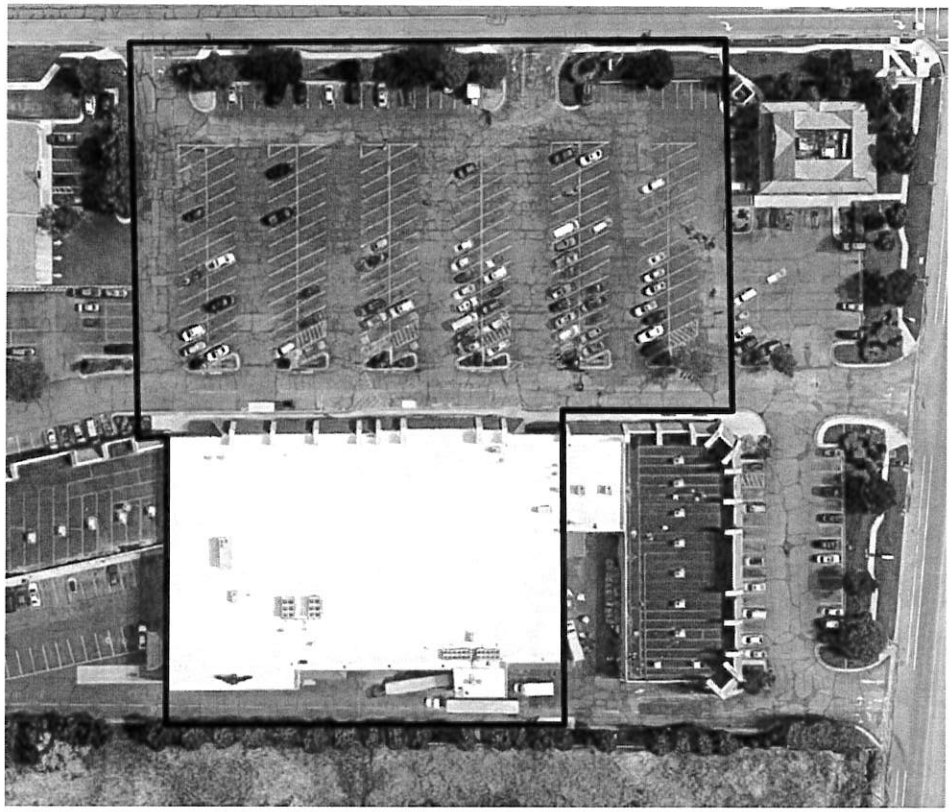


EAGLE MOUNTAIN
RIDLEY'S

SIZE OF BUILDING:
55,000 SF

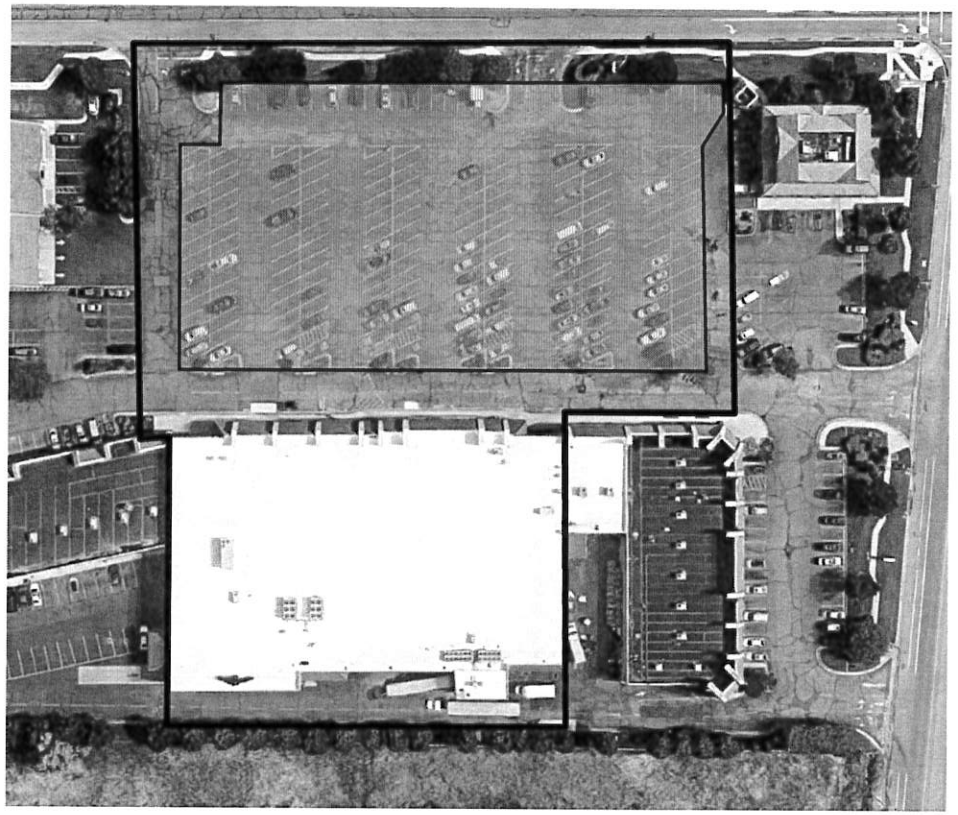
OF PARKINGS STALLS:
270

RATIO:
204 SF per 1 Parking Stall



HIGHLAND RIDLEY'S

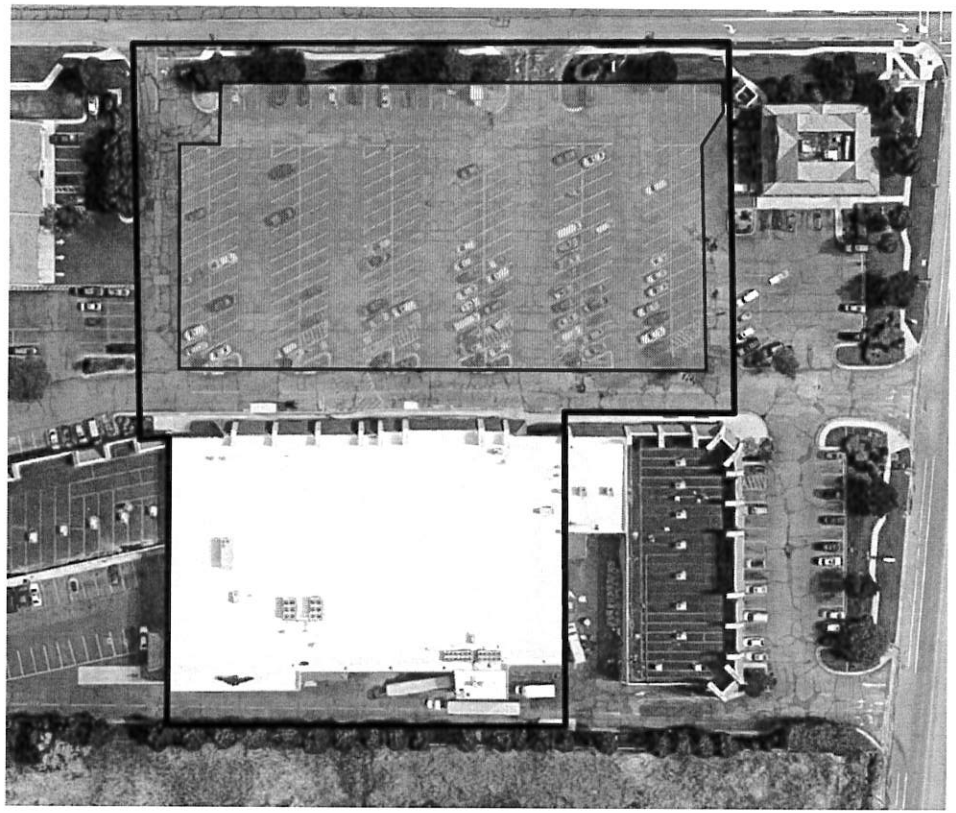
SIZE OF BUILDING: 44,000 SF



HIGHLAND RIDLEY'S

SIZE OF BUILDING:
44,000 SF

OF PARKINGS STALLS:
198

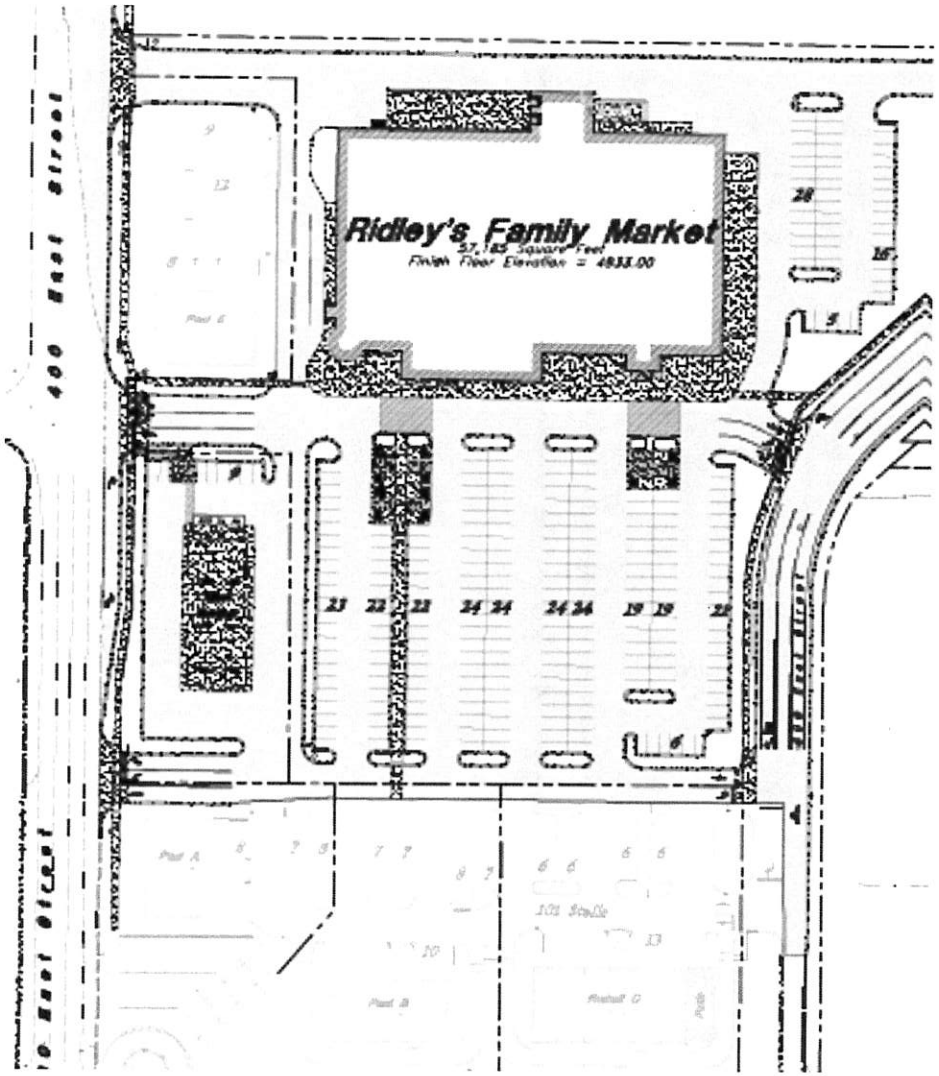


HIGHLAND RIDLEY'S

SIZE OF BUILDING:
44,000 SF

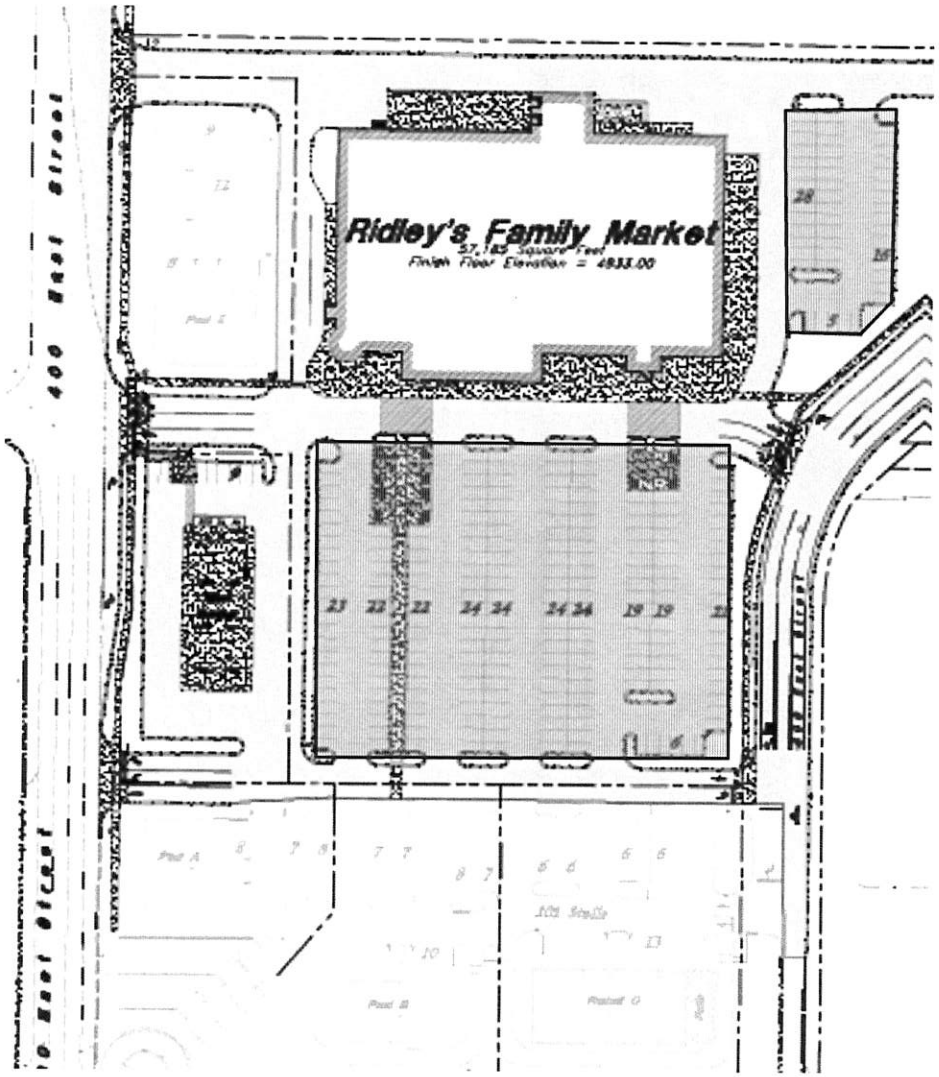
OF PARKINGS STALLS:
198

RATIO:
222 SF per 1 Parking Stall



SANTAQUIN RIDLEY'S

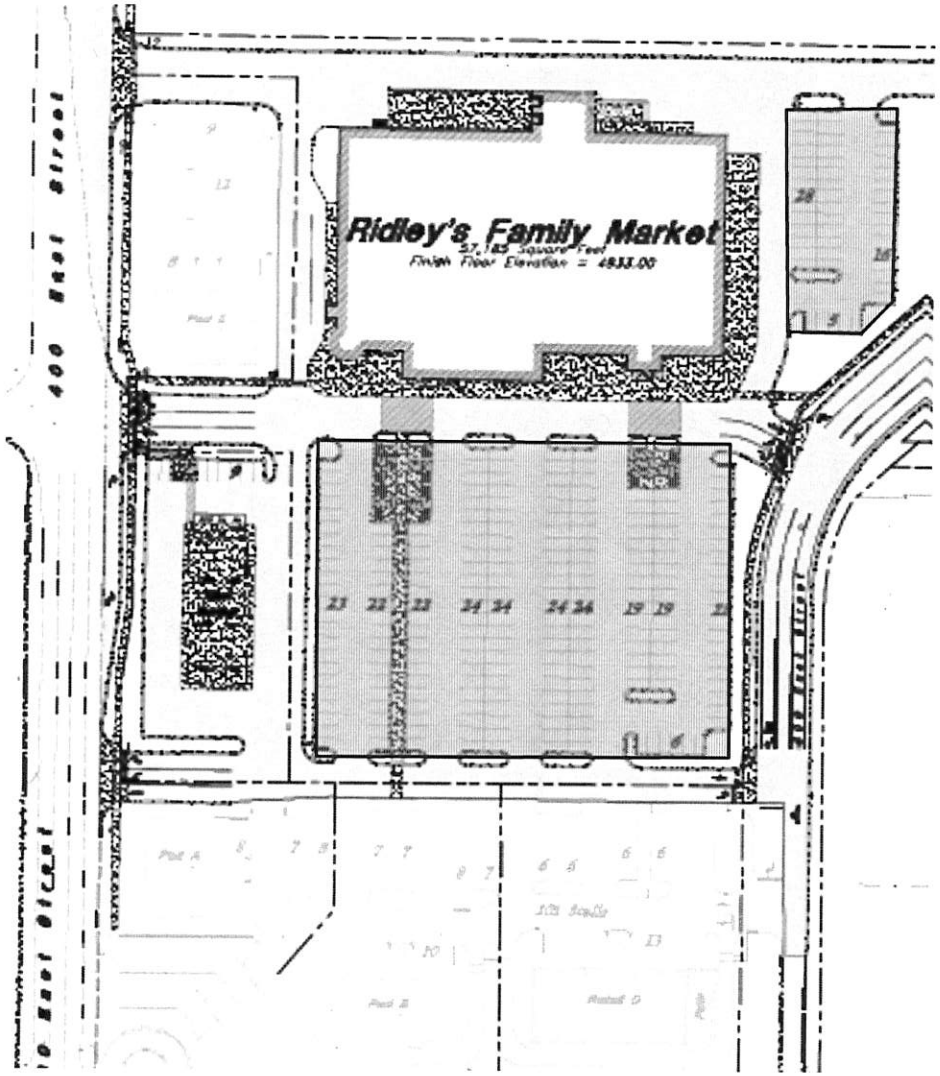
SIZE OF BUILDING: 57,202 SF



SANTAQUIN RIDLEY'S

SIZE OF BUILDING: 57,202 SF

OF PARKINGS STALLS: 274



SANTAQUIN RIDLEY'S

SIZE OF BUILDING:
57,202 SF

OF PARKINGS STALLS:
274

RATIO:
209 SF per 1 Parking Stall

REVIEW

STORE	RATIO
Salem Stokes	203 SF per stall
Eagle Mountain Ridley's	204 SF per stall
Santaquin Ridley's	209 SF per stall
Payson Walmart	210 SF per stall
Payson Market	211 SF per stall
Highland Ridley's	222 SF per stall
Payson Smith's	325 SF per stall

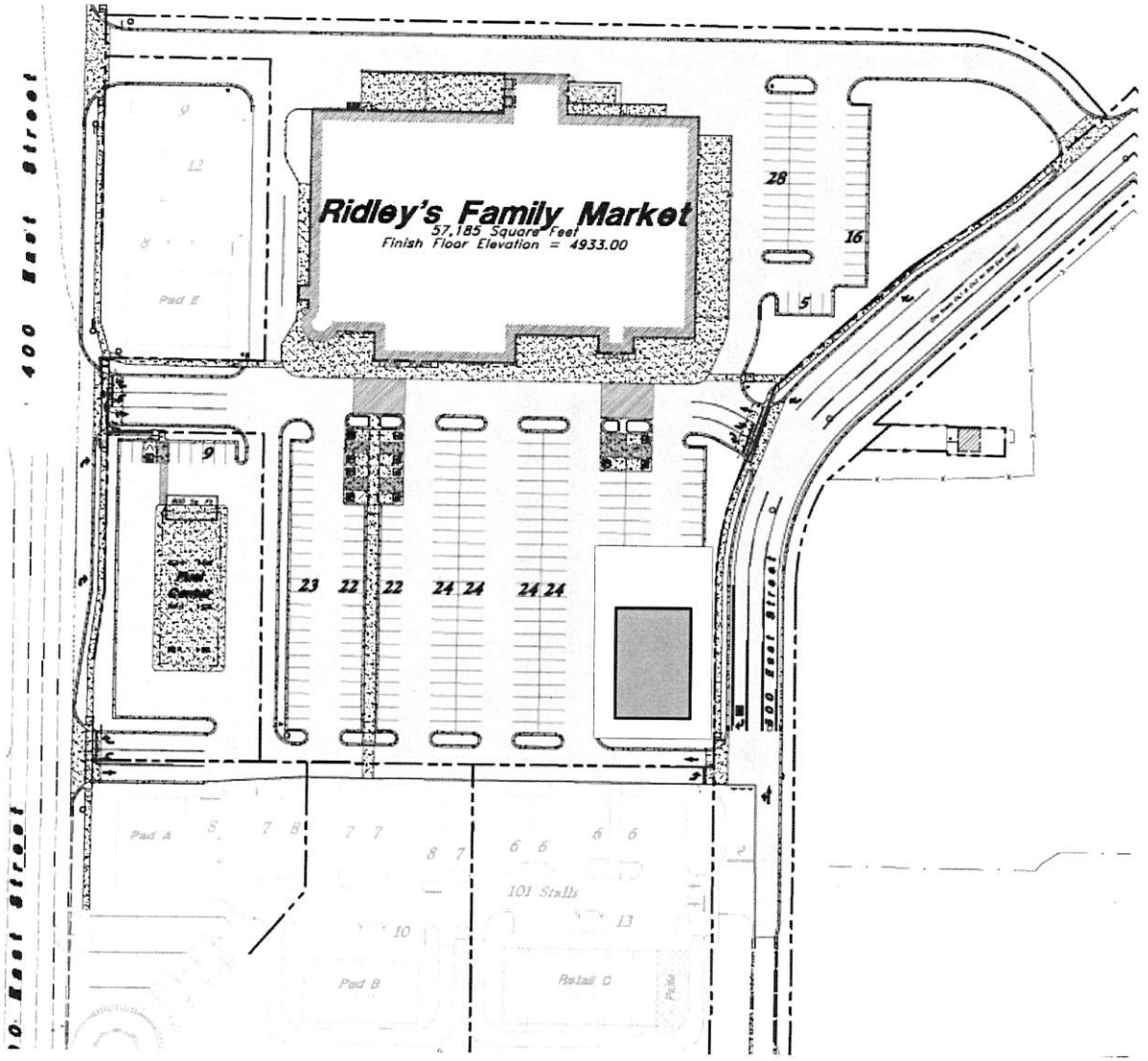
*Santaquin current requirement is 200 SF per stall

OBSERVATIONS

1. Many parking lots that I have observed have a significant amount of empty parking stalls on a regular basis.

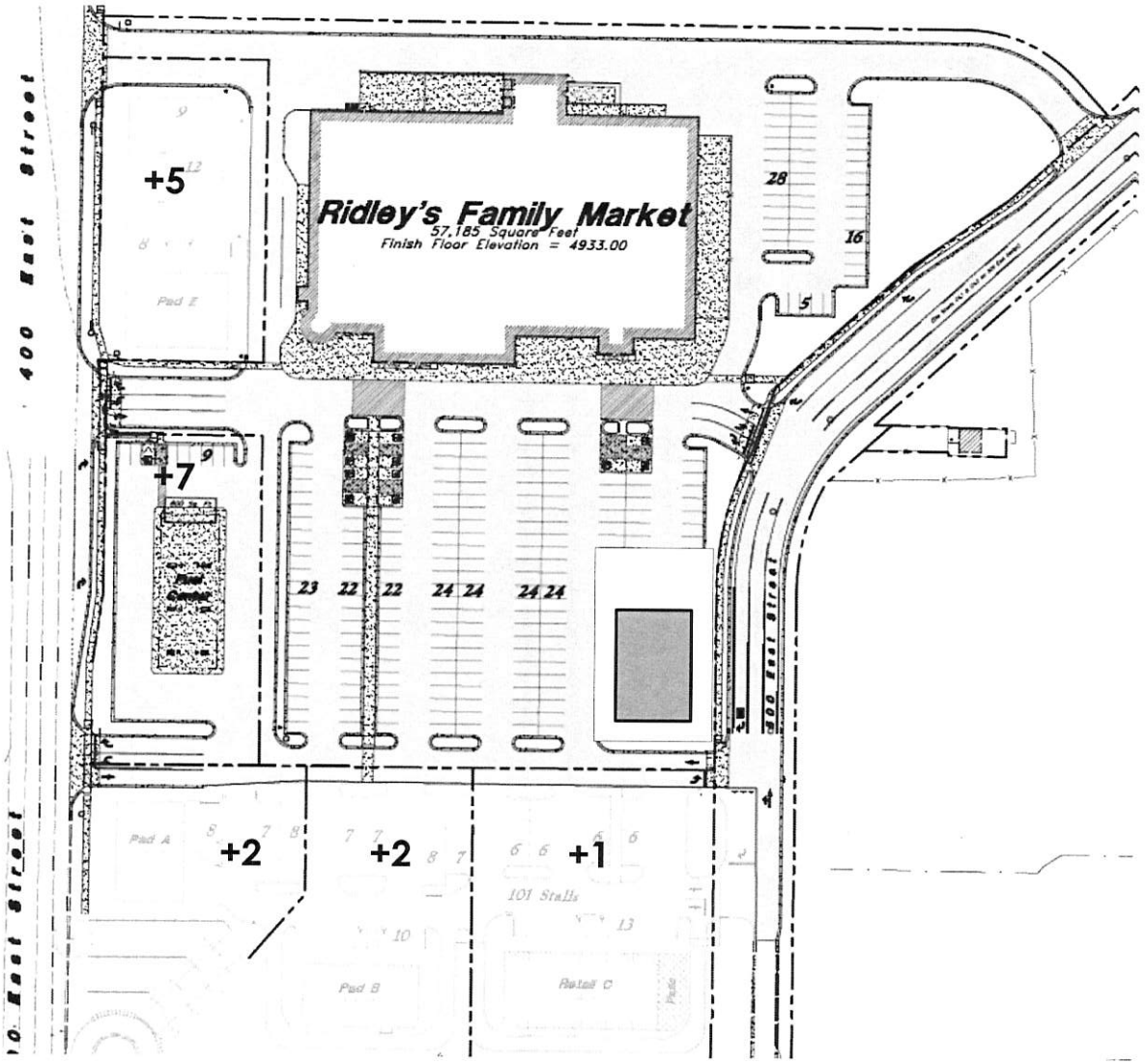
2. Even after some parking is taken up with grocery cart returns, snow shacks, promotional tents, etc. there are still a significant amount of empty parking stalls on a regular basis.

3. The larger the store, the more empty parking.



IDEA

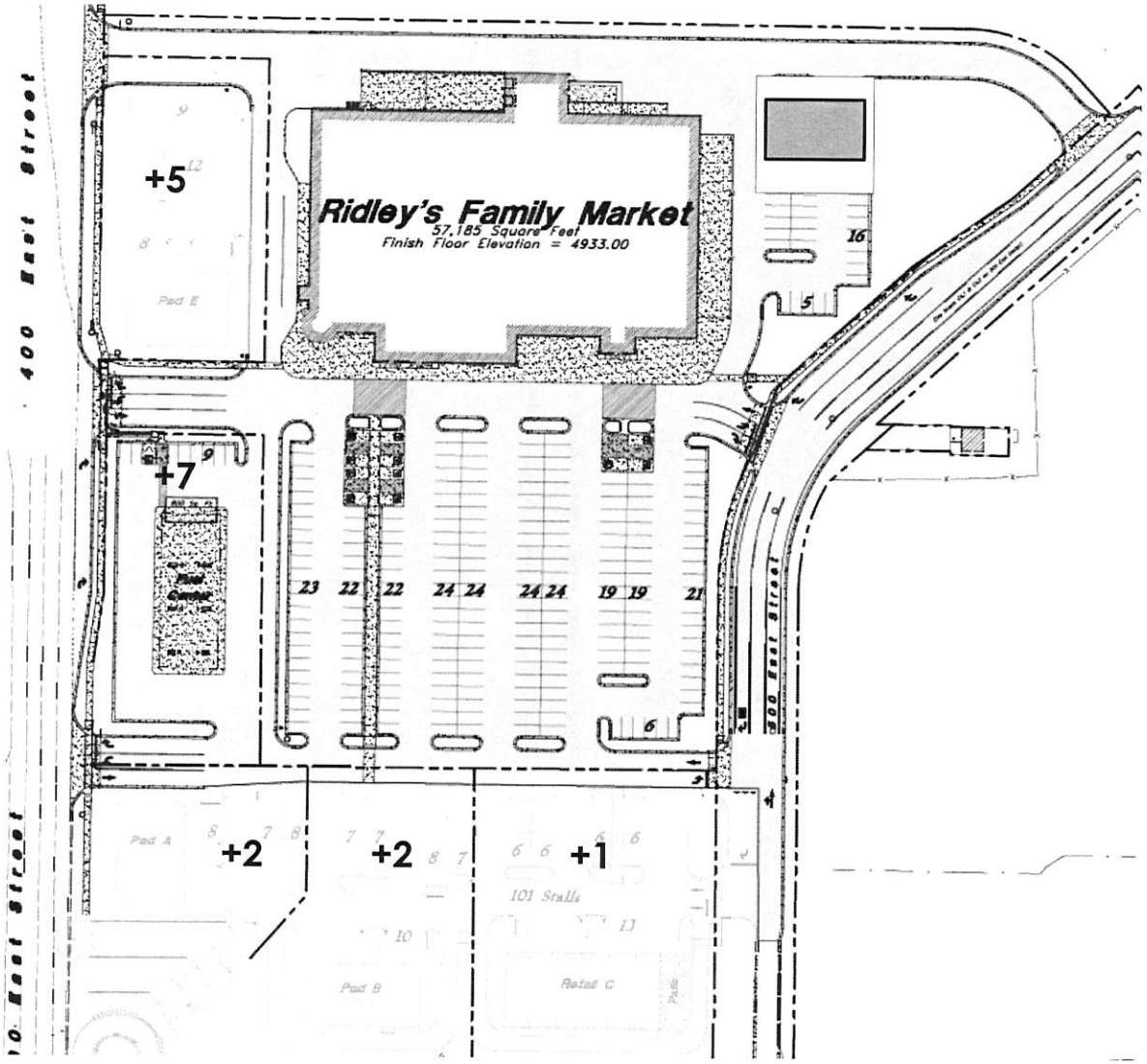
1. Replace 39 stalls with a 5,000 SF pad.
2. New pad would need 25 stalls per code.
3. New ratio for Grocery Store is 272 SF per stall.



IDEA

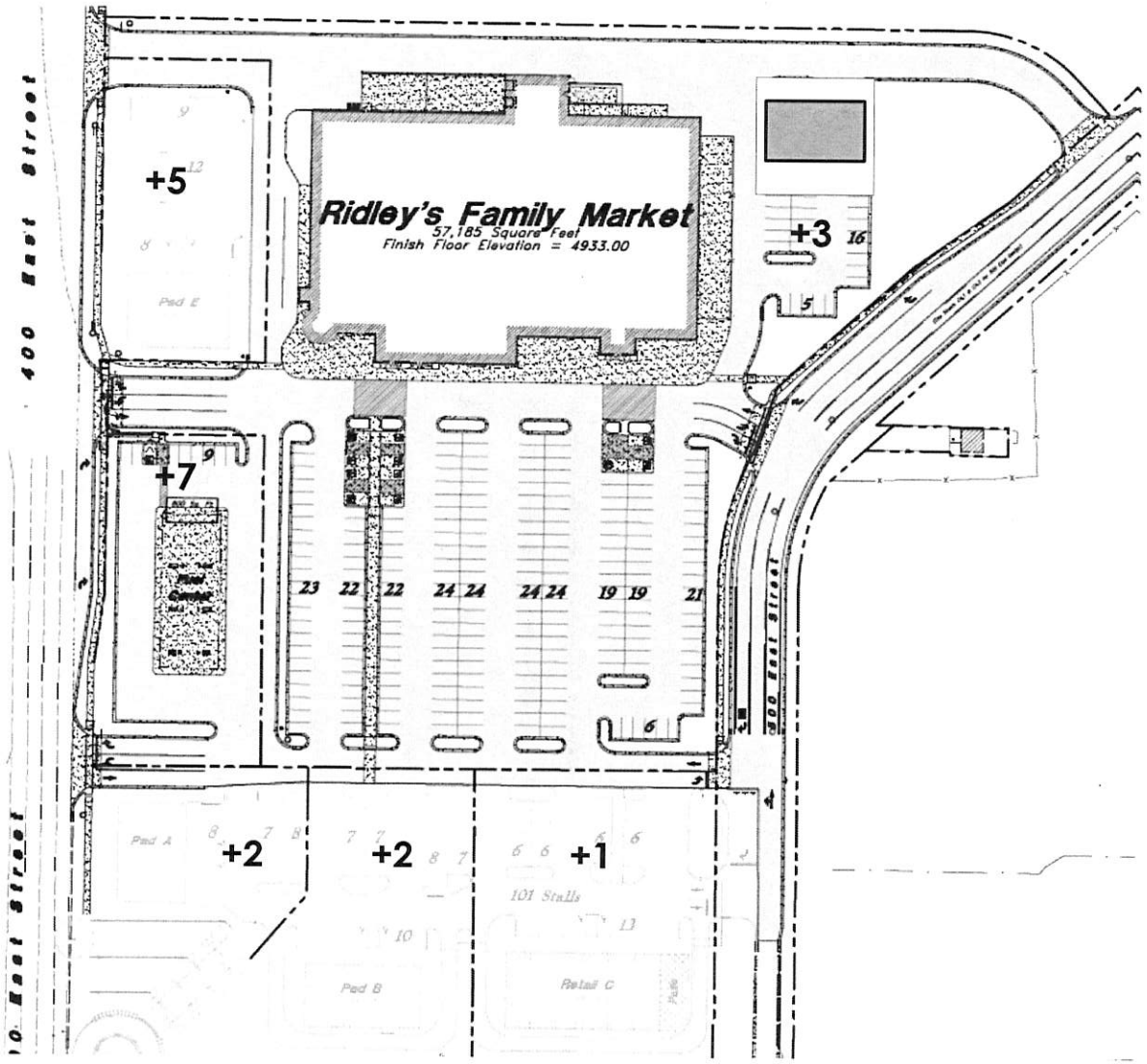
1. Replace 39 stalls with a 5,000 SF pad.
2. New pad would need 25 stalls per code.
3. New ratio for Grocery Store is 272 SF per stall.

OR



WHAT IF?

1. Replace 26 stalls with a 4,000 SF pad.
2. New pad would need 20 stalls per code.
3. New ratio for Grocery Store is 251 SF per stall.



WHAT IF?

1. Replace 26 stalls with a 4,000 SF pad.
2. New pad would need 20 stalls per code.
3. New ratio for Grocery Store is 251 SF per stall.

WHY WOULD WE DO THIS?

1. More efficiently use space in the development and avoid a significant amount of empty parking stalls on a regular basis.

2. Provide another business for the community to utilize and enjoy.

3. Replace empty parking stalls with sales tax, property tax and job creation revenue for the City.

QUESTION

1. How much parking is empty on a regular basis for similar businesses and would a 16% - 22% decrease in parking still provide adequate parking for the grocery store?

2. What is more important to Santaquin City? Excess parking to accommodate busy times or more economic development?

THOUGHTS?

MARSHALL'S COVE SUBDIVISION

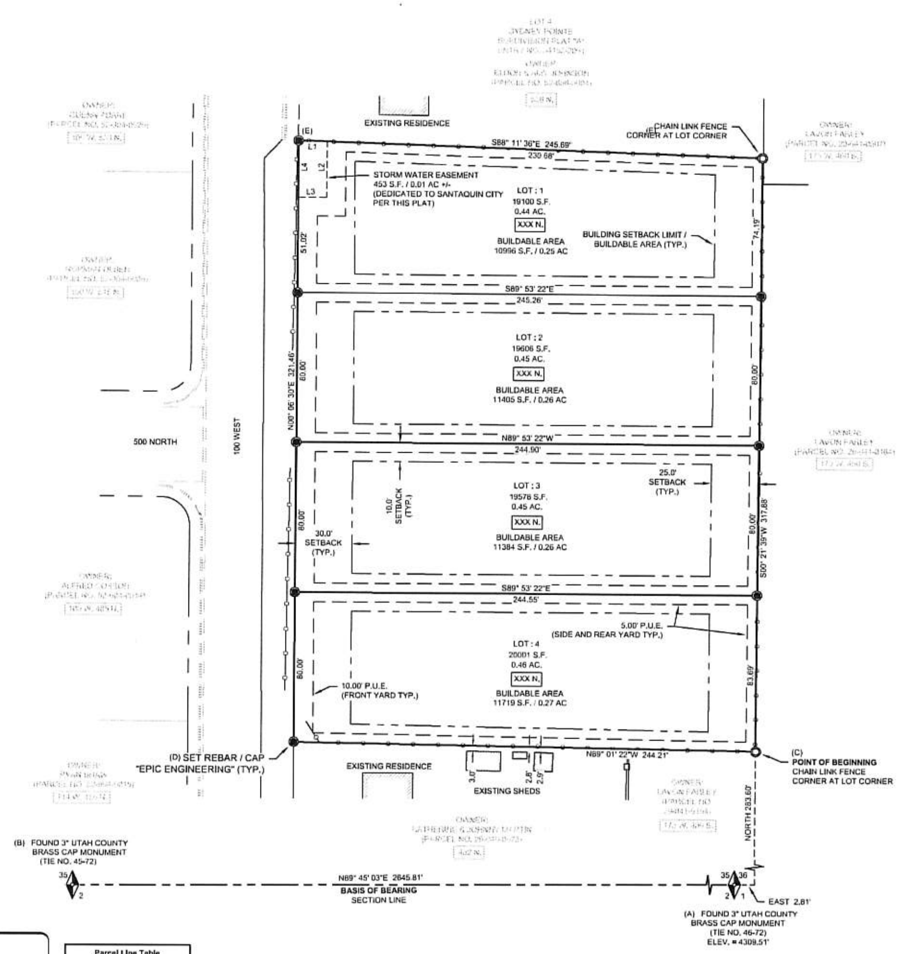
LOCATED IN THE:
SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 35 AND
THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 36
TOWNSHIP 9 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN,
SANTAQUIN, UTAH COUNTY, UTAH

preliminary

NORTH
0 1" = 30' 1"

LEGEND

- SECTION CORNER (FOUND)
- SECTION LINE
- BOUNDARY LINE
- PARCEL LINE
- SET MONUMENT (AS NOTED)
- FOUND MONUMENT
- WOOD FENCE
- CHAIN LINK FENCE
- EDGE OF ASPHALT
- CURB AND GUTTER
- PUBLIC UTILITY EASEMENT (P.U.E.)
- PROPERTY LINE P.L.
- BUILDING SETBACKS



RECORD LEGAL DESCRIPTION

COMMENCING NORTH 279.43 FEET AND WEST 1.39 FEET FROM THE SOUTHEAST CORNER OF SECTION 35, TOWNSHIP 9 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN; THENCE NORTH 88°15'00" WEST 62.96 FEET; THENCE NORTH 00°21'00" EAST 3.24 FEET; THENCE NORTH 88°48'01" WEST 163.92 FEET; THENCE SOUTH 00°39'39" WEST 1.66 FEET; THENCE NORTH 88°15'00" WEST 8.74 FEET; THENCE NORTH 01°45'00" EAST 331.52 FEET; THENCE SOUTH 87°00'00" EAST 227.7 FEET; THENCE SOUTH 306.90 FEET TO THE POINT OF BEGINNING.

BOUNDARY DESCRIPTION

A PARCEL OF LAND LOCATED IN THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 35 AND THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 36, TOWNSHIP 9 SOUTH, RANGE 1 EAST, SALT LAKE BASE AND MERIDIAN, SANTAQUIN, UTAH COUNTY, UTAH, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 35, THENCE EAST 2.81 FEET, THENCE NORTH 283.60 FEET TO AN EXISTING CHAIN LINK FENCE CORNER AND THE POINT OF BEGINNING; THENCE NORTH 89°01'22" WEST 244.21 FEET ALONG SAID CHAIN LINK FENCE TO A POINT ON THE EAST LINE OF 100 WEST STREET; THENCE NORTH 00°06'30" EAST 321.46 FEET ALONG SAID EAST LINE TO A POINT ON THE SOUTH LINE OF THE SYDNEY POINTE SUBDIVISION PLAT "A", ENTRY NUMBER 34153-2001, AS RECORDED IN THE UTAH COUNTY RECORDER'S OFFICE AND A POINT ON AN EXISTING CHAIN LINK FENCE; THENCE SOUTH 88°11'36" EAST 245.69 FEET ALONG AN EXISTING CHAIN LINK FENCE TO A FENCE CORNER; THENCE SOUTH 00°21'39" WEST 317.88 FEET ALONG AN EXISTING CHAIN LINK FENCE TO A FENCE CORNER AND THE POINT OF BEGINNING.

CONTAINS: 78,288 S.F. / 1.80 AC +/-

STATE PLANE COORDINATES (GROUND)

LETTER / ITEM	NORTHING	EASTING
(A) S1/4 COR SEC 35	7162492.814	1557538.250
(B) SE COR SEC 35	7162504.325	1560184.048
(C) BOUDNARY CORNER (P.O.B.)	7162787.927	1560186.855
(D) BOUNDARY CORNER	7162792.091	1559942.679
(E) BOUNDARY CORNER	7163113.551	1559943.267
(F) BOUNDARY CORNER	7163105.805	1560188.856

GROUND SCALE FACTOR: 1.00032797511374

UTILITY APPROVAL

UTILITIES SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN AND OPERATE THEIR EQUIPMENT ABOVE AND BELOW GROUND AND ALL OTHER RELATED FACILITIES WITHIN THE PUBLIC UTILITY EASEMENTS IDENTIFIED ON THIS PLAT MAP AS MAY BE NECESSARY OR DESIRABLE IN PROVIDING UTILITY SERVICES WITHIN AND WITHOUT THE LOTS IDENTIFIED HEREIN, INCLUDING THE RIGHT O ACCESS TO SUCH FACILITIES AND THE RIGHT TO REQUIRE REMOVAL OF ANY OBSTRUCTIONS INCLUDING STRUCTURES, TREES, AND VEGETATION THAT MAY BE PLACED WITHIN THE PUE. THE UTILITY MAY REQUIRE THE LOT OWNER TO REMOVE ALL STRUCTURES WITHIN THE PUE AT THE OWNER'S EXPENSE, OR THE UTILITY MAY REMOVE SUCH STRUCTURES AT THE OWNER'S EXPENSE. AT NO TIME MAY ANY PERMANENT STRICTURES BE PLACED WITHIN THE PUE OR ANY OTHER OBSTRUCTIONS WHICH INTERFERES WITH THE USE OF THE PUE WITHOUT THE PRIOR WRITTEN APPROVAL OF THE UTILITIES WITH FACILITIES IN THE PUE.

ROCKY MOUNTAIN POWER: ____________ DATE: ______

CETRACOM: ____________ DATE: ______

CENTURY LINK: ____________ DATE: ______

DOMINION ENERGY

DOMINION ENERGY APPROVES THIS PLAT SOLEY FOR THE PURPOSE OF CONFIRMING THAT THE PLAT CONTAINS PUBLIC UTILITY EASEMENTS. DOMINION ENERGY MAY REQUIRE OTHER EASEMENTS IN ORDER TO SERVE THIS DEVELOPMENT. THIS APPROVAL DOES NOT CONSTITUTE ACCEPTANCE, APPROVAL OR ACKNOWLEDGEMENT OF ANY TERMS CONTAINED IN THE PLAT, INCLUDING THOSE SET FORTH IN THE OWNERS DEDICATION AND THE NOTES AND DOES NOT CONSTITUTE A GUARANTEE OF PARTICULAR TERMS OF NATURAL GAS SERVICE. FOR FURTHER INFORMATION PLEASE CONTACT DOMINION ENERGY RIGHT OF WAY DEPARTMENT AT 1-800-366-8532.

APPROVED THIS ______ DAY OF ____________, 2019
DOMINION ENERGY

BY: ____________

TITLE: ____________

Parcel Line Table

Line #	Length	Direction
L1	15.01	S88°11'36"E
L2	30.00	S00°06'30"W
L3	15.00	N89°53'30"W
L4	30.44	N00°06'30"E

PROPERTY OWNER / DEVELOPER INFORMATION

CHAD FERN
159 NORTH 300 WEST
SANTAQUIN, UT. 84655

ACCEPTANCE BY THE CITY OF SANTAQUIN

THE CITY OF SANTAQUIN APPROVES THIS PLAT HEREON.
APPROVED THIS _____ DAY OF ____________, 2019

PLANNING COMMISSION CHAIR

SANTAQUIN CITY ENGINEER

ATTEST: SANTAQUIN CITY RECORDER

APPROVAL AS TO FORM

APPROVED AS TO FORM THIS ______ DAY OF ____________, 2019, A.D.

SANTAQUIN CITY ATTORNEY

CONDITIONS OF APPROVAL

CITY ENGINEER SEAL

CLERK - RECORDER SEAL

OWNER'S DEDICATION AND CONSENT TO RECORD

KNOWN ALL MEN BY THESE PRESENTS THAT WE THE UNDERSIGNED OWNERS OF THE TRACT OF LAND SHOWN AND DESCRIBED ON THIS SUBDIVISION PLAT, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, STREETS AND EASEMENTS TO BE HEREAFTER KNOWN AS MARSHALL'S COVE SUBDIVISION, DO HEREBY DEDICATE FOR THE PERPETUAL USE OF THE PUBLIC ALL PARCELS OF LAND SHOWN ON THIS PLAT AS INTENDED FOR PUBLIC USE.

AS WITNESS THEREOF, I HAVE HEREUNTO SET MY HAND THIS ______ DAY OF ____________, 20___, A.D.

BY: ____________ CHAD FERN ____________ DATE

ACKNOWLEDGMENT

THE FORGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF ____________, 20 ___, BY ____________ AND ____________ WHO REPRESENTED THAT THEY ARE THE OWNER OF THE ABOVE DESCRIBED PROPERTY AND HAVE THE AUTHORITY TO EXECUTE THIS INSTRUMENT.

SIGNATURE OF NOTARY PUBLIC

PRINTED NAME OF NOTARY PUBLIC

RESIDING IN ____________, UTAH

COUNTY OF ________)
STATE OF UTAH

MY COMMISSION EXPIRES: ____________

MY COMMISSION NUMBER: ____________

NOTES

1. ACCESS FOR ALL FOUR LOTS WILL BE FROM 100 WEST STREET.
2. A PUBLIC UTILITY EASEMENT (P.U.E) IS CREATED ALONG THE PERIMETER OF EACH LOT, PER THIS PLAT.
3. THE SUBDIVISION BOUNDARY WAS ESTABLISHED FROM A COMPLETED RECORD OF SURVEY, FILE NUMBER 18-0245, AS FILED IN THE UTAH COUNTY SURVEYOR'S OFFICE .
4. ZONING: R-10 BUILDING SETBACKS (BUILDABLE AREA): FRONT YARD - 30.0 FEET, SIDE YARD - 10.0 FEET, REAR YARD - 25.0 FEET
5. THIS PROPERTY IS LOCATED IN THE VICINITY OF AN ESTABLISHED AGRICULTURE PROTECTION AREA IN WHICH NORMAL AGRICULTURE USES AND ACTIVITIES HAVE BEEN AFFORDED THE HIGHEST PRIORITY USE STATUS. IT CAN BE ANTICIPATED THAT SUCH AGRICULTURAL USES AND ACTIVITIES MAY NOW OR IN THE FUTURE BE CONDUCTED ON PROPERTY INCLUDED IN THE AGRICULTURE PRODUCTION AREA. THE USE AND ENJOYMENT OF THIS PROPERTY IS EXPRESSLY CONDITIONED ON ACCEPTANCE OF ANY ANNOYANCE OR INCONVENIENCE WHICH MAY RESULT FROM SUCH NORMAL AGRICULTURAL USES AND ACTIVITIES.

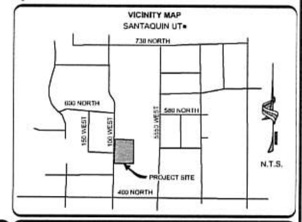
SURVEYOR'S CERTIFICATE

I, TRAVIS R. GOWER, DO HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR, AND THAT I HOLD LICENSE NUMBER 6439364, AS PRESCRIBED BY THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT BY THE AUTHORITY OF THE OWNERS, I HAVE MADE A SURVEY OF THE TRACT OF LAND SHOWN ON THIS PLAT AND DESCRIBED HEREON, AND HAVE SUBDIVIDED SAID TRACT OF LAND INTO LOTS AND STREETS, TOGETHER WITH EASEMENTS, HEREAFTER TO BE KNOWN AS THE MARSHALL'S COVE SUBDIVISION AND THAT THE SAME HAS BEEN CORRECTLY SURVEYED AND MONUMENTED ON THE GROUND AS SHOWN ON THIS PLAT.

LICENSED PROFESSIONAL LAND SURVEYOR No. 6439364 TRAVIS R. GOWER STATE OF UTAH

TRAVIS R. GOWER
P.L.S. 6439364 ____________ DATE

VICINITY MAP
SANTAQUIN UT



MARSHALL'S COVE SUBDIVISION

SE1/4E1/4 OF SEC 35 AND THE SW1/4SW1/4 OF SEC 3, T.9S., R.1E., SLB&M., SANTAQUIN, UTAH COUNTY, UTAH

epic ENGINEERING

0 1" = 30' 1"	PROJECT #: 18SM3176.04	
DRAWN: JD	DATE: 06/20/2019	
CHECKED: TG	SHEET NO: 1 OF 1	

Definitions to be included in Title 10 Chapter 2 of the Santaquin City Code:

MINING: The process of extracting peat, gravel, rock, sand, clay and other soils by way of excavation, quarrying, blasting, and crushing operations. Such soils or aggregate materials may be removed from the site and sold by the owner or its assigned agent. Mining shall only take place in an area approved to be zoned as "M-1 Mining Zone".

BLASTING: The controlled use of explosives underground by a qualified person to fracture, break and loosen rock for excavation and quarrying.

HOT/BATCH PLANT: Machinery or equipment used to create hot asphalt. The plant usually consists of a cold aggregate elevator with means for feeding, rotary dryer, either oil or gas fired, hot aggregate elevator, screening and classifying system, weight hoppers, and mixer.

ARTICLE R. M-1 MINING ZONE

10-7-6R-1: OBJECTIVES AND CHARACTERISTICS
10-7-6R-2: PURPOSE OF PROVISIONS
10-7-6R-3: PERMITTED USES
10-7-6R-4: LAND USE AUTHORITY AND APPEAL AUTHORITY
10-7-6R-5: INTERPRETATION, EXISTING OPERATION, AND RESTRICTIONS
10-7-6R-6: APPLICATION PROCESS
10-7-6R-7: FEES
10-7-6R-8: BONDING
10-7-6R-9: MARKETING OF MATERIALS
10-7-6R-10: AREA REQUIREMENTS
10-7-6R-11: SETBACKS
10-7-6R-12: FENCING AND SCREENING
10-7-6R-13: ROAD ACCESS
10-7-6R-14: ROAD MAINTENANCE
10-7-6R-15: TRANSPORTATION VEHICLE STANDARDS
10-7-6R-16: PARKING
10-7-6R-17: DUST STANDARDS
10-7-6R-18: NOISE STANDARDS
10-7-6R-19: ODOR STANDARDS
10-7-6R-20: TIMES OF OPERATION
10-7-6R-21: BLASTING

10-7-6R-22: LIGHTING
10-7-6R-23: DRAINAGE
10-7-6R-24: EXCAVATION AND BACKFILLING
10-7-6R-25: VIOLATIONS, PENALTIES, SUSPENSION, AND REVOCATION OF PERMIT

10-7-6R-1: OBJECTIVES AND CHARACTERISTICS:

The M-1 mining zone has been established for the primary purpose of providing a location and conditions where mining can be carried out most appropriately and with minimum conflict or deleterious effects upon surrounding properties.

Other objectives in establishing the zone are to promote the economic well-being of the City and its residents. This zone is characterized as mining operations with the potential of intermittent open land served by streets, power, water and other utilities and facilities or where such facilities can be readily provided for purposes related to the mining operation.

10-7-6R-2: PURPOSE OF PROVISIONS:

This section is adopted for the purposes of establishing regulations for the safe, effective and viable removal of sand, gravel, rock, soil, and other materials through mining, excavation and mass grading within this zone, by:

A. Establishing regulations, safeguards, and controls in the incorporated areas of Santaquin City regarding noise, dust, traffic, drainage, and other factors which will minimize the environmental and aesthetic impacts on the mined, excavated, mass graded, or adjacent property.

B. Reducing the potential for pollution caused by wind, soil erosion, and sedimentation.

C. Establishing locations, an orderly approval process, and operating conditions under which such operations will be allowed in incorporated areas of Santaquin City and to establish conditions which ensure the mining or grading of land areas consistent with the existing and planned land use patterns.

D. Ensuring that mining is only permitted when Santaquin City and the Division of Oil Gas and Mining (DOGM) has approved a site to be mined and has deemed it prudent to mine and/or extract the materials.

E. Ensuring that proper reclamation if mined land is accomplished.

10-7-6R-3: PERMITTED USES:

Land uses in the M-1 mining zone are permitted as follows. Alphabetical use designations in the table below have the following meanings:

P	The listed use is a permitted use within the represented area, based on city development standards and ordinances.
C	The listed use requires a conditional use permit within the represented area in addition to complying with all applicable development standards and ordinances.
N	The listed use is a prohibited use within the represented area.

USE	M-1
Accessory buildings and parking lots	P
Commercial, heavy	P
Dwelling, caretaker	C
Mining, quarrying, rock, gravel, sand, earth extraction and mass grading	P
Crushing Operations, Stockpiling, Conveying	P
Hot Plants, Batch Plants, Processing Plants	N
Water Storage, Fuel and Oil Storage Tanks	C
Manufacturing, compounding, processing, packing, fabrication, and warehousing of goods and materials, excluding the processing of animal byproducts, livestock feed yards, oil refineries, wallboard manufacturing, and similar establishments which emit offensive fumes, smoke, noise, odor, etc.	C
Blasting	P
Heavy Equipment Operation and Storage	P
Metal Ore Mining / Metal Ore Smelting	N

10-7-6R-4: LAND USE AUTHORITY AND APPEAL AUTHORITY:

A. Development Review Committee (DRC) shall be the land use authority. Only upon finding the applicant has complied with the terms and requirements of this title may approval be given. As part of approval of an application, the DRC may impose as requirements of the approval any reasonable restrictions or requirements related to the location, design, or operation of the proposed use as deemed necessary to ensure the public health, safety, and general welfare, to ensure that the operations will not create a nuisance, or unreasonably interfere with the enjoyment of property. Such requirements may be in addition to the express requirements of this title.

B. A party aggrieved or affected by a decision may appeal the DRC's decision to the City Council by filing a written appeal within ten (10) days after the DRC's decision. A party aggrieved or affected by said decision of the City Council may appeal the decision to the appeal authority, subject to the provisions of the Utah State Code, section 10-9-704.

10-7-6R-5: INTERPRETATION, EXISTING OPERATION, AND RESTRICTIONS:

It is not the intent of this section 10-7-6R to annul, or in any way, repeal any existing law or

ordinance unless expressly so stated in this title. Further, it is not the intention of this section 10-7-6R to interfere with operations already existing except that this section 10-7-6R sets forth minimum standards which shall apply to such operations. To the extent that any restrictions or standards imposed by this section 10-7-6R are more stringent and restrictive than existing restrictions or standards, this title shall control.

10-7-6R-6: APPLICATION PROCESS:

A. Application Required: No person shall operate an excavation, or mining site in the city except in accordance with an approved application issued under this title.

B. Application Procedure: The following application procedure shall govern any mining, excavation or mass grading which is proposed as of or after the effective date hereof.

1. All applicants shall use forms provided by Santaquin City, accompanied by the documents enumerated on that form. Approvals shall be issued to applicants for the duration of an approved project provided that the work is progressing as per the approved plan in the submitted documents and in accordance will all requirements.

C. Application Contents: All applications must contain, but not be limited to, the following:

1. Name, address, and phone number of the owner, or owners, of land on which the proposed use will take place.

2. Name, address, and phone number of the applicant making a request for the permit.

3. Name, address, and phone number of the person, firm, or corporation who will be conducting the proposed use.

4. Location, size, and legal description of the area from which the proposed use is to be made.

5. Type of materials or resources to be mined, excavated, processed, stockpiled, or hauled away.

6. Proposed method of removal and general haul route.

7. General types of equipment to be used.

8. The estimated time frame to complete operations and the number of phases where appropriate.

9. As a part of the application, the applicant shall submit a plan of operation and will be expected to comply with such a plan. Said plan of operation shall include a topographic survey of the existing parcel drawn to a scale of one inch to one hundred feet (1":100') and prepared by a registered civil engineer or land surveyor with contour intervals not to exceed five feet (5') based on United States geological survey datum. The drawing shall also clearly show the area to be mined, excavated or mass graded, including existing features

and roads within five hundred feet (500') of all property lines, areas for stockpiling, maintenance areas, berms, fencing, screening and similar use areas.

10. As a part of the application, the applicant shall submit a site plan and will be expected to comply with such a plan. Site plans for such projects shall provide a complete set of plans, which include:

    a. All necessary detail drawings;

    b. All temporary and permanent improvements;

    c. Details of all buildings and other structures to be placed on the location;

    d. Surveyed boundary lines;

    e. Engineered studies, reviews, and designs, as warranted;

    f. Details of all access routes, egress routes, and on site travel routes;

    g. Plans to address surface water and storm water issues; and

    h. All adjacent properties with the name and address of each property owner within three hundred feet (300') of the proposed site;

11. As a part of the application, the applicant shall submit nuisance mitigation plans and will be expected to comply with such plans during the time for which a permit is issued. These plans should provide written and drawn details of the applicant's control of:

    a. Dust;

    b. Noise;

    c. Odors;

    d. Any other possible nuisances that could originate from the site, any other possible nuisance recognized by the city, and/or any pertinent nuisance contained within the city's nuisance ordinance.

12. As a part of the application, the applicant shall submit a site reclamation plan and will be expected to comply with such a plan. This plan shall include a complete set of written and drawn plans outlining the applicant's requirement for reclamation of the land after the expiration of the conditional use permit and the applicant removes any extraction facility from the land. This plan shall address:

    a. Issues concerning topsoil and subsoils;

b. Grading and contouring;

c. Compaction;

d. Surface water diversions;

e. Water impoundments;

f. Revegetation;

g. Roads;

h. Structures;

i. Any and all waste materials; and

j. Any other site pertinent issues.

13. The applicant shall also prepare a finished grading plan that complies with the requirements of Santaquin City Code.

14. The applicant shall also prepare a haul route plan. The City Engineer may recommend that additional bonding be provided to mitigate any potential damage to roads or property along the proposed haul route based upon the review of the proposed plan.

15. The applicant shall submit a copy of their application submitted to, and approved by, the Utah Division of Oil, Gas and Mining for the proposed site.

16. The applicant shall provide verification from the following agencies to Santaquin City that they comply with all requirements:

    a. Utah Division of Oil, Gas and Mining (DOGM),
    b. Mining Safety and Hazard Awareness (MSHA),
    c. Utah Department of Environmental Quality (UDEQ),
    d. Utah Department of Transportation (UDOT),
    e. And any other applicable county, state, and federal regulatory agency.

10-7-6R-7: FEES:

All applications shall be accompanied by an application and processing fee to be paid by the applicant in an amount established by resolution of the City Council.

10-7-6R-8: BONDING:

All such operations shall be required to put forth a bond for the reclamation of the project to ensure the adequate restoration of the site as previously proposed for further use or development.

Such bonding shall follow the City's guidelines and procedures and be subject to approval by the City Engineer and City Council. The City Council reserves the right to determine the terms of bond value and pertinent time frame for completion of the reclamation project.

The amount of the bond required under this section may be reduced by the amount of any other reclamation bonds covering the project required by any other regulatory agency.

10-7-6R-9: MARKETING OF MATERIALS:

The owner and/or operator may market and sell the materials. In order to conduct sales, the owner and/or operator must maintain an onsite office, or other suitable facility, and hold and clearly display within said office, a current Santaquin City business license. The point of sale, as defined by the Utah State Tax Commission, shall be Santaquin City.

10-7-6R-10: AREA REQUIREMENTS:

The minimum size of a parcel of land for any M-1 zoning designation shall be fifty (50) acres.

10-7-6R-11: SETBACKS:

All on site structures of a permanent or temporary nature shall be set back from property lines as follows:

A. Setbacks: No structure, dwelling, weigh station, crushing equipment, or other related mining facility or operation shall be located within three hundred feet (300') of all property lines.

10-7-6R-12: FENCING AND SCREENING:

A. Mined, excavated and graded areas shall be fenced according to current mine safety and health administration regulations.

B. All active mining, excavation or mass grading equipment shall be visually screened where reasonable. The following methods are acceptable for screening of mining, excavation or mass grading areas:

1. Construction of a raised earth berm area on the site along boundary lines thereof where such lines abut a public highway or privately owned property which is improved and occupied for residential purposes. This provision with regard to lands improved and occupied for residential purposes shall be applicable to any land upon which dwellings are built and occupied subsequent to the date hereof. The berm shall be sufficient in length and height to screen the excavation, crushing or grading area. Where the topography of the area acts as a screen, the DRC may waive the berm requirement. Berms shall have slopes not in excess of one foot (1') vertical to two feet (2') horizontal.

2. Trees along the boundaries of the property with sufficient rows and depth to permit effective screening of the mining, excavation or mass grading area.

3. To the extent that the foregoing is not practical, the proposed permittee may submit alternate proposals.

10-7-6R-13: ROAD ACCESS:

All sites permitted under the provisions of this section 10-7-6R shall have direct access to a city, county, or state road. When the operation of the permitted area results in the excavated material, overburden, and/or similar material being deposited or spilled upon a public roadway, it shall be the responsibility of the permitted operator to remove such material immediately.

10-7-6R-14: ROAD MAINTENANCE:

Access roads within the permitted site shall be maintained by the operator so as to minimize the dust arising from the use of said roads. Such maintenance shall be accomplished through the application of chloride, water, and/or similar dust retardant materials. Application of oil shall be prohibited. A paved road of no less than forty feet (40') in width from the entrance and exit, a distance of not less than three hundred feet (300') from the right of way line into the area of operation shall be provided by the owner in order to minimize the deposit of dirt and gravel from trucks onto the public highway. Entrances and exits shall be gated and securely locked except during hours of operation.

10-7-6R-15: TRANSPORTATION VEHICLE STANDARDS:

All vehicles used to transport excavated material shall be required to be loaded in such a manner that the material may not be unintentionally discharged from the vehicle. Vehicles shall be cleaned of all material not in the load bed prior to entering any public street.

10-7-6R-16: PARKING:

All parking shall be provided on site. No parking shall be permitted within any required setback or landscaped area. Each facility shall provide one parking space for each on-site employee with an additional amount of parking for drivers and visitors as approved by the Planning Commission.

10-7-6R-17: DUST STANDARDS:

Dust generated in the extraction and processing of the earth products shall be kept under control by the operator by keeping the extraction area, main roads in the pit, and loaded trucks, watered down. Any un-paved access road to the pit from the paved road system shall be maintained by the pit operator for dust control by watering down the access road surface or placing dust inhibiting material on the surface of the access road.

10-7-6R-18: NOISE STANDARDS:

A project approved under this section 10-7-6R shall be operated such that the noise of operation or equipment vibration cannot reasonably be considered disturbing to the inhabitants of neighboring properties. Objectionable noises due to intermittence, beat, frequency, or shrillness shall be muffled so as not to become a nuisance to adjacent properties. Equipment on permitted sites shall not be operated at any time or under any condition so as to result in noise exceeding the following levels for specified adjacent land uses when measured at the common property line nearest the active work area:

ADJACENT USE MAXIMUM SOUND LEVELS

Residential	75 dBA
Commercial	85 dBA
Industrial and other	90 dBA

The city shall, at its discretion, monitor noise levels using weighted decibel measurements (referenced to 20 micropascals) with a type of audio output meter approved by the united bureau of standards.

10-7-6R-19: ODOR STANDARDS:

A project approved under this section 10-7-6R shall be operated in such a way to reduce odors as much as possible. Masking agents, scrubbing, and other industry standards must be considered to reduce the impact on neighboring residential and agricultural uses.

10-7-6R-20: TIMES OF OPERATION:

No project approved under this section 10-7-6R shall operate between the hours of six o'clock (6:00) A.M and ten o'clock (10:00) P.M. No project approved under this section 10-7-6R shall operate on Sundays and city observed holidays. In emergency situations this time period may be modified by the mayor provided such emergency order shall not be effective for more than seventy-two (72) hours.

10-7-6R-21: BLASTING:

Blasting shall be permitted as a part of any mining, earth extraction, or similar operation conducted within the city. Blasting will be conducted only between the hours of ten o'clock (10:00) A.M. and four o'clock (4:00) P.M. No blasting shall occur on Saturday, Sunday, or city observed holidays. All blasting shall comply with the Mine Safety and Hazard Awareness (MSHA) regulations.

10-7-6R-22: LIGHTING:

All lighting used to illuminate the proposed use(s) shall be directed downward and away from all surrounding property.

10-7-6R-23: DRAINAGE:

Property drainage shall be provided at all times to prevent the collection and stagnation of water. Surface water shall not be discharged onto adjoining property. Any water areas, retention ponds, settling ponds, or similar water areas shall be fenced in accordance with section 10-7-6R-12 of this chapter.

10-7-6R-24: EXCAVATION AND BACKFILLING:

All mining, excavation and mass grading areas shall be made to the finished elevation as included on the approved finished grading plans. Backfill, if necessary, shall consist of inert, noxious free, nonflammable, nonradioactive, nonhazardous, and noncombustible materials, to assure:

A. That the excavation shall not collect and permit to remain therein, stagnant water;

B. That the surface of any area which is not permanently submerged is graded or backfilled as necessary so as to reduce the peaks and depressions thereof; and

C. To produce a surface that will minimize erosion due to rainfall and which will be in substantial conformity to the adjoining land area.

10-7-6R-25: VIOLATIONS, PENALTIES, SUSPENSION, AND REVOCATION OF PERMIT:

If the zoning administrator, or other authorized City officer, notifies the permittee of any violation of the permit, or of this title, and upon failure of the permittee to abate said violation within thirty (30) days after mailing of said notice, said mining or excavation site may be summarily closed, and the permit and/or business license therefore, suspended or revoked. Any permittee aggrieved by any notice pursuant to this section 10-7-6R may file a written request for a hearing before the City Council. The permittee shall set forth why operations on the site should not be summarily closed and/or the permit suspended or revoked. If a request for a hearing is received by the City Council, the City Council shall provide to the permittee notice of the time and place of the hearing, an opportunity to be heard, and shall make an impartial determination of whether a violation of this title or this section 10-7-6R has occurred and whether the health, safety, and welfare of persons or property dictates the necessity of a suspension or revocation of said permit. Upon receipt of a request for a hearing, the City Council may summarily close the site, if not yet closed by the zoning administrator, or other authorized City officer, pending the hearing if it is determined that the health, safety, and welfare of persons or property require such action.