Downtown Steamboat Springs Parking Analysis

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Final Report
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EXECUTIVE SUMMARY

The primary purpose of the parking analysis is to evaluate the current downtown parking system and make recommendations, based on current best practices and technologies, to better allocate, manage and operate parking in downtown Steamboat Springs. Parking is currently free throughout the City of Steamboat Springs and city officials and City Council are interested in receiving an analysis of parking options that would primarily ensure the most convenient and desirable on-street spaces are available to downtown customers and visitors.

Existing Parking Conditions

There are currently an estimated 2,770 parking spaces within the downtown study area, of which 1,232 spaces are located on street and 1,538 spaces are located off street. The on-street spaces consist of a combination of 2-, 3- and 8-hour spaces. Only 17% of the off-street supply is considered to be public parking. The remaining off-street parking spaces are private and technically not available for public use.

Parking utilization and turnover surveys were conducted on Friday, July 11 and Saturday, July 12, 2014. After consideration with city officials and the Chamber Resort Association, these were good days to conduct parking utilization and turnover surveys given the events planned for the weekend, including the Hot Air Balloon Rodeo, Art in the Park, and the Steamboat Farmers Market. The parking included in the survey was 67% utilized at the overall peak hour of 1:00 PM on Friday suggesting no need for more parking based on the survey results. On the other hand, the public parking system on Saturday morning was “effectively” full (filled to 85% of capacity or more) between 11:00 AM and 1:00 PM demonstrating a need for approximately 80 more centrally-located parking spaces that day.

License plate numbers were recorded each hour between 10:00 AM and 6:00 PM on the vehicles parked in 286 2-hour spaces on Friday, July 11, 2014. The purpose of this survey was to determine the average turnover and length of stay in the most convenient and desirable spaces in the central area of downtown Steamboat Springs. The results of the survey were more favorable than expected as approximately 88% of the parkers were present for two hours or less and approximately 98% of the parkers were thought to be downtown customers and visitors. That being said, approximately 120 more customers and visitors could have been accommodated in the two-hour spaces if 10% of the surveyed spaces had not been occupied by long-term users. It is estimated that approximately 315 more daily customers and visitors could be accommodated in the most convenient parking spaces if they are not occupied by long-term users.

The city’s involvement in parking management is currently limited to maintenance of publicly-owned parking lots, street maintenance, and snow removal by the Public Works Department and parking enforcement of time-limited spaces by the Police Department. Implementing paid parking and/or increasing enforcement efforts will require additional personnel and possibly the hiring of a parking manager in newly created and a vertically integrated parking division within the Public Works

Department. Vertical integration means that all parking-related functions would be consolidated under one management structure.

Parking Technology Options

On-street paid parking should be considered in downtown Steamboat Springs with the installation of parking meters. The primary reason to institute on-street paid parking is to encourage turnover of the most convenient parking spaces. Turnover is critical to businesses because the parking supply is often limited. If long-term parkers, such as employees or residents, use a parking space in front of a store or restaurant, fewer short-term customers have the opportunity to use that space. It is suggested to consider both single-space "smart" meters and multi-space meters.

The latest single-space meters are solar powered, have rechargeable battery packs, and are wirelessly networked to a remote web-based management system. The system allows remote diagnostics and configuration of the meters. The meters accept coins, tokens, credit cards, debit cards and smart cards. It is also possible to pay by cell phone. Multi-space meters are similar to standard parking meters but provide single-point control for a larger number of spaces (one meter per block face). They can be configured to be Pay-by-Space, Pay-and-Display, or Pay-by-License Plate Number. It is also possible to pay by cell phone.

Technology the city should consider in addition to paid parking is increased enforcement with the use of License Plate Recognition (LPR). With this type of system cameras are mounted to a vehicle that automatically reads license plates as the vehicle travels around. The license plate is then compared to an onboard database of license plates to determine if it is in violation. The system is particularly effective in detecting overtime parking and shuffling.

Viable options to consider for the city's parking lots include the selling of permits, individual space meters, in-vehicle meters, and multi-space meters. Off-street parking rates should be considerably less than on-street rates to encourage their use. The ungated options mentioned above will all require enforcement if implemented. Gated options, including Automatic Vehicle Identification (AVI), proximity cards, Pay-in-Lane (PIL) and Pay-on-Foot (POF), do not presently make sense for the city's lots.

Case Studies

Parking operations and technologies were also researched in five peer towns and cities including Aspen, Telluride, Park City, UT; Breckenridge and Durango. Four of the five peer towns and cities currently have on street parking meters in their downtown areas and the fifth is considering adding parking meters to help fund a future parking structure. Aspen and Breckenridge currently utilize LPR enforcement on time limited and residential permit spaces.

Aspen has paid off-street parking in a garage and Breckenridge has paid off-street parking in close-in lots for customers and visitors during the ski season. All of them sell monthly or annual permits for employee parking in close-in lots or in surrounding residential neighborhoods. Telluride, Park City and Breckenridge have free remote parking and free bus service.

Parking Opinion Survey

A parking opinion survey conducted as part of the study found that respondents thought parking is generally available downtown on weekdays and generally unavailable on weekends and in the evening. The top parking issues include free parking, the availability of parking, location of parking and walking distance, and time limits. Fifty-four percent of the respondents said the lack of conveniently located parking does not deter them from coming downtown and only 33% thought the most convenient on-street spaces should be metered. Many of the 400+ who responded to the survey thought the city should build a parking structure downtown.

Recommendations

It is recommended that the City of Steamboat Springs consider the installation of parking meters in the central downtown area, which consists of 580 parking spaces and 44 block faces. Parking meters will generate far more revenue than parking fines, improve turnover, and enhance parking enforcement. With 580 metered spaces there will still be 914 public on- and off-street parking spaces that could be free of charge. Despite significant community opposition to meters presently, DESMAN believes they will ultimately be accepted and successful, as is the case in Aspen today. Despite the initial protests, metered on-street parking was quickly accepted and has worked well in Aspen since 1995.

It is recommended to further explore both single-space and multi-space meters, although it is thought that single-space meters would be more user-friendly, convenient and better understood and accepted by users than multi-space meters. It is suggested to request demonstrations of both single-space and multi-space meters and to set up pilot programs to test the meters prior to requesting bids. The trial and testing of the meters is usually free (except for expenses). If the meters are temporarily installed for testing it will be vitally important to communicate that the city is testing the meters and to survey users of the meters.

The recommended supplier of the single-space meters is ISP Group, Inc. and the recommended supplier of the multi-space meters is Digital Payment Technologies. IPS was the first to introduce the “smart” single-space meters and they have the overwhelming majority of installations in the United States (reported 98% market share). The local representative for Digital Payment Technologies is located in Denver and they are a highly reputable and responsive company with respect to customer service. The Digital Luke II multi-space meter is probably the most popular meter in the Denver area and is easily recognizable as a pay station.

The estimated cost of the IPS meters is $815 per meter, or $472,700 for 580 meters. The cost of the Digital multi-space meter (Luke II model) is $11,500 to $13,500 per meter for 44 meters, which represents a cost of $506,000 to $594,000. Meter revenue and expense projections are provided in the study and the return on the investment in meters is estimated to be less than two years for both, excluding interest payments if the meters are financed and the salary and benefits for a Parking Manager, if hired. The life span of the meters before replacement is at least ten years.

It is also recommended that the city further explore increased enforcement with LPR to more efficiently and effectively enforce the remaining time limited spaces downtown and also enforce a possible residential permit zone north of Oak Street. Parking enforcement revenue would increase significantly and one full-time enforcement officer could cover the fringe areas of downtown several times a day. Overtime parking in the time-limited zones would be virtually eliminated and it would be possible to track employees and others moving their vehicles to avoid receiving a citation. A vehicle would have to be purchased or provided for the LPR cameras. If LPR enforcement is implemented prior to installing parking meters, the decision on meters should be deferred a few years to provide adequate time to analyze the effectiveness of LPR enforcement. One full-time enforcement officer could cover the entire downtown area. If the enforcement area expands outside of the downtown, the hiring of additional enforcement officers would be recommended.

It is recommended to consider systems by Genetec (AutoVu) and Tannery Creek Systems (autoChalk). The cost of the mobile system (hardware and software) is in the range of $40,000 to $65,000, exclusive of the enforcement vehicle. The return on investment with this type of system, because of its efficiency and ability to detect overtime parking violations, is usually about one year.

It is recommended to maintain free parking in the public parking lots to encourage their use. Consideration should be given to converting the time limit in the parking lot located at 8th Street and Oak Street from 2 hours to 8 hours to accommodate the downtown employees displaced from short-term spaces because of the installation of meters and/or increased enforcement with LPR.

Parking Improvements

There are presently a combination of 9’-0” and 10’-0” wide parking spaces throughout the downtown area. Consideration should be given to reducing the width of the existing 10’-0” wide spaces downtown, both on street and off street, to 9’-0” to add more spaces. Where there are at least nine consecutive 10’-0” wide spaces they can be restriped at 9’-0” and one more space added. It is estimated that approximately 35 to 40 more spaces can be added downtown by restriping. In addition, the parking layout at the public lot at 8th Street and Oak Street can be reconfigured and 12 more spaces added.

The only site the city currently owns that is large enough to accommodate a parking structure is the public parking lot at 8th Street and Oak Street. A four-level parking structure, including one level below grade, would provide 162 spaces at an estimated cost of approximately $4.6 million, which represents a

cost per space of $28,395. The high cost per parking space is due to the small site and inefficient parking layout, one level below grade to minimize the height, and overall higher construction costs in Steamboat Springs. This site is not thought to be a viable location for retail, office, and/or housing above the parking. A parking structure is also thought to be more viable at a location south of Lincoln Street rather than north of Lincoln Street.

There have been two sites mentioned that are likely to become available in the near future that would better accommodate a mixed-use project with structured parking than the 8th and Oak site. The Yampa Valley Electric Associates (YVEA) site and Police Services at 840 Yampa Street are larger and better located to efficiently accommodate a multi-level parking structure and represent more viable locations for a mixed-use project including retail, office and/or housing units.

Please refer to the attached report for detailed information supplementing the above findings, conclusions and recommendations.

INTRODUCTION

The primary purpose of the parking analysis is to evaluate the current downtown parking system and make recommendations, based on current best practices and technologies, to better allocate, manage and operate downtown parking. Parking is currently free throughout the City of Steamboat Springs officials and City Council are interested in receiving an analysis of parking options that would ensure the most convenient and desirable on-street spaces are available to downtown customers and visitors. Possibly complicating this issue is the limited number of public off-street parking spaces available to long-term users, including business owners and employees. Parking that is often available at the Howelsen Hill base area, rodeo grounds, and ice arena has not been appealing to downtown employees given the perceived distance and lack of pedestrian connections between the parking and primary downtown destinations. There is also a free Park-and-Ride lot at the Stockbridge Multi-Modal Center located about a half mile from downtown. Although Steamboat Springs Transit provides free daily bus service between the multi-modal center and downtown every 20 minutes, the Park-and-Ride lot is not well utilized by downtown employees.

The study area for the parking analysis, indicated in Figure 1 on the following page, contains 29 blocks, which have been numbered for identification purposes. The Scope of Services for the parking analysis is divided into two distinct phases. The first phase of the study documents existing parking conditions, including parking supply, utilization and the turnover of spaces within the study area. Current parking policies and practices are also reviewed and evaluated in the initial phase of the study. The second phase of the study consists of developing a strategic parking plan for the city, including an overview of current best parking practices, reviews of parking operations and technologies in five peer towns and cities, measures to better use existing parking resources, recommendations for new and revised parking policies, technologies, operations and procedures; and provides revenue and expense projections anticipated to result from the recommended parking program changes.

EXISTING PARKING CONDITIONS & POLICIES

Parking Supply

Table 1 presents the current on- and off-street parking supply within the study area by block and type of parking. There are currently an estimated 2,770 parking spaces within the study area, of which 1,232 are located on street and 1,538 are located off street.

The 8-hour spaces represent 38% of the on-street parking and most of the 473 eight-hour spaces are located on Oak Street and on the blocks north of Oak Street in the predominately residential neighborhood. There are an estimated 408 two-hour spaces, which represent 33% of the total on-street supply, and 323 three-hour spaces, which represent 26% of the total on-street supply. The remaining 2% of the on-street parking consists primarily of accessible spaces, all of which are in the 2- and 3-hour zones.

Figure 1.
Parking Analysis Study Area

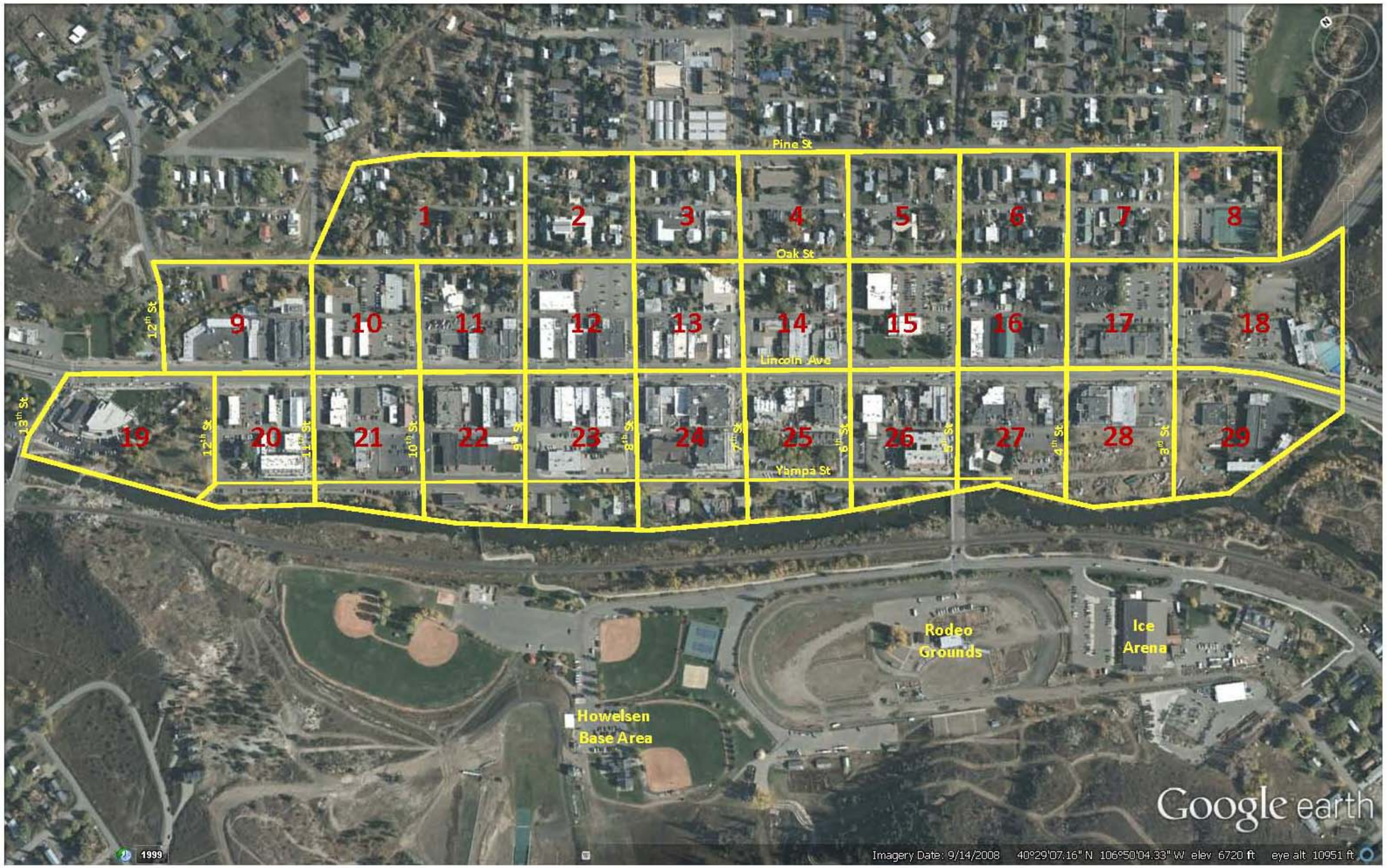


Table 1.
Existing Parking Supply

	On Street							Off Street			
Block	15 Min.	2 Hr.	3 Hr.	8 Hr. +	HC	Delivery	Total	Public	Private	Reserved	Total
1				36			36	20			20
2		3		35	1		39				0
3				41			41				0
4				46	1		47				0
5				41			41				0
6				37			37				0
7				37			37				0
8				10			10		21		21
9		19	7	15			41		59		59
10	1	26	18	5	1		51	67	38		105
11		11	18	12	1		42		53		53
12		31	15	5	3		54	50	40		90
13		20	16	11	1		48		68		68
14		20	20	12	3		55		34		34
15		28		28	1		57		74		74
16		17	19	9	2		47		61		61
17		14	5	4			23		120		120
18			5				5		160		160
19		29	12				41	52			52
20		3	17	38			58		75		75
21		12	14	29			55		83		83
22	1	25	31	4	2		63	20	30		50
23		27	23		1		51	29	17	23	69
24		31	42		3	1	77		51		51
25		24	42		1		67	24	16		40
26		25	13	8	2		48		63		63
27		27	6	5	1		39		68		68
28		16		5	1		22		14		14
29							0		108		108
Total:	2	408	323	473	25	1	1,232	262	1,253	23	1,538
Percent:	0%	33%	26%	38%	2%	0%	100%	17%	81%	1%	100%

Sources: City of Steamboat Springs 2012 Parking Regulations and DESMAN Associates.

The on-street parking time limits are graphically illustrated by time limits in Figure 2. The 2-hour spaces are located on Lincoln Avenue and on the cross streets for a half block on both sides of Lincoln Avenue. The 3-hour spaces are generally located each side of the other half of the blocks on each side of Lincoln Avenue and on Yampa Street. The 8-hour and unrestricted spaces are located on Yampa Street and north of Oak Street. The accessible, 15-minute and delivery spaces are not specifically shown on the graphic. The private on-street parking, indicated in red, is included in the off-street supply.

Only 17% of the off-street parking supply (262 spaces) are classified as public spaces. Included in the public supply is the employee lot behind City Hall, which is available to the public after 5:00 PM on weekdays and on weekends. The public off-street parking is shown by location, type and number of spaces in Figure 3. The 23 reserved spaces on Block 23 are for police and fire personnel. The remaining 1,253 off-street parking spaces are private and technically not available for general public use.

Figure 2.
On-Street Parking Regulations

Figure 3.
Public Off-Street Parking Lots

Design-Day Parking Demand

Parking demand is generally based on the level of activity on a "design day." A parking system should not be designed for the absolute busiest day of the year and have a significant number of parking spaces available every other day. Nor should a parking system be designed for a median day and have a shortage of parking spaces 50% of the time. The activity level represented by the 85th to 90th percentile in the range from the slowest to busiest day is generally considered an appropriate design day. Parking utilization and turnover surveys were conducted on Friday, July 11 and Saturday, July 12, 2014. After consideration with city officials and the Chamber Resort Association, these were good days to conduct parking utilization and turnover surveys given the events planned for the weekend, including the Hot Air Balloon Rodeo, Art in the Park, and the regularly schedules Steamboat Farmers Market on Saturday at its new downtown location at 7th Street and Yampa Street.

Effective Parking Supply

A parking system operates at optimum efficiency at a level below its actual capacity. The occupancy at which peak efficiency is reached is generally considered to be 85% of the capacity by parking professionals. This cushion of spaces reduces the time to search for the last few available spaces and allows for the dynamics of vehicles moving in and out of parking stalls during peak periods. It also allows for variations in parking activity, the loss of parking due to mis-parked vehicles, snow piling, construction, reserved spaces, and other factors. As a result, the effective supply is used to determine the adequacy of the parking system rather than the actual supply.

Parking Utilization

Parking utilization surveys were conducted from 10:00 AM to 8:00 PM on Friday, July 11, 2014 and from 10:00 AM to 6:00 PM on Saturday, July 12, 2014.

Friday, July 11, 2014

The utilization of the on-street parking is shown by hour for the entire study area on Friday in Table 2 on the following page. The peak hour was 1:00 PM when there were 864 vehicles parked in 1,232 spaces, which represents an overall utilization level of 70%.

The utilization of the on-street parking is shown for the central downtown area in Table 3. The central downtown area includes the on-street spaces on the side streets between 5th Street and 10th Street from Oak Street to Yampa Avenue, and Lincoln Avenue and Yampa Street between 5th Street and 10th Street. This area is shown in Figure 4 on page 9. As seen In Table 3, the 580 on-street spaces in the central downtown area were filled from 85% to 90% of capacity in the evening between 5:00 PM and 8:00 PM. The utilization of these spaces during the day was highest at 12:00 PM when they were filled to 85% of capacity.

Table 2.
On-Street Parking Utilization (Friday, July 11, 2014)

Block	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	12:00 PM	1:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
1	36	8	8	12	12	13	18	13	16	16
2	39	14	11	25	13	8	8	16	17	17
3	41	18	23	23	25	23	18	21	26	20
4	47	27	29	28	19	15	15	17	20	21
5	41	20	17	18	19	16	13	15	15	13
6	37	21	19	10	21	15	6	4	6	6
7	37	12	10	10	12	16	10	7	3	3
8	10	0	4	1	2	1	1	1	1	1
9	41	24	29	21	10	13	10	10	17	16
10	51	32	36	31	16	15	14	21	23	26
11	42	18	26	30	24	15	17	18	20	16
12	54	36	50	47	44	41	43	46	42	42
13	48	41	41	41	39	31	33	46	43	42
14	55	36	46	49	46	42	38	49	48	45
15	57	36	46	45	48	41	48	52	43	47
16	47	18	23	31	18	21	23	22	28	25
17	23	7	8	10	13	5	6	8	11	12
18	5	5	2	3	2	3	2	0	1	0
19	41	16	21	30	22	14	13	8	8	5
20	58	35	44	52	43	38	29	29	26	20
21	55	35	43	48	47	30	35	53	36	32
22	63	25	52	56	32	43	56	58	71	69
23	51	28	47	47	42	40	51	51	50	49
24	77	57	73	69	57	67	72	73	77	72
25	67	42	66	61	60	58	67	67	59	58
26	48	30	36	33	34	42	46	48	47	43
27	39	21	26	28	30	33	36	35	29	29
28	22	4	4	5	15	15	16	20	14	12
Total:	1,232	666	840	**864**	765	714	744	808	797	757
% Utilized:		54%	68%	**70%**	62%	58%	60%	66%	65%	61%

Table 3.
Central Downtown Area On-Street Parking Utilization (Friday, July 11, 2014)

Block	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	12:00 PM	1:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
10	21	10	12	8	6	8	7	11	11	10
11	30	12	19	22	16	10	13	15	18	14
12	49	32	45	43	41	41	43	46	42	42
13	37	31	32	32	29	22	27	36	35	37
14	43	28	37	38	36	33	31	38	36	36
15	50	31	42	41	40	37	44	48	39	43
16	20	9	10	16	11	12	17	17	17	16
21	10	8	10	10	10	9	9	13	9	5
22	63	25	52	56	32	43	56	58	71	69
23	51	28	47	47	42	40	51	51	50	49
24	77	57	73	69	57	67	72	73	77	72
25	67	42	66	61	60	58	67	67	59	58
26	48	30	36	33	34	42	46	48	47	43
27	14	8	12	11	11	13	14	14	12	13
Total:	580	351	493	487	425	435	497	**535**	523	507
% Utilized:		61%	85%	84%	73%	75%	86%	**92%**	90%	87%

The utilization of the 262 public off-street spaces on Friday is shown by hour in Table 4. The peak hour was 12:00 PM when there were 204 vehicles parked, which represents a utilization level of 78%. It should be noted that the many city employees were furloughed on Friday and city offices were officially closed, which no doubt reduced parking activity during the day primarily on Blocks 1 and 10.

Table 4.
Public Off-Street Parking Utilization (Friday, July 11, 2014)

Block	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	12:00 PM	1:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
1	20	5	5	4	3	3	2	1	1	1
10	67	41	43	43	30	30	30	32	31	36
12	50	26	49	46	42	26	29	46	50	43
19	52	31	39	32	44	28	21	7	9	13
22	20	19	20	20	18	19	20	20	20	20
23	29	23	24	24	22	24	26	25	14	14
25	24	24	24	25	24	21	24	24	23	22
Total:	262	169	**204**	194	183	151	152	155	148	149
% Utilized:		65%	**78%**	74%	70%	58%	58%	59%	56%	57%

Figure 4.
Central Downtown Area

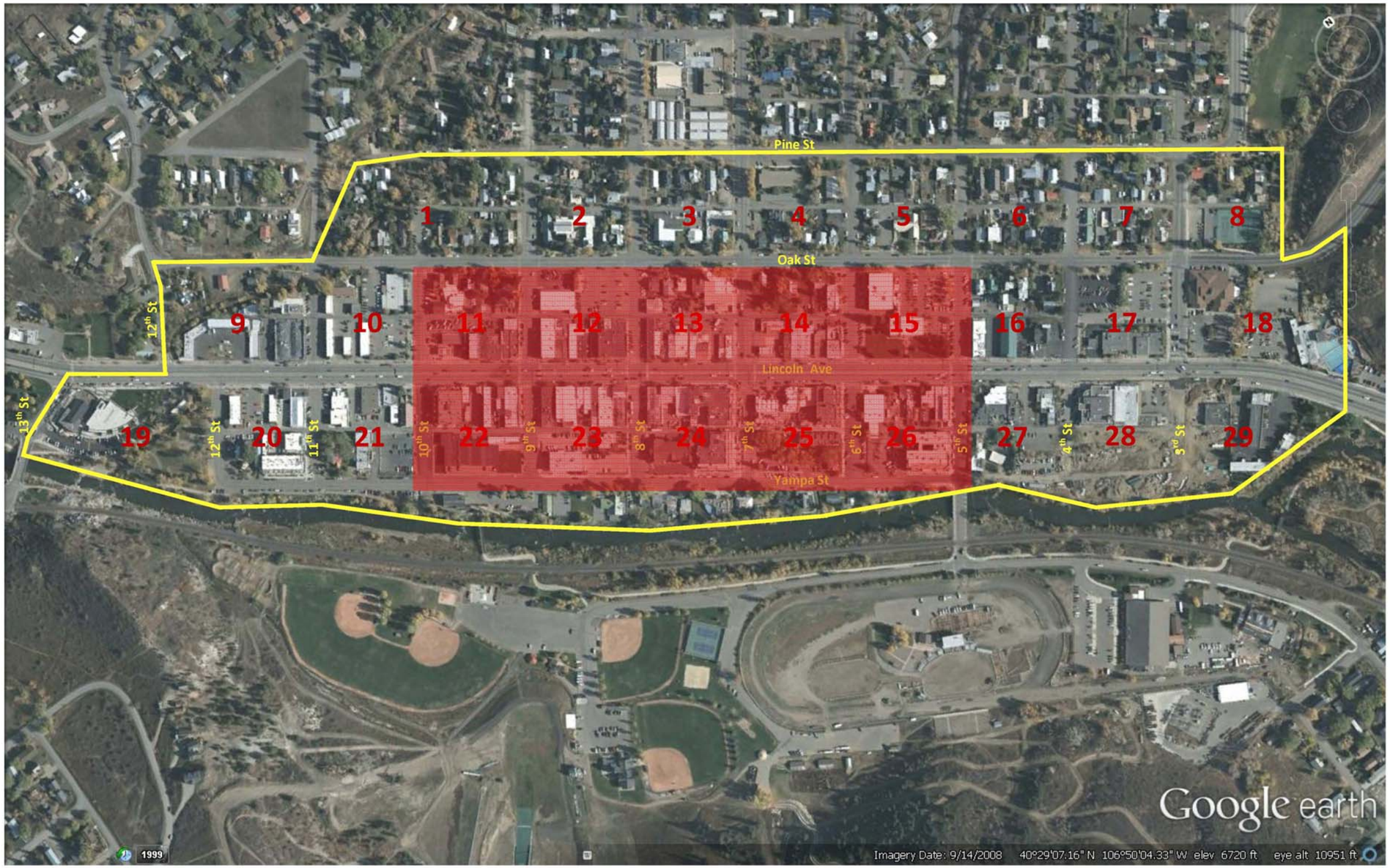


Table 5 presents the utilization of several private off-street parking lots on Friday, July 11. The 497 spaces included in the survey were 58% utilized at the peak hour of 10:00 AM. These private lots were minimally utilized in the evening when the on-street spaces in the central downtown area were busiest. The county government and bank parking lots on Blocks 15 and 17 have been mentioned as possible private lots to lease for public parking. The YVEA lot is currently available for public use in the evenings and on weekends and public parking was observed in private lots on Blocks 26, 28 and 29.

Table 5.
Private Off-Street Parking Utilization (Friday, July 11, 2014)

Block	I.D.	Number of Spaces	Parking Spaces Utilized								
			10:00 AM	12:00 PM	1:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM
15	Routt County	74	46	43	46	59	35	30	32	32	32
17	Wells Fargo	76	31	28	42	26	25	11	5	3	2
17	NW Corner Lot	44	23	22	28	27	21	13	4	2	3
18	US Post Office	59	28	31	24	16	14	10	8	0	3
18	Hot Springs	101	101	98	79	54	30	49	42	23	22
21	YVEA	42	19	17	19	16	14	21	28	23	25
21	Pilot Building	11	9	9	6	2	2	2	2	0	0
26	Bank of the West	37	16	18	20	26	33	37	39	42	37
28	Alley	20	5	4	4	11	14	16	12	15	16
29	Vacant Building	33	8	15	10	16	10	9	7	6	5
Total:		497	**286**	285	278	253	198	198	179	146	145
% Utilized:			**58%**	57%	56%	51%	40%	40%	36%	29%	29%

All of the parking included in the survey was 67% utilized at the overall peak hour of 1:00 PM suggesting no need for more parking in downtown Steamboat Springs based on the survey results.

Saturday, July 12, 2014

The utilization of the on-street parking is shown by hour for the entire study area on Saturday in Table 6 on the following page. The peak hour was 12:00 PM when there were 1,067 vehicles parked, which represents an overall utilization level of 89%. The on-street spaces within the study area were filled to 85% or more of capacity from 11:00 AM to 1:00 PM on Saturday.

The utilization of the on-street parking is shown for the central downtown area in Table 7. The peak hour was 11:00 AM when there were 538 vehicles parked in the 551 available spaces, which represents a 98% utilization level. The on-street spaces in the central downtown area on Saturday were well over 85% full between 10:00 AM and 2:00 PM.

The utilization of the available public off-street spaces on Saturday is shown by hour in Table 8. The peak hour was 11:00 AM when the 186 available spaces were 100% full. The public off-street spaces were filled to well over 85% of capacity from 10:00 AM to 2:00 PM.

Table 6.
On-Street Parking Utilization (Saturday, July 12, 2014)

Block	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
1	36	16	35	37	36	32	18	16	13	13
2	39	14	23	34	33	32	24	15	14	13
3	41	20	28	34	36	24	20	21	19	18
4	47	21	35	43	45	34	29	22	23	28
5	41	20	17	17	17	13	14	12	17	25
6	37	20	14	20	18	16	10	9	7	19
7	37	7	9	5	7	10	4	6	5	3
8	10	1	1	1	1	1	1	1	0	0
9	41	52	58	57	51	44	23	26	15	10
10	51	51	53	58	44	51	35	26	18	16
11	42	34	43	41	40	42	26	20	20	19
12	54	48	47	52	46	49	39	33	32	33
13	48	40	48	48	45	40	34	30	32	40
14	55	49	55	53	54	47	44	40	45	50
15	57	46	53	57	48	50	44	37	51	51
16	47	19	34	35	33	22	16	14	18	26
17	23	8	5	8	4	9	5	4	5	4
18	5	3	0	3	1	0	1	1	4	0
19	41	38	38	38	39	37	41	39	27	20
20	58	61	68	67	61	66	65	60	56	32
21	55	55	55	58	55	54	47	44	42	37
22	63	60	63	61	58	52	51	55	53	59
23	51	50	53	53	49	46	45	47	41	49
24	77	67	65	66	66	57	58	68	70	73
25	67	49	47	44	47	46	55	46	52	62
26	48	38	43	44	43	43	41	34	36	41
27	39	14	26	21	26	20	17	23	29	33
28	22	0	8	12	9	7	9	9	12	13
Total:	1,232	901	1,024	**1,067**	1,012	944	816	758	756	787
% Utilized:		75%	86%	**89%**	85%	79%	67%	62%	62%	64%

4 spaces on 13th Street closed all day.
13 spaces on 7th Street closed until 3:00 PM count.
16 spaces on Yampa Street closed until 3:00 PM count.
The % utilized reflects the loss of spaces indicated above.

Table 7.
Central Downtown Area On-Street Parking Utilization (Saturday, July 12, 2014)

Block	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
10	21	19	19	21	16	18	17	11	7	7
11	30	28	30	29	29	29	20	15	15	14
12	49	48	46	44	43	48	38	33	32	33
13	37	29	36	38	35	32	25	22	28	34
14	43	39	43	40	41	38	36	32	36	40
15	50	44	46	47	39	43	38	32	44	43
16	20	9	20	18	17	13	8	5	11	12
21	10	10	12	13	10	9	5	3	6	10
22	63	60	63	61	58	52	51	55	53	59
23	51	50	53	53	49	46	45	47	41	49
24	77	67	65	66	66	57	58	68	70	73
25	67	49	47	44	47	46	55	46	52	62
26	48	38	44	44	43	43	41	34	36	41
27	14	9	14	12	14	10	8	10	12	13
Total:	580	499	**538**	530	507	484	445	413	443	490
% Utilized:		91%	**98%**	96%	92%	88%	77%	71%	76%	84%

13 spaces on 7th Street closed until 3:00 PM count.
16 spaces on Yampa Street closed until 3:00 PM count.
% utilized reflects the loss of spaces indicated above.

Table 8.
Public Off-Street Parking Utilization (Saturday, July 12, 2014)

Block	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
1	20	8	20	20	20	25	3	3	1	1
10	67	58	67	64	65	57	54	46	29	21
12	50	48	50	50	50	47	33	32	26	30
19	52	CLOSED								
22	20	20	20	20	20	20	20	20	20	19
23	29	29	29	29	29	29	27	25	20	21
25	24	CLOSED					9	20	18	24
Total:	262	163	**186**	183	184	178	146	146	114	116
% Utilized:		88%	**100%**	98%	99%	96%	70%	70%	54%	55%

The % utilized reflects the closed spaces indicated above.

Table 9 presents the utilization of the private off-street parking lots on Saturday, July 11. The 497 spaces included in the survey were 59% utilized at the peak hour of 12:00 PM.

Table 9.
Private Off-Street Parking Utilization (Saturday, July 12, 2014)

Block	I.D.	Number of Spaces	Parking Spaces Utilized								
			10:00 AM	11:00 PM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
15	Routt County	74	34	46	65	59	45	28	22	22	67
17	Wells Fargo	76	16	19	23	20	12	15	16	12	13
17	NW Corner Lot	44	4	14	15	19	17	11	10	7	5
18	US Post Office	59	9	15	8	12	8	9	10	5	3
18	Hot Springs	101	11	65	73	72	69	87	78	60	55
21	YVEA	42	42	42	42	42	38	32	28	18	20
21	Pilot Building	11	11	11	11	11	11	11	8	1	1
26	Bank of the West	37	20	26	27	27	30	26	24	22	31
28	Alley	20	5	8	12	9	7	9	9	12	13
29	Vacant Building	33	8	11	15	13	15	18	10	8	6
Total:		497	160	257	**291**	284	252	246	215	167	214
% Utilized:			32%	52%	**59%**	57%	51%	49%	43%	34%	43%

As indicated in Table 10, the public parking system on Saturday morning was filled to over 85% of capacity between 11:00 AM and 1:00 PM for the entire study area. Based on the peak-hour utilization of the public parking system (1,250 vehicles parked at 12:00 PM), 82 more spaces are required to bring peak-hour utilization down to a more comfortable 85% level (1,250 ÷ 0.85 = 1,471 - 1,389 public supply available = 82 more spaces).

Table 10.
Public Parking Utilization (Saturday, July 12, 2014)

Public Parking	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
On Street	1,203	901	1,024	1,067	1,012	944	816	758	756	787
Off Street	186	163	186	183	184	178	146	146	114	116
Total:	1,389	1,064	1,210	**1,250**	1,196	1,122	962	904	870	903
% Utilized:		77%	87%	**90%**	86%	81%	67%	63%	61%	63%

Note: % utilized from 3:00 to 6:00 PM based on 1,438 spaces.

As indicated in Table 11, the public parking system was filled to well over 85% of capacity from 10:00 AM to 2:00 PM and the peak-hour deficit increases to 115 spaces when including only the central downtown area parking in the on-street analysis (724 ÷ 0.85 = 852 - 737 public supply available = 115 more spaces).

Table 11.
Central Downtown Area Public Parking Utilization (Saturday, July 12, 2014)

Public Parking	Number of Spaces	Parking Spaces Utilized								
		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
On Street	551	499	538	530	507	484	445	413	443	490
Off Street	186	163	186	183	184	178	146	146	114	116
Total:	737	662	**724**	713	691	662	591	559	557	606
% Utilized:		90%	**98%**	97%	94%	90%	75%	71%	71%	77%

Note: % utilized from 3:00 to 6:00 PM based on 786 spaces.

Although employees would represent the majority of the 1,107 spaces utilized, there would also be customers and visitors parking in the private lots and residents and residential visitors parking on street in the residential neighborhood. Employee demand is more likely less than 1,000 spaces on a weekday and could be more accurately estimated if land use information for the downtown area was provided and/or if there is a reliable estimate of the number of employees in downtown Steamboat Springs.

Parking Duration and Turnover

The on-street spaces in a downtown area are typically the most convenient and highly used spaces. It is important that these spaces turn over as frequently as possible in order to serve the maximum number of downtown customers and visitors. An issue identified in meetings prior to the parking surveys was abuse of the short-term spaces by downtown employees and business owners.

License plate numbers were recorded each hour between 10:00 AM and 6:00 PM on the vehicles parked in the 2-hour spaces on Lincoln Avenue and the side streets between 5th Street and 10th Street on Friday, July 11, 2014. The purpose of this survey was to determine the average turnover and length of stay in the most convenient and desirable spaces in the central area of downtown Steamboat Springs. As seen in Table 12 on the following page, the 286 spaces included in the survey turned over 4.06 times and the average duration of stay was 1.57 hours (one hour and 34 minutes) over the nine-hour survey period. Approximately 88% of the vehicles parked stayed for two hours or less and approximately 98% stayed for four hours or less. There were 141 vehicles that exceeded the 2-hour time limit, which represents approximately 12% of the vehicles parked all day. DESMAN personnel observed many more violations than the number of citations that would have been issued by the enforcement officer because license plate number were recorded hourly and we were not writing tickets for parking violations.

The 24 vehicles that stayed for 5+ hours are assumed to be employees and owners of downtown businesses. There were five more vehicles that moved within the same block or to a nearby block that stayed for 5+ hours, which are also assumed to be downtown employees and business owners. The 29 employee/owner vehicles parked in the 286 short-term parking spaces had an average duration of stay of six hours and eight minutes.

Table 12.
Summary of Parking Duration & Turnover

Number of Hrs. Present	Number of Vehicles	Percent of Vehicles
1	743	63.9%
2	278	23.9%
3	88	7.6%
4	29	2.5%
5	12	1.0%
6	4	0.3%
7	2	0.2%
8	3	0.3%
9	3	0.3%
Total:	1,162	100.0%
Average Turnover:		4.06
Average Duration:		1.57
Number of Violations:		141

The results of the survey are more favorable than expected as the vast majority of the parkers (approximately 88%) were present for two hours or less and approximately 98% of the parkers are thought to be downtown customers and visitors. With that being said, approximately 120 more customers and visitors could have been accommodated in the 286 two-hour spaces if 10% of them were not occupied by long-term users. If all of the short-term spaces in the study area are used similarly by downtown employees and owners as the surveyed spaces, approximately 315 more daily customers and visitors could be accommodated in the most convenient parking spaces if they are not occupied by long-term users.

Downtown Employee Parking Demand

The estimate of 1,874 employee parking demand downtown in the 1999 study is, in our opinion, significantly over estimated. The estimate was based on 2,553 employees (the source of this number is not indicated), 5% use of alternative modes of transportation (walk/bike/transit), 1.1 persons per vehicle, and an 85% presence factor at 11:00 AM and 1:00 PM.

The business survey conducted as part of this study indicates more employees on weekdays than on weekends or in the evening. Although not all of the private parking was included in the utilization surveys, it is reasonable to apply the observed utilization of the nearly 500 spaces included in the survey on Friday to the 1,253 private spaces, which results in estimated peak-hour (1:00 PM) utilization of 702 spaces (1,253 x 56% = 702). This results in the overall peak demand for 1,760 spaces, as follows:

On-Street	864
Private Off-Street	702
Public Off-Street	194
Total:	1,760

The estimated overall utilization of the parking within the study area on Friday, July 11 is less than the estimated employee parking demand in the 1999 study.

At the peak hour, there were 78 vehicles parked in the long-term public lots, 252 vehicles parked in the 8-hour or unrestricted on-street spaces, and an estimated 75 employee vehicles parked in the short-term on-street spaces. Adding the use of the private lots (702 spaces) to the long-term totals above results in a total of 1,107 spaces utilized, as indicated below:

Private Lots	702
Long-Term Public Lots	78
8-hour On-Street Spaces	252
Est. Employees in Short-term Spaces	75
	1,107

Parking Management and Operations

The enforcement of the on-street and public off-street parking systems in the City of Steamboat Springs is the responsibility the Police Department. The Public Works Department is responsible for maintenance of the on-street and off-street parking. There is currently one full-time parking code enforcement officer responsible for enforcing all of the public parking downtown, consisting of over 750 time-limited (2- and 3-hour) on-street spaces and approximately 125 two-hour spaces in three off-street parking lots. Hours of enforcement are from 8:00 AM to 6:00 PM and from 6:00 PM to 10:00 PM on Yampa Street between 6th Street and 9th Street Monday-Friday. The enforcement officer walks the downtown area and is provided with a Clancy handheld enforcement device that has a built-in camera and citation printer, tire chalking equipment, and cellular phone for field communications. The tire chalking equipment is used to keep track of the time vehicles are parked in the same time-limited spaces. Despite the best efforts of the enforcement officer, the downtown area is far too large for one person on foot to consistently and effectively enforce parking regulations.

The City of Steamboat Springs parking fine structure includes warning tickets for first offenders with no fine and an escalating fine structure for repeat offenders for violation of time limits, as presented on the following page. All fines double if not paid within 14 days. A citation system that charges infrequent offenders minimal fines and habitual offenders progressively more expensive fines is a current best practice in parking enforcement.

Violation of Parking Time Limits (1):

First Offense:	Warning
Second Offense:	$25.00
Third Offence:	$50.00
Fourth Offense:	$100.00
Handicap parking:	$100.00
All other violations:	$50.00

(1) Within a one-year period.

From June 10, 2013 to June 10, 2014, 1,717 citations were issued for various parking violations. Of the 1,717 citations issued, 1,193 were warnings (69%) and 66 (3.8%) were voided. Most of the warning tickets issued were for no overnight parking on a snow route, overtime parking, and posted sign violations. The no charge for the first offense and tiered parking fines represent a customer-friendly approach to parking enforcement, which is commendable and probably necessary in a resort community with 280,000 to 330,000 annual visitors. Most cities with successful parking operations have generally adopted the philosophy of being customer focused, not revenue or violator focused. With that being said, the sheer volume of warning tickets being written each year suggest that local residents and frequent visitors to downtown Steamboat Springs are taking advantage of the policy of one warning ticket over a one-year period. Citation Statistics are presented for the past three years in Table 13. Aside from a precipitous drop in the number of citations issued in 2012-2013, the numbers are comparable each year with respect to the percent of warning citations issued, percent of citations voided, and the average fine amount.

Table 13.
Annual Parking Citation Statistics, 2011-2014

Year	Total Number of Citations	Warning Citations	Percent Warning Citations	Voided Citations	Percent Voided Citations	Valid Citations	Original Fines	Average Fine (1)
2011-2012	2,323	1,574	68%	106	4.6%	2,217	$37,965	$59.04
2012-2013	1,437	1,015	71%	63	4.4%	1,374	$22,575	$62.88
2013-2014	1,717	1,193	69%	66	3.8%	1,651	$26,845	$58.61

(1) Total citations less voided and warning citations.

The City of Steamboat Springs sends unpaid tickets to a collections agency to resolve debt. The agency's commission is 25% of the amount collected. Following in Table 14 are collection statistics by year between 2009 and 2014 to date.

Table 14.
Parking Citations Collection Statistics, 2009-2014

	2009 (1)	2010	2011	2012	2013	2014 (2)	Total
Number of Accounts Sent to Collections:	350	174	88	167	58	21	858
Total Dollar Amount Sent to Collections:	$27,800	$12,700	$11,430	$22,240	$9,950	$1,820	$85,940
Dollar Amount Per Account:	$79.43	$72.99	$129.89	$133.17	$171.55	$86.67	$100.16
Total Amount Collected:	$3,700	$2,630	$2,570	$5,680	$1,000	$170	$15,750
Percent Collected:	13.3%	20.7%	22.5%	25.5%	10.1%	9.3%	18.3%
Commission Amount:	$924.99	$657.50	$642.50	$1,420.00	$250.00	$42.50	$3,937.49
Net dollar amount collected:	$2,775.01	$1,972.50	$1,927.50	$4,260.00	$750.00	$127.50	$11,812.51

(1) 2009 includes previous years.
(2) 2014 is to date as of June 1.

The city's involvement in parking management is currently limited to maintenance of publicly-owned parking lots, street maintenance, and snow removal by the Public Works Department and parking enforcement of time-limited spaces by the Police Department. Implementing paid parking and/or increasing enforcement efforts will require additional personnel and possibly the hiring of a manager with municipal parking experience who will function as the single point of contact and accountability for the on- and off-street parking systems. Suggested would be a vertically integrated parking division within the Public Works Department. Vertical integration means that all parking-related functions, including operations, enforcement, revenue and fine collection, maintenance, planning, marketing, community outreach, etc., are consolidated under one management structure. The Parking Manager would be charged with the following duties and responsibilities:

1. Manage the marketing, sales and assignment of monthly parking spaces to groups and individuals and monitor and track the permit parking revenue collected. The Manager would also serve as the single point of contact whenever problems arise among these contract parkers.

2. Facilitate the routine execution of daily maintenance, snow plowing, and as needed property and meter repairs with the Public Works Department.

3. Coordinate the deployment and monitor the production and effectiveness of parking enforcement personnel.

4. Prepare the annual operating budget of the parking system and track the system's daily and monthly revenue collection and operating expenditures.

5. Function as the public relations respondent for the program by fielding customer service complaints and devising special event parking strategies and serve as the city hearing officer on parking citation appeal cases.

6. Devise, monitor and periodically audit the parking meter revenue collection process.

7. Conduct periodic parking space and facility occupancy surveys as a means of monitoring the prevailing demand and utilization of parking system spaces.

8. Review and prepare recommendations for the City Manager and/ or City Council regarding program changes, technology upgrades, supply purchases, capital improvements, increases to rates and fines.

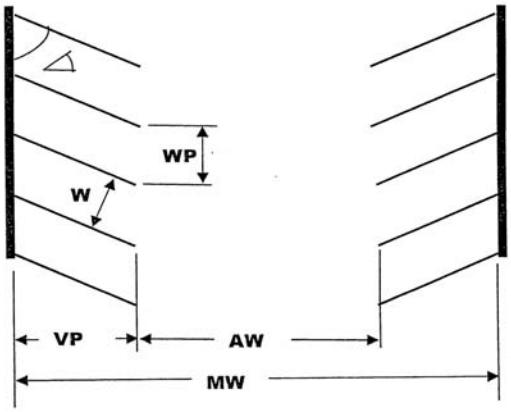
Zoning Code Review Comments
(Sec. 26-139 Parking and loading design standards)

(d) (1) c. *Maneuvering space.*

It is recommended to modify the width of the drive aisle for all 60° parking from 18 feet to 16 feet, and to modify the width of the drive aisle for a combination of 45° and 60° parking also to 16 feet. It is also suggested to add 75° parking and the following layout dimensions and graphic to the parking design standards. The narrower drive aisle aligns better with parking industry standards for 60° parking and the 75° parking provides developers with more parking options. The parking dimensions table and supporting graphic will eliminate any confusion over the city's parking standards.

Parking Layout Dimensions

Parking Angle	Stall Width Projection (WP)	Vehicle Projection (VP)	Aisle Width (AW)	Module Width (MW)
45	12'-9"	17'6"	15'-0"	50'-0"
60	10'-5"	19'-0"	16'-0"	54'-0"
75	9'-4"	19'-0"	20'-0"	58'-0"
90	9'-0"	18'-0"	24'-0"	60'-0"



(d) (1) f. *Accessible spaces.*

It is recommended to add the following language and table to the parking standards so that developers and others are not required to search for accessible parking requirements on a government website and to ensure the appropriate number and layout of accessible spaces in private off-street parking facilities.

Number of Spaces Required

Accessible (handicap) parking spaces shall be provided in accordance with the following table, except for Hospital Outpatient Facilities, Rehabilitation and Outpatient Physical Therapy Facilities, and Residential Facilities.

Required Accessible Spaces

Total Parking Spaces in Facility	Minimum Number of Accessible Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1,000	2% of total
1,001 and over	20 plus 1 for each 100 over 1,000

All fractions resulting from the calculation of the required number of accessible and van spaces must be rounded up to the next whole number.

Where more than one parking facility is provided on a site, the number of accessible parking spaces provided on the site shall be calculated according to the number of spaces required for each parking facility.

Exception: Parking spaces used exclusively for buses, trucks, delivery vehicles, law enforcement vehicles, or vehicular impound do not require accessible spaces provided that parking facilities accessed by the public are provided with a passenger loading zone complying with ADA standards.

Hospital Outpatient, Rehabilitation and Outpatient Physical Therapy Facilities

Ten percent of the patient and visitor parking spaces serving Hospital Outpatient facilities shall be accessible spaces. Twenty percent of the patient and visitor parking spaces serving Rehabilitation and Outpatient Physical Therapy facilities shall be accessible spaces.

Residential Facilities

An accessible space shall be provided for each accessible dwelling unit (each unit with mobility features). Where the total number of parking spaces provided for each residential dwelling unit exceeds one space per residential dwelling unit, two percent, but no less than one space, of the excess parking shall be accessible. Where parking is provided for persons other than residents (guests, employees and other non-residents), accessible parking shall be provided in accordance with the table above.

Dimensions

Car parking spaces shall be minimum eight (8) feet wide with an adjacent access aisle that is minimum five (5) feet wide. Van spaces shall be minimum eight (8) feet wide with an adjacent access aisle that is minimum eight (8) feet wide. Van spaces can also be minimum eleven (11) feet wide with an adjacent access aisle that is minimum five (5) feet wide.

Van Parking Spaces

For every six accessible spaces required, at least one shall be a van parking space (minimum of one for each parking facility requiring accessible spaces). Parking spaces for vans, access aisles and vehicular routes serving them shall provide minimum vertical clearance of 8’-2”. All van spaces are permitted to be grouped on one level within a multi-story parking facility.

Access Aisles

Two accessible parking spaces are permitted to share an access aisle. Access aisles shall extend the full length of the parking space they serve and be marked to discourage parking in them. If the accessible parking is angled, the access aisle for van accessible spaces shall be on the passenger side of the vehicle because wheelchair lifts are typically installed on the passenger side of vans. Built-up curb ramps are not permitted to project into access aisles or parking spaces.

Identification

The International Symbol of Accessibility shall be painted within each accessible parking space. Signs identifying accessible and van accessible spaces shall be at a minimum height of five (5) feet from the bottom of the sign to the finished floor.

Exceptions: (1) Where a total of four or fewer parking spaces, including an accessible space, are provided on a site, a sign identifying the accessible space is not required. (2) In residential facilities where spaces are assigned to specific residential dwelling units, signs identifying the accessible spaces are not required.

Location

Accessible spaces serving a particular building or facility shall be located on the shortest accessible route from parking to the accessible building entrance. Where parking serves more than one accessible building entrance, accessible spaces shall be dispersed and located on the shortest accessible route to the accessible entrances. In parking facilities that do not serve a particular building or facility, accessible spaces should be located on the shortest accessible route to an accessible pedestrian entrance of the parking facility.

Exception: Accessible parking spaces shall be permitted to be located in different parking facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, parking fee, and user convenience.

Within parking facilities accessible routes must connect parking spaces to accessible entrances. Accessible routes are permitted to pass behind other accessible spaces in the vehicular traffic lane. However, it is preferable that the accessible route not pass behind parked vehicles, where possible. Accessible routes are permitted to cross vehicular traffic lanes if there is a marked crossing. Accessible spaces and access aisles cannot be placed on slope exceeding 1:48 (2.083%) in any direction.

(d) (1) g. *Required parking spaces.*

- Residential Uses: There are three (3) Multi-family categories and four (4) parking requirements listed, which is confusing and readers are not likely sure of the appropriate parking requirement based on the size of units.

The following downtown parking requirements are low compared to parking industry standards for downtown areas and it is recommended to increase them as follows:

- Nightclub in the CO, CY, CN and G-2 districts: Recommend changing one space/500 s.f. net floor area to one space/300 s.f. net floor area.

- Restaurant in the CO, CY, CN and G-2 districts: Recommend changing from one space/900 s.f. net floor area to one space/300 s.f. net floor area.

- Retail in the CO, CY, CN and G-2 districts: Recommend changing from one space/900 s.f. net floor area to one space/600 s.f. net floor area.

(d) (1) h. *Cash-in-lieu.*

Finally, all new development downtown should unequivocally provide the parking required by code or make a payment in lieu of the required parking. Following are in lieu fees in other comparable mountain resort towns and cities. The average in lieu fee, excluding Durango, is $26,323, which is in line with City of Steamboat Spring's current in lieu fee of $25,000.

City of Aspen	$30,000
Town of Avon	$40,000
Town of Breckenridge	$19,236
City of Durango	¾ of the average cost of providing new CBD parking over prior three years.
Park City, UT	$14,000
Town of Telluride	$20,000 (Accommodations)
	$30,000 (Residential)
	$38,750 (Commercial)
Town of Vail	$18,598 (Accommodations only)

FUTURE PARKING CONDITIONS

On Friday, July 11 there was surplus of public parking of approximately 250 spaces. However, city staff was furloughed that day, which undoubtedly affected the demand for parking. Friday likely represents a not so busy day during a busy weekend in downtown Steamboat Springs. On the other hand, there was an estimated parking deficit of 82 spaces on Saturday, July 12. It is believed that Saturday parking demand likely represented design-day conditions in the summer with two downtown events and a busy weekend for tourists with the Hot Air Balloon Rodeo.

Indicated in Table 16 is the city's population from 2005 to 2013. Population increased at a rate of 1.1% annually over the eight-year period.

Table 16.
City of Stamboat Springs Population
(2005-2013)

Year	Population	Percentage Change
2005	11,107	
2006	11,419	2.8%
2007	11,756	3.0%
2008	12,280	4.5%
2009	12,516	1.9%
2010	12,033	-3.9%
2011	11,922	-0.9%
2012	11,960	0.3%
2013	12,100	1.2%
Avrg. Annual % Change:		1.1%

Source: City of Steamboat Springs

A 1.1% increase in parking demand each year will result in the need for 164 more spaces in five years, 252 more spaces in ten years, 344 more spaces in 15 years, 441 more spaces in 20 years, and 544 more spaces in 25 years based on population growth.

Twenty-five year projections for future downtown development provided by the city fall in the following range:

- Retail: 25,000 to 40,000 s.f.
- Office: 15,000 to 18,000 s.f.
- Residential: 50 to 125 units

Given parking requirements of one space per 600 s.f. for retail, one space per 500 s.f. for office, and an average of two spaces per residential unit, the above amount of future development will result in the need for 172 to 353 more parking spaces over a 25-year period. Adding the maximum demand for 353 spaces to the current downtown parking deficit of 82 spaces, results in the need for 435 spaces in 25 years. This estimate falls about 110 spaces below the 25-year estimate based on population growth.

ON-STREET PARKING TECHNOLOGY OPTIONS

On-street paid parking should be considered in downtown Steamboat Springs with the installation of parking meters. The primary reason to institute on-street paid parking is to encourage turnover of the most convenient parking spaces. Turnover is critical to most downtown businesses because the parking supply is often limited. If long-term parkers, such as employees or residents, use a parking space in front of a store or restaurant, fewer short-term customers have the opportunity to use that space. The reason turnover is so important to the health of businesses is the economic value represented by multiple customers using the same parking space. Bob Gibbs, of the Gibbs Planning Group, urban economic and planning consultants, has estimated that a parking space in front of a retail establishment can be worth up to $300,000 in annual retail sales. The lack of convenient on-street parking can contribute to a downtown area not being able to compete with the surrounding shopping centers. Lower retail sales, fewer retailers, and weaker property lease rates are a function, in part, of this parking issue.

There are five primary operating methods that should be considered for on-street parking in downtown Steamboat Springs, including traditional and “smart” single-space meters, in-vehicle meters, multi-space meters and enhanced enforcement with the use of License Plate Recognition (LPR).

It should also be noted that installing meters downtown may result in overflow employee parking in the residential neighborhood north of downtown and the need to develop and implement a Residential Parking Permit (RPP) program to provide relief for neighborhood residents in areas impacted by employee parking. Following are some basic advantages and disadvantages of parking meters compared to time limited parking and enforcement:

Parking Meter Advantages:

- Provide an accurate time check on parking and simplify the detection of overtime parking.
- Reduce the personnel required for parking enforcement.
- Discourage long-term parkers in short-term spaces.
- Increase turnover and make more parking available for the intended users.
- Produce revenue and aid in the financing of parking and other improvements.
- Single-space meters visually delineate on-street spaces.

Parking Meter Disadvantages:

- Meters can arouse resentment if used where they are not warranted.
- If not properly enforced, users learn that they can park without paying or park overtime (plug the meters) without receiving a parking citation.
- Once meters are installed there can be reluctance to remove them to aid traffic flow because of the production of revenue.
- If parking is prohibited during rush hour where meters are installed, the presence of the meters can confuse motorists and make enforcement more difficult.
- Possible streetscape clutter and hindrance of snow removal with single-space meters.

Following is a discussion of on-street parking meters and payment options.

Electronic Single-Space Meters

Parking meters are very common and most customers find them easy to use. Electronic meters, which are battery powered, almost never jam and can alert parking enforcement when overtime parking has occurred. These parking meters are relatively inexpensive to purchase and are easy to maintain. They can also provide additional customer conveniences such as payment using smartcards and prepaid cash keys. However, they can detract from the aesthetics of the streetscape. The installation of parking meters will require sufficient parking enforcement to encourage people to pay to park.

Advantages of electronic meters include:

- Ease of use.
- Simple setup, management and repair.
- Are less expensive to purchase than the newer “smart” meters.
- Software is available to improve the auditing of funds and provide additional utilization data.
- Meters accept coins, tokens, smart cards, and meter keys.

Disadvantages of electronic meters include:

- Meters do not accept credit cards and it is not possible to pay by phone.
- Meters require coin collection and counting time.
- Single-space meters are less esthetically appealing than multi-space meters.
- Meters require sufficient parking enforcement to be effective.
- No ability to charge variable rates based on parking demand.

The estimated cost per meter installed is $500 to $700, depending upon features. Preferred suppliers include Duncan Solutions and P.O.M. Incorporated.

In-Vehicle Parking Meters

In-vehicle parking meters are small electronic devices that parking customers would purchase or lease from the city to use to pay for on-street parking. The customer pre-pays for parking and the time-value is loaded into the in-vehicle meter. When the user parks in a designated area, they turn the meter on and typically hang it from the rearview mirror or driver's side window. The appropriate amount of time is deducted by the parking meter until the customer returns to their vehicle and turns the meter off. Parking enforcement officers can see the meter as they patrol the area and determine if the vehicle is parking appropriately.

Advantages of in-vehicle parking meters include:

- Relatively easy to setup, use, and manage the meters.
- Users pay for the time parked (no overpayment).
- Reduces coin counting and revenue auditing.
- No repair costs.
- Software is available to improve the auditing of funds and help provide additional utilization data.
- No need for the user to carry change.

Disadvantages of in-vehicle meters include:

- Meters are used primarily by frequent downtown visitors or employees, not periodic or occasional visitors and tourists.
- Units can be lost or stolen, and are fairly costly to replace.
- Meters require sufficient parking enforcement to be effective.

In-vehicle meters typically have an 8-10 year lifespan and cost $50 to $60 per meter. There is a monthly user fee and fee when money is added to an account. A preferred supplier is Prax (EasyPark).

"Smart" Single-Space Meters

The latest single-space meters are solar powered, have rechargeable battery packs, and are wirelessly networked to a remote web-based management system. The system allows remote diagnostics and configuration of the meters. The meters accept coins, tokens, credit cards, debit cards and smart cards. It is also possible to pay by cell phone. These meters can also come with a wireless sensor to reset the meters to "0" when a vehicle vacates a parking space.

Advantages of the "smart" single-space meters include:

- Multiple payment options including coins, credit cards and smart cards.
- More user-friendly and better understood by users than multi-space meters.
- More convenient to use than multi-space meters as they are located next to the parking space.
- No space numbering required.
- Meter placement delineates on-street parking spaces.
- No additional signage required advising users to pay at the parking station and key in their parking space number, license plate number or place a receipt on their dashboard.
- Meter malfunctions are wirelessly communicated to the maintenance shop so repair efforts can be handled as needed rather than on a routine basis.
- If a meter fails, only a single space is affected.
- No paper jams or increased costs for consumables.
- Parking enforcement can be done in a vehicle and it is also made easier with more highly visible expiration indicators.
- Audit control and real-time reporting and alarming.
- Credit card usage will reduce meter revenue collection efforts and coin deposits.
- Represents a lower cost per space on blocks with fewer parking spaces than multi-space meters.
- Ability to charge variable rates based on parking demand.

Disadvantages of the "smart" single-space meters include:

- More maintenance and collection costs compared to multi-space meters.
- More streetscape clutter than with multi-space meters.
- There are currently only a few suppliers of these meters.
- Credit card user will not be provided with a receipt.
- More extensive and expensive installation in Steamboat because there are no existing meter housings and poles to be reused.
- Wireless communication and credit card processing fees to be incurred.
- Wireless communication service interruptions could delay credit card processing.

Some cities have also tested the meters and found out that there were very few credit card transactions at the meters, which didn't justify the additional expense for the meters. There are on-going monthly expenses associated with the meters, including secure wireless, management system license, and credit card transaction fees. A minimum hourly rate of $1.00 is suggested with these meters because of the fees. Each meter is estimated to represent a cost of approximately $900 to $1,100 installed, depending upon options. Preferred manufacturers include IPS Group, Inc. and Duncan Solutions.

Multi-Space Meters

Multi-space meters are similar to standard parking meters but provide single-point control for a larger number of spaces. They can be configured to be Pay-by-Space, Pay-and-Display, or Pay-by-License Plate Number. It is also possible to pay by cell phone. With pay-by-space and pay-by-license plate number, patrons note the parking space or license plate number, proceed to the multi-space meter, insert the appropriate fee and key the parking space or license plate number into the machine. With pay-and-display, patrons proceed to the meter, insert the appropriate fee and are issued a parking ticket to display on their dashboard. Pay-by-space and pay-by-license plate number are more convenient for users and easier to enforce. Generally one meter is sufficient for each block face where metered parking is provided.

The advantages of multi-space meters include:

- Multiple payment options including coins, bills, smartcards and credit cards.
- A high level of security for owners/operators.
- Reduced maintenance and collection costs compared to single-space meters.
- Audit control and real-time reporting and alarming.
- Less streetscape clutter than with single-space meters.

The principal disadvantages of multiple-space meters include:

- Confusion among users who are unfamiliar with this form of revenue control.
- Signage is required to provide patrons with the information needed to locate and use multi-space meters.
- Increased walking distance between parking spaces and meter.
- Parking spaces must be numbered with pay-by-space, which can be problematic in colder climates with snow.
- Users may forget their license plate number in the process of paying for parking.
- Pay-and display requires users to walk from the meter back to their vehicles to display a receipt.
- High cost per space on blocks with fewer parking spaces.
- Wireless communication and credit card processing fees to be incurred.
- Wireless communication service interruptions could delay credit card processing.

- The possible loss of revenue for an entire block face with a meter malfunction.

A multi-space meter (hardware and software) and associated signage is estimated to represent a cost of $11,000 to $15,000 per block face, depending upon type of meter and features. Most major manufacturers now offer solar powered units for easy installation. Preferred manufacturers include Digital Payment Technologies, Cale, and Parkeon.

Paying by Cell Phone

Instead of paying the fee directly to a single-space or multi-space meter, the customer calls a phone number using their cell phone and enters the space, meter or license plate number, and the parking fee is billed to an associated credit card. This represents a convenient way for customers to pay for parking that eliminates some of the disadvantages of single- and multi-space meter technology, such as returning to meters to pay for more time, meter malfunctions, and displaying receipts. It would also reduce some of the expenses associated with meters at it decreases the need for meter maintenance cash collection. Paying by cell phone represents a convenient service for some customers paying for parking at meters and should not be considered as an alternative to parking meters.

The city would contract with a pay-by-phone service provider and it would be made clear to customers at the meter that it is possible to pay for parking by cell phone by downloading an app or calling a toll free number. Pay-by-phone systems require pre-registration and a credit card number to pay for parking charges. The customer would contact the pay-by-phone provider when initiating parking and again when leaving and the appropriate amount would be charged to their credit card. Alternatively, a customer would contact the pay-by-phone provider and pay for a predetermined amount of time at the meter when initiating parking. Customers would also be able to add on additional time remotely to extend their parking session. The cost to implement a pay-by-cell system is usually relatively low. Preferred providers include Parkmobile and PaybyPhone.

License Plate Recognition

An alternative to paid parking that deserves consideration is increased enforcement with the use of License Plate Recognition (LPR) technology. With this type of system cameras are mounted to a vehicle that automatically reads license plates as the vehicle travels around at approximately 15 mph. The license plate is then compared to an onboard database of license plates to determine if it is in violation. The system is particularly effective in detecting overtime parking and shuffling. With this type of system, it would no longer be necessary for the enforcement officer to manually chalk tires, and the system is over three times faster than chalking tires. With no chalking, downtown parkers will not know whether parking enforcement has marked their vehicle or not.

At 15 mph a LPR system has the theoretical ability to read up to 1,800 license plates an hour. However, actual read rates per hour will be less than the reported read rate and will vary depending upon the route traveled, the number of stop signs and traffic lights, the time of day and pedestrian/vehicle traffic volumes, weather conditions, road conditions, etc. Also significantly impacting the read rate is the number of times the vehicle stops so the enforcement officer can issue a parking citation. Heavy snow is also known to limit the effectiveness of LPR.

The cost of equipping one vehicle with the mobile system (hardware and software) is in the range of $40,000 to $65,000, exclusive of the enforcement vehicle. The return on investment with this type of system, because of its efficiency and ability to detect overtime parking violations, is rapid. Preferred vendors are Genetec (AutoVu) and Tannery Creek Systems (autoChalk).

OFF-STREET PARKING TECHNOLOGY OPTIONS

The revenue control system selected for a parking facility is related to its size, type, location, and function. Viable options to consider for the city's lots include the selling of permits, individual space meters, in-vehicle meters, and multi-space meters. Off-street parking rates should be considerably less than on-street rates to encourage their use. The ungated options mentioned above will all require enforcement if implemented. Gated options, including Automatic Vehicle Identification (AVI), proximity cards, Pay-in-Lane (PIL) and Pay-on-Foot (POF), do not make sense for the city's lots presently.

INTEGRATED PARKING MANAGEMENT SYSTEM

Many towns and cities are streamlining parking operations with an integrated computer-based management system. T2 Systems, Inc. has developed T2 Flex™, which is an open-architecture and browser-based system that provides centralized management, reporting and operation of all subsystems from a single, unified system. T2 Flex has five modules including parking enforcement and citation collections, permits, access control, revenue control and event parking. T2 Systems has established partnerships with several third party applications including Digital Payment Technologies, Cale, Parkeon, Casio Business Solutions, Magnetic Autocontrol and Genetec, among others. Current T2 Systems clients include the City of Aspen and Town of Breckenridge.

CASE STUDIES

City of Aspen, CO

The City of Aspen originally installed approximately 80 pay-and-display parking meters for 850 on-street spaces downtown in 1995. The parking meters, which were upgraded in 2007, are enforced Monday-Saturday from 10:00 AM to 6:00 PM by the city's Parking Department. Downtown visitors and shoppers can park at the meters for up to four hours for rates that escalate based on the length of stay as follows:

One Hour: $2.00
Two Hours: $5.00
Three Hours: $9.00
Four Hours: $14.00

It is also possible to pay for parking at the meters by cell phone. Parking on Sundays and holidays is free, and parking on Saturdays in the off season is also free. There are also short-term single-space meters located at several corners in the core area of downtown for quick errands at a rate of $0.50 for 15 minutes. The city introduced an in-vehicle meter option in 2000, which is in the process of being discontinued as the meter manufacturer has decided to discontinue the meters the city has been using and existing supplies have been depleted.

Off-street parking is provided in the 340-space Rio Grande Garage for $1.50 per hour with a daily maximum of $15. Downtown employees can purchase a ten visit garage pass for $50 and a monthly pass for $200. The garage is staffed with an attendant Monday-Friday from 7:00 AM to 6:00 PM. It is also possible to pay at a central cashiering machine or in lane at a machine when exiting.

Commuters can purchase all-day parking passes for $8 a day and park in the garage or in the residential neighborhood surrounding the core commercial area. The city has implemented a Residential Parking Permit program (RPP) where parking is limited to residents, businesses and commuters with valid permits, and general parking for up to two hours. Carpool parking is free in the residential zone with a carpool permit. Residential permits are free for up to two vehicles and residents also receive one free guest pass. Residents are exempted from time limits. The RPP program was implemented to reduce retail overflow from the commercial core.

Parking tickets for most violations are $30 and vehicles with multiple unpaid tickets are subject to being towed. All outstanding tickets must be paid before a vehicle is released. Most of the parking tickets issued are for overtime parking and failure to display a valid permit. Tickets can be paid on line or in person at the Parking Department. To reduce the “two-hour shuffle” in the residential area (employees moving their vehicles every two hours to another space to avoid a citation), the City recently instated a no re-park ordinance and implemented LPR. Three parking enforcement officers that could only cover a portion of the residential zone each day have been replaced by two officers that patrol the residential area up to four times a day with LPR.

Contact:

Tim Wear, Director
Parking Department
(970) 429-1766

Town of Telluride, CO

Parking is managed and enforced by the Marshal's Department in Telluride. Multi-space meters (pay-and-display) have been installed one per block face along Colorado Avenue (Telluride's Main Street) and most cross streets in the core area of downtown. The cost to park at the meters is $0.50 per hour with a three hour maximum. Two hour free parking is also provided in the residential neighborhood adjacent to the commercial core area. Parking is enforced Monday-Saturday 8:00 AM to 6:00 PM by two code enforcement officers. Parking is free in the evenings and Sundays. Parking fines for most violations are $40.00, but are cut in half if paid before the municipal court date. Vehicles with three or more outstanding tickets are subject to booting or towing.

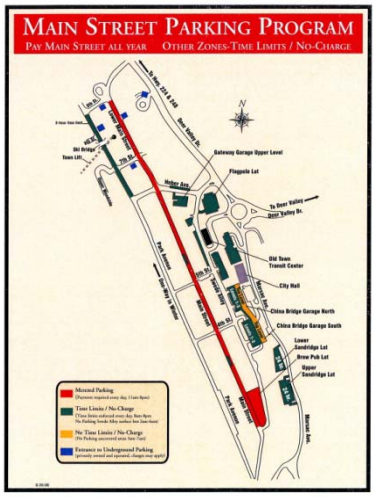
Commuters are encouraged to use the regional transit system or to park for free in a large outlying lot that is serviced by the transit system. Annual resident and business parking permits can be purchased for $35 for unrestricted parking in the residential neighborhood. Residences are provided one or two permits, depending upon zone, and one guest pass. Businesses are limited to two permits and no guest passes.

Contact:

Marshal's Department
Code Enforcement Officers
Sean Reynolds (970) 728-8443
Dan Rider (970) 728-8445

Park City, UT

Parking in Park City is managed and enforced by Parking Services within the Public Works Department. Multi-space meters (pay-and display) were recently installed at the most convenient on-street parking locations in the Historic Main Street area. The cost to park at the meters is $1.50 per hour with a three hour limit. The minimum purchase with coins, parking card and token is 20 minutes. No less than one hour of parking can be purchased with a credit card. In-car meters and prepaid cards are available to residents at about a 50% discount.



Free customer parking is provided in nearby lots and garages with a four-hour limit. The metered and four-hour parking areas are enforced daily from 11:00 AM to 8:00 PM and 8:00 AM to 8:00 PM, respectively. Free all-day parking is provided on the roof level of one of the nearby garages and in more remote lots, and free city bus service is provided within the city limits.

Annual employee parking permits can be purchased for $100, which allows parking beyond the time limit at specific locations in the four-hour zone, except during the Sundance Film Festival and Park City Arts Festival. A $300 employee permit is also offered which guaranties parking during the Sundance Film Festival. Businesses with a Main Street address are eligible to purchase a permit for close-in garage and street parking for $500 annually.

Three Residential Parking Permit (RPP) zones were established to protect residential parking needs in times of heavy use and overflow from the Main Street area. The residents within the RPP zone who park on street are required to display a permit. Businesses within the RPP zone are also required to display a permit if parking on street. Permits allow residents to park up to 72 hours and employees up to 24 hours. Each residence and business in the RPP zone is eligible for one guest pass. Overnight guest passes are provided to Lodges with no off-street parking.

First-time violators at the new meters are issued a courtesy card welcoming them to Main Street and educating them on the pay-and-display meter system. Fines for meter violations and time limit violations are $20 if paid within 14 days. The fines escalate to $80 to $90 if not paid within 60 days. Vehicle owners with five or more violations pay higher fines ($40 if paid within 14 days and escalating to $100 within 60 days).

Contact:

Park City Parking Services
Brian Anderson, Parking
(435) 615-5371

Town of Breckenridge, CO

The Community Service Division of the Police Department manages and enforces the parking system in Breckenridge. Four non-sworn Community Services Officers are responsible for parking enforcement and patrol the town in a vehicle, on foot and by bicycle. The primary purpose of enforcement is to encourage the turnover of spaces. Free all-

day parking is provided in three remote lots containing almost 800 spaces. Free transit service runs between the lots and the downtown area. There are several closer-in lots containing approximately 280 spaces where free parking is provided with a time limit of three hours. The three major north-south streets (Main, Ridge and French) and two cross streets (Lincoln Avenue and Washington Avenue) in the downtown area provide free on-street parking with a 3-hour limit. The town does not allow parking on the other commercial or residential streets downtown.

There are four town pay lots providing convenient parking for the downtown area and ski area. They offer hourly and daily parking from 7:00 AM to 3:00 PM during ski season (November-April). The hourly rate is $3 with either a $12 or $15 daily maximum. Payment is made to a multi-space meter in each lot (pay-and-display). Parking in the pay lots is free after 3:00 PM and in May through October.

Annual employee parking permits can be purchased for $50 which provides unrestricted parking in some of the closer-in free and pay lots. A very limited number of employee permits (20) are available at $350 annually for parking in the core area of downtown. Downtown residents can also purchase annual permits for $25 for unrestricted parking on French Street and in four lots (two pay lots west of Main Street and two free lots east of French Street).

Breckenridge has an escalating fine structure for parking violations based on the number of citations received in a 12 month period, as follows:

First Violation:	$20
Second Violation:	$20
Third Violation:	$50
Fourth Violation:	$100
Fifth Violation:	$200

The fines listed above are doubled if not paid within 10 days. LPR is used to identify violating vehicles and approximately 50% of the citations issued last year were for 3-hour violations, no receipt displayed and expired receipts. The town is currently budgeting for an upgraded LPR system with more features. In 2013-2014, parking revenue exceeded citation revenue by about 130%.

It was recently reported that the Town of Breckenridge is considering instituting paid on-street parking in order to raise funds for a future parking structure with 650 to 1,200 spaces.

Contact:

Matthew Collver, Parking Supervisor
Community Services
(970) 547-3122

City of Durango, CO

The Parking Division of the Operations Department manages and enforces the parking system in Durango. Parking enforcement is year-round Monday-Friday from 8:00 AM to 6:00 PM. The city installed last year over 1,000 on-street meters in the central business district. The majority of the meters downtown are 3-hour meters. There are also a small number of 30-minute meters on several block faces in the center of downtown for quick errands and 10-hour meters on the periphery of downtown. There are a combination of Duncan Solutions electronic meters that accept coins, tokens and smart cards (645 Eagle 2100 meters) and credit card enabled meters (365 Liberty meters) on and near Main Avenue. Current Meter rates are indicated below:

30-Minute Meters:	$0.50 for 30 minutes
3 Hr. Meters:	$0.75 for 60 minutes
10-Hr. Meters:	$0.75 for 60 minutes
Credit Card Meters:	$1.00 per hour (minimum)

The city has four off-street lots in the downtown area with over 350 spaces for employee parking. A monthly parking permit can be purchased for $30. A 15% discount is offered with the purchase of a 3-12 month permit. Free parking is provided in the city's lots on weekday evenings, weekends, holidays and overnight without a permit.

The parking fine for an expired meter is $12 and the city encourages prompt payment with fine increases. If not paid within seven days the fine increases to $24 and if not paid within 30 days the fine increases to $48. Most other parking fines are $15/$30/$60. Parking fines can be paid at City Hall, the parking office, at three other drop-off locations, and on line on the city's website. Vehicles with three unpaid citations over 20 days old are placed on the boot list. All outstanding citations and a $50 boot fee must be paid before a vehicle is released.

Contact:

Amber Blake, Multi Modal Administrator
(970) 375-4949

Summary of On-Street Technologies & Fees

Aspen - Multi-space meters (Pay-and-Display) and LPR
Telluride - Multi-space meters (Pay-and-Display)
Park City - Multi-space meters (Pay-and-Display)
Breckenridge - Free on-street parking enforced with LPR
Durango - Single-space meters, some accept credit cards

Town/City	1 Hr.	2 Hrs.	3 Hrs.
Aspen	$2.00	$5.00	$9.00
Telluride	$0.50	$1.00	$1.50
Park City	$1.50	$3.00	$4.50
Breckinridge	NA	NA	NA
Durango*	$1.00	$2.00	$3.00
Average:	$1.25	$2.75	$4.50

**Fee for meters accepting credit cards*

Summary of Off-Street Technologies & Fees

Aspen - Parking garage with a cashier and POF operating system ($1.50/hour with $15 daily maximum; $200 monthly permit)

Telluride - Free employee parking in outlying lot and $35 business permits in nearby residential neighborhood

Park City - Free garages and lots with a 4-hour time limit; annual employee permits for $100 - $500

Breckenridge - Lots with multi-space meters ($3.00/hour with $12 and $15 daily maximum during ski season; $50-$350 annual employee permits)

Durango - Lots for employee parking with $30 monthly permits

PARKING OPINION SURVEY RESULTS

There were 408 responses to the parking opinion survey posted on the city's website from July 15th to August 3rd. There were also several additional comments on parking that have been categorized and the top 15 comments are listed under question #7.

1. I am a Downtown…

Resident	31%
Employee	12%
Business Owner	9%
Customer	32%
Visitor	11%
Other	5%

2. I primarily park…

On street	61%
Off street	39%

3. What are your perception of parking in downtown Steamboat Springs on:

Weekdays

Very Available	30%
Somewhat Available	41%
Somewhat Unavailable	20%
Very Unavailable	9%

Weekends

Very Available	9%
Somewhat Available	26%
Somewhat Unavailable	26%
Very Unavailable	38%

Evenings

Very Available	16%
Somewhat Available	26%
Somewhat Unavailable	32%
Very Unavailable	26%

4. What are the top 5 important parking issues to you?

   1. Free parking
   2. Availability of on-street parking
   3. Location of parking and walking distance
   4. Availability of off-street parking
   5. Time limits

5. Does the lack of conveniently located parking deter you from coming downtown?

Yes	46%
No	54%

6. Do you think the most conveniently located on-street spaces should be metered to better serve downtown customers and visitors?

Yes	33%
No	67%

7. Please share any other comments you feel would be applicable to the study. Following are the top 15 comments from the 408 responses to the survey:

		Number of Comments
1.	The city should build a downtown parking structure	122
2.	Opposed to meters/paid parking	40
3.	There is enough parking downtown/There is no parking problem	33
4.	In favor of meters/paid parking	25
5.	Do not eliminate more parking on Yampa St.	22
6.	There is not enough parking downtown	20
7.	More enforcement is needed downtown	15
8.	Downtown employees should park off street/remotely	15
9.	Encourage employee parking at Howelsen Hill and rodeo grounds with shuttle	11
10.	Eliminate parking on Yampa Street for a pedestrian mall, bicycles & buses	10
11.	Use alternative modes of transportation	9
12.	Do not like the city's improvements on Yampa St.	8
13.	City should acquire property and build parking lots	7
14.	On-street parking is dangerous on Lincoln Avenue due to traffic	6
15.	More one-way traffic on streets and additional diagonal parking	5

BUSINESS SURVEY RESULTS

There were 64 responses to the business survey by downtown businesses. Following are the percentage of responses by type of business:

Retail	51%
Office	20%
Restaurant	18%
Service	5%
Bar/Lounge	4%
Institutional	2%

Business hours of operation are on average from 8:30 AM to 7:30 PM on weekdays and from 9:30 AM to 5:30 PM on weekends. The businesses responding had from 0 to 54 employees, and the average number of employees is 12. Following is a breakdown of businesses by number of employees:

No employees	6%
1-5 employees	40%
6-10 employees	29%
11+ employees	25%

There are more employees present between 8:00 AM and 5:00 PM on weekdays than on weekends or weekday evenings. Following are the modes of transportation during the summer and winter months for employees:

	Summer	Winter
Drive	53%	62%
Transit	17%	24%
Bike	21%	2%
Walk	9%	12%

Following are the number of parking spaces provided off street for employees and customers/visitors:

	Employees	Customers/ Visitors
None	53%	62%
1-5	17%	24%
5-10	21%	2%
10 or more	9%	12%

Following are anticipated employee parking locations during work hours:

Off-street lot	31%
Oak Street	18%
Yampa Street	18%
Side streets between Yampa & Oak	18%
Side streets between Oak & Pine	9%
Lincoln Avenue	5%
Pine Street	1%

ON-STREET PARKING RECOMMENDATIONS

Both on-street meters and LPR enforcement will effectively remove long-term parkers from short-term spaces and increase the turnover of the most convenient and desirable parking spaces in downtown Steamboat Springs. Meters will have the added benefit of generating far more revenue for the city than LPR. DESMAN was engaged a few years ago by a city in the western United States that was considering removing their existing meters and implementing LPR for more effective enforcement. As part of the assessment of LPR, we interviewed parking administrators from a city in Colorado and a city in Montana where parking meters were removed several years earlier due to the building of suburban malls with free parking. Due to the all too familiar problem of employees parking in the most convenient on-street spaces without effective detection, they both elected to implement LPR. The parking administrators strongly supported putting meters back in their cities, but neither believed that the downtown

businesses community would support parking meters at the time. Parking meters, in their opinion, would generate far more revenue than fines were producing, improve turnover, and make it easier to enforce parking regulations. They believed that downtown patrons would rather pay a small amount of money for convenient on-street parking rather than receive a parking ticket for overtime parking. They said that parking meters are only a problem if the price is too high.

It is recommended that the City of Steamboat Springs consider the installation of parking meters downtown. Four of the five peer towns and cities have parking meters in their downtown areas and the fifth one is considering adding meters. Despite significant community opposition to meters presently, DESMAN believes they will ultimately be accepted and successful, as is the case in Aspen today. There were protests in Aspen prior to the installation of meters in 1995. Despite the initial protests, metered on-street parking was quickly accepted and has worked well in Aspen. Aspen's voters supported the paid-parking program by a 3 to 1 margin in a 1995 municipal election soon after the meters were installed. Aspen's citizens now strongly support the program. Following is an excerpt from *The High Cost of Free Parking* by Donald Shoup:

> Most downtown business people now agree that the attractiveness of available convenient parking for their shoppers and patrons has far offset any disadvantages of paid parking.

Aspen's residents voted for paid parking because it has several advantages. It makes convenient parking more available, increases the use of off-street parking, helps the environment by reducing cruising, saves energy, and raises a substantial amount of revenue largely from visitors.

Downtown business owners and other key stakeholders may better support parking meters if the revenue generated by the meters will be reinvested downtown. A Parking Benefit District is a program where the city agrees to return all or percentage of net parking revenue back to the area where the revenue is generated for capital improvements (such as a parking structure) and beautification projects. Two examples of successful Parking Benefit Districts include Boulder, CO and Old Pasadena, CA. In Boulder parking revenues are used to encourage the use of alternative travel modes. Parking revenue in Pasadena is used for streetscape improvements and maintenance.

Table 15 shows parking utilization by street during the peak AM and PM hours on Friday and Saturday within the Central Downtown Area. With few exceptions, the on-street spaces were filled to over 85% of capacity. The on-street spaces were filled overall to 84% of capacity on Friday at 1:00 PM, 92% on Friday at 6:00 PM, and 96% on Saturday at 11:00 AM. The Central Downtown Area represents the recommended blocks for the initial installation of parking meters. There are 44 block faces with an estimated 580 on-street spaces within this area. With 580 metered spaces there will still be 914 public on- and off-street parking spaces that will be free.

Table 15.
Central Downtown Area
Peak-Hour Parking Utilization by Street

Street/ Avenue	Number of Spaces	Spaces Utilized		
		Fri. 1:00 PM	Fri. 6:00 PM	Sat. 11:00 AM
5th St.	64	53	62	63
% Utilized:		83%	97%	98%
6th St.	72	65	68	69
% Utilized:		90%	94%	96%
7th St.	48	43	50	36
% Utilized:		90%	104%	103%
8th St.	76	68	72	74
% Utilized:		89%	95%	97%
9th St.	53	52	52	54
% Utilized:		98%	98%	102%
10th St.	64	42	45	64
% Utilized:		66%	70%	100%
Lincoln Ave.	99	68	84	90
% Utilized:		69%	85%	91%
Yampa St.	104	96	102	88
% Utilized:		92%	98%	72%
Total:	580	487	535	538
% Utilized:		84%	92%	98%

7th St. percent utilized on Saturday is based on 35 spaces.
Yampa St. percent utilized on Saturday is based on 122 spaces.
The total percent utilized on Saturday is based on 551 spaces.

It is recommended to further explore both single-space and multi-space meters. Although it is thought that single-space meters would be more user-friendly, convenient and better understood and accepted by users than multi-space meters, there could be issues with snow removal on the sidewalks. Like Aspen, it is recommended to install electronic meters at busy corners for people running errands at a rate of $0.50 for up to 30 minutes of parking. The recommend minimum hourly rate is $1.00 per hour with 2-hour and 3-hour maximums as currently signed. It is recommended to enforce the meters Monday through Saturday from 10:00 AM to 8:00 PM.

It is suggested to set up pilot programs to test the meters prior to requesting bids. The trial and testing of the meters is usually free (except for expenses). If the meters are temporarily installed for testing it will be vitally important to communicate that the city is testing the meters and to survey users of the meters.

"Smart" Single-Space Meters

As previously mentioned, the latest single-space meters are solar powered, have rechargeable battery packs, and are wirelessly networked to a remote web-based management system. The system allows remote diagnostics and configuration of the meters. The meters accept coins, tokens, credit cards, debit cards and smart cards. It is also possible to pay by cell phone. The meters can also come with a wireless sensor embedded in the pavement to reset the meters to "0" when a vehicle vacates a parking space. IPS Group Inc. was the first to introduce the smart single-space meters and they have the overwhelming majority of installations in the United States (reported 98% market share). The meters are easy to use and provide the traditional benefits of single space metering.

There are on-going monthly expenses associated with the meters, including secure wireless, management system license, and credit card transaction fees. The cost per meter for secure wireless is $3.75 per month and the cost per meter for the management system license is $2.00 per month. The IPS credit card fee is $0.13 per transaction, which is in addition to bank credit card processing fees. The ongoing fees are subject to annual adjustment due to inflation, which is based on the Consumer Price Index. The fees require a minimum hourly rate of $1.00, although there are towns and cities with lower meter rates that have installed the meters with the main purpose of providing better customer service and convenience.

The M5 meter is the fifth generation IPS meter. It operates for a guaranteed five years on an IPS battery pack and has a larger 160 x 160 pixel display screen. It has tri-colored lights on the front and back to alert enforcement of meter status: green (paid), red (unpaid) and yellow (meter fault). Following is a breakdown of the cost of the meters from IPS:

Meter Head	$520
Meter Housing	$195
RFID	N/C
Meter Pole & Installation	$150
Total:	$865 x 580 spaces = $501,700

The actual cost per meter will be less than presented above because two meters can share one pole with a twin meter yoke assembly. This brings the cost down to approximately $815 per meter, or $472,700 for 580 meters. The cost does not include the optional sensor, which is an additional $275 per meter including installation.

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Multi-Space Meters

The local representative for Digital Payment Technologies is located in Denver and has worked with DESMAN and Scot Martin on several occasions. They are a highly reputable and responsive company with respect to customer service. The Luke II multi-space meter, pictured on the right, is probably the most popular meter in the Denver area. Luke II is a flexible and highly secure pay station. It provides a wide range of payment options, including pay-by-phone. It has an easy to read screen, is intuitive to use, and is easily recognizable as a pay station. It can be configured as pay-and-display, pay-by-space or pay-by-license plate number. It is available in solar and AC configurations and in a variety of colors.

The Digital Luke II multi-space meters are in the range of $11,500 to $13,500 per unit installed. Given 44 block faces and assuming one meter per block face, the meters would cost $506,000 to $594,000. Given the sale of multiple meters, Digital would probably be very competitive in their pricing. There would also be an additional cost for signage associated with multi-space meters of an estimated $5,720 (two signs per meter at $65 each). The monthly management, phone, data and transaction fee is $90 per month per meter for up to 2,000 transactions per month per meter. Each additional transaction above 2,000 per month is $0.02.

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Estimated Meter Revenues and Expenses

The cost of installing single-space meters in downtown Steamboat Springs will be less expensive than installing multi-space meters. On the other hand, the expenses associated with single-space meters are more than with multi-space meters because of an additional credit card fee and more meters to service and maintain. Following are revenue and expense projections for the IPS and Digital metered parking

systems based on 580 spaces and 44 block faces. The revenue for the single-space and multi-space meters will be the same. As seen below, the parking meters are estimated to generate first year revenue of $421,479, which equates to annual revenue of approximately $727 per space for 580 metered spaces. Adding the estimated downtown meter citation revenue of $42,106 to the estimated meter revenue of $421,479, results in total revenue of $463,585. The citation revenue anticipates that first citations, which represent 70% of the citations written, are warning tickets.

Estimated Parking Meter Revenue

Number of Metered Spaces	580
Average Occupancy	55%
Average Turnover	2.5
Number of Days (1)	302
Average Fee (2)	$1.75
Meter Revenue:	$421,479
Citation Revenue (3):	$42,106
Total Revenue:	$463,585

(1) 52 weeks X 6 days per week less 10 days for holidays.
(2) Average stay of 1.5 hours plus 15% ± overpayment.
(3) One-third of meter revenue less 70% for first (warning) citations.

Following are the estimated expenses for the IPS single-space meters. The expenses anticipate that there are two more meter personnel, including a full-time enforcement officer and a meter collection and maintenance person. The expenses do not include debt service or lease payments for the new parking meters nor the salary and benefits for a parking manager, if hired.

IPS Single-Space Meter Expenses & Net Revenue

Personnel (1)	$100,000
Management, Phone, Data & Transaction Fees (2)	$40,020
Bank and IPS Credit Card Fees (3)	$11,440
Repair/Maintenance (4)	$23,200
Misc. (5)	$8,733
Total Expenses:	$183,393
Net Revenue:	$280,192

(1) Includes payroll and benefits for 2 more positions.
(2) 580 meters x $5.75/month.
(3) Estimated 25% transactions by credit card x $0.19/transaction.
(4) Estimated $40/meter per year (includes battery replacement).
(5) Estimated 5% of other expenses.

Given an estimated $463,585 in revenue and $183,393 in expenses, the parking meters will generate an estimated $280,192 in net revenue the first year. The return on the investment in meters will be under two years. The life span of the meters before replacement is at least ten years.

Following are the estimated expenses for the Digital multi-space meters. The expenses anticipate that there are 1.5 more meter personnel, including a full-time enforcement officer and a part-time meter collection and maintenance person. The expenses do not include debt service or lease payments for the new parking meters nor the salary and benefits for a parking manager, if hired.

Digital Multi-Space Meter Expenses & Net Revenue

Personnel (1)	$75,000
Management, Phone, Data & Transaction Fees (2)	$47,520
Bank Credit Card Fees (3)	$3,613
Receipt Paper (4)	$2,410
Repair/Maintenance (5)	$3,520
Misc. (6)	$6,603
Total Expenses:	$138,666
Net Revenue:	$324,919

(1) Includes payroll and benefits for 1.5 more positions.
(2) $90 per meter per month.
(3) Estimated 25% transactions by credit card x $0.06/transaction.
(4) 3,500 receipts/roll @ $35/roll.
(5) Estimated $80/meter per year (includes battery replacement).
(6) Estimated 5% of other expenses.

Given an estimated $463,585 in revenue and $138,666 in expenses, the parking meters will generate an estimated $324,919 in net revenue the first year. The return on the investment in meters will be about a year and a half on the low end ($11,500 per meter) and a little under two years on the high end ($13,500 per meter). The life span of the meters before replacement is at least ten years.

It should be noted that the expenses for the meters anticipate only 25% of the first-year transactions are by credit card. The use of credit cards to pay for parking will increase over time and may represent 75% of more of the transactions in the future as meter rates increase.

License Plate Recognition

It is also recommended that the city further explore LPR enforcement to more efficiently and effectively enforce the reaming on- and off-street time limited spaces in the downtown area. LPR could also be used, if it becomes necessary, to enforce a residential permit zone north of Oak Street. Parking enforcement revenue would increase significantly and one full-time enforcement officer could cover the fringe areas of downtown several times a day. Overtime parking in the time-limited zones would be virtually eliminated and it would be possible to track employees and others moving their vehicles to avoid receiving a citation. A vehicle would have to be purchased or provided for the LPR cameras. If LPR enforcement is implemented prior to installing parking meters, the decision on meters should be deferred a few years to provide adequate time to analyze the effectiveness of LPR enforcement. One full-time enforcement officer could cover the entire downtown area. If the enforcement area expands outside of the downtown, the hiring of additional enforcement officers would be recommended.

AutoVu by Genetec

The best known and widely used system is AutoVu by Genetec. The system is equipped with dual infrared cameras mounted to a vehicle that automatically reads license plates as the vehicle travels around at about 15 mph. The license plate is then compared to an onboard database of license plates to determine if it is in violation. The system is particularly effective in detecting overtime parking and shuffling.

Other features include digital wheel imaging, vehicle images, time stamps and GPS coordinates, which reduces the number of parking ticket disputes. With this type of system, it would no longer be necessary for the enforcement officer to manually chalk tires, and the system is over three times faster than chalking tires. With no chalking, downtown parkers will not know whether parking enforcement has marked their vehicle or not. The system has the ability to automatically adjust to different parking time zone durations. The cost of the mobile system (hardware and software) is in the range of $40,000 to $50,000, exclusive of the enforcement vehicle. The return on investment with this type of system, because of its efficiency and ability to detect overtime parking violations, is usually about one year. Clients in Colorado include the City of Aspen, Town of Breckinridge, City of Denver, City of Fort Collins, Colorado State University, and Auraria Higher Education Center. Local support and service is provided by PCS Mobile in Denver. Genetec and PCS Mobile are interested in demonstrating the system.

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autoChalk Mobile by Tannery Creek Systems

Another system that the city should consider is autoChalk Mobile by Tannery Creek Systems. Their system uses high-tech digital imaging to detect parking time violations while scanning at normal traffic speed (reported 30 mph). autoChalk reads vehicle license plate numbers, uses a GPS system and lazars for color images showing the license plate, wheel, whole vehicle profile and background content (e.g. building front), which provides situational evidence for the enforcement officer. As the parking enforcement officer drives by a violating vehicle, autoChalk sounds an alarm. Before and after images are recorded of the vehicles profile and the license plate number and the enforcement officer makes the decision to ticket or not based on the photographic evidence. The system has the ability to automatically adjust to different parking time zone durations.

The autoChalk system utilizes four cameras (two on the front of the vehicle and two on the rear of the vehicle) and the cameras work best if mounted to a standard sized vehicle. They also recommend reading only one side of the street at a time. Their list of clients and references include the cities of Calgary, Madison, WI; Fredericksburg, VA, Santa Barbara, CA and Santa Rosa, CA. The cost of the complete system is $50,000 to $65,000, exclusive of the enforcement vehicle. The system comes with a one year warranty and hardware and software upgrades. There is an optional full maintenance plan in the second and subsequent years, which is 20% of the purchase price. They also offer remote diagnostics on equipment, which generally reduces system downtime. autoChalk typically has a return on investment of about a year.

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LPR Read Rates

At 15 mph a LPR system has the theoretical ability to read up to 1,800 license plates an hour. At 30 mph a LPR system has the theoretical ability to read up to 3,600 license plates an hour. However, actual read rates per hour will be less than the reported read rates and will vary depending upon the route traveled, the number of stop signs and traffic lights, pedestrian/vehicle traffic volumes, and weather conditions. Also impacting the read rate will be the number of times the vehicle stops so the enforcement officer can write a parking citation.

OFF-STREET PARKING RECOMMENDATIONS

It is recommended to maintain free parking in the public parking lots to encourage their use. Consideration should be given to converting the time limit in the parking lot located at 8th Street and Oak Street from 2 hours to 8 hours to accommodate the downtown employees displaced from short-term spaces because of the installation of meters and/or increased enforcement with LPR.

PARKING IMPROVEMENTS

Restriping Parking Spaces

Parking dimensions have been developed to comfortably accommodate the composite design vehicle, which refers to the dimensions of the 85th percentile vehicle in the range of all cars, pickups, vans, sport utility and crossover vehicles from smallest (zero percentile) to largest (100th percentile) based on 2010 sales. The composite design vehicle is currently the size of a Chevrolet Traverse, pictured below. The dimensions of this crossover vehicle are 6'-7" in width by 17'-1" in length. The average sized pickup, the size of a GMC Sierra 1500, is only slightly wider at 6'-8". The dimensions of the composite design vehicle have varied very minimally over the past 25 years in the United States.

Chevrolet Traverse

GMC Sierra 1500

The National Parking Association (NPA) recommends parking space widths of 8'-3" to 8'-6" for low turnover parking (employees, students, etc.), 8'-6" to 8'-9" for moderate turnover parking, and 8'-9" to 9'-0" for high turnover parking (retail, visitors, etc.). Parking stall widths are based on door opening clearances and the width of the drive aisle or street to maneuver in and out of a parking space. Door opening clearances (distance between vehicles) should range from 20" for low turnover parking to a maximum of 30" for high turnover parking. Combining these dimensions with the current composite design vehicle width results in parking space widths between 8'-3" and 9'-1". Given the common acceptance of 9'-0" as a comfortable width, the NPA recommends limiting the upper end recommendation to 9'-0".

The city's parking space width requirement in the Community Development Code is 9'-0" wide for all zone districts, excluding the industrial zone district. There are presently a combination of 9'-0" and 10'-0" wide parking spaces throughout the downtown area. Consideration should be given to reducing the width of the existing 10'-0" wide spaces downtown, both on street and off street, to 9'-0" to add

additional spaces. Where there are at least nine consecutive 10'-0" wide spaces they can be restriped at 9'-0" and one more space added. Where there are ten or more consecutive spaces, the spaces can be restriped slightly wider than 9'-0". It is estimated that approximately 35 to 40 more on-street spaces can be added downtown by restriping. Information has been provided to the Public Works Department on the location of the wide spaces. In addition, the parking layout at the public lot at 8th Street and Oak Street can be reconfigured and spaces added. Figure 5 illustrates a possible parking layout for the public lot and the restriping of 3-hour on-street spaces on 8th Street with 9'-0" spaces. Three more on-street spaces and 12 more off-street spaces are provided in this layout. It should be noted that signs in the lot will need to be relocated to accommodate the proposed layout.

Parking Structure

Shown in Figures 6-6B are conceptual plans for a proposed four-level parking structure located on the public parking lot at 8th Street and Oak Street. The parking lot represents the only site the city currently owns that could accommodate a parking structure. The parking structure footprint is 140' in length by 122' in width. Provided in the 68,310 square foot parking structure are 162 parking spaces, for parking efficiency of 422 square feet per space, which represents an inefficient layout due to the small site and ramping requirements. There is a net gain of 112 parking spaces at this location given the displacement of 50 existing spaces in the parking lot.

The 90-degree parking spaces are 9'-0" x 18'-0" and the standard drive aisles are 24' wide to accommodate two-way traffic flow throughout the parking structure. The end-bay drive aisles are wider for improved turning maneuverability. The 162-space parking structure requires six accessible spaces, of which one should be van accessible with wider access aisle and minimum 8'-2" vertical clearance. Each side of the facility is ramped for vertical vehicle circulation. The parking ramp slopes are approximately 6% and the average non-parking ramp slope is approximately 10%.

There is one dedicated vehicle entry lane and one dedicated exit lane in the parking structure in the northwest corner off of Oak Street. Traffic would be directed to the parking structure from Lincoln Avenue via 9th Street. Stairs are located in the northeast and southeast corners and there is one elevator located next to the stair in the southeast corner. The parking structure is estimated to represent a construction cost of approximately $4.6 million, which represents a cost per space of $28,395. The high cost per parking space is due to the small site and inefficient parking layout, one level below grade to minimize the height, and overall higher construction costs in Steamboat Springs. This site is also not a viable location for a parking structure with ground-floor retail space and/or housing above the parking. A parking structure is also thought to be more viable at a location south of Lincoln Street rather than north of Lincoln Street.

There have been two sites mentioned that are likely to become available in the near future that would better accommodate a mixed-use project with structured parking than the 8th and Oak site. The Yampa Valley Electric Associates (YVEA) site and Police Services at 840 Yampa Street are larger and better

located to efficiently accommodate a multi-level parking structure and represent more viable locations for a mixed-use project including retail, office and/or housing units. The YVEA redevelopment is anticipated in the next two to five years and Police Services redevelopment is anticipated within the next three to seven years.

When YVEA vacates downtown in favor of a suburban location, their 42-space lot on Block 21 would also be available. As indicated in Figure 7, the capacity of the lot could be increased to 48 spaces by restriping the lot more efficiently.

CONCLUSION

Based on parking utilization surveys conducted in downtown Steamboat Springs on a busy summer weekend, there is currently the need for 82 more public parking spaces. A turnover survey suggests that approximately 10% of the most convenient on-street parking spaces are being occupied by downtown employees and technologies should be further explored to discourage long-term use of short-term spaces. These technologies include parking meters and LPR enforcement. Meters are favored over increased enforcement with LPR because they will generate far more revenue than fines, improve turnover and enhance enforcement. The return on investment for the meters is estimated at about two years and the return on investment for LPR is about one year. It is recommended to maintain free parking in the public lots to encourage their use. The next step for the city is to set up a pilot program for the temporary testing of meters and/or to request a demonstration of LPR enforcement.

An estimated 35 to 40 on-street parking spaces can be inexpensively added downtown by restriping with narrower spaces. In addition, the parking layout at the public lot at 8th Street and Oak Street can be reconfigured and 12 more spaces added. The only site the city currently owns that is large enough to accommodate a parking structure is the lot at 8th Street and Oak Street. A four-level parking structure would provide 162 spaces at an estimated cost of over $28,000 per space. Two sites that will likely become available south of Lincoln Street are favored for a mixed-use project with parking, retail, office and and/or housing units.

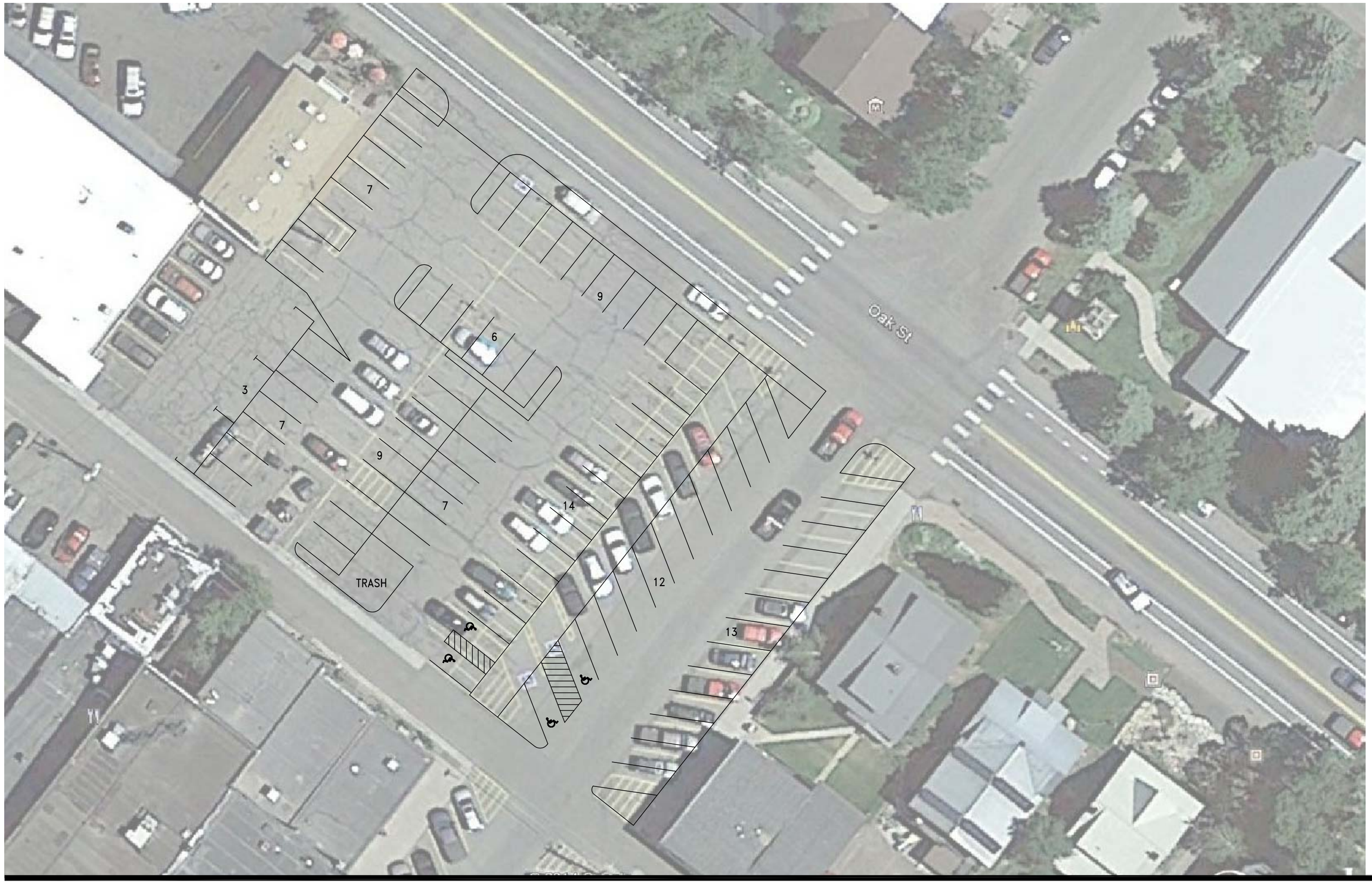


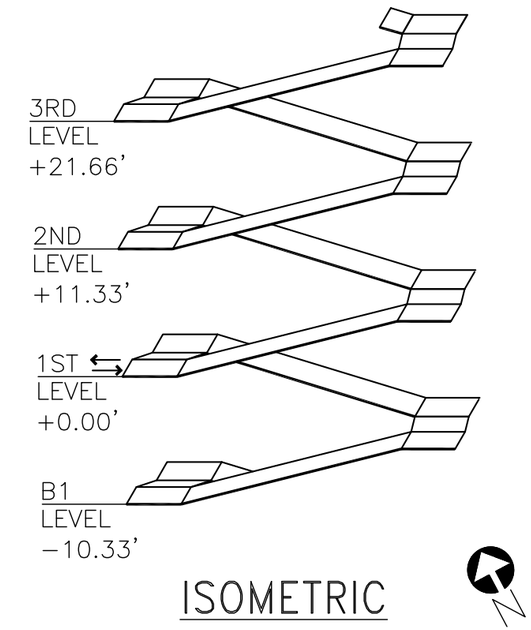
Figure 5

8th & Oak Lot and 8th Street Restripe

87 Spaces (+15 Spaces)

Steamboat Springs, Colorado

DESMAN
ASSOCIATES



SPACE TABULATION CHART

Level	Standard	Accessible	Total
B1	38	2	40
1	38	2	40
2	41	2	43
3	39	0	39
Total:	156	6	162

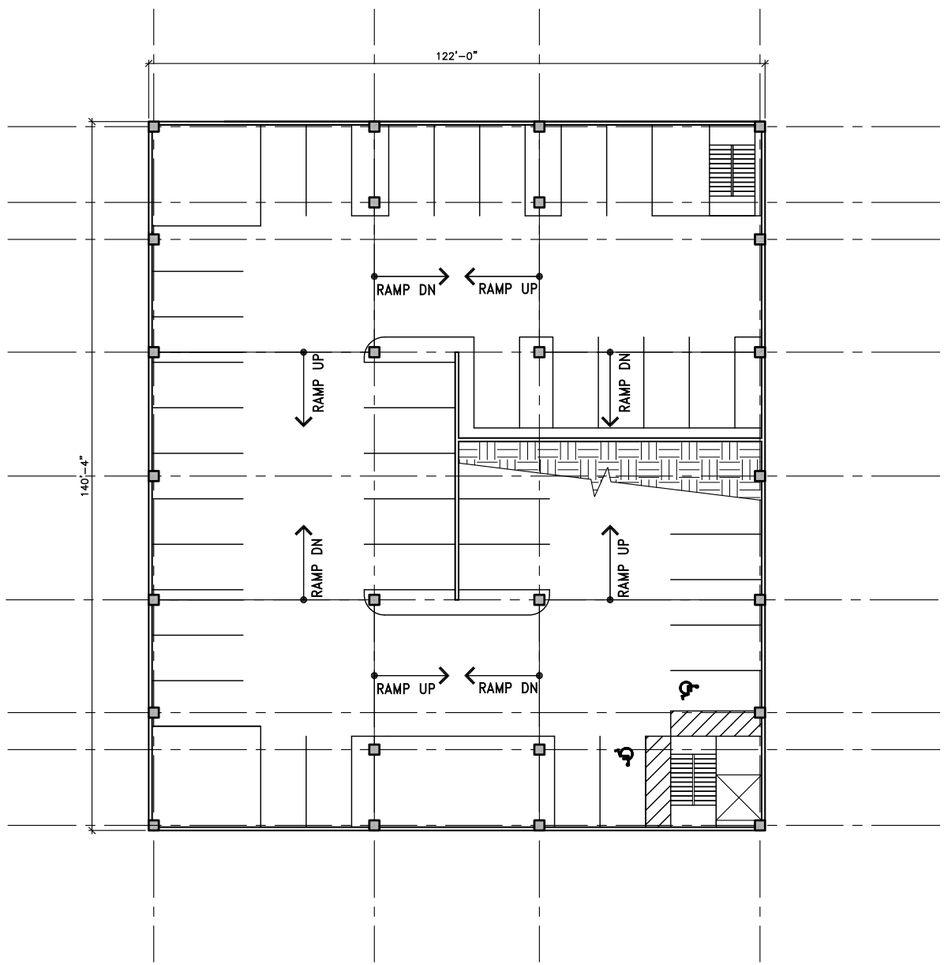
Figure 6

8th & Oak Parking Structure

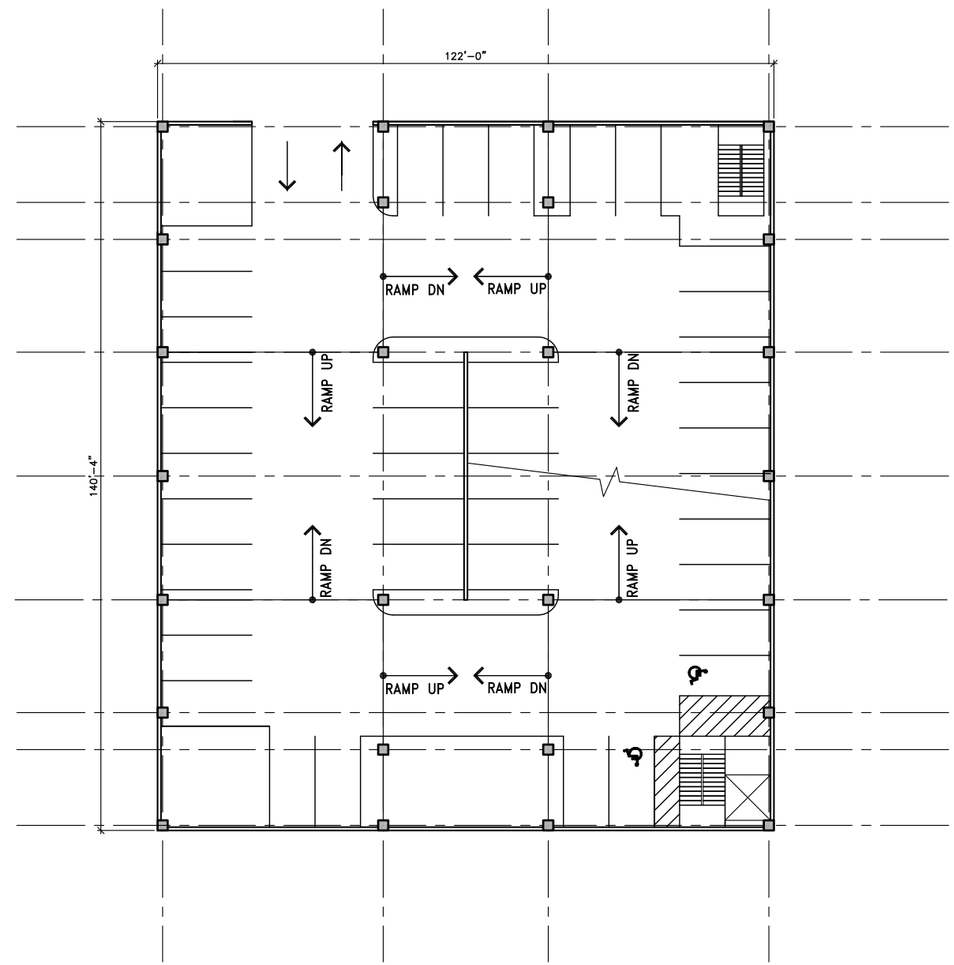
Site Plan

Steamboat Springs, Colorado

DESMAN
ASSOCIATES



LEVEL B1



LEVEL 1

NORTH

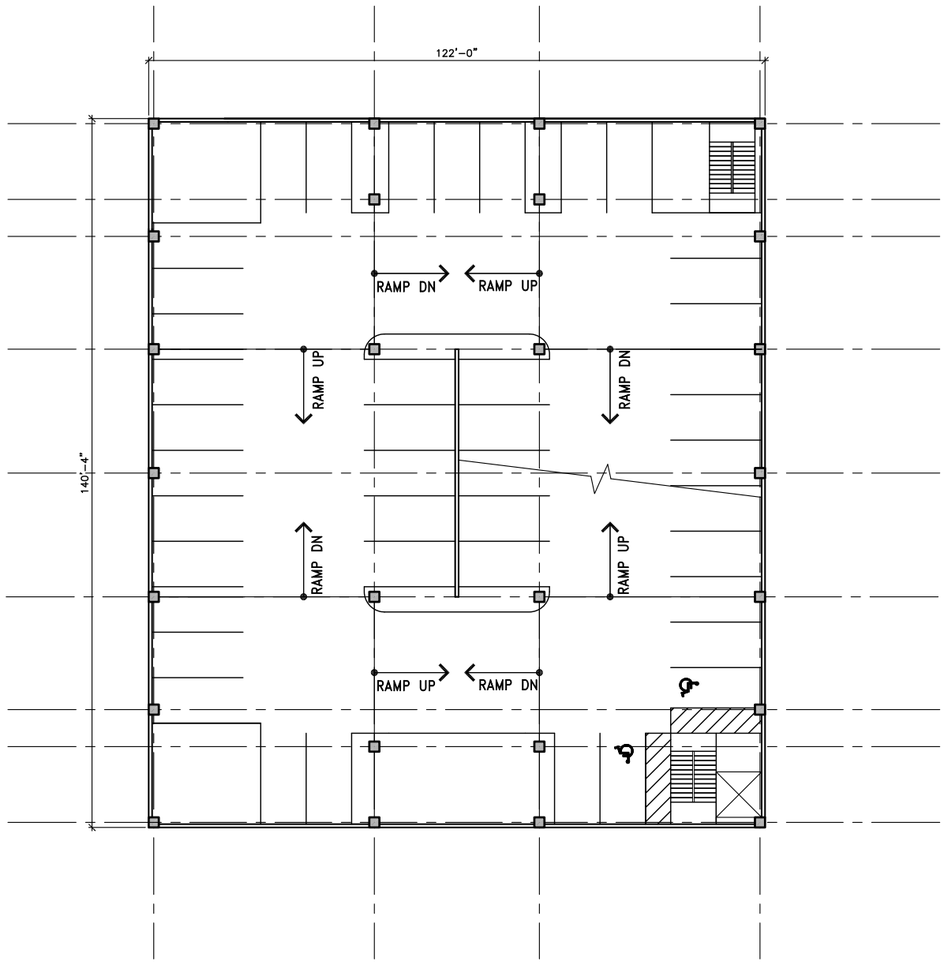
Figure 6A

8th & Oak Parking Structure

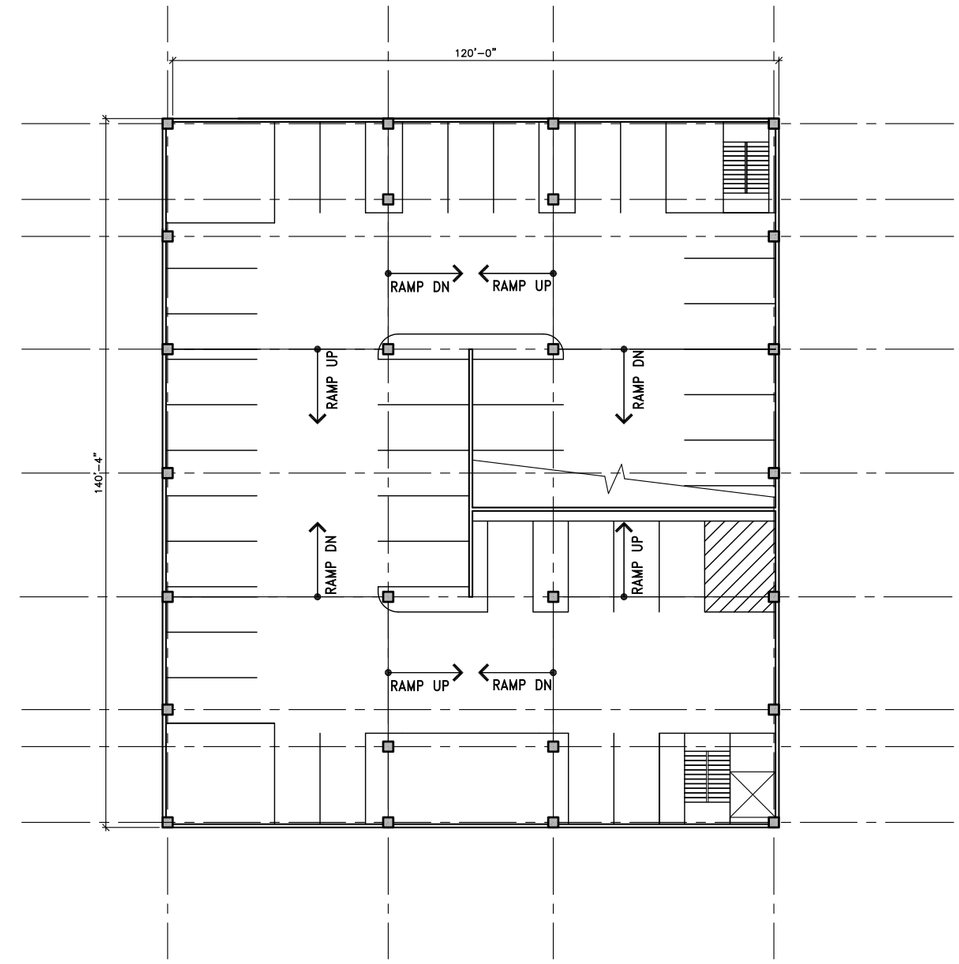
Levels B1 & 1 Parking Plans

Steamboat Springs, Colorado

DESMAN ASSOCIATES



LEVEL 2



LEVEL 3

NORTH

Figure 6B

8th & Oak Parking Structure

Levels 2 & 3 Parking Plans

Steamboat Springs, Colorado

DESMAN ASSOCIATES

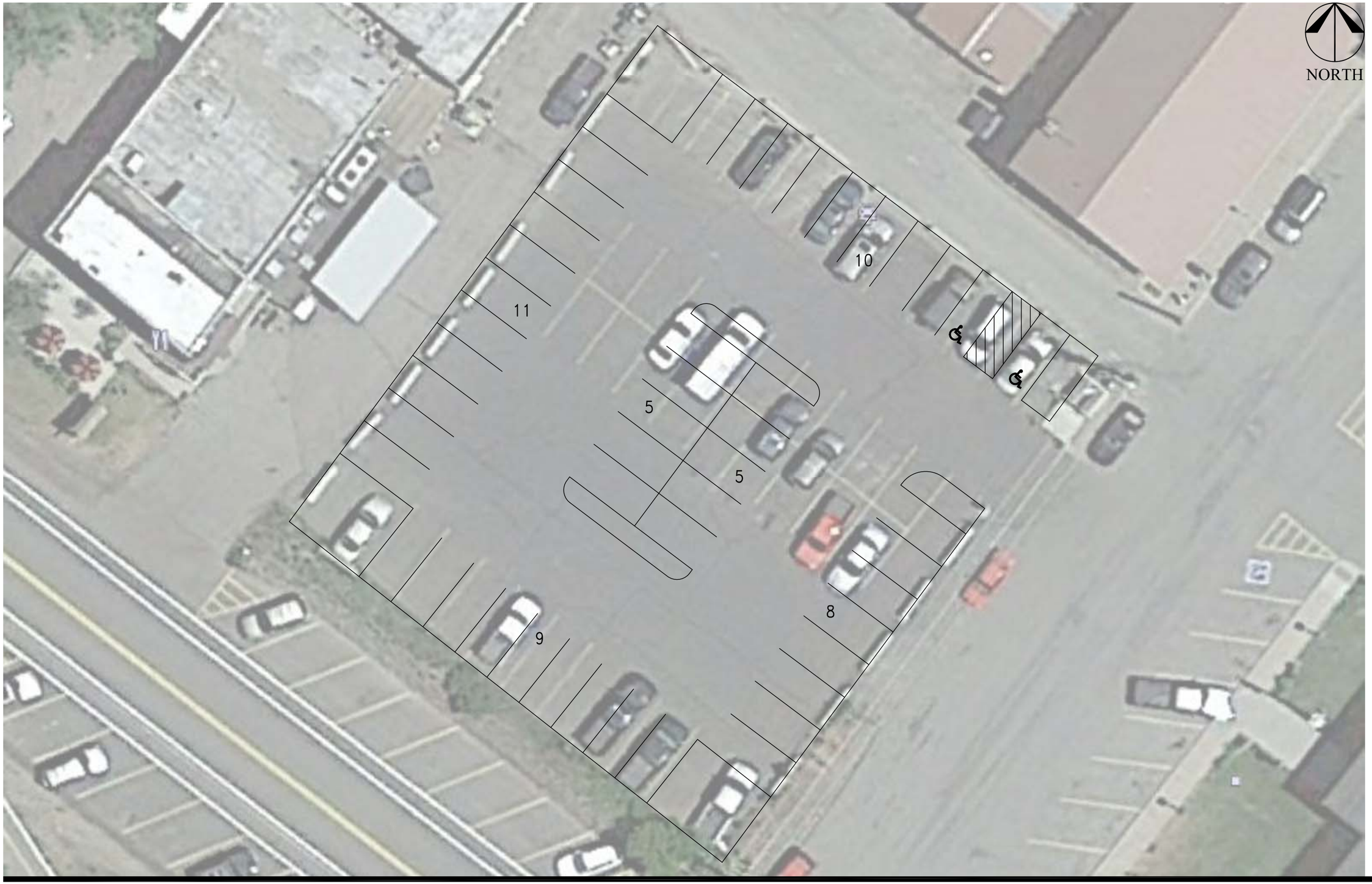


Figure 7

YVEA Lot Restripe

48 Spaces (+6)

Steamboat Springs, Colorado

DESMAN ASSOCIATES