White Paper #1: Downtown Parking Demand Assessment

1.0 Introduction

The downtown of Hood River consists of a variety of uses including retail, restaurant, office and limited residential. The primary zoning in downtown is General Commercial (C-2), which allows residential uses. Given this mix of uses, perceptions of inconsistent parking requirements for new development, and anticipated commercial and residential growth, the City is interested in accurately assessing existing and future parking demands in downtown. Better understanding the actual demand dynamics of parking downtown will help the City to anticipate the impacts of new development on the current parking environment and inform potential changes to the parking code.

Unlike development of free-standing uses in suburban locations, downtowns are more commonly characterized as mixed-use environments served by a combination of on-street and off-street parking supply where users typically park once to access multiple land uses. In other words, the downtown parking supply is shared, serving a variety of land uses in a downtown (e.g., retail, restaurant, office, institution, etc.) that often display varied patterns of peak activity—whether that be weekdays, evenings, or weekends. This makes predicting and measuring parking demand for specific land uses within a downtown very difficult using traditional methods (e.g. observing parked vehicles within a parking lot over the course of a typical day, assuming all users are accessing a single land use type). To this end, assessing parking demand for a downtown is best determined using a "blended mixed-use rate of demand" for the entire downtown area. This is like treating all uses in the downtown as one might envision a shopping mall (with a mix of businesses) sharing a single supply of parking. This report is structured to develop a parking demand ratio for the downtown using this approach.

2.0 What We Currently Know

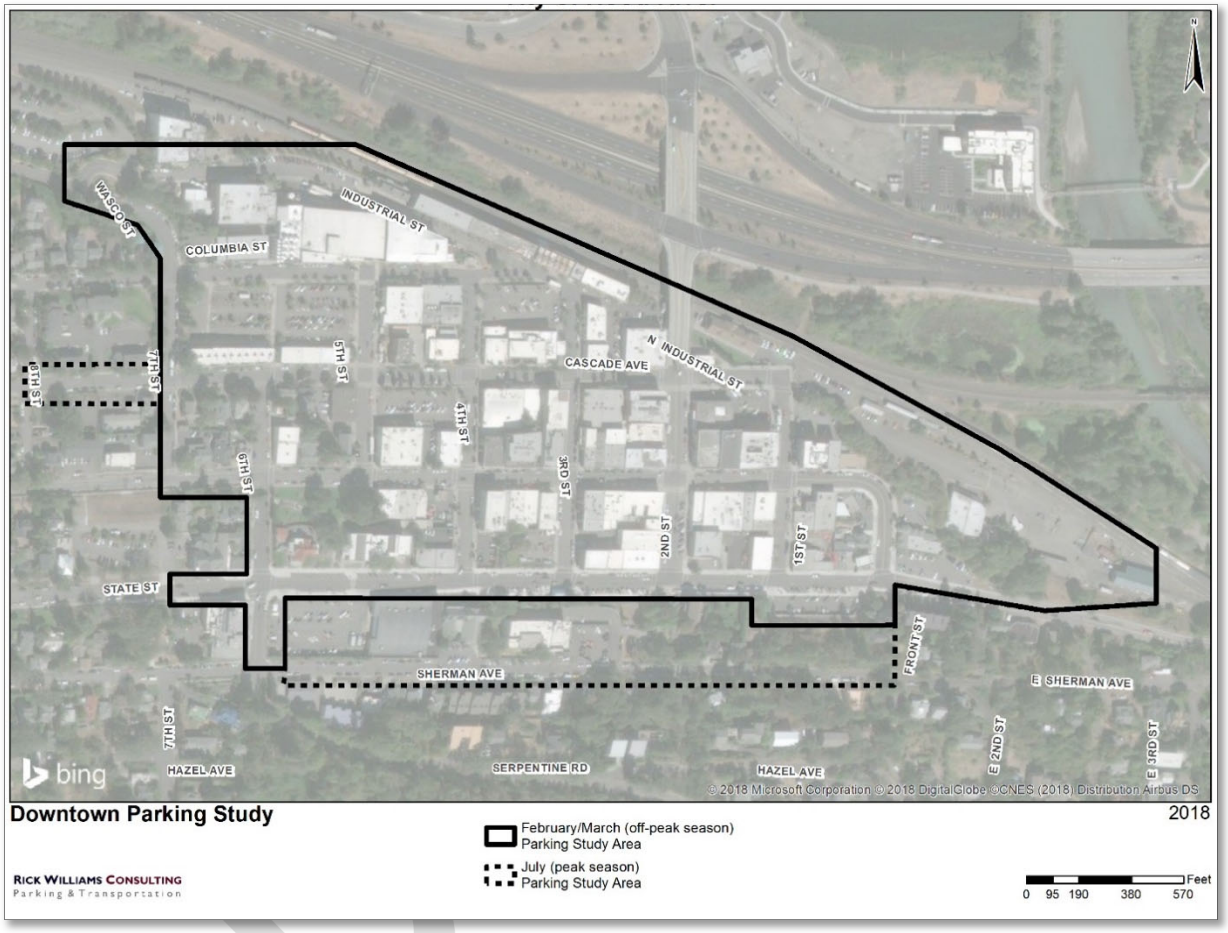
2.1. Background

In 2018, the City conducted two comprehensive studies of parking supply and utilization in the downtown. Parking utilization studies were conducted on the following days:

- **Off-Peak Season**
  - Thursday, March 8, 2018
  - Saturday, February 24, 2018
- **Peak Season**
  - Thursday, July 19, 2018
  - Saturday, July 21, 2018

During data collection, 100% of the on- and off-street parking stalls were counted each hour, providing a complete data sample for all parking over the course of a 10-hour day on each of the four study days. A map of the study area is provided in **Figure A**.[1]

Figure A: Downtown Hood River - Parking Inventory Study Area (July 2018)



2.2. Observations

Inventory (Parking Supply)

Within the parking study area, there are a total of 1,485 parking stalls. Within this total, 705 stalls are located on-street and 780 stalls are distributed across 35 public and privately-owned off-street parking lots.

[1] Detailed findings from each of these studies can be found in: Rick Williams Consulting *Technical Memorandum 1 - Data Finding Summary - Downtown Parking (March 31, 2018 v3)* and Rick Williams Consulting, *Technical Memorandum 2 – Data Finding Summary (February/March versus July 2018).*

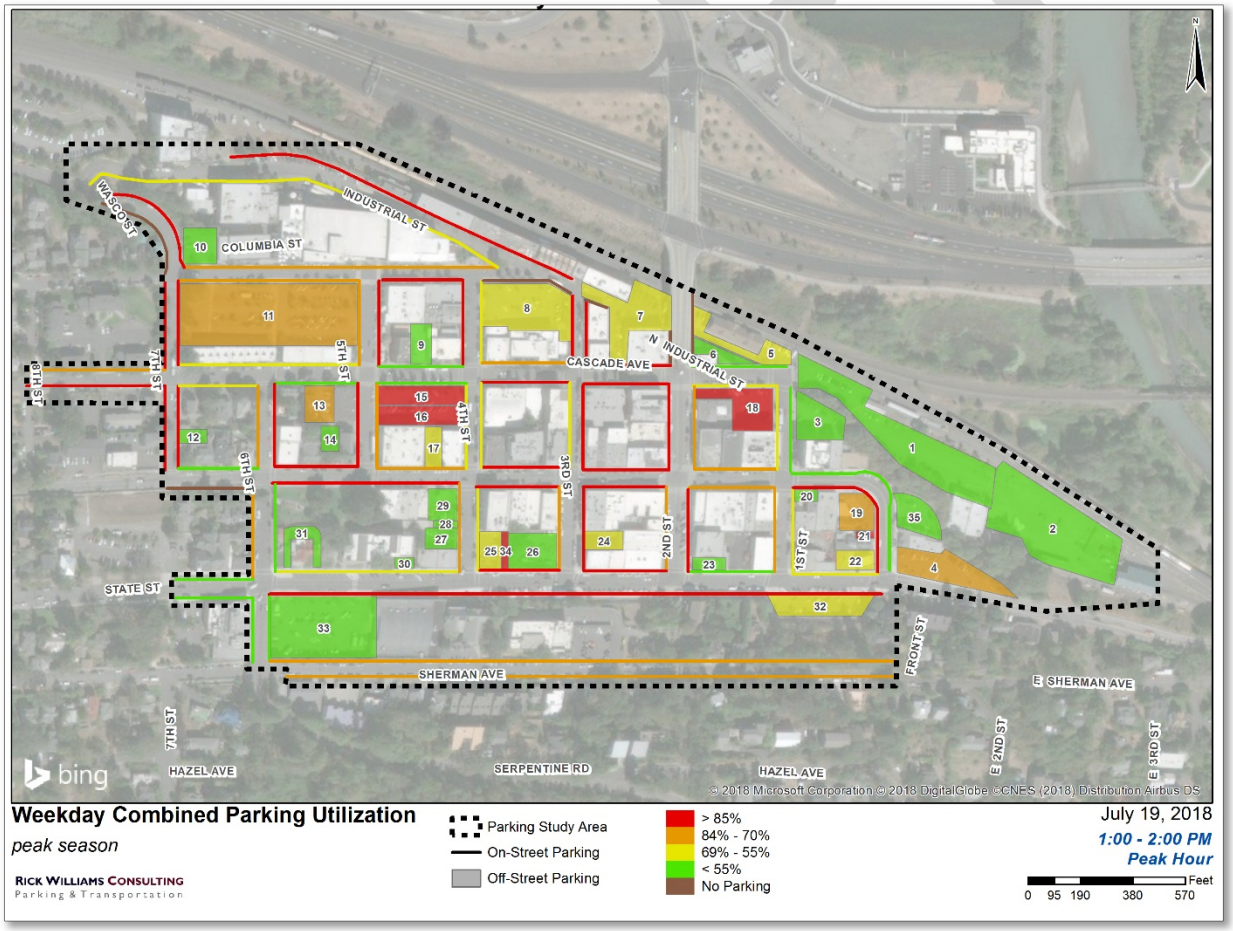
Occupancy (Parking Demand)

From the two studies, the highest level of parking activity was observed on a summer weekday (specifically, Thursday, July 19, 2018). "Highest level" is defined as the hour when the greatest number of vehicles were parked at any given hour, including all vehicles observed in both the on- and off-street supply. On this date, there were 987 vehicles parked at the highest point of activity (between 1:00 PM and 2:00 PM). Of those vehicles, 551 were on-street and 436 off-street, as highlighted in **Table 1**. A peak hour heat map (for on- and on-street supply) on the peak day is shown in **Figure B**.

Table 1: Vehicles Parked at the Highest Peak Hour (Peak/Off-Peak Comparison)

	Survey Day	On-Street Demand	Off-Street Demand	Total Demand
Off-Peak	Thursday (3/8/18)	403	384	787
Season	Saturday (2/24/18)	468	399	867
Peak	**Thursday (7/19/18)**	**551**	**436**	**987**
Season	Saturday (7/21/18)	604	362	966

Figure B: Peak Hour Heat Map (Thursday, July 19, 2018)



3.0 Determining Actual Local Parking Demand (Blended Rate)

3.1. Approach Overview

Parking ratios express the actual number of parking spaces available to serve parking demand for land uses (i.e., office, retail, residential, and/or mixed-use development). The number of stalls represented by a parking ratio is a measure of *supply*, and therefore may exceed or underestimate actual parking *demand*. Demand ratios, on the other hand, represent an estimate of the actual number of parked vehicles during the peak hour of use for specific land uses. Effectively managing and understanding the difference between the ratio of built supply (parking ratio) and the ratio of actual demand (demand ratio) is an important element of parking management.

Parking ratios based on actual demand allow cities like Hood River to plan for parking at a rate consistent with actual use, thereby reducing overall parking development costs over time while adequately accommodating demand (or need). An understanding of actual demand also allows a city to estimate the impact of new development on an existing supply of parking and plan for new supply or new capacity options as growth occurs. The exercise represented in this section is an attempt to develop a better understanding of the built parking supply and demand for parking in downtown Hood River.

3.2. Methodology

City staff and the consultant team developed a comprehensive list of all land uses within the downtown study area. This was compiled using available land use data for tax parcels in the study area and actual physical assessment of sites to verify use type and square footage. Square footages were derived for commercial, retail, and institutional properties only (i.e., no residential)[2]. Through this process, it was determined that the total floor area for non-residential land uses in the downtown is currently 793,539 square feet. A spreadsheet of all identified commercial sites is included in this document as **Attachment A.**

With land use data in hand, the project team was able to derive three key ratios from the data analysis:

1. **Built Parking Ratio** is usually shown as stalls per 1,000 square feet of building area for commercial/industrial uses (or as stalls per housing unit or stalls per hotel room, where appropriate). The built ratio expresses a relationship between all parking stalls within the study area and the total square footage of all buildings within the study area (whether buildings are occupied or not).

2. **True Demand Ratio** reflects the true parking demand associated with a land use using actual vehicles parked during the peak hour correlated to occupied building area. The True Demand Ratio for downtown Hood River is based the highest number of vehicles observed during any hour over the four-day study period (specifically, Thursday, July 19, 2018 between 1:00 PM and 2:00 PM, when 987 vehicles were observed).

[2] An assessment for residential parking demand will be developed separately.

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3. **Calibrated True Demand (w/ Buffer):** If projects were built only to True Demand, they would theoretically be 100% occupied at their peak hour, leaving little flexibility for unique variations in the ebb and flow of parking activity over the course of a day or over time. To this end, demand models generally provide for a demand buffer or "flexibility cushion" that is added to True Demand. Traditional commercial buffers (for land uses with high turnover) are 15%, based on the parking industry's 85% Rule for visitor parking. Providing a 15% buffer for mixed use, retail, and office land uses is considered ideal.

Using these three measures, the project team was then able to express actual parking ratios per 1,000 square feet of mixed-use development for Hood River's Downtown for both the built environment and as an expression of "true" and "calibrated" demand correlated to building occupancy.

3.3. Peak Vehicle Demand

Data from the survey samples was extrapolated to the total supply of parking to derive a basis for measuring parking demand. As stated previously, the 2018 Parking Study sampled 100% of the on- and off-street parking supply in the downtown. This level of sampling provides a statistically significant representation of parking activity in all parking stalls within the downtown study area. **Table 2** summarizes the methodology used to determine the number of vehicles parked in the downtown study area during the peak hour.

Table 2: Peak Occupancy/Peak Day – All Stalls (Downtown Study Area)

Supply	Parking Stalls	Peak Demand	Available Stalls	Peak Occupancy
On-Street	705	551	154	**78.2%**
Off-Street	780	436	344	**55.9%**
Total	**1,485**	**987**	**498**	**66.5%**

3.4. Findings

Based on the methodologies described above, the following ratio calculations were derived and are summarized in **Table 3**.

Currently, there is not a definitive data point that quantifies the actual building occupancy rate for the downtown non-residential land uses. A range of building occupancies is therefore presented to provide a sensitivity analysis and resulting True Demand Ratios for different occupancy assumptions.

The following assumptions are used in this analysis:

- **Number of sites**: 134 individual sites were used in the analysis, as shown in **Attachment A.**
- **Gross Square Footage (Built)**: 793,539 square feet of built mixed uses in the downtown, based on a dataset developed by the project team (**Attachment A**).
- **Parking Stalls**: 1,485 parking stalls, including both the on- and off-street supply in downtown.

- **Built Parking Ratio**: 1.87 parking stalls per 1,000 ft^2 of built land use within the study area.[3]
- **Peak Parking Demand**: 987 parked vehicles (observed at the peak hour in summer 2018).

Table 3: Study Area Demand – Mixed Land Use to Occupied Land Use

Estimated Building Occupancy	Gross Square Footage (Occupied)	True Demand Ratio	Calibrated True Demand (with 15% Buffer)[4]
95%	753,862 ft^2	1.31 / 1,000 ft^2	1.51 / 1,000 ft^2
93%	737,991 ft^2	1.34 / 1,000 ft^2	1.54 / 1,000 ft^2
90%	714,185 ft^2	1.38 / 1,000 ft^2	1.59 / 1,000 ft^2

- **True Demand Ratio:** The ratio of actual parked vehicles (taken as 987 vehicles) compared to the estimate of occupied building area ranges from **1.31 to 1.38 vehicles per 1,000 ft^2** of occupied building floor area.
- **Calibrated True Demand Ratio (with Buffer):** When true demand is calibrated with a reasonable buffer (15%), the calibrated true demand ratio is expected to range from **1.51 to 1.59 vehicles per 1,000 ft^2** of occupied building floor area, depending on actual building occupancies.

4.0 Summary

As of 2018, parking in downtown Hood River has been built at an average rate of 1.87 stalls per 1,000 ft^2 of non-residential development, including both the on- and off-street parking supply. This rate appears to have been effective, as the 2018 parking study demonstrates that moderate stall availability exists within the off-street parking system. The True Demand for parking is estimated to range from 1.31 to 1.38 stalls per 1,000 ft^2 of non-residential development (depending on actual building occupancies the summer of 2018), with Calibrated True Demand for parking falling between 1.51 and 1.59 stalls per 1,000 ft^2.

This calibrated demand range can now provide the City with an effective tool to forecast the impacts on new non-residential development in the downtown. For example, using the Calibrated True Demand Ratio, 20,000 ft^2 of new commercial development in the downtown would be expected to generate a need for approximately 30 to 32 additional stalls during the peak hour[5].

From an historical perspective, it is interesting to note that both the Built Parking Ratio and Calibrated True Demand has increased since 2006, when the first downtown parking demand assessment was conducted. In 2006, the Built Parking Ratio was 1.54 parking stalls per 1,000 ft^2 of non-residential land use. The Calibrated True Demand for parking was 1.37 stalls per 1,000 ft^2 (see **Table 4**)[6]. This is likely

[3] The formula would be 1,485 total stalls / (793,539 ft^2 /1,000)

[4] It is important to note that some individual users will generate demand that might exceed this range. However, when viewed as a land use and access system, overall parking demand downtown would be near this number.

[5] Net demand does not include any existing parking that might be removed as a result of a new development.

[6] Table 4 also provides a summary of other cities that RWC worked with to conduct similar parking demand assessments.

reflective of increased and/or higher turnover land uses locating in the downtown and increasing use of the downtown by both locals and visitors to Hood River—an extremely popular destination city.

As this study transitions to the parking strategy phase, programs and strategies will need to be examined that assure parking is provided at a rate appropriate to growth and marketability as well as in a format that is efficient, cost effective, and supportive of the downtown vision of higher density and more compact urban development.

Table 4: Other Cities - Summary of Built Supply to Actual Demand

City	Parking Ratio (Actual Built Supply)	Calibrated True Demand (with 15% Buffer)
Beaverton, OR	4.15	1.85
Bend, OR	3.00	1.70 – 1.90
Corvallis, OR	2.00	1.50
Hillsboro, OR	3.00	1.64
Hood River, OR (2006)	1.54	1.37
Hood River, OR (2018)	1.87	1.50 - 1.59
Kirkland, WA	2.50	1.98
Lake Oswego, OR	2.65	1.79
Oregon City, OR	2.00	1.43
Redmond, WA	4.10	2.91
Sacramento CA	2.00	1.60
Salem, OR	3.15	2.04
Santa Monica, CA	2.80	1.80
Ventura, CA	2.59	1.54

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Attachment A:
Land Use Summary (Non-Residential Properties)

Key:

- C: Commercial
- I: Industrial
- LI: Light Industrial
- PF: Public Facilities

Name of Business	Address	R or C	Square Footage
HR County Court House	309 State St	**PF**	21,352
Hood River News	419 State St	**C**	24,884
Mixed Use (1st FL retail/2-3 FLs Res)	310 Oak St	**C**	6,000
Dopio at 310 Oak Street	310 Oak St 205	**R**	1,596
Uncertain (next to Full Sail)	620 Columbia St	**LI**	6,463
The Gorge Green Cross	602 Oak St	**C**	1,392
Mixed use office	508 Oak St #100	**C**	2,741
Mixed use	209/211 Oak St	**C**	7,388
Mixed use retail	416 Oak St	**C**	10,000
Restaurant	113 3Rd St	**C**	1,375
Mixed use retail	202 Oak St	**C**	4,896
Mixed use retail (2 floors)	112 Oak St	**C**	8,340
Mixed use retail	413 Oak St	**C**	3,800
City Hall (2 floors)	211 2Nd St	**PF**	8,432
Brewery of Double Mountain (north)	4 4Th St	**LI**	5,000
County Assessors	601 State St	**PF**	28,938
Lawyers Office	305 Cascade Ave	**C**	4,180
Mixed office (2 floor) (Big Y Fly, Real Carbon, Elect. Assemblers)	616 Industrial St	**C**	29,185
Mixed office (counseling)	704 Columbia St	**C**	1,876
Mixed office (6th Street Bistro, Mann Mortgage, Colt Realty Grp)	509 Cascade Ave	**C**	1,500
Mixed use (Naked Winery Building)	201 Cascade Ave	**C**	7,576
Mixed use (Mt. View Cycles, Friends of CG, Community Action)	205 Oak St	**C**	11,220
Columbia Gorge Title (1 floor)	302 Columbia St	**C**	2,152
Hood River Restaurant	108 2Nd St	**C**	6,300
Retail (first floor) - VRBO Hood River	105 Oak St	**C**	2,700
Hood River Bicycles	208 4Th St	**C**	1,697
Mixed use retail/office (multiple businesses)	504-512 Cascade Ave	**C**	6,479

Name of Business	Address	R or C	Square Footage
Ground Coffee Shop	12 Oak St	C	2,102
Butler Banking Company	208 3Rd St	C	8,146
Mixed retail (Kaze Sushi, Walk Score, Savinos)	212 4Th St	C	4,182
Retail (1st Floor) - Promotion Wetsuits, Noodle Heaven, Gustavos	416 Cascade Ave	C	3,202
Retail	111 4Th St	C	4,000
The eyeglass Store	114 Cascade Ave	C	1,200
Big Horse Brew Pub (3 floors)	115 State St	C (LI)	5,286
Gorge Property Rental (2 floors)	610 Oak St	C	4,116
Zega Chiropractic Clinic (2nd floor residential?)	208 2Nd St	C	1,276
Columbia Center for the arts	215 Cascade Ave	C	9,614
Movie theater/pizza/restaurants	111 Oak St	C	9,700
Pietros Pizza	107 2Nd St	C	6,510
Full Sail Brewer	506 Columbia St	LI	45,000
Office	307 Oak St	C	2,156
mixed office (6 Rivers Dispute, Pageworks Design, Gorge Thera.)	601 Cascade Ave	C	2,508
Hood River Cable Inc/USDA Forest Services	902 Wasco St	I	102,500
Waucoma Bookstore	212 Oak St	C	1,982
Mixed Use (Wholistic Massage, New Day Aesthetic)	104 5Th St	C	4,474
Law Office (2 floors)	212 Front St	C	2,258
Mixed Use (Everyday Threadcounts, Stolz Vine., Lucky Littles)	514 State St	C	7,103
Double Mountain Brewery (south, 2 floors)	8 4Th St	LI	5,000
Library	502 State St	PF	19,094
Union Building	512 Industrial St	C/I	5,405
Twigs (retail)	305 Oak St	C	1,892
Elks Lodge	304 Cascade Ave	C	29,616
Mixed use (Kin, Nora's Table)	110 5Th St	C	2,648
Immigration Attorney	216 Columbia St	C	5,240
Doug's Sports - Retail	101 Oak St	C	5,000
Wine Shop/Wildwood Academy/Offices	13 Railroad Ave	C/LI	11,647
Oak Street Pub	403 Oak St	C	1,130
Mt Hood Railroad Station	110 Railroad Ave	LI	5,516
Retail/Restaurant (Freshies/Surf Shop)	13 Oak St	C	7,500
Culinary Arts Program	317 State St	C	13,401
Post office	408 Cascade Ave	C	4,701
Mixed Use (Mall 202)	202 Cascade Ave	C	9,300
Youth Family Services/Next Door	212 2Nd St	C	8,400
Mixed use (1st retail bottom/2&3 office)	315 Oak St	C	11,982
Office use (Rains & Associates)	111 3Rd St	C	1,125
Office/Bank (Washington Federal)	203 2Nd St	C	2,500

Name of Business	Address	R or C	Square Footage
Hood River Hotel (2-4 floors), Restaurant 1st)	102 Oak St	C	38,400
Garage/Mechanic	215 1St St	C	3,800
Big Winds/Retail	207 Front St	C	4,966
Turtle Island Foods	601 Industrial St	LI	54,408
Allen's Fine Woodworking/Counseling (2 floors)	216 Cascade Ave	C	4,964
Mixed use (retail/office) (Supreme Lending, Evergreen Home Loans)	208 State St	C	18,284
Retail (1st floor)/office (2nd floor)	309 Oak St	C	10,368
Mixed use (2 floors) (Art on Oak, Stave & Stone Winery)	210 Oak St	C	8,600
Shepard Supplies	102 State St	C	4,300
Mixed use (Salon/Real Estate /Bar) 3 floors	6 1St St	C	12,018
Astro Gas station	214 Front St	C	790
Mixed use (Good Will/Wine store)	304 Oak St	C	10,794
Restaurants (Moth/Crazy Pepper, etc.)	101 4Th St	C	10,000
Franz Hardware/Shortt Supply/office above? - 3 floors	111 2Nd St	C	12,273
Jeweler/Dog River Coffee	409 Oak St	C	3,700
Total Square Footage – Non-Residential Buildings			**793,539**

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