



Memorandum

To: *Reh-Lin Chen and Kevin Cooke, City of San Leandro*
From: *Terri O'Connor, David Chew, and Ted Huynh, CDM Smith*
Date: *December 2, 2013*
Subject: *Downtown San Leandro Parking Data Analysis*

This technical memorandum summarizes the analysis findings from the data collection efforts conducted for the downtown area of the City of San Leandro (the City).

Study Area

The study area was defined to be located roughly between the San Leandro BART station to the west, San Leandro Creek to the north, Bancroft Avenue to the east, and Elsie Avenue/Williams Street to the south. This study area is shown in **Figure 1**.

The study area was then split between two data analysis zones, called the core and periphery. The core is located within the heart of downtown San Leandro and contains all of the metered and the majority of the time-regulated parking located in the downtown, while the periphery rings the core, containing most of the unregulated parking spaces. **Figure 1** also depicts the locations of regulated and unregulated parking. Regulations include metered, time-enforced, or loading parking spaces. **Appendix A** exhibits all existing parking restrictions within downtown San Leandro.¹

Data Collection and Methodology

Data was collected by the City of San Leandro using vehicle-mounted mobile License Plate Recognition (LPR) devices and garage-mounted LPRs. Data was collected hourly from 9 AM to 6 PM over two days, including one weekday (Tuesday September 10th, 2013) and one weekend day (Saturday September 7th, 2013).

Mobile LPR devices mounted on city parking enforcement vehicles were used to collect data for all on-street parking in the study area, as well as for all off-street facilities, with the exception of the Estudillo Garage, which utilized the garage-mounted LPRs. With the mobile LPR devices, data was collected using a pre-determined route (shown in **Appendix B**) to ensure that all blockfaces and off-street spaces were passed by at least once during each hour of data collection.²

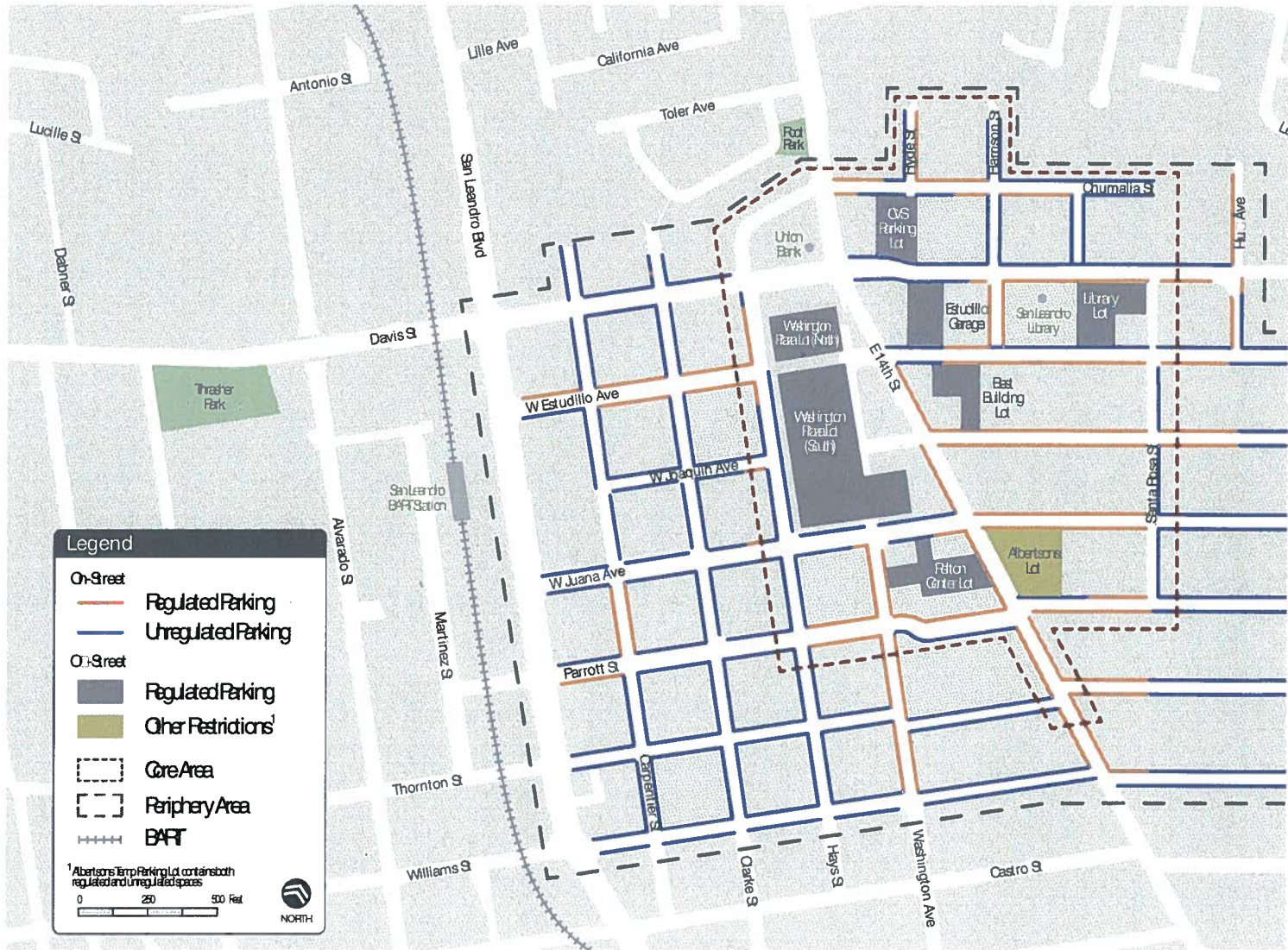
The garage-mounted LPR devices at Estudillo Garage collected continuous data for a 24-hour period on the collection dates. LPR cameras were mounted at each garage entrance and exit to

¹ This map was developed by the City of San Leandro.

² It should be noted that during the analysis of data, LPR reading errors were observed resulting in some instances of vehicle over-counting. Efforts were made to remove these redundancies where possible. Over-counting was not able to be field verified; adjustments were subsequently made in post processing using professional judgment.

record license plates. For the purpose of analysis, the data was processed to include a single one hour data point. Each data point consisted of the maximum occupancies that were observed in 15-minute intervals (i.e. the maximum vehicles observed within the garage at 9:00 AM, 9:15 AM, 9:30 AM and 9:45 AM). The analysis and findings from this data collection effort are described below.

DOWNTOWN SAN LEANDRO PARKING



Parking Inventory

Inventory data provided by the City of San Leandro includes a total of 3,239 spaces within the study area, including 1,466 off-street spaces and 1,773 on-street spaces (608 core and 1,165 periphery). The breakdown of space types for on-street and off-street parking is shown below in **Table 1**.

Table 1 – Overall Parking Inventory

Space Type	Total	Regulated	Free
On-Street			
Core	608	368	240
Periphery	1,165	237	928
Total	1,773	605	1,168
Off-Street			
Washington Plaza Lot (North)*	128	128	0
Washington Plaza Lot (South)*	356	356	0
Pelton Center Lot	75	75	0
CVS Parking Lot	111	111	0
Main Library Parking Lot	153	153	0
Best Building Parking Lot	57	57	0
Albertson Temp Parking Lot	202	202	0
Estudillo Parking Garage	384	384	0
Total	1,466	1,466	0
Overall			
Total	3,239	2,071	1,168

*For purposes of the analysis, the Washington Plaza Lot was divided into two portions. These areas were divided by the Estudillo Avenue entrance/exit driveway into a northern and southern lot area.

Parking Occupancy Analysis

The parking occupancy analysis paints a detailed picture of how public parking is utilized in downtown San Leandro. The following terms are used when discussing parking occupancy.

- **Occupancy:** The number of cars parked in a specific area, lot, or blockface during one period of observation. It is often expressed as the percentage of the total supply of spaces that is occupied by parked cars.
- **Parking Event:** A parking event refers to each instance where a single, unique vehicle is observed parked in a single, unique space.
- **Peak:** The time period associated with the highest observed level of occupancy in a specific area or parking facility.
- **Practical Capacity:** The occupancy level or number of vehicles that can be parked in a facility or area before it becomes difficult for a driver to find a space without having to circle or

“cruise” for parking. Practical capacity is typically set at an 85 percent occupancy level. For on-street parking this equates to roughly one vacant space per blockface.

Overall Occupancy Analysis

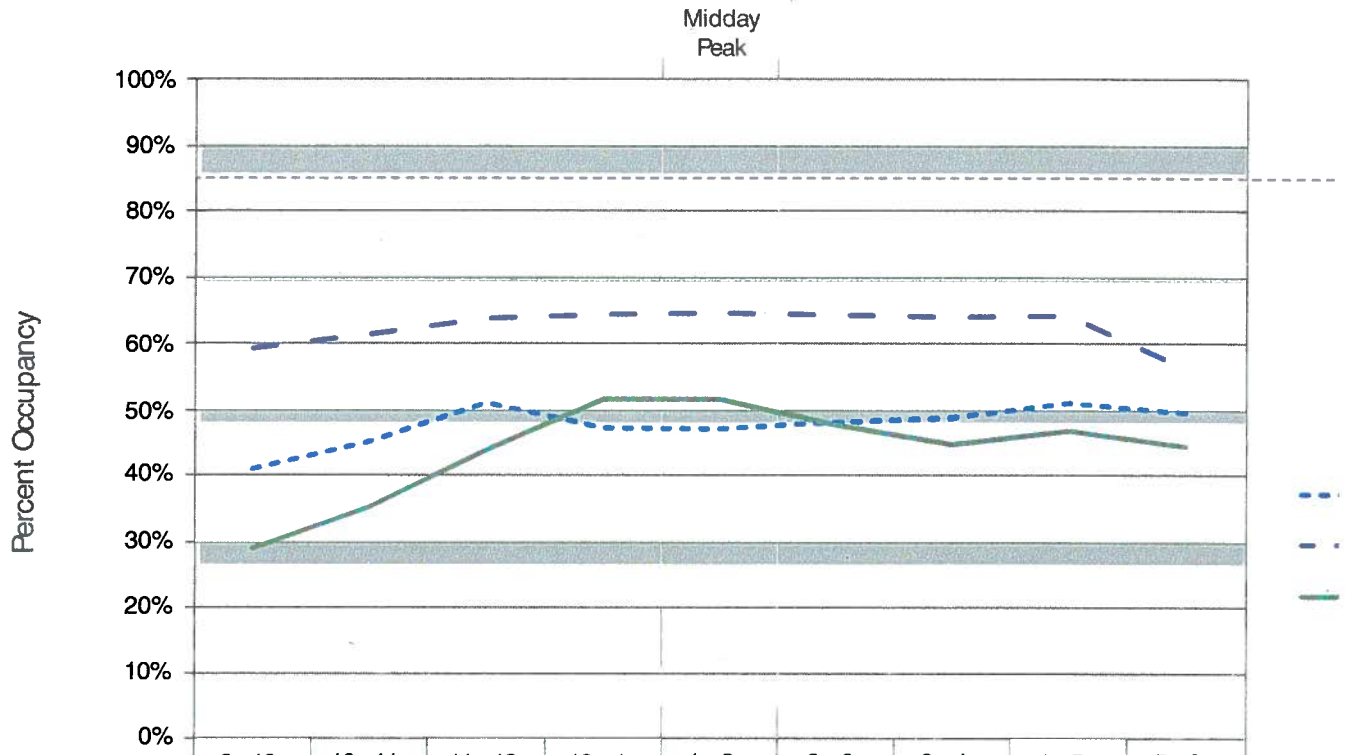
Overall downtown San Leandro parking occupancies are graphically shown in relation to practical capacity (85 percent) for a weekday in **Figure 2** and for a weekend in **Figure 3**.

Weekday Overall Occupancy Trends

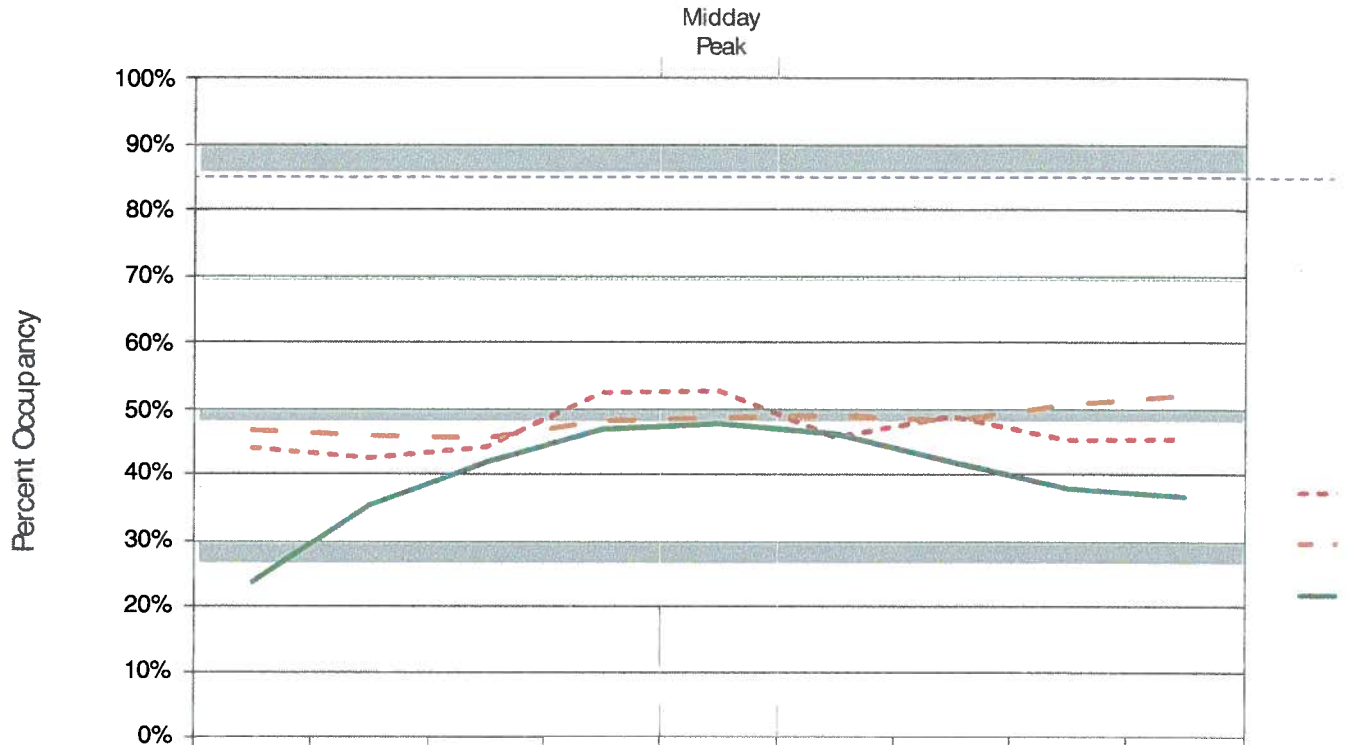
Weekday occupancy levels experience a gradual increase in the morning hours between 9 AM and 11 AM and then remain relatively constant throughout the day until 4 PM, when occupancy begins to decrease. Among the various parking areas, the periphery on-street spaces experience the highest occupancies throughout the day, peaking at approximately 64 percent, while the core peaks at 52 percent midday.

Weekend Overall Occupancy Trends

Weekend occupancy levels experience two different trends for on-street and off-street parking. On-street occupancy levels experience a slight shift in parking demand between the core and periphery, as the periphery observes the higher demand in the morning followed by the core in the afternoon and followed again by the periphery in the late afternoon; overall, occupancy levels remain consistent between the core and periphery at approximately 48 percent throughout the day. Off-street occupancy levels exhibits a single occupancy peak in the afternoon between 1 PM and 2 PM at approximately 47 percent. Overall weekend occupancies do not exceed 50 percent during any time period analyzed.



	9a-10a	10a-11a	11a-12p	12p-1p	1p-2p	2p-3p	3p-4p	4p-5p	5p-6p
On-Street Spaces									
Core	41%	45%	51%	47%	47%	48%	49%	51%	49%
Periphery	59%	61%	64%	64%	64%	64%	64%	64%	56%
Overall	53%	56%	59%	58%	58%	59%	59%	60%	54%
Off-Street Spaces									
Overall	28%	34%	43%	50%	50%	47%	44%	46%	43%
All Spaces									
Overall	42%	46%	52%	55%	55%	53%	52%	53%	49%



	9a-10a	10a-11a	11a-12p	12p-1p	1p-2p	2p-3p	3p-4p	4p-5p	5p-6p
On-Street Spaces									
Core	44%	42%	44%	52%	52%	45%	49%	45%	45%
Periphery	46%	46%	45%	48%	48%	49%	48%	50%	52%
Overall	45%	44%	45%	49%	50%	48%	48%	49%	50%
Off-Street Spaces									
Overall	23%	34%	41%	46%	47%	45%	41%	37%	36%
All Spaces									
Overall	35%	40%	43%	48%	48%	46%	45%	43%	43%

Hour-by-Hour Occupancy Levels

The following tables present hour-by-hour occupancy rates for core and periphery on-street parking and the various off-street parking facilities.

To provide visual definition, the tables are highlighted to indicate periods of high usage. Cells highlighted in light pink indicate hours when a facility meets or exceeds practical capacity (85 percent) and remains below 95 percent, cells shaded in dark pink indicate times when occupancy was observed to have reached a critical level of 95 percent or higher, and cells shaded in red indicate times when occupancy was observed to reach full capacity.

Weekday Occupancy

Table 2 shows the weekday hourly occupancy levels for the study area. Overall, on-street occupancies remain under practical capacity throughout the day, with the core around 50 percent occupancy and the periphery peaking at 64 percent occupancy. This preference for periphery spaces could be due to the high amount of unregulated spaces present in the periphery.

Among the seven off-street facilities, the Pelton Center Lot and the Washington Plaza Lot (South) experience the highest occupancies throughout the day, suggesting a high demand for parking within the area of these two lots; the northern portion of the Washington Plaza Lot hovers around 50 percent occupancy while all other facilities remain under 50 percent throughout the day. In addition, these two facilities both experience more than a 20 percent increase in occupancy between 11 AM and 12 PM. This increase is likely due to the high amount of midday parking demand as a result of the presence of retail within the vicinity as compared to the rest of the study area.

Table 2 – Weekday Occupancy Levels

Space Type	Total Spaces	AM				PM				
		9	10	11	12	1	2	3	4	5
		10	11	12	1	2	3	4	5	6
On-Street										
Core	608	41%	45%	51%	47%	47%	48%	49%	51%	49%
Periphery	1,165	59%	61%	64%	64%	64%	64%	64%	64%	56%
Total	1,773	53%	56%	59%	58%	58%	59%	59%	60%	54%
Off-Street										
Washington Plaza Lot (North)	128	44%	40%	42%	54%	55%	54%	50%	54%	64%
Washington Plaza Lot (South)	356	33%	47%	61%	85%	81%	68%	68%	67%	67%
Pelton Center Lot	75	27%	47%	72%	97%	83%	95%	65%	75%	81%
CVS Parking Lot	111	14%	18%	23%	16%	21%	24%	17%	20%	14%
Main Library Parking Lot	153	22%	26%	48%	46%	48%	37%	31%	48%	46%
Best Building Parking Lot	57	25%	39%	47%	44%	51%	42%	42%	46%	23%
Albertson Temp Parking Lot	202	5%	11%	13%	13%	20%	21%	14%	13%	14%
Estudillo Parking Garage	384	37%	38%	40%	40%	41%	40%	43%	41%	33%
Total	1,466	28%	34%	43%	50%	50%	47%	44%	46%	43%
Overall										
Total	3,239	42%	46%	52%	55%	55%	53%	52%	53%	49%

Weekend Occupancy

Table 3 shows the weekend hourly occupancy levels for the study area. Similar to weekday occupancies, weekend on-street occupancies also remain under practical capacity throughout the day. Overall, on-street occupancy levels between the core and periphery areas remain relatively constant, at approximately 48 percent throughout the day, with an increase in core area on-street occupancy between 12 PM and 2 PM. This increase parking demand for the core area could be attributed to visitors arriving at the downtown core area for afternoon activities such as shopping.

The high demand for parking at the Pelton Center Lot and the Washington Plaza Lot, particularly the southern portion of the lot, are also observed on the weekend, as these two lots exhibit relatively high occupancy levels throughout the day. In addition, the Pelton Center Lot exceeds practical capacity throughout the day and reaches or exceeds actual capacity between 11 AM and 4 PM.

Table 3 – Weekend Occupancy Levels

Space Type	Total Spaces	AM				PM				
		9	10	11	12	1	2	3	4	5
		10	11	12	1	2	3	4	5	6
On-Street										
Core	608	44%	42%	44%	52%	52%	45%	49%	45%	45%
Periphery	1,165	46%	46%	45%	48%	48%	49%	48%	50%	52%
Total	1,773	45%	44%	45%	49%	50%	48%	48%	49%	50%
Off-Street										
Washington Plaza Lot (North)	128	41%	55%	41%	51%	58%	62%	53%	48%	48%
Washington Plaza Lot (South)	356	41%	60%	70%	81%	83%	79%	67%	65%	78%
Pelton Center Lot*	75	43%	97%	100%	100%	100%	100%	100%	89%	93%
CVS Parking Lot	111	16%	6%	23%	21%	20%	25%	22%	16%	20%
Main Library Parking Lot	153	10%	25%	32%	41%	42%	54%	47%	46%	6%
Best Building Parking Lot	57	19%	25%	42%	53%	39%	0%	18%	21%	14%
Albertson Temp Parking Lot	202	6%	16%	19%	26%	27%	19%	24%	17%	18%
Estudillo Parking Garage	384	13%	15%	18%	18%	18%	17%	15%	13%	11%
Total	1,466	23%	34%	41%	46%	47%	45%	41%	37%	36%
Overall										
Total	3,239	35%	40%	43%	48%	48%	46%	45%	43%	43%

Note: The LPR recorded greater occupancy than listed inventory at the Pelton Center Lot from 11AM to 4PM, but because of the potential for overcounting and lack of field verification, the occupancy was capped at 100%.

Peak Hour Occupancy Analysis

Peak hour occupancy levels provide a look at parking during the busiest times of the day throughout the downtown. The overall peak hour occupancy levels are shown in **Figures 4 and 5** for each parking facility and blockface, for both weekday and weekend day.

Weekday Peak

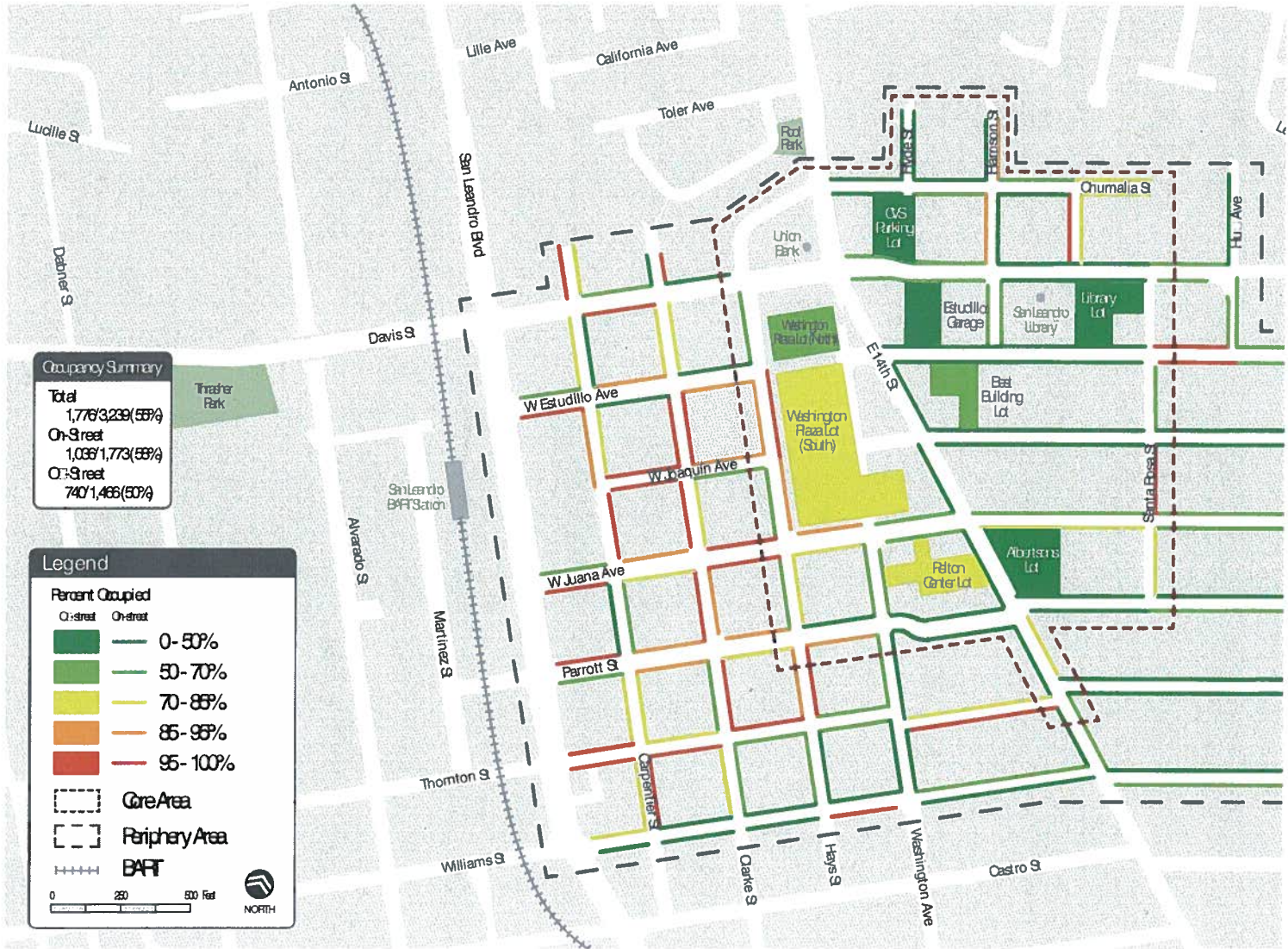
The overall weekday peak occupancies are graphically shown in **Figure 4** between 1 PM and 2 PM when overall occupancy reaches 55 percent. The parking facilities and blockfaces west of East 14th Street experience a high amount of parking demand when compared with those east of East 14th Street, as the majority of blockfaces west of East 14th exceed practical capacity during the peak hour. In addition, the two off-street facilities on the west side of East 14th Street are the only two off-street facilities to exceed 70 percent. This higher amount of occupancy can be due to higher levels of retail activity, its proximity to the San Leandro BART station and potential spillover from BART parkers, and its residential characteristics.

Weekend Peak

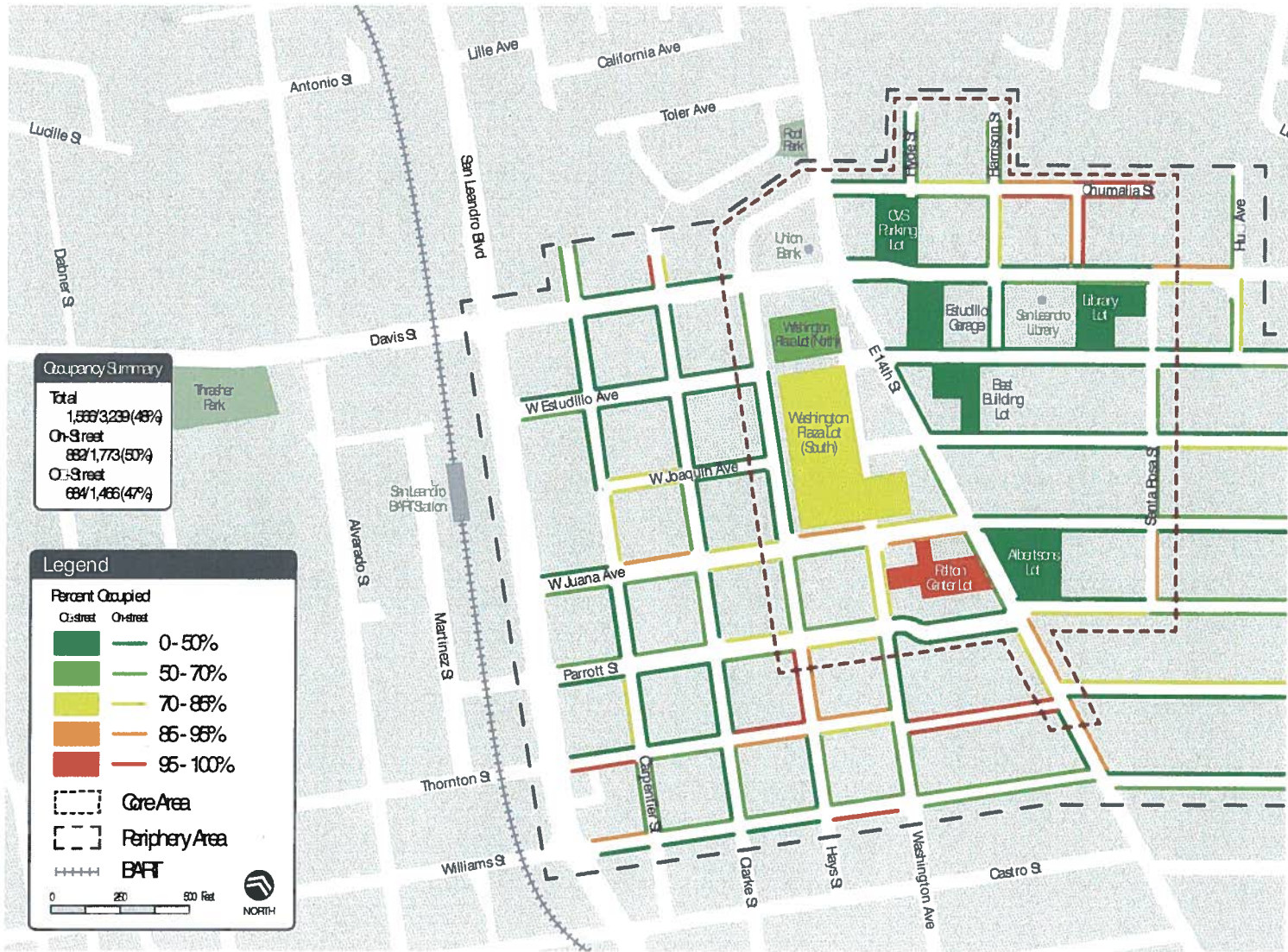
The overall weekend peak occupancies are graphically shown in **Figure 5** between 1 PM and 2 PM when overall occupancy reaches 48 percent. Overall, the weekend peak exhibits fewer blockfaces exceeding practical capacity west of East 14th Street as compared to the weekday. However, the

Washington Plaza Lot (South) and Pelton Center Lot continue to exhibit the highest occupancies among the off-street facilities. This indicates that the high weekday occupancy west of East 14th Street is likely due to its close proximity to the San Leandro BART station, as commuters may be attracted to free parking near the station. In addition, the blockfaces surrounding the Washington Plaza Lot and the Pelton Center Lot do not experience high occupancy, suggesting that users attracted to the area for retail purposes are not spilling over to the neighboring blockfaces.

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Hours Over Capacity Analysis

The hours over capacity analysis shows locations where parking demand is sustained throughout the day, particularly at levels above practical capacity, and where parking may be underutilized. In **Figures 6 and 7** blockfaces and facilities are colored based on the number of hours during the day that each was observed to be at or above practical capacity (85 percent occupied).

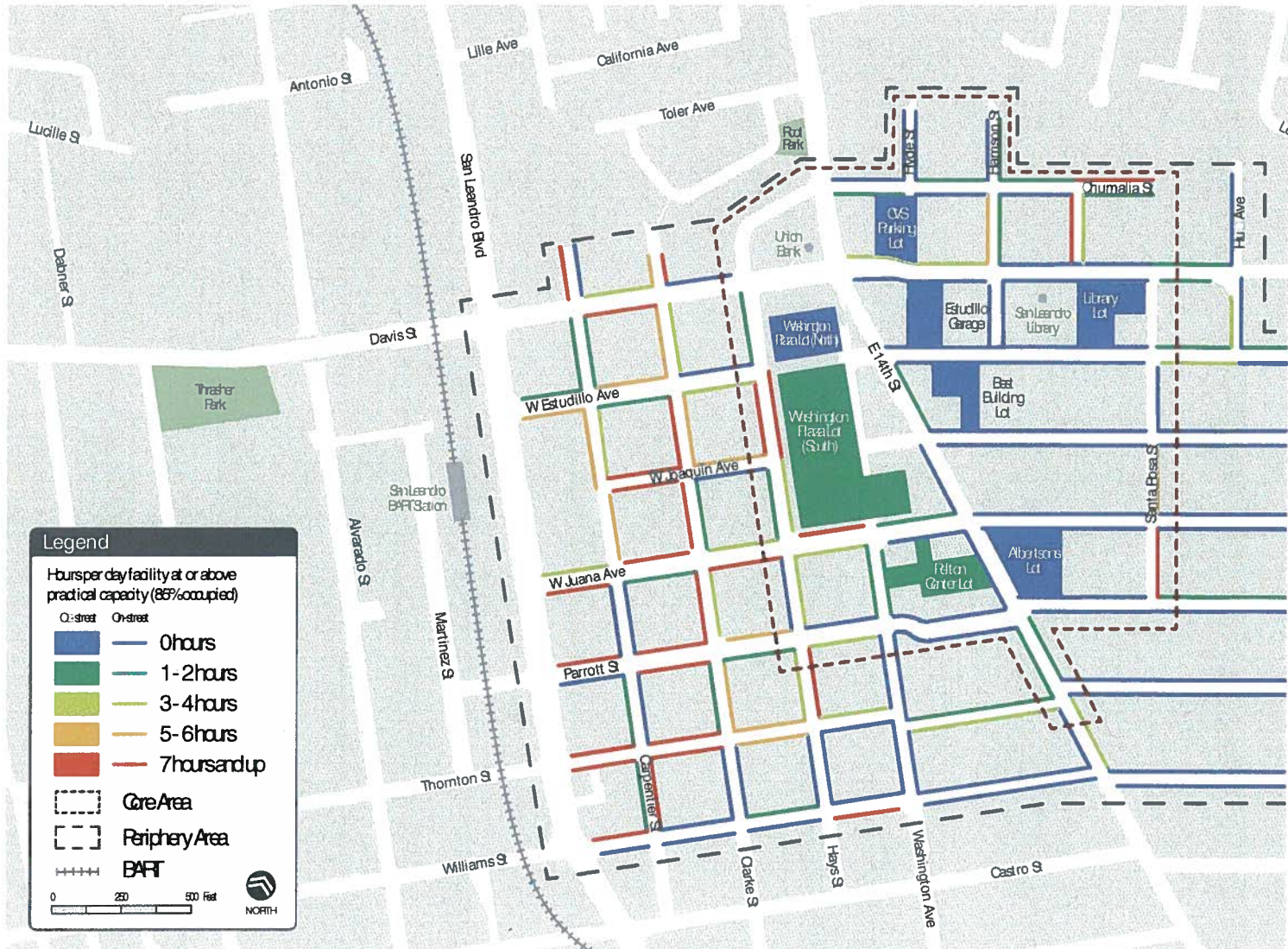
Weekday

Figure 6 presents areas where parking demand is sustained above practical capacity throughout the day for a weekday. Approximately half (46 of 101) of the blockfaces west of East 14th Street exceed practical capacity for extended periods of time (4 or more hours), while few blockfaces east of East 14th Street exhibit this behavior. This indicates that the close proximity to BART significantly affects parking occupancies throughout the day, particularly along blockfaces near the station. The east side of downtown San Leandro remains relatively underutilized throughout the day, with many blockfaces never exceeding practical capacity during any time of the day.

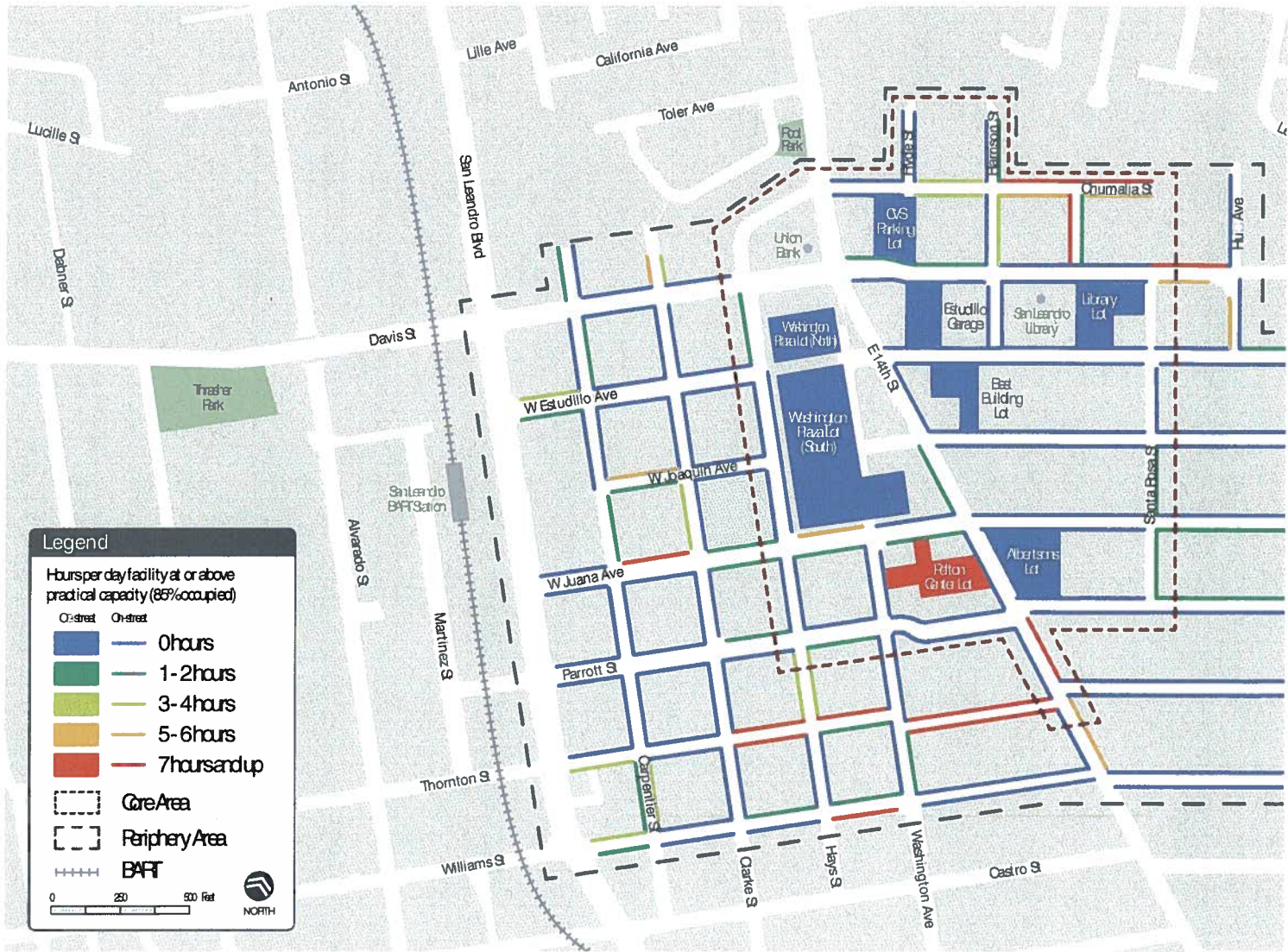
Weekend

Figure 7 presents areas where parking demand is sustained above practical capacity throughout the day for a weekend. Overall, few blockfaces observe high demands for extended periods of time; the Pelton Center Lot is the only off-street facility to exceed practical capacity at any point throughout the day.

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Duration Analysis

The parking duration analysis is presented in terms of observed distribution of “parking events” by length of stay. A parking event is defined as when a vehicle is observed to occupy a single space during one observed time period during data collection.

Weekday

Table 4 presents the length of stay by space type for the study area between 9 AM and 6 PM for the weekday. The average user parking on-street in the periphery stays for slightly less than an hour longer than a user parking in the core area. This can be due to the higher amount of unregulated parking in the periphery area. Only 50 percent of on-street parkers stay for an hour or less, likely indicating that some on-street parkers are nearby residents or commuters who park in free parking areas.

Off-street, the Estudillo Parking Garage observes the highest average duration at just over 4 hours. In addition, 30 percent of its users stay for 8 hours or more. This suggests a high amount of employees utilizing the Estudillo Parking Garage. Among the remaining off-street facilities, the Best Building Parking Lot and Albertsons Temp Parking Lot exhibit similar durations of approximately 2.30 hours, while all other facilities experience average durations between 1.35 and 1.65 hours. Around three quarters of parkers use off-street parking for an hour or less, indicating that many visitors park in the off-street lots for short visits to nearby retail and restaurants.

Table 4 – Weekday Durations by Parking Type

Space Type/Facility	Total Spaces	Parking Duration (Hours)										Average Stay (Hours)
		1	2	3	4	5	6	7	8	9		
On-Street												
Core	608	60%	12%	7%	5%	4%	2%	2%	4%	5%	2.44	
Periphery	1,165	46%	13%	6%	6%	4%	5%	4%	6%	9%	3.30	
Total	1,773	50%	13%	6%	5%	4%	4%	4%	6%	8%	3.00	
Off-Street												
Washington Plaza Lot (North)	128	87%	5%	3%	2%	1%	1%	0%	0%	0%	1.35	
Washington Plaza Lot (South)	356	86%	6%	2%	1%	1%	1%	1%	1%	0%	1.37	
Pelton Center Lot	75	79%	9%	4%	1%	2%	2%	2%	1%	0%	1.56	
CVS Parking Lot	111	82%	4%	2%	1%	2%	4%	1%	3%	2%	1.79	
Main Library Parking Lot	153	67%	21%	6%	2%	2%	1%	1%	0%	1%	1.65	
Best Building Parking Lot	57	69%	7%	2%	6%	2%	7%	1%	3%	3%	2.27	
Albertson Temp Parking Lot	202	57%	17%	7%	2%	5%	5%	5%	2%	1%	2.28	
Estudillo Parking Garage	384	46%	6%	5%	3%	3%	2%	5%	11%	19%	4.05	
Total	1,466	78%	8%	3%	2%	1%	2%	1%	2%	2%	1.76	
Overall												
Total	3,239	65%	10%	5%	4%	3%	3%	3%	4%	5%	2.36	

Figure 8 illustrates the average length of stay at each blockface/facility throughout the study area for the weekday. As expected, blockfaces in the periphery area exhibit longer durations than the core area. These longer durations are primarily observed west of East 14th Street, indicating that residents and/or BART users are utilizing these blockfaces for longer periods of time.

Weekend

Table 5 presents the length of stay by space type for the study area between 9 AM and 6 PM for the weekend. Similar to the weekday, the average user parking in the periphery stays for a longer period of time than users parking in the periphery, approximately 45 minutes longer.

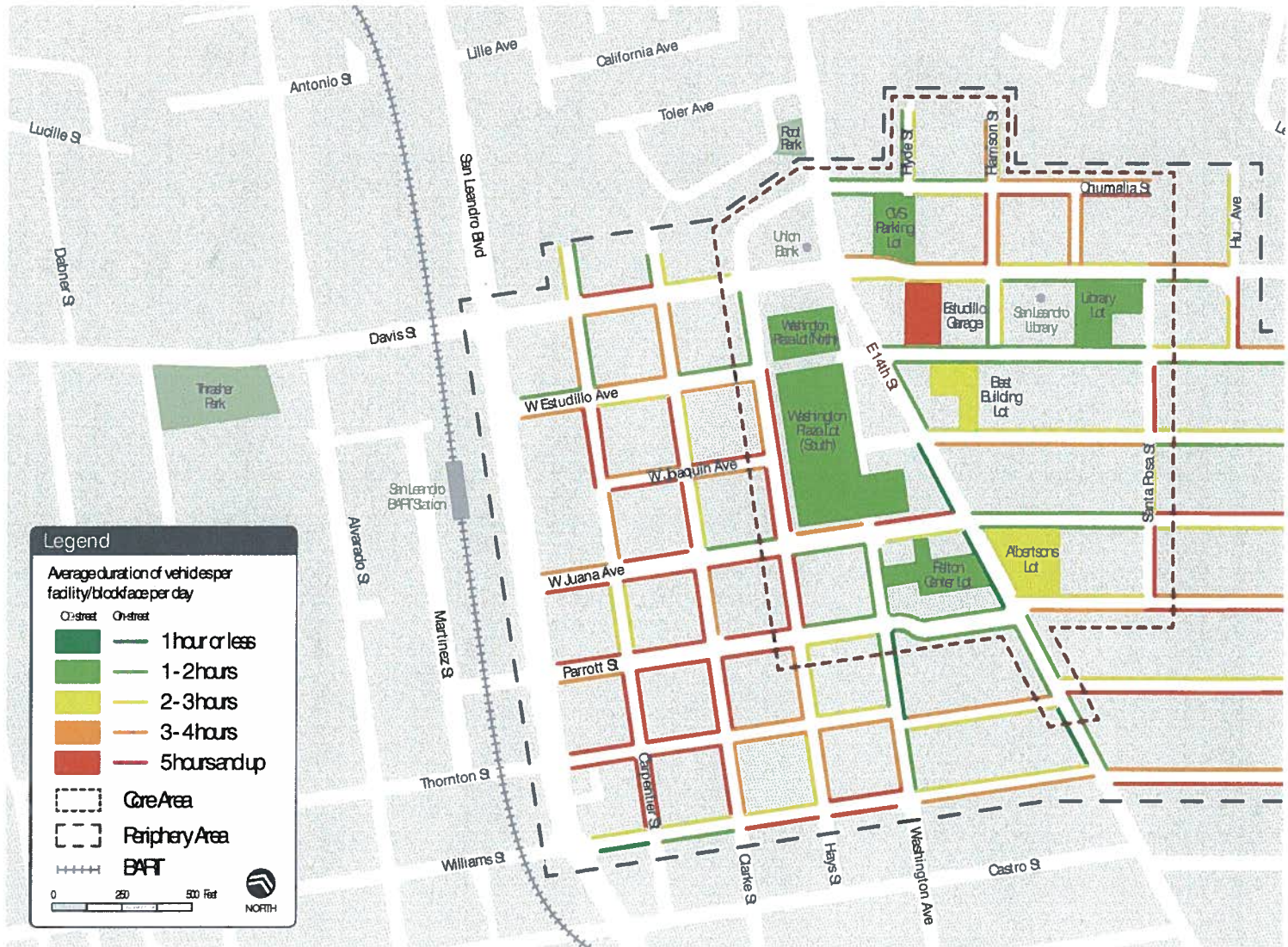
The off-street facilities exhibit similar duration characteristics to the weekday with an average duration ranging from 1.26 to 2.14 hours. While the Estudillo Parking Garage observes the highest average duration at 2.14 hours, it is approximately 50 percent less compared to the weekday (4.05 hours). This suggests that employees are utilizing the garage for longer periods of time during weekdays, but the garage on the weekend is used more often by visitors. 81 percent of users park for an hour or less on weekends, indicating the high turnover of users parking at lots.

Table 5 – Weekend Durations by Parking Type

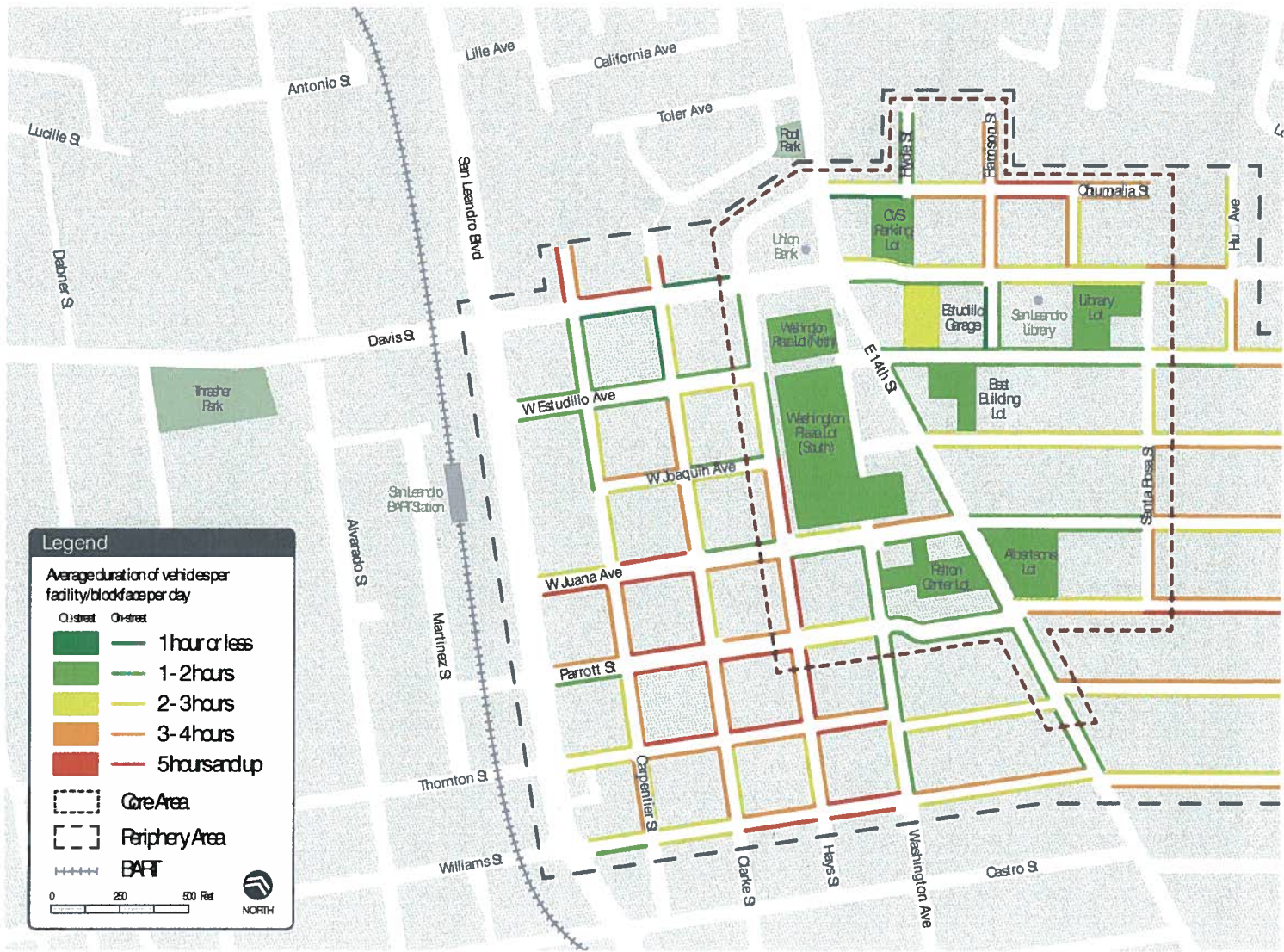
Space Type/Facility	Total Spaces	Parking Duration (Hours)									Average Stay (Hours)
		1	2	3	4	5	6	7	8	9	
On-Street											
Core	608	63%	13%	6%	3%	2%	4%	2%	2%	4%	2.25
Periphery	1,165	48%	15%	8%	6%	5%	4%	3%	4%	7%	2.95
Total	1,773	54%	14%	7%	5%	4%	4%	3%	4%	6%	2.67
Off-Street											
Washington Plaza Lot (North)	128	88%	6%	2%	2%	0%	1%	0%	0%	0%	1.26
Washington Plaza Lot (South)	356	87%	7%	2%	1%	1%	0%	1%	1%	1%	1.35
Pelton Center Lot	75	78%	12%	3%	2%	1%	0%	1%	2%	0%	1.57
CVS Parking Lot	111	79%	8%	1%	4%	2%	2%	1%	3%	1%	1.68
Main Library Parking Lot	153	65%	18%	6%	5%	2%	1%	1%	2%	0%	1.76
Best Building Parking Lot	57	80%	10%	1%	2%	6%	1%	0%	0%	0%	1.47
Albertson Temp Parking Lot	202	69%	12%	3%	4%	1%	3%	3%	4%	1%	2.00
Estudillo Parking Garage	384	74%	7%	1%	1%	4%	4%	2%	1%	6%	2.14
Total	1,466	82%	9%	2%	2%	1%	1%	1%	1%	1%	1.50
Overall											
Total	3,239	69%	11%	4%	3%	2%	2%	2%	2%	3%	2.03

Figure 9 illustrates the average length of stay at each blockface/facility throughout the study area for the weekend. Overall, there are fewer blockfaces exhibiting high durations than compared to the weekday. However, the southwest area of the study area continues to display high durations. The high durations in this area is likely due to its primarily residential nature.

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Likely User Type Analysis

Vehicles parking within the downtown were assumed to be visitors or employees based on their length of stay; this high level of analysis helps to determine how different user types use parking in the downtown. Likely customers were defined as having a total parking duration of 4 hours or less and likely employees were defined as having parked for a total of 5 hours or more. Between the weekday and weekend, there is a five percent difference in user type profiles, with the weekend observing a higher amount of likely customers.

Table 6 –Likely User Types

User Type	Total Vehicles	% of All Vehicles
Weekday		
Likely Customer	4,708	81%
Likely Employee	1,107	19%
All Users	5,815	100%
Weekend		
Likely Customer	4,981	86%
Likely Employee	811	14%
All Users	5,792	100%

Turnover

Parking turnover is an indicator of how often a single parking space is used by multiple vehicles throughout the day. Turnover rates are essential for areas with limited parking supply, such as downtowns, as they signify the level of convenience and availability for patrons parking in the area throughout the day. Typically, higher turnover numbers show that parking spaces are constantly being made available, while lower turnover counts reflect long-term parking areas and few parking restrictions, making it easier for vehicles to stay longer, but reducing the number of spaces available nearby for arriving vehicles.

The average frequency of parking turnover is graphically shown in **Figures 10** and **11** for each blockface and off-street facility for the study area throughout the day for the weekday and the weekend days.

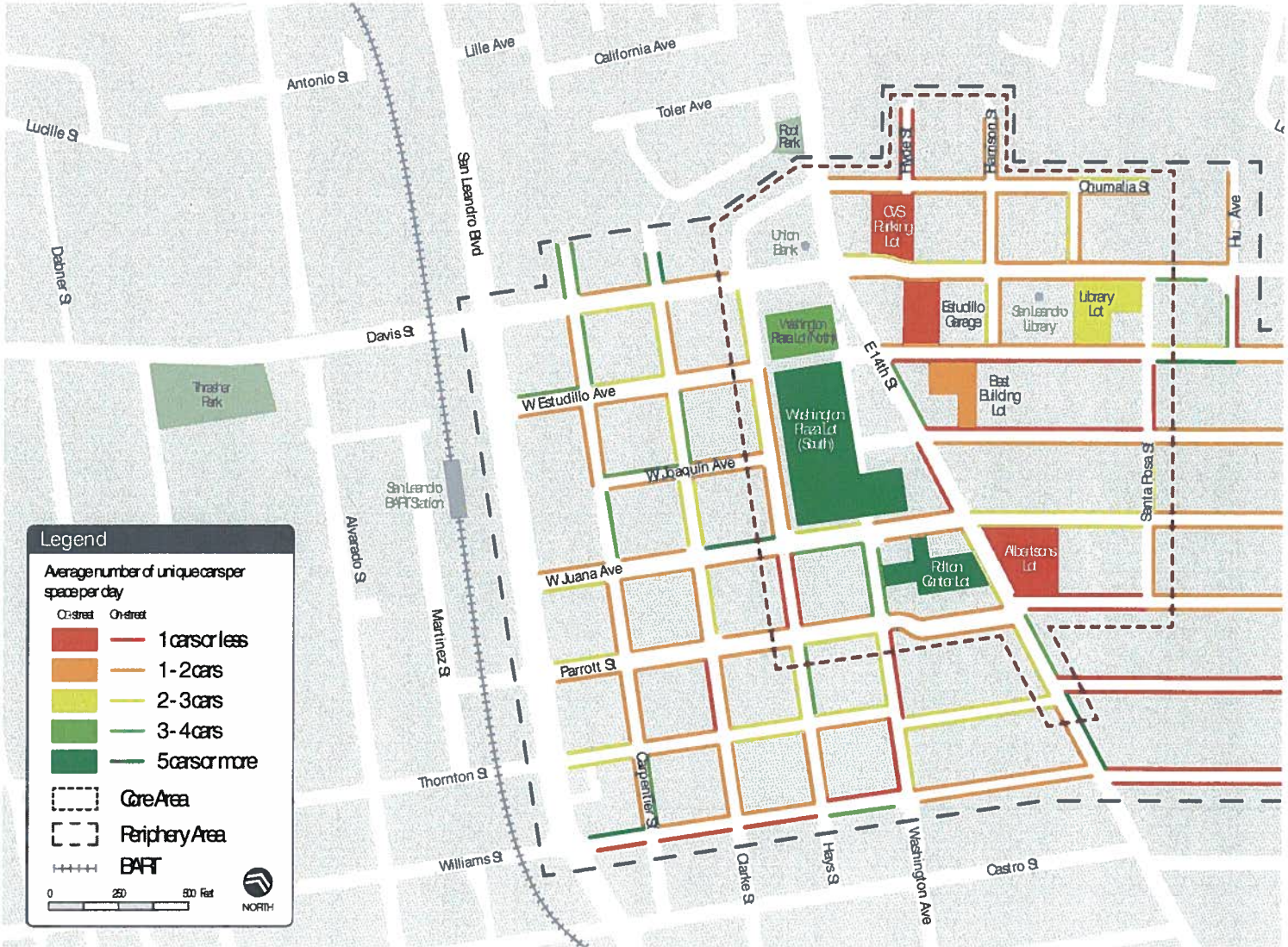
Weekday

On a weekday, downtown San Leandro has a mixture of high and low turnover blockfaces throughout the study area. Residential areas such as the area in the southeast corner of the study area experience lower turnover rates. Among the off-street facilities, the south portion of the Washington Plaza Lot and the Pelton Center Lot exhibit the highest amount of average turnover, as more than four vehicles on average utilize a parking space within these facilities throughout the day.

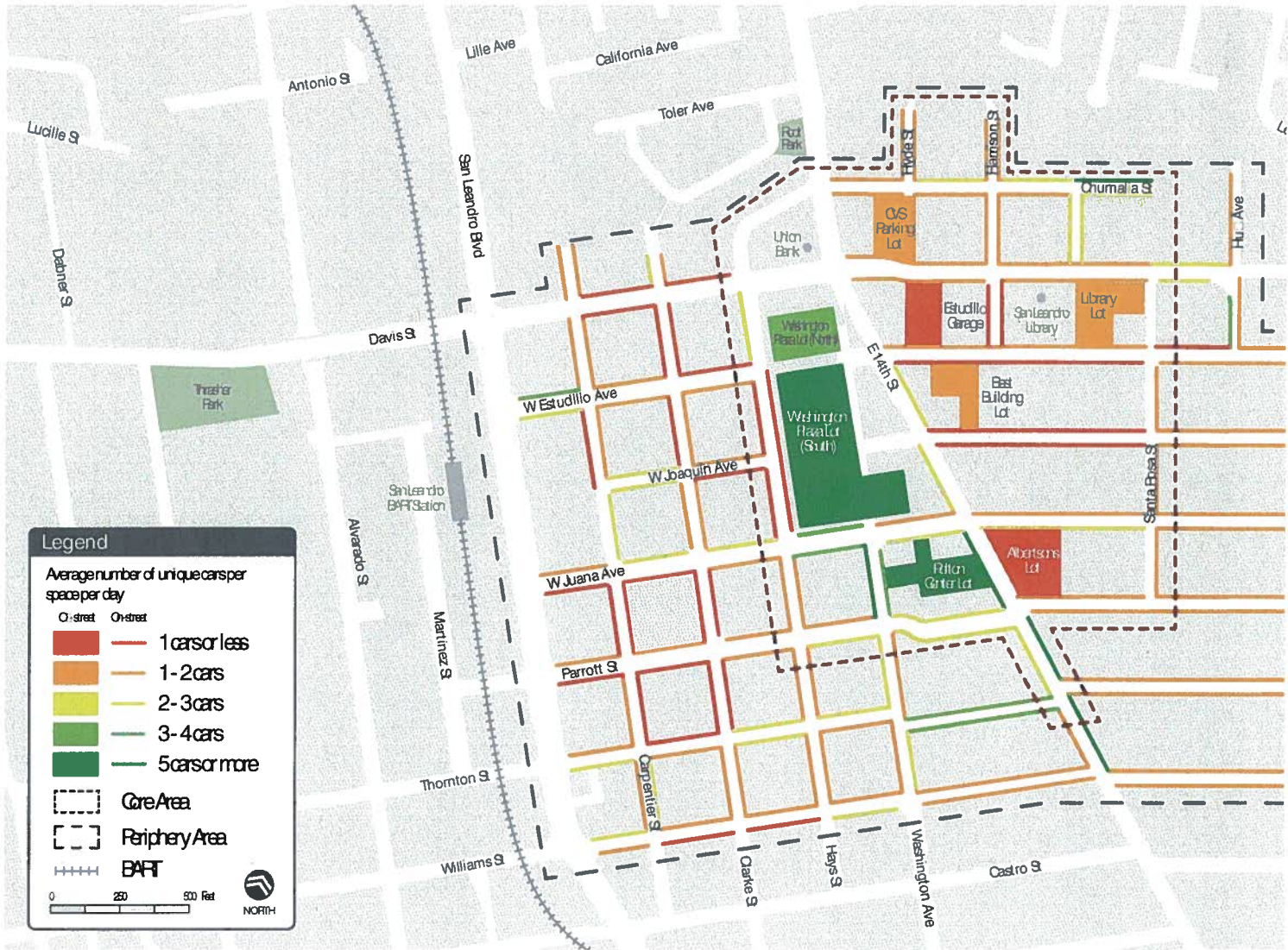
Weekend

Overall, the weekend experiences low amounts of turnover throughout the study area. With the exception of the blockfaces surrounding the Pelton Center Lot, all but 11 of the 162 on-street blockfaces observe an average of three or fewer unique vehicles per space per day. In addition, the Washington Plaza Lot (South) and the Pelton Center Lot are the only off-street facilities with an average of more than three unique vehicles per space per day.

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Reparking Analysis

The recording of license plates for data collection was also used to track instances of reparking throughout the entire study area. Reparking was defined to have occurred whenever a vehicle (via license plate) was observed to have moved from one off-street parking facility or blockface to another within the study area. The results of this reparking analysis are shown below in **Tables 7 and 8**.

Weekday

Among likely customers, just 8 percent were observed to repark throughout the day, with a majority of these users reparking only once, likely to another part of downtown or to avoid a time restriction. While customer reparking was relatively uncommon, just over 36 percent of employees were observed to have reparked at least once during the day. Although the majority of likely employees reparked only once (235 users), likely due to leaving for lunch or running an errand, approximately 40 percent of reparking employees (402 users) did so two or more times; this could be in order to move their vehicles to avoid time restrictions.

Table 8 – Weekday Reparking by User Type

User Type	Total	Parked Once	Reparked (Total)	Reparked				
				1 time	2 times	3 times	4 times	5 or more
Likely Customer	4,708	4,324	384	324	55	5	0	0
% of all likely customers	100%	91.8%	8.2%	6.9%	1.2%	0.1%	0.0%	0.0%
Likely Employee	1,107	705	402	235	106	36	16	9
% of all likely employees	100%	63.7%	36.3%	21.2%	9.6%	3.3%	1.4%	0.8%
All Users	5,815	5,029	786	559	161	41	16	9
% of all users	100%	86.5%	13.5%	9.6%	2.8%	0.7%	0.3%	0.2%

Weekend

The weekend observed a similar amount of likely customers as the weekday and exhibited similar reparking characteristics, as majority of reparking customers did so only once. Although the weekend observed fewer likely employees than the weekday, a higher quantity of these users reparked at least once throughout the day. In addition, there is a higher percentage of employees reparking two or more times; suggesting that weekend employees are more likely to repark to avoid time restrictions.

Table 9 – Weekend Reparking by User Type

User Type	Total	Parked Once	Reparked (Total)	Reparked				
				1 time	2 times	3 times	4 times	5 or more
Likely Customer	4,981	4,547	434	375	51	8	0	0
% of all likely customers	100%	91.3%	8.7%	7.5%	1.0%	0.2%	0.0%	0.0%
Likely Employee	811	452	359	198	101	33	18	9
% of all likely employees	100%	55.7%	44.3%	24.4%	12.5%	4.1%	2.2%	1.1%
All Users	5,792	4,999	793	573	152	41	18	9
% of all users	100%	86.3%	13.7%	9.9%	2.6%	0.7%	0.3%	0.2%

In addition to the reparking analysis, the fixed LPR data from the Estudillo Garage allowed for insight into the parking behavior of users whom utilize the garage. **Table 10** and **11** displays the amount of re-entry observed by user type throughout the day for the weekday and weekend days. Re-entry refers to a vehicle observed to park in the garage for any given time, exits the garage, then re-enters the garage to park at a later time. A total of six likely employees were observed to re-enter the garage on the weekday while only one user did so on the weekend. This analysis indicates that re-entry into Estudillo Garage to avoid parking restrictions is not a concern.

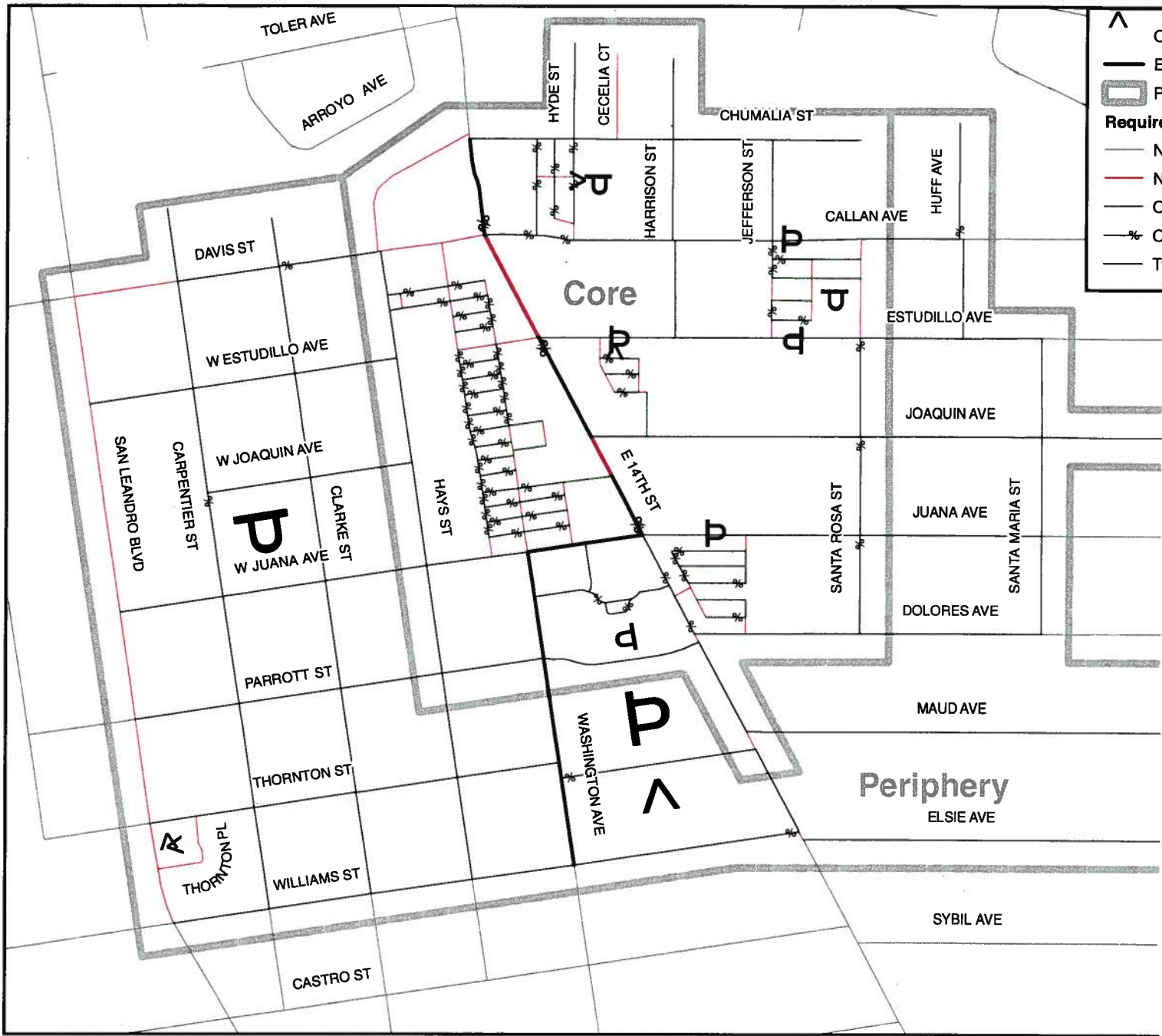
Table 10 – Weekday Estudillo Garage Re-Entry

User Type	Total	Parked Once	Re-Entry (Total)	Re-Entry		
				1 time	2 times	3 or more
Likely Customer	612	601	11	10	1	0
% of all likely customers	100%	98.2%	1.8%	1.6%	0.2%	0.0%
Likely Employee	38	32	6	6	0	0
% of all likely employees	100%	84.2%	15.8%	15.8%	0.0%	0.0%
All Users	650	633	17	16	1	0
% of all users	100%	97.4%	2.6%	2.5%	0.2%	0.0%

Table 11 – Weekend Estudillo Garage Re-Entry

User Type	Total	Parked Once	Re-Entry (Total)	Re-Entry		
				1 time	2 times	3 or more
Likely Customer	784	768	16	16	0	0
% of all likely customers	100%	98.0%	2.0%	2.0%	0.0%	0.0%
Likely Employee	14	13	1	1	0	0
% of all likely employees	100%	92.9%	7.1%	7.1%	0.0%	0.0%
All Users	798	781	17	17	0	0
% of all users	100%	97.9%	2.1%	2.1%	0.0%	0.0%





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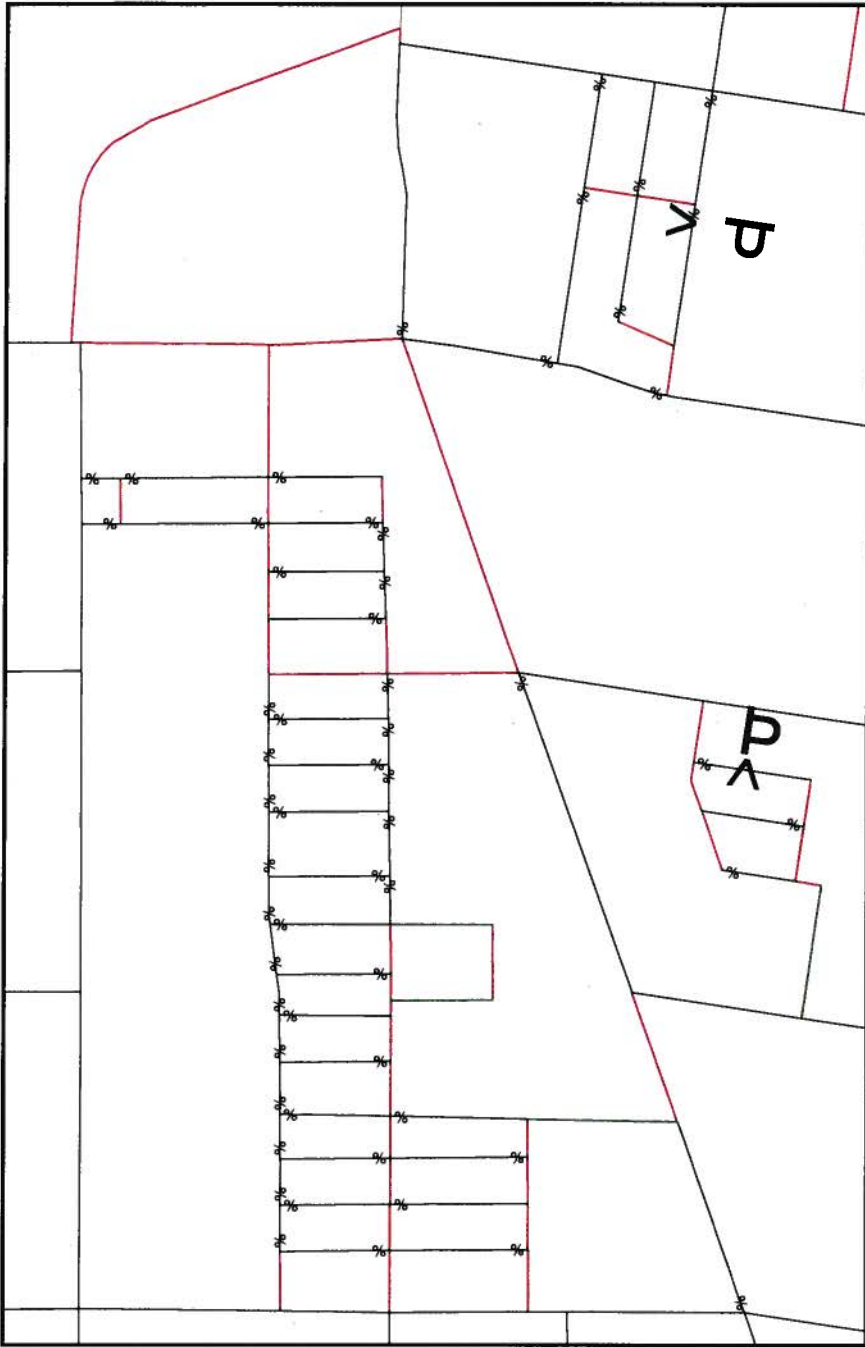
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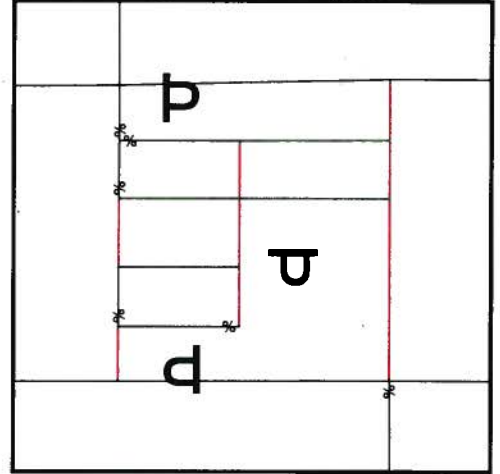
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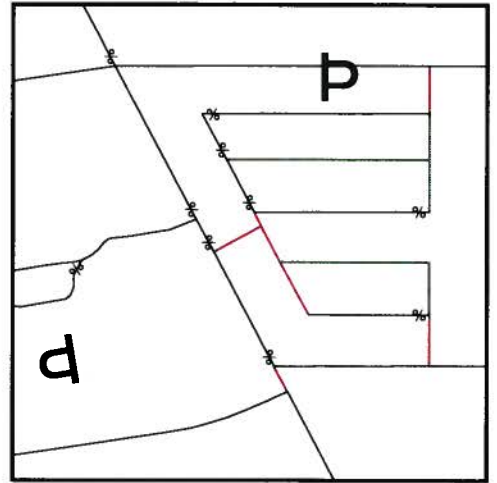
**Washington Plaza,
CVS, Best Building**



Main Library



Albertson's





Memorandum

To: *Reh-Lin Chen and Kevin Cooke, City of San Leandro*

From: *Terri O'Connor, David Chew, and Ted Huynh, CDM Smith*

Date: *December 20, 2013*

Subject: *Strategies and Recommendations – Downtown San Leandro Parking Study*

As part of the San Leandro Parking Study, which is funded by the Metropolitan Transportation Commission FOCUS Technical Assistance program, the following memorandum summarizes and describes parking management strategies based from the parking data analysis conducted for Downtown San Leandro. The memorandum provides the City with next step recommendations for a parking management plan.

The San Leandro Parking Data Analysis dated December 2, 2013, indicates that the downtown area did not exhibit an overall parking utilization problem. Occupancies peaked at around 50 percent on both weekday and weekends and across all parking supply types. The parking analysis did not reveal significant reparking activity within the downtown core, suggesting users are not relocating to avoid time or meter restrictions. In addition, retail areas exhibited relatively higher turnover rates, indicating that visitors are not being turned away due to lack of parking. Average vehicle durations were generally low in the downtown, with many locations having vehicles parked for less than two hours. However, nearby residential areas in the periphery, particularly near the Bay Area Rapid Transit (BART) station, had noticeably higher vehicle durations, with many blockfaces having durations of longer than five hours.

Recommendations

The following recommendations were based on and limited to the findings from the parking data analysis. They summarize potential parking management strategies to address areas of concern identified by the analysis.

Simplify Parking Time Restrictions

A range of various parking time restrictions are present throughout Downtown San Leandro, with no clear intent or consistency present in the locations of the restrictions. Many areas had two-hour time restrictions, while other small portions of the study area had three- or four-hour time limits. Standardizing the time restrictions simplifies the parking system for visitors to San Leandro and assures convenient and appropriate time limits that fit the need of most users in the City.

On-Street: The majority of users parking on-street in the core and the periphery areas are staying for two hours or less. A standardized three hour time limit at all currently regulated spaces would be an appropriate regulation for short-term visitors, while users who require parking for extended periods could do so in unregulated spaces further away from the core.

Off-Street: Existing time regulations in the off-street facilities are adequately serving its users, as overall occupancies remain under practical capacity (85 percent total occupancy) throughout the day. The Pelton Center Lot is the only lot to exhibit high amounts of occupancy; however, the lot exhibits high turnover as well. In addition, adequate parking surrounding the parking lot is available for users of this lot.

Study Short-Term Parking

There are a number of locations where short-term (15-30 minute) parking is clumped together such as 14th Street (Pelton Center) and Washington Plaza. Most of the remainder of the short-term spaces are laid out two spaces per block face. For short-term parking to be most advantageous, it should be much more dispersed and adjacent to high turnover land uses. Clumping of these spaces tends to invite improper use when no other parking is available.

At this time there is not sufficient data to support changing the duration of the short-term spaces. However, our experience shows that these spaces tend to have much higher durations than posted. Therefore we recommend that that city collect license plate data at a minimum of 30 minute intervals to confirm if this volume of short-term parking is appropriate for the Downtown.

Implement Residential Permit Parking Program

Parking occupancy and duration data indicated that spillover parking from San Leandro BART patrons are likely occurring along nearby on-street blockfaces, particularly where there are no current parking restrictions. Weekday data indicates high utilization of the residential on-street parking immediately east of the BART station and west of the downtown (to Hays Street), especially when compared to weekend data. Currently, the San Leandro municipal code supports a residential parking permit (RPP) program.¹ The implementation of an RPP program would deter BART users from utilizing these residential spaces for the entire day, while also reserving these spaces for local residents' use. Public outreach with local residents is recommended to determine feasibility and assist in forming the details of such a program.

Conduct Stakeholder Outreach

Meetings with downtown stakeholders are an important component to parking management plans. Stakeholder meetings assist in identifying key issues and concerns that are not immediately evident in the analysis of parking data. Although the data analysis has revealed the recommendations discussed above, outreach to the various stakeholders play a vital role in development the details of such strategies and can reveal new issues. Stakeholders can include, but are not limited to, local business owners, residents, employees, and customers.

¹ San Leandro Municipal Code. 6-2-330 RESIDENTIAL PARKING PERMIT.

Policy and Analysis Strategies

The following recommendations are presented to the City should they choose to pursue a parking management plan. While the analysis of existing parking data reveals existing parking behavior within the downtown, various additional steps are necessary to fully understand and manage the various aspects of parking.

Parking Policy Review

A comprehensive evaluation of the existing parking management program assists in understanding the existing operation, management structure, and financial model. This effort can include interviews with current parking operations, enforcement staff, planning, and/or public works. The goal of this analysis is to provide a detailed picture of the existing parking management system and to identify where policy improvements and adjustments could be made in order to address parking issues.

Future Development

Expected infill development in the short-term and larger new projects in the long term can have substantial impacts on existing parking utilization and availability. A parking demand analysis would evaluate existing parking supply and analyze the expected increase in parking demand based on new pipeline developments and pertinent policy changes. This analysis can be a powerful tool in determining if growth in supply is necessary as development occurs.

Expense and Revenue Analysis

An expense and revenue analysis assesses the financial "health" of the current system and whether there are any improvements that could be made to the system for financial reporting of fee collection and/or management of a parking fund. The goal of this analysis is to facilitate a clear picture of the financial performance of parking operations and support strategic decision making relating to system needs.

cc: Kyle Simpson and David Early, The Planning Center | DC&E



Memorandum

To: *Reh-Lin Chen and Kevin Cooke, City of San Leandro*

From: *Terri O'Connor, David Chew, and Ted Huynh, CDM Smith*

Date: *December 20, 2013*

Subject: *Sample Parking Management Plan – Downtown San Leandro Parking Study*

As part of the San Leandro Parking Study, which is funded by the Metropolitan Transportation Commission FOCUS Technical Assistance program, the following memorandum provides a sample scope for developing a parking management plan for the City of San Leandro. It contains the mechanisms and tasks necessary for development of such a plan, including an analysis, review, and evaluation of existing conditions, future demand analysis, and review and recommendation of policy tools related to the City's parking programs and strategies. The proposed plan scope also includes expected deliverables and an approximate cost per task.

Sample Scope

Task 0 Project Management and Communication

This task includes project management activities and the scoping process required to define further phases of the project and develop a clear, common understanding of goals and objectives.

Consultant shall remain accessible and shall proactively maintain clear communications during the course of the contract. Consultant shall be responsive to the City's project manager regarding project management activities so that modifications mid-project, if necessary and appropriate, can be made as the work effort progresses. A sound working relationship will be maintained between Consultant, the City, and project stakeholders.

Consultant shall hold a kick-off meeting with City staff to:

- i) Discuss and review the scope of services, proposed project strategy, project milestones and deliverables, and schedule to ensure that they meet project objectives and that they are clearly understood;
- ii) Establish a clear understanding of project team services;
- iii) Clarify each project task and establish responsibilities, reporting, coordination and logistical procedures;
- iv) Obtain key project data and documents; and
- v) Perform project area reconnaissance with city staff.

Task 0 Deliverables

- Kick-off meeting ;
- Submit updated work plan/revised scope following kick-off meeting ;
- Monthly progress reports; and
- Conference calls as needed.

Estimated Task Cost: 20 staff hours (@\$150/hour) = \$3,000

Task 1 Data Analysis

1.1 Baseline Conditions Data Review and Assessment

The data review and assessment task will be fundamental to all other aspects of the parking study. A meaningful data set is a prerequisite for understanding current parking issues in the downtown, projecting future demand, and analyzing new policy tools. The City will provide extensive inventory, occupancy, duration, and reparking data for both on-street parking and off-street facilities for a City-established study area. The data will be provided to Consultant in the following formats:

- Peak parking occupancy on- and off-street (tables);
- Reparking, classified by user type (tables);
- Occupancy by block face and facility, hours over capacity (maps);
- Average length of stay and turnover by facility and on-street blockfaces (maps).

City will also provide Consultant appropriate GIS maps and layers with relevant data for use. Other raw data sources can be provided to Consultant with City staff discretion.

Consultant will review City-provided inventory, occupancy, and other data in order to understand existing conditions and parking behavior, as a basis for the remainder of the management study. The review will be provided in memorandum format.

1.2 Parking Supply Evaluation and Demand Analysis

The parking behaviors determined by the utilization analysis will be the basis for assessing the baseline needs and deficiencies in the current parking system. Data will be analyzed to determine a parking deficit or surplus given current demand (segmented by subarea). Consultant will analyze the occupancy data to determine if there is sufficient on- and off-street supply. Consultant will overlay the demand profile on the existing downtown area plan map to indicate where there are gaps and thus strong demand for more supply. Hot spots and deficits will be tabulated and mapped by downtown subarea. City staff will advise Consultant to changes in existing supply and anticipated alterations to parking availability.

Consultant will develop a parking demand model that will calibrate baseline parking demand to existing land uses in the study area. City staff will provide relevant land use data for Consultant, including square footage, zoning, and other information as needed.

The model that Consultant develops will be used in one or more scenarios to determine a level of development that triggers the need for new parking supply or other management interventions. For this

task, the City staff shall develop the scenarios and Consultant shall guide City staff in populating the model. It will produce demand estimates that are specific to the characteristics of the area being studied in terms of land use, parking supply, parking costs, and transit availability.

1.3 Intercept and Stakeholder Surveys (Optional)

Should the City desire, Consultant shall conduct intercept surveys of customers and visitors over a period of several days in San Leandro to link customer trip purpose to parking behaviors; determine user issues related to parking; and gauge reactions to potential changes in management policies or measures. Survey results shall be analyzed and developed into a memorandum summarizing the responses of visitors and customers. Consultant shall work with the City to determine the optimal timing of the survey to cover peak times and events to garner the most feedback regarding parking issues in the downtown.

Consultant will also create a brief survey for key stakeholder groups to use with their members to get feedback on specific issues to help guide the project. The survey will be developed in paper form and on-line. Survey results will be summarized in a brief memorandum and incorporated into the final parking management plan report.

Task 1 Deliverables

- Task 1.1 Technical memorandum – Baseline Conditions review and intercept survey analysis;
- Task 1.2 Technical memorandum – Parking supply evaluation and demand model analysis.
- Task 1.3 Intercept Survey Summary – optional

Estimated Task Cost: 130 staff hours + 20 optional staff hours (@\$150/hour) = \$22,500

Task 2 City Policy/Technology Evaluation/Best Practices Assessment

Task 2.1 Assessment of City Parking Policies and Practices

Consultant shall conduct a comprehensive evaluation all the elements of City's existing parking management program to understand all elements of the existing operation, management structure, and financial model.

Consultant's effort will include:

- Review of current revenue generation and operating costs. Revenue and operating costs would include: enforcement, lot maintenance, and all operating costs allocated to the public parking supply;
- Review of all codes and regulations for all public parking supply located in the City's study area. This includes evaluation of the existing parking enforcement hours and time limits, and of rate structures, as necessary, in place on-street and in public off-street lots;
- Evaluation of the employee parking permit program, as necessary;
- Evaluation of lot formats, by lot, where long-term and short-term stalls are co-mingled;
- Evaluation, as necessary of lot identification systems, wayfinding, signage in place on public parking facilities;

- Evaluation of existing City parking payment technology and related enforcement applications and effectiveness (meters and pay stations);
- Preparation of a revenue to expense analysis with resultant recommendations for pricing, as appropriate, within the public parking system as a means to balance any operating deficits that may exist. This shall include preparation of recommendations for strategies that may be implemented to off-set operating deficits identified; and
- Development of parking strategies shall be provided in immediate, near, mid and long-term implementation format and include recommendations for both on- and off-street parking.

Task 2.1 Deliverables

- Preparation of a revenue to expense analysis. This will include preparation of recommendations for strategies that could be implemented to offset operating deficits and other issues identified.
- Task 2.1 Technical memorandum – Management Structure and Financial Model findings and recommendations

Task 2.2 Best Practices

Based on Task 2.1, Consultant will evaluate and compare the City's management practices against market trends and best practices in the parking industry. Consultant shall evaluate parking management practices in three case studies in communities comparable to the City of San Leandro. Consultant shall select case studies that have strategies and policies that directly relate to the City's challenges. Relevant findings of best practices shall be developed and provided as detailed examples and excerpts for each case study city for the deliverables listed in Task 2.1. Best practice examples may include but are not limited to: analysis of pricing structure and policies, finance strategies, employee and residential parking permit programs, enforcement strategies, and parking requirements and supply development. Consultant will select strategies and policies from communities that directly relate to the City's challenges. Relevant findings of best practices will be developed and provided as detailed examples and excerpts by relevant management tools and policies.

If deemed necessary, Consultant shall also evaluate the City's existing technology and meter system and shall interview operations staff to understand issues with current equipment. Based on the evaluation, Consultant shall develop recommendations or improvements to the current technology used by the City. The above review will include interviews with current San Leandro parking operations, public works, planning, and enforcement staff. For the purposes of this task, two (2) in person meetings are proposed with any additional meetings to be conducted via conference call.

The City's policies/practices from Task 2.1 will be compared to each relevant best practice/trend and assessed whether the practice is in line with industry standards or should be targeted for change.

Task 2.2 Deliverables

- Task 2.2 Memorandum – Best Practices and Market Trends
- 2 Meetings in person

Estimated Task Cost: 160 staff hours (@\$150/hour) = \$24,000

Task 3 Stakeholder Engagement and Outreach

Task 3.1 Outreach Approach and Stakeholder Meetings/Interviews

Consultant will develop a brief initial outline summarizing the envisioned outreach strategy for the management plan project. A key element of the outreach strategy will include working with the City to identify key participants for a series of up to three stakeholder meetings/interviews, including business owners, City staff, elected officials, and select members of the public. The purpose of the stakeholder meetings will be to gain input on existing issues and concerns with parking in the City to gauge reaction to potential changes or new approaches to pricing and parking management and to explore ways to effectively communicate parking information to users.

Task 3.2 Project Open Houses

Consultant will work with the City to prepare for and facilitate two project open houses (approximately three hours). The first open house would be at the outset of the project in conjunction with stakeholder meetings to hear from members of the community, including local residents, employees, and visitors, about existing parking issues. The second open house would be towards the end of the study to provide a forum for presenting ideas, concepts, and recommendations for a new parking strategy for downtown. Consultant, in coordination with City staff, will prepare poster boards/open house stations (up to two stations) and provide the open house meeting summaries.

Task 3.3 Fact Sheet

Consultant shall create a fact sheet for the City's website to familiarize members of the public with parking information in San Leandro, along with answers to key questions and concerns. The content for the fact sheet will be provided by the City and Consultant.

Task 3.4 Parking Information and Communication Strategy

Consultant shall develop a simple marketing approach for the City's parking program, to both communicate existing features of the system and upcoming changes. The marketing approach shall center on a unified theme for the parking strategy to promote familiarity and ease of use while incorporating changes and ensure the City effectively identifies and communicates parking information to its intended audience. The marketing strategy shall include:

1. Branding strategy for the parking program including a sample logo that can also be used in the parking plan documentation. The branding shall create a unified theme for the parking strategy and plan to promote familiarity and ease of use.
2. Example parking signs/information boards (on-street and in lots) that can be introduced as part of the branding and communication strategy.

Task 3 Deliverables

- Stakeholder Interviews/ Meetings(3)
- Project Open House (2)
- Fact Sheet
- Parking Information and Communication Strategy memorandum

Estimated Task Cost: 110 staff hours (@\$150/hour) = \$16,500

Task 4 Key Findings and Recommendations

All of the analyses and evaluations performed in Tasks 1, 2, and 3 will be developed into a summary of key findings and recommendations for City review, within the management plan report.

Consultant will develop a parking strategy and recommendation plan based on the key findings in form of a parking management plan. Strategies will be provided in immediate, near-, mid-, and long-term implementation format and include recommendations to optimize parking policies and ensure adequate parking supply to meet the City's needs.

Task 4 Deliverables

- Summary of Key Findings within Draft/Final Report

Estimated Task Cost: 60 staff hours (@\$150/hour) = \$9,000

Task 5 Final Report

All of the analyses performed in Tasks 1 through 4 will be developed into a single report for City review. The report will be comprised of the technical memoranda prepared as part of each task and will include additional introductory and appendix material as appropriate. Consultant will submit a draft report for City review and incorporate revisions following comment by City staff into a final report.

Upon acceptance of the final report, Consultant and City staff will present the findings and recommendations to the public works commission meetings and the City Council.

Task 5 Deliverables

- Parking Management Plan (1 Draft and 1 Final Report)
- Presentation to Public Works Commission (1)
- Presentation to City Council (1)

Estimated Task Cost: 50 staff hours (@\$150/hour) = \$7,500

cc: Kyle Simpson and David Early, The Planning Center | DC&E