

TECHNICAL REPORT

**FREMONT NEIGHBORHOOD
ON-STREET PARKING STUDY**

Prepared by:

heffron

transportation, inc.

6544 NE 61st Street, Seattle, WA 98115

ph: (206) 523-3939 ♦ fax: (206) 523-4949

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1. Introduction

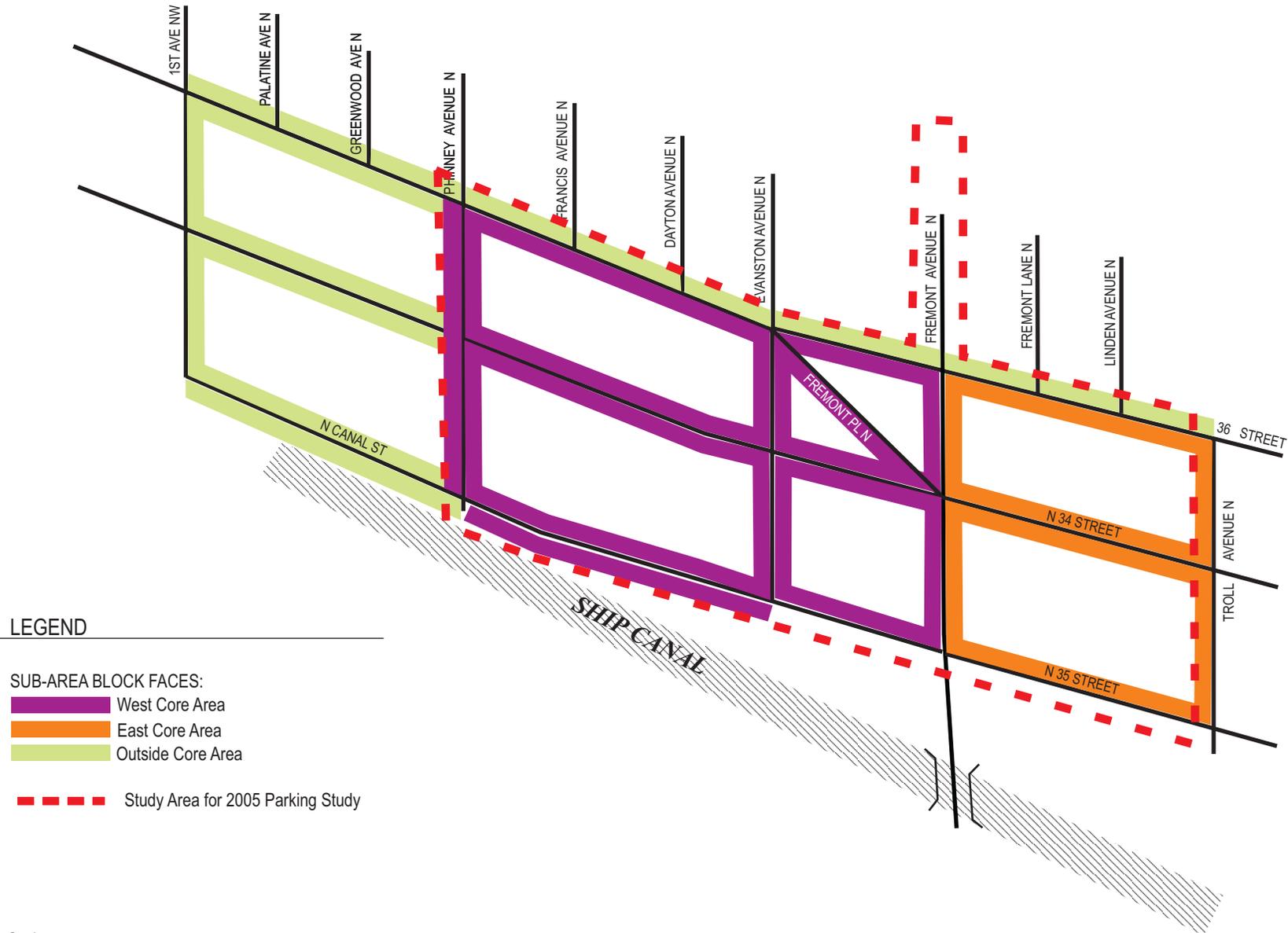
This technical report presents the findings of the parking survey conducted in June 2008 in the Fremont neighborhood. The study evaluates parking characteristics on a typical day. The data and analysis will help the Seattle Department of Transportation (SDOT) determine if changes in parking management techniques are needed. The study determined:

- utilization and parking duration of unregulated spaces,
- utilization and parking duration of parking spaces with signed time-limits,
- parking utilization by time of day, and
- parking characteristics for a weekday and Saturday.

This technical report presents parking utilization and parking duration by subareas and street segment. The study area, blockfaces, and sub areas for analysis, for the Fremont parking study are shown on Figure 1. There are 46 blockfaces in the study.

A similar data collection effort was conducted for the Fremont business district in December 2004. Results were documented in the *Fremont Parking Study, Summary Report*, Heffron Transportation, Inc., February 16, 2005. In spring of 2005, it was decided that the recommended parking management techniques would not be implemented due to the pending rehabilitation of the Fremont Bridge and Fremont Avenue. Businesses were concerned about the combined impact of bridge and roadway construction activity with changes in parking management. Key differences from 2005 to 2008 are listed below.

- In 2005, SDOT converted 150 unrestricted parking spaces to time-limited parking.
- In 2008, the study area was expanded to include blocks west of Phinney Avenue N to 1st Avenue N and to include Troll Avenue N. The 2005 study area is outlined in Figure 1.
- The number of parking spaces surveyed was 425 in 2005 and 712 in 2008.
- Data collection occurred in the month of June in 2008 and the month of December in 2005.
- Saturday data collection covered the entire study area in 2008, rather than only the core area as in 2005.



LEGEND

- SUB-AREA BLOCK FACES:
- West Core Area
 - East Core Area
 - Outside Core Area
- Study Area for 2005 Parking Study

Not to Scale

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Figure 1
Study Area



2. Study Methodology

Data Collection

Parking data were collected on Thursday, June 12, 2008 and Saturday, June 14, 2008. Parking activity was recorded at 30-minute intervals from 9:00 A.M. to 4:00 P.M. on Thursday and on Saturday from 12:00 P.M. to 10:00 P.M. The streets surveyed are shown in Figure 1. The study area was roughly bounded by N 34th Street at the south end to N 36th Street at the north end and from 1st Avenue NW at the west end to Aurora Avenue N (Troll Avenue N) at the east edge. The study area included 46 blockfaces.

Parking space occupancy data were collected by Operations Management Group (OMG), Inc. using their hand-held electronic data collection tool. A sequence number was assigned to every parking space within each map segment to ensure consistency in the data collection. The inventory and sequence numbers included all parking spaces by type, and other curbspace uses, such as bus zones, hydrants and driveways, where parking is not allowed. In addition to recording vehicles parked in legally-designated spaces, the surveyors recorded “squeeze-in vehicles” on each street segment, which represent motorists who created their own space between other vehicles, at the end of the block, or in no parking zones. These vehicles reflect the demand for parking.

Parking utilization was determined from the actual number of vehicles parked divided by the parking supply. The data collection methodology enables the calculation of utilization by blockface, by restriction type, by sub-area or street and for the entire study area.

Parking duration was calculated by counting the ½-hour time periods occupied by a vehicle. For each blockface and restriction type, the number of vehicles parked by duration was then summarized in histograms.

The data also show the number of vehicles out of compliance with the restriction type. Parking restrictions are in place from 9:00 A.M. to 6:00 P.M.; vehicles were counted as out of compliance if they parked longer than the allowed time limit during the hours when the restrictions are in place. Parking compliance was evaluated for 30-minute, one-hour and two-hour spaces. For two-hour spaces, all vehicles parked for less than two hours are compliant and all vehicles parked for two or more hours are noncompliant. The duration data can reveal if there is unusual activity, such as numerous all-day parking in front of restaurants and retail uses.

Parking Capacity

The practical capacity of on-street parking is typically defined at 85% utilization. At this level of utilization, the next arriving customer or visitor is able to quickly find a reasonably convenient parking space. When occupancy exceeds the practical capacity, drivers will experience delays and frustration while searching for a parking space, as well as contribute to area traffic congestion while circling the block looking for parking. Practical capacity is used to determine the adequacy of a parking system. SDOT considers utilization rates above about 75% to be the threshold where additional parking management techniques should be explored through a comprehensive study of parking management measures. That way measures can be put in place before parking reaches capacity. SDOT also uses parking management measures to support the goal of reducing automobile trips, particularly for commuting. Short-term parking limits that favor retail and restaurant use are preferred to long-term parking that could be used by commuters.

3. Parking Space Inventory

The parking space inventory was updated during the on-street data collection effort. In total, there were 712 legal parking spaces in the study area. The allocation of these spaces by type and location are shown in Table 1. The time-limited spaces are restricted by signage. There are currently no meters or pay stations within the study area.

Table 1. Parking Inventory ^a

Street	30-Minute	One-Hour	Two-Hour	Unrestricted	Other	Total	% of Total
1 st Avenue NW	0	0	0	9		9	1%
Phinney Ave N	0	0	42	0		42	6%
Evanston Ave N	3	10	4	14		31	5%
Fremont Place N	1	14	0	0		15	2%
Fremont Ave N	8	2	15	3	2 ^b	30	4%
Troll Ave N	0	0	0	17		17	2%
N 34th Street	11	34	43	94	1 ^b	183	26%
N 35th Street	18	6	54	156	2 ^c	236	33%
N 36th Street	14	9	60	66		149	21%
Study Area Total	55	75	218	359	5	712	100%
Percent of Total	8%	11%	31%	50%	<1%	100%	

Source: Parking demand counts performed on June 12, 2008.

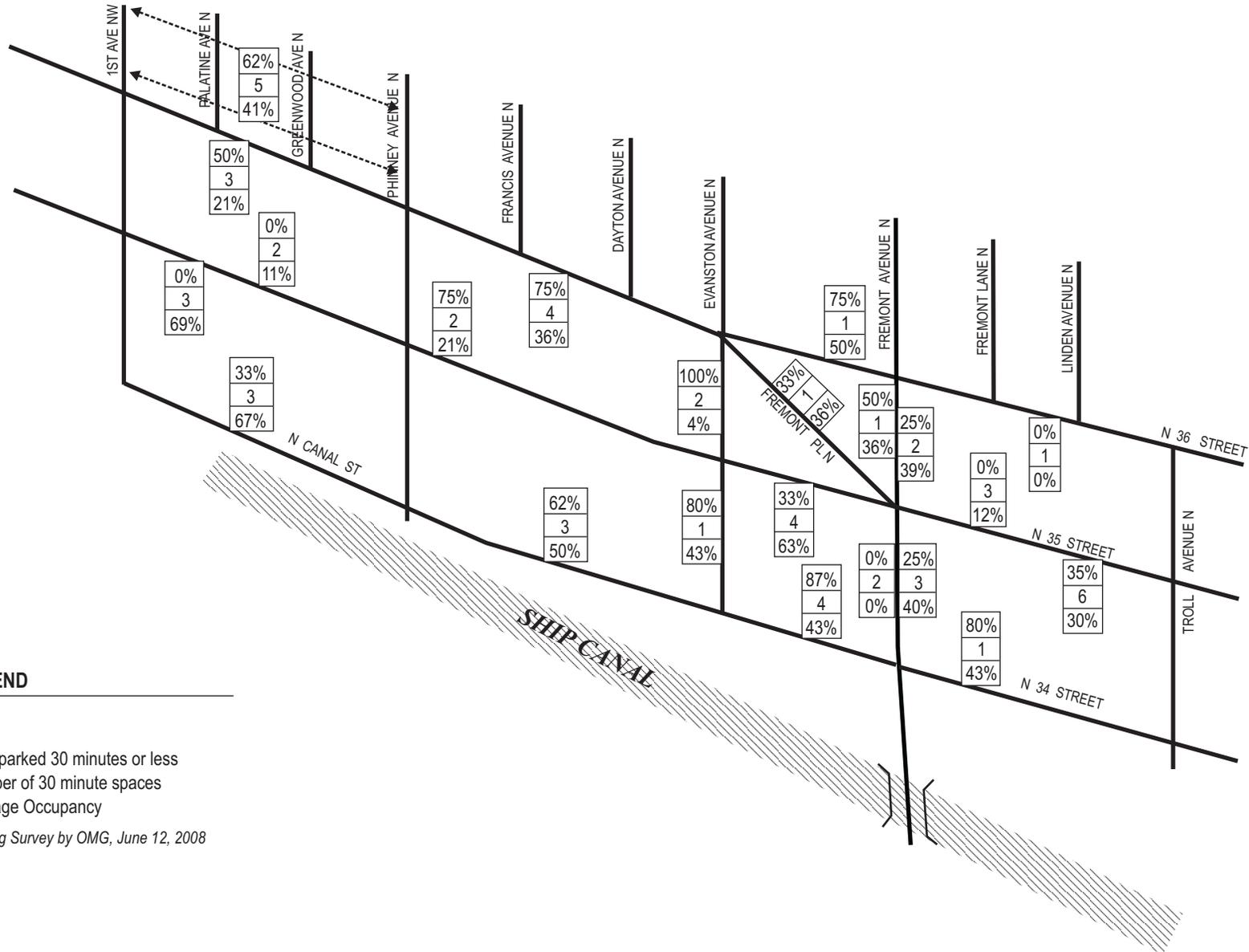
- a. Reflects the inventory when restrictions are in effect, typically 9:00 A.M. to 6:00 P.M. on weekdays and Saturday.
- b. Signed 3-minute time-limit space.
- c. Signed Disabled Parking Only.

The parking space inventory reflects the midday parking regulations. For the most part, changes in restriction type occur at 6:00 P.M. when restricted spaces become unrestricted spaces. There is little change in restriction type during the day and so the midday was used in the daytime analysis.

4. Parking Utilization, Duration and Compliance

Parking Activity for 30-Minute Load Zones

Parking activity for 30-minute load zones is presented in Figure 2. The majority (or all?) of these spaces are 30-minute load and unload zones. The average occupancy on the weekday was 34%. The average occupancy on Saturday was 29%, reflecting lower usage of commercial load/unload activity on Saturdays. The average compliance rate for all 30-minute signed spaces was 45%, meaning that more than half of the users stayed for longer than the 30-minute limit.



LEGEND

- XX% Cars parked 30 minutes or less
- XX Number of 30 minute spaces
- XX% Average Occupancy

Source: Parking Survey by OMG, June 12, 2008

Not to Scale

Figure 2
30- Minute Parking Space Activity
Weekday 9 AM to 4 PM



Parking Activity for One-Hour and Two-Hour Time-Limited Spaces

Parking utilization of one-hour and two-hour time-limited spaces, throughout the day, is presented in Figure 3. Parking utilization increased steadily from 9:00 A.M. peaking at noon, holding steady until 1:30 P.M. and then decreasing slightly in the afternoon. The core area east of Fremont Avenue had the highest peak utilization of 90% during the noon hour.

Figure 3. Utilization of One-Hour and Two-Hour Parking Spaces – Weekday
Core Area West of Fremont Avenue

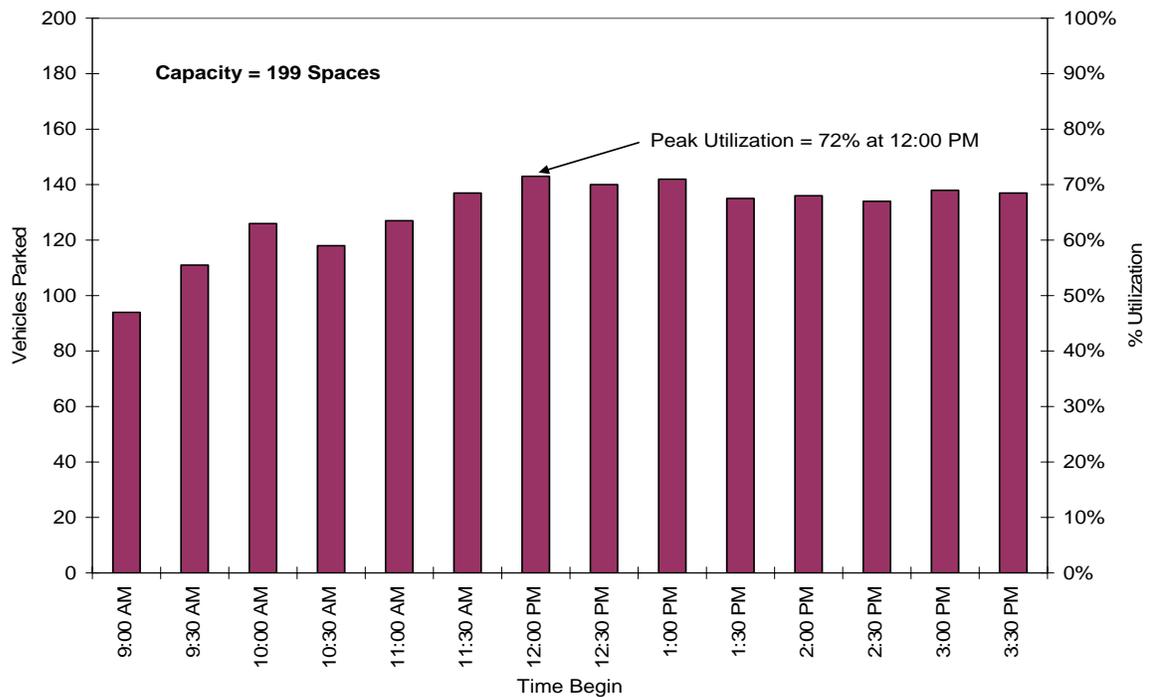


Figure 4. Utilization of One-Hour and Two-Hour Parking Spaces – Weekday
 Core Area East of Fremont Avenue

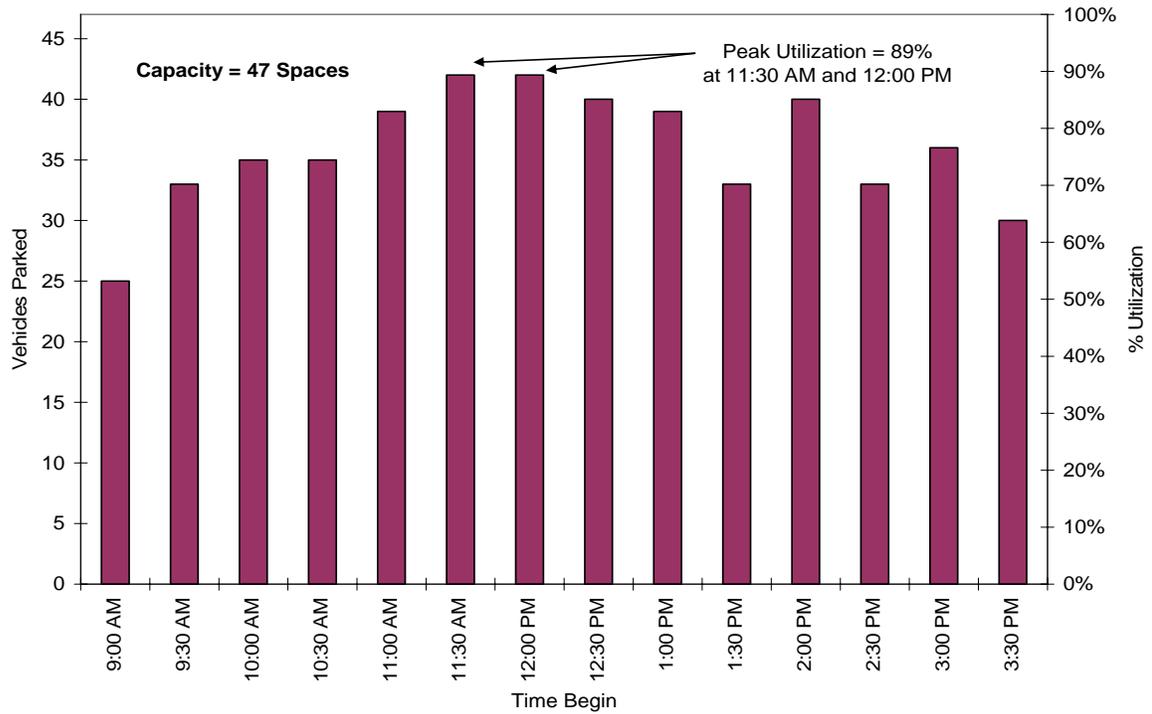
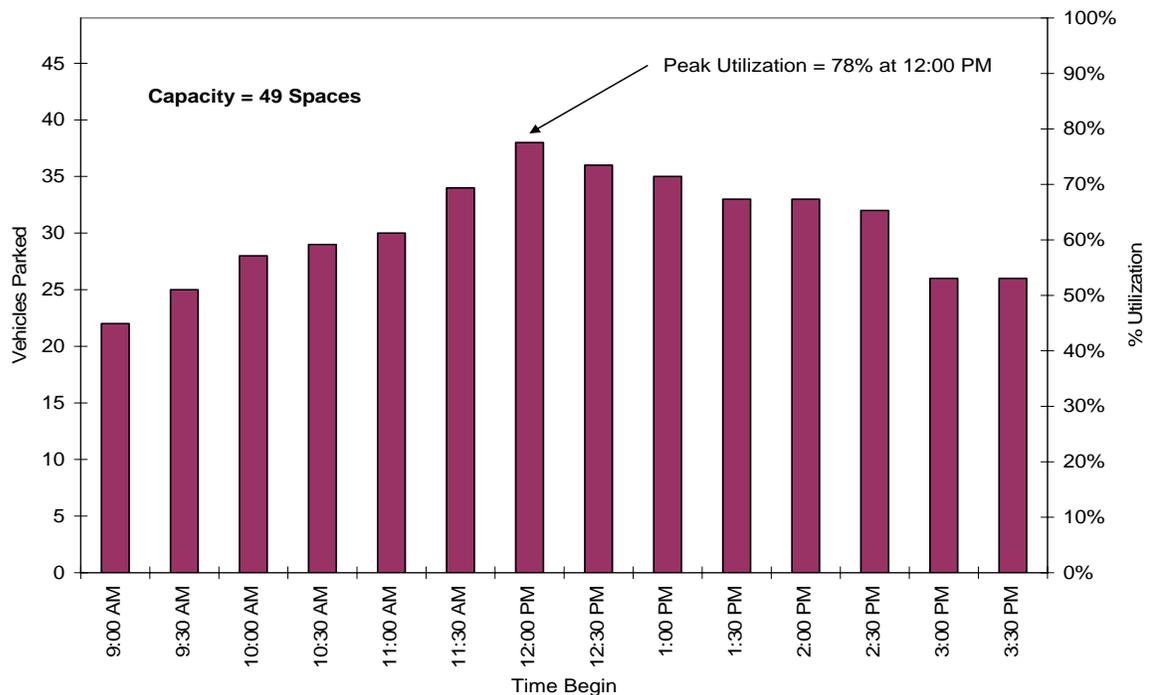


Figure 5. Utilization of One-Hour and Two-Hour Parking Spaces – Weekday
 Outside of Core Area

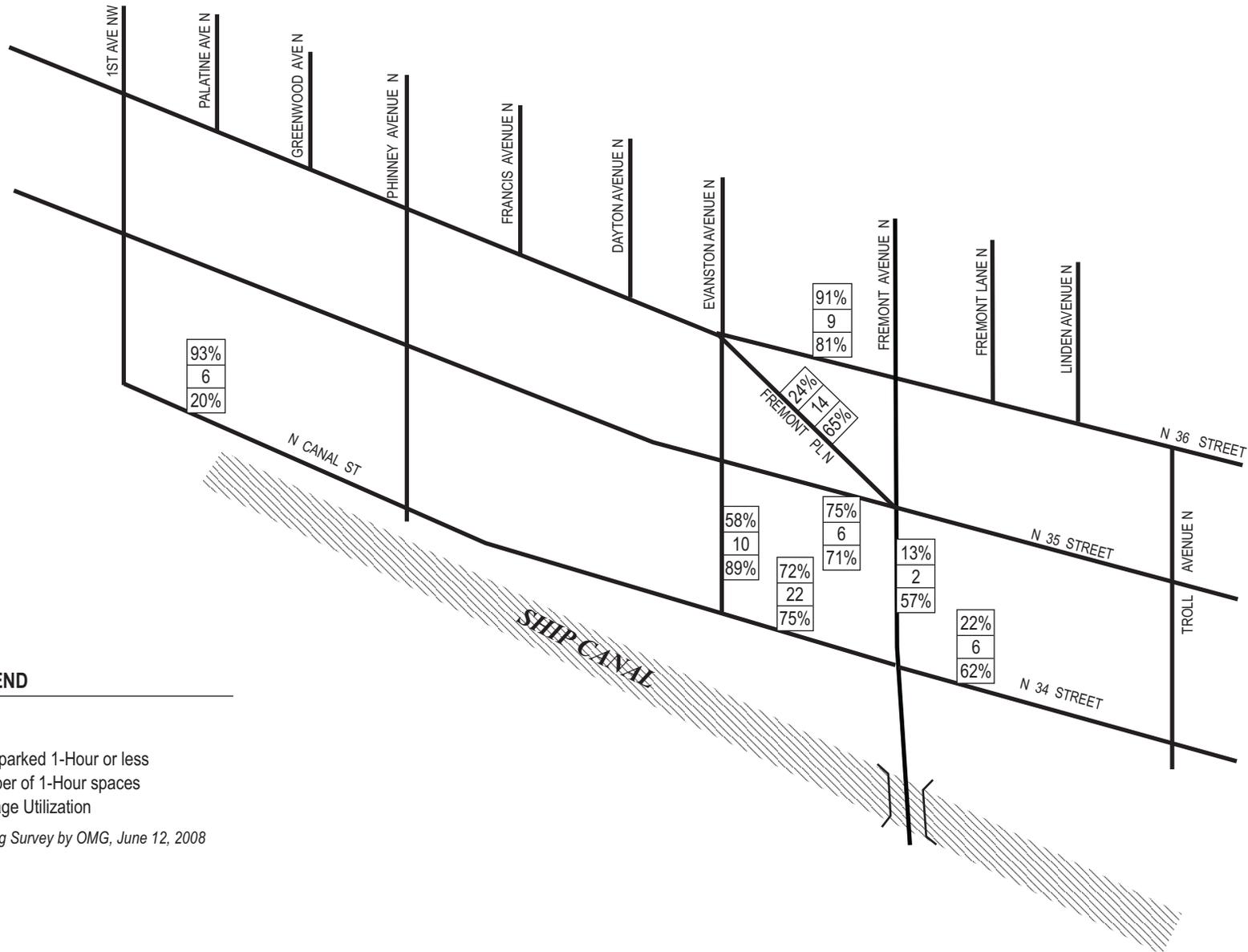


Source: Parking demand counts performed on June 12, 2008. Compiled by Heffron Transportation, Inc., July 2008.

Parking activity by blockface, for one-hour spaces in the study area, is presented in Figure 6. The average utilization by blockface in the core of Fremont ranged from 57% to 89%. The average compliance rate was 56% meaning that almost half of the users parked for longer than the one-hour time limit. Compliance rates by blockface were a low of 13% to a high of 90% in the core area.

Weekday parking activity for two-hour spaces in the study area is presented in Figure 7. The average utilization ranged from a low of 12% to a high of 83%. Two-hour time-limit spaces exist throughout the study area mixed with unrestricted spaces and so the utilization may be affected by adjacent unrestricted spaces.

The average compliance rate was 75% on a weekday. This means that about 25% of the users were parking for longer than the allowed time limit.



LEGEND

- XX% Cars parked 1-Hour or less
- XX Number of 1-Hour spaces
- XX% Average Utilization

Source: Parking Survey by OMG, June 12, 2008

Not to Scale

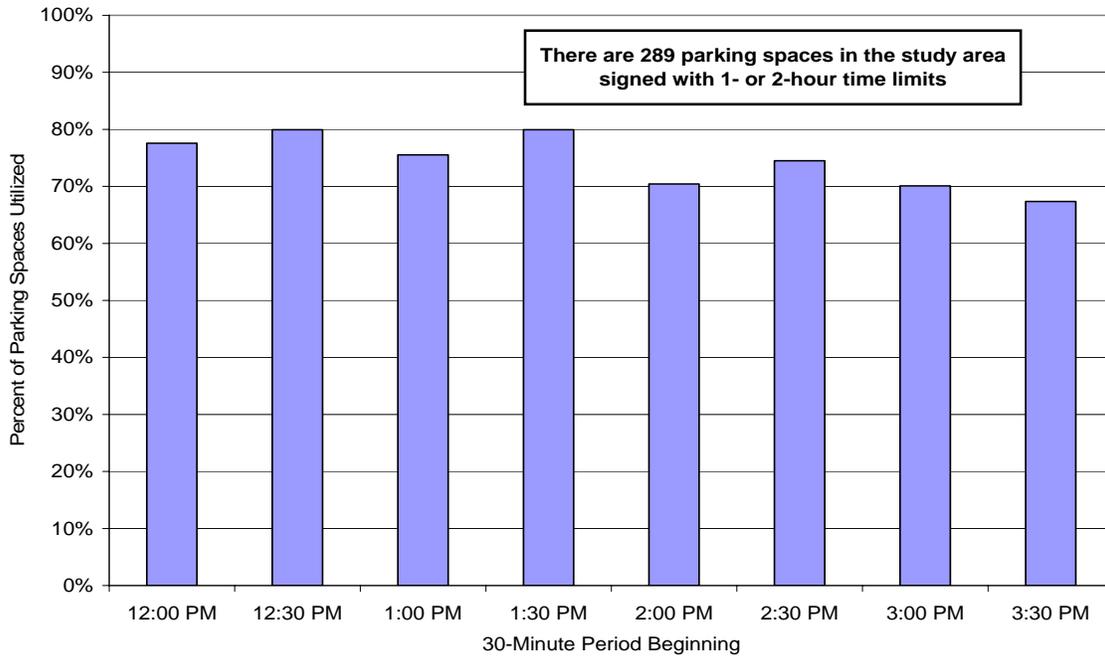
Figure 6
One-Hour Parking Space Activity
Weekday 9 AM to 4 PM

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Parking utilization of one-hour and two-hour spaces on a Saturday is summarized in Figure 8. Parking utilization is fairly constant and well utilized throughout the day on Saturdays. Peak parking on Saturday reached 80% at two times: 12:30 P.M. and 1:30 P.M. This utilization is higher than the weekday peak of 73%. There are six fewer one-hour and two-hour parking spaces on Saturdays than on weekdays due to changes in the signed time-limits.

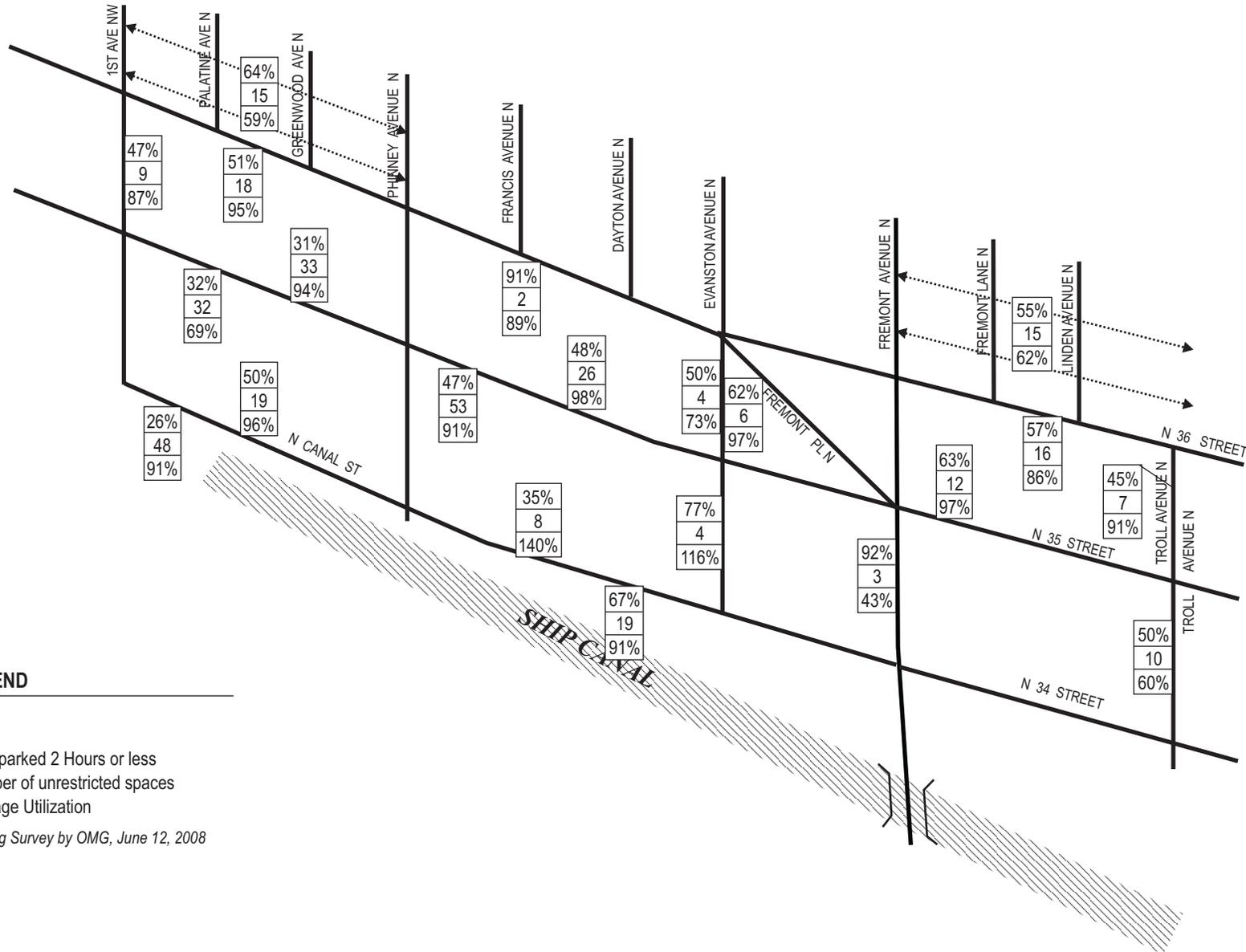
Figure 8. Utilization of One-Hour and Two-Hour Parking Spaces – Saturday



Source: Parking demand counts performed on June 12, 2008. Compiled by Heffron Transportation, Inc., July 2008.

Parking Activity for Unrestricted Spaces

Weekday parking activity for unrestricted parking spaces, by blockface, in the study area is presented in Figure 9. The utilization by blockface showed a range from 43% to 140%. There are two blockfaces exceeding 100% utilization. This is due to a high number of “squeeze-in” vehicles where more cars were parked than the number of legal spaces.



LEGEND

- XX% Cars parked 2 Hours or less
- XX Number of unrestricted spaces
- XX% Average Utilization

Source: Parking Survey by OMG, June 12, 2008

Not to Scale

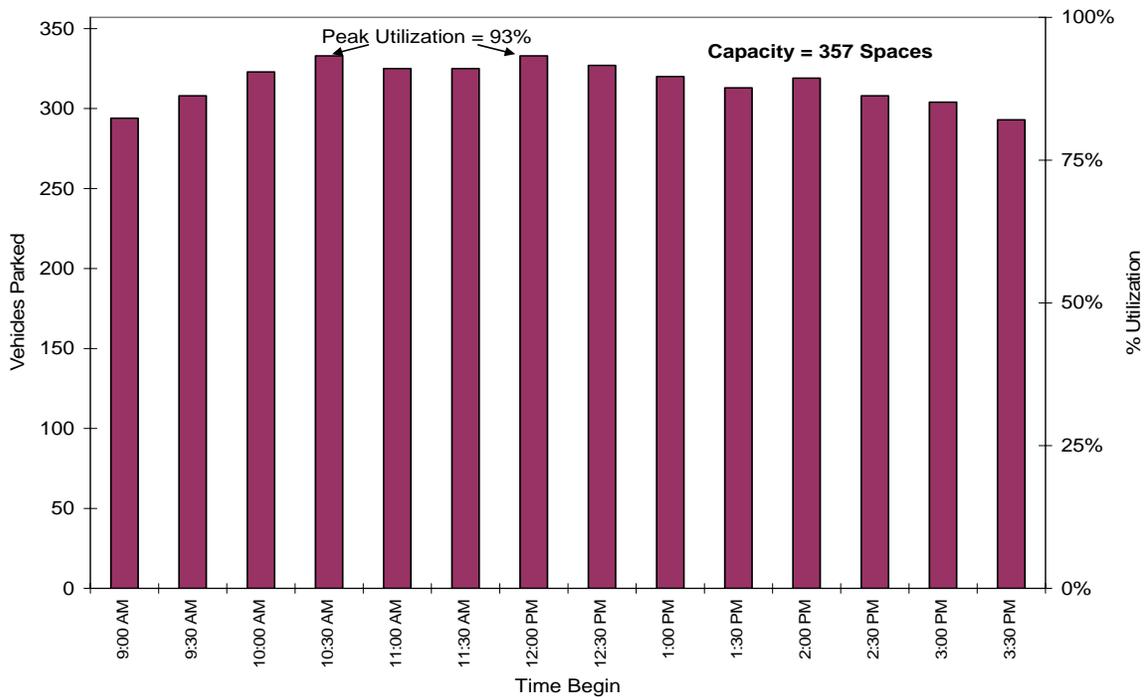
Figure 9
Unrestricted Parking Space Activity
Weekday 9 AM to 4 PM

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The utilization of unrestricted spaces fluctuates by time of day as shown in Figure 10. Both the number of vehicles parked and the percent utilization are shown. The peak utilization on a weekday was 93% occurring at 10:30 A.M. and again at noon. The average utilization of unrestricted parking spaces was 87%. At this rate, motorists likely have difficulty finding an available parking space causing additional circulation through the neighborhood.

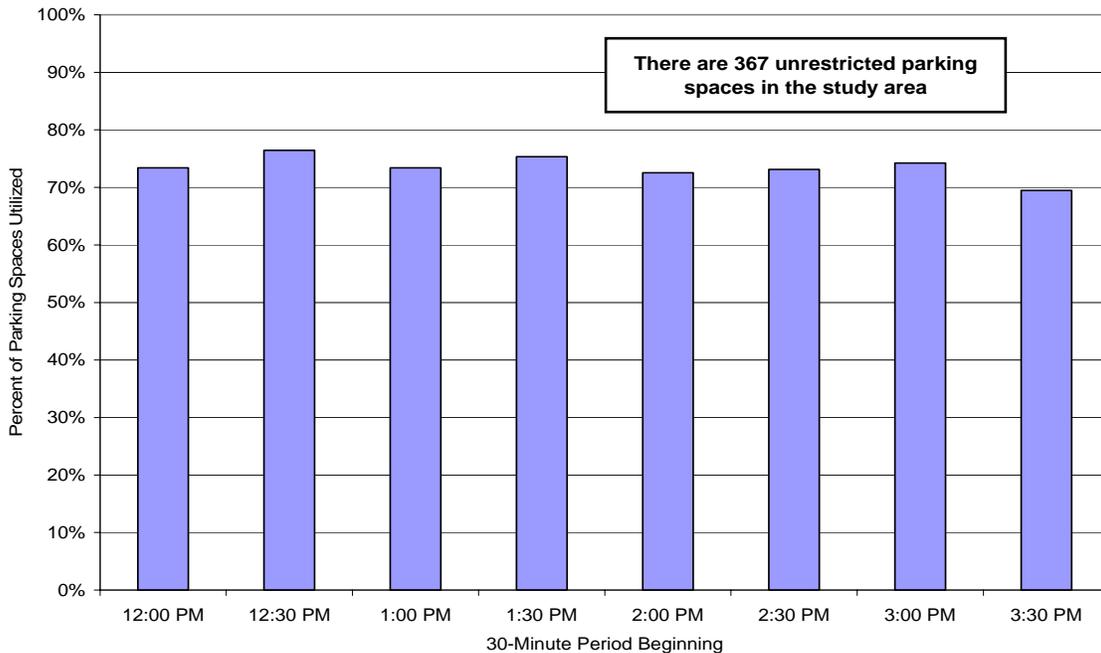
Figure 10. Utilization of Unrestricted Spaces by Time of Day – Weekday



Source: Parking demand counts performed on June 12, 2008. Compiled by Heffron Transportation, Inc., July 2008

Figure 11 presents utilization of unrestricted parking spaces on a Saturday. Utilization is above 70% from 12:00 P.M. to 3:30 P.M. and reaches 80% at 12:30 and 1:30 P.M.

Figure 11. Utilization of Unrestricted Parking Spaces – Saturday



Source: Parking demand counts performed on June 12, 2008. Compiled by Heffron Transportation, Inc., July 2008.

Parking duration data for the unrestricted spaces was analyzed, by blockface, for the number of cars parked for two hours or less as an indication of turnover. On a weekday, the average number of cars parked for two hours or less in the unrestricted parking spaces was 54%. Figure 9 shows that the range was from 26% to 92%. These data show relatively high two-hour parking durations within the unrestricted parking spaces.

The parking duration of unrestricted spaces is summarized by sub-area in the figures below. Figure 12 presents parking duration in the core area for the west side of Fremont Avenue N to and including Phinney Avenue N (refer to Figure 1). In this area, about half of the cars in unrestricted spaces parked for two hours or less, while 30% parked for six or more hours.

Similar characteristics exist in the core area east of Fremont Avenue N as shown in Figure 13. This area extends from the east blockface of Fremont Avenue N to Troll Avenue N (refer to Figure 1). Half of all vehicles parked for two hours or less and 30% parked for six or more hours. These show that there is demand for both short-term parking that serves retail and restaurant customers as well as long-term parking to serve employees.

Figure 12. Unrestricted Parking Duration – Weekday
Core Area West of Fremont Avenue N

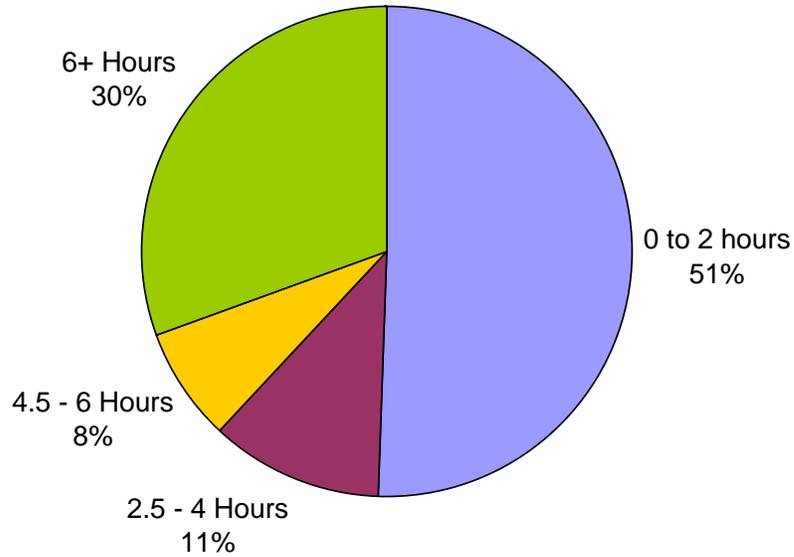
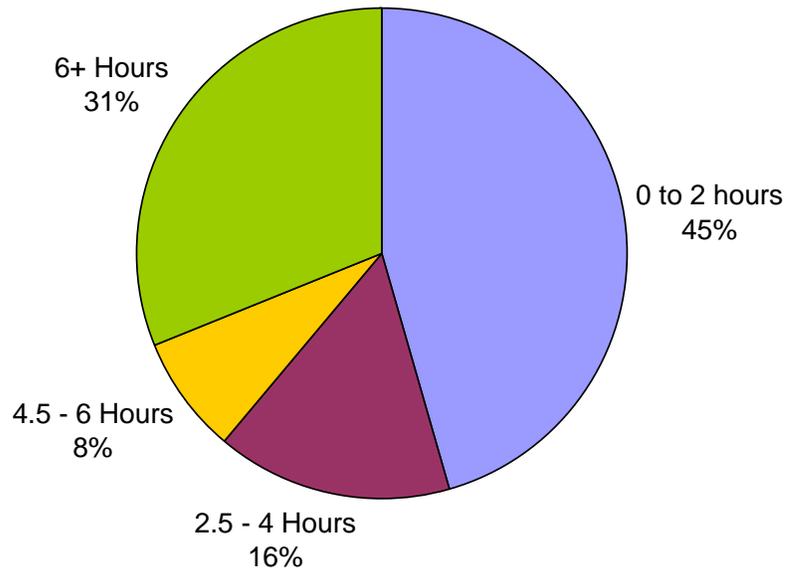


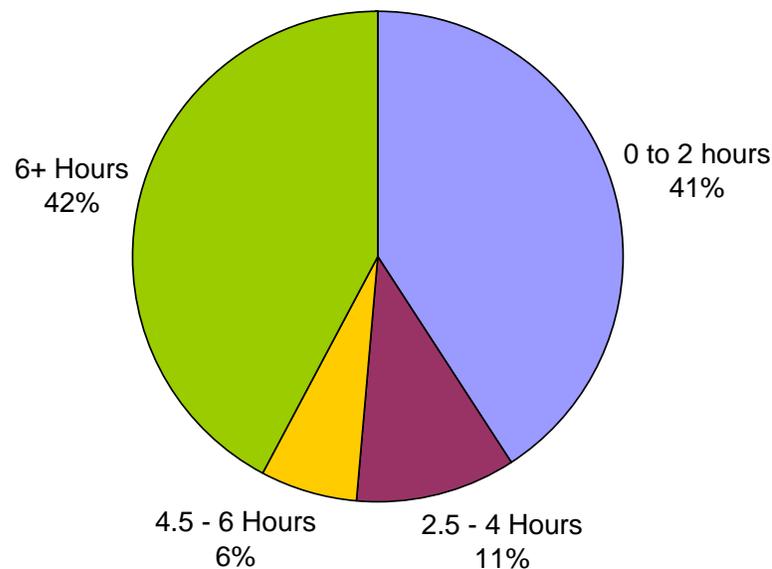
Figure 13. Unrestricted Parking Duration – Weekday
Core Area East of Fremont Avenue N



Source: Parking demand counts performed on June 12, 2008. Compiled by Heffron Transportation, Inc., July 2008.

The summary of parking duration for cars parked outside the core area is presented in Figure 14. This includes the area the area west of Phinney Avenue N to 1st Avenue NW and the north side of 36th Avenue N (refer to Figure 1). There is a smaller demand for parking of two hours or less outside the core area, yet still at 41% of all parked cars. The demand for parking over six hours is the highest at 42%.

Figure 14. Unrestricted Parking Duration – Weekday
Outside Core Area



Source: Parking demand counts performed on June 12, 2008. Compiled by Heffron Transportation, Inc., July 2008.

In summary, unrestricted parking spaces have utilization rates above capacity on weekdays and near capacity on Saturdays. Approximately one-half of the unrestricted spaces show use by retail, restaurant and other businesses that rely on the turnover provided by two-hour parking.

Other Parking Space Activity

There are two marked “Disabled Parking” stalls in the study area. The location and activity is summarized below.

- South side of N 35th Street between Evanston Avenue N and Fremont Avenue N. This space was occupied during 78% of the survey passes, which occurred in ½ hour frequency. Two vehicles were parked ½ hour or less, and 1 vehicle parked five hours.
- South side of N 35th Street, between Fremont Avenue N and Troll Avenue N. This space was not occupied during any of the survey passes.

There are three signed 3-Minute Passenger Load Zones. The location and activity is summarize below

- Two spaces on the west side of Fremont Avenue N between N 34th Street and N 35th Street. These spaces were not occupied during any of the survey passes. Because the surveys were

performed in 30-minute intervals, it is possible that the space was used for the 3-minute limit between survey passes.

- One space on the north side of N 34th Street between Evanston Avenue N and Fremont Avenue N. This space was occupied during 57% of the survey passes. Eight vehicles were parked ½ hour or less.

5. Summary of Findings

Parking data were collected on a weekday and Saturday in mid-June 2008. Parking activity was surveyed by recording license plate numbers by stall at 30-minute intervals. The data collection provided information on utilization, parking duration, and compliance by parking restriction type. The study area extends from 1st Avenue NW on the west side to Troll Avenue N on the east side, and from N 34th Street on the south side to N 36th Street on the north side. There is currently no paid parking in this area. Parking data were evaluated independently for each signed parking regulation. Key findings are presented below and are divided by four types of parking restrictions: 30-minute parking, one-hour parking, two-hour parking, and unrestricted.

30-Minute Loading Zones

Within the study area, there are 55 30-minute loading zones. Some 30-minute spaces exist on almost all blockfaces. The exceptions are: the north side of N 36th Street between Phinney Avenue N and Evanston Avenue N, Troll Avenue N, and on the south side of N Canal Street.

The average occupancy of 30-minute spaces was 34% on weekdays. (Data collection occurred at ½ hour frequency which means that these parking spaces may have been occupied between each pass-by.) There were eight blockfaces with occupancy less than 30 percent including three with 0%.

The average compliance rate of the 30-minute time limit was 45%. The low compliance rate coincided with low utilization. Low compliance combined with low utilization indicates that there is less demand for 30-minute parking spaces and greater demand for longer time limits. It is also an indication of the difficulty of enforcing 30-minute parking spaces. Blockfaces with a 0% compliance rate and low utilization (under 33%) are:

- south side of N 35th Street between 1st Avenue W and Phinney Avenue N,
- north side of N 35th Street between 1st Avenue W and Phinney Avenue N,
- west side of Fremont Avenue N between N 34th Street and N 35th Street,
- north side of N 35th Street between Fremont Avenue N and Troll Avenue N,
- south side of N 36th Street between Fremont Avenue N and Troll Avenue N.

One-Hour Parking Restrictions

There are 75 parking spaces signed with one-hour time-limits, and most are located in the study area core. There are also six spaces on N Canal Street between 1st Avenue N and Phinney Avenue N. The average utilization of one-hour signed time-limit parking spaces was 65%. The utilization was lowest on N Canal Street between 1st Avenue N and Phinney Avenue N, at 20%. All other one-hour spaces were occupied 50% or more of the time. The average utilization of one-hour spaces is almost equal to two-hour spaces. Refer to two-hour spaces below.

The average compliance rate of one-hour signed time-limit parking spaces was 56%, meaning that almost half of the users parked for longer than the time limit allowed.

Two-Hour Parking Restrictions

There are 218 parking spaces in the study area signed with two-hour time limits. These are distributed throughout the study area. The average utilization of two-hour signed time-limit parking spaces was 65%. However, average utilization in the core area was higher, up to 83% on some blocks. Utilization of the two-hour spaces fluctuates by time of day. For the entire area, the peak utilization for the combined one and two-hour spaces reached 72% at noon. The area located east of Fremont Avenue experienced a peak utilization of about 90% during the lunch peak from 11:30 A.M. to 12:30 P.M. The one hour spaces were more highly utilized than the two-hour spaces (probably because of their location). On Saturday, utilization of the one- and two-hour parking spaces peaked at 80%. This occurred over lunch and again in the early afternoon.

The average compliance rate of two-hour signed time-limit parking spaces was 75%. This means that about 25% of the users were parking for longer than the allowed time limit. Typically, compliance rates are desired to be in the 85% to 90% range.

Unrestricted Parking

There are 357 unrestricted parking spaces in the study area. The average utilization of unrestricted parking spaces was 87%. The utilization fluctuated by time of day with the peak of 93% occurring at 10:30 A.M. and again at noon. At this rate, motorists likely have difficulty finding an available parking space and circulate through the neighborhood.

The average number of cars parked for two hours or less in the unrestricted parking spaces was 54%. This indicates that parking turnover in the unrestricted spaces is relatively high. The turnover is higher than average on blockfaces east of Evanston Avenue N. Blockfaces with less-than-average turnover exist west of Evanston Avenue N.

The highest utilization rate for unrestricted parking—140%— occurred in the eight spaces on the north side of N 34th Street between Phinney Avenue N and Evanston Avenue N. This is due to a high number of “squeeze-in” spaces where more cars were parked than the number of legal spaces.

Parking duration for unrestricted spaces shows similar characteristics throughout the study area. The demand for two hour parking is approximately half of all parking activity with 41% outside the core area, and 51% and 45% in the west and east core areas, respectively. Within the core areas, about 30% of the vehicles parked for six or more hours; outside the core area, that increased to 42%.

Other Parking Activity

There are three 3-minute passenger/commercial load zones, and two disabled parking spaces in the core area of Fremont. The utilization of these spaces varied depending on the location.

Parking utilization in Fremont has reached the level where new parking management techniques would benefit the neighborhood residents and businesses. The number of parking spaces with signed time limits was increased in 2006. This improved parking turnover and improved the customer's ability to find parking. However, in the area located east of Fremont Avenue, the parking utilization of the one and two-hour spaces was about 90% during the lunchtime peak period. At this level, it can be difficult to find a parking space and customers may need to circulate around the neighborhood. Also, about 30% of the users in all of the areas are staying beyond the signed limit of two hours, and for one-hour parking spaces, about half of the users are staying beyond the signed time limit. These levels of non-compliance are much higher than desired.

About half of the on-street parking in Fremont is still unrestricted, which may support employee-parking needs, but does not serve retail and restaurant customer needs. Utilization of the unrestricted spaces peaked at 93% occupied at 10:30 A.M. and again at noon. In the core areas, about half of the cars that parked in these unrestricted spaces parked for two hours or less suggesting that there is higher demand for short-term parking in the area. When easy-to-find parking is not available, or even if there is a perception that parking is difficult, Fremont may lose the discretionary trips associated with retail and restaurant customers who could go elsewhere to shop and eat.