

2016 Central Eastside Parking Data Summary Permits/Occupancy/Utilization

November 2016 (v6)

Surveyed Parking Inventory

Per the recommendation of the Central Eastside Transportation and Parking Advisory Committee (TPAC) the 2016 parking survey boundaries were adjusted to include a larger number of blocks between SE Hawthorne and SE Taylor Streets (Purple) and a slightly expanded boundary in the northern end between NE Everett and SE Ash Streets (Pink) as seen in **Error! Reference source not found.** on the next page. Table 1 provides a complete inventory of on-street parking stalls in the sampled study area.

Table 1: 2016 Central Eastside Sampled Parking Inventory

| Stalls by Type | 2016 | % of Total |
|---|--------------|-------------|
| 10 Minutes – Signed | 0 | 0% |
| 15 Minutes – Signed | 44 | 2.5% |
| 20 Minutes – Signed | 3 | < 1% |
| 30 Minutes – Signed | 80 | 4.5% |
| 1 Hour – Signed | 11 | < 1% |
| 2 Hours – Signed | 409 | 23.3% |
| 2 Hours - Signed (Or by permit – Zone G) | 554 | 31.5% |
| 2 Hours – Signed (Or by permit – Zone N) | 426 | 24.2% |
| 2 Hours – Metered | 125 | 7.1% |
| 3 Hours – Signed | 4 | < 1% |
| 4 Hours – Metered | 6 | < 1% |
| ADA ‘Accessible’ | 5 | < 1% |
| No Limit | 92 | 5.2% |
| On-Street Supply Surveyed | 1,759 | 100% |

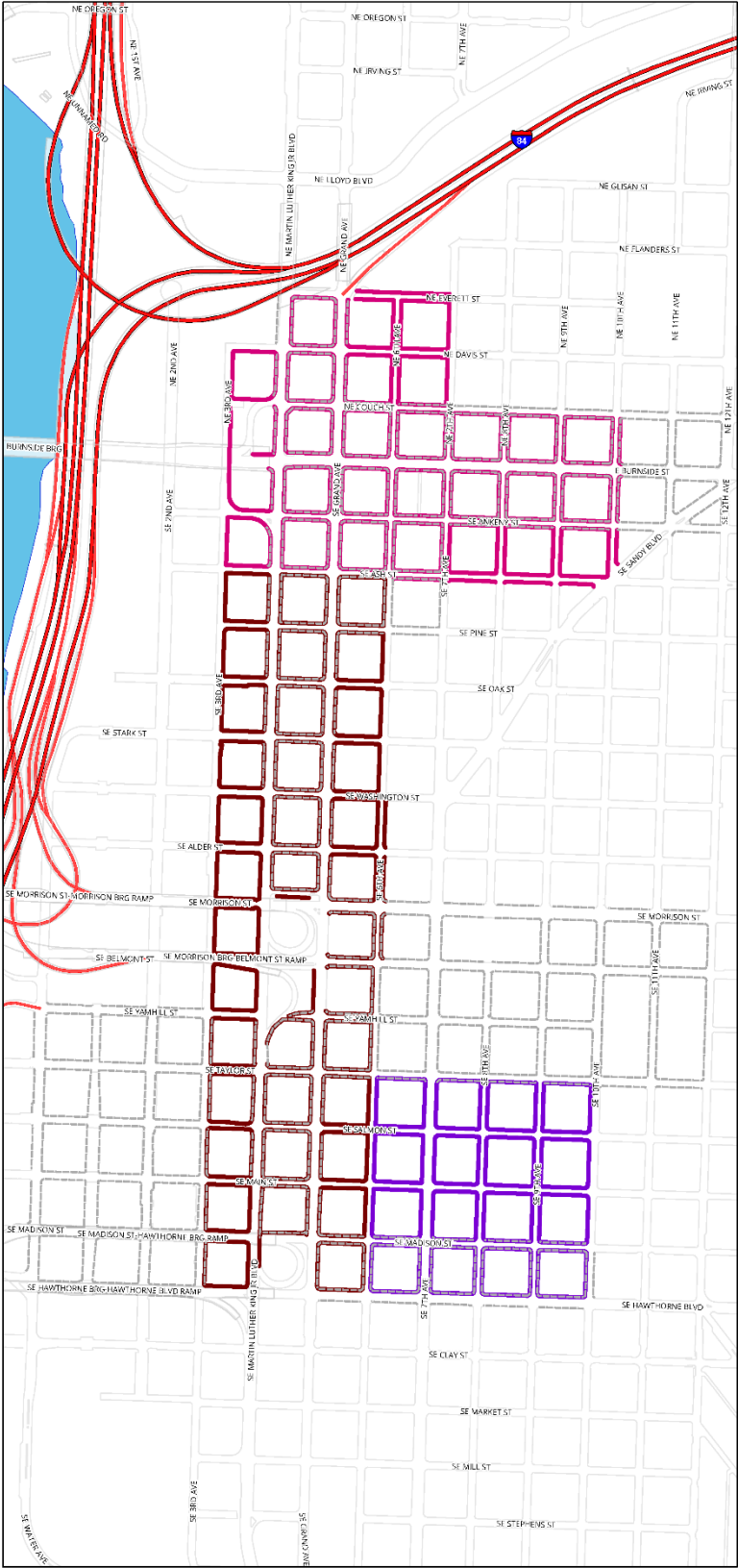
Key Sample Differences 2014 vs. 2016

- Fewer block faces (2016); 333 versus 368.
- Less total stalls sampled in 2016 (1,759 vs. 2,048 in 2014)
- Increase in number of 2 Hour – Signed and 2 Hour – Metered in 2016 vs 2014
- Slight decrease in total number of 2 Hour or by permit stalls sampled in 2016 (980 vs. 1,062 in 2014)
- Permitted stalls now include Zone G and Zone N distinction.
- Significant drop in No Limit Stalls; 288 (2014) vs. 92 (2016)

Figure A: 2016 Parking Study Area

**Central Eastside
Parking
Management Plan**
Proposed Data
Collection

- Data Collection Areas**
- █ Area 1 (120)
 - █ Area 2 (149)
 - █ Area 3 (64)
 - 2014 Data Collection (368)
- } (333)



Date Saved: 10/4/2016

Table 2 provides a breakout of key utilization metrics by stall type. These include peak hour, peak occupancy, empty stalls, average length of stay and violation rate. Comparative results between 2014 and 2016 are summarized (in aggregate) at the top of the table. Additional comparisons between the two study years are made below.

- The peak hour remains the same, 1:00 to 2:00 PM.
- Peak hour occupancies are up 5 percentage points, 88.9%, compared with 2014, 83.5%.
- Overall violation rates are also up by 3 percentage points to 24.9%, meaning one in four vehicles parked in the study area violated the posted time restriction.
- The average length of stay for a user of 2 Hour Signed stalls is 2 hours and 15 minutes, which results in a 29% violation rate. These stalls have a peak occupancy rate of 86%.
- 2 Hours Signed or by Permit stalls (Both G & N) have peak hour occupancy rates in excess of 92%; which is higher than peak occupancy for the N zone in 2014 (90%). Also, despite a high percentage of users with valid permits, violation rates for non-permit users of these stalls exceed 20%.
- 2 Hour Metered stalls saw a decrease in peak hour occupancy in 2016, reaching 58% between 1:00 and 2:00 PM (versus 66% in 2014). The 2016 violation rate rose to 17% versus 6.3% (2014). As with the overall violation rate surveyed, this meaningful jump in violations at metered stalls may indicate that enforcement in the district needs to be increased.
- The number of No Limit stalls was greatly reduced, but occupancy levels (approximately 85%) and average length of stay (around 5 hours) are similar to levels identified in 2014.

Table 2: 2016 Central Eastside On-Street Parking Utilization by Time Stay

| Stall Type | Stalls | Peak Hour | Peak Occupancy | Stalls Empty | Average Length of Stay ¹ | Violation Rate ² |
|---|--------------|------------------------------------|----------------|--------------|-------------------------------------|-----------------------------|
| <i>2016</i> | 1,759 | 1:00 – 2:00 PM | 88.9% | 192 | 2 hr/ 36 min | 24.9% |
| <i>2014</i> | 2,048 | 1:00 – 2:00 PM | 83.5% | 332 | 2 hr./ 40 min | 21.5% |
| Usage by Time Stay (2016 Study Sample) | | | | | | |
| 15 Minutes Signed | 44 | 10:00 – 11:00 AM 1:00 – 2:00 PM | 45.5% | 24 | N/A | 15.5% |
| 20 Minutes Signed | 3 | 9:00 AM – 6:00 PM | 33.3% | 2 | N/A | 100% |
| 30 Minutes Signed | 80 | 1:00 – 2:00 PM | 51.3% | 30 | N/A | 28.9% |

¹ Average length of stay is total vehicle hours parked divided by number of unique vehicle trips.

² Violation rate is total hours parked in violation divided by number of unique vehicle trips (parked in that stall type).

| | | | | | | |
|-----------------------------|-----|--------------------------------------|-------|----|---------------|-------|
| 1 Hour Signed | 11 | 1:00 – 2:00 PM | 90.9% | 1 | 2 hr / 29 min | 56.7% |
| 2 Hours Signed | 409 | 1:00 – 2:00 PM | 85.6% | 56 | 2 hr / 15 min | 29.2% |
| 2 Hours – Signed OBP Zone G | 554 | 11:00 AM – 12:00 PM | 96.9% | 14 | 3 hr / 30 min | 21.2% |
| 2 Hours – Signed OBP Zone N | 426 | 12:00 – 1:00 PM | 92.5% | 23 | 3 hr / 23 min | 24.4% |
| 2 Hours Metered | 125 | 1:00 – 2:00 PM | 57.6% | 50 | 1 hr / 50 min | 17.0% |
| 3 Hours Signed | 4 | 9:00 AM – 12:00 PM 1:00 – 4:00 PM | 100% | 0 | 2 hr / 37 min | 30.8% |
| 4 Hours Metered | 6 | 12:00 – 2:00 PM | 100% | 0 | 2 hr / 11 min | 6.3% |
| ADA 'Accessible' | 5 | 12:00 – 3:00 PM | 80.0% | 1 | 3 hr / 23 min | N/A |
| No Limit | 92 | 1:00 – 2:00 PM | 85.9% | 5 | 4 hr / 59 min | N/A |

Table 3 (next page) provides a summary of key metrics by type of user (all, non-permit and permit) across a number of utilization metrics. Additional comparisons between the two study years are made below.

- The average length of stay for each user group in 2016 (e.g., all users, non-permit users, and users displaying permits) are nearly identical in each category with 2014.
- In 2016, 3,721 vehicle trips were recorded. Of this total, 72% were non-permit trips (e.g., visitor). In 2014, 77% were non-permit vehicles.
- The rate of stall turnover in the district decreased from 2.84 (2014) to 2.77 (2016), though turnover for non-permit users increased from 3.75 (2014) to 3.85 (2016). Overall, the low rates of stall turnover are reflective of the industrial zoning in the district and number of employee permits in use.
- As stated earlier, violation rates remain high and increased in 2016 versus 2014.
- There were 652 permits observed parking in 'or by permit' stalls in 2016, 45% of occupied stalls during the peak hour. An additional 98 permits (6.8% of occupied stalls) were observed parking in non-permit eligible stalls. This is a similar pattern when compared to 2014 data.
- The number of vehicles observed moving to avoid citations grew to 391 in 2016, a 125% increase over 2014 (174).

Table 3: 2016 Central Eastside On-Street Parking Utilization by User Type

| Use Characteristics | 2016 | | |
|---|---------------|------------------|---------------|
| | All Users | Non-Permit Users | Permits |
| Average Length of Stay | 3 hr / 37 min | 2 hr / 36 min | 6 hr / 14 min |
| Vehicle Trips | 3,721 | 2,677 | 1,044 |
| Turnover Rate | 2.77 | 3.85 | 1.61 |
| Violation Rate | 24.9% | 26.5% | N/A |
| Percentage of Hours Parked in Violation | 23.5% | 23.5% | N/A |
| Permits in Or By Permit stalls at peak hour (% occupied stalls) | 652 (45.1%) | N/A | 652 (45.1%) |
| Permits in time-limited stalls only at peak hour (% occupied stalls) | 98 (6.8%) | N/A | 98 (6.8%) |
| Vehicles Moving to Avoid Citations (e.g., employees moving their car every few hours) | 391 | 391 | N/A |

Table 4 (next page) summarizes utilization metrics only for stalls that allow a 2 hour time limit (signed, metered and by permit). These include peak occupancy, user group, vehicle trips, vehicle hours parked, average length of stay and turnover rate.

- Of all the 2 Hour stalls types only 2 Hour Metered stalls have an average time stay less than 2 hours (1 hour and 50 minutes). They are being used as intended, to create turnover in the supply for more customer and visitor trips.
- 2 Hour Signed and Metered stalls turnover at 4.14 and 5.26, respectively. These rates of turnover are complementary of the industry standard for turnover in visitor areas (i.e., 5.0 industry minimum target).
- At the peak hour (1:00 – 2:00 pm) in 2 Hour or by Permit stalls (**Zone G**) 96.9% of stalls are occupied. Of this total, 28% are Non-Permit Users (i.e., visitors). This indicates meaningful demand for access into these areas by visitors.
- At the peak hour (1:00 – 2:00 pm) in 2.0 Hour or by Permit stalls (**Zone N**) 92.5% of stalls are occupied. Of this total, 32% are Non-Permit Users (i.e., visitors). As with permit stall in Zone G, this indicates meaningful demand for access into these areas by visitors.

- 7% of permitted users parked in non-permitted stalls (2 Hours Signed or 2 Hours Metered) during the peak hour with an average length of stay in excess 3 hours and 30 minutes.

Table 4: 2016 Central Eastside 2 Hour On-Street Parking Utilization by User Group

| Stall Type | Stalls (Peak Occupancy) | User Group | # in User Group (peak hr.) | Vehicle Trips | Vehicle Hours Parked | Average Length of Stay | Turnover Rate |
|-----------------------------|-------------------------|------------------|----------------------------|---------------|----------------------|------------------------|---------------|
| 2.0 Hours Signed | 409 (85.6%) | All | 350 | 1,212 | 2,928 | 2 hr./ 25 min | 4.14 |
| | | Non-Permit Users | 299 | 1,080 | 2,436 | 2 hr./ 15 min | 4.43 |
| | | Permits | 49 | 132 | 492 | 3 hr./ 44 min | 2.68 |
| 2.0 Hours Metered | 125 (57.6%) | All | 72 | 270 | 513 | 1 hr./ 54 min | 5.26 |
| | | Non-Permit Users | 67 | 259 | 473 | 1 hr./ 50 min | 5.48 |
| | | Permits | 5 | 11 | 40 | 3 hr./ 38 min | 2.75 |
| 2.0 Hours Signed OBP Zone G | 554 (96.9%) | All | 537 | 934 | 4,893 | 5 hr./ 14 min | 1.91 |
| | | Non-Permit Users | 150 | 445 | 1,560 | 3 hr./ 30 min | 2.85 |
| | | Permits | 386 | 489 | 3,333 | 6 hr./ 49 min | 1.47 |
| 2.0 Hours Signed OBP Zone N | 426 (92.5%) | All | 394 | 708 | 3,532 | 4 hr./ 59 min | 2.00 |
| | | Non-Permit Users | 126 | 363 | 1,226 | 3 hr./ 23 min | 2.96 |
| | | Permits | 266 | 345 | 2,306 | 6 hr./ 41 min | 1.50 |

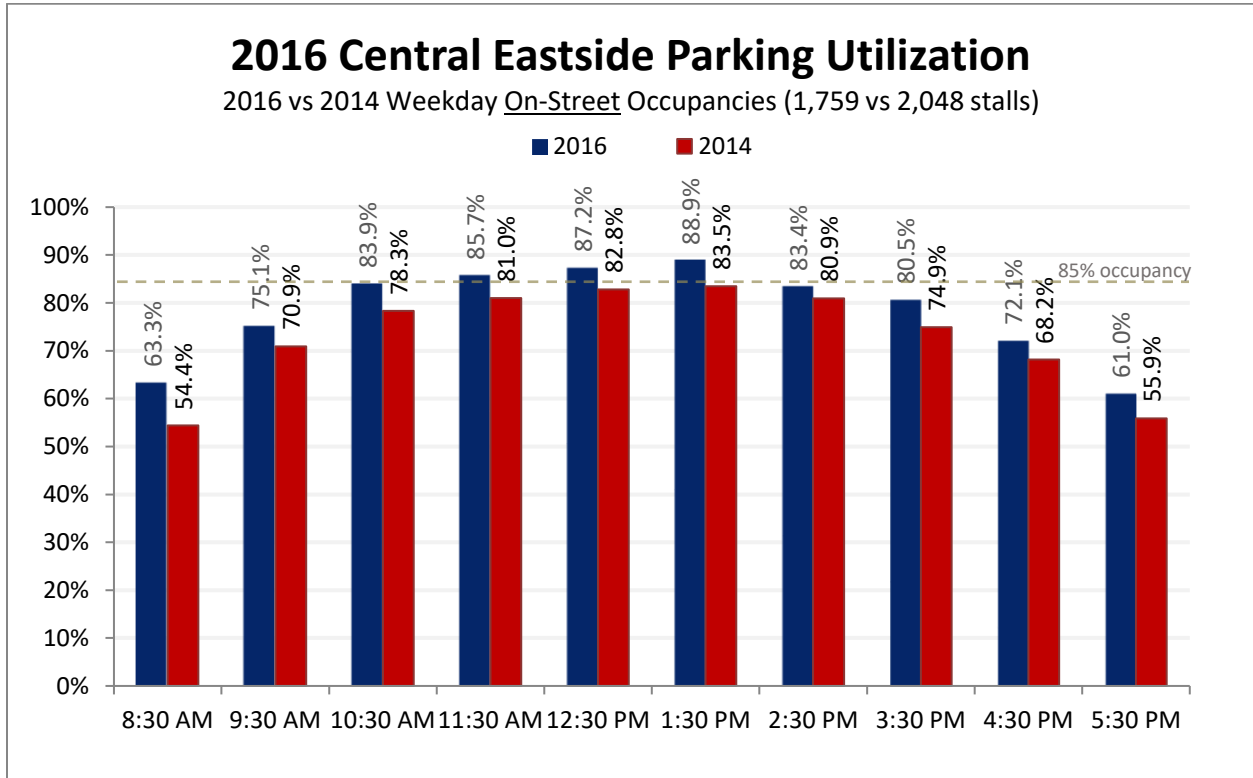
Figure B identifies differences in hourly parking occupancies between the two study years.

Attachment A provides a block-face level “heat map” view of the peak hour (1:00 PM – 2:00 PM) for the entire sampled study area.

- Though each parking survey sampled a different set of stalls it is interesting to note the consistent and sustained level of hourly parking utilization from one year to the next.
- 2016 occupancy levels exceed 2014 levels in each hour of the survey day.

- 2016 occupancies exceed the 85% threshold and are considered “constrained” for three hours over the midday peak, from 11:00 AM to 2:00 PM.

Figure B: Hourly Parking Occupancy Comparison - 2016 vs 2014



Permit Analysis

Table 5 provides an accounting of the number of permits the City allocates by zone. As the table indicates, 2016 allocations are now defined by two Zones (G & N), whereas 2014 allocated all permits into a single Zone G. In 2016, permits increased 2% from 2014 levels, primarily due to an increase of 171 employee permits over 2014. Guest and Resident permits decreased in 2016.

Table 5: 2016 Permit Allocations

| Year | 2016 | | 2014 | Net Change |
|-----------------|-------------|-------------|--------|-------------|
| Permits | Zone G | Zone N | Zone G | |
| Business | 5,117 | 2,043 | 6,986 | 174 (2.4%) |
| Guest | 135 | 80 | 225 | -10 <4.0%> |
| Resident | 52 | 75 | 150 | -23 <15.0%> |
| Sub-Total | 5,304 (71%) | 2,198 (29%) | 7,361 | 141 (2.0%) |
| Total Allocated | 7,502 | | 7,361 | |

Table 6 (page 9) provides the format for estimating current use of permits in the district. The format is based on 2016 findings extrapolated to a larger CEID supply area totaling 6,781 stalls (Row 1, Column C).

As the table illustrates there are differences in the 2014 and 2016 sample sizes and the distribution of stalls types. RWC has attempted to note the relationships between the two sample years (Rows 1 – 5, Columns C and D). The purpose of these calculations is to establish a mathematical breakout of the current supply for tracking where permit users are parking; by type of stall, and using that information to extrapolate the findings to the entire inventory.

- There are a total of 4,323 stalls within the entire inventory of stalls where parking with a permit is allowed (the sum of Rows 3 and 4, Column C). This represents about 64% of all parking in the district. The remaining 2,458 stalls (36%) do not allow parking with a permit (Row 5, Column C).
- 2016 findings indicate that there are 750 permits displayed in the sampled supply during the peak hour (Row 9, Column A). Of this total 386 are parked in Zone G and 266 in Zone N (Rows 6 and 7, Column A). These vehicles are parked in valid permit stalls (where we want them to be).
- An additional 98 permits were observed in other stall types, where permits are not allowed (Row 8, Column 8).
- When these 750 permits are extrapolated to the entire parking supply, there are 3,186 permits displayed during the peak hour on a "typical day (Row 9, Column C). In 2014, 2,528

permits were displayed at the peak hour (Row 9 Column D).³ This represents a significant increase in permits parking on street (658 permits or 26%).

Table 6: Summary of Permit Use

| | | A | B | C | D |
|-------------------------------|---|-------------|-------------------|--------------------------------|-----------------|
| | Observation | Sample Size | Percent of Sample | Stalls in CES Parking District | 2014 Comparison |
| 1 | On-street stalls in all Central Eastside | N/A | N/A | 6,781 ⁴ | 6,781 |
| 2 | On-street stalls surveyed – sample size | 1,759 | 100% | 6,781 | 2,048 |
| 3 | Stalls signed 2 Hour or By Permit Zone G | 554 | 31.5% | 2,445 ⁵ | 3,831 |
| 4 | Stalls signed 2 Hour or By Permit Zone N | 426 | 24.2% | 1,878 ⁶ | N/A |
| 5 | Stalls where permits are not valid (WHERE THEY SHOULD NOT BE) | 779 | 44.3% | 2,458 | 2,950 |
| Extrapolation Analysis | | | | | |
| 6 | Permits in 2 Hour OBP Zone G - peak hour (WHERE WE WANT THEM TO BE) | 386 | 69.7% | 1,704 | 2,300 |
| 7 | Permits in 2 Hour OBP Zone N - peak hour (WHERE WE WANT THEM TO BE) | 266 | 62.4% | 1,172 | N/A |
| 8 | Permits observed in all other stall types (WHERE THEY SHOULD NOT BE) | 98 | 12.6% | 310 | 228 |
| 9 | Permits displayed during peak hour and extrapolated to all on-street stalls | 750 | N/A | 3,186 | 2,528 |

³ Note that Rows 6 - 8, Column C, extrapolate permit use to each permit zone and non-permit area. The sum of these extrapolations totals 3,186 (Row 9, Column C).

⁴ Assumes stall total has not changed since 2014 as no updated inventory was completed as part of the 2016 data collection work scope.

⁵ The number estimated is based upon the percentage of 2016 stalls sampled. At this time, we know that there are 4,323 signed 2 hour or by Permit stalls in the parking district based on changes made to the on-street inventory in 2015 (source PBOT). There is not an updated distribution of those stalls between Zones G & N. As such, RWC used the sample distributions to estimate the breakout by zone.

⁶ See Footnote #3.

A CEID goal is to maintain occupancies in all stalls at 84%, as a means to ensure system efficiency and provide flexibility to accommodate seasonal demand variations and future growth. Table 7: Observations of Permit Allocation

attempts to summarize the number of Zone G and N permits that would be allocated to support efforts to lower occupancies in 2 Hour or By Permit stalls from a current rate of 95% to 84%.

Key findings from Table 7 include:

- The actual “peak occupancy” rate is 105% if the 98 (310 extrapolated) current permits improperly using non-permitted stalls were to be directed to 2 Hour or By Permit stalls (Row 2, Column A.)
- Currently, 7,502 permits are allocated to businesses in Zones G and N (the sum of Rows 3 and 4, Column A). The current allocation of permits to businesses is based on 85% FTE.
- Of this total, 5,304 (71%) are allocated to Zone G (Row 3, Column A). The remaining 2,198 (29%) are allocated to Zone N (Row 4, Column A).
- In 2014, 7,361 permits were allocated to a larger Zone G (Row 3, Column B). Zone N did not exist.
- Float for each zone is very high, ranging from 188% in Zone N to 311% in Zone G (Rows 5 and 6, Column A). Float for the entire district was 291% in 2014 (Row 5, Column B).
- Based on current peak hour occupancies, 1,575 permits would need to be reduced from current allocations to bring occupancies in “or by permit stalls” to 84% (Row 8, Column A).
- To support this finding, the City would need to limit (cap) the total number of permits allocated to 5,927 (Row 9, Column A). This would be about 425 less than was recommended (though not implemented) in 2014 (Row 9, Column B).
- If successful, it is estimated that 2,517 permits would be parked in the peak hour in 2017 (Row 10, Column A) versus the 3,186 permits that are currently “observed” under the extrapolated model (Row 7, Column A).
- The FTE allocation model would need to be reduced to 67% versus the current 85% (Row 11, Columns A and B).

Table 7: Observations of Permit Allocation

| | A | B |
|--|------------------|-------------------|
| Observation | 2016 Output | 2014 Output |
| 1 Peak hour occupancy in 2 Hour or By Permit stalls (Zones G & N) | 95% | 90% |
| 2 Peak hour demand in 2 Hour or By Permit stalls if 98 permits now using non-permit stalls are allocated to OBP stalls (310 additional permits extrapolated) | 105% | 97% |
| 3 Zone G permits allocated and FTE allowance per business | 5,304 85% FTE | 7,361 100% FTE |

| | | | |
|----|---|----------------------------------|----------------------------------|
| 4 | Zone N permits allocated and FTE allowance per business | 2,198 85% FTE | N/A |
| 5 | Zone G "float" ⁷ based on permits allocated (5,304) / and extrapolated peak hour permits observed (1,704) | 311% (5,304/1,704) | 291% (7,361/2,528) |
| 6 | Zone N "float" based on permits allocated (2,198) / and extrapolated peak hour permits observed (1,172) | 188% (2,198/1,172) | N/A |
| 7 | Permits displayed in peak hour @105% occupancy (extrapolated) | 3,186 permits | 2,528 |
| 8 | Estimated permits needed to be reduced (from 7,502) as a strategy to lower peak occupancy in 2 Hour or By Permit stalls from 105% to 84% (21 percentage points). ⁸ | <1,575> | <1,008> |
| 9 | RECOMMENDATION: Total Permits allocated in 2017 | 5,927 | 6,352 |
| 10 | Estimated distribution of users in 2 Hour or By Permit stalls in peak hour @ 84% occupancy | 2,517 permits | N/A |
| 11 | RECOMMENDATION: If 7,502 permits (@ 85% FTE) equal 105% occupancy in the peak hour, then 5,927 permits (@ 67% FTE) equals 84% occupancy in Peak Hour. | 67% FTE permit allocation | 85% FTE permit allocation |

Table 8 illustrates the distribution of permits by zone based on the recommended cap total (5,297).

Table 8: Allocation of Permits - Recommendation

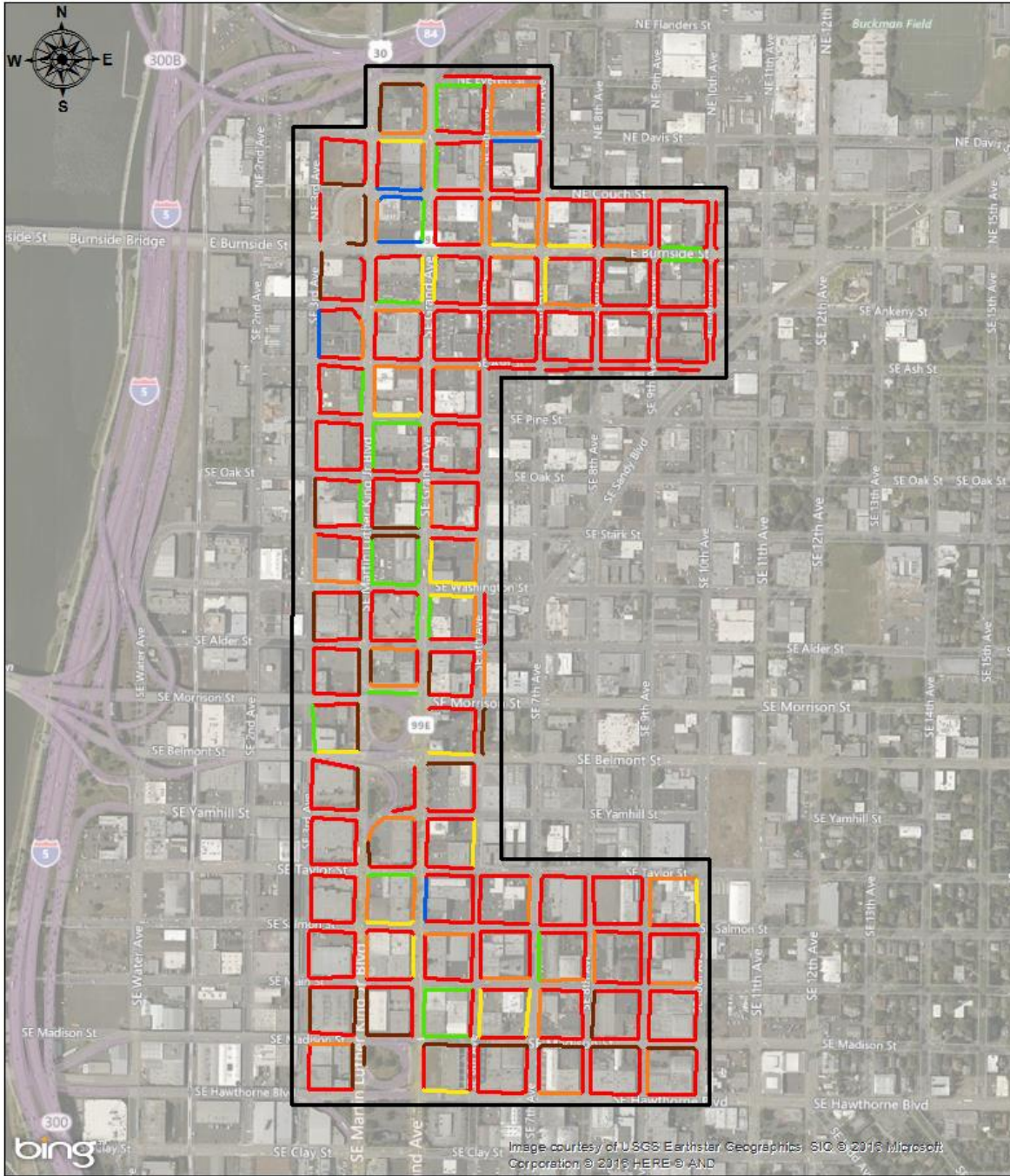
| ZONE | Current | Recommended (2017) |
|--------------|---------------------|---------------------|
| G | 5,304 (79%) | 4,682 (79%) |
| N | 2,198 (21%) | 1,254 (21%) |
| TOTAL | 7,502 (100%) | 5,927 (100%) |

- If the City capped the number of allocated permits at 5,927, and distributed them based on current distribution percentages for Zone G (71%) and Zone N (29%), Zone G would be limited to 4,682 permits, Zone N to 1,254 permits.

⁷ Float is the relationship between permits allocated and vehicles parked using a permit.

⁸ This assumes that existing transient parkers would continue to use these stalls. All efforts to decrease occupancies to 84% would be made through reduced permit sales.







ATTACHEMENT A
2016 PEAK HOUR HEAT MAP



Central Eastside Parking Utilization

2016

 Parking Study Area
RICK WILLIAMS CONSULTING
Parking & Transportation

-  > 85%
-  84% - 70%
-  69% - 55%
-  < 55%
-  Construction
-  No Parking

1:00 - 2:00 PM
Peak Hour

