

TECHNICAL REPORT

LIGHT RAIL STATION AREA PARKING MONITORING PROGRAM

Prepared for:

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1. Introduction

In July 2009, Sound Transit's Central LINK light rail began service in seven Seattle station areas - Stadium, SODO, Mt. Baker, Beacon Hill, Columbia City, Othello, and Rainier Beach. In the fall of 2008, prior to the opening of the light rail, Seattle Department of Transportation (SDOT) and Sound Transit commissioned a study to establish a baseline inventory of existing on-street parking supply and parking occupancy in these station areas. The baseline inventory enabled SDOT to monitor changes in parking and determine if and to what extent local area businesses and residents might be impacted by light rail operations

Following the 2008 study and intensive community engagement, SDOT installed restricted parking zones (RPZs) in five of the study areas (Stadium and SODO were not included). The RPZs permit allows motorists to park unrestricted in time-limited spaces. They are intended to prevent commuters and other transit riders from using the on-street parking spaces needed by people living, working, and shopping in each station area neighborhood. The program includes residential and business permits, the latter of which are part of a four-year pilot that SDOT will monitor annually, and report findings to the City Council in 2011 and 2013.

In the fall of 2010, the second part of the monitoring program was conducted. The data collection methodology was similar to the 2008 study in that occupancy data were collected at all seven station areas during the weekday within a ¼-mile and ½-mile radius of each station. Weekend data were also collected to analyze the potential parking impact during major sporting events in Seattle. In addition, the 2010 data collection recorded RPZ permit numbers to evaluate the use of business permits. This report summarizes the data collection methodology and analysis. The utilization database and accompanying excel spreadsheets were provided to SDOT to facilitate mapping of utilization thresholds.

2. Weekday Utilization Monitoring

Parking "Utilization is defined by the number of vehicles parked as a percentage of the number of legal parking spaces. Weekday parking utilization was surveyed at all seven station areas. Figure 1 shows the location of the stations.

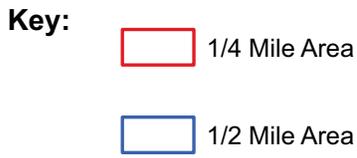
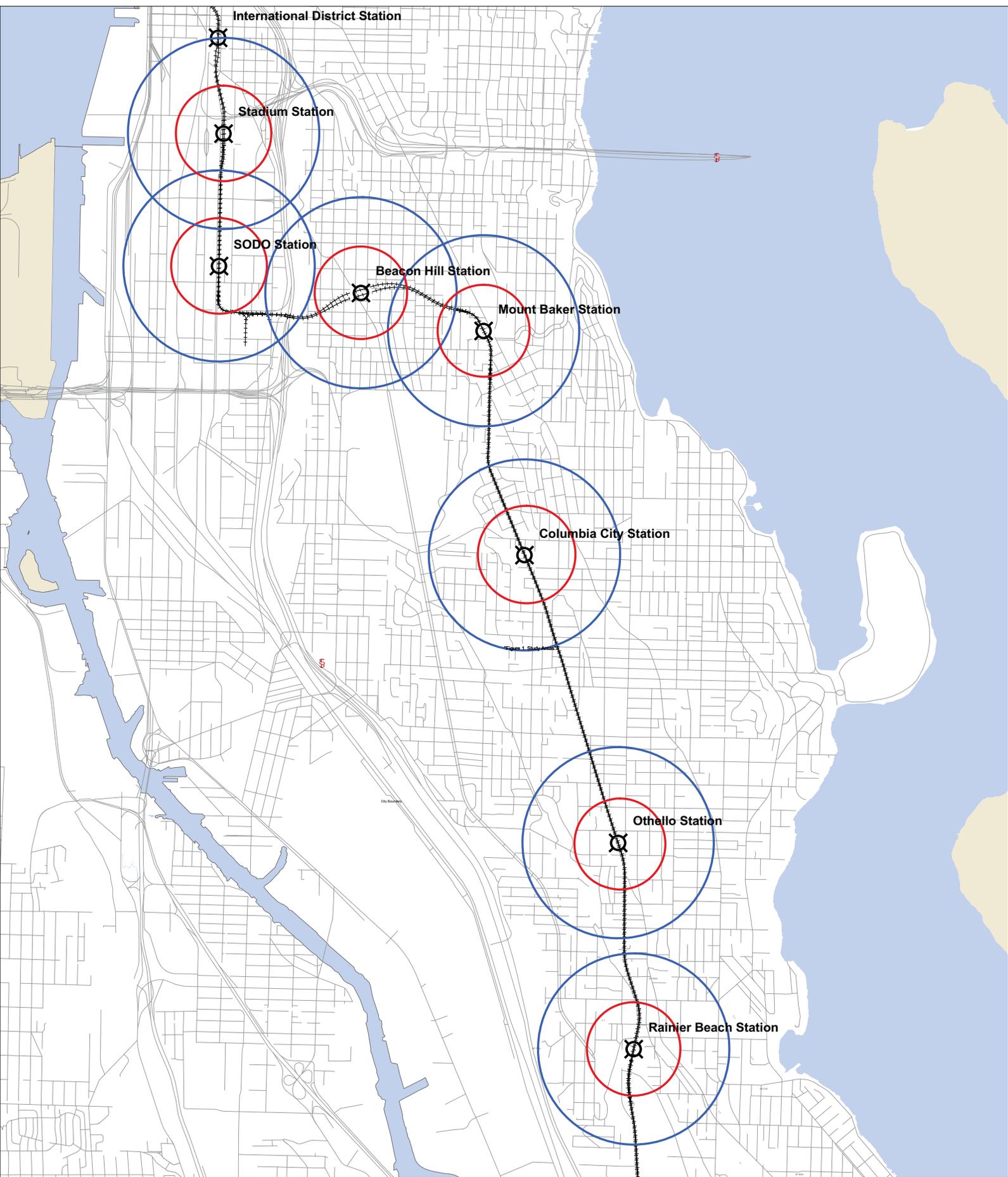


Figure 1. Study Areas

Survey Methodology

The number of parking spaces within a ¼-mile and ½-mile radius of each station was inventoried in 2008. Updates to the 2008 inventory were made for the following reasons:

- Blockfaces previously under construction in 2008, but since completed, were added to the inventory (most are located in Columbia City and Othello).
- Blockfaces at the outer edge of the study area not included in the 2008 inventory that were designated as RPZ were added (most are located in Beacon Hill and Columbia City).
- Blockfaces added at SDOT’s request to complete the study area.

Google Earth, a web-based aerial map, was used to inventory additional blockfaces. Field visits confirmed parking signage, fire hydrant locations, and other street features to refine the inventory.

Parking Utilization

The number of vehicles parked in each of the seven study areas was surveyed mid-week (Tuesday, Wednesday and Thursday) in late October and early November 2010. The counts were performed from 9:00 A.M. to 11:00 A.M. and 1:00 P.M. to 3:00 P.M. These time periods correspond to the mid-morning and afternoon data collection times in 2008. Table 1 presents a summary of the 2008 and 2010 parking utilization during the AM period and Table 2 presents a summary of the 2008 and 2010 parking utilization rates during the PM period. As in 2008, the study areas were divided into two groups: blocks located within a ¼-mile radius of the station, and blocks located between a ¼ and ½-mile radius of the station. Highlighted cells show an increase in parking utilization.

Table 1. Parking Utilization Comparison (9:00 AM – 11:00 AM)

Station Areas	2008 Utilization ¹			2010 Utilization ²		
	Quarter-Mile	Half-Mile ³	Total Area	Quarter-Mile	Half-Mile ³	Total Area
Stadium	81%	61%	67%	66%	58%	61%
SODO	71%	70%	70%	66%	72%	70%
Beacon Hill	40%	35%	38%	31%	30%	31%
Mount Baker	45%	49%	47%	39%	49%	45%
Columbia City	34%	43%	39%	28%	37%	34%
Othello	35%	27%	29%	23%	27%	26%
Rainier Beach	18%	23%	23%	25%	20%	22%

Note: Utilization is the number of vehicles parked as a percentage of the number of legal parking spaces.

Highlighted cells indicate an increase in parking utilization since 2008.

1. Source: Heffron Transportation, Inc., 2008. Light Rail opened in July 2009.

2. Source: Heffron Transportation, Inc., 2010. Data were collected between 9:00 and 11:00 A.M. on Tuesdays, Wednesdays and Thursdays in late October and early November 2010.

3. Located within ¼ to ½-mile radius of the station.

Table 2. Parking Utilization Comparison (1:00 PM– 3:00 PM)

Station Areas	2008 Utilization ¹			2010 Utilization ²		
	Quarter-Mile	Half-Mile ³	Total Area	Quarter-Mile	Half-Mile ³	Total Area
Stadium	85%	72%	76%	68%	62%	64%
SODO	68%	76%	73%	66%	77%	73%
Beacon Hill	37%	28%	33%	32%	29%	31%
Mount Baker	28%	39%	34%	39%	49%	45%
Columbia City	35%	41%	38%	28%	39%	35%
Othello	32%	24%	26%	27%	25%	26%
Rainier Beach	14%	21%	20%	23%	20%	21%

Note: Utilization is the number of vehicles parked as a percentage of the number of legal parking spaces.

 Highlighted cells indicate an increase in parking utilization since 2008.

1. Source: Heffron Transportation, Inc., 2008. Light Rail opened in July 2009.
2. Source: Heffron Transportation, Inc., 2010. Data were collected between 1:00 and 3:00 P.M. on Tuesdays, Wednesdays and Thursdays in late October and early November 2010.
3. Located within ¼ to ½-mile radius of the station.

As shown in the above tables, parking utilization increased within a ¼ mile at two stations: Mount Baker and Rainier Beach. Mount Baker also experienced a 10% increase in utilization between ¼ and ½ mile from the station. At the other station locations, parking utilization decreased within ¼ mile, and was very similar (within 2%) beyond ¼ mile. Mount Baker and Rainier Beach station areas are discussed below.

Mount Baker

Parking utilization in 2010 was higher during the PM period throughout the Mount Baker study area than in 2008. To determine if the increased demand was concentrated in specific locations, utilization was reviewed at the blockface level. Within both the ¼-mile and ½-mile study area of the Mount Baker station, the increase in utilization was primarily located east of Rainier Avenue S. One of the factors impacting increased parking demand could be enrollment changes at Franklin High School within the project's two-year study period. Franklin High School is located south of S Mount Baker Boulevard between 30th Avenue S and 32nd Avenue S. Between the fall of 2008 and fall of 2010, school enrollment increased by about 2%. It is noted that overall utilization in the Mount Baker Station vicinity is below 50%, which means there is parking available.

Rainier Beach

Parking utilization within the ¼-mile radius of the Rainier Beach station increased between 2008 and 2010 during both the AM and PM time periods. This change was most likely due to a change in parking occupancy on the east and west side of Renton Avenue S between S Henderson Street and S Barton Street. The 2008 inventory indicated a total of 72 parking spaces on these two blockfaces. In 2008, during both the AM and PM, no vehicles were parked at these locations. In 2010, there were 53 vehicles parked in the AM and 51 vehicles parked in the PM. Overall, parking utilization in this station area is low at 21%.

3. Weekend Utilization

Weekend parking data were collected, as in 2008, to evaluate the impact of a major sporting event at Qwest Field due to the accessibility of free parking in these neighborhoods. Parking data were collected at the Beacon Hill, Mt Baker, and Columbia City station areas based on community input received by SDOT. The study areas for these stations are the blocks within ¼-mile radius of each station.

Parking data were collected on a Seahawk’s Sunday game day and non-game Sundays. The game day was Sunday November 7, 2010 at 1:05 P.M. and the non-game days were Sunday, November 14, 2010 and January 9, 2011. Occupancy counts were conducted between 1:00 P.M. and 3:00 P.M. Table 3 presents the comparison of Game Day and non-Game Day parking utilization in 2008 and 2010.

Table 3. Parking Utilization Comparison – Sunday with and without a Seahawk’s Game

Station Areas	2008 – Utilization (within ¼ mile)		2010 – Utilization (within ¼ mile)	
	Game Day ¹	Non-Game Day ²	Game Day ³	Non-Game Day ⁴
Beacon Hill	39%	42%	41%	39%
Mount Baker	31%	43%	43%	44%
Columbia City	32%	34%	31%	29%

1. Data collection on Sunday, October 26, 2008
2. Data collection on Saturday, October 25, 2008
3. Data collection on Sunday November 7, 2010
4. Data collection on Sunday November 14, 2010 and Sunday January 9, 2011

The survey results reflect a study area within ¼-mile radius of each station. However, those who use light rail to travel to the game are likely to park as close as possible to the station, thus blockfaces in closer proximity to the stations were evaluated for each station. These results are discussed below.

Beacon Hill

Parking utilization within ¼-mile of the Beacon Hill station increased by only 2% between a non-game Sunday and a Seahawk’s Sunday in 2010. However, the increase was more substantial close to the station. Within approximately 800 feet walking distance of the station (about 62 blockfaces), non-game Sunday utilization was 49% and game day Sunday utilization was 57%. On the streets adjacent to the station (adjacent was defined as any blockface that touched a corner of the light rail station block), the utilization increase between the two study times was even greater: non-game was 48% and game day was 80%.

Mount Baker

The Mount Baker station area showed a 12% increase in parking utilization on a game day relative to a 1% increase on a non-game day for spaces located within ¼-mile radius of the station. There is limited on-street parking within 800 feet of the Mount Baker station and only a few blockfaces showed an increase in occupancy. On both the north and south side of S Forest Street between 26th Avenue S and 27th Avenue S, non-game day utilization was 13%, and game day utilization was 63%.

This location is 400 feet from the station and there are sidewalks. There were three blockfaces approximately ¼-mile from the station that showed an increase in parking utilization from 88% on a non-game Sunday to 118% on a game Sunday. The three blockfaces were:

- 30th Avenue S between S McClellan Street and Mt Baker Boulevard, west side
- 30th Avenue S between S McClellan Street and Mt Baker Boulevard, east side
- 31st Avenue S between S McClellan Street and Mount Baker Boulevard , west side

Columbia City

Overall, parking utilization within ¼-mile radius of the Columbia City station increased by about 2% from a non-game day to a game day. There are 22 blockfaces within approximately 800 feet walking distance from the Columbia City light rail station. Within this area, the non-game Sunday utilization was 37% and the game Sunday utilization was 58%.

4. Business Permit Monitoring

On June 8, 2009 the Seattle City Council approved legislation directing SDOT to create a 4-year pilot project to issue RPZ permits to employees of qualified businesses and institutions in the Central LINK light rail alignment. The purpose of the pilot is to determine if issuing RPZ permits to businesses and institution employees assists SDOT in reaching the following goals:

- Reduce neighborhood traffic impacts by large parking demand generators
- Support mixed-use neighborhoods and local business districts
- Continue to reduce overall energy use and vehicle emissions
- Keep demand by residents and businesses (including institutions) from exceeding available on-street parking spaces in residential areas
- Implement a customer-oriented permit program

SDOT will report to the City Council in 2011 and 2013 on its evaluation of the program relative to the goals above, to assist Council in determining whether to continue the program past the initial 4-year time period.

To keep demand by businesses from exceeding available on-street parking spaces in residential areas, the pilot program requires that SDOT not renew RPZ permits for businesses and institutions in the next RPZ cycle (which would be in 2011, given the 2-year permit cycle) when annual monitoring indicates that 25% or more of streets in the zone meet the following conditions:

- At least 75% of the capacity of the street available for parking is generally occupied
- More than 35% of parked cars on the street are owned by non-residents of the designated area

Survey Methodology

The study area for RPZ permit data was defined by all blockfaces that were at 65% or greater utilization in the prior data collection. This would ensure that all block faces with greater than 75% utilization were captured and if there were day-to-day fluctuations in occupancy. Parking occupancy

data were again recorded at the same time RPZ permit information was recorded and only those blockfaces with 75% or greater utilization were analyzed to determine the proportion of residential versus business RPZ permits.

RPZ Data Collection

RPZ permit numbers were recorded mid-week between 9:00 A.M. and 11:00 A.M. and between 1:00 P.M. and 3:00 P.M. Data collection occurred on November 16 through November 18 and November 30 through December 2, 2010. Table 4 presents the blockfaces with greater than 75% utilization. There were no station areas where the number of block faces exceeding 75% was more than 25% of the RPZ block faces.

Table 4. Station Area RPZ Blockfaces with Greater than 75% Parking Utilization

Station Area	Number blockfaces with RPZ ¹	Time Period	Parking Utilization Greater than 75% ²		
			Number of blockfaces	Average	Percent of blockfaces
Beacon Hill	217	AM	8	11	5.1%
		PM	14		
Mount Baker	111	AM	10	8	7.2%
		PM	6		
Columbia City	95	AM	8	8	8.4%
		PM	8		
Othello	25	AM	4	5.5	22.0%
		PM	7		
Rainier Beach	38	AM	2	2	5.2%
		PM	2		

1. Source: Seattle Department of Transportation, 2010

2. Source: Heffron Transportation, Inc., 2010

5. Key findings

- Parking utilization surrounding the light rails stations did not change substantially from 2008 to 2010. The largest increase in utilization occurred near the Mount Baker station, and a portion of that increase could be related to enrollment changes at Franklin High School.
- There was an increase in utilization on some blockfaces near the Beacon Hill, Mount Baker, and Columbia City stations on a Seahawk game day.