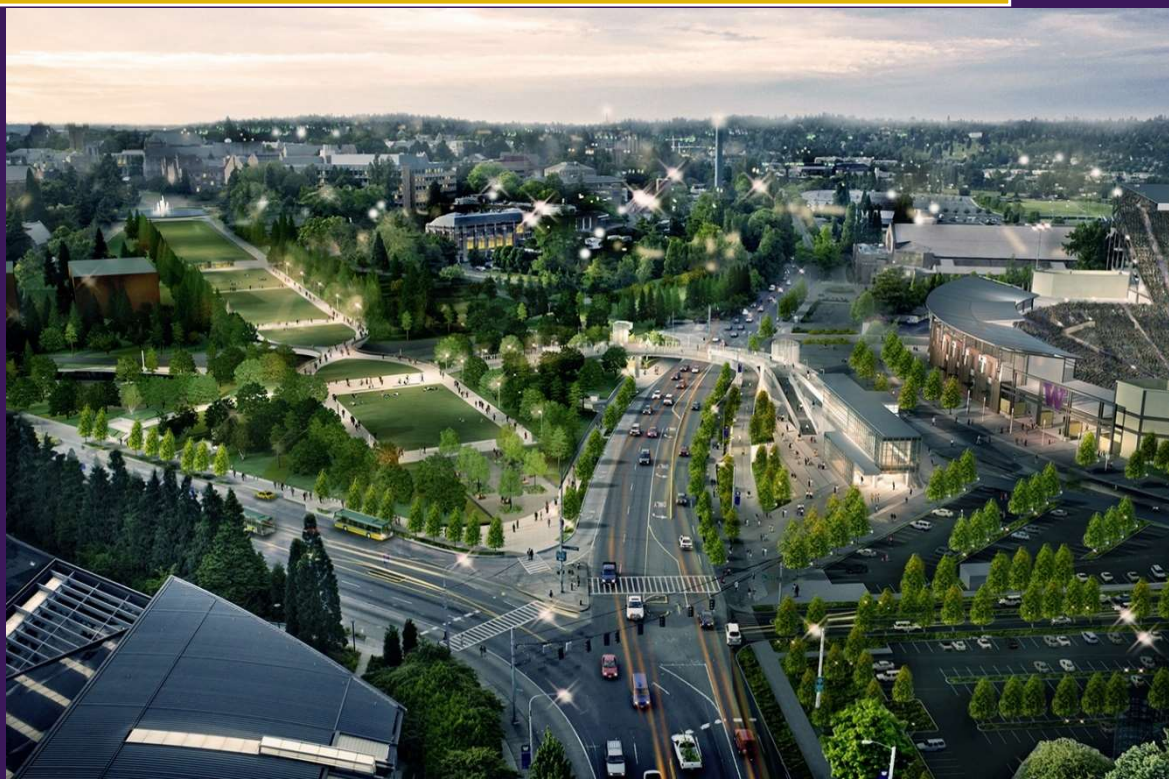


*University of Washington*

# Stadium Expansion Parking Plan and Transportation Management Report



## 2017 Report

*February 2018*

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## Executive Summary

In 2017, the UW Husky Stadium Expansion Parking Plan and Transportation Management Program (TMP) continued to meet its primary goal of accommodating peak football crowds while also minimizing parking impacts in nearby residential neighborhoods. UW evaluated the results of the TMP by conducting the annual Husky Gameday Survey and by collecting data in collaboration with local and regional government agency partners.

The survey was managed by UW Transportation Services. Data was recorded through an intercept survey conducted by a team of 25 survey administrators, who were stationed at each of the stadium gates and questioned the patrons entering the stadium.

This survey year was notable in some regards. It was the first year that patrons could commute using dockless bike share. This new travel mode was recorded under the Bike category on the survey. It was also the second year that patrons could travel to the game using Link light rail, and the second year that the survey collected data on the use of transportation networking companies (TNC) (also called “ridehailing”) like Lyft and Uber. The survey itself was modified to enable an easier understanding of the questions by those taking the survey. The survey process also incorporated a new pictogram with images of each modal option that was designed to guide those taking the survey in choosing the mode they used to travel to the game.

Paid game attendance on October 7<sup>th</sup> was 65,133; actual game attendance was 52,777<sup>1</sup>. Setting a 95% confidence interval, the targeted sample size was 1500 surveys. The survey resulted in 1100 responses, which included 210 refusals and 25 data capture errors. Excluding the refusals and erroneous data, this report is based on data from 860 usable survey records. Accounting for the usable sample size, the survey therefore, has a margin error of 3.3%.

Key findings from the 2017 data are:

1. 41.9% of the respondents either drove or rode in a car that was driven to the game, a decrease from 47.8% in 2016. Of this percentage,
  - a. 32.6% drove to the game, a decrease from 40.2% in 2016. Of this percentage,
    - i. 30.1% carpooled, a decrease from 37.1% in 2016
    - ii. 2.4% drove alone, a decrease from 6.1% in 2016
  - b. 9.3% used a TNC, an increase from 7.6% in 2016
2. Average automobile occupancy is 3.1, the same compared to 2016.
3. 36.6% used transit, an increase from 31.2% in 2016. Of this percentage,
  - a. 14.6% rode Link light rail
  - b. 21.9% rode Metro or charter buses
4. 15.5% walked to the games, consistent with 15.8% in 2016 (although this percentage might have been higher if it had not rained on October 7).

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<sup>1</sup> In 2010 Intercollegiate Athletics began monitoring *actual* game attendance in addition to *paid* game attendance (based on sales). The latter now serves as the baseline for future TMP monitoring, so only actual game attendance numbers are reported in the 2017 Report.

5. 3.7% arrived by boats, an increase from 3.4% in 2016. This includes personal boat, ferries or other kinds of boat commutes.
6. 1.3% arrived by bicycles, a significant increase from 0.7% in 2016. The new dockless bikeshare options might have influenced this increase.

The change in mode split between driving and non-driving options following TMP implementation exceeds commute share in the 1986 *Stadium Expansion Parking Plan and Transportation Management Program*. Projected mode shares vs actual 2017 mode shares are as follows:

Mode	Mode Split Goal – 1986 (%)	Mode Split - 2017 (%)
Automobile	71	41.9
Transit	16	36.6
Walk	8.1	15.5
Boat	3.9	3.7
Bike	-	1.3

**Table 1 Commute Mode Share Split, 1986 vs 2017**

The number of vehicles parked in the neighborhood impact areas was 1,052 in 2017, a decrease compared to 1,257 vehicles in 2016.

## Background

In 1987, Husky Stadium was expanded to accommodate 72,200 spectators. The TMP was first implemented in 1987 to mitigate the additional impacts of traffic on the surrounding community. Due to the nature of football games, high volumes of people travel to and from Husky Stadium over short periods of time. The TMP serves to monitor and reduce the number and impact of automobiles in the area before and after football games and to reduce parking impacts on surrounding neighborhoods. The University of Washington (UW) is responsible for encouraging patrons to either carpool or use non-automobile transportation options, such as walking, mass transit or bicycling. The City of Seattle is responsible for traffic management and parking enforcement in residential parking zones.

Seattle City Council Resolution 27435 requires UW and the City to collect data during each football season, which is then used to monitor the performance of the TMP. Data collected in 1986 serves as a baseline for comparing impacts after the stadium expansion in 1987. This document summarizes the data collected for the 2017 season and compares it to past seasons.

In 2012, the stadium was renovated to accommodate 70,138 spectators. The renovations included changing sight lines for existing seating, revamping the south side stands and adding a parking garage to the south side of the stadium. Husky Stadium reopened in 2013.

In March 2016, Sound Transit opened a Link light rail station at University of Washington, bringing fast and frequent transit service just steps away from the stadium entrance. The year 2016 also saw the widespread availability of Transportation Networking Companies (TNC) like Uber and Lyft as an option for commuting to the game.

In August 2017, the City of Seattle initiated a permit system to regulate dockless bike share. Currently Lime, Spin and Ofo have been permitted and were available to patrons commuting to the game.

## Introduction

The University of Washington (UW) hosted seven football games at Husky Stadium during the 2017 season, listed in Table 2.

Date	Opponent	Actual Game Attendance	Sales Attendance
September 9, 2017	Montana	54,890	66,195
September 16, 2017	Fresno	47,308	66,088
October 7, 2017	California	52,777	65,133
October 28, 2017	UCLA	59,365	67,551
November 4, 2017	Oregon	56,597	68,276
November 18, 2017	Utah	48,416	63,471
November 25, 2017	WSU	62,004	68,969
AVERAGE		54,480	66,526
= Survey Date			

**Table 2 Husky football games, 2017**

During the 2017 season, the Husky Stadium Expansion Parking Plan and Transportation Management Program (TMP) was implemented to provide transportation options to football fans. The plan discourages single occupant vehicle (SOV) trips to the stadium and encourages non-SOV modes, including carpooling, transit and charter buses, walking, boating, and bicycling.

The purpose of this document is to monitor the effectiveness of the TMP during the 2017 season using the following indicators:

- Mode choice
- Average automobile occupancy
- Parking location choice
- Neighborhood parking impacts

This report analyses and reflects the TMP efforts in 2017, details the methodology used to collect the data related to performance indicators, and discusses the results. It illustrates mode choice in 2017 and makes comparisons to previous years. Finally, this report describes impacts on neighborhood parking areas and draws conclusions about the TMP's effectiveness in 2017.



## Transportation Management Plan Elements

### Carpool Incentives

Carpooling prices are designed to promote carpooling and discourage single occupancy vehicle commuting. The 2017 carpool rate was equal to the 2016 rate.

During the 2017 season, gameday parking rates on campus were:

1. \$30 for Carpool vehicles (with three or more persons)
2. \$40 for Non-carpool vehicles (with less than three persons).
3. \$100 for Charter Buses
4. \$120 for RVs/ Motor homes
5. \$30 for Trailers.

### Transit Modes

The TMP aims to promote public transit modes of commuting. In addition to the regular bus service, King County Metro operated the following special services in support of this goal:

1. Husky Special Service from Ballard to Lake City along Route 715 was operated as a Special Service bus.
2. Route 725 also provided transportation to Husky Stadium. Riders paid the regular fare on all pre-game routes.
3. The UW Link Shuttle helps transit passengers make connections to regular service that is rerouted away from UW Link Station during Husky games. The UW Link Shuttle was free.

### Husky Special Service

During each Saturday gameday in 2017, service was provided along routes from Ballard to Lake City/Sandpoint. King County Metro also increased buses along the regular routes 44, 48, 65, and 75. Fans traveling to Ballard on Route 715 were referred to Route 44. Route 725 also provided transportation to Husky Stadium. These buses begin operating approximately 90 minutes before kickoff. The riders paid the regular route fare on all pre-game routes. Metro charged a regular fare on the inbound trip and waived the fare on the outbound trip. Before 2013, these and other Metro buses had been free to ticket holders on gameday. For the seven home games in the 2017 football season, Metro operated an average of 19 trips to the stadium prior to each game and 12 trips from each game on routes 725 and Ballard.

### Park and Ride Service

Transit service from Park and Rides provides an essential connection between transit centers and the stadium. In 2017, King County Metro provided Saturday gameday buses from six regional Park and Ride lots, shown in Figure 1. Round trip tickets cost \$7 per game per person. Parking at the Park and Ride lots was free. Buses began boarding at the lots two hours prior to kickoff, with



20-minute interval departures. Following the games, fans boarded the buses at specified locations to return to the designated lots. The final buses depart approximately 50 minutes prior to kickoff, except the last buses from Federal Way and South Renton which left 60 minutes prior to kickoff. Additionally, ICA operated private charter buses for the Northgate and Shoreline Transit Center routes during the 2017 season.

Managed By	Location	Address
Metro	Eastgate	14200 SE Eastgate Way
Metro	Federal Way	2500 S. 320th Street
Metro	Houghton	7024 116th Avenue NE
Metro	Kingsgate	12837 116th Avenue NE
Metro	South Kirkland	3801 108th Avenue NE
Metro	South Renton	301 S. 7th Street
UW ICA	Northgate	10200 1st Avenue NE
UW ICA	Shoreline	19000 Aurora Avenue N

## Boats

### Boat Moorage

Husky Harbor can dock up to 150 private boats of varying sizes on gameday. Permits for boat moorage were available through a season pass or on a single-game basis.

For the 2017 season, the seasonal rate for boat moorage remained the same, but single game docking was given a more dynamic structure to increase the sales of season permits. The Full Season Pass ranged from \$270 to \$1,025, while the game-day fares ranged from \$55 to \$215 depending on the boat size and game. The range of shuttle fees and season docking fees remained the same as the 2016 season.

### Shuttle Service

In 2017, guests could anchor their private vessels in Union Bay and a boat shuttle service would assist them in getting to Husky Stadium. The shuttle service took fans to the Husky Stadium boat dock for free and returned them to their boats after the game for a fee of \$10 per person (children under two years of age ride for free). Shuttles were available 2 hours prior to kickoff and 1 hour post-game.

### Charter Boats

Several Seattle restaurants, hotels, and clubs featured activities that included a chartered bus or chartered boat ride to Husky Stadium during a home football game.

## Bicycles

### Bike Valet

UW Transportation Services provided free bicycle valet parking at the Rainier Vista (south of Drumheller fountain) during football season. Fans could leave their bike with an attendant who parked and monitored bicycles throughout the game, addressing issues of bicycle parking capacity and security. Signage along popular bicycle routes directed bicyclists to the free secure bike parking at the Rainier Vista bike valet. In addition to the bike valet, patrons could find bicycle parking at numerous racks located around the stadium.

#### Bike Share

Following initiation of a dockless bike share permitting system by the City of Seattle in August 2017, several bike share companies began operating in the vicinity of the University District and UW.

Three bike share companies were active in Seattle during the survey period – Spin, Ofo, and Limebike. Two of these companies (Spin and Limebike) offered 50% discounts if patrons registered using their uw.edu email address. Overall, bike usage was twice the number reported in 2016 (0.7%).

#### Restricted Parking Zone

In some surrounding neighborhoods, Special Event Restricted Parking Zones (RPZ) limited gameday parking to neighborhood residents. Seattle's parking enforcement officers issued \$53 citations to non-residents who parked in the restricted zones.

#### Marketing

Intercollegiate Athletics (ICA) posted transportation information on the official Husky Football website, <http://www.gohuskies.com/gameday/>. The web site focused on providing information to assist patrons in using one of the modes encouraged in the TMP. The website provided contact information as well as information about transit, boating, walking, biking, and parking. UW Transportation Services also promoted the bike valet service for gameday commutes with signage directing bicyclists to the valet, and tags placed on bike racks encouraging patrons to use the bike valet service if they were planning to attend the game.

## Data Collection

Data collection consisted of the following efforts:

- 1) Survey of game attendees conducted by UW TS at one football game during the season (October 7).
- 2) Bus ridership data collected by King County Metro.
- 3) Link Light Rail ridership data collected by Sound Transit.
- 4) Campus parking data and bike valet collected by UW TS.
- 5) Parking citations data collected by the Seattle Police Department.
- 6) Boat passenger, stadium lot counts, and game attendance data collected by ICA.

### Survey Methodology

On Saturday, October 7, 2017, UW TS conducted a survey of football game attendees as they passed through the gates at Husky Stadium. The kickoff time was 7:45 PM, and survey time period began at 4:30 PM. The weather on the survey day was rainy, with a high of 62°F and a low of 49°F.

Twenty five surveyors in teams of two or three were dispatched dynamically to stadium entrances, proportional to the number of game attendees estimated to enter through each gate. These survey administrators were deployed to gates based on the gate's opening time.

Similar questions were asked on the 2017 survey as were asked on the 2016 survey; however the 2017 survey questionnaire was modified to streamline the questions and clarify response options for the respondents. The survey administrators were also provided with key words, shown in Figure 2 below, to understand the parking zones and mark them accurately while recording the survey results.

# Parking Zone Map Key Words

Question 3 asks Patrons where they parked their CAR/RV. The following list of key words can help Surveyors pinpoint which Area a Patron parked in on the laminated Parking Zone Map.

Ltr	Color	Key Words	Area
X	Dropped Off	N/A	Not Parked
A	Green	<ul style="list-style-type: none"> <li>SW NEIGHBORHOOD (BUT LET'S CLARIFY IF NEIGHBORHOOD IMPACT ZONE)</li> <li>Eastlake north of 520, across University Bridge, Fairview Ave, Fuhrman Ave.</li> </ul>	SW neighborhood
B	Orange	<ul style="list-style-type: none"> <li>S NEIGHBORHOOD (BUT LET'S CLARIFY IF NEIGHBORHOOD IMPACT ZONE)</li> <li>West of Washington Arboretum, South of 520, north of Boyer Ave, off 24<sup>th</sup></li> </ul>	S neighborhood
C	Blue	<ul style="list-style-type: none"> <li>N NEIGHBORHOOD (BUT LET'S CLARIFY IF NEIGHBORHOOD IMPACT ZONE)</li> <li>Montlake north of 520, near the Montlake Bridge, south of the Montlake cut or Bridge</li> <li>Laurelhurst, near Sand Point</li> <li>Ravenna, along Ravenna Ave</li> <li>East of I-5, West of Roosevelt, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup> Ave</li> </ul>	N neighborhood
D	Pink	<ul style="list-style-type: none"> <li>NW NEIGHBORHOOD (BUT LET'S CLARIFY IF NEIGHBORHOOD IMPACT ZONE)</li> <li>Wallingford, west of I-5, north of Portage Bay, south of 51<sup>st</sup> St</li> </ul>	NW neighborhood
E	Red	<ul style="list-style-type: none"> <li>RETAIL</li> <li>University Village, U Village</li> <li>U District east of Roosevelt and west of 15<sup>th</sup>, on the Ave, Brooklyn, 11<sup>th</sup>, 12<sup>th</sup>, north to 50<sup>th</sup> Ave</li> </ul>	Retail area
F	Yellow	<ul style="list-style-type: none"> <li>ON-CAMPUS, CAMPUS</li> <li>Padelford Garage above Montlake Ave, Portage Bay Garage off 15<sup>th</sup> Ave</li> <li>E-1, E-12, E-19 parking lot</li> <li>Any parking lot designated with the letters C, N, or S</li> <li>Near the driving range, along Boat Street</li> </ul>	On campus
G	White	<ul style="list-style-type: none"> <li>LET'S CLARIFY IF NEIGHBORHOOD OR N/A</li> <li>West of Thackery, north of 51<sup>st</sup>, north of 55<sup>th</sup>, north of Ravenna, north of 65<sup>th</sup></li> <li>Eastlake south of 520</li> <li>East of Washington Arboretum</li> </ul>	White area
H	N/A	<ul style="list-style-type: none"> <li>Patron doesn't know</li> </ul>	Patron doesn't know

**Figure 1 Guide for survey administrators to understand parking zones.**

Teams were instructed to conduct the survey according to the following instructions:

1. When you approach the patron, say, **“Hello, I am with the University of Washington and we’re conducting a quick, 4 question survey. <sup>2</sup>How did you get to the game today?”** Begin walking with them to their destination and guide them to an answer by showing the pictogram, shown in Figure 3 below, displaying various commute options.
2. If they refuse to answer your question, circle **“REFUSED”** on the survey form.
3. If they answer CAR/RV, circle **“CAR/RV”** on the survey form then ask:
  - a. **“How many passengers, including you, came to the game in that vehicle?”**
  - b. Circle their answer in question 2 on the form.

<sup>2</sup> This question appeared on the 2016 survey using the wording “Did you drive or ride in a car driven to the game today?” It was modified in the 2017 survey to more easily distinguish between riding in a personal vehicle and taking Lyft or Uber to the game.










- b. Then say, ***“Please point to your approximate parking location on this map”*** and show them the map.
  - c. When they point to an area, circle the corresponding letter on the survey form. If the patron was dropped off and the driver of the car did not park and come to the game circle **“X: Dropped off, did not park.”**
  - d. **“What is your Home Zip Code?”**
4. If they answered no to CAR/RV for your first question, circle **“MODE”** on the survey form and ask:
  - a. **“What type of transportation did you use to come to the game today?”**
  - b. Circle the mode they said, then ask:
  - c. **“What is your Home Zip Code?”**
  - d. Write down Zip.
5. End the survey with, **“Thank you, enjoy the game!”**
6. While one partner administers the survey, the other counts out the next 25<sup>th</sup> (team of 3) or 45<sup>th</sup> (team of 2) person and prepares to signal their partner.

Of the 1,095 attempted surveys, 860 yielded usable responses, for a response rate of 79%. With an actual attendance of 52,777 the results are within +/- 3.3% margin of error at 95% confidence.

The population was defined as game attendees who pass through the gates, and the sample was taken from only this population. This population did not include game workers who did not pass through the gates. The travel behavior of game workers is not known.

Like most surveys, this one was subject to non-response error as a result of people who refused to take the survey. Transportation surveys also suffer from social desirability bias. For example, respondents can have a tendency to say that they carpooled when in fact they drove alone in order to portray themselves favorably to the surveyors. Little can be done to suppress social desirability biases; however, it is expected that the proportion of this bias remains constant over time and therefore the data still gives accurate information about relative changes in traveler behavior.

## How did you get to the game today?

Car/RV	 	TNC*	<b>UBER</b> 
Bike		Walk	
Bus		Link Light Rail	
Boat		Other	

\*Transportation Networking Company

Figure 2 Pictogram for respondents to answer the commute mode question

## Survey Results

### Mode Choice

The introduction of Link light rail service to Husky Stadium in 2016 has boosted transit usage to 36.63%, the highest rate of transit usage since 2011. Less than half of all attendees traveled to the game by car, including 30.12% by carpool, 2.44% by SOV, and 9.30% by TNCs (which do not park during the game). Metro and charter buses accounted for 21.98%. Table 3 and Figure 3 show attendee mode share.

Mode		# Responses	Gameday Attendees	Season Avg.	Average % of Responses
CAR /RV	SOV	21	1,289	1,330	2.4%
	Carpool (2+ )	259	15,894	16,407	30.1%
BUS		189	11,599	11,973	22.0%
WALK		133	8,162	8,425	15.5%
LIGHT RAIL		126	7,732	7,982	14.6%
BIKE		11	675	697	1.3%
BOAT		32	1,964	2,027	3.7%
TNC		80	4,909	5,068	9.3%
OTHER		9	552	570	1.0%
<b>TOTAL</b>		<b>860</b>	<b>52,777</b>	<b>54,480</b>	<b>100.0%</b>

**Table 3 Survey response and projected mode share, 2017**



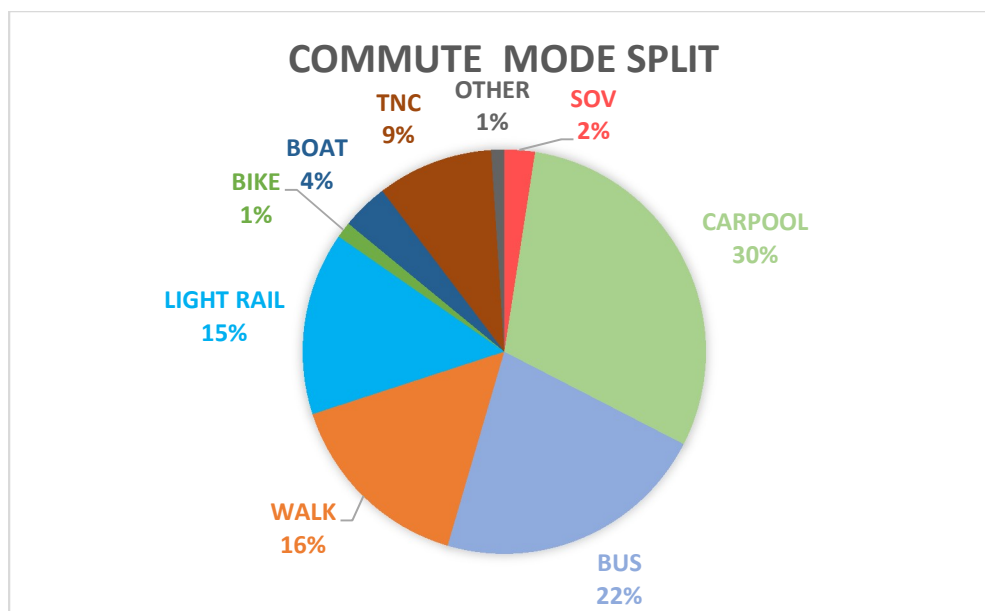


Figure 3 Mode share, 2017

Table 4 provides a historical comparison of travel mode choice over the ten years of the intercept survey (there was no survey in 2012 because games were held at CenturyLink Field due to Husky Stadium renovation). The two biggest mode shifts between 2016 and 2017 were in transit and bike. Link light rail service boosted transit utilization due to its direct proximity to the stadium, and the new dockless bike share options promoted bike usage.

Commute Mode over the years	1986	2007	2008	2009	2010	2011	2013	2014	2015	2016	2017
Automobile (incl. TNCs)	72.0	40.4	54.9	45.0	51.8	45.4	44.8	47.0	32.7	47.8	41.9
Transit (Charter, Metro, Link)	16.0	32.5	21.7	25.1	30.2	32.2	25.3	25.4	19.6	31.2	36.6
Walk	8.1	22.3	18.4	17.7	12.5	14.5	20.6	18.9	35.7	15.8	15.5
Boat	3.9	1.5	2.4	4.8	5.0	4.5	5.2	3.9	2.6	3.4	3.7
Bike	NA	1.0	1.1	0.8	0.0	0.5	0.5	0.8	0.9	0.7	1.3

Table 4 Travel mode choice distribution, 2007 - 2017

### Automobile Occupancy and Parking

The majority of people who traveled to the game by car came via carpool; only 2.4% of those who came in an automobile drove alone. This represents a significant decrease from 6.1% in 2016. Automobile occupancy is summarized in Table 5 Automobile occupancy and share, 2017

Automobile Occupancy	2016 Share (%)	2017 Share (%)
1	6.1	2.4
2	42.1	25.2
3	12.7	17.3
4	25.4	27.7
5+	13.8	27.4

**Table 5 Automobile occupancy and share, 2017**

On the survey day, approximately 17,183 people arrived in 5,556 vehicles, with an average automobile occupancy of 3.1. These vehicles parked in one of four areas:

- Campus parking lots
- Retail areas (University Way corridor and University Village)
- Neighborhoods within the TMP parking impact area
- Areas outside the TMP parking impact area

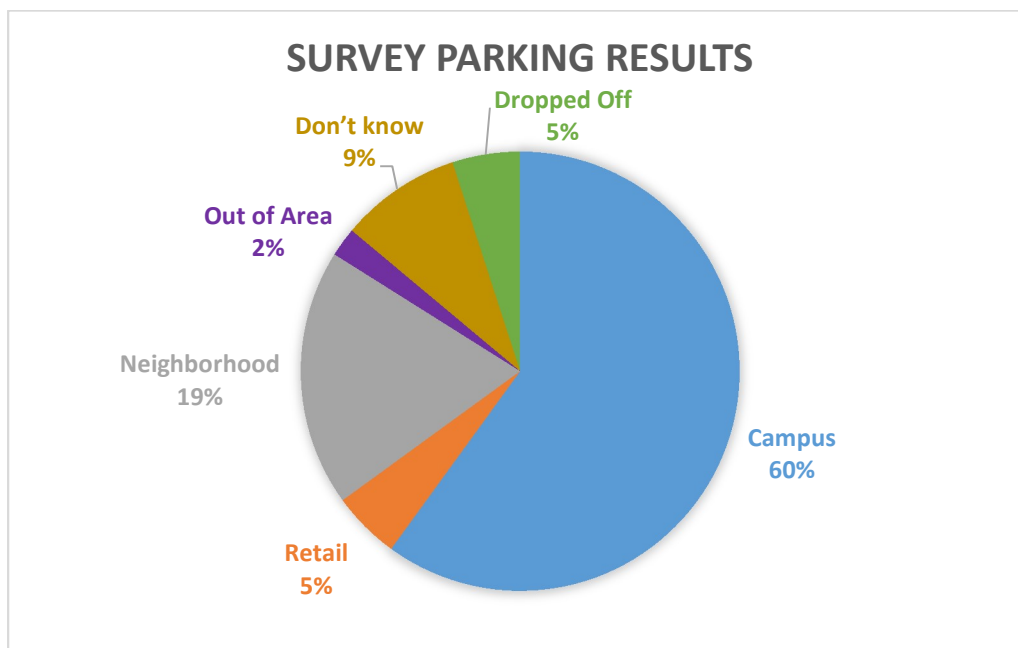
Based on average occupancies by parking area, the number of cars parked in each of the four areas are estimated and listed in Table 6.

Parking area	Passengers	Automobiles	Average Occupancy
Campus	10,576	3,333	3.1
Retail	714	278	2.6
Neighborhood	3,016	1,052	2.9
Out of Area	258	119	2.2
Don't know	1,806	496	3.6
Drop Off	814	278	2.9
<b>Total</b>	<b>17,183</b>	<b>5,556</b>	<b>3.1</b>

**Table 6 Average occupancy of parked automobiles, 2017**

Additionally, 4,909 people arrived in cars operated by TNCs. These cars do contribute to on-street congestion, but do not need to park. Occupancy information for TNC trips was not recorded by survey volunteers, so is omitted from this report.

Overall gameday parking location choices are illustrated in Figure 3.



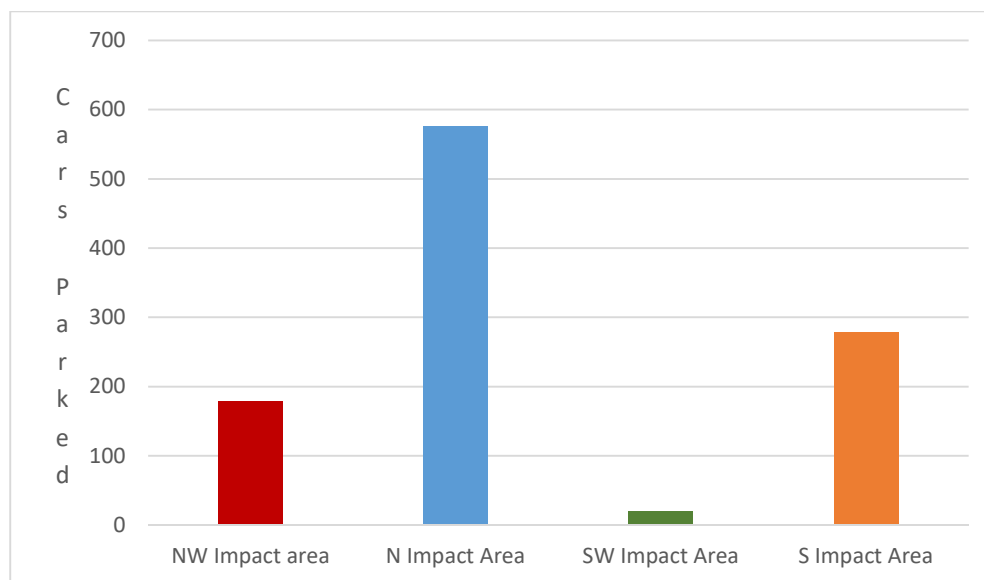
**Figure 4 Distribution of automobiles in different parking areas, 2017**

Of the attendees who arrived by car, 60% parked on campus in approximately 3,333 automobiles. The share of attendees arriving by automobile and the number of cars estimated to have parked on campus was similar to 2016.

Adjusting for passenger occupancy per vehicle to determine the distribution of cars, 33% of vehicles parked in surrounding neighborhoods, retail areas or unidentified locations, similar to 33.5% in 2016. Approximately 5% of vehicles that dropped passengers off without parking for the Husky Football game, compared to 8.2% in 2016.

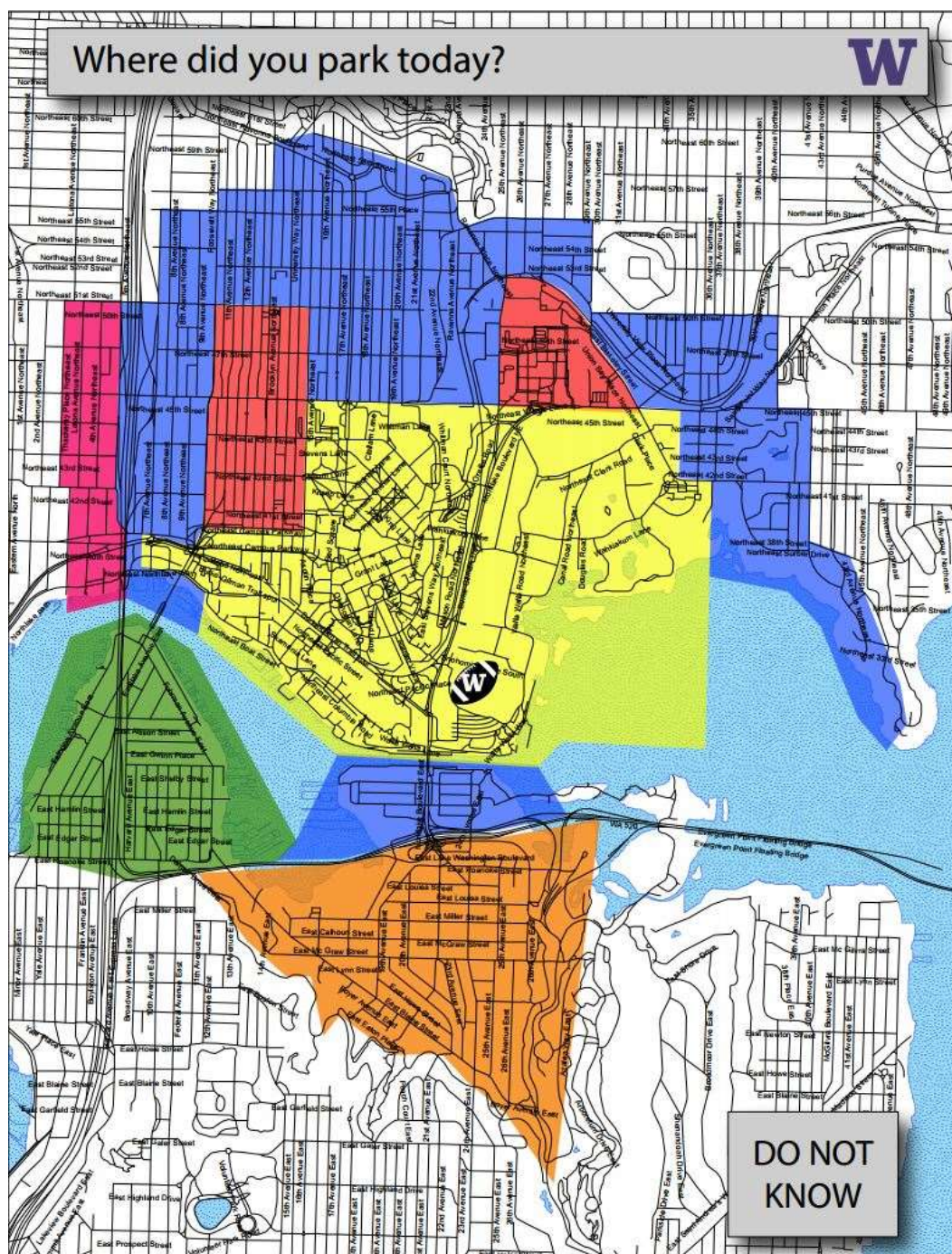
The change in parking statistics is likely due to changes in how the survey instrument treated TNCs in 2016. In 2016, survey questionnaire, the first question was, “Did you drive or ride in a car to the game today?” aiming to capture patrons driving in personal vehicles. However, it confused some patrons who traveled by TNC, and they answered with a Yes to this question. This confusion appears to have resulted in some inaccurate responses.

About 1,052 cars were parked in neighborhoods identified as parking impact areas and approximately 278 cars were parked in retail areas. About 119 cars were parked in neighborhoods outside the impact areas. The share of cars parked in impact areas including neighborhoods and retail areas compared similarly between 24.2% in 2016 to 24% in 2017.



**Figure 5 Breakdown of parking in impact areas, 2017**

Figure 5 shows the amount of cars parked in specific neighborhood impact areas. The northwest area had 179 cars parked, the northern area had 575 cars parked, the southwest area had 20 cars parked, and the south area had 278 cars parked on survey day. These numbers, added together, comprise 19% of total cars parked on the survey day.



**Figure 6 Map used to indicate parking locations**

Figure 6 is a map shown to all spectators when asked where they parked. The red, blue, green and orange areas are neighborhood impact areas surrounding Husky Stadium. These are residential areas with varying levels of public or permit parking. The red sections are the retail areas primarily around University Village. The yellow section identifies on-campus parking. The white area on the map is not considered an impact zone for Gameday parking.



## Bus

In 2017, 22% of trips were taken on Metro and charter buses, in comparison to 19.9% in 2016. Overall, 36.6% of attendees arrived by transit. This represents an increase in transit mode share from 2016's 31.2%.

### **King County Metro Bus Ridership Estimates:**

In addition to the intercept survey, data on bus ridership to Husky football games was collected in the following ways:

- King County Metro employees count Park and Ride bus passengers as they board the buses.
- King County Metro employees count regular transit and Husky Special riders when they leave buses at the stadium. A significant number of passengers may leave the buses before they reach the stadium and then walk several blocks to reach the ticket gates. These passengers are not counted. Passengers going to the game who take routes that stop elsewhere in the University District are also not counted.

For 2017, the average King County Metro passenger count for pre-game was 6,799 and post-game was 7,491. This count should be considered a low estimate of actual bus ridership as it doesn't fully count regular Metro service passengers.

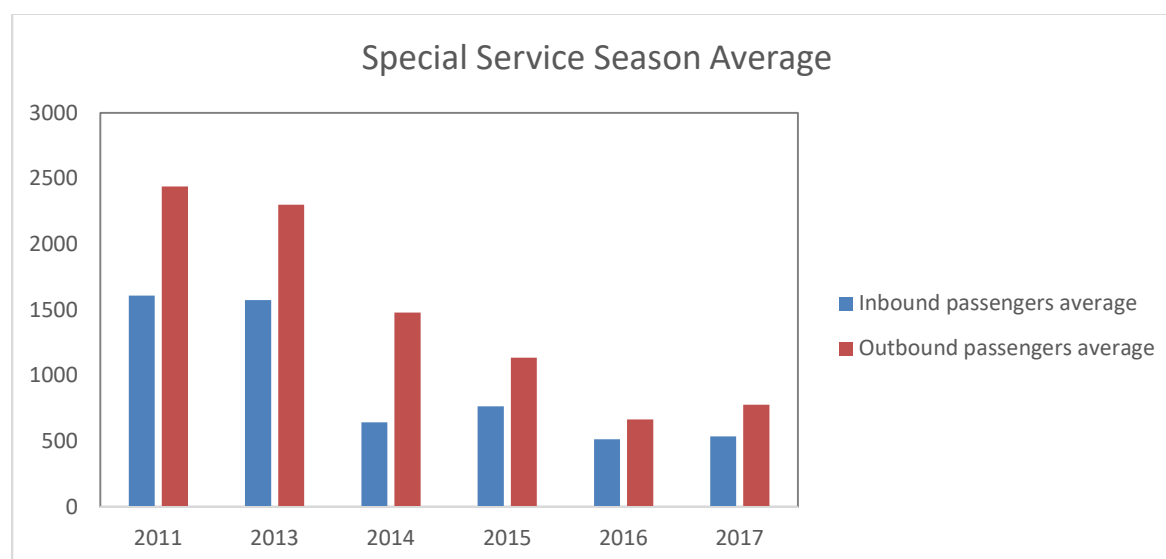
### **ICA Contracted Charter Bus Ridership Estimates:**

- UW ICA managed charter buses for Northgate and Shoreline routes for the 2017 games.
- UW ICA provides contracted charter bus passengers count for each game.
- In 2017 the personal charter bus counts were not conducted and are not included in this year's report.

The average passenger count of the contracted charter buses for Northgate and Shoreline routes was 514 and 638 respectively.

Game	Pre-Game				Post-Game			
	Metro P&R + Special Service			ICA Charter Bus	Metro P&R + Special Service			ICA Charter Bus
	Trips	Passengers	Passengers per trip	Passengers	Trips	Passengers	Passengers per trip	Passengers
Sept 9 – vs Montana	115	6,452	56	1,190	103	6,731	65	1,190
Sept 16 – vs Fresno	118	6,619	56	1,143	116	6,985	60	1,143
<b>Oct 7 – vs California</b>	127	6,855	54	1,069	101	7,941	79	1,069
Oct 28 – vs UCLA	129	7,030	54	1,274	94	7,964	85	-
Nov 4 – vs Oregon	132	6,808	52	1,076	119	7,474	63	1,076
Nov 18 – vs Utah	130	7,469	57	1,077	121	7,918	65	1,077
Nov 25 – vs WSU	126	6,575	52	1,238	110	7,424	67	1,238
<b>Total</b>	877	47,808	382	8,067	764	5,2437	485	6,793
<b>Avg. total</b>	125	6,830	55	1,152	109	7491	69	970

= Survey Date

**Table 7 Metro Park and Ride, Husky Special and ICA Charter Bus counts, 2017**

**Figure 7 Seasonal passenger average for Husky Special Service routes, 2011-2017**



According to Metro’s data, the 2017 seasonal passenger average per game was 537 for inbound and 779 for outbound service on special routes. In 2016 the season average was 515 passengers arrived by special service routes and 665 passengers used the routes to leave the stadium.

According to the contracted charter bus ridership data, on an average, 1,152 passengers arrived from Northgate and Shoreline pre-game, while 1,132 left post game.

### [Link Light Rail<sup>3</sup>](#)

As per the survey results, 14.6% attendees arrived by Link light rail, in comparison to 11.3% from 2016. This accounts for an average of approximately 7,982 gameday attendees.

#### **Sound Transit Link Light Rail Passenger Estimates**

Sound Transit provides ridership counts of passengers who traveled to and from the UW Link Station on every gameday and non-gameday Saturday during the football season.

In 2017, Sound Transit’s counts yielded that an average of 11,900 passengers traveled by Link Light Rail, during the gamedays. This represents a 7.5% increase from 11,071 passengers in 2016.

Also, the average ridership on non gameday Saturdays during the season, was 6,400. This indicates a 46% increase in average number of ridership during the gamedays over the non-gameday Saturdays in 2017.

### [Walking](#)

Approximately 15.5% of the attendees walked to the stadium on gameday, down from 15.8% in 2016. 2017 numbers are in keeping with previously observed trends.

### [Boats](#)

Based on gameday survey data, 3.7% of people arrived by boat on the survey gameday, an increase from 3.4% in 2016. This is low, but consistent with previously observed boat mode shares. People arriving by boat primarily enter through the NE and SE gates. The refusal rate was highest at the NE gate than the other gates, which may have led to an under representation of boat travel.

#### **UW Intercollegiate Athletics Boat Passenger Estimate**

ICA counts the number of boats and estimates the number of passengers based on boat size at each Husky football game. Charter boat companies provide ICA with actual passenger counts from the charter boats. ICA uses boat shuttle ticket sales to count the number of passengers in boats anchored off shore.

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<sup>3</sup> New addition of Link Light Rail data analysis to the TMP report, beginning in 2016.

During the 2017 season, ICA's counts and estimation methods yielded an average of approximately 2,510 people arriving at Husky Stadium per game, representing 4.6% of game attendees. This is consistent with past ICA estimates. In 2017, the average game had 5 charter boats carrying a total of 1,229 attendees.

ICA uses boat occupancy factors for moored boats (3, 4, 6, 8, and 10 passengers for 0-20', 21-30', 31-40', 41-60', and 61-100' boats, respectively) and actual occupancy can change from year to year, which can lead to under or over estimation.

### Bicycles

In 2017, approximately 1.3% of surveyed attendees arrived by bicycle, twice the number in 2016 (0.7%). In addition to survey responses, TS also conducted a count of bikes parked at the bike valet and around Husky Stadium on the survey gameday.

The bike valet had 65 bikes on the survey day, lower than the count in 2016 which was 132. The increase in adoption of dockless bike share could have lowered the bike valet counts. The count of bicycles around Husky Stadium yielded 171 bicycles, lesser than compared to 263 in 2016.

### Transportation Networking Companies

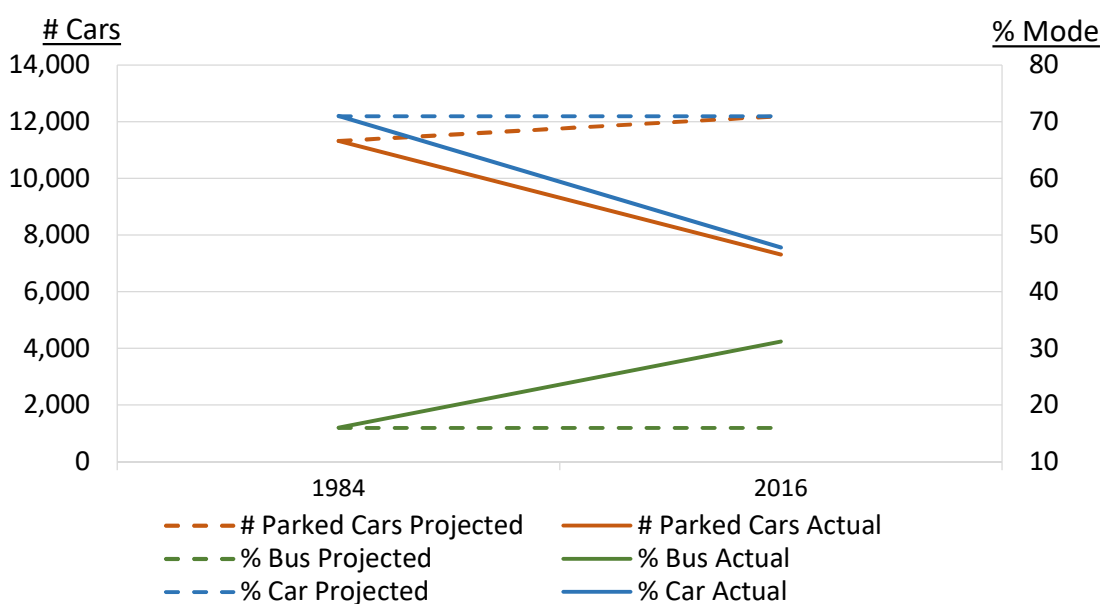
This year was the second survey to include TNCs in the data collection. Approximately 8% of survey responses indicated Uber, Lyft, Sidecar, or some other TNC. Accordingly, UW made preparations in advance of the game to coordinate with Uber on pick-up, drop-off, and wayfinding for game goers who used this mode. Signs were placed on the sidewalk along 15th Avenue near the gatehouse and along Stevens Way to guide travelers to TNC staging areas. ICA worked with Lyft and Uber to have attendees walk to a specific part of campus to be picked up after the game. Now that a baseline has been established, this mode can be tracked going forward.

### Other

In 2017, approximately 1% of survey responses indicated 'Other' for travel mode, similar to 1% in 2016. These 'Other' modes may include motorcycle, taxi, plane and limousine.

## Pre-Expansion Comparison

Figure 8 compares actual 2017 bus and automobile mode shares and vehicles parked on campus with a 1984 baseline and post-expansion projections (from the 1986 Stadium Expansion Plan TMP) using survey gameday data. The actuals are better than the expectations of the 1986 *Stadium Expansion Parking Plan and Transportation Management Program* in all major categories. At 32.6%, the percentage of patrons who came by car was much lower than 1986's projections of 71% and the total number of cars parked has declined rather than growing slightly as the 1986 projections assumed. With 22% of attendees arriving by bus and an additional 14.6% by light rail in 2016, transit ridership has exceeded 1986's projection of 16%.



**Figure 8 Comparison of Baseline, Actual, and Projected Travel Behavior**

## Neighborhood Parking Impact Areas

Figure 6 shows a map of the neighborhood parking impact areas, as defined by City Council Resolution 27435. Portions of these parking impact areas have Special Event RPZs (Residential Parking Zones) for football game days. On the October 7 survey day, an estimated 3,016 people parked in the neighborhood parking impact areas in 1,052 automobiles, a decrease over 2016's survey day with 3,096 people in 1,126 automobiles. In addition to the cars parked in impact areas, an estimated 258 cars parked in neighborhoods outside of the impact areas.

The 1986 *Stadium Expansion Parking Plan and Transportation Management Program* cited the need for the City of Seattle to increase enforcement and monitoring in neighborhood parking impact areas during Husky games. The Seattle Police Department provided a summary of parking citations issued in neighborhood parking impact areas during the seven games for the 2017 season. On average, 208 citations were issued per game, an increase from 171 average citations per game in 2016. The number of RPZ citations were almost the same as recorded in 2016 season; in 2016 there were 157 citations, while in 2017 there were 151 citations. Beginning in 2013, the University had requested additional enforcement of the RPZs, and this was likely a contributor to the increased citations from some past years. The average citation given out per officer hour for the 2017 season was 0.94, higher than 0.66 in 2016. This deviation could be due to the changing streetscape, Seattle's population growth and changes in traffic routing and associated route clearances.

Year	Average police resources per game		Average citations per game			Average citations per officer hour
	Parking enforcement officers	Overtime hours	RPZ	Other	Total	
2010	26	155	96	30	126	0.81
2011	26	166	85	55	140	0.84
2013	31	209	184	35	219	1.05
2014	34	228	139	18	157	0.69
2015	39	246	144	26	170	0.69
2016	45	259	157	14	171	0.66
2017	38	221	151	57	208	0.94

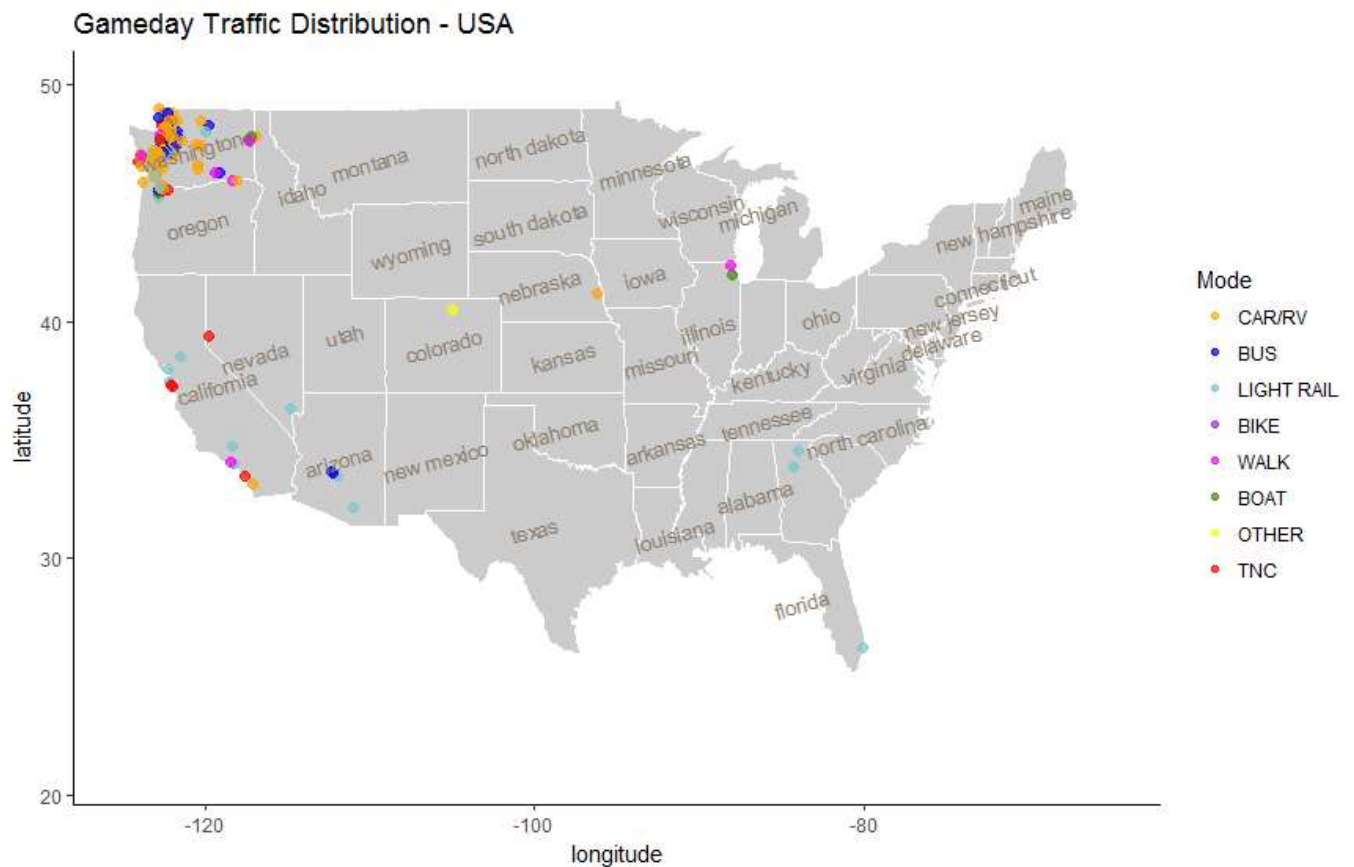
**Table 8 Parking citation statistics in neighborhoods around Husky stadium**

## Mapping Survey Respondents and Mode Share

The survey also asked about the home zip code of respondents. This section maps the sample and mode share of the 860 respondents who also gave their home zip code.

The mode split has been visualized in three distinct ways. The first map is a country wide map displaying different commute modes of the 860 attendees. The second map is a state wide map highlighting choice of commute options across the Washington state. The third type of map is focused on Puget Sound area and its surrounding neighbors highlighting the density of adoption for CAR/RV, Boat, Bus and Boat separately.

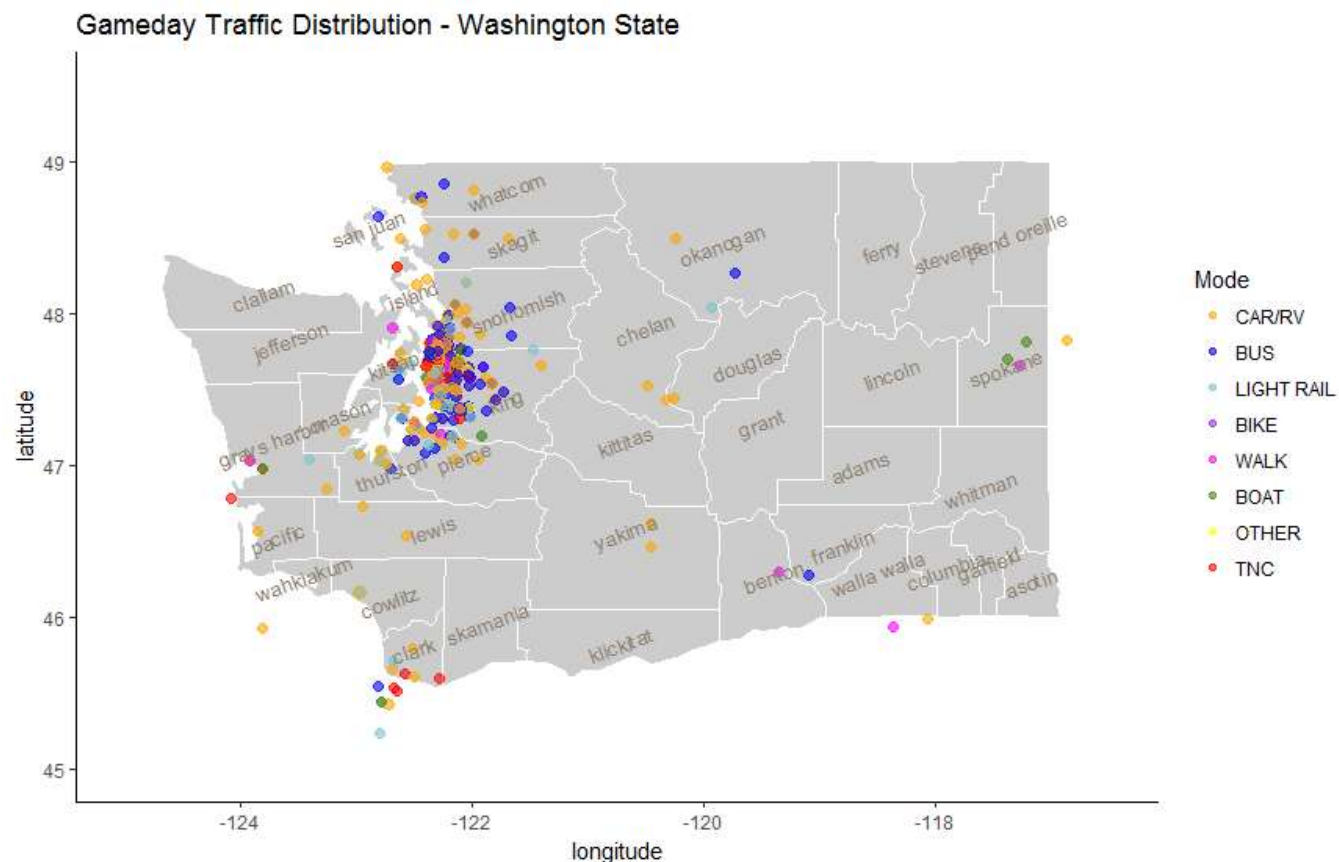
### Type I: Distribution of Commute Modes across the United States



**Figure 9 Commute Options split across the United States**

Figure 9 shows distribution of modal choices of the 860 gameday survey responders across the United States. While some of the circles seem to be outliers, it's important to note that the survey captured last mile commute option from the respondents and their journey's origin was recorded via zip code.

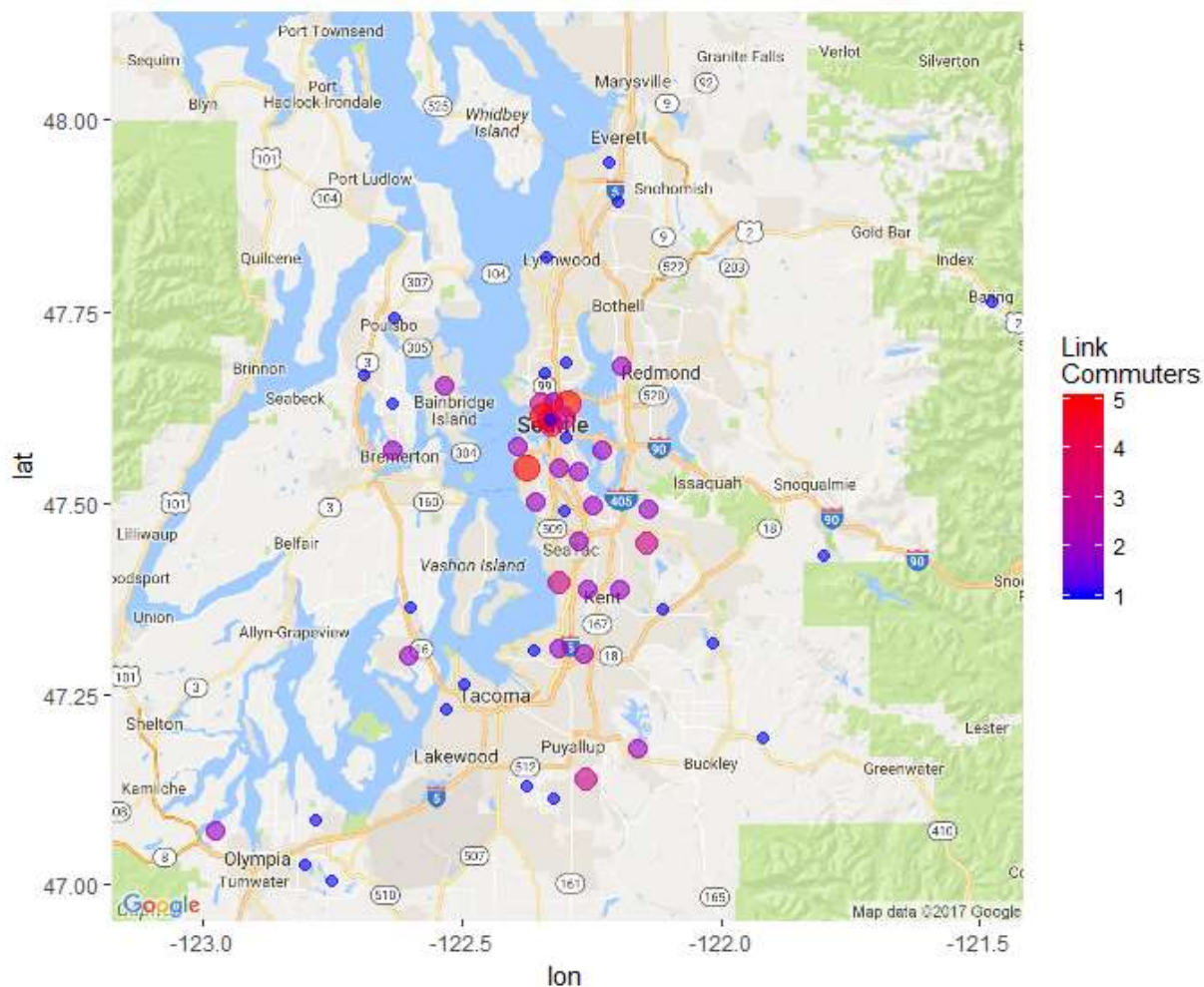
## Type II: Distribution of Commute Modes across the Washington State



**Figure 10 Commute Options split across Washington State**

Figure 10 shows distribution of commute mode choices of the 860 gameday survey responders across Washington State. Adoption of multiple commute modes from the same zip code can be seen by the overlapping circles. While there were game attendees reaching the stadium from various parts of the state, most of the traffic seemed to be concentrated around the Puget Sound region.

### Type III: Distribution of Commute Modes around Puget Sound

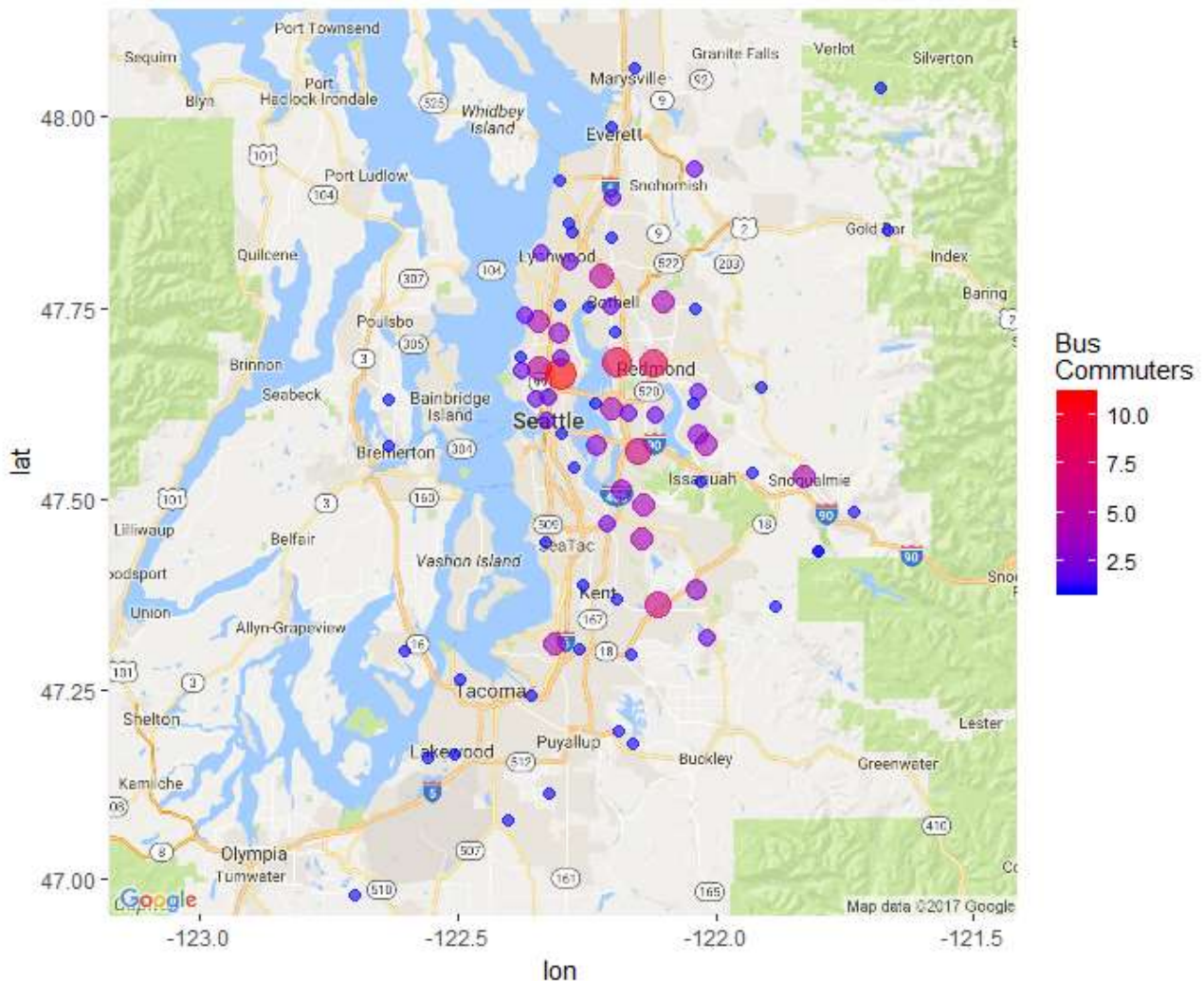


**Figure 11 Link Light Rail commuters near Puget Sound**

Figure 11 shows spread of Link commuters across the region. The circle size increases with increase in the number of Link commuters from the respective zip code. The range of number of commuters from a zip code was 1 (shown as a blue circle) to 5 (shown as a red circle).

Link light rail commuters seem to be commuting from around the region. However, there are commuters traveling to the game from Olympia, Everett and Snoqualmie as well.

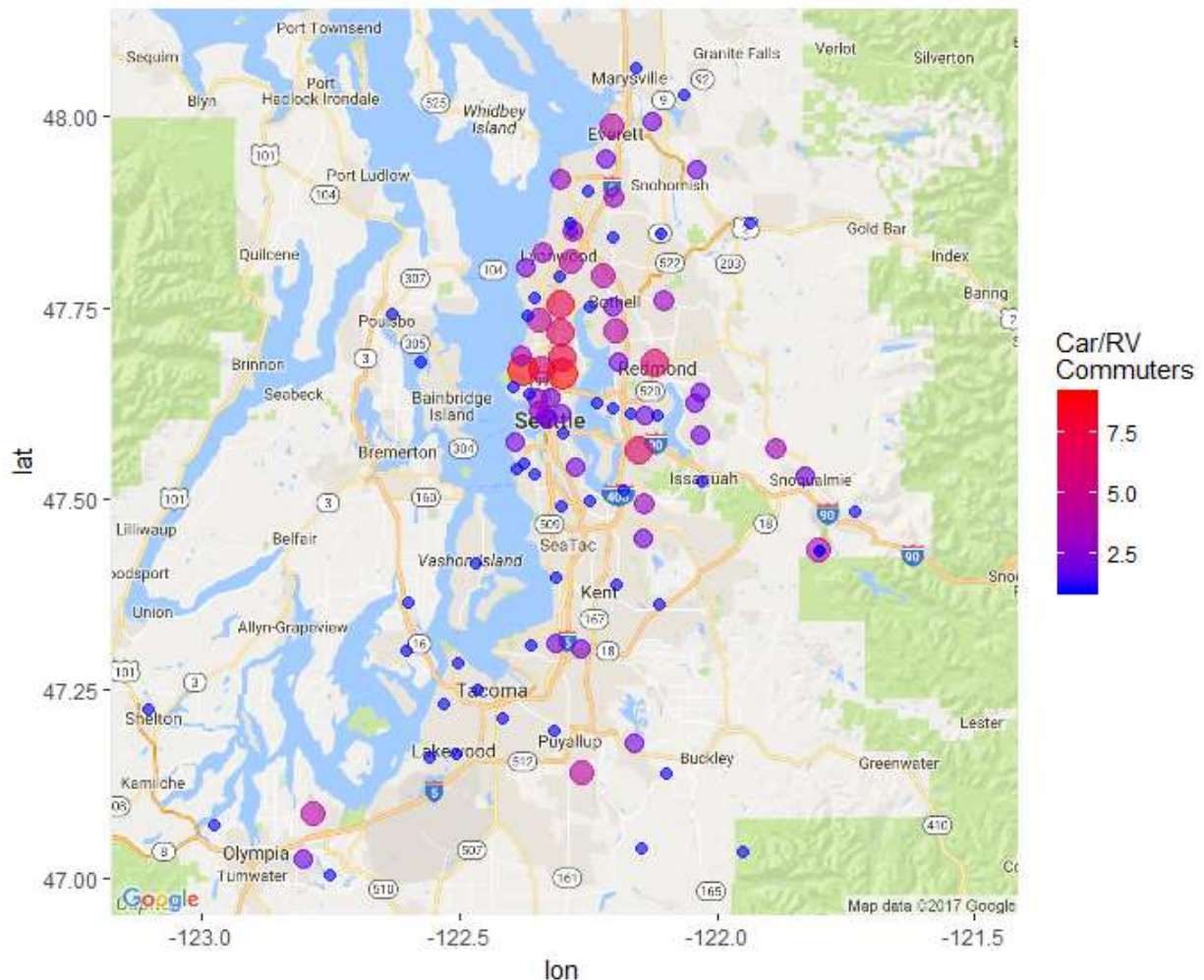




**Figure 12 Bus commuters near Puget Sound**

The distribution of bus commuters can be seen in Figure 12.

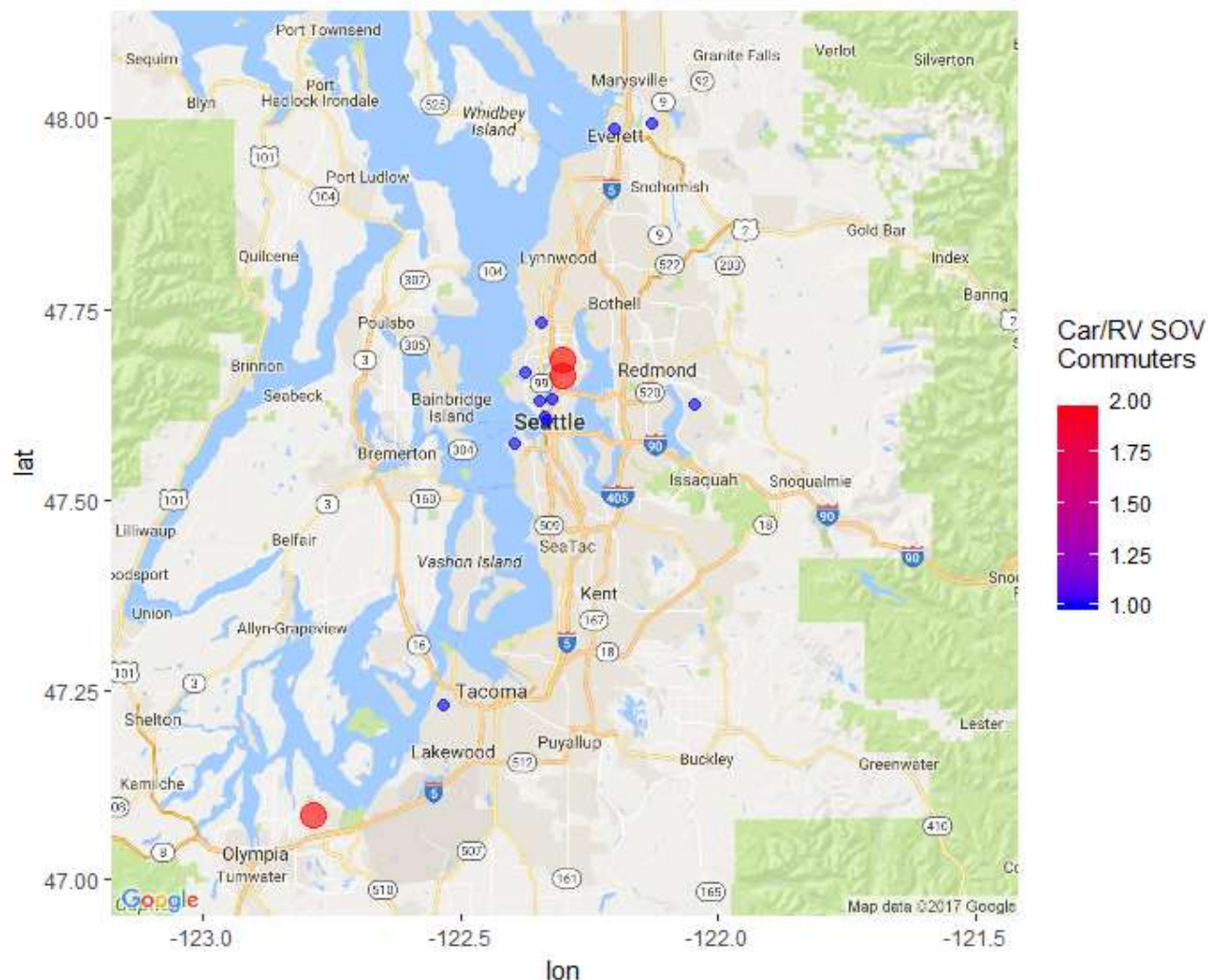
The circle size increases with increase in the number of bus commuters from the respective zip code. The range of number of commuters from a zip code was 1 (shown as a blue circle) to 11 (shown as a red circle).



**Figure 13 Car/RV commuters across Puget Sound**

The Car/RV Commuters had a moderate distribution across the region. Figure 13 indicate the number of Cars or RVs commuting from the respective zip code during gameday. It does not indicate the total number of attendees travelling in each Car / RV. 2017 saw a considerable drop in SOV to 2.4% and an increase in car pool adoption.

The circle size increases with increase in the number of Car/RV commutes from the respective zip codes. The range of number of commuters from a zip code was 1 (shown as a blue circle) to 9 (shown as a red circle).

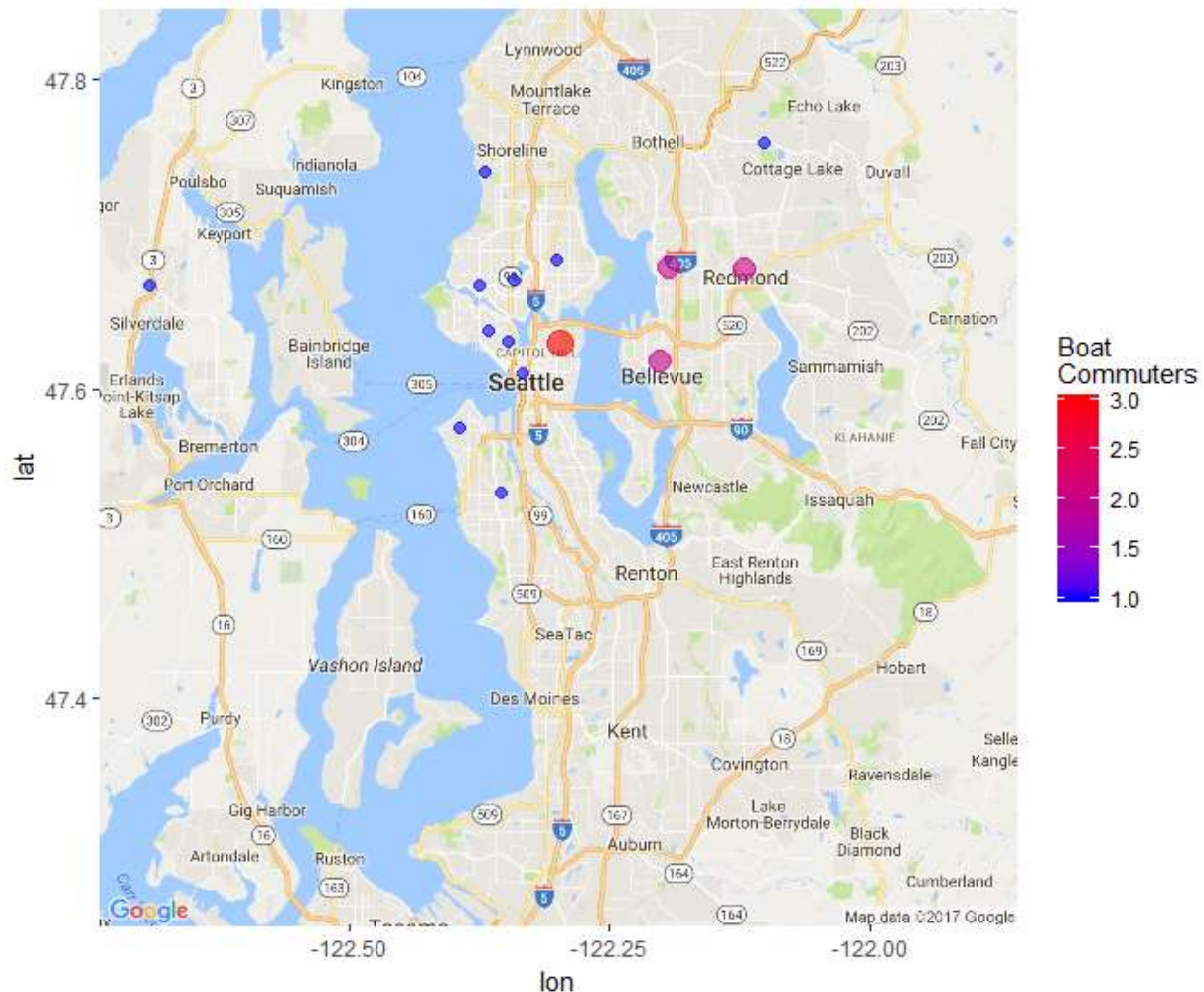


**Figure 14 Car/RV SOV commuters across Puget Sound**

Figure 14 above shows area of concentration of small sample of Car /RV commuters who chose to drive alone for the games.

The range of number of commuters from a zip code was 1 (shown as a blue circle) to 2 (shown as a red circle). The 2017 survey recorded a very low SOV drive rate of 2.4% which can be seen by the low number of data points on the map shown above.





**Figure 15 Boat commuters across Puget Sound**

The boat commuters can be seen to be commuting from across the region.

The circle size increases with increase in the number of Boat commuters from the respective zip codes. The range of number of commuters from a zip code was 1 (shown as a blue circle) to 3 (shown as a red circle).