UNIVERSITY of WASHINGTON

Stadium Expansion Parking Plan & Transportation Management Program

2015 REPORT

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Executive Summary

In 2015 the Husky Stadium Expansion Parking Plan and Transportation Management Program (TMP) continued to meet its primary goal of accommodating peak football crowds while reducing parking impacts in nearby residential areas. Performance was better than the target for all categories except boat for 2015.

This report outlines the findings of the 2015 TMP monitoring efforts. In 2015, data was collected through an intercept survey of game attendees as they entered the gates at Husky Stadium on October 17, 2015. Paid game attendance on October 17 was 69,285; actual game attendance was 59,053.[1] With 1,166 valid survey responses, intercept survey result estimates are within +/- 2.84% at a 95% confidence level. 2014 serves as the most recent comparison year to 2015.

Key findings according to 2015 data:

- Game attendees traveled to the stadium using these modes:
  - 30.4% carpooled (traveled in automobiles with more than one person), compared to 43.4% in 2014. 2.3% drove alone, compared to 3.6% in 2014. A total of 32.7% of respondents drove to the game. Average automobile occupancy was 2.78 persons per car.
  - 19.6% arrived by transit or charter bus, down from 25.4% in 2014.
  - 35.7% walked to the game, up from 18.9% in 2014.
  - 2.6% arrived by boat, down from 3.9% in 2014.
  - 0.9% arrived by bicycle up from 0.8% in 2014.
- The change in mode split between driving and non-driving options following TMP implementation exceeds projections in the 1986 TMP. Projected mode shares compare to actual 2015 mode shares as follows:

Mode	Projected Share (%)	Actual Share (%)
Automobile	71	32.7
Bus	16.0	19.6
Walk	8.1	35.7
Boat	3.9	2.6

- The average number of vehicles parked in the neighborhood impact areas in 2015 was 1,253, a 26.8% decrease from 1,713 vehicles in 2014.

[1] 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 2015 Report.

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, large numbers of people travel to and from Husky Stadium over short periods of time. The TMP is in place 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 is responsible for encouraging football attendees 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 the University and the City of Seattle 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 2015 season and compares them to past seasons.

In 2012, the stadium was renovated and now accommodates 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.

Introduction

The University of Washington hosted seven football games at Husky Stadium during the 20 15 season, listed in Table 1.

Date	Opponent	Actual Game Attendance	Sales Attendance
September 12, 2015	Sacramento State	40,076	55,010
September 19, 2015	Utah State	42,771	59,464
September 26, 2015	University of California, Berkeley	50,457	58,773
October 17, 2015	Oregon	59,053	69,285
October 31, 2015	Arizona	28,099	56,749
November 7, 2015	Utah	44,568	59,127
November 27, 2015	Washington State	60,313	70,438
AVERAGE		**46,477**	**61,264**

= Survey Date

Table 1: Husky football games, 2015

During the 2015 season, the Husky Stadium Expansion Parking Plan and Transportation Management Program (TMP) was executed to provide transportation options to football fans and to discourage single occupant vehicle (SOV) trips to the stadium. Non-SOV modes, including carpooling, transit and charter buses, walking, boating, and bicycling were encouraged.

The purpose of this document is to monitor the effectiveness of the TMP during the 2015 season using the following indicators:

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

This report explains the TMP efforts in 2015, details the methodology used to collect the data related to performance indicators, and discusses the results. It illustrates mode choice in 2015 and draws comparisons to previous years. Finally, this report describes impacts on neighborhood parking areas and draws conclusions about the TMP's effectiveness in 2015.

TMP Elements

Carpool Incentives

The TMP uses a pricing system to incentivize carpooling. During the 2015 season, game day parking on campus cost $30 for vehicles with three or more persons, $40 for vehicles with less than three persons, $120 for motor homes, a $30 additional fee for trailers, and $100 for charter buses.

Transit

One of the goals of the TMP is to encourage football game attendees to ride public transit to the stadium. In addition to regular bus service, King County Metro operated two kinds of game day service in 2015: Park and Ride routes and two game day special service routes serving Seattle neighborhoods (Metro Route 715, 725 and Ballard). A charge for all Metro service routes was introduced in 2013 and continued into 2015.

Park and Ride Service

In 2015, King County Metro provided Saturday game day buses from eight regional Park and Ride lots, shown in Figure 1. Round trip tickets cost $5 per game if purchased individually or $4 per game if purchased as a season pass ($28 per season). 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. As the Apple Cup was on a weekday (November 27th), King County Metro coaches were not available to provide Park and Ride services. This was compensated by a chartered Apple Cup Shuttle service which served the travelers on the Apple Cup, but from different bus stops. Following the games, fans boarded the buses at specified locations to return to the designated lots, as shown in 1. 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.

Location (Route #)	Color	Address
Eastgate (718)	Gold	14200 SE Eastgate Way
Federal Way (723)	Brown	2500 S. 320th Street
Houghton (724)	Green	7024 116th Avenue NE
Kingsgate (724)	Green	12837 116th Avenue NE
Northgate (75)	Yellow	10200 1st Avenue NE
Shoreline (720)	Blue	19000 Aurora Avenue N
South Kirkland (717)	Red	3801 108th Avenue NE
South Renton (719)	White	301 S. 7th Street

Figure 1 Location of Park and Ride buses, 2015

Figure 2, Parking lots for Park and Ride buses, 2015

Husky Special Service

On game days, King County Metro increased buses along the regular routes 43, 44, 48, 65, 75 and the 271. Additionally, Metro operated three special bus routes, 715, 725 and a bus to Ballard, to Husky Stadium during each Saturday game in 2015. The riders paid the regular route fare on all pre-game routes. Service was provided along routes stretching to Downtown, Ballard, and Lake City/Sandpoint. These special service routes charged regular Metro fare on the inbound trip and were fare free for the post-game trip. Before 2013, these and other Metro buses had been free to ticket holders on game day. For the seven home games, Metro ran an average of 24 trips to the stadium prior to each game and 24 trips away from each game on routes 715, 725 and Ballard.

Boats

Boat Shuttles

In 2015, 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 12 ride for free).

Boat Moorage

For the 2015 season, the season 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 $250 to $945, while the game-day fares ranged from $50 to $180 depending on the boat size and game. The shuttle fees and season docking fees remained the same as 2014 season.

Charter Boats and Buses

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

Free bicycle valet parking was provided 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. Bicycling was also promoted on the "Gameday Transportation" website and in addition to the bike valet bicycle racks were located around the stadium.

Restricted Parking Zone

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

Marketing

Intercollegiate Athletics (ICA) posted transportation information on the official Husky Football website, www.gohuskies.com/huskygameday. The web site focused on providing information to assist game attendees in using one of the modes encouraged in the TMP. The website provided contact information as well as information about busing, boating, walking, biking, and parking. ICA also used their Twitter account @huskygameday to promote transportation options. Approximately 5,000 maps were distributed to attendees for the Apple Cup game with new bus locations. Transportation Services also promoted the bike valet service for game days with signage directing attendees who bicycled to the valet and tags placed on bike racks encouraging attendees to use the bike valet service if they were going to the game.

Data Collection

Data collection consisted of a survey of game attendees conducted by UW Transportation Services at one football game in the season, bus ridership data collected by King County Metro, campus parking and charter bus data collected by UW Transportation Services, parking citations data collected by the Seattle Police Department, and boat passenger, stadium lot counts, and game attendance data collected by UW Intercollegiate Athletics.

Survey Methodology

On Saturday, October 17, 2015, UW Transportation Services conducted a survey of football game attendees as they passed through the gates at Husky Stadium. The kickoff time was 7:30 PM and surveys began at 5:00 PM. The weather on the survey day was cloudy, then drizzled throughout the game with a high of 68°F and a low of 57°F.

Forty-nine surveyors in teams of two and two teams of three were distributed to all stadium entrances, proportional to the number of game attendees estimated to enter through each gate.

Surveyors were instructed to ask the following questions, in this order:

Q1. *Did you drive or ride in a car driven to the game today?*
If respondent answered 'yes' to Q1:
Q1a. *How many passengers, including you, came to the game in that vehicle?*
Q1b. *Did you park in an area in this map?*
Q1c. *Please point to your approximate parking location on this map.* [Respondent was shown a map of the area, with campus, retail areas, and the neighborhoods in the Special Event Parking Zone each identified by a different color background (see Figure 3)]
If respondent answered 'no' to Q1:
Q2. *Which type of transportation did you use to get to the game today?*
Regardless of response to Q1:
Q3. *What is your home zip code?*

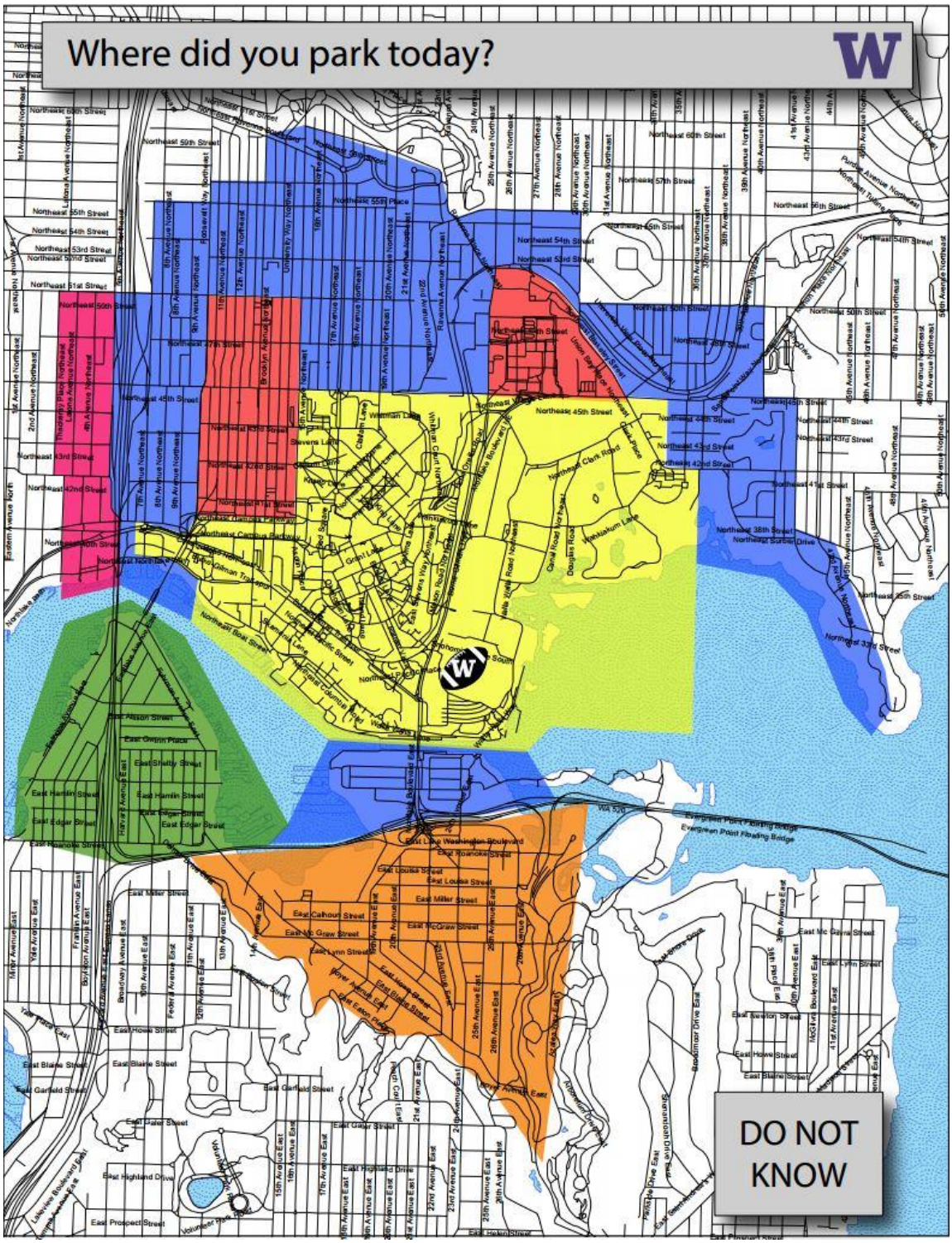

Figure 3, Map used to indicate parking locations

Of the 1,460 attempted surveys, 1,166 yielded usable responses, for a response rate of 79.6%. With an actual attendance of 59,053 the results are within +/- 2.84% 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.

Survey Results

Mode Choice

For the first time in the history of the survey, walking was the leading mode of transport with a share of 35.7%. Less than half of all attendees traveled to the game by car, including 30.4% by carpool and 2.3% by SOV. Taking the bus was the next most popular travel mode. The reason for the increase in the number of walkers might be due to the fact that the survey game was also the homecoming game and lot of survey respondents came from the University District area, which is walkable distance from the stadium. Table 2 and Figure 4 show attendee mode share. Generally, attendance was much lower this year, even the conference games were not well attended. For example, the game on 31st October 2015 (vs Arizona) was played at 8pm on Halloween night during a rain and wind storm, which affected game attendance and transit ridership. It is possible that more people who had to travel a farther distance to the stadium decided not to attend the games this season, increasing the relative proportion of fans who originated in nearby areas.

Mode	# Responses	% Responses	Survey Day	Season Average
Carpool	354	30.4	17,939	21,532
Bus	228	19.6	11,547	14,253
Walk	416	35.7	21,069	10,582
Boat	30	2.6	1,519	1,905
SOV	27	2.3	1,358	1,736
Bike	10	0.9	506	381
Other	101	8.7	5,115	2,048
Total	**1,166**	**100%**	**59,053**	**46,477**

Table 2 Survey response and projected mode share, 2015

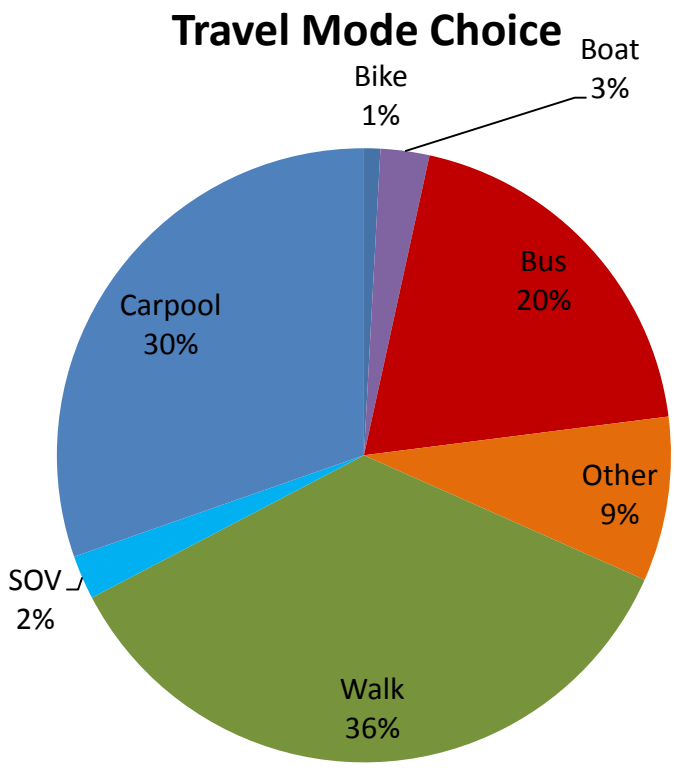

Figure 4, Mode share, 2015

Table 3 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 2014 and 2015 were in carpooling and walking. Walking increased by almost 16.9 percentage points between 2015 and 2014, while use of automobiles for arriving to the game decreased by 14.3 percentage points. In 2015, the survey game was also the homecoming game which brought in a lot of students walking to the stadium and thus increasing the number of walkers. The timing of the game being late in the evening and weather may have played a role in shifting the trend for how people got to the game.

Mode	2004	2005	2006	2007	2008	2009	2010	2011	2013	2014	2015
Carpool	52.1	46.3	47.6	37.9	49.5	45.0	48.9	43.1	41.9	43.4	30.4
Bus	29.9	27.8	23.0	32.5	21.7	25.1	30.2	32.2	25.3	25.4	19.6
Walk	8.2	13.5	18.0	22.3	18.4	17.7	12.5	14.5	20.6	18.8	35.7
Boat	4.0	6.1	4.4	1.5	2.4	4.8	5.0	4.5	5.2	3.9	2.6
SOV	3.9	4.3	4.2	2.5	5.4	3.9	2.9	2.3	2.9	3.6	2.3
Bike	0.7	0.7	1.0	0.2	1.1	0.9	0.0	0.5	0.5	0.8	0.9
Other	1.2	1.4	1.8	3.3	1.5	2.8	0.5	2.9	3.5	3.6	8.7

Table 3 Travel mode choice distribution, 2004 - 2015

Automobile Occupancy and Parking

The majority of people who traveled to the game by car came via carpool; only 2.3% of those who came in an automobile drove alone. Automobile occupancy is summarized in Table 4 Automobile occupancy and share, 2015
below (Table 4).

Automobile Occupancy	Share (%)
1	7.1
2	44.2
3	18.5
4	18.3
5+	11.9

Table 4 Automobile occupancy and share, 2015

On the survey day, approximately 19,296 people arrived in 6,532 vehicles, with an average automobile occupancy of 2.78. 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 5.

Parking Area	Passengers	Automobiles	Average Occupancy
Campus	11,067	3,599	3.1
Retail	254	111	2.3
Neighborhood	3,235	1,253	2.6
Out of Area	444	222	2
Don't know	1,395	444	3.1
Drop Off	2,902	904	3.2
Total	**19,297**	**6533**	**3.0**

Table 5 Average occupancy of parked automobiles, October 17, 2015

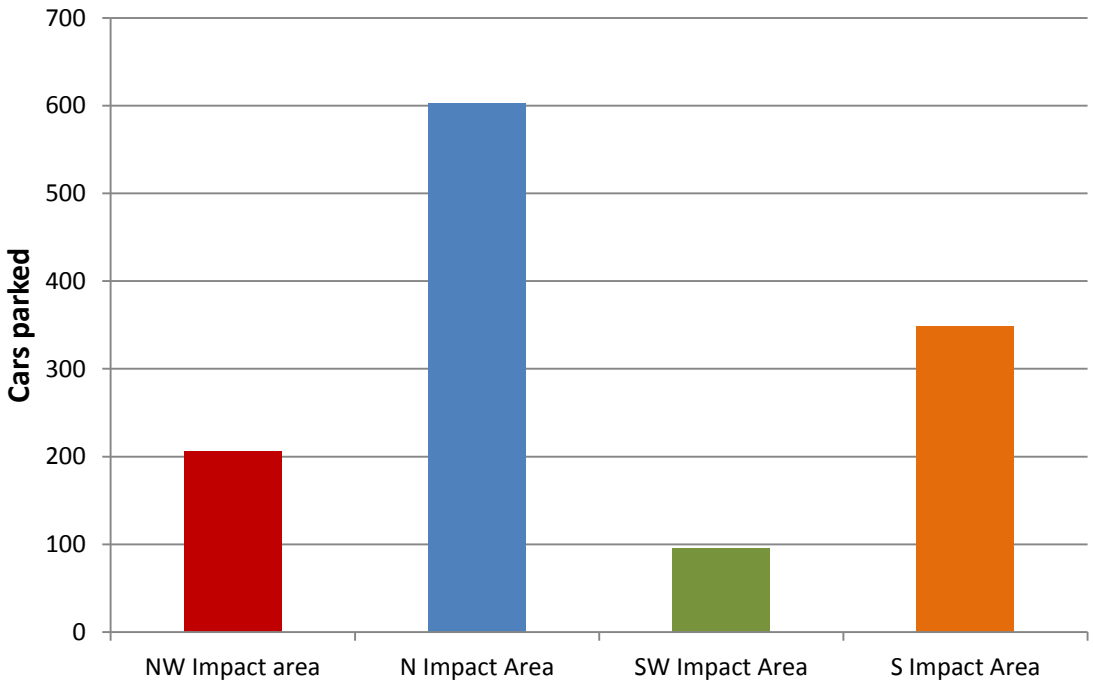

Figure 5 Breakdown of parking in impact areas, 2015

Figure 3 on page 11 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.

Figure 5 above shows the amount of cars parked in specific neighborhood impact areas. The northwest (red) area had 206 cars parked, the northern (blue) area had 603 cars parked, the southwest (green) area had 95 cars parked, and the south (orange) area had 349 cars parked on survey day. These numbers, added together, comprise 19.2% of total cars parked on the survey day. Even though the percentage increased from 2014 to 2015, the number of vehicles parked on the survey day decreased by 460 vehicles.

Overall game day parking location choices are illustrated in Figure 3.

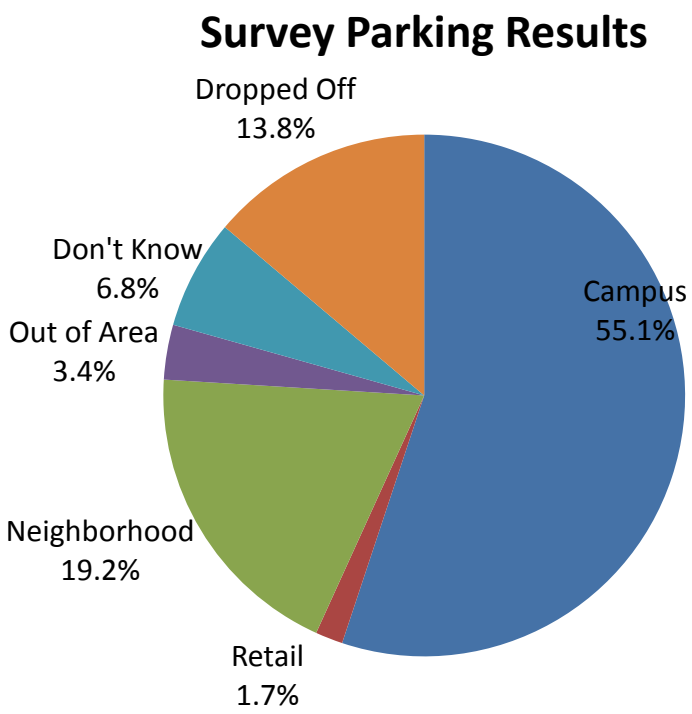

Figure 6, Distribution of automobiles in different parking areas, 2015

The attendees who arrived by car, 55.1% parked on campus in approximately 6,532 automobiles. The share of attendees arriving by automobile and the number of cars estimated to have parked on campus declined modestly from last year. In 2014, 60.3% of cars parked on campus. Average occupancy for cars parked on campus decreased in 2015 by 4.1% from 2014.

Adjusting for passenger occupancy per vehicle to determine the distribution of cars, 31.1% of vehicles parked in surrounding neighborhoods, retail areas or unidentified locations, a decline of more than 3 percentage points from 2014's 33.5%. Approximately 13.8% of vehicles dropped passengers off without parking for the Husky Football game, compared to 6.1% in 2014. About 1,253 cars were parked within neighborhoods identified as parking impact areas and approximately 111 cars were parked in retail areas. About 444 cars were parked in neighborhoods outside the impact areas. The share of cars parked in impact areas including neighborhoods and retail areas increased from 31.7% in 2014 to 36.4% in 2015, but the absolute number of vehicles declined.

Buses

19.6% of attendees arrived by charter or transit bus. There was a decline of around 6 percentage points from 2014's 25.4% share for bus. Although it is the lowest percentage recorded in the annual TMP survey, it still outperforms the TMP target. The weather and game time may have played a part in the use of buses on survey day. The kick-off was late at 7:30PM and it was raining.

UW Transportation Services and King County Metro Bus Ridership Estimates:

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

- Parking lot attendants count charter bus passengers in various lots. In 2015 charter bus counts were not conducted and are not included in this year's report. For Apple Cup, rough estimates for passenger count were provided by the charter bus vendor. The number of inbound passengers was roughly 5,000 to 6,000 and the number of outbound passengers was 6,000 to 8,000 for Apple Cup.
- 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.

During the 2011 football season, these counting methods yielded an average of 376 people on charter buses. Data for charter buses was not collected in 2015. For 2015, the average King County Metro passenger count for pre-game was 8,087 and post-game was 8,619. This count should be considered a low estimate of actual bus ridership as it doesn't fully count regular Metro service passengers or all charter bus passengers.

	Pregame			Postgame		
Game	**Trips**	**Passengers**	**Passengers per Trip**	**Trips**	**Passengers**	**Passengers per Trip**
9/12/15	149	7,564	50.7	111	8,140	73.3
9/19/15	154	7,778	50.5	135	8,402	62.2
9/26/15	174	8,492	48.8	169	9,070	53.6
10/17/15	158	8,273	52.4	150	8,969	59.8
10/31/15	162	6,835	42.1	122	7,314	59.6
11/7/15	174	9,580	55.0	158	9,818	62.1
Average	162	8,087	49.9	141	8,619	61.1

= Survey Date

Table 6, Total King County Metro Park and Ride, Husky Special and regular service, 2015

Park and Ride service experienced a notable decrease in ridership between 2014 and 2015 for the season totals. This might be due to the Apple Cup game which was served by charter bus vendors rather than King County Metro buses. On average, King County Metro provided 99 inbound and 95 outbound Park and Ride bus trips each Saturday game.

According to total season tracking data, an average of 5,347 passengers arrived to each game on the Park and Ride service and 6,256 took the Park and Ride service home. This average is down from 2014's average of 7,726 and 8,874 inbound and outbound passengers respectively. Park and Ride ridership to 2015 home games was 30% lesser than 2014. The numbers mentioned in this section do not take Apple Cup into account.

There are a number of possible explanations for the inbound ridership being lower than the outbound ridership throughout the season. Fares on the Park and Ride service were only checked on the trip to Husky Stadium to speed up boarding after the game and because Park and Ride route passengers paid a round trip fare on the inbound trip to the stadium. Attendees may also arrive by carpool and leave by bus for a quicker egress.

Average occupancy per Park and Ride bus changed slightly as well. In 2015, inbound buses carried an average of 54 passengers to the stadium and 66 passengers on return trips to the Park and Ride. In 2014 Metro occupancy per coach numbers were 63 for inbound trips and 68 for outbound trips. In 2015, Metro made an average of 99 inbound trips and 95 outbound trips, decreased from 123 inbound trips and 126 outbound trips made in 2014.

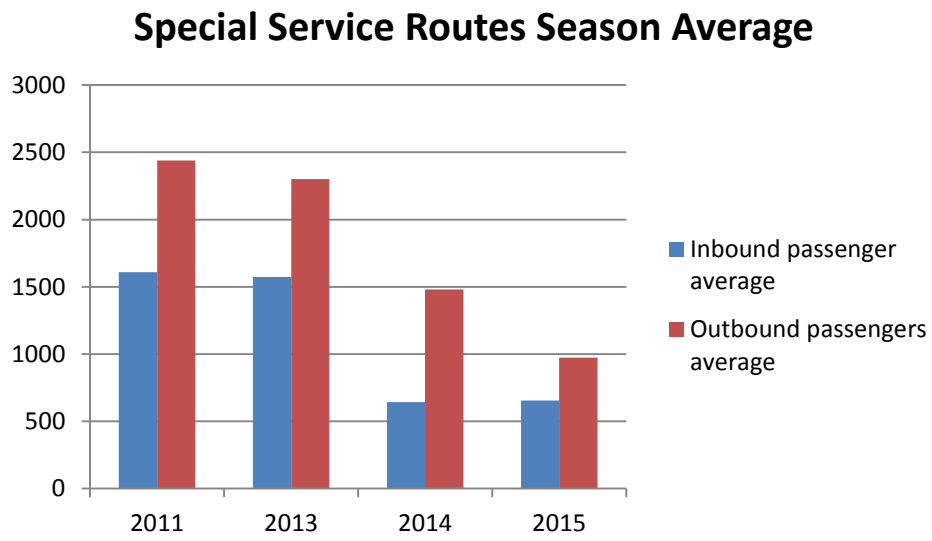

Figure 7, Seasonal passenger average for Husky Special service routes (excluding Apple Cup), 2015

According to Metro's data, the 2015 seasonal passenger average per game was 765 for inbound and 1,136 for outbound service on special routes. In 2014 the season average was 644 passengers arrived by special service routes and 1,480 passengers used the routes to leave the stadium.

In general, the larger outbound than inbound rate may reflect an attempt by spectators to avoid bus fares since the special service routes do not charge for rides away from the game. It may also reflect a practice of taking one mode of transportation to the game and then taking a bus away from the game.

Walking

Approximately 35.7% of the attendees walked to the stadium on game day, up from 18.9% in 2014. This is by far the highest count of attendees who walked to the stadium in survey history. The survey results showed a lot of attendees came from zip codes in the University District area. The increase in pedestrian traffic might be due to the fact that this was the homecoming game and it was a late kick-off. The weather was cloudy with light showers occurring at frequent intervals; the kickoff time for the game was 7:30PM.

Boats

Based on game day survey data, 2.6% of people arrived by boat on the survey game day, a decrease from 3.8% in 2014. This is low, but consistent with previously observed boat mode shares. People arriving by boat primarily enter through the SE gates. The refusal rate was higher at this gate than the other gates, potentially because the entrance was uncovered and people did not want to stand in the rain. This 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.

During the 2015 season, ICA's counts and estimation methods yielded an average of approximately 2,089 people arriving at Husky Stadium per game, representing 4.7% of game attendees. This is consistent with past ICA estimates. In 2015, the average game had 6 charter boats carrying a total of 1,186 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 2015, approximately 0.9% of surveyed attendees (506 attendees) arrived by bicycle, slightly higher than the percentage in 2014. In addition to survey responses, Transportation Services also conducted a count of bikes parked around Husky Stadium and at the bike valet on the survey game day. The bike valet had 52 bikes on the survey day. The count found a total of 118 bicycles parked around the stadium, representing 1.4% of total game attendance, a heavy decrease from 911 bike count in 2014. We need to take into consideration that the count for bikes in 2015 was done prior to kick-off, which might imply underestimation in the numbers. This huge change in number is very likely due to the inclement weather and late kick-off time. Utilization of the bike valet was high during the September games, likely due to the nice weather and early kickoff times. Games later in the season, especially evening games or games on rainy days, had lower utilization of the bike valet. Games which are held later in the year in cold evenings (sometimes even affected by rain) with a late kick-off affect the ridership. The count of bikes parked at racks does not necessarily represent only fans. There might be people who have parked their bike on campus but are not game attendees.

People working at the game may also park their bikes around the stadium. The area where the bike count was conducted shrank in 2015, which may have also had an impact on the number of bicycles counted on game day.

Other

In 2015, approximately 8.7% of survey responses indicated 'Other' for travel mode, up significantly from 4.1% in 2014. These 'Other' modes may include motorcycle, taxi, and limousine. It is not known for certain what forms of transportation are contributing to the growth in the 'Other' category. It could be possible that the growth in transportation network providers may be contributing to the increase in the 'Other' mode. There was a significant growth in services such as Sidecar, Lyft and Uber between 2011 and 2015 that provide alternatives to traditional taxis. According to a report by Seattle and King County, the number of limousines almost doubled from 600 to 1,100 between 2012 and 2013 in addition to a host of transportation network companies starting and expanding during that same time period.[2] The survey results show a growth of over 100% in the "Other" category, which suggests further the constant growth in usage of transportation network companies. The proliferation of Uber into more locations and introduction of new service lines like Uber Black and UberXL provides more choices for travelers to choose from depending on their needs. While some regulation was implemented in 2013 capping transportation network provider services, the number of new entrants to the Seattle market may be contributing to the growth of the "Other" category.

With the growing interest in utilizing transportation network companies (TNC) such as Uber and Lyft programs, ICA worked with Uber to have attendees walk to a specific part of campus to be picked up by Uber after the game (Figure 5). While specific data was not available about TNC modes in 2015, this growing mode needs to be more fully considered in further Husky Stadium transportation studies. In addition to the growth in respondents who chose "other", the survey results showed a big increase in people who drove to the game or were dropped off. It is possible that some of the people who said they were dropped off also used TNC services.

[2] Seattle City Council. (2013). *City of Seattle and King County Taxi, For Hire Vehicle and Limousine Services Demand Study Final Report.* http://www.seattle.gov/council/issues/taxis/13100301JC%20Seattle%20Final%20Report%20Master.pdf

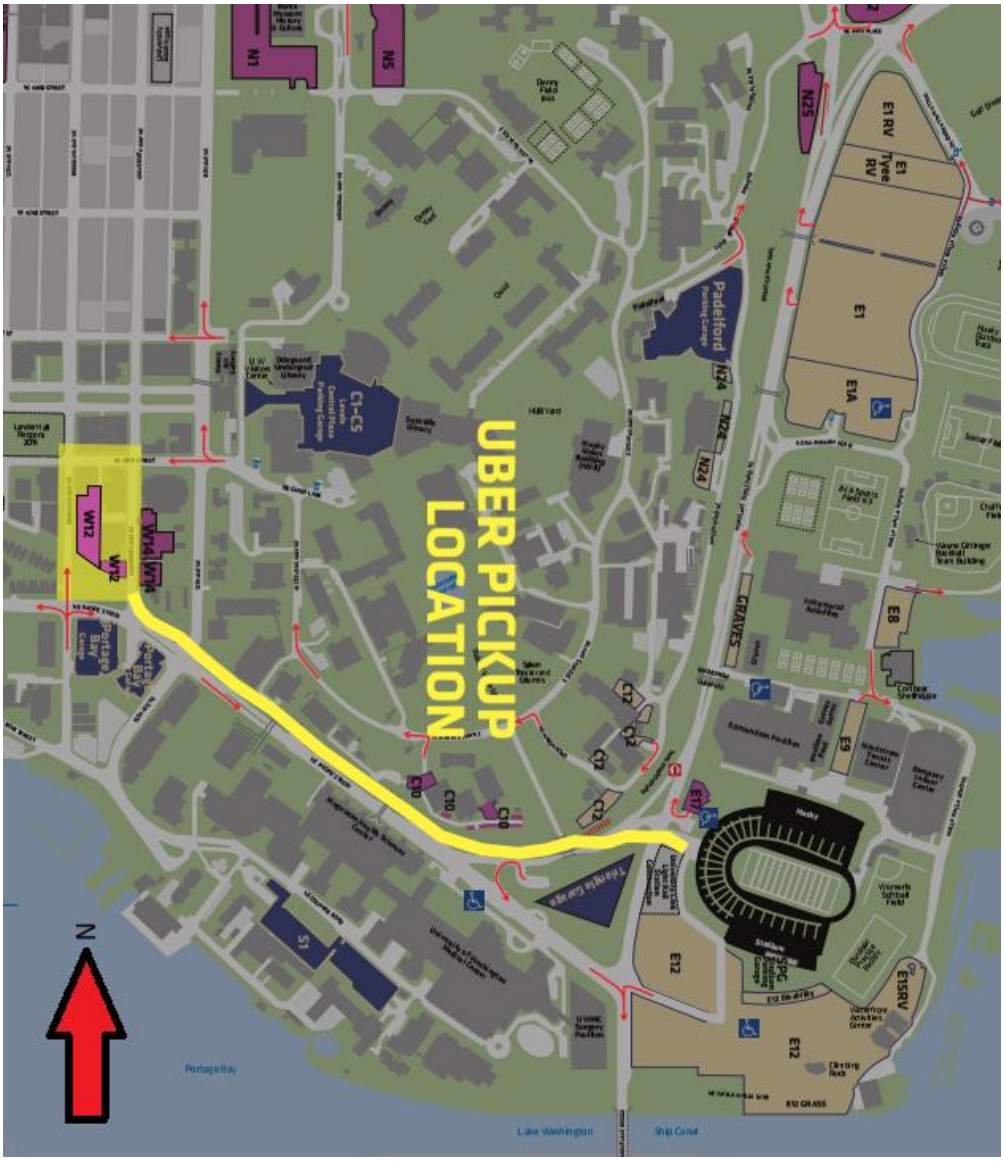

Figure 8, Uber Pickup location

Pre-Expansion Comparison

Figure 9 compares actual 2015 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 game day data. The actuals are better than the expectations of the 1986 Stadium Expansion Parking Plan TMP in all major categories. At 32.7%, 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 19.6% of attendees arriving by bus in 2015, transit ridership has exceeded 1986's projection of 16%.

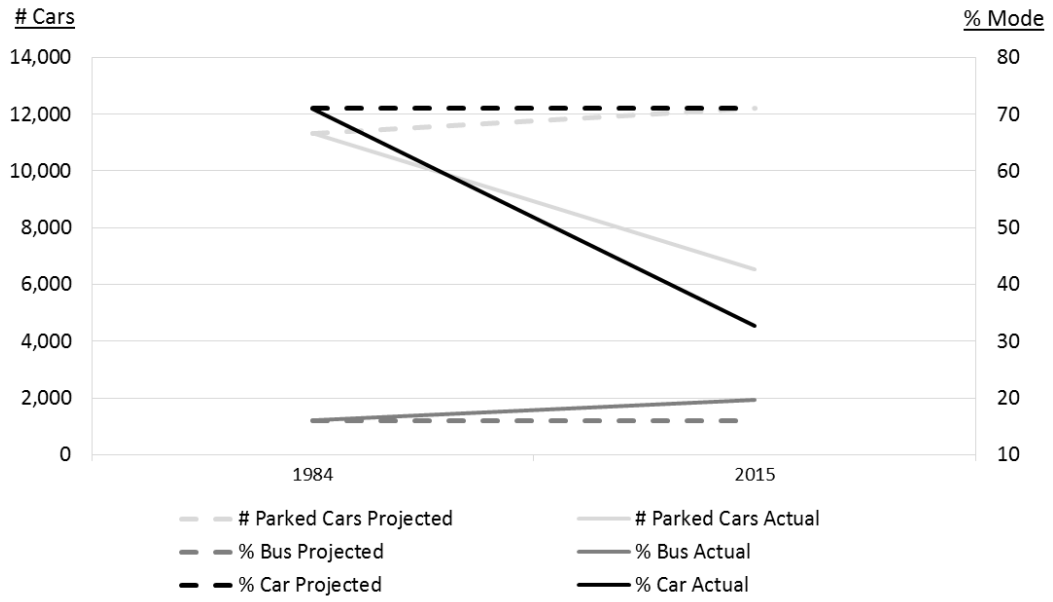

Figure 9, Comparison of Baseline, Actual, and Projected Travel Behavior

Neighborhood Parking Impact Areas

Figure 3 shows the neighborhood parking impact areas defined in City Council Resolution 27435. Portions of these parking impact areas have Special Event RPZs (Residential Parking Zone) for football game days. On the October 17th survey day, an estimated 3,235 people parked in the neighborhood parking impact areas in 1,253 automobiles, a decrease over 2014's survey day with 4,394 people in 1,713 automobiles and a decrease from 2011's 5,639 people in 1,978 automobiles. . In addition to the cars parked in impact areas, an estimated 222 cars parked in neighborhoods outside of the impact areas. This was similar to, but lower than 2013's 495 cars and 2014's 428 cars.

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 all seven games for the 2015 season. On average, 170 citations were issued per game, a decrease from 157 average citations per game in 2014. The number of RPZ citations increased slightly from 2014 season; in 2014 there were 139 citations, while in 2015 there were 144 citations. 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 2015 season was 0.69, which is equal to the 2014's average.

	Average police resources per game		Average citations per game			Average citations per officer hour
Year	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

Table 7, Average 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 1,166 respondents who also gave their home zip code in Washington State.

The maps chart two distinct areas, broken down by zip code. The first type of map is state wide and the second type of map is of the Puget Sound area along the I-5 corridor, spanning from Everett to Olympia.

These two maps represent the total sample of all respondents who fully answered the survey questions. The key above describes the range of respondents that came from each zip code, with unfilled zip codes having no respondents and purple zip codes having respondents in the sample. A darker shade of purple represents a higher concentration of respondents from that zip code.

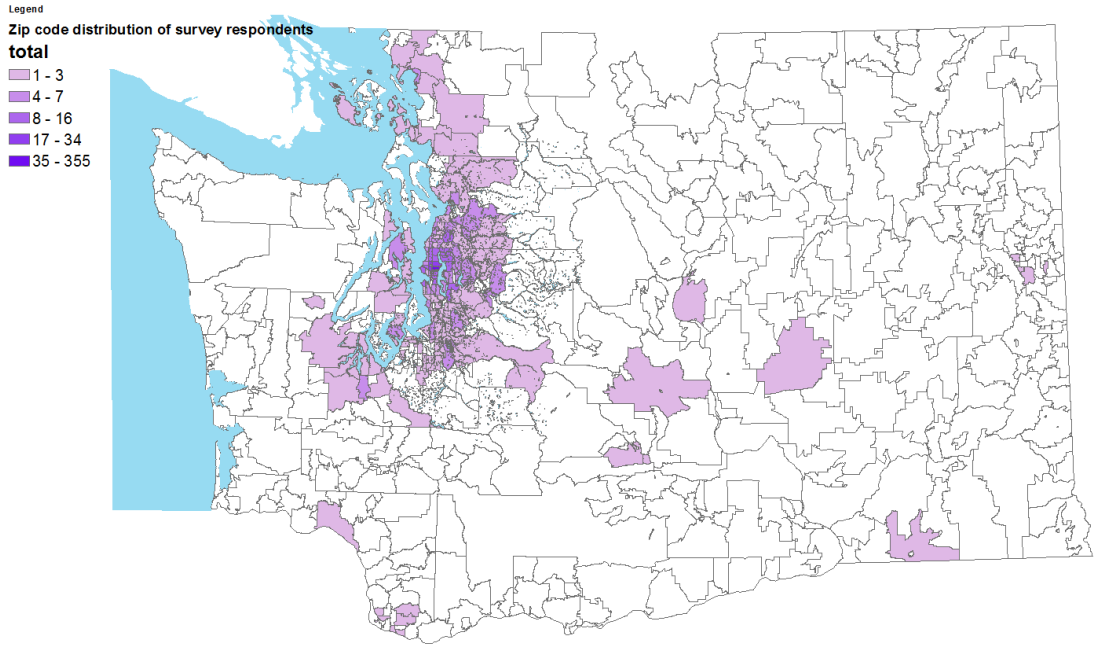

Figure 10, State-wide map of survey respondents by zip code, 2015

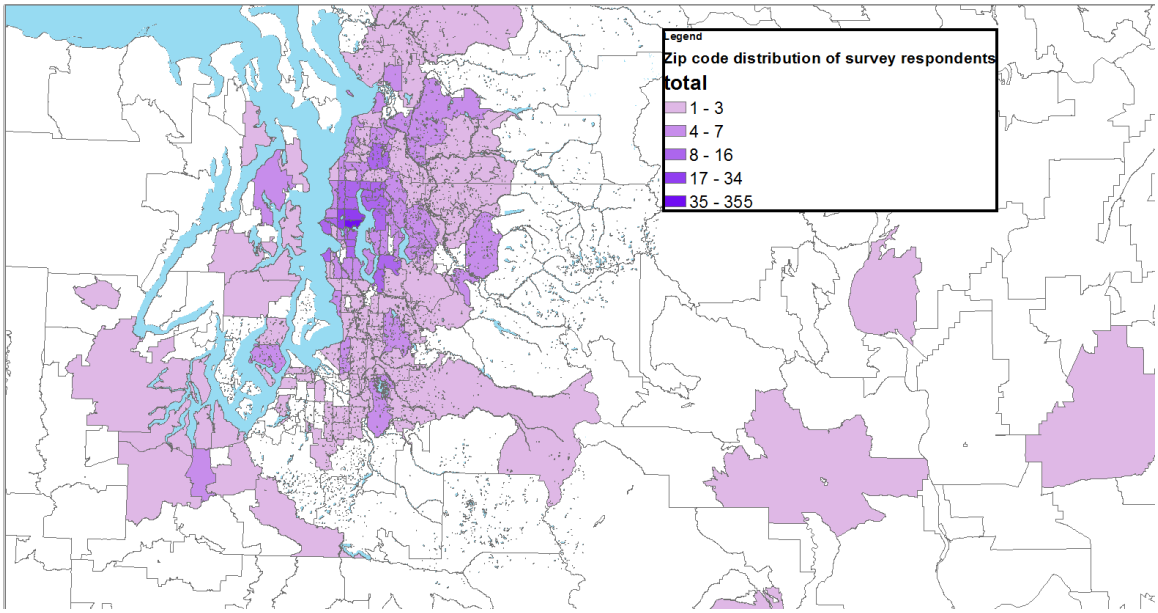

Figure 11, Puget Sound map of survey respondents by zip code, 2015.

The mode share maps below represent different numbers of people, but share the same color scheme.

Walking

Respondents who walked to the game were primarily local to the Seattle area. The dark purple area is the 98105 zip code where the University of Washington and Husky Stadium are located. Respondents from outside of Seattle likely used multiple forms of transportation, including walking, to get to the game, or may have traveled to the stadium from a location other than their home.

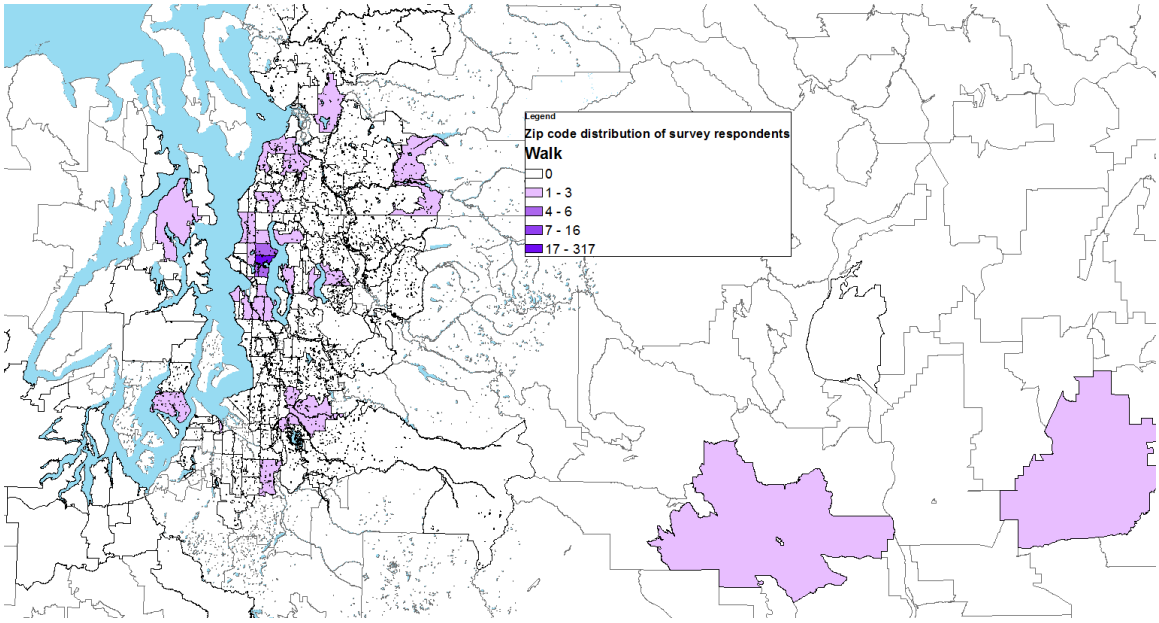

Figure 12, Puget Sound map of respondents who walked to the game, 2015

Biking

Survey respondents who biked to the game came entirely from the Puget Sound area. Cycling tends to be a highly localized form of transport and less than a percent of respondents cycled to the game. Respondents from outside of Seattle may have used multiple forms of transportation to get to the game, or may have traveled to the stadium from a location other than their home.

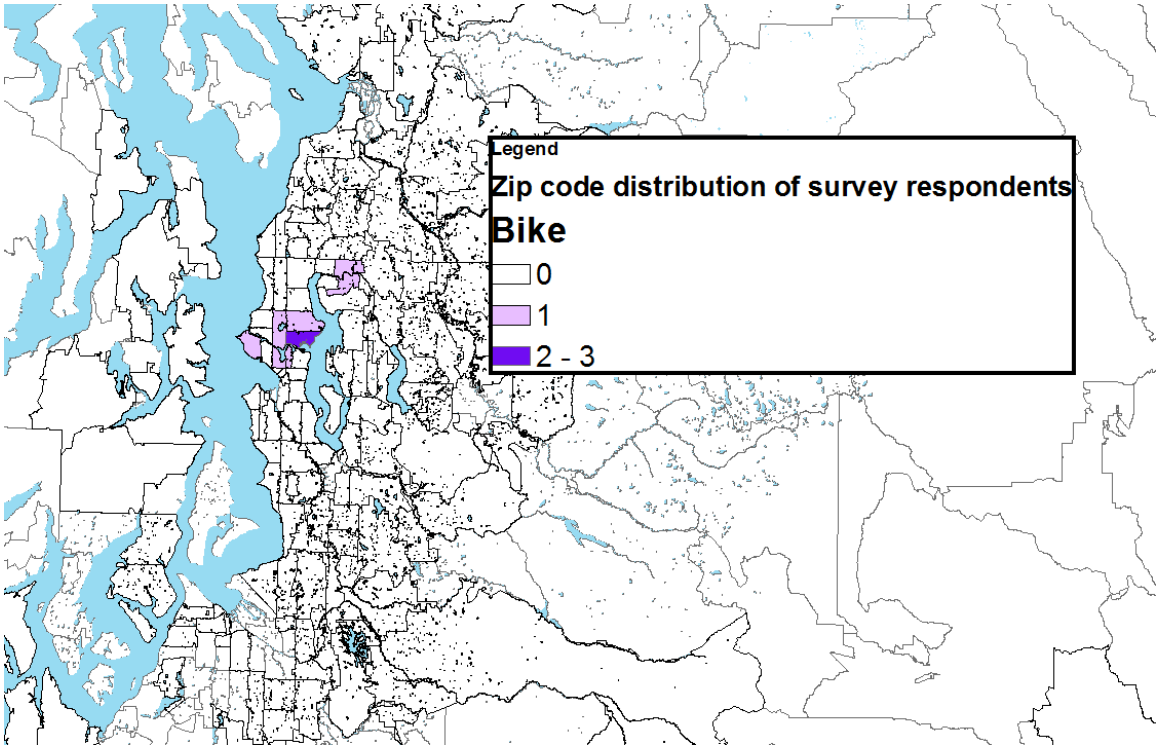

Figure 13, Puget Sound map of respondents who biked to the game, 2015

Boat

Respondents who attended the game by boat came almost entirely from the Puget Sound area. The respondents were spread across the area, in sparse concentrations. Respondents from non-water adjacent zip codes may have used other forms of transportation to get to the game or may have traveled from locations other than their home.

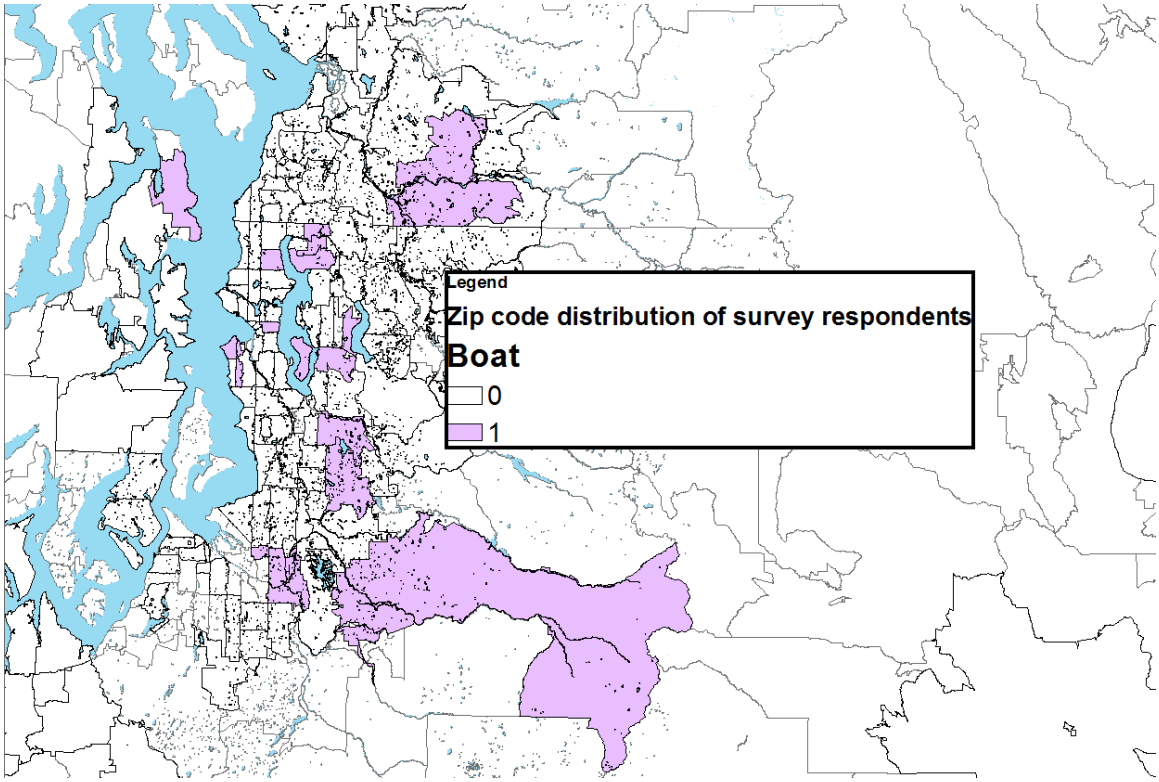

Figure 14, Puget Sound map of respondents who boated to the game, 2015

Drive-ride

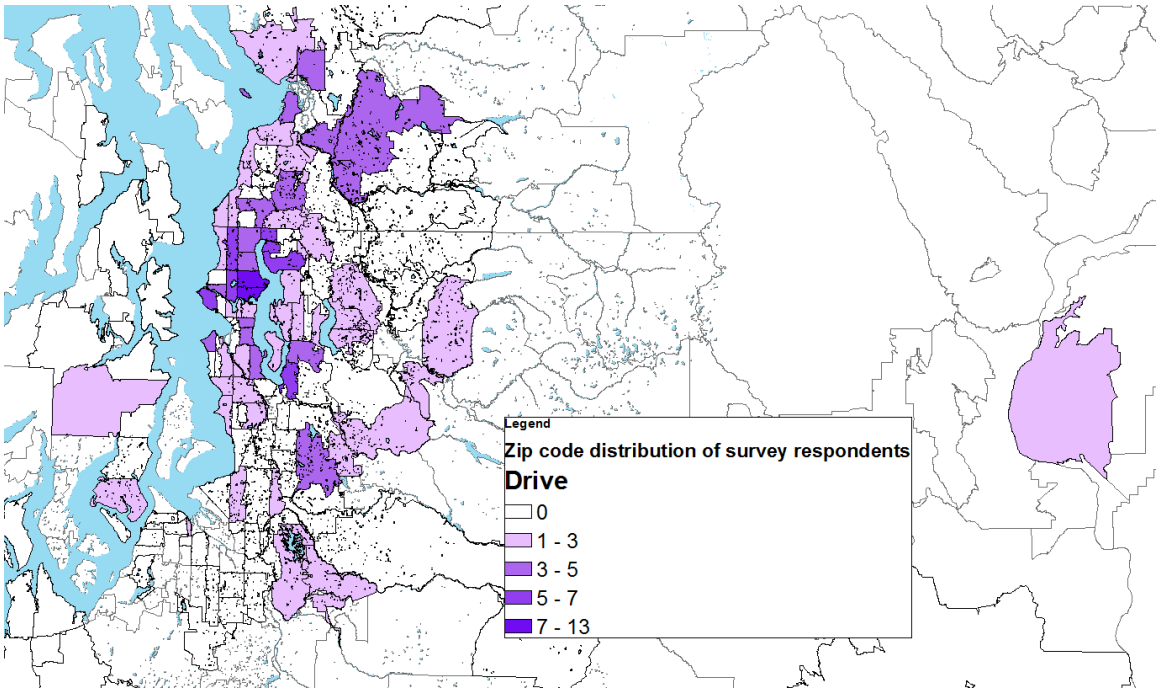

Figure 25, Puget Sound map of respondents who drove to the game, 2015

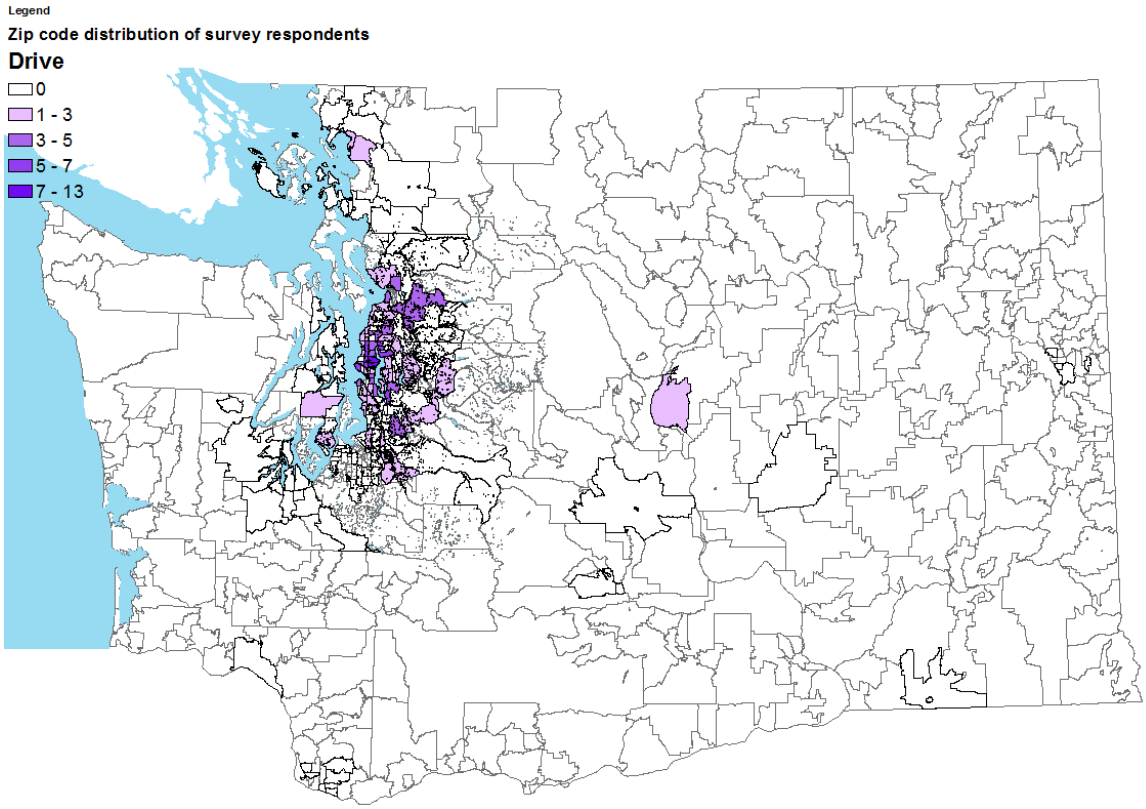

Figure 16, State map of respondent who drove or rode to the game, 2015

The drive-ride mode share was well-represented both in the Puget Sound region and spread across the state. The lack of alternatives to driving for state-wide travel likely account for mode-share trends for attendees outside of the Puget Sound area.

Bus

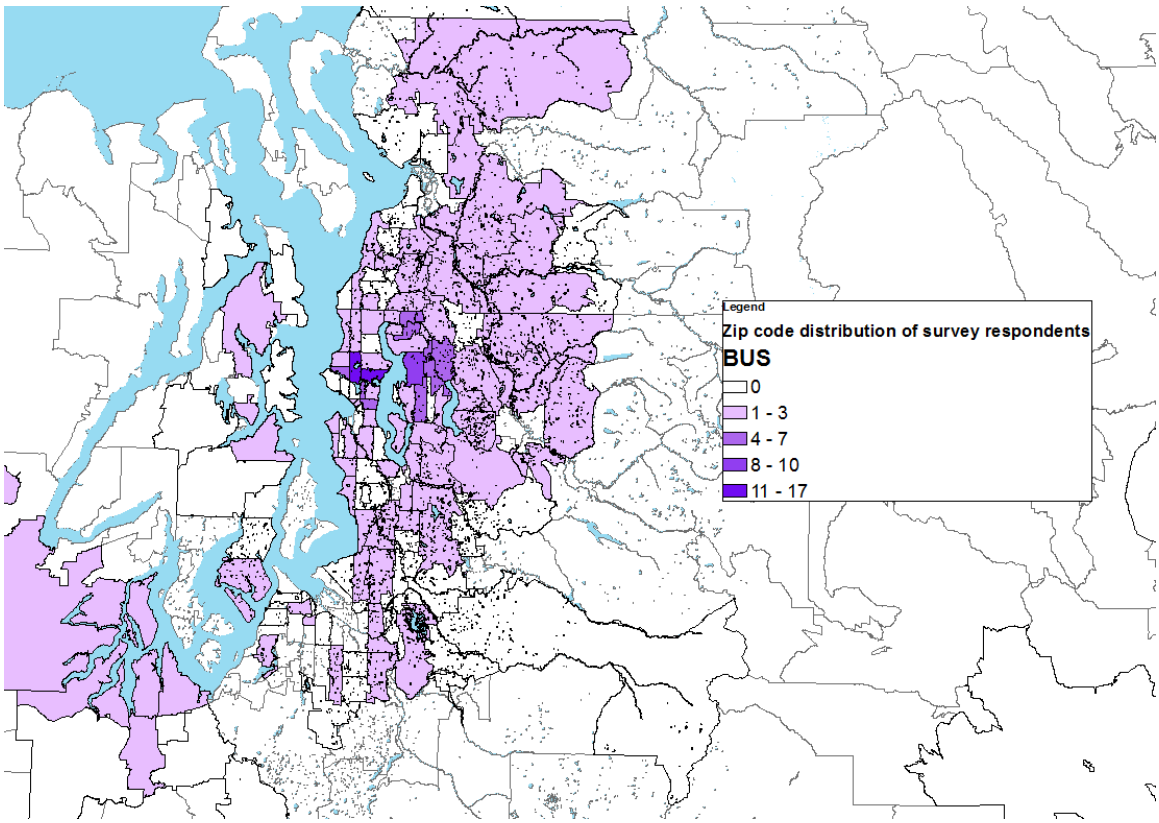

Figure 17, Puget Sound map of respondents who took bus to the game 2015

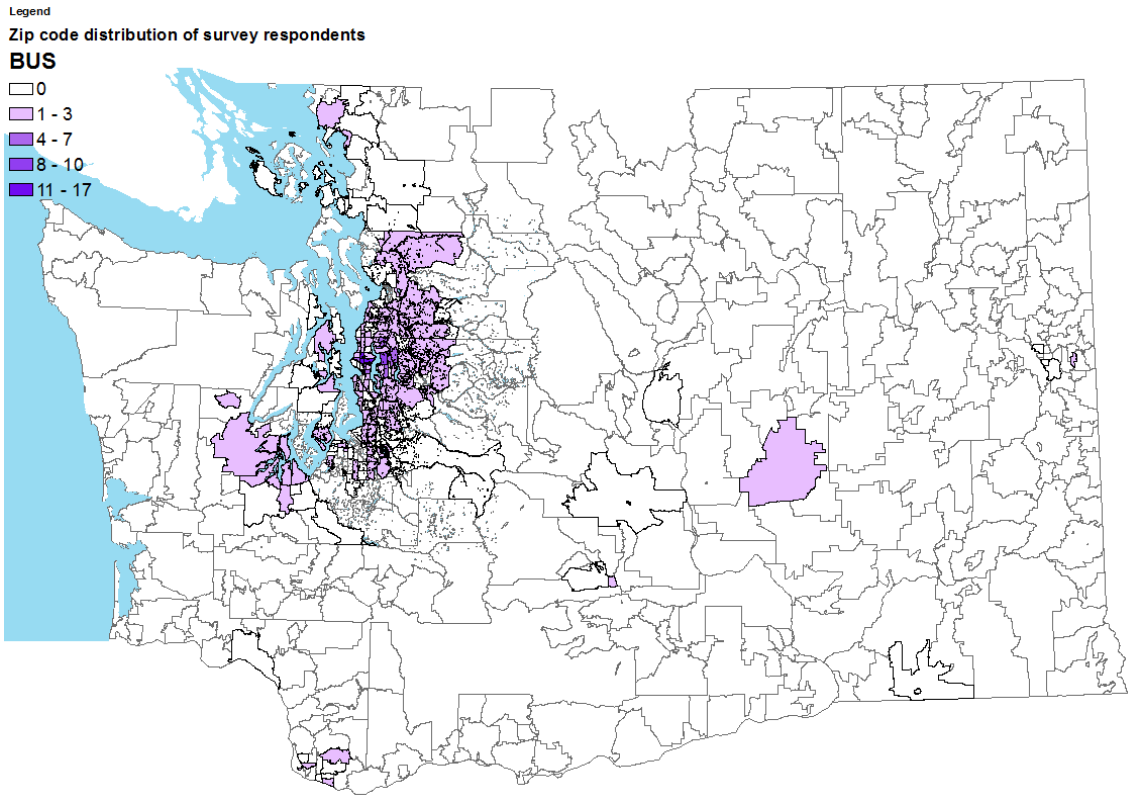

Figure 18, State map of respondents who took bus to the game, 2015

Respondents that took bus to Husky Stadium came primarily from the Puget Sound region, but some were from outside the Puget Sound region. The amount of respondents from each zip code represented in the survey is fairly even spread suggesting transit was an attractive option for fans coming from many locations throughout the region.

Other

Respondents who used other modes of transportation, such as Uber or Lyft, came entirely from the Puget Sound region.

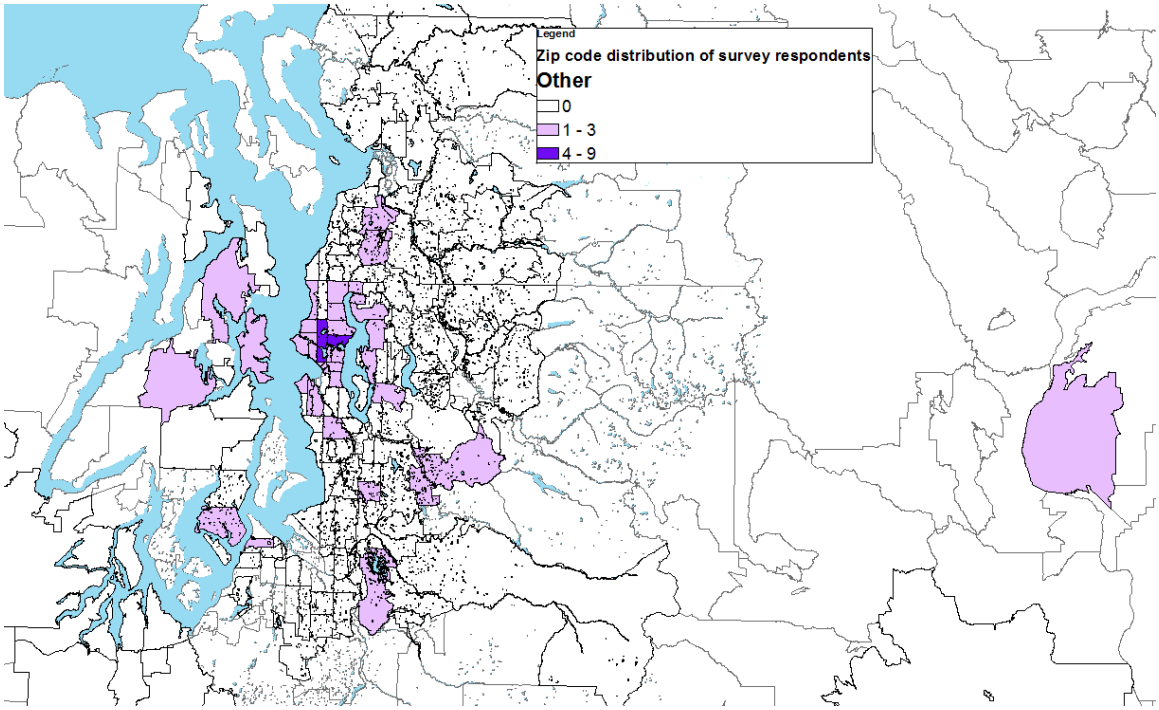

Figure 19, Puget Sound map of respondents who used other modes of transport, 2015

Conclusions

The TMP continues to successfully encourage fans to travel to games by modes other than single occupancy vehicles. Only 2.3% of attendees drove alone, which is below the share from last year. The Husky TMP's carpool incentives continue to work well, resulting in an average load of 2.8 passengers per vehicle arriving for the game. The effects of the new transit system fare seem to have shifted rider behavior slightly, but the 19.6% mode share is still above the 1987 established TMP benchmarks. The percentage of people who reported walking to the game reached an unprecedented 35.7% and 2.6% of all attendees arrived by boat.

The introduction of the new neighborhood zones to the impact area map used in the intercept survey continues to allow for a more fine-grained approach to monitoring parking in the neighborhood impact areas. The zip code mapping included this year provided a picture of the geographic distribution of the Husky survey sample.

Altogether, the intercept survey and other collected data show that the University continues to meet its goals of reducing auto trips to the stadium area and minimizing parking impacts on surrounding neighborhoods.

University of Washington | Transportation Services
University Transportation Center | Box 355360
3745 15th Ave NE | Seattle Washington | 98105
For additional information, contact:
Celeste Gilman | Commute Options Manager
(206) 685-4380 | cgilman@uw.edu
www.uwcommute.com