Washington State Ferries

2006 Origin Destination Onboard Survey

Analysis Report

June 2007

Washington State Department of Transportation

final report

Washington State Ferries 2006 Origin Destination Onboard Survey

Analysis Report

prepared for

Washington State Ferries and Washington State Department of Transportation

prepared by

Cambridge Systematics, Inc.
3239 198th Place SE
Sammamish, WA 98075

with

NuStats Incorporated
RST International, Inc.

date

June 2007

Table of Contents

1.0 Executive Summary 1-1
1.1 Purpose of the Study 1-2
1.2 Previous Survey Efforts 1-3
1.3 Key Findings and Trends 1-4
1.4 Policy and Programming Implications 1-9
1.5 Contents of the Report 1-11

2.0 Overview of Survey Methods 2-1
2.1 Survey Design 2-2
2.2 Survey Procedures and Methodology 2-3
2.3 Survey Expansion 2-4
2.4 Survey Precision 2-7
2.5 Survey Data Files and Geocoding 2-8
2.6 Survey Summary Tables 2-13
2.7 Survey Conclusions 2-13

3.0 Systemwide Market Trends 3-1
3.1 Market Trends 3-1
3.2 Geographic Travel Patterns 3-5
3.3 Ferry Travel Characteristics 3-8
3.4 Access and Egress Travel Characteristics 3-15
3.5 Demographic Characteristics 3-23

4.0 Corridor Travel Markets 4-1
4.1 San Juan Islands Corridor Findings 4-3
4.2 North Sound Corridor Findings 4-4
4.3 Central Sound Corridor Findings 4-6
4.4 South Sound Corridor Findings 4-7

5.0 San Juan Islands Corridor 5-1
5.1 Anacortes-San Juan Islands (Include Inter- Island Routes) 5-19
5.2 Anacortes-Sidney, British Columbia 5-48

6.0 North Sound Corridor 6-1
6.1 Port Townsend-Keystone 6-17
6.2 Mukilteo-Clinton 6-48

7.0 Central Sound Corridor 7-1
7.1 Seattle-Bainbridge 7-18
7.2 Seattle-Bremerton 7-54
7.3 Edmonds-Kingston 7-87

8.0 South Sound Corridor 8-1
8.1 Seattle-Vashon Passenger-Only 8-20
8.2 Fauntleroy-Vashon 8-39
8.3 Fauntleroy-Southworth 8-72
8.4 Southworth-Vashon 8-105
8.5 Point Defiance-Tahlequah 8-137

9.0 Seattle Supplemental Surveys 9-1
9.1 Access and Egress Modes 9-1
9.2 Personal Safety 9-7
9.3 Alternative Modes 9-8
9.4 Years Traveling on the Ferry 9-10

Appendix A Survey Questionnaire A-1

Appendix B Seattle Supplement B-1

List of Tables

Table 2.1 Boardings and Sailings Universe 2-4

Table 2.2 Average Expansion Factor Weights 2-6

Table 2.3 Weekday P.M. Peak Usable Samples and Precision Estimates 2-8

Table 2.4 WSF Transportation Analysis Zone System 2-9

Table 2.5 Geocoding Result Summary 2-12

Table 3.1 Origin-Destination Survey Systemwide Summary 3-2

Table 3.2 Systemwide Trips by Purpose and Frequency 3-9

Table 3.3 Systemwide Trips by Direction and Time-of-Day 3-11

Table 3.4 Systemwide Access and Boarding Modes 3-18

Table 3.5 Systemwide Egress and Boarding Modes 3-19

Table 3.6 Systemwide Destination Vehicles 3-22

Table 5.1 San Juan Islands Corridor Trips by Purpose and Frequency 5-3

Table 5.2 San Juan Islands Corridor Access Mode and Boarding Method 5-10

Table 5.3 San Juan Island Corridor Egress Mode and Boarding Method 5-11

Table 5.4 San Juan Islands Corridor Destination Vehicles 5-14

Table 5.5 San Juan Islands Corridor Preferred Sailing 5-16

Table 5.6 Anacortes-San Juan Islands Trips by Purpose and Direction 5-20

Table 5.7 Anacortes-San Juan Islands Trips by Time-of-Day and Direction [a] 5-21

Table 5.8 Anacortes-San Juan Islands Trips by Purpose and Frequency 5-22

Table 5.9 Anacortes-San Juan Islands Trips by Access Mode and Boarding Method 5-28

Table 5.10 Anacortes-San Juan Islands Trips by Egress Mode and Boarding Method 5-29

Table 5.11 Anacortes-San Juan Islands Weekday Eastbound Boardings by Origin and Destination District 5-34

Table 5.12 Anacortes-San Juan Weekday Westbound Boardings by Origin and Destination District 5-38

Table 5.13 Anacortes-San Juan Islands Weekend Eastbound Boardings by Origin and Destination District 5-42

Table 5.14 Anacortes-San Juans Weekend Westbound Origins and Destinations 5-46
Table 5.15 Anacortes-Sidney Trips by Purpose and Direction 5-49
Table 5.16 Anacortes-Sidney Trips by Purpose and Frequency 5-51
Table 5.17 Anacortes-Sidney Weekday Eastbound Boardings by Origin and Destination District 5-62
Table 5.18 Anacortes-Sidney Weekday Westbound Boardings by Origin and Destination District 5-64
Table 5.19 Anacortes-Sidney Weekend Eastbound Boardings by Origin and Destination District 5-67
Table 5.20 Anacortes-Sidney Weekend Westbound Boardings by Origin and Destination District 5-69
Table 6.1 North Sound Corridor Trips by Purpose and Frequency 6-3
Table 6.2 North Sound Corridor Access Mode and Boarding Method 6-9
Table 6.3 North Sound Corridor Egress Mode and Boarding Method 6-10
Table 6.4 North Sound Corridor Destination Vehicles 6-13
Table 6.5 North Sound Corridor Preferred Sailing 6-14
Table 6.6 Port Townsend-Keystone Trips by Purpose and Direction 6-18
Table 6.7 Port Townsend-Keystone Trips by Time-of-Day and Direction [a] ... 6-19
Table 6.8 Port Townsend-Keystone Trips by Purpose and Frequency 6-20
Table 6.9 Port Townsend-Keystone Trips by Purpose and Time-of-Day 6-22
Table 6.10 Port Townsend-Keystone Trips by Access Mode and Boarding Method 6-28
Table 6.11 Port Townsend-Keystone Trips by Egress Mode and Boarding Method 6-29
Table 6.12 Port Townsend-Keystone Weekday Eastbound Boardings by Origin and Destination District 6-34
Table 6.13 Port Townsend-Keystone Weekday Westbound Boardings by Origin and Destination District 6-38
Table 6.14 Port Townsend-Keystone Weekend Eastbound Boardings by Origin and Destination District 6-42
Table 6.15 Port Townsend-Keystone Weekend Westbound Boardings by Origin and Destination District 6-46
Table 6.16 Mukilteo-Clinton Trips by Purpose and Direction 6-49

Table 6.17 Mukilteo-Clinton Trips by Time-of-Day and Direction [a] 6-50
Table 6.18 Mukilteo-Clinton Trips by Purpose and Frequency 6-51
Table 6.19 Mukilteo-Clinton Trips by Purpose and Time-of-Day 6-53
Table 6.20 Mukilteo-Clinton Trips by Access Mode and Boarding Method 6-58
Table 6.21 Mukilteo-Clinton Trips by Egress Mode and Boarding Method 6-60
Table 6.22 Mukilteo-Clinton Weekday Eastbound Boardings by Origin and Destination District 6-65
Table 6.23 Mukilteo-Clinton Weekday Westbound Boardings by Origin and Destination District 6-69
Table 6.24 Mukilteo-Clinton Weekend Eastbound Boardings by Origin and Destination District 6-73
Table 6.25 Mukilteo-Clinton Weekend Westbound Boardings by Origin and Destination District 6-77
Table 7.1 Central Sound Corridor Trips by Purpose and Frequency 7-3
Table 7.2 Central Sound Corridor Trips by Access Mode and Boarding Method 7-10
Table 7.3 Central Sound Corridor Trips by Egress Mode and Boarding Method 7-11
Table 7.4 Central Sound Corridor Destination Vehicles 7-14
Table 7.5 Central Sound Corridor Preferred Sailing 7-15
Table 7.6 Seattle-Bainbridge Trips by Purpose and Direction 7-19
Table 7.7 Seattle-Bainbridge Trips by Time-of-Day and Direction [a] 7-20
Table 7.8 Seattle-Bainbridge Trips by Purpose and Frequency 7-22
Table 7.9 Seattle-Bainbridge Trips by Purpose and Time-of-Day 7-23
Table 7.10 Seattle-Bainbridge Trips by Access Mode and Boarding Method 7-28
Table 7.11 Seattle-Bainbridge Trips by Egress Mode and Boarding Method .. 7-30
Table 7.12 Seattle-Bainbridge Weekday Eastbound Boardings by Origin and Destination District 7-36
Table 7.13 Seattle-Bainbridge Weekday Westbound Boardings by Origin and Destination District 7-41
Table 7.14 Seattle-Bainbridge Weekend Eastbound Boardings by Origin and Destination District 7-46

Table 7.15 Seattle-Bainbridge Weekend Westbound Boardings by Origin and Destination District 7-51

Table 7.16 Seattle-Bremerton Trips by Purpose and Direction 7-55

Table 7.17 Seattle-Bremerton Trips by Time-of-Day and Direction [a] 7-56

Table 7.18 Seattle-Bremerton Trips by Purpose and Frequency 7-57

Table 7.19 Seattle-Bremerton Trips by Purpose and Time-of-Day 7-59

Table 7.20 Seattle-Bremerton Trips by Access Mode and Boarding Method ... 7-64

Table 7.21 Seattle-Bremerton Trips by Egress Mode and Boarding Method ... 7-66

Table 7.22 Seattle-Bremerton Weekday Eastbound Boardings by Origin and Destination District 7-72

Table 7.23 Seattle-Bremerton Weekday Westbound Boardings by Origin and Destination District 7-77

Table 7.24 Seattle-Bremerton Weekend Eastbound Boardings by Origin and Destination District 7-81

Table 7.25 Seattle-Bremerton Weekend Westbound Boardings by Origin and Destination District 7-85

Table 7.26 Edmonds-Kingston Trips by Purpose and Direction 7-88

Table 7.27 Edmonds-Kingston Trips by Time-of-Day and Direction [a] 7-89

Table 7.28 Edmonds-Kingston Trips by Purpose and Frequency 7-91

Table 7.29 Edmonds-Kingston Trips by Purpose and Time-of-Day 7-93

Table 7.30 Edmonds-Kingston Trips by Access Mode and Boarding Method 7-99

Table 7.31 Edmonds-Kingston Trips by Egress Mode and Boarding Method 7-100

Table 7.32 Edmonds-Kingston Weekday Eastbound Boardings by Origin and Destination District 7-106

Table 7.33 Edmonds-Kingston Weekday Westbound Boardings by Origin and Destination District 7-111

Table 7.34 Edmonds-Kingston Weekend Eastbound Boardings by Origin and Destination District 7-116

Table 7.35 Edmonds-Kingston Weekend Westbound Boardings by Origin and Destination District 7-121

Table 8.1 South Sound Corridor Trips by Purpose and Frequency 8-3

Table 8.2 South Sound Corridor Trips by Access Mode and Boarding Method 8-10

Table 8.3 South Sound Corridor Trips by Egress Mode and Boarding Method 8-11

Table 8.4 South Sound Corridor Destination Vehicles 8-15

Table 8.5 South Sound Corridor Preferred Sailing 8-17

Table 8.6 Seattle-Vashon Passenger-Only Trips by Purpose and Direction 8-21

Table 8.7 Seattle-Vashon Passenger-Only Trips by Time-of-Day and Direction 8-22

Table 8.8 Seattle-Vashon Passenger-Only Trips by Purpose and Frequency 8-23

Table 8.9 Seattle-Vashon Passenger-Only Trips by Purpose and Time-of-Day 8-24

Table 8.10 Seattle-Vashon Passenger-Only Trips by Access Mode and Boarding Method 8-28

Table 8.11 Seattle-Vashon Passenger-Only Trips by Egress Mode and Boarding Method 8-29

Table 8.12 Seattle-Vashon Passenger-Only Weekday Eastbound Boardings by Origin and Destination District 8-33

Table 8.13 Seattle-Vashon Passenger-Only Weekday Westbound Boardings by Origin and Destination District 8-37

Table 8.14 Fauntleroy-Vashon Trips by Purpose and Frequency 8-40

Table 8.15 Fauntleroy-Vashon Trips by Time-of-Day and Direction [a] 8-42

Table 8.16 Fauntleroy-Vashon Trips by Purpose and Direction 8-43

Table 8.17 Fauntleroy-Vashon Trips by Purpose and Time-of-Day 8-45

Table 8.18 Fauntleroy-Vashon Trips by Access Mode and Boarding Method 8-50

Table 8.19 Fauntleroy-Vashon Trips by Egress Mode and Boarding Method 8-52

Table 8.20 Fauntleroy-Vashon Weekday Eastbound Boardings by Origin and Destination District 8-58

Table 8.21 Fauntleroy-Vashon Weekday Westbound Boardings by Origin and Destination District 8-62

Table 8.22 Fauntleroy-Vashon Weekend Eastbound Boardings by Origin and Destination District 8-66

Table 8.23 Fauntleroy-Vashon Weekend Westbound Boardings by Origin and Destination District 8-70

Table 8.24 Fauntleroy-Southworth Trips by Purpose and Frequency 8-73

Table 8.25 Fauntleroy-Southworth Trips by Time-of-Day and Direction[a] 8-75

Table 8.26 Fauntleroy-Southworth Trips by Purpose and Direction 8-76

Table 8.27 Fauntleroy-Southworth Trips by Purpose and Time-of-Day 8-78

Table 8.28 Fauntleroy-Southworth Trips by Access Mode and Boarding Method 8-83

Table 8.29 Fauntleroy-Southworth Trips by Egress Mode and Boarding Method 8-85

Table 8.30 Fauntleroy-Southworth Weekday Eastbound Boardings by Origin and Destination District 8-91

Table 8.31 Fauntleroy-Southworth Weekday Westbound Boardings by Origin and Destination District 8-95

Table 8.32 Fauntleroy-Southworth Weekend Eastbound Boardings by Origin and Destination District 8-99

Table 8.33 Fauntleroy-Southworth Weekend Westbound Boardings by Origin and Destination District 8-103

Table 8.34 Southworth-Vashon Trips by Purpose and Direction 8-106

Table 8.35 Southworth-Vashon Trips by Time-of-Day and Direction [a] 8-107

Table 8.36 Southworth-Vashon Trips by Purpose and Frequency 8-108

Table 8.37 Southworth-Vashon Trips by Purpose and Time-of-Day 8-110

Table 8.38 Southworth-Vashon Trips by Access Mode and Boarding Method 8-115

Table 8.39 Southworth-Vashon Trips by Egress Mode and Boarding Method 8-117

Table 8.40 Southworth-Vashon Weekday Eastbound Boardings by Origin and Destination District 8-123

Table 8.41 Southworth-Vashon Weekday Westbound Boardings by Origin and Destination District 8-127

Table 8.42 Southworth-Vashon Weekend Eastbound Boardings by Origin and Destination District 8-131

Table 8.43 Southworth-Vashon Weekend Westbound Boardings by Origin and Destination District 8-135

Table 8.44 Point Defiance-Tahlequah Trips by Purpose and Direction 8-138

Table 8.45 Point Defiance-Tahlequah Trips by Time-of-Day and Direction [a] . 8-139

Table 8.46 Point Defiance-Tahlequah Trips by Purpose and Frequency 8-141

Table 8.47 Point Defiance-Tahlequah Trips by Purpose and Time-of-Day 8-142

Table 8.48 Point Defiance-Tahlequah Trips by Access Mode and Boarding Method 8-148

Table 8.49 Point Defiance-Tahlequah Trips by Egress Mode and Boarding Method 8-149

Table 8.50 Point Defiance-Tahlequah Weekday Northbound Boardings by Origin and Destination District 8-155

Table 8.51 Point Defiance-Tahlequah Weekday Southbound Boardings by Origin and Destination District 8-159

Table 8.52 Point Defiance-Tahlequah Weekend Northbound Boardings by Origin and Destination District 8-163

Table 8.53 Point Defiance-Tahlequah Weekend Southbound Boardings by Origin and Destination District 8-167

Table 9.1 Walk Access Trips to/from Seattle 9-3

Table 9.2 Drive Access Routes for Trips to/from Seattle 9-5

Table 9.3 Transit Access Operators to/from Seattle at Colman Dock 9-5

Table 9.4 Place to Get On/Off Transit to Access Ferry at Colman Dock 9-7

List of Figures

Figure 1.1 Washington State Ferry System Map 1-1

Figure 2.1 WSF 12-County TAZ System 2-10

Figure 2.2 Districts for Systemwide Analysis 2-11

Figure 3.1 Weekday Market Served – Rider Home Locations for All Routes 3-6

Figure 3.2 Weekend Market Served – Rider Home Locations for All Routes 3-7

Figure 3.3 Systemwide Frequency of Trips by Day of Week 3-10

Figure 3.4 Systemwide Round Trip Patterns by Day 3-13

Figure 3.5 Systemwide Round Trip Patterns by Route 3-14

Figure 3.6 Systemwide Party Size 3-15

Figure 3.7 Systemwide Access and Egress Modes 3-16

Figure 3.8 Systemwide Reasons for Taking a Vehicle 3-20

Figure 3.9 Systemwide Non-motorized Boardings 3-21

Figure 3.10 Systemwide Monthly Transit Costs 3-22

Figure 3.11 Systemwide Traveler Income by Survey Year 3-23

Figure 3.12 Systemwide Traveler Income by Boarding Mode 3-24

Figure 3.13 Systemwide Traveler Age 3-25

Figure 4.1 Corridor Travel Markets for the WSF System 4-1

Figure 4.2 Weekday Trips by Purpose and Corridor 4-3

Figure 4.3 Percent of Travelers keeping Vehicles or Bicycles at Destination Ferry Terminals 4-6

Figure 4.4 Average Number of Days per Week Riding the Ferry by Corridor 4-8

Figure 5.1 San Juan Islands Corridor Routes 5-1

Figure 5.2 San Juan Islands Corridor Frequency of Trips by Day of Week 5-4

Figure 5.3 San Juan Islands Corridor Round Trip Patterns by Day 5-6

Figure 5.4 San Juan Islands Corridor Round Trip Patterns by Route 5-8

Figure 5.5 San Juan Islands Corridor Access and Egress Modes 5-9

Figure 5.6 San Juan Islands Corridor Reasons for Taking a Vehicle 5-12

Figure 5.7 San Juan Islands Corridor Non-motorized Boardings.....5-13
Figure 5.8 San Juan Islands Corridor Monthly Transit Costs.....5-15
Figure 5.9 San Juan Islands Corridor Party Size.....5-17
Figure 5.10 San Juan Islands Corridor Traveler Age and Income 5-18
Figure 5.11 Anacortes-San Juan Islands Round Trip Patterns by Day.....5-24
Figure 5.12 Anacortes-San Juan Islands Round Trip Patterns by Route.....5-25
Figure 5.13 Anacortes-San Juan Islands Trips by Access and Egress Mode 5-27
Figure 5.14 Anacortes-San Juan Islands Trips by Wait Time 5-30
Figure 5.15 Anacortes-San Juan Islands Walk-On Passenger Parking Statistics 5-31
Figure 5.16 Anacortes-San Juan Islands Weekday Eastbound Origins and Destinations (2006) 5-33
Figure 5.17 Anacortes-San Juan Islands Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006).....5-35
Figure 5.18 Anacortes-San Juan Islands Weekday Westbound Origins and Destinations (2006) 5-37
Figure 5.19 Anacortes-San Juan Islands Weekday Westbound Origins and Destination Locations by Boarding Mode (2006).....5-39
Figure 5.20 Anacortes-San Juan Islands Weekend Eastbound Origins and Destinations (2006) 5-41
Figure 5.21 Anacortes-San Juan Islands Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006).....5-43
Figure 5.22 Anacortes-San Juan Islands Weekend Westbound Origins and Destinations (2006) 5-45
Figure 5.23 Anacortes-San Juan Islands Weekend Westbound Origins and Destination Locations by Boarding Mode (2006).....5-47
Figure 5.24 Anacortes-Sidney Round Trip Patterns by Day*When was the first half of your trip or when will you return?* 5-53
Figure 5.25 Anacortes-Sidney Round Trip Patterns by Mode.....5-55
Figure 5.26 Anacortes-Sidney Trips by Access and Egress Mode 5-57
Figure 5.27 Anacortes-Sidney Trips by Wait Time 5-58
Figure 5.28 Anacortes-Sidney Walk-On Passenger Parking Statistics 5-59
Figure 5.29 Anacortes-Sidney Weekday Eastbound Origins and Destinations (2006) 5-61

Figure 5.30 Anacortes-Sidney Weekday Westbound Origins and Destinations (2006) 5-63

Figure 5.31 Anacortes-Sidney Weekend Eastbound Origins and Destinations (2006) 5-66

Figure 5.32 Anacortes-Sidney Weekend Westbound Origins and Destinations (2006) 5-68

Figure 6.1 North Sound Corridor Routes 6-1

Figure 6.2 North Sound Corridor Frequency of Trips by Day of Week 6-4

Figure 6.3 North Sound Corridor Round Trip Patterns by Day 6-6

Figure 6.4 North Sound Corridor Round Trip Patterns by Route 6-7

Figure 6.5 North Sound Corridor Access and Egress Modes 6-8

Figure 6.6 North Sound Corridor Reasons for Taking a Vehicle 6-11

Figure 6.7 North Sound Corridor Non-Motorized Boardings 6-12

Figure 6.8 North Sound Corridor Monthly Transit Costs 6-13

Figure 6.9 North Sound Corridor Party Size 6-15

Figure 6.10 North Sound Corridor Traveler Age and Income 6-16

Figure 6.11 Port Townsend-Keystone Round Trip Patterns by Day 6-23

Figure 6.12 Port Townsend-Keystone Round Trip Patterns by Route 6-25

Figure 6.13 Port Townsend-Keystone Trips by Access and Egress Mode 6-26

Figure 6.14 Port Townsend-Keystone Trips by Wait Time 6-30

Figure 6.15 Port Townsend-Keystone Walk-On Passenger Parking Statistics 6-31

Figure 6.16 Port Townsend-Keystone Weekday Eastbound Origins and Destinations (2006) 6-33

Figure 6.17 Port Townsend-Keystone Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 6-35

Figure 6.18 Port Townsend-Keystone Weekday Westbound Origins and Destinations (2006) 6-37

Figure 6.19 Port Townsend-Keystone Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 6-39

Figure 6.20 Port Townsend-Keystone Weekend Eastbound Origins and Destinations (2006) 6-41

Figure 6.21 Port Townsend-Keystone Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 6-43

Figure 6.22 Port Townsend-Keystone Weekend Westbound Origins and Destinations (2006) 6-45
Figure 6.23 Port Townsend-Keystone Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 6-47
Figure 6.24 Mukilteo-Clinton Round Trip Patterns by Day 6-54
Figure 6.25 Mukilteo-Clinton Round Trip Patterns by Route 6-56
Figure 6.26 Mukilteo-Clinton Trips by Access and Egress Mode 6-57
Figure 6.27 Mukilteo-Clinton Trips by Wait Time 6-61
Figure 6.28 Mukilteo-Clinton Walk-On Passenger Parking Statistics 6-62
Figure 6.29 Mukilteo-Clinton Weekday Eastbound Origins and Destinations (2006) 6-64
Figure 6.30 Mukilteo-Clinton Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 6-66
Figure 6.31 Mukilteo-Clinton Weekday Westbound Origins and Destinations (2006) 6-68
Figure 6.32 Mukilteo-Clinton Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 6-70
Figure 6.33 Mukilteo-Clinton Weekend Eastbound Origins and Destinations (2006) 6-72
Figure 6.34 Mukilteo-Clinton Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 6-74
Figure 6.35 Mukilteo-Clinton Weekend Westbound Origins and Destinations (2006) 6-76
Figure 6.36 Mukilteo-Clinton Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 6-78
Figure 7.1 Central Sound Corridor Routes 7-1
Figure 7.2 Central Sound Corridor Frequency of Trips by Day of Week 7-4
Figure 7.3 Central Sound Corridor Round Trip Patterns by Day 7-6
Figure 7.4 Central Sound Corridor Round Trip Patterns by Route 7-7
Figure 7.5 Central Sound Corridor Access and Egress Modes 7-9
Figure 7.6 Central Sound Corridor Reasons for Taking a Vehicle 7-12
Figure 7.7 Central Sound Corridor Non-Motorized Boardings 7-13
Figure 7.8 Central Sound Corridor Monthly Transit Costs 7-14
Figure 7.9 Central Sound Corridor Party Size 7-16
Figure 7.10 Central Sound Corridor Traveler Age and Income 7-17

Figure 7.11 Seattle-Bainbridge Round Trip Patterns by Day 7-25
Figure 7.12 Seattle-Bainbridge Round Trip Patterns by Route 7-26
Figure 7.13 Seattle-Bainbridge Trips by Access and Egress Mode 7-27
Figure 7.14 Seattle-Bainbridge Trips by Wait Time 7-31
Figure 7.15 Seattle-Bainbridge Walk-On Passenger Parking Statistics 7-33
Figure 7.16 Seattle-Bainbridge Weekday Eastbound Origins and Destinations (2006) 7-35
Figure 7.17 Seattle-Bainbridge Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 7-38
Figure 7.18 Seattle-Bainbridge Weekday Westbound Origins and Destinations (2006) 7-40
Figure 7.19 Seattle-Bainbridge Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 7-43
Figure 7.20 Seattle-Bainbridge Weekend Eastbound Origins and Destinations (2006) 7-45
Figure 7.21 Seattle-Bainbridge Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 7-48
Figure 7.22 Seattle-Bainbridge Weekend Westbound Origins and Destinations (2006) 7-50
Figure 7.23 Seattle-Bainbridge Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 7-53
Figure 7.24 Seattle-Bremerton Round Trip Patterns by Day 7-60
Figure 7.25 Seattle-Bremerton Round Trip Patterns by Route 7-62
Figure 7.26 Seattle-Bremerton Trips by Access and Egress Mode 7-63
Figure 7.27 Seattle-Bremerton Trips by Wait Time 7-67
Figure 7.28 Seattle-Bremerton Walk-On Passenger Parking Statistics 7-69
Figure 7.29 Seattle-Bremerton Weekday Eastbound Origins and Destinations (2006) 7-71
Figure 7.30 Seattle-Bremerton Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 7-74
Figure 7.31 Seattle-Bremerton Weekday Westbound Origins and Destinations (2006) 7-76
Figure 7.32 Seattle-Bremerton Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 7-78
Figure 7.33 Seattle-Bremerton Weekend Eastbound Origins and Destinations (2006) 7-80

Figure 7.34 Seattle-Bremerton Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 7-82
Figure 7.35 Seattle-Bremerton Weekend Westbound Origins and Destinations (2006) 7-84
Figure 7.36 Seattle- Bremerton Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 7-86
Figure 7.37 Edmonds-Kingston Round Trip Patterns by Day 7-94
Figure 7.38 Edmonds-Kingston Round Trip Patterns by Route 7-96
Figure 7.39 Edmonds-Kingston Trips by Access and Egress Mode 7-97
Figure 7.40 Edmonds-Kingston Trips by Wait Time 7-102
Figure 7.41 Edmonds-Kingston Walk-On Passenger Parking Statistics 7-103
Figure 7.42 Edmonds-Kingston Weekday Eastbound Origins and Destinations (2006) 7-105
Figure 7.43 Edmonds-Kingston Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 7-108
Figure 7.44 Edmonds-Kingston Weekday Westbound Origins and Destinations (2006) 7-110
Figure 7.45 Edmonds-Kingston Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 7-113
Figure 7.46 Edmonds-Kingston Weekend Eastbound Origins and Destinations (2006) 7-115
Figure 7.47 Edmonds-Kingston Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 7-118
Figure 7.48 Edmonds-Kingston Weekend Westbound Origins and Destinations (2006) 7-120
Figure 7.49 Edmonds-Kingston Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 7-123
Figure 8.1 South Sound Corridor Routes 8-1
Figure 8.2 South Sound Corridor Frequency of Trips by Day of Week 8-4
Figure 8.3 South Sound Corridor Round Trip Patterns by Day 8-6
Figure 8.4 South Sound Corridor Round Trip Patterns by Route 8-7
Figure 8.5 South Sound Corridor Access and Egress Modes 8-9
Figure 8.6 South Sound Corridor Reasons for Taking a Vehicle 8-13
Figure 8.7 South Sound Corridor Non-Motorized Boardings 8-14
Figure 8.8 South Sound Corridor Monthly Transit Costs 8-16

Figure 8.9 South Sound Corridor Party Size 8-18
Figure 8.10 South Sound Corridor Traveler Age and Income 8-19
Figure 8.11 Seattle-Vashon Passenger-Only Round Trip Patterns by Day 8-25
Figure 8.12 Seattle-Vashon Passenger-Only Round Trip Patterns by Route 8-26
Figure 8.13 Seattle-Vashon Passenger-Only Trips by Access and Egress Mode 8-27
Figure 8.14 Seattle-Vashon Passenger-Only Trips by Wait Time 8-30
Figure 8.15 Seattle-Vashon Passenger-Only Walk-On Passenger Parking Statistics 8-31
Figure 8.16 Seattle-Vashon Passenger-Only Weekday Eastbound Origins and Destinations (2006) 8-32
Figure 8.17 Seattle-Vashon Passenger-Only Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 8-34
Figure 8.18 Seattle-Vashon Passenger-Only Weekday Westbound Origins and Destinations (2006) 8-36
Figure 8.19 Seattle-Vashon Passenger-Only Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 8-38
Figure 8.20 Fauntleroy-Vashon Round Trip Patterns by Day 8-46
Figure 8.21 Fauntleroy-Vashon Round Trip Patterns by Route 8-47
Figure 8.22 Fauntleroy-Vashon Trips by Access and Egress Mode 8-49
Figure 8.23 Fauntleroy-Vashon Trips by Wait Time 8-53
Figure 8.24 Fauntleroy-Vashon Walk-On Passenger Parking Statistics 8-55
Figure 8.25 Fauntleroy-Vashon Weekday Eastbound Origins and Destinations (2006) 8-57
Figure 8.26 Fauntleroy-Vashon Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 8-59
Figure 8.27 Fauntleroy-Vashon Weekday Westbound Origins and Destinations (2006) 8-61
Figure 8.28 Fauntleroy-Vashon Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 8-63
Figure 8.29 Fauntleroy-Vashon Weekend Eastbound Origins and Destinations (2006) 8-65
Figure 8.30 Fauntleroy-Vashon Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 8-67
Figure 8.31 Fauntleroy-Vashon Weekend Westbound Origins and Destinations (2006) 8-69

Figure 8.32 Fauntleroy-Vashon Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 8-71
Figure 8.33 Fauntleroy-Southworth Round Trip Patterns by Day 8-79
Figure 8.34 Fauntleroy-Southworth Round Trip Patterns by Route 8-80
Figure 8.35 Fauntleroy-Southworth Trips by Access and Egress Mode 8-82
Figure 8.36 Fauntleroy-Southworth Trips by Wait Time 8-87
Figure 8.37 Fauntleroy-Southworth Walk-On Passenger Parking Statistics 8-88
Figure 8.38 Fauntleroy-Southworth Weekday Eastbound Origins and Destinations (2006) 8-90
Figure 8.39 Fauntleroy-Southworth Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 8-92
Figure 8.40 Fauntleroy-Southworth Weekday Westbound Origins and Destinations (2006) 8-94
Figure 8.41 Fauntleroy-Southworth Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 8-96
Figure 8.42 Fauntleroy-Southworth Weekend Eastbound Origins and Destinations (2006) 8-98
Figure 8.43 Fauntleroy-Southworth Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 8-100
Figure 8.44 Fauntleroy-Southworth Weekend Westbound Origins and Destinations (2006) 8-102
Figure 8.45 Fauntleroy-Southworth Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 8-104
Figure 8.46 Southworth-Vashon Round Trip Patterns by Day 8-111
Figure 8.47 Southworth-Vashon Round Trip Patterns by Route 8-113
Figure 8.48 Southworth-Vashon Trips by Access and Egress Mode 8-114
Figure 8.49 Southworth-Vashon Trips by Wait Time 8-118
Figure 8.50 Southworth-Vashon Walk-On Passenger Parking Statistics 8-120
Figure 8.51 Southworth-Vashon Weekday Eastbound Origins and Destinations (2006) 8-122
Figure 8.52 Southworth-Vashon Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006) 8-124
Figure 8.53 Southworth-Vashon Weekday Westbound Origins and Destinations (2006) 8-126
Figure 8.54 Southworth-Vashon Weekday Westbound Origins and Destination Locations by Boarding Mode (2006) 8-128

Figure 8.55 Southworth-Vashon Weekend Eastbound Origins and Destinations (2006) 8-130

Figure 8.56 Southworth-Vashon Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006) 8-132

Figure 8.57 Southworth-Vashon Weekend Westbound Origins and Destinations (2006) 8-134

Figure 8.58 Southworth-Vashon Weekend Westbound Origins and Destination Locations by Boarding Mode (2006) 8-136

Figure 8.59 Point Defiance-Tahlequah Round Trip Patterns by Day 8-144

Figure 8.60 Point Defiance-Tahlequah Round Trip Patterns by Route 8-145

Figure 8.61 Point Defiance-Tahlequah Trips by Access and Egress Mode 8-147

Figure 8.62 Point Defiance-Tahlequah Trips by Wait Time and Boarding Method 8-151

Figure 8.63 Point Defiance-Tahlequah Walk-On Passenger Parking Statistics 8-152

Figure 8.64 Point Defiance-Tahlequah Weekday Northbound Origins and Destinations (2006) 8-154

Figure 8.65 Point Defiance-Tahlequah Weekday Northbound Origins and Destination Locations by Boarding Mode (2006) 8-156

Figure 8.66 Point Defiance-Tahlequah Weekday Southbound Origins and Destinations (2006) 8-158

Figure 8.67 Point Defiance-Tahlequah Weekday Southbound Origins and Destination Locations by Boarding Mode (2006) 8-160

Figure 8.68 Point Defiance-Tahlequah Weekend Northbound Origins and Destinations (2006) 8-162

Figure 8.69 Point Defiance-Tahlequah Weekend Northbound Origins and Destination Locations by Boarding Mode (2006) 8-164

Figure 8.70 Point Defiance-Tahlequah Weekend Southbound Origins and Destinations (2006) 8-166

Figure 8.71 Point Defiance-Tahlequah Weekend Southbound Origins and Destination Locations by Boarding Mode (2006) 8-168

Figure 9.1 Access and Egress Modes for Trips to/from Seattle 9-2

Figure 9.2 Walk Distance for Trips to/from Seattle 9-4

Figure 9.3 Top 10 Metro Bus Routes Using Transit to Access Ferries at Colman Dock 9-6

Figure 9.4 Personal Safety Improvements for Walking to/from the Ferry 9-8

Figure 9.5 Alternative Mode Improvements to Driving Onboard the Ferry 9-9

Figure 9.6 Frequency of Use for Potential New Alternative Mode Services Offered 9-10

Figure 9.7 Years Spent Traveling on the Ferry 9-11

1.0 Executive Summary

Formed in 1951, the Washington State Ferry (WSF) system is the largest ferry system in the U.S. and the third largest in the world. WSF serves about 24 million passenger and vehicle trips per year on 10 ferry routes[1] with nearly 500 sailings per day. The system serves eight Washington counties and the province of British Columbia with 20 ferry terminals from Point Defiance in the south to Sidney, B.C. in the north. This system is presented in Figure 1.1.

Figure 1.1 Washington State Ferry System Map

[1] The Fauntleroy-Vashon-Southworth triangle route is considered to be one route in this definition, but is documented separately for the purposes of this report.

In 2004, the Washington State Legislature enacted a provision [ESHB 2474, Section 506] focused on the creation of a coordinated, integrated marine and landside multimodal transportation system to connect the State's people, jobs and communities. The proviso calls for a long-range plan and supporting strategy to provide "policy guidance to define and maximize efficient delivery of quality marine transportation service to the traveling public." The strategy should identify "the most appropriate means of moving foot passengers across central Puget Sound," using WSF vessels, alternative operators, or a hybrid combination of both, in the short and longer-term.[2]

Ongoing efforts to manage existing demand, program service to meet future growth, secure new capital funds, reduce operating costs, and maintain an aging fleet and terminal facilities require WSF to understand the needs and travel patterns of its customers. This report documents the most recent comprehensive, systemwide travel survey conducted by the WSF to support these ongoing planning and operations efforts.

1.1 PURPOSE OF THE STUDY

Washington State Ferries (WSF) conducts periodic origin and destination travel surveys every six or seven years to capture accurate measures of its customers' travel patterns. In the fall of 2006, WSF conducted their most recent origin-destination onboard survey. This survey allows WSF to accomplish the following objectives:

- Match services with customer needs;
- Run an efficient ferry operation; and
- Update data inputs to ferry travel model for use in WSF Long-Range Plan.

In addition, these surveys will support analysis of terminal capital improvement projects, complementary vehicle and passenger-only ferry services, efficiency and accountability mandates, and cost-recovery factors. The onboard survey included stakeholder consultation within and outside WSF to provide input to the survey design. The products of the travel survey is a complete and organized survey dataset available to the public and ferry management for operational and planning purposes. This survey reports on the analysis and presentation of survey findings, including trend comparisons with previous surveys.

[2] Washington State Department of Transportation, *Ten-Year Passenger Strategy for Washington's Multimodal Ferry Transportation System: Executive Summary*, prepared by Berk & Associates for the Washington State Ferries, January 2005.

1.2 PREVIOUS SURVEY EFFORTS

The 2006 survey represents an update to the previous 1999 and 1993 onboard surveys conducted by WSF. There also was a previous onboard survey in 1984. In addition, WSF conducted a small sample survey in 2003 for the South Sound routes. These surveys are described below.

In May and August of 1984, an onboard origin-destination survey of ferry users was conducted on all WSF routes. Both weekday and weekend users were surveyed. The tabulations of origins and destinations from this survey were not coded to a fine level of detail and are not comparable to current 2006 survey results, so are not included as comparisons in this report.

In 1993,[3] an onboard origin-destination survey of ferry users was conducted on WSF routes during May and August. For the May survey, ferry riders during the p.m. peak-period on a Sunday and Tuesday were surveyed on all of the ferry routes in order to capture both weekday and weekend travel patterns. A follow-up survey was then administered to p.m. peak-period riders in August on the more tourism-recreation-oriented, five most northern routes. The 1993 survey data was compiled for use in comparing to the current 2006 survey contained in this report using the May data to represent average daily weekday and weekend travel patterns. A total of 15,750 questionnaires were completed and returned in this survey and of these, 13,832 surveys were usable for analysis. These data were not expanded, so the comparisons are made primarily on the distribution of trips with different characteristics, rather than with the actual trips. The weekend comparisons were not always comparable because the 1993 survey collected data on a Sunday and the 2006 survey collected weekend data on a Saturday.

In May 1999,[4] an onboard origin-destination survey of ferry users was conducted on all WSF routes. Surveys were collected on one midweek day (Tuesday, Wednesday, or Thursday) and a Sunday. Travel information was collected for the weekday p.m. peak-period, the remaining nonpeak p.m. hours of the day and Sunday. Survey sampling was similar to the 2006 survey, by surveying all sailings in the p.m. peak-period and 50 percent of the sailings in the p.m. offpeak-period and on Sunday in a six-hour block to maximize boardings. The 1999 survey data also was compiled for use in comparing to the current 2006 survey contained in this report using the May data to represent average daily weekday and weekend travel patterns. A total of 18,000 questionnaires were completed and returned for this survey and of these, 15,092 were usable for analysis. The weekend comparisons also were not always comparable because

---

[3] Washington State Ferries 1993 Origin-Destination Surveys, Final Report; prepared by Parsons Brinckerhoff Quade & Douglas, Inc. and Pacific Rim Resources, March 1994.

[4] Washington State Ferries 1999 Travel Survey Analysis and Results Report, prepared by Parsons Brinckerhoff Quade & Douglas, Inc., June 2000.

the 1999 survey collected data on a Sunday and the 2006 survey collected weekend data on a Saturday.

The WSF 2003 South Sound Survey[5] was undertaken to collect travel information during the p.m. peak hours targeted to five South Puget Sound routes. Two main objectives of the 2003 p.m. half-day survey include: to examine whether ferry user travel patterns have changed since 1999; and to provide data to help understand how ferry travelers align themselves on the mainland with respect to the ferry terminals in West Seattle and Downtown Seattle. The data from the 2003 survey were not used to compare to the 2006 survey because it was not a systemwide, comprehensive survey and inconsistencies in survey methodology make direct comparisons problematic.

1.3 KEY FINDINGS AND TRENDS

There are many significant findings from the 2006 origin-destination onboard survey. And, since there have been two previous surveys with similar survey designs, we also can identify significant trends that have occurred in the past 13 years (since 1993). Ridership has increased from 1993 to 1999, but declined since 1999, so we have highlighted trends from 1999 to 2006 where useful to understand this ridership trend. These key findings and trends provide a strong background for identifying potential policy implications, which are discussed in the next section.

1.3.1 Systemwide Trends

Cost Trends

Many of the significant findings of this and previous surveys are related to travel cost, for two reasons: because cost is a significant component of any trip-making decision for the user and because the State has the ability to set policies related to cost, thereby affecting both revenues and travel behavior. The key systemwide trends related to cost are as follows:

- Average fares in 2006 were $10.49 for vehicles and $5.76 for passengers. Passenger fares increased 43 percent from 1999 to 2006, from an average of $4.02 round trip (in 2006 dollars). Vehicle fares increased 39 percent from 1999 to 2006, from an average of $7.55 one-way (in 2006 dollars). Passenger fares are quoted round trip because they are only charged in one direction; vehicle fares are quoted as one-way because they are charged in both directions.
- Parking costs at ferry terminals are reported to average $6 per day for those

[5] Washington State Ferry System, South Sound Ferry Routes Travel Survey: Technical Report of Methods, prepared by Nustats, March 2004.

who paid to park. If this is added to the passenger fare, ferry riders who park and walk onboard will pay $12 compared to the average vehicle fare of $22 for a round trip.

- Ferry riders reported almost twice as much annual household income, on average, as the average Puget Sound resident. On average, ferry riders make $96,000 per year in household income (self-reported) and the average Puget Sound household makes $53,000 per year (self-reported)[6]. Wealthier households are less sensitive to cost increases than other households. In 1999, ferry riders made an average of $91,000 per year in household income (self-reported) and the average Puget Sound household made $50,000 per year (self-reported).
- Ferry riders also tend to own more cars than the average Puget Sound resident; a fact that is typically highly correlated with household income. Ferry riders own 2.4 vehicles per household on average and the regional average is 1.8 vehicles per household. This statistic is likely contributing to the finding that 27 percent of weekday walk-on passengers keep a vehicle at their destination terminals and 21 percent of weekend walk-on passengers keep a vehicle at their destination terminals. This extra vehicle allows the rider to have the convenience and cost-savings of walking onboard the ferry, while still having the flexibility to drive to their destination. In 1999, ferry riders owned 2.2 vehicles per household.

Purpose and Mode Trends

Over time, ferry riders have shifted their trip purpose and boarding mode. While these shifts are minor in terms of overall impact, the trend over time may have operational and program implications for the ferry system. Here are significant findings related to trip purpose and mode:

- The ferry system serves more shopping and recreation trips than any other trip purpose on an average daily basis (49 percent). Work trips constitute 28 percent of total ferry travel (both weekdays and weekends) and personal business/other trips make up the remaining 23 percent.
- Work trips continue to dominate the weekday travel (58 percent) but have been declining as a percent of total trips since 1993 (68 percent) and 1999 (60 percent). This trend is consistent with national data on journey to work travel, which is declining as a share of all travel. The reduction in work travel is due, in part, to the fact that more people are telecommuting (20 percent of weekday riders said they telecommute at least one day a week). It also may be because more people work at home full-time and there are more job opportunities on the west side of Puget Sound, providing a greater

[6] Average household income for Puget Sound residents is provided by the Puget Sound Regional Council from analysis of the 1999 and 2006 regional household travel surveys.

chance of living and working on the same side of the Sound. This follows the national trend for working at home, which is growing faster than total worker growth.

- Workers also are more likely to ride the ferries more frequently than nonworkers. Weekday travelers are more likely to travel five days per week (32 percent use the ferries five or more days per week). Weekend travelers are most likely to travel only one day a week by ferry (67 percent). This indicates that the ferry system serves different travelers on the weekdays and weekends. Weekday travelers are traveling less frequently in 2006 (38 percent used the ferries five or more days per week in 1993 and 35 percent in 1999) but weekend travelers are traveling more often (18 percent of weekend travelers use the ferries three or more days per week in 2006, 19 percent use the ferries three or more days per week in 1999, and 13 percent use the ferries three or more days per week in 1993).
- There is a decreasing trend in ferry riders who walk onboard the ferry over time. In 1993, 43 percent of all weekday ferry riders walked onboard; in 1999, 33 percent of weekday passengers walked onboard; and in 2006, it is 27 percent. There is a corresponding increase in weekday passengers who board in a vehicle from 1993 to 1999 and 2006. The number of riders taking a bike on board has been relatively stable over time. The increase in driving onboard the ferry is consistent with the national trend towards driving compared to walking or carpooling. The weekend ferry riders who walk onboard decreases from 30 percent in 1993 to 20 percent in 2006.[7]
- There also is a decreasing trend in ferry riders who access the ferry by walking, biking, or taking transit. In 1993, 23 percent of all ferry riders walked, biked, or took transit to get to the ferry, in 1999, this was 16 percent, and in 2006, this was 17 percent.

Travel Time and Route Trends

Lastly, there are a few significant findings that relate to travel time or travel route. Some of these are new questions for the 2006 survey, so we do not know the trends, but the findings are useful nonetheless:

- The majority of ferry travelers return the same day using the same ferry route, as expected. The number of ferry riders who return on a different day has increased significantly in recent years (from 13 percent in 1999 to 25 percent in 2006 for weekday riders). This may be because with longer travel

[7] These trends are more comparable for weekdays because the 1999 and 1993 surveys were not expanded for weekends are therefore not as comparable. In 1999, the weekend surveys had 18 percent of passengers who walked onboard, which would indicate an increase between 1999 and 2006, but this increase is not supported by traffic statistics, which show a decline from 1999 to 2006, and it is therefore more likely a result of the fact that the 1999 weekend surveys were not expanded in 1999.

times (for the overall trip) and higher fares, some ferry riders are choosing to take fewer trips and stay longer.

- The 2006 survey also asked a question about whether travelers were on their preferred sailing; 28 percent of weekday travelers said that they would prefer a different sailing. This could be due to overcrowding on peak sailings, late arrivals, or other schedule conflicts (not related to the ferry schedule). Additional research on the underlying reasons for this would be helpful to explain this phenomenon.
- Average perceived wait times (all survey time periods) for the 2006 survey were 27 minutes for weekday travelers and 22 minutes for weekend travelers. Perceived wait times differ from actual wait times because they are based on survey responses and may not be as accurate as actual wait times. On average, this would indicate that most travelers only wait for the next boat on average rather than having to wait for an additional boat due to capacity limitations during October when the survey was conducted.

Geographic Trends

While there are minor changes in origins and destinations by route between the 1999 and 2006 surveys, these are not significantly different on a systemwide or corridor basis. Changes in geographic trends since 1999 by route are described in the route-level geographic analysis. There is an general trend by route that origins and destinations are more dispersed in 2006 than in 1999, presumably because development for both housing and employment is more dispersed.

1.3.2 Corridor Trends

There are four corridors in this analysis; each is distinct from the others except in one part of the system, where there is some competition between routes. Both the San Juan Islands corridor and the North Sound corridor are quite distinct in terms of the travelers they serve and so there is no competition or overlap between services in these markets. The Seattle-Bainbridge and Edmonds-Kingston routes in the Central Sound corridor also are distinct in the travelers they serve, meaning that travelers in these corridors are not likely to choose other ferry services. The Seattle-Bremerton route and the Fauntleroy-Southworth and Seattle-Vashon passenger-only ferry do compete to some degree for the same travelers, as evidenced by the travel market in South Kitsap County that travel on each of these routes for the same geographic trip patterns. Starting in 2001, the Fauntleroy to Southworth route fares were differentiated from the Seattle to Bremerton fares with the implement table of distance-based fares (Tariff Route Equity). The other South Sound routes are relatively distinct in terms of the travelers they serve.

Weekly Travel Trends

The following summarizes key findings from corridor and route-level analysis for frequency of travel by day of week:

- The South Sound corridor has the highest frequency of weekday travel with 43 percent of travelers using ferries five or more days per week compared to other corridors. San Juan Islands corridor has the lowest frequency of travel with only nine percent of travelers using ferries five or more days per week. North Sound and South Sound corridors are in-between with 24 percent and 36 percent, respectively, of travelers using ferries five or more days per week. These statistics track closely with the percent of work travel in each corridor, as expected.
- Weekend travelers appear to be a separate market from weekday travelers in all the corridors except the San Juan Islands corridor, where weekday travel frequency at the same level as weekend frequency. Weekend travelers are most likely to travel only one day per week in all corridors, with San Juan Islands corridor at 84 percent, North Sound corridor at 63 percent, Central Sound corridor at 69 percent, and South Sound corridor at 55 percent.
- The vast majority of travelers return on the same day using the same ferry route in all corridors, as expected, except in the San Juan Islands corridor where more than half the travelers return on a different day. Interesting, though, is the fact that the number of return trips on a different day is increasing in recent years for weekdays in all corridors. Weekday travelers are more likely to return on the same day in all corridors when comparing 1999 surveys with 2006 data, as follows:, San Juan Islands corridor increases from 41 percent in 1999 to 52 percent in 2006, North Sound corridor increases from 18 percent in 1999 to 27 percent in 2006, Central Sound corridor increases from 10 percent in 1999 to 24 percent in 2006, and South Sound corridor increases from 7 percent in 1999 to 16 percent in 2006.

Purpose and Mode Trends

The following summarizes key findings from corridor and route-level analysis for trip purpose and mode trends:

- The South Sound corridor has the highest percent of weekday work trips (74 percent) and the San Juan Islands have the lowest percent of work trips (40 percent). Central Sound corridor has 60 percent work trips and North Sound corridor has 58 percent work trips. All of the corridors have a declining percent of work trips since 1993 and 1999 except the San Juan Islands, which has an increasing share of work trips. All of the corridors have a healthy percent of telecommuting, ranging from 19 to 22 percent of all weekday travelers saying that they telecommute at least one day per week. While we hypothesize that this percent of telecommuting has increased since 1993, thus explaining at least part of the decline in work trips, we do not have data on telecommuting from the previous surveys.
- There is a consistent increase in weekday ferry riders boarding in a vehicle and a corresponding decrease in weekday ferry riders who walk on board between 1993, 1999, and 2006 for all corridors. The San Juan Islands corridor increases from 78 percent in 1993 to 89 percent in 1999 and 85 percent of weekday travel in 2006. The North Sound corridor increases from 79 percent

in 1993 to 85 percent in 1999 to 86 percent of weekday travel in 2006. The Central Sound corridor increases from 45 percent in 1993 to 54 percent in 1999 to 63 percent of weekday travel in 2006. The South Sound corridor increases from 55 percent in 1993 to 77 percent in 1999 to 79 percent of weekday travel in 2006. The increases range from 7 to 24 percent increase in passengers boarding in a vehicle in this 13-year timeframe.

- There are quite a few people who keep a vehicle at the destination ferry terminal to use to get to their destination after walking onboard the ferry. This is highest at the San Juan Islands corridor, where 50 percent of weekday walk-on passengers keep a vehicle at their destination. In the other corridors it also is high, in North Sound corridor, 45 percent of weekday walk-on passengers keep a vehicle at their destination; in Central Sound corridor, 23 percent of weekday walk-on passengers keep a vehicle at their destination; and in South Sound corridor, 32 percent of weekday walk-on passengers keep a vehicle at their destination.

Time-of-Day Trends

Time-of-day trends were particularly difficult to identify because of the differences between the survey data collection and expansion processes. These differences (described in Section 2) include collecting data on Saturday instead of Sunday and expanding to the full day traffic counts instead of expanding to half-day traffic counts. Noting these differences, we have still identified some trends worth evaluation. Time-of-day evaluations were focused on weekday p.m. peak time periods. The following summarizes the key findings from the corridor and route-level analysis for time-of-day trends:

- P.m. peak period travel heading westbound on weekdays has increased from 67 to 76 percent systemwide between 1999 and 2006. This increase in p.m. peak westbound travel occurs on most routes in the system.
- 41 percent of daily travel occurs in the p.m. peak period, which includes work and school trips as well as many non-work trips.

Some of the key findings were based on questions that were not asked in 1999 or 1993, so trends for these findings are not available. Potential policy implications of these findings are discussed in the next section.

1.4 POLICY AND PROGRAMMING IMPLICATIONS

The purpose of this analysis report is to present key findings and detailed data obtained from the 2006 origin-destination onboard survey. The key findings and detailed data may then be used by WSF and other interested agencies to inform future planning and operations decisions related to ferry services. And while the purpose of this analysis is not to make any specific policy or programming recommendations, we can identify the potential implications of the key findings for future policy and programming considerations.

Ferry riders are traveling less frequently now than they were in 1993 and 1999. This is a combination of the fact that there are fewer work trips (i.e., five-day per week riders), and more people are returning on a different day. Policies that are aimed at commuters will have less overall impact than they would have in the past. Policies aimed at nonworkers will have more impact as time goes on. Additional market research on the most effective policies for nonworkers may be useful.

Ferry riders are more likely to drive a vehicle onboard now than they were in 1993 and 1999. The decrease in work trips and a corresponding decrease in ferry riders who use the ferry five days per week are likely contributing factors. This, in combination with less flexibility as a walk-on rider, will continue to encourage travelers to drive onboard. Vehicle fares have been increasing at about the same rate as passenger fares (39 percent increase since 1999 for average weighted vehicle fares compared to 43 percent increase for passenger fares) so this is not likely a major factor. Policies that take into account the total cost (including parking cost, transit fares, etc.) will more likely be effective. Policies that are aimed at reducing costs for transit access (like a transfer fare) or increasing costs for driving (like higher vehicle fares) may be used to promote walking onboard. Policies aimed at increasing riders to walk onboard should also take into account the effects on revenues, since passenger fares are not as high as vehicle fares.

A significant number of walk-on ferry riders keep a vehicle at their destination terminal. Policies that take into consideration this egress opportunity can be used to either promote this activity (to gain more walk-ons) or constrain this activity (to promote more walk and transit egress). Further research may be needed to better understand this phenomenon.

There are a significant number of ferry travelers who would prefer to travel on a different sailing. The underlying reasons for this result are not well understood, so additional research on this topic is recommended. But policies that are aimed at improving customer satisfaction should be aimed specifically at improving this statistic.

The focus of the data collection was not on customer satisfaction, so the survey did not capture the fact that ferry travel as a means of transportation is well-regarded in the Puget Sound region. Travel time on the ferries is not perceived as onerously as it is when spent in traffic on congested highways. Policies that promote this quality of life and other aspects of customer satisfaction can also be used to address some of the trends found in the onboard survey.

The Puget Sound Regional Council conducted a household and stated-preference survey of residents in the Puget Sound region in 2006, which will offer insight on the attitudes and modal choices of transit riders, but the sample of ferry riders is too small to provide separate insight on ferry riders. The format and design of this stated-preference survey is recommended for additional market surveys that the WSF may conduct, because it can provide considerable insight on the attitudes and modal choices of ferry riders. It can be used to compare ferry riders with other Puget Sound travelers with regards to attitudes toward travel and modal choices.

1.5 CONTENTS OF THE REPORT

This report contains five main topics of analysis beyond this summary:

- Section 2 documents survey methods;
- Section 3 reports systemwide market trends;
- Section 4 analyzes corridor markets;
- Sections 5 through 8 report on individual analysis of each corridor and each route in the corridor; and
- Section 9 presents an analysis of additional data collected for Seattle-bound routes (Seattle-Bainbridge, Seattle-Bremerton, Fauntleroy-Vashon, Fauntleroy-Southworth, and Seattle-Vashon Passenger-Only) on primarily detailed access and egress characteristics.

The corridors and routes reported in Sections 5 through 8 include the following structure:

- San Juan Islands corridor (Anacortes-San Juan Islands, Anacortes-Sidney routes);
- North Sound corridor (Mukilteo-Clinton, Port Townsend-Keystone routes);
- Central Sound corridor (Edmonds-Kingston, Seattle-Bainbridge, Seattle-Bremerton routes); and
- Sound Sound corridor (Fauntleroy-Vashon, Fauntleroy-Southworth, Vashon-Southworth, Seattle-Vashon Passenger-Only, Pt. Defiance-Tahlequah routes).

Survey forms used in the data collection effort are provided in Appendix A. District and traffic analysis zone maps are provided in Appendix B.

2.0 Overview of Survey Methods

In October 2006, Washington State Ferries (WSF) conducted an origin-destination onboard survey,[8] which collected ridership pattern information from Washington State Ferries passengers. The methods employed in this survey are documented in detail in the *2006 Travel Survey Technical Report of Methods*.[9]

This report summarizes the survey design, procedures, and data processing. There are some key differences in the conduct of the survey that differ from the previous 1999 and 1993 surveys, to enhance the type of data collected or to improve the accuracy of the data for use in future ferry planning activities. These differences are highlighted in this section and are references in the analysis report where the comparative results are affected by these differences. The two primary differences are the use of a web-based field management system to improve the management of the field data collection, and the use of more detailed expansion factors to expand the data to a full day of travel rather than the p.m. half-day expansion in 1999 (the 1993 survey data was not expanded). In addition, weekend data was collected on Saturdays in 2006 to capture the higher volumes (weekend data was collected on Sundays in the previous surveys). These differences are described in more detail in this section.

The primary objective of the survey was to capture accurate measures of ferry rider travel patterns. These surveys allow WSF to accomplish the following objectives:

- Match services with customer needs;
- Run an efficient ferry operation; and
- Update data inputs to ferry travel model for use in WSF Long Range Plan.

The survey was conducted during the p.m. peak-period for weekday travel and during the a.m. peak-period for weekend travel to capture behavior for the highest ridership periods. The data collected included, but was not limited to:

- Geographic markets (trip origin and destination);
- Demographic characteristics (age, sex, employment status, household size, income, etc.);

---

[8] NuStats conducted the survey under the sponsorship of Washington State Ferries and the Washington State Department of Transportation and as subconsultants to Cambridge Systematics. RST International also provided technical oversight. The project team was led by Celine Gihring at WSF.

[9] NuStats, *2006 Travel Survey Technical Report of Methods Final Report*, prepared for the Washington State Ferry System, February 2007.

- Ferry travel characteristics (trip purpose, fare type, frequency, boarding wait time, boarding method, number of passengers traveling together, etc.); and
- Access and egress characteristics (access and egress modes, parking location and cost, monthly transit costs, etc.).

Surveys were conducted on all 12 WSF routes during the period from October 14, 2006 to November 4, 2006. A total of 31,663 questionnaires were distributed to boarding passengers age 16 years or older. A total of 13,801 questionnaires were returned, for an overall participation rate[10] of 44 percent. Of the returned questionnaires, 11,844 were completed for analysis purposes (i.e., usable) after data cleaning and geocoding, for a completion rate[11] of 37 percent.

2.1 SURVEY DESIGN

The questionnaires were developed jointly by WSF and its stakeholders and the consulting team and consisted of 26 core questions grouped into five categories:

- Origin and Destination (four questions);
- Ferry Trip Characteristics (nine questions);
- Access, Egress, and Boarding Characteristics (four questions);
- Demographics (seven questions); and
- Follow-up Research and Comments (two questions).

An insert to the main questionnaire also was used on the routes passing through Seattle terminals (Seattle-Bainbridge, Seattle-Bremerton, Seattle-Vashon Passenger-Only, and Fauntleroy-Vashon-Southworth routes). The insert was developed at the request of the Colman Dock project team and included seven questions collecting more detailed information about access and egress modes and options, and personal safety and policy issues.

Surveys were sequentially numbered with bar codes to manage the distribution of questionnaires and monitor the number of returned questionnaires. The survey instrument (both the main survey and the insert) included a postage-paid return-mail option for passengers who were unable to complete the questionnaire while on-board the ferry or who chose to fill out the questionnaire at a later date. The questionnaire also featured a contest for participants to register to win a pair of round-trip airline tickets to any location in the continental United States. These tickets were awarded to a lucky couple of

[10] Participation rate is defined as returned questionnaires/distributed questionnaires. This definition is used to be consistent with prior surveys.

[11] Completion rate is defined as usable questionnaires/distributed questionnaires. Similar to the participation rate, completion rate is defined in this way for consistency with prior surveys.

respondents. The contest helped to increase completion rates, capture valid home address location information, and capture valid telephone or e-mail contact information for follow-up.

Three questionnaires were produced for the study (see Appendix A). There was the core questionnaire that was used on most routes and two alternate versions:

- Core routes (Edmonds-Kingston, Keystone-Port Townsend, Mukilteo-Clinton, Point-Defiance-Tahlequah, Seattle-Bainbridge, and Seattle-Bremerton);
- Alternate for Anacortes-San Juan Islands-Sidney routes; and
- Alternate for Fauntleroy-Vashon-Southworth and Seattle-Vashon Passenger-Only routes.

The alternate versions included additional questions that captured origin and destination terminals on sailings serving multiple terminals. The insert that was included with the Seattle-Bainbridge, Seattle-Bremerton, Seattle-Vashon Passenger-Only, and Fauntleroy-Vashon-Southworth routes also is provided in Appendix A.

2.2 SURVEY PROCEDURES AND METHODOLOGY

The survey was conducted as a self-administered survey using paper and pencil questionnaires. The sampling frame was comprised of vessel sailings on each WSF route, surveyed on a representative weekday and a representative Saturday[12] during the survey period. For weekdays, all p.m. peak sailings were sampled and a systematic sampling of p.m. off-peak sailings. For Saturdays, a.m. peak-period sailings were sampled, as well as some additional sampling of a.m. off-peak and midday sailings.

All passengers were offered questionnaires before boarding (whether they were driving or walking on) a sampled sailing. In addition, surveyors were stationed on vessels to distribute questionnaires to late-arriving passengers, to encourage and help passengers complete questionnaires, and to collect completed questionnaires. A crew of 125 surveyors were hired from temporary employment agencies to distribute and collect the surveys, and to count all boarding passengers (16 years and older) and all boarding vehicles.

In mid September 2006, a pilot test of the survey was conducted to test field procedures and the survey questionnaire (content, design, layout, etc.). The pilot test results were reviewed and resulted in some changes in procedures, as well as to modify and add some questions to address comments and suggestions

[12] Weekend data was collected on Sundays in the previous 1999 survey and on Saturdays for this 2006 survey because Saturdays offered higher ridership and more resident travel than Sundays.

from stakeholders.

Surveys were conducted for 12 ferry routes on weekdays and weekends for the universe of sailings identified in Table 2.1. There were over 300 sailings surveyed during the three week survey period. Of the 51, 170 total boardings, 31, 663 questionnaires were distributed and 13,801 surveys were returned.

Table 2.1 Boardings and Sailings Universe

Boarding Mode	Weekday P.M. Peak	Weekday Off-peak	Saturday	Total
Vehicle Driver	10,092	3,195	9,421	22,708
Vehicle Passenger	4,681	1,389	6,918	12,988
Bus Driver	48	16	7	71
Bus Passenger	600	234	66	900
Truck	300	122	99	521
Motorcycle	560	66	171	797
Bicycle	351	28	92	471
Walk-on	7,624	1,076	4,014	12,714
Total Boardings	24,256	6,126	20,788	51,170
Questionnaires Distributed	14,869	4,389	12,405	31,663
Questionnaires Returned	6,899	1,456	5,446	13,801
Total Sailings	123	57	121	301

A web-based field management system was used to manage the field effort. The system contained information on all weekday and weekend sailings and enabled the field managers to record serial numbers for questionnaires distributed on each sailing by mode. Hand-held electronic palm devices were used to record passenger and vehicle counts by mode. This management system provided a more accurate recording of counts and questionnaires recorded for each sailing than had been possible in the past.

2.3 SURVEY EXPANSION

The 2006 survey was expanded to match average annual counts from ticket counts for both weekday and weekend, and to include round trips by time period rather than one-way trips. This procedure created survey trips in all time periods (not just p.m.) and almost doubles the total trips in the survey. The actual number of "reversed" records was 9,394 (79 percent of all usable records). To fill out the survey day appropriately, the reversed records were paired on the basis of sailing time period as follows:

- Night paired with a.m. off-peak;
- A.M. peak with p.m. peak;

- A.M. off-peak with p.m. off-peak;
- P.M. off-peak with a.m. off-peak; and
- P.M. peak with a.m. peak.

The assumption was that the respondents would return to their starting location, so origins and destinations were reversed for the reversed records. The interisland San Juan Island trips were not included in the expansion because the data collected did not provide enough samples for reasonable expansion and the detailed counts needed for expansion were not available for this analysis.

Approximately 80 percent of all respondents returned on the same day, but those returning on a different day required additional processing. All of the reversed weekday trips remained weekday trips. However, 412 of the weekend trips indicated that the first leg of their journey had taken place on the previous day (Friday), so the reversed records were coded as weekday trips.

After all the reversed records had been generated, the expansion process began. Initially, we hoped to match commercial vehicle records to commercial vehicle counts, but ultimately there were too few survey records. On several routes, no commercial vehicle records were collected, making expansion along this dimension problematic and in certain cases impossible. Ultimately, we simply controlled for motorized and non-motorized counts during expansion. Generally, there were sufficient weekday trips to span all time periods. However, due to the survey collection process for the weekend, certain time periods (typically Night) do not have any valid records. This meant that in order to match daily counts, the counts from the unobserved time periods had to be covered by observed time periods. Thus, time period information for weekend travel is unreliable, though the daily totals are accurate. The final weights allow us to generate records for the region that match the counts by time period, direction, route, and boarding mode (motorized or non-motorized), although weekend time period information was not considered to be reliable so was not provided separately in this report.

It is difficult to present the full range of expansion factors based on this process, since there are different factors for each time period, direction, route, and boarding mode. Instead of reporting the expansion factors, we report the results of the expansion factor process in Table 2.2. This table presents the average expansion weights calculated as total number of expanded trips divided by total number of survey trips that are a result of the expansion factor process. Table 2.2 also presents the number of survey responses and the average annual counts used in the expansion factor process.

Table 2.2 Average Expansion Factor Weights

	Number of Survey Responses			Average Annual Counts			Average expansion weight		
	Weekday	Weekend	Total	Weekday	Weekend	Total	Weekday	Weekend	Total
Anacortes-San Juan Islands	1,129	693	1,822	4,243	4,955	9,198	3.76	7.15	5.05
Anacortes-Sidney	131	315	446	262	344	606	2.00	1.09	1.36
Edmonds-Kingston	1,311	1,372	2,683	11,068	13,932	25,000	8.44	10.15	9.32
Fauntleroy-Southworth	1,084	317	1,401	2,920	2,122	5,042	2.69	6.69	3.60
Fauntleroy-Vashon	1,364	615	1,979	5,718	5,382	11,100	4.19	8.75	5.61
Mukilteo-Clinton	2,771	776	3,547	10,891	11,911	22,802	3.93	15.35	6.43
Pt Defiance-Tahlequah	393	270	663	1,769	1,991	3,760	4.50	7.37	5.67
Port Townsend-Keystone	648	576	1,224	1,864	2,692	4,556	2.88	4.67	3.72
Seattle-Bainbridge	3,023	1,266	4,289	18,174	16,584	34,758	6.01	13.10	8.10
Seattle-Bremerton	1,909	794	2,703	6,902	5,982	12,884	3.62	7.53	4.77
Seattle-Vashon Passenger-Only	368	0	368	497	0	497	1.35	n/a	1.35
Southworth-Vashon	140	46	186	519	552	1,071	3.71	12.00	5.76
Total	14,271	7,040	21,311	64,827	66,447	131,274	4.54	9.44	6.16

This expansion process for the 2006 survey is quite a bit more detailed than the expansion process for 1999. The 1999 survey was expanded to match survey day counts (using the most reliable information for each route, which in some cases was boarding counts and other cases ticket counts) for weekday. Expansion factors were by route and time period. However, weekend surveys were not expanded due to issues with counts. In order to generate daily ridership for weekdays, the expanded survey results were doubled. The 1993 survey was not expanded. Thus, the comparison with the 1999 and 1993 surveys were done entirely on distributions of travelers, rather than on total ridership.

2.4 SURVEY PRECISION

Response rates for this survey were calculated as the ratio of the number of returned questionnaires to the total number of questionnaires distributed. This is defined as the participation rate and was 44 percent for the full survey.

Usable questionnaires are the total number of questionnaires that have complete information for analysis, defined as the completion rate. These were defined initially as all records with sufficient data on origin and destination, trip purpose, boarding method, vehicle type/occupancy, and access/egress mode. Confidence intervals were calculated to the 95 percent level of confidence using the following equation:

$$\textbf{Confidence Interval for Population Proportion} = [1.96^2 * (PQ/n)]^{1/2}$$

Where:

- P is the population percent;
- Q is 100-P; and
- n is the sample size.

Since PQ is largest when they are equal to 50 percent, the confidence interval has been set to a conservative choice, where P is set as close to 50 percent as is likely to occur. This confidence interval is most critical for the p.m. peak-period, so these are presented in Table 2.2. Weekday p.m. off-peak completion rates were 24 percent, with a confidence interval of +/-1.1 percent. Saturday completion rates were 22 percent, with a confidence interval of +/- 1.5 percent. These are documented by route in the Nustats *Technical Report of Methods.*[13]

[13] NuStats, *2006 Travel Survey Technical Report of Methods Final Report*, prepared for the Washington State Ferry System, February 2007.

Table 2.3 Weekday P.M. Peak Usable Samples and Precision Estimates

Route	P.M. Peak Boardings	P.M. Peak Usable Questionnaires	Response Rate	Confidence Interval for Population Proportion[a]
Anacortes-San Juan Islands-Sidney	1,006	409	41%	± 4.8
Edmonds-Kingston	3,515	523	15%	± 4.3
Fauntleroy-Southworth[b]	1,637	502	31%	± 4.4
Fauntleroy-Vashon[b]	2,105	567	27%	± 4.1
Southworth-Vashon [b]	370	62	17%	± 12.4
Keystone-Port Townsend	520	231	44%	± 6.4
Mukilteo-Clinton[b]	5,871	1,164	20%	± 2.9
Point Defiance-Tahlequah	610	146	24%	± 8.1
Seattle-Bainbridge	5,480	1,319	24%	± 2.7
Seattle-Bremerton	2,747	952	35%	± 3.2
Seattle-Vashon Passenger-Only	395	212	54%	± 6.7
Total	24,256	6,087	25%	± 1.3

[a] For the 95 percent confidence level based on number of p.m. peak usable questionnaires, assuming it is applied to binomial proportions.

[b] Based on two weekday survey days.

2.5 SURVEY DATA FILES AND GEOCODING

2.5.1 TAZ and District Schemes

Transportation Analysis Zone is the smallest geographic unit used to analyze the origin-destination data. WSF TAZ system, developed for travel demand forecasting, consists of 1,014 zones that covers 12 counties in western Washington State and British Columbia of Canada. The core of WSF TAZ system is the PSRC four-county system which has 938 zones in King, Snohomish, Pierce, and Kitsap. There are eight counties in the outlying areas that include San Juan, Island, Skagit, Whatcom, Thurston, Mason, Jefferson, and Clallam. The number of zones defined in each county reflects its land use density, socioeconomic importance, and relevance to ferry travel shed. The TAZ numbering system is presented in Table 2.3 and Figure 2.1.

For better analyzing and presenting survey results, TAZs were aggregated into origin districts. Although a general district scheme for the entire system was developed, emphasis was placed on developing route-specific district schemes for travel analysis presentation at the route level. The route-specific districts were sized with the intention of providing more detail closer to the route's ferry terminals. The district boundaries, names, and numbers by route can be found in the route specific analysis in later chapters. Figure 2.2 is an example of district system for systemwide analysis. The complete details of district scheme and maps are presented in Appendix B – TAZ and District System.

Table 2.4 WSF Transportation Analysis Zone System

Zone Number Range	Area Coverage	Number of Zones
1-530	King County	530
531-671	Snohomish County	141
672-877	Pierce County	206
878-938	Kitsap County	61
957-976	Thurston County	20
977-987	Skagit County	11
988-991	Island County	4
992-994	Mason County	3
995-998	Jefferson County	4
999-1002	Clallam County	4
1003-1006	San Juan County	4
1007-1009	Whatcom County	3
1010-1014	British Columbia	5

Figure 2.1 WSF 12-County TAZ System

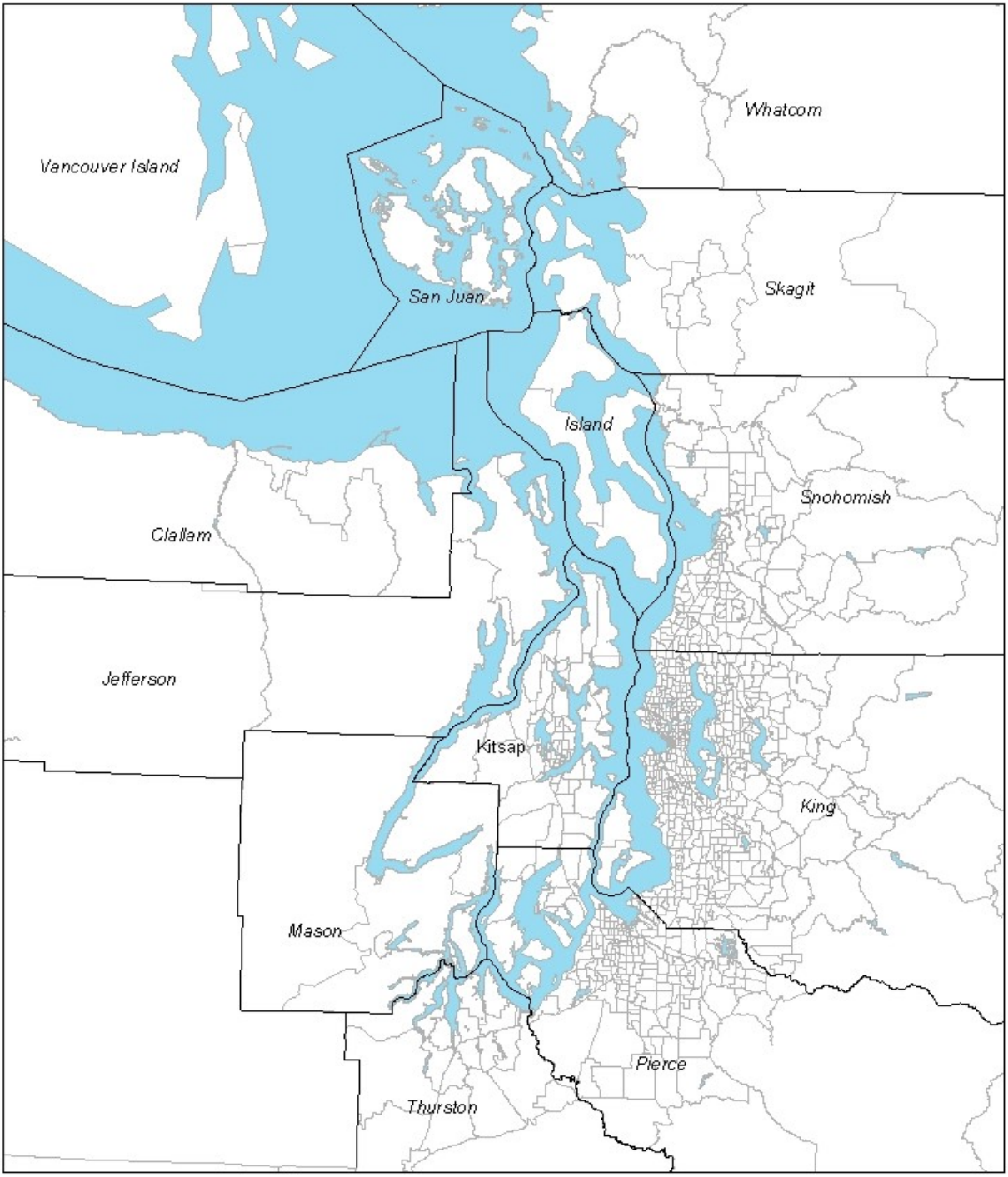
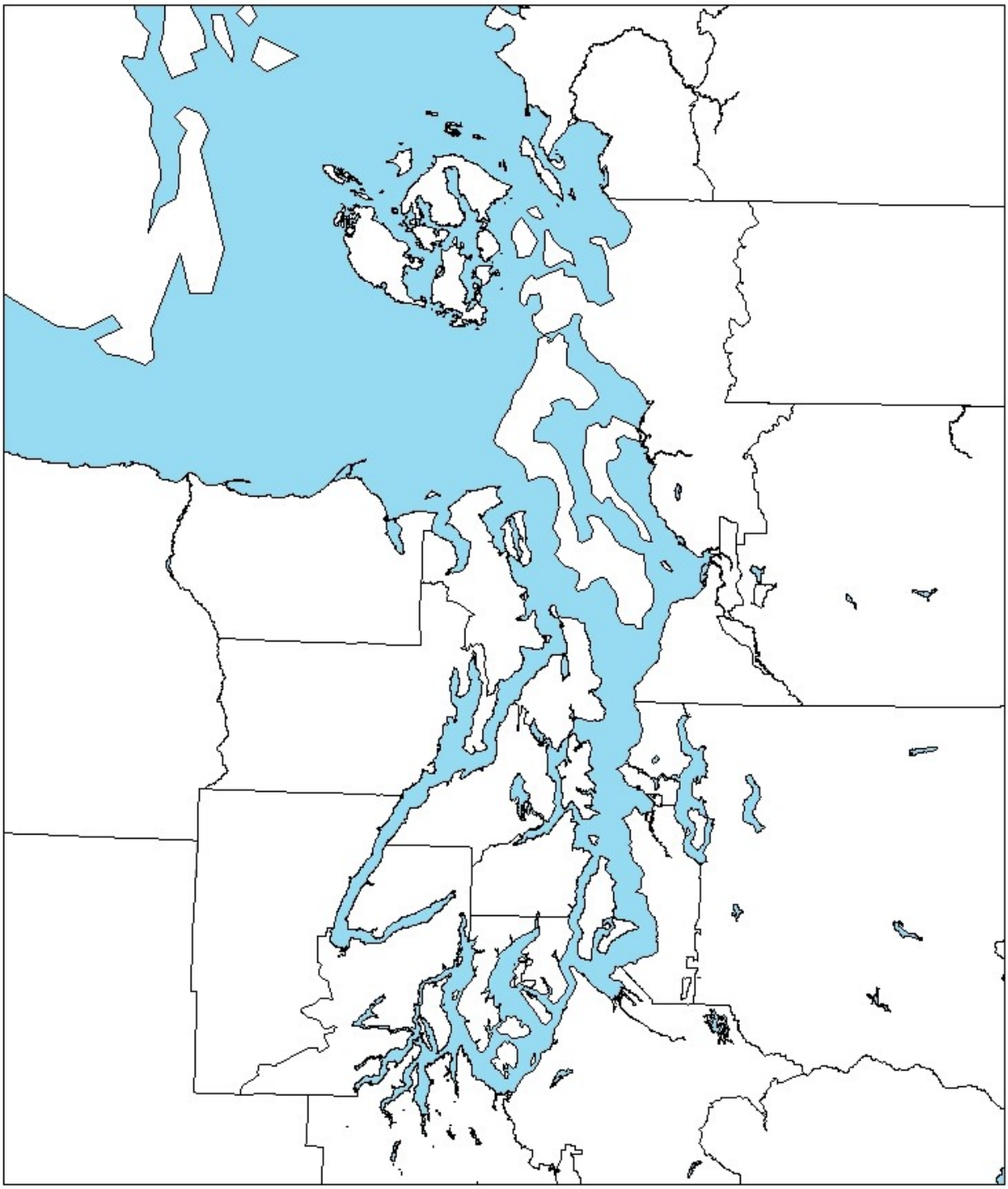


Figure 2.2 Districts for Systemwide Analysis



2.5.2 Geocoding Procedures and Results

Geocoding is a process to locate the X-Y coordinates for origin and destination address reported by the ferry riders. Once origin and destination points are geocoded, they can be easily analyzed on a geographic information system (GIS) to perform spatial analysis, such as: define TAZ; calculate travel distance and time; and mapping. Geocoding is also a process to check the data quality by viewing the data for its reasonableness of origin and destination locations, given other characteristics about the trips. The result of this validation process is summarized in Table 2.5. The process is further described below.

Table 2.5 Geocoding Result Summary

Validation Category	Number of Records	Percent of Total
Unknown origin and destination	392	2.84%
Unknown destination	876	6.35%
Destination outside study area	241	1.75%
Unknown origin	155	1.12%
Origin outside study area	300	2.17%
Origin and destination are identical	220	1.59%
Origin and destination are too similar	213	1.54%
O/D are inconsistent with sailing direction	165	1.20%
Unusable O/D	2,562	18.56%
Usable O/D	11,239	81.44%
Survey dataset	13,801	100.00%

Geocoding was an iterative process that involves both automated and manual procedures. It also used multiple GIS-based tools such as, ArcView/ArcMap, UFOSNET, and web-based address finder, including Google map, Microsoft map, and USPS zip code lookup. The geocoding steps can be briefly described as follows:

- Set up geocoding platform in ArcView using census TIGER street database. Then let ArcView automatically matches home, origin, destination, and work addresses. This step was repeated several times with reduced precision tolerance in each until no more addresses can be matched. In all, 40 percent of addresses were matched successfully in this automated procedure.
- After automated matching was done, the remaining addresses were manually matched in UFOSNET. It was done by interactively approximating the locations of addresses on screen, one at a time, using all available information reported by riders. For incomplete or wrongly coded addresses, corrections were attempted using local knowledge and other relevant data from the survey. The ultimate goal of this manual process was

to ensure addresses can be assigned correct TAZs, even though they might be off by several blocks.

- The last step in geocoding was to view geocoded address points on screen and overlaying TAZ and district boundaries. Each origin-destination pair was checked for reasonableness in association with other survey characteristics such as, ferry route, sailing direction, and boarding terminals. The result was used to determine the usefulness of an O-D record for the subsequent travel pattern and market analyses.

2.6 SURVEY SUMMARY TABLES

All of the survey summary tables provided in this report are based on expanded survey results, as described in Section 2.3. All of the summary tables are separated by the weekday and weekend surveys, except for time-of-day summaries, where weekend summaries were not included because of concerns with the validity of the weekend time period expansion factors.

The aggregate data summaries from the 1993 and 1999 surveys are also provided in each table so that changes occurring between 1993, 1999, and 2006 surveys can be identified. Although the expansion procedures for 1993 and 1999 are different than in 2006, we felt that these comparisons were still valuable. There are notations where we felt that the differences in expansion procedures might be contributing to differences in the survey results.

There are also notations at the bottom of each tabular summary identifying the total number of weekday and weekend expanded survey trips included in the analysis and the total number of surveys that had missing trips for that summary. Missing trips are those surveys where the respondent did not answer that particular question, expanded using the expansion procedures documented in Section 2.3.

2.7 SURVEY CONCLUSIONS

There were more than 50,000 boarding passengers age 16 or over during the survey period, and 13,801 surveys were returned, with 11,844 completed and available for analysis purposes. This resulted in an overall response rate of 23 percent, which is good for this type of survey.

There were some important lessons learned during the survey process that are summarized as follows:

- Surveyors are critical to the success of the project, screening, training and keeping surveyors throughout the survey period are important for consistency and efficiency.
- The prize drawing was important to generate interest in the survey and encourage riders to complete the home address and contact information. This was used to follow-up with 1,000 respondents who provided unclear or

incomplete information. These records were restored to usable status following this process.

- The use of improved field technology (hand-held devices, bar-coded questionnaires, scanning in the field and the web-based management system) allowed the team to complete the survey in less time and allowed the delivery of the processed data in a shorter time period (three months in 2006 compared to nine months in the 1999 survey).

A few of the questions yielded unreliable results, indicating that the respondents misunderstood the questions. For example, some respondents misunderstood the question on how many travelers in different age groups are traveling with you (not including yourself). This question was subsequently reprocessed to include the respondent.

Finally, while the response rate for the survey was 23 percent (higher than average for surveys of this type), it still only represents one in four sampled passengers. Given this result, it is important to consider the nonparticipants in the study and whether there are any systematic biases in the results.

3.0 Systemwide Market Trends

3.1 MARKET TRENDS

The WSF system carries 23.8 million riders per year, or about 65,300 riders per day. This is up three percent from the ridership in 1993 (63,300 riders per day) but down from a peak in 1999 of 72,200 riders per day (a 10 percent drop). Average fares in 2006 systemwide were $10.49 for vehicles and $5.76 for passengers. Fares have increased since 1999 beyond inflation (in 2006 constant dollars), from an average fare of $7.55 for vehicles and $4.02 for passengers. This represents a 39 percent increase for vehicle fares and a 43 percent increase in passenger fares since 1999. Because of the way fares are collected, the vehicle fares represent one-way fares (i.e., vehicles have to pay this fare in both directions of travel) and the passenger fares are round trip fares (i.e., passengers only have to pay fares in one direction of travel). The average systemwide perceived wait time for ferry riders is 24 minutes.

Ferry riders are wealthier than the average Puget Sound resident ($96,000 per year self-reported household income in 2006) and older than average (48 years old) when compared to regional averages ($53,000 per year self-reported household income in 2006 and 35 years of age). Consistent with the average household incomes, the number of vehicles per household also is higher than the regional average (2.4 vehicles per household compared to the regional average of 1.8 vehicles per household).

Weekday travel is dominated by work trips (more than 58 percent). Even though work trips are the most common trip purpose, they are declining as a percent of total trips since 1993 (from 68 percent in 1993 and 60 percent in 1999). This is likely because more people are telecommuting (20 percent of weekday travelers said they telecommute at least one day per week), there are more job opportunities on the west side of Puget Sound, higher fares may discourage more frequent travel, and more people can work at home full-time.

Weekday travelers are most likely to travel four or five days per week (more than 51 percent use ferries five days per week) but weekend travelers are most likely to travel only one day per week (67 percent), indicating that the weekend market is made up of different people than the weekday market and for different purposes (i.e., non-work).

The vast majority of travelers return the same day and using the same ferry route, as expected. But the number of return trips on a different day has increased significantly in recent years (from 13 percent in 1999 to 25 percent in 2006) for weekdays. This is likely because with higher fares, ferry riders are more likely to take fewer trips but stay longer. The 2006 survey also included a question on whether travelers were on their preferred sailing and 28 percent of weekday travelers said that they would prefer a different sailing. The

underlying reasons for this is not well understood, so additional research on this topic is warranted.

There is an increasing trend in ferry riders boarding in a vehicle and a decreasing trend in ferry riders who walk onboard between 1993, 1999, and 2006. This may be a result of a combination of factors, including an increase in non-work trips that are less likely to be walk-ons, that destinations are more likely to be beyond transit accessible locations, higher incomes that make some ferry riders less sensitive to cost increases, and/or more travelers needing their vehicle for work purposes. It also may be a result of increasing costs for parking at the terminals. Even with this parking cost, a significant number of people keep a vehicle at their destination, so that they can drive to their destination, but still walk on the ferry (27 percent for weekday travelers and 21 percent for weekend travelers).

In addition to the summary above, there were many other questions asked on the origin-destination survey that describe ferry rider characteristics. These are summarized in Table 3.1. Details on most of these questions are provided for the system, and by route and corridor in the remainder of the report.

Table 3.1 Origin-Destination Survey Systemwide Summary

Characteristic	Summary	New Item
Sailing Preference: Time/Route	22% want a different time 3% want a different route	Yes
Wait Time (Perceived)	27 minutes average weekday 22 minutes average weekend	
Wait Location	In passenger terminal – 20.1% In vehicle holding area – 68.3% On street – 4.5%, No wait time – 3.7%, Other – 3.3%	Yes
One-Way Trips per Week Statistics	Weekday average over 5 days per week Weekend average under 3 days per week	Yes
When will you return? Or When was the first half of your trip?	25% weekday riders some other day 16 % weekend riders some other day	
How will you return? Or How did you travel on the first half of your trip?	3 percent drive around 4 percent take a different ferry route	
Mode of Access	11% walked, 1% biked, 5% transit, <1% taxi, 57% car driver, 26% car passenger	
Trip Purpose – Weekday	58% work/school, 19% personal bus/other, 23% shopping/recreation	
Trip Purpose – Weekend	15% work/school, 26% personal bus/other, 59% shopping/recreation	
Boarding Method – Weekday	72% drive, 27% walk, 1% bike	

Table 3.1 Origin-Destination Survey Systemwide Summary (continued)

Characteristic	Summary	New Item
Boarding Method – Weekend	82% drive, 17% walk, 1% bike	
Vehicle Type	Auto – 56.8% SUV – 17.5% Van – 6.9% Pickup – 12.7% Commercial vehicle – 1.0% Motorcycle – 2.1% Camper – 0.1% RV – 0.1% School bus – 0.2% Public transit bus – 0.5% Carpool vehicle – 0.5% Vanpool program vehicle – 1.7% Other, specify – 0.1%	
Reasons for Vehicle Boarding	Need vehicle at destination – 58% Vehicle is necessary for business – 8% Carrying baggage – 12% Don't like to walk – 1% Mobility impaired – 2% No safe nearby parking – 1% Don't like transit – 3% Transit does not go to destination – 10% Traveling with children or seniors – 4% Other answer – 6%	Yes
Parked a Vehicle	28% weekday, 46% weekend	
Parking Location	On street – 19.3% Nearby parking lot/garage - 65.5% Other – 15.3%	
Parking Cost	Average $5 weekday, $6 weekend (of those who paid to park)	
Subsidized Parking	5% of weekday parking is subsidized 1% of weekend parking is subsidized	Yes
Bike or Vehicle at Destination	Vehicle: 27% weekday, 21% weekend Bike: 3% weekday, 2% weekend	Yes
Average monthly transit cost	Average: $52 weekday, $31 weekend	Yes
Mode of Egress	10% walked, 1% biked, 6% transit, <1% taxi, 58% car driver, 25% car passenger	
Travel Party Size	Average: 1.5 weekday, 1.9 weekend	

Table 3.1 Origin-Destination Survey Systemwide Summary (continued)

Characteristic	Summary	New Item
Fare Type	Passenger frequent user coupon – 11.7% Washington State Ferry monthly pass – 5.9% Passenger full fare – 14.0% Employer subsidized pass – 2.3% Free (no fare collected for trip/ fare collected in other direction) – 13.5% Passenger youth fare – 0.1% Passenger with bicycle – 0.2% Motorcycle – 1.2% Recreational vehicle – 0.1% Auto/driver frequent user coupon – 21.6% Auto/driver full fare – 20.2% Combined ferry/bus – 1.2% Truck longer than 20 feet – 0.6% Other ticket type – 7.3%	
Transit Preference	45% of riders would be more likely to change to transit if more options were available	Yes
Work Location	25 percent different than regular workplace on weekdays; 48% different on weekends	Yes
Household Size	Average 2.5 persons per household	
Workers in Household	Average 1.4 workers per household	
Vehicles in Household	Average 2.4 vehicles per household	
Age (Year Born)	Average 49 years old	
Occupation Status	75% workers, 4% students, 2% military, 19% other	
Telecommute	20% weekday, 12% weekend	Yes
Days per Week Telecommute	Average: 2.5 days per week among telecommuters	Yes
Household Income (Self-reported)	Average: $96,000 per year	
Willing to Participate in Follow-Up Surveys	63% said they would be willing to participate in a follow-up survey	Yes

3.2 GEOGRAPHIC TRAVEL PATTERNS

The Washington State Ferries geographic market includes 12 counties in Washington State and British Columbia. The WSF geographic market also includes serving visitors from out-of-state, but these are not included in the evaluation of the geographic market, since they may be from all over the U.S. or the world. Geographic market is defined by the home location of each ferry rider. Similar to the 1999 survey, a raffle of two round trip tickets anywhere in the U.S. was offered to respondents who provided contact information and this helped to generate valid address information for this evaluation.

Figure 3.1 and 3.2 presents the weekday and weekend ferry rider home locations for all routes by boarding method (walk-on and drive-on), respectively. As expected, home locations for walk-on boardings are generally closer to the terminals than those for vehicle boardings. These maps show a similar geographic pattern to the 1999 survey for both weekday and weekend. While it is difficult to discern a change in the origin-destination patterns at this level, there was a distinct pattern found at the route level, where origins and destinations are more dispersed in 2006 than they were in the 1999 survey. This was determined by the fact that the near destinations had fewer trips in 2006 than in 1999 and that there were more trips to destinations that were further away from the ferry terminals in 2006 than in 1999. These patterns are described for individual routes in the Sections 5 through 8 of the report.

The origins and destinations of the interisland San Juan Island trips were not included in this analysis because the data collected did not provide enough samples for reasonable expansion and the detailed counts needed for expansion were not available for this analysis. In addition, the trips to and from the San Juan Islands were considered sufficient for systemwide analysis, but more surveys should be collected in more detailed analysis of this geographic market is desired.

Figure 3.1 Weekday Market Served – Rider Home Locations for All Routes

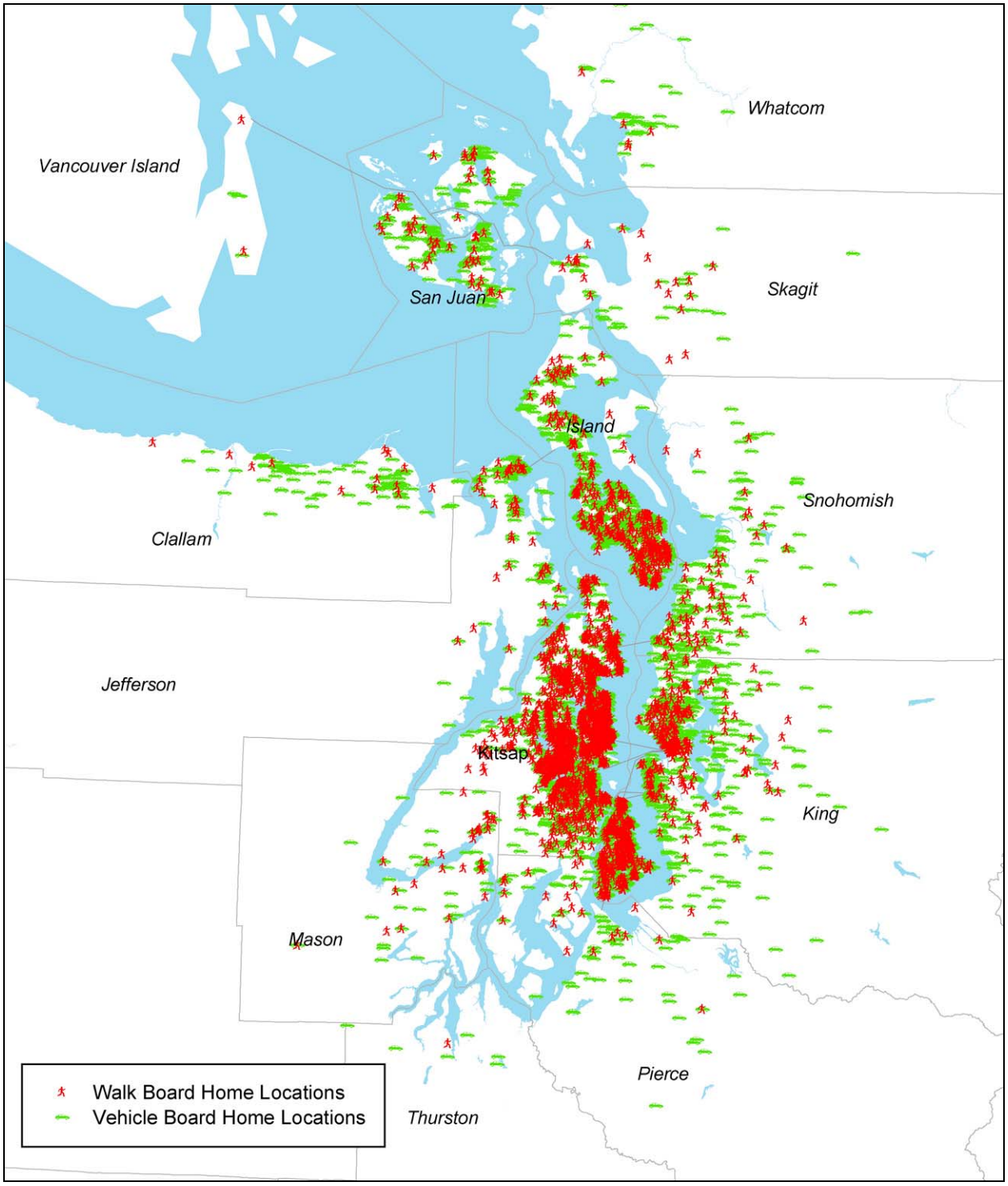
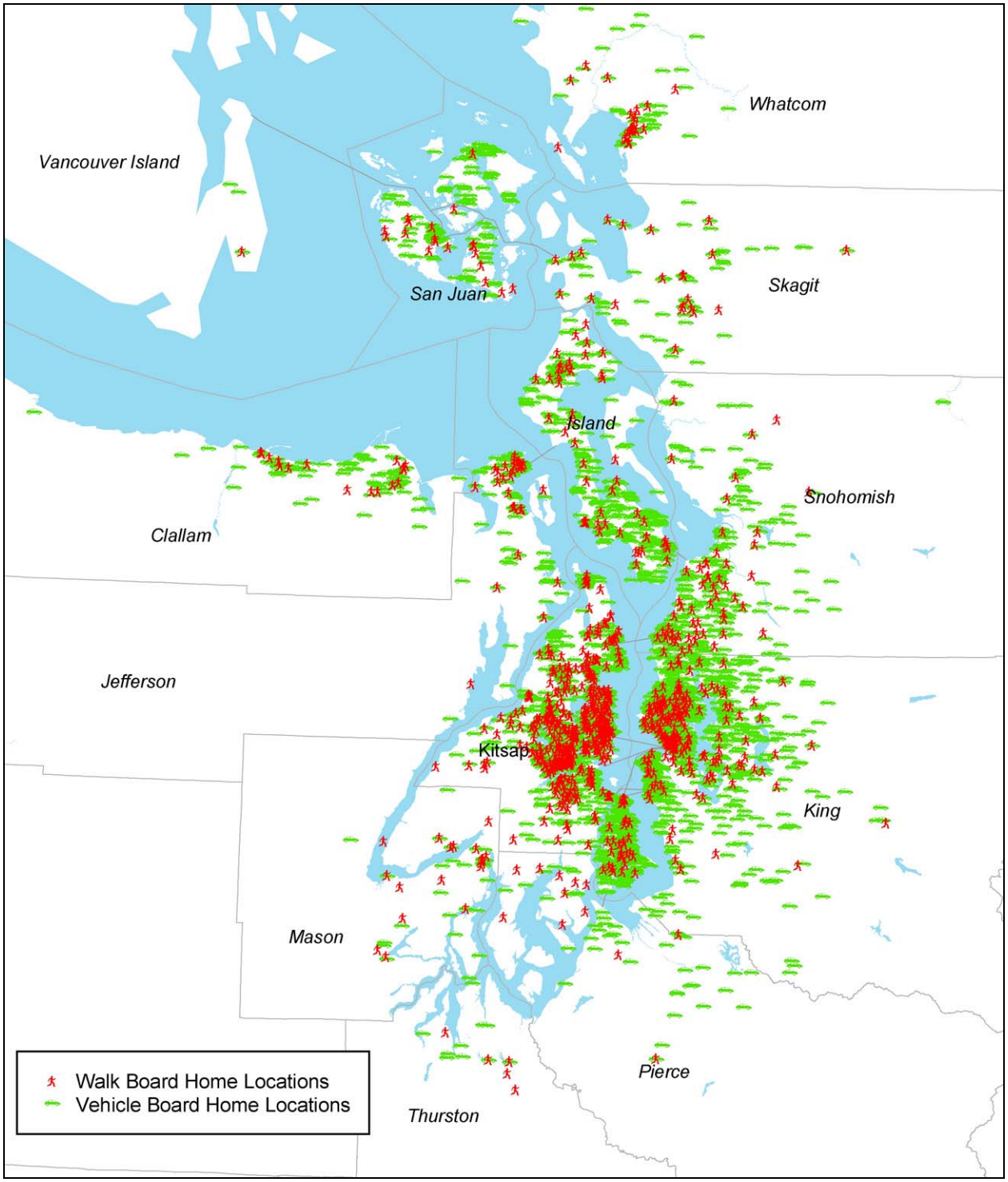


Figure 3.2 Weekend Market Served – Rider Home Locations for All Routes



3.3 FERRY TRAVEL CHARACTERISTICS

3.3.1 Trip Purpose and Frequency

The ferry system is dominated by work trips, with 58 percent of the total travel for work, school, or business purposes, as shown in Table 3.2. These trips also are the most frequent, with more than 51 percent of the trips using ferries five days a week (evidenced by nine or more one-way trips per respondent). Even though work trips are the most dominant trip purpose, they have been declining as a percent of total trips since 1993. There were 68 percent work trips in 1993, 60 percent in 1999, and 58 percent in 2006. This may be due to a variety of factors: more telecommuting, more job opportunities on both sides of Puget Sound, and more people who can work at home full-time.

One change in recent years affecting the decline of work trips is the increase in telecommuting. In the 2006 survey, 20 percent of weekday riders said that they telecommute at least one day per week. Among these telecommuters, the average number of days each person telecommuted was 2.5 days per week. Although the telecommuting questions were not asked in 1993 or 1999, we assume that the amount of telecommuting in 1993 was smaller, and that this difference accounts for at least a portion of the decline in work trips since then.

3.3.2 Day of Week

Figure 3.3 shows the weekday and weekend trip frequency by day of the week. These charts reflect the weekly travel pattern of those travelers who responded to the survey on Tuesday (for weekdays) and on Saturday (for weekends). This shows that Tuesday riders are most likely to travel again on Thursday, more likely to travel again on Monday and Wednesday, and slightly less likely to travel again on Friday. This does not show that Tuesdays and Saturdays have more travel on average than other days. Weekend riders do not travel much during the week. The 2006 survey was conducted on a Saturday, rather than a Sunday, and these results show that Saturday travelers are not very likely to also travel on a Sunday. About 30 percent of the Saturday travelers also travel on a weekday.

Table 3.2 Systemwide Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

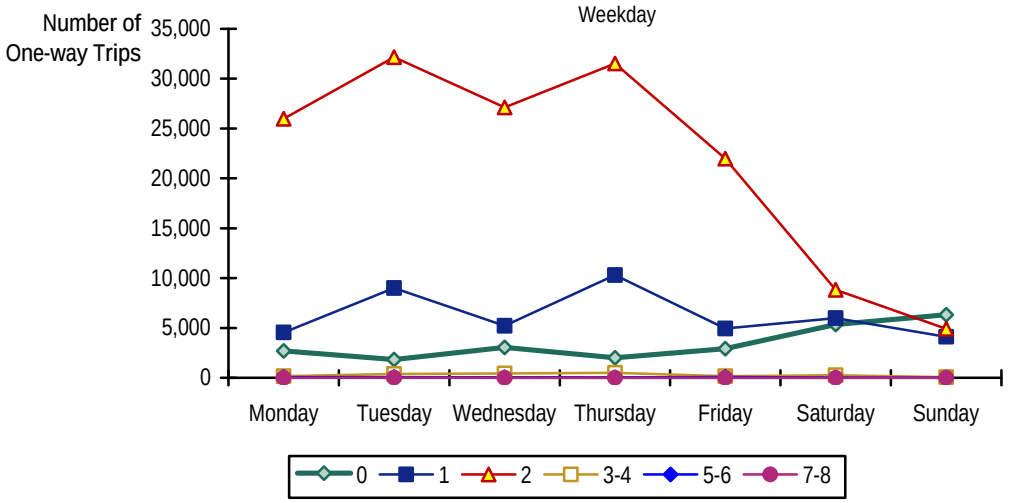
Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes			Work/School	
					2006	1999	1993	2006	1999
Weekday									
1	1,542	2,046	4,045	7,633	12.5%	14.2%	20.7%	4.3%	6.4%
2	3,936	4,087	4,939	12,962	21.3%	16.9%	13.2%	11.1%	8.3%
3-4	3,602	3,104	3,061	9,767	16.0%	14.6%	11.4%	10.1%	9.4%
5-6	3,719	864	1,026	5,609	9.2%	10.0%	11.3%	10.5%	9.6%
7-8	4,618	492	410	5,520	9.1%	8.9%	5.2%	13.0%	11.6%
9-10	12,773	338	239	13,350	21.9%	22.2%	38.1%	35.9%	34.3%
11+	5,354	352	342	6,048	9.9%	13.2%		15.1%	20.3%
Total	35,544	11,283	14,062	60,889	100%	100%	100%	100%	100%
Percent 2006	58.4%	18.5%	23.1%	100%					
Percent 1999	60.2%	17.0%	22.7%	100%					
Percent 1993	67.5%	9.7%	22.8%	100%					
Weekend									
1	1,860	6,679	18,706	27,245	45.3%	27.9%	44.4%		
2	826	3,009	9,070	12,905	21.5%	36.4%	30.5%		
3-4	1,414	3,703	4,089	9,206	15.3%	16.8%	11.6%		
5-6	710	640	1,155	2,505	4.2%	6.3%	4.5%		
7-8	763	456	634	1,853	3.1%	2.4%	2.0%		
9-10	1,390	310	555	2,255	3.7%	2.8%	7.0%		
11+	2,064	862	1,263	4,189	7.0%	7.3%			
Total	9,027	15,659	35,472	60,158	100%	100%	100%		
Percent 2006	15.0%	26.0%	59.0%	100%					
Percent 1999	10.0%	17.8%	72.2%	100%					
Percent 1993	15.5%	9.6%	75.0%	100%					

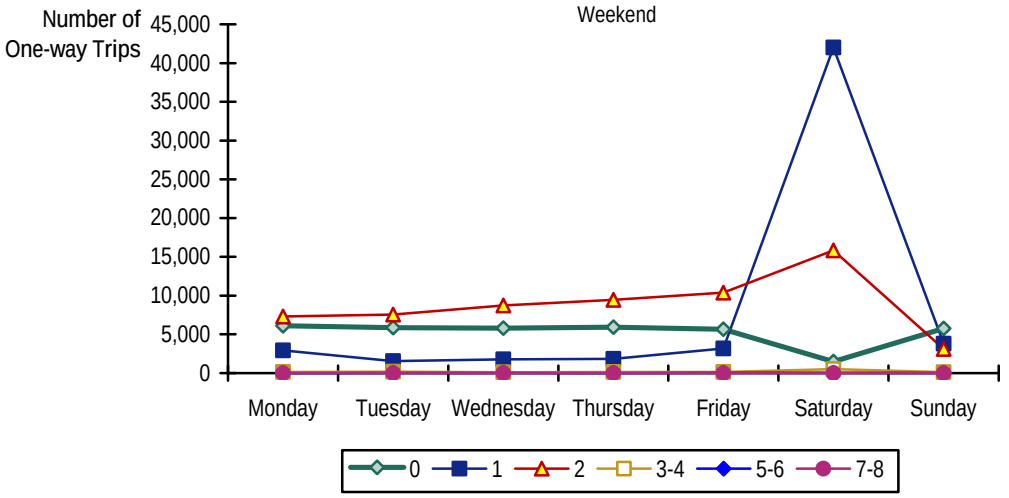
2006 Weekday Trips: 64,842 Missing Trips: 8,533

2006 Weekend Trips: 66,459 Missing Trips: 6,299

Figure 3.3 Systemwide Frequency of Trips by Day of Week

How Many One-Way Trips Have You Taken on Monday, Tuesday, etc.





Note: These charts reflect the weekly travel patterns of those travelers who responded to the survey on Tuesday (for weekdays) and on Saturday (for weekends). This does not show that Tuesdays and Saturdays have more travel on average than other days.

Table 3.3 presents the systemwide trips by direction and time-of-day. Overall, 76 percent of trips in the p.m. peak period are traveling westbound. This compares to 67 percent traveling westbound in the p.m. peak period from the 1999 survey. This increase from 1999 to 2006 is consistent across most of the routes. There is a corresponding decrease in p.m. peak period trips traveling eastbound between 1999 and 2006. Systemwide, 41 percent of total trips occurs in the p.m. peak period.

Table 3.3 Systemwide Trips by Direction and Time-of-Day

	Night (7 p.m. – 5 a.m.)	A.M. Peak (5 a.m. – 9 a.m.)	A.M. Offpeak (9 a.m. – 12 p.m.)	P.M. Offpeak (12 p.m. – 3 p.m.)	P.M. Peak (3 p.m. – 7 p.m.)	Total	Percent of Total	Percent of P.M. Peak
Weekday								
Eastbound	2,686	7,283	5,591	3,020	6,472	25,054	39%	24%
Westbound	8,555	2,510	2,383	6,251	20,076	39,773	61%	76%
Total	11,241	9,793	7,974	9,271	26,548	64,827	100%	100%
	17%	15%	12%	14%	41%	100%		

Note: Weekend trip expansion factors were based only on midday surveys, so no night time period surveys were available for expansion and for many routes, there were limited surveys for the morning and evening time periods. As a result, weekend trips by time period are not reported, as the expansion results are unreliable.

3.3.3 Round Trip Patterns

The vast majority of ferry travelers in 2006 make a round trip on the same day, as shown in Figure 3.4. This also was true in 1993 and 1999, but the percent of travelers making round trips on the same day has declined since 1993 for weekday travelers and increased for weekend travelers since 1993. The increase in same day round trip travel for weekend travelers is likely a result of the fact that Saturday travelers are more likely to be day-trippers than Sunday travelers, which are more likely to be weekend travelers (i.e., leave on Friday, return on Sunday).[14] The decrease in same day round trip travel for weekday travelers may be because rising fares have caused people to take fewer overall trips, but to extend the stay of individual trips from one day to two or more days.

A high percent of people taking round trips use the same ferry route for the return trip (94 percent), with another four percent of travelers returning on a different ferry route, and the remaining three percent driving around.[15] The people taking a different ferry route are more likely to be travel for recreational purposes who are visiting more than one location across the Sound. There is an increase in people taking the same ferry route on the return trip in 2006 from 1999 and 1993 for both weekday and weekend travelers, which may be due to increased gas prices (causing travelers to drive less) or differences in travel behavior between October and May (travelers are more likely to be visiting or recreating in May than October).[16] These round trip patterns are presented in Figure 3.5.

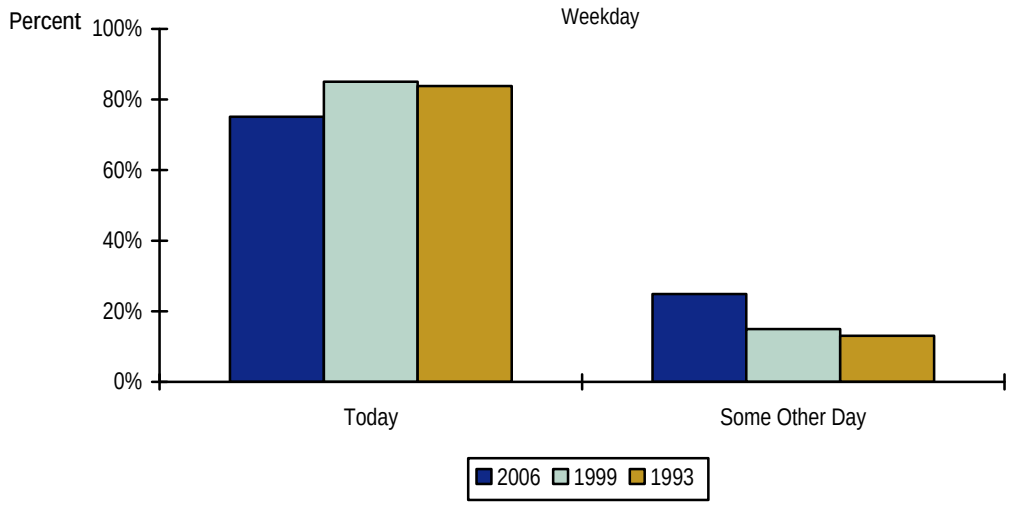
---

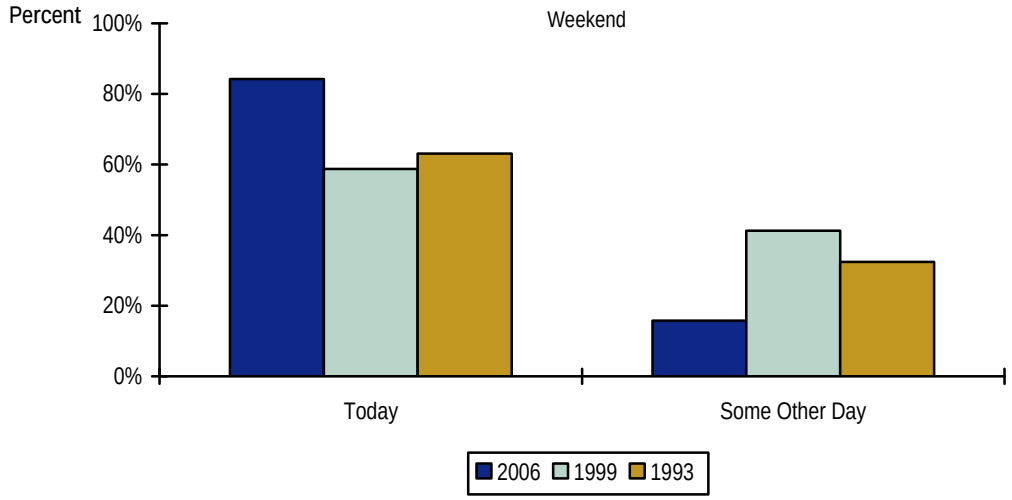
[14] The 2006 survey was conducted on a Saturday, while the 1993 and 1999 surveys were conducted on Sundays, to represent weekend travel.

[15] It should be noted that there is likely a slightly higher percentage of people who take the ferry in the a.m. period and drive around for their return trip because the ferry is cheaper in the eastbound direction. All WSF surveys were collected during the p.m. period.

[16] The 2006 survey was conducted in October, and the 1993 and 1999 surveys were conducted in May.

Figure 3.4 Systemwide Round Trip Patterns by Day
When will you return? When was the first half of your trip?

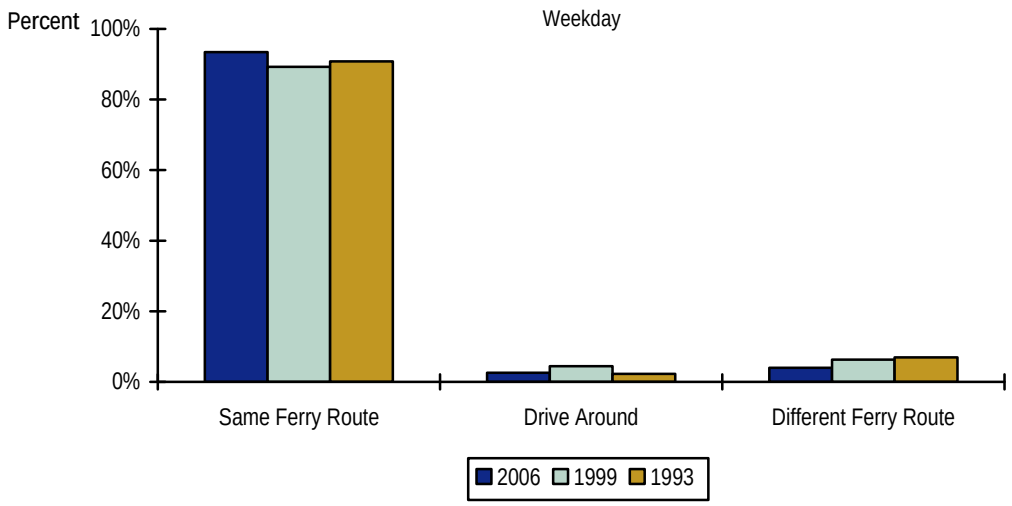


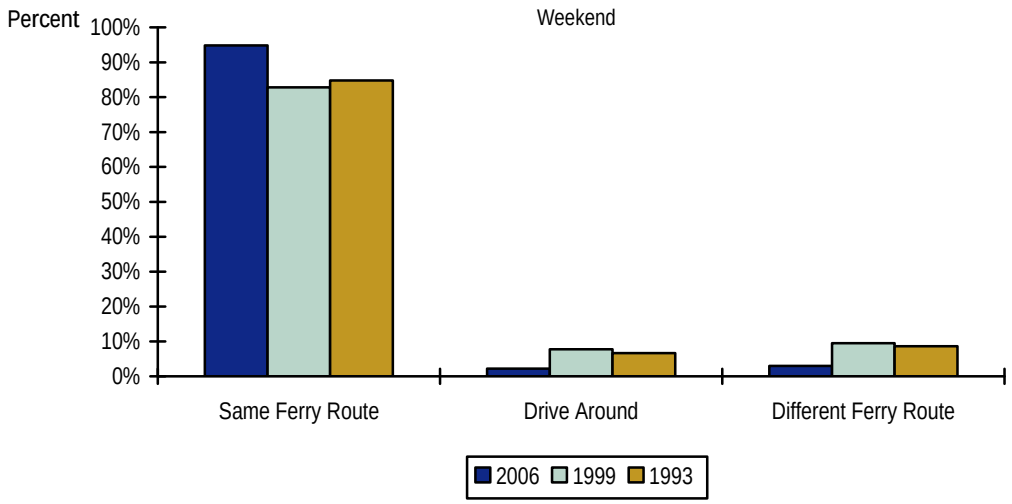


2006 Weekday Trips: 64,842 Missing Trips: 1,170

2006 Weekend Trips: 66,459 Missing Trips: 1,088

Figure 3.5 Systemwide Round Trip Patterns by Route
How will you return? How did you travel on the first half of your trip?



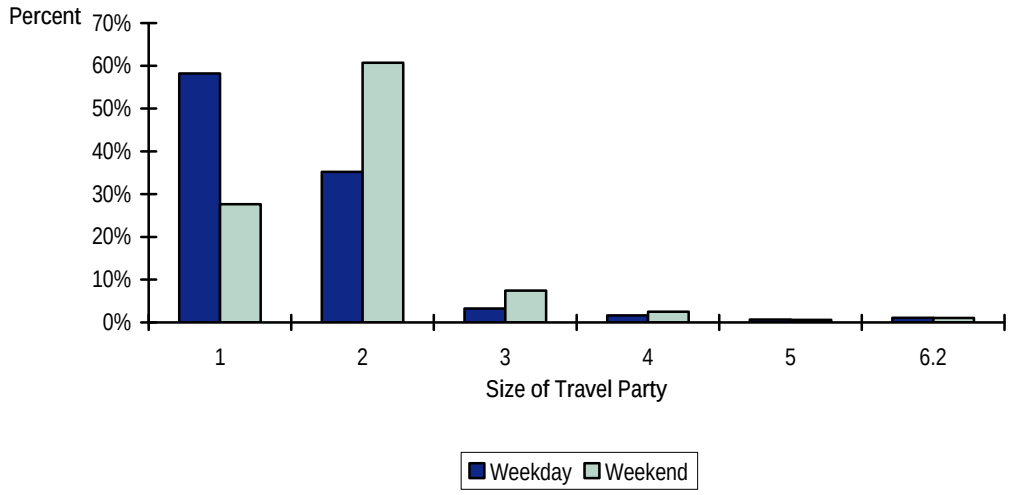


2006 Weekday Trips: 64,842 Missing Trips: 1,653

2006 Weekend Trips: 66,459 Missing Trips: 1,287

Figure 3.6 presents the size of the travel party for weekday and weekend travelers. As expected, the majority of people traveling together occur on the weekends (61 percent) and the majority of people traveling alone occur on the weekdays (58 percent). This is consistent with the trip purpose for work and non-work trips.

Figure 3.6 Systemwide Party Size
How many people are traveling with you?



Note: The original question asked how many people are traveling with you (not including yourself), but the data implied that most people did not include themselves in the answer, so these data were corrected based on who each respondent was traveling with. The highest category of 6.2 is the average of those traveling with 6 or more people.

3.4 ACCESS AND EGRESS TRAVEL CHARACTERISTICS

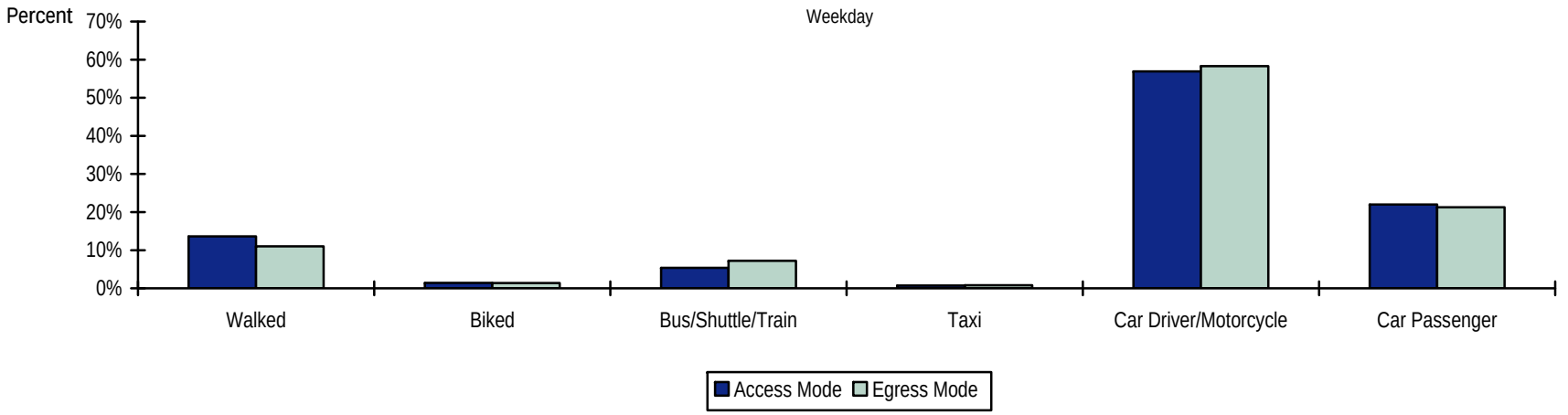
3.4.1 Access, Egress, and Boarding Modes

The majority of ferry riders drive a vehicle onboard the ferry system (79 percent) on a daily basis, with another 20 percent walking onboard the ferry and the remaining one percent taking a bicycle onboard. This is higher on weekends (82 percent) than on weekdays (72 percent), as expected. The trend to drive a vehicle onboard the ferry has been increasing over time for weekday travelers, from 55 percent in 1993 to 68 percent in 1999 to the current 72 percent in 2006. The increase is smaller for weekend travelers, from 73 percent in 1993 to 82 percent in 2006, with an decrease from 85 percent in 1999. Average vehicle occupancy also has been declining in this time period, from 2.1 persons per vehicle in 1999 to 1.7 persons per vehicle in 2006.

There is a higher percent of walk and transit access trips during the week than on the weekend, but the walk egress trips are slightly lower during weekdays than on weekends, as shown in Figure 3.7. This is because people who travel more frequently on the ferries for work, school, or other purposes, are more likely to choose the reduced fare for passengers than to pay the higher vehicle fares. In addition, daily ferry riders are more likely to learn and use the transit options rather than day-trippers, who may not see the need to learn and use the transit options. Conversely, there are 50 percent more car passengers on the

Figure 3.7 Systemwide Access and Egress Modes

How did you travel from your origin location to this sailing?
How will you travel to the destination you are going to now?



weekend than on the weekday, because these trips are more likely to be for shopping or recreation purposes, leading to a higher likelihood of traveling with others for these purposes.

Tables 3.3 and 3.4 provide a more detailed view of access and egress modes, by boarding mode. There is a trend towards fewer walk, bike, taxi, and transit access modes between 1993 and 1999 and this has held constant to 2006 for weekday travelers (28 percent in 1993 and 21 percent in 1999 and 2006). Egress walk, bike, taxi, and transit trips were constant between 1993 and 1999 (at 16 percent) and have increased since 1999 (to 20 percent in 2006). Both the weekday transit access and egress modes decrease from 1999 to 2006, even though other non-auto modes stay constant (for access) or increase (for egress). Both car driver access and egress modes have increased slightly between 1999 and 2006, but car passenger access and egress modes have decreased in this same timeframe.

The biggest reason for taking a vehicle on the ferry was that the vehicle was needed at the destination (about 47 percent of weekday travelers taking their vehicle on gave this reason). Three other prominent reasons for weekday travelers taking a vehicle on were that the vehicle is necessary for business, that the traveler had baggage to carry, and that transit did not go to their destination (about 12 percent each answer). A few percent of people gave their response that they do not like to walk, that they were mobility impaired, that there was no safe nearby parking, that transit did not go to their destination, or that they were traveling with children or seniors. The pattern for weekend travelers is similar to that of weekday travelers, except that needing a vehicle at the destination is even more important (almost 70 percent) and as expected there is little need for a vehicle for business reasons. Figure 3.8 presents the results of the travelers' reasons for taking a vehicle on-board the ferry.

Table 3.4 Systemwide Access and Boarding Modes

How did you travel from your origin location to this sailing? How will/did you board this ferry?

Access mode	Drive	Walk	Bicycle	Total	All boardings 2006	All boardings 1999	All boardings 1993
Weekday							
Walked	463	8,306	13	8,782	13.6%	12.1%	17.0%
Biked	45	193	669	907	1.4%	1.2%	1.8%
Bus/Shuttle/Train	566	2,873	14	3,453	5.4%	7.4%	9.2%
Taxi	5	452	0	457	0.7%	0%	0.2%
Car driver/ motorcycle	33,468	3,131	34	36,633	56.9%	54.4%	53.1%
Car passenger	11,799	2,357	3	14,159	22.0%	24.9%	18.7%
Total	46,346	17,312	733	64,391	100%	100%	100%
Percent 2006	72.0%	26.9%	1.1%	100%			
Percent 1999	67.7%	31.2%	1.2%	100%			
Percent 1993	54.9%	43.2%	1.8%	100%			
Weekend							
Walked	87	2,482	0	2,569	3.9%	2.6%	4.9%
Biked	27	31	325	383	0.6%	0.8%	1.9%
Bus/Shuttle/ Train	139	2,113	0	2,252	3.4%	1.1%	2.1%
Taxi	0	144	0	144	0.2%	0%	0.2%
Car driver/ motorcycle	35,110	3,264	95	38,469	58.0%	67.7%	56.6%
Car passenger	19,128	3,335	9	22,472	33.9%	27.8%	34.4%
Total	54,491	11,369	429	66,289	100%	100%	100%
Percent 2006	82.2%	17.2%	0.6%	100%			
Percent 1999	85.7%	13.1%	1.2%	100%			
Percent 1993	73.4%	24.4%	2.2%	100%			

2006 Weekday Trips: 64,842 Missing Trips: 453

2006 Weekend Trips: 66,459 Missing Trips: 168

Table 3.5 Systemwide Egress and Boarding Modes

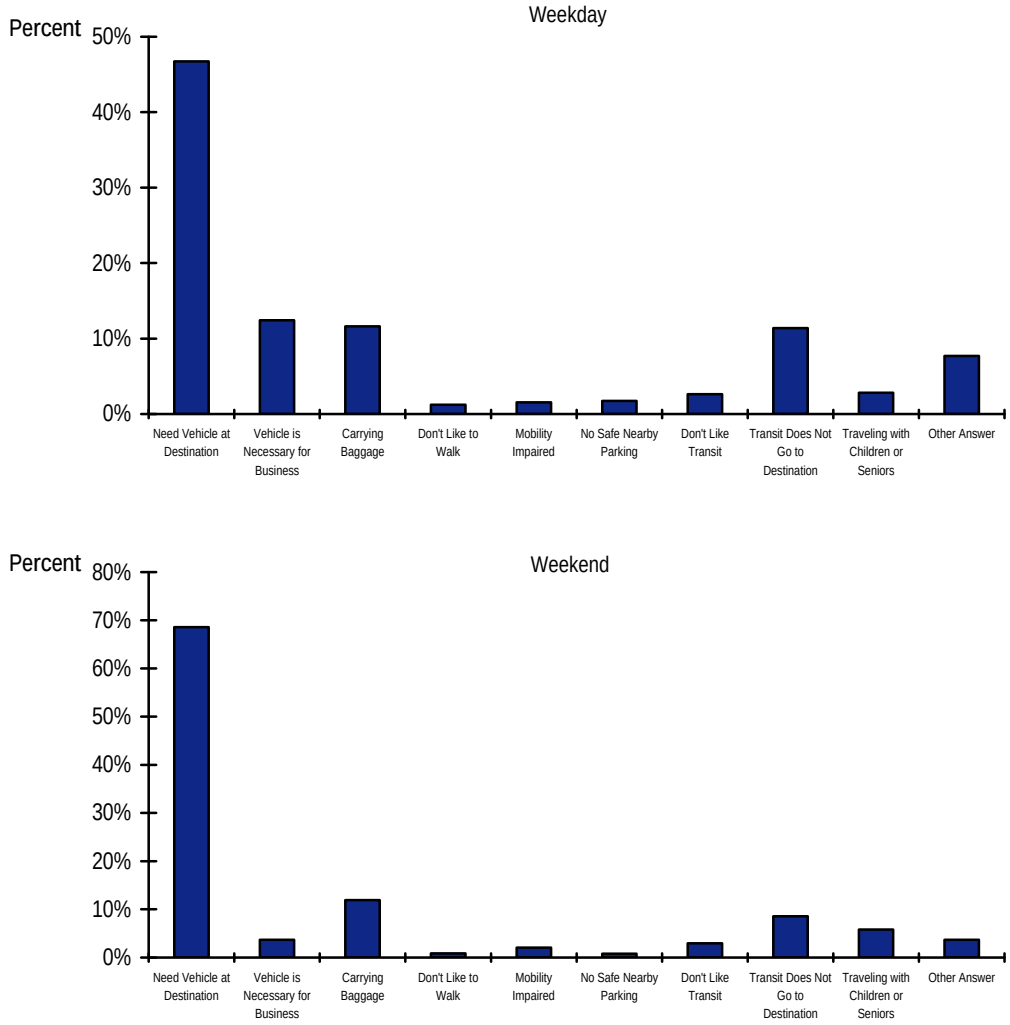
How will you travel to the destination you are going to now? How will/did you board this ferry?

Egress mode	Drive	Walk	Bicycle	Total	All boardings 2006	All boardings 1999	All boardings 1993
Weekday							
Walked	520	6,380	44	6,944	11.0%	5.4%	7.3%
Biked	43	244	592	879	1.4%	1.0%	1.9%
Bus/Shuttle/ Train	401	4,123	5	4,529	7.2%	9.7%	6.0%
Taxi	32	469	0	501	0.8%	0%	0.4%
Car driver/ motorcycle	33,453	3,251	20	36,724	58.3%	57.4%	63.9%
Car passenger	10,826	2,506	54	13,386	21.3%	26.4%	20.4%
Total	45,275	16,973	715	62,963	100%	100%	100%
Percent 2006	71.9%	27.0%	1.1%	100%			
Percent 1999	67.7%	31.2%	1.2%	100%			
Percent 1993	54.9%	43.2%	1.8%	100%			
Weekend							
Walked	176	4,784	0	4,960	7.7%	3.2%	4.2%
Biked	33	21	422	476	0.7%	0.9%	1.6%
Bus/Shuttle/ Train	128	830	0	958	1.5%	0.9%	2.0%
Taxi	19	269	0	288	0.4%	0%	0.4%
Car driver/ motorcycle	33,986	2,371	0	36,357	56.1%	67.0%	57.8%
Car passenger	18,695	3,011	6	21,712	33.5%	27.9%	33.9%
Total	53,037	11,286	428	64,751	100%	100%	100%
Percent 2006	81.9%	17.4%	0.7%	100%			
Percent 1999	85.7%	13.1%	1.2%	100%			
Percent 1993	73.4%	24.4%	2.2%	100%			

2006 Weekday Trips: 64,842 Missing Trips: 1,876

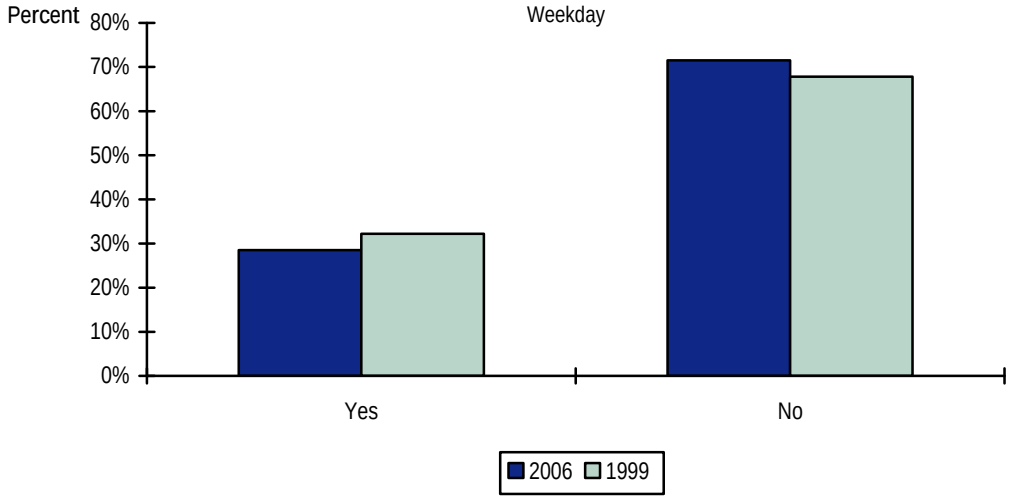
2006 Weekend Trips: 66,459 Missing Trips: 1,704

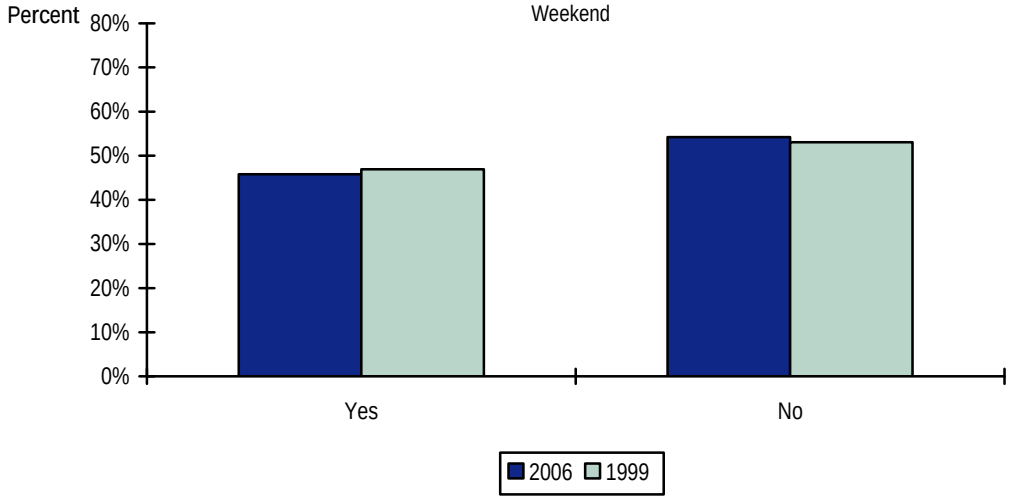
Figure 3.8 Systemwide Reasons for Taking a Vehicle
Why did you choose to board in a vehicle instead of walk-on?



For travelers who travel to the ferry terminal and do not take their car on the ferry, a majority of them do not park their car at the terminal, as shown in Figure 3.9. The weekend travelers indicate a higher degree of parking at the terminal, probably because parking is more available and in some cases less expensive on weekends than on weekdays.

Figure 3.9 Systemwide Non-motorized Boardings
Did you park a vehicle to board this ferry?





A large number of people keep a vehicle at their destination, so that they can drive to their destination, but still walk on the ferry (about 27 percent for weekday, 21 percent for weekend). On the other hand, a much smaller number of people keep bicycles at the terminals for this purpose (about three percent for weekday and two percent for weekend). This is presented in Table 3.5.

Table 3.6 Systemwide Destination Vehicles

Did you keep either a bike or vehicle at the destination end of this ferry trip?

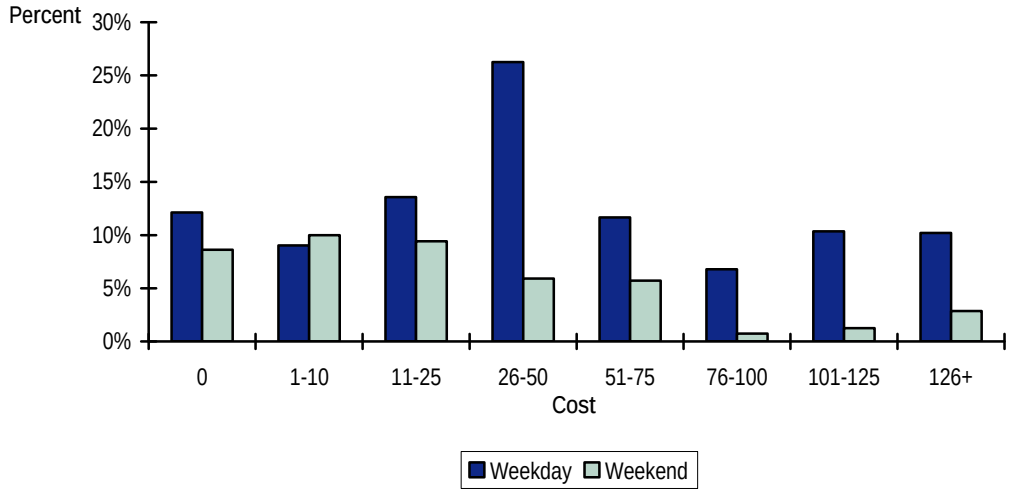
Egress Vehicle	Riders	Percent of Total
Weekday		
Bike	466	2.6%
Vehicle	4,999	27.4%
NA	12,767	70.0%
Total	18,232	100%
Weekend		
Bike	262	2.2%
Vehicle	2,441	20.5%
NA	9,188	77.3%
Total	11,891	100%

Note: Only asked when boarding mode was walk or bike.

For travelers who ride transit to/from the ferry, the average monthly transit cost is $52 for weekday travelers and $31 for weekend travelers. As expected, weekend travelers are less likely to include travelers who commute or travel regularly by ferry and therefore would not have significant monthly costs for transit access trips. These costs are presented in Figure 3.10.

Figure 3.10 Systemwide Monthly Transit Costs

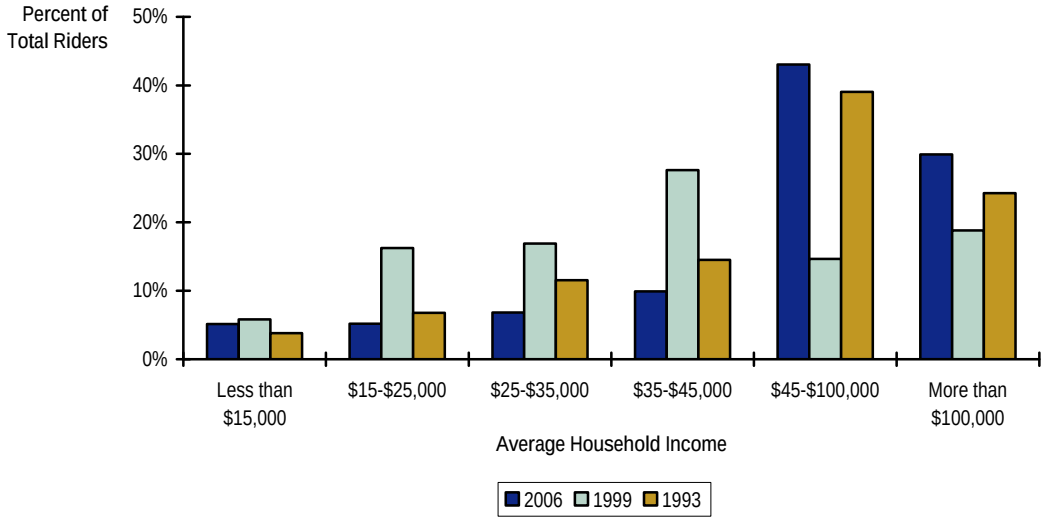
If you ride transit (bus/train), what is the average monthly cost that you pay for transit to/from work or school?



3.5 DEMOGRAPHIC CHARACTERISTICS

Figure 3.11 presents the average self-reported household income of ferry travelers. The average income for ferry travelers is $96,000, which is higher than the regional average self-reported household income of $53,000.[17] Average income also has been increasing since 1999, from $92,000 average household income (in 2006 constant dollars) for ferry riders and $50,000 average household income for all Puget Sound residents. Average income for ferry riders was relatively flat from 1993 to 1999 increasing only at the rate of inflation. The distribution of ferry riders by income group also demonstrates that low and middle income travelers were able to ride the ferries in 1999, but not as frequently in 2006. The majority of ferry riders in 2006 make more than $45,000 annual household income per year.

Figure 3.11 Systemwide Traveler Income by Survey Year
What was your estimated household income in 2005 before taxes?

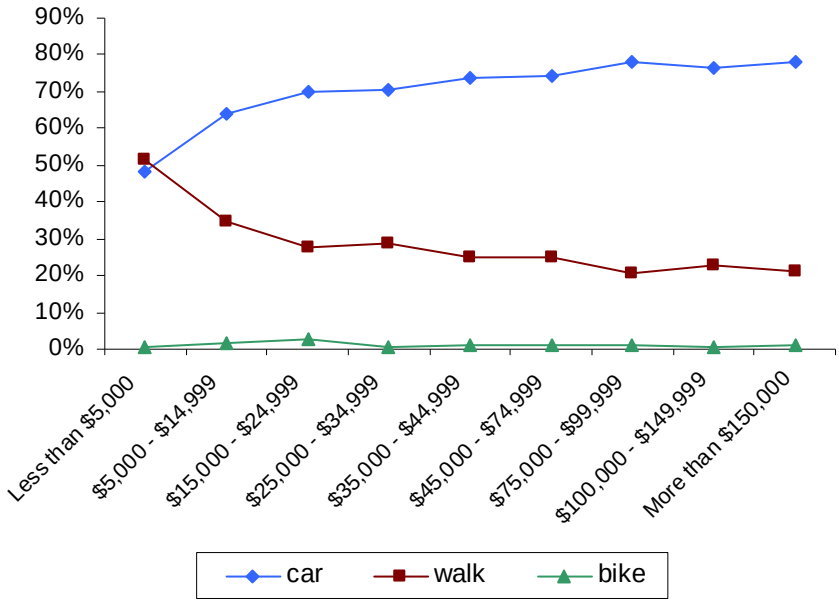


Another interesting evaluation on income is by comparing average household income to boarding mode. This is presented in Figure 3.12. This shows a clear trend for lower income travelers to walk on board more often than higher income travelers. Even though the trend continues for all income groups, it is most distinct for average incomes below $25,000 per year. We also reviewed statistics on keeping a vehicle at the destination terminal by income group. This review showed that there were a higher number of low income travelers (5 percent) who kept a vehicle at the destination terminal than high income

[17] Regional averages were provided by the Puget Sound Regional Council from the 1999 and 2006 household travel surveys.

travelers (2 percent).

Figure 3.12 Systemwide Traveler Income by Boarding Mode
What was your estimated household income in 2005 before taxes?

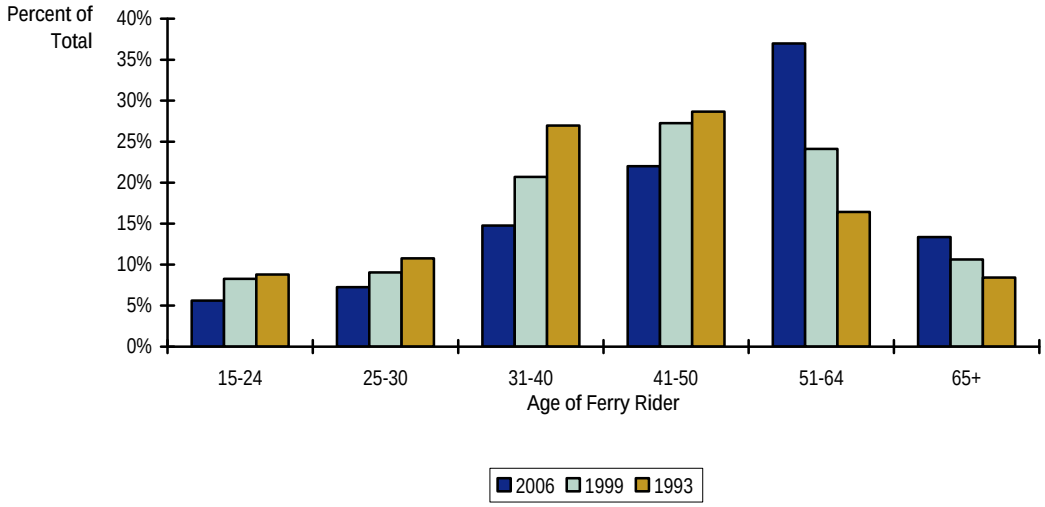


The average age for ferry travelers is presented in Figure 3.12. The average age for weekday travelers is 48 and the average age of weekend travelers is 49. This is higher than the regional average age of 35. It also has been increasing over time, from an average age of 42 in the 1993 survey to 48 in the 2006 survey. The distribution of the ferry riders by age group also demonstrates that the average age has been increasing over time. The increase in average age may be contributing to reductions in work travel because on a national scale, older workers tend to work more limited hours and tend to work at home more often than younger workers.

The average number of vehicles owned per household has been increasing slightly for ferry riders, from 2.22 vehicles per household in 1993 to 2.36 vehicles per household in 2006. This is higher than the regional average of 1.8 vehicles owned per household.

There are about 1.3 workers per household in the 2006 survey. This is similar to the regional average of 1.4 workers per household. About 37 percent of the total ferry riders come from two-worker households. Data on number of workers was not collected during the 1999 or 1993 survey so we could not determine the trend. Of the weekday ferry riders, 77 percent said they were employed, up slightly from the 75 percent reported in the 1999 survey.

Figure 3.13 Systemwide Traveler Age
In what year were you born?



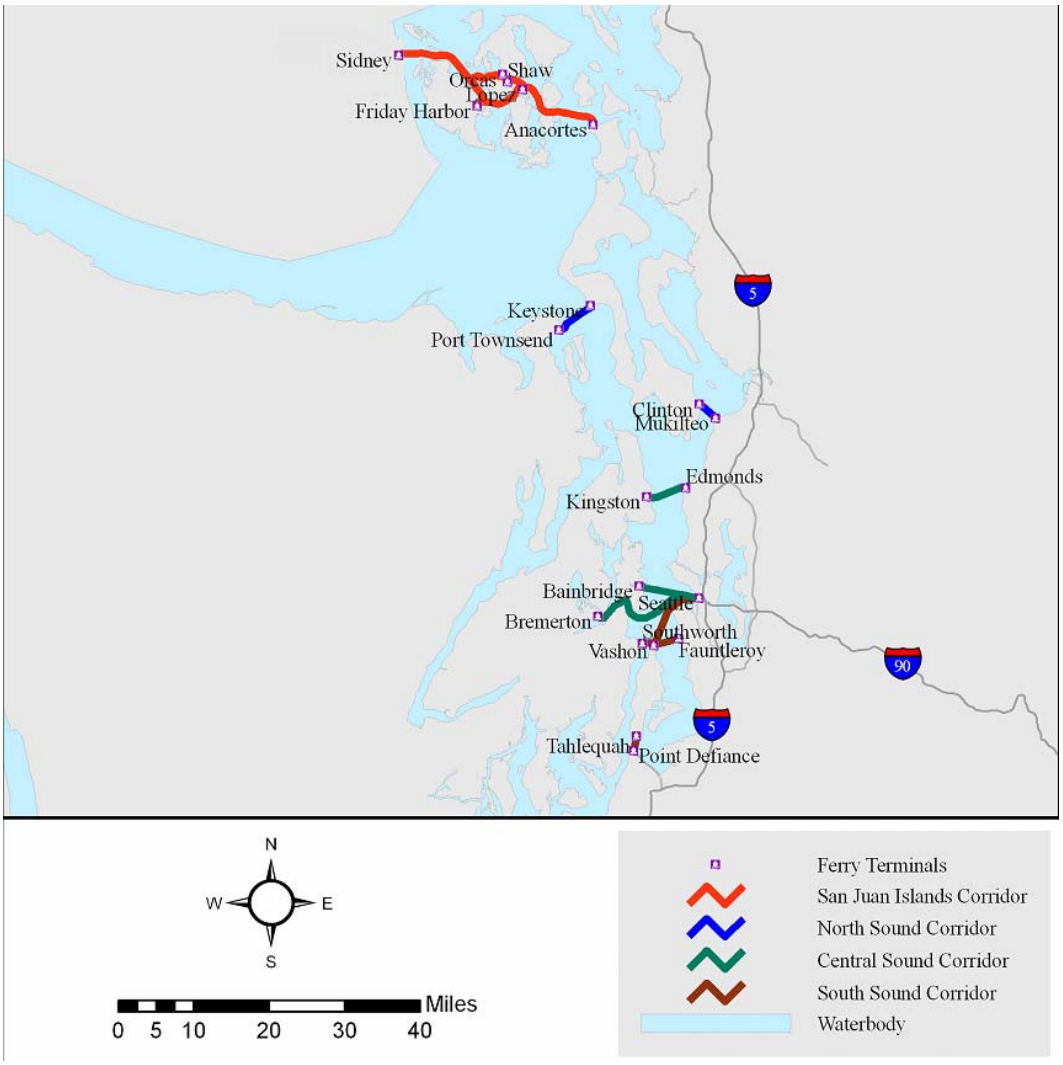
4.0 Corridor Travel Markets

There are four corridor travel markets in the WSF system:

- San Juan Islands corridor (Anacortes-San Juan Islands, Anacortes-Sidney routes);
- North Sound corridor (Mukilteo-Clinton, Port Townsend-Keystone routes);
- Central Sound corridor (Edmonds-Kingston, Seattle-Bainbridge, Seattle-Bremerton routes); and
- South Sound corridor (Fauntleroy-Vashon, Fauntleroy-Southworth, Vashon-Southworth, Seattle-Vashon Passenger-Only, Pt. Defiance-Tahlequah routes).

These are presented in Figure 4.1.

Figure 4.1 Corridor Travel Markets for the WSF System



The San Juan Islands corridor is isolated from the rest of the system and does not typically serve as a substitute for any other route based on the origins and destinations of travelers. If someone is traveling to/from the San Juan Islands, this is the only means to get there. This is not true for travelers destined to Sidney, since there are alternate British-Columbia ferries that also go to Vancouver Island. The San Juan Islands corridor includes some trips that travel from one island to another (interisland), but these trips were not included in the corridor or route analyses because the interisland trips could not be expanded due to limited responses and limitations on the available counts.

The North Sound corridor also is isolated in terms of the travelers it serves, since the primary focus in this corridor is on travelers destined for Whidbey Island or points north. The Port Townsend-Keystone ferry draws travelers from all over the Olympic Peninsula, but for only those travelers destined to Whidbey Island or points north. The Mukilteo-Clinton ferry serves Whidbey Island travelers almost exclusively.

The Central Sound corridor has relatively little interchange between the Seattle-Bainbridge and Edmonds-Kingston routes and any other routes in the system, because these routes serve specific communities on the west side (Bainbridge Island and North and Central Kitsap County and the Olypmic Peninsula) and because the northern route at Mukilteo-Clinton serves an isolated community as well (Whidbey Island).

There is, however, interplay between the Seattle-Bremerton route and the Southworth-Fauntleroy route, since these both serve South Kitsap County. Since the Bremerton ferry goes into downtown Seattle, this serves more walk-on passengers effectively than the Southworth ferry, which has fewer transit and walking options at Fauntleroy. The other important dynamic is that the Southworth ferry has a shorter crossing time (35 minutes) compared to the Bremerton ferry (60 minutes), so travelers who are equidistant from the terminals (and driving) may choose the shorter crossing time at Southworth. The Seattle-Vashon Passenger-Only ferry also serves walk-ons from South Kitsap County destined to Seattle with a shorter crossing time than Bremerton (35 minutes) but with a transfer required from the Southworth-Vashon ferry and the Seattle-Vashon Passenger-Only ferry. Since the origin-destination survey results show that travelers in South Kitsap County do indeed switch between these three viable options, further market research on the reasons for these tradeoffs may be warranted.

The remainder of the South Sound routes are relatively isolated in the markets they serve. The Point Defiance-Tahlequah, Southworth-Vashon, and the Fauntleroy-Vashon routes all serve Vashon Island almost exclusively. The Seattle-Vashon Passenger-Only ferry also serves Vashon Island primarily, and South Kitsap County as mentioned above.

These are analyzed in detail in Sections 5 through 8, both at the corridor level and at the route level. We also have included some of the key findings from each corridor in the following summaries. Age, income, and auto ownership are quite similar across all the corridors. Specific travel characteristics, though, vary significantly by corridor, as described in the following sections.

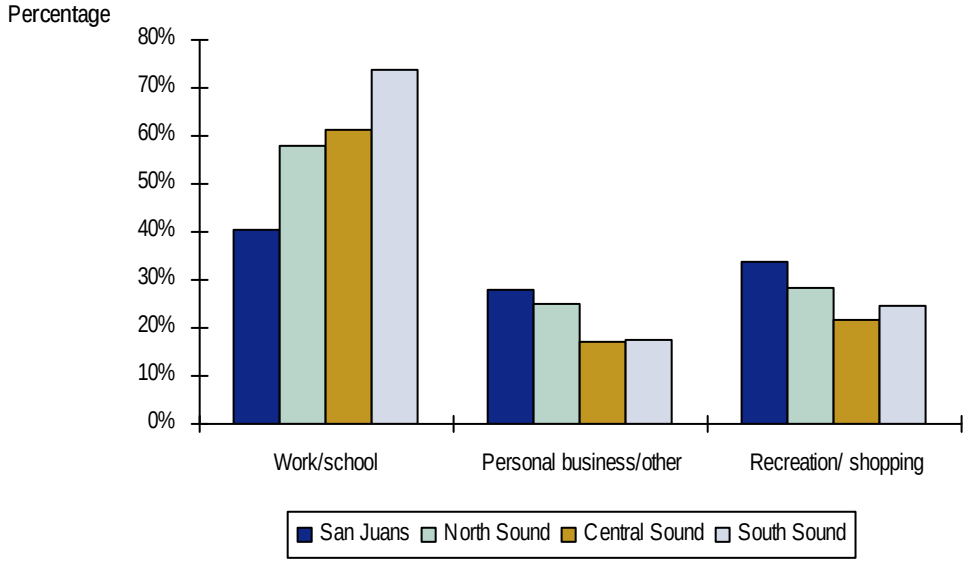
4.1 SAN JUAN ISLANDS CORRIDOR FINDINGS

The San Juan Islands corridor is the lowest volume travel corridor in the WSF system, with 1.7 million riders per year (or seven percent of total system ridership). There are two routes in this corridor, with numerous possible inter-island stops on each route: Anacortes-San Juan Islands and Anacortes-Sidney. The corridor serves all trips to/from the San Juan Islands and Vancouver Island (British Columbia).

The ferry riders in this corridor are wealthier than average ($90,000 per year self-reported household income) and older than average (50 years old) when compared to regional averages ($53,000 per year self-reported household income and 35 years of age). Consistent with the average household incomes, the number of vehicles per household also is higher than the regional average (2.5 vehicles per household compared to the regional average of 1.7 vehicles per household).

Over the last seven years, work trips have increased in this corridor to become the largest share of total trips (40 percent in 2006 compared to 31 percent in 1999). While the non-work trips still make up more than half the total trips, this increase represents a clear trend towards more working households living on the San Juan Islands, as well as more working opportunities on the San Juan Islands. The San Juan Islands corridor still has the smallest share of work trips of any corridor in the system, as demonstrated in Figure 4.2. But the increasing work trip trend in this corridor is different than the trend that is occurring in other corridors, where work trips are the most dominant trip purpose, but are declining, in part because of telecommuting. There is significant telecommuting in this corridor as well, with 19 percent of all weekday travelers saying that they telecommute at least one day per week.

Figure 4.2 Weekday Trips by Purpose and Corridor



Part of the work trip phenomenon is that there are a significant number of people who travel to work on the San Juan Islands. More than half (58 percent) of these work trips are made by people who live in Whatcom or Skagit County. Another 8 percent live in Seattle and 9 percent live outside the survey area boundaries.

San Juan Island travelers also use the ferry less frequently than travelers in other corridors, because of the longer travel times both on the ferry and traveling on the mainland. Almost 70 percent of weekday travelers commute on the ferry one or two days per week. 84 percent of weekend travelers use the ferry only once a week.

More than half the travelers in this corridor return on a different day than they travel out on, probably because the fares and travel times are high enough to warrant this type of multi-day travel for many travelers. This is consistent with the previous 1999 survey for weekday travelers, but there has been a significant shift in round trip patterns for weekend travelers. In 1999, weekend travelers were more likely to return on a different day (80 percent), but in 2006, they were more likely to return on the same day (61 percent). The 2006 survey also included a question on whether travelers were on their preferred sailing. Almost 20 percent of weekday travelers said that they would prefer a different sailing. The underlying reasons for this result are not well understood, so additional research on this topic is warranted.

There is an increase in ferry riders boarding in a vehicle and a corresponding decrease in ferry riders who walk onboard from 1993 to 1999 (from 75 percent in 1993 to 86 percent in 1999) and then a small decrease in ferry riders boarding in a vehicle from 1999 to 2006 (to 84 percent in 2006). The small decrease is due to car passengers changing modes (from 38 percent in 1999 to 30 percent in 2006) rather than car drivers changing modes (because these increase from 60 to 63 percent from 1999 to 2006). This may be a result of a combination of factors, including that the increased work trips will more likely need their vehicle for work purposes, that destinations are more likely to be beyond transit accessible locations, and higher incomes make some ferry riders less sensitive to cost increases. A large number of people keep a vehicle at their destination terminal, so that they can drive to their destination, but still walk on the ferry (50 percent for weekday and 28 percent for weekend) further supporting the need for a vehicle at Anacortes.

The Anacortes-San Juans ferry riders follows a typical commuter pattern, with 77 percent of travel heading westbound in the p.m. peak, even though this route is not typically thought of as a commuter route. This has increased from 53 percent in 1999. The p.m. peak period represents 35 percent of daily traffic.

4.2 NORTH SOUND CORRIDOR FINDINGS

The North Sound Corridor is the second highest travel corridor in the WSF system, with 4.8 million riders per year, but this represents only 20 percent of total system ridership. There are two routes in this corridor: Mukilteo-Clinton

and Port Townsend-Keystone. The corridor serves primarily trips to and from Whidbey Island and trips from the Olympic Peninsula destined to points north of Whidbey Island.

The ferry riders in this corridor are wealthier than average ($90,000 per year self-reported household income) and older than average (51 years old) when compared to regional averages ($53,000 per year self-reported household income and 35 years of age). Consistent with the average household incomes, the number of vehicles per household also is higher than the regional average (2.5 vehicles per household compared to the regional average of 1.7 vehicles per household).

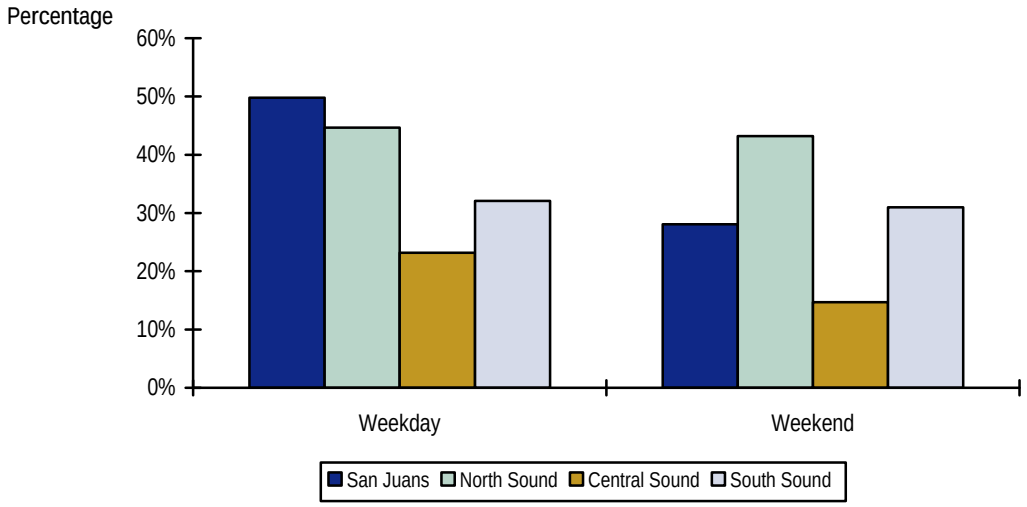
The corridor is dominated by work trips (more than 52 percent). Even though work trips are the most common trip purpose, they are declining as a percent of total trips since 1993 (56 percent) but have held constant since 1999 (at 52 percent). This is likely because more people are telecommuting (22 percent of weekday travelers said they telecommute at least one day per week), there are more job opportunities on Whidbey Island, and more people can work at home full-time.

Travelers in the North Sound corridor are most likely to use the ferry one or two days per week (63 percent) and weekend travelers are even more likely to travel one or two days per week (83 percent). 27 percent of weekday travelers use the ferry five days per week.

The vast majority of travelers return the same day and using the same ferry route, as expected. But the number of return trips on a different day has increased significantly in recent years (from 14 percent in 1999 to 27 percent in 2006) for weekdays. This is likely because with higher fares, ferry riders are more likely to take fewer trips but stay longer. The 2006 survey also included a question on whether travelers were on their preferred sailing and 27 percent of weekday travelers said that they would prefer a different sailing. The underlying reasons for this result may be overcrowding on vehicle ferries in the peak-period, but additional research on this topic is warranted.

There is an increasing trend in ferry riders boarding in a vehicle and a decreasing trend in ferry riders who walk onboard from 1993 to 2006 (from 81 percent in 1993 to 86 percent in 1999 to 88 percent in 2006). This may be a result of a combination of factors, including that the increase in non-work trips are less likely to be walk-ons, that destinations are more likely to be beyond transit accessible locations, higher incomes make some ferry riders less sensitive to cost increases, and/or more travelers need their vehicle for work purposes. A significant number of people keep a vehicle at their destination, so that they can drive to their destination terminal, but still walk on the ferry (45 percent for weekday and 43 percent for weekend). This is higher than for any other corridor on the weekends and almost the highest on the weekdays, as shown in Figure 4.3.

Figure 4.3 Percent of Travelers keeping Vehicles or Bicycles at Destination Ferry Terminals



In the North Sound Corridor, the Mukilteo-Clinton route is more commuter oriented, with 74 percent of p.m. peak travel heading westbound in the p.m. peak period. The Port Townsend-Keystone route has 61 percent of travel heading westbound in the p.m peak period. Both routes have increased the percent of p.m. peak period travel in the westbound direction since 1999 (69 and 56 percent, respectively).

4.3 CENTRAL SOUND CORRIDOR FINDINGS

The Central Sound corridor is the highest travel corridor in the WSF system, with 13.2 million riders per year (this is 56 percent of system ridership). There are three routes in this corridor: Seattle-Bainbridge, Seattle-Bremerton, and Edmonds-Kingston. The corridor serves primarily North and Central Kitsap County and Bainbridge Island traveling to/from central and north Seattle.

Ferry riders in this corridor are wealthier than average ($100,000 per year self-reported household income) and older than average (48 years old) when compared to regional averages ($53,000 per year self-reported household income and 35 years of age). Consistent with the average household incomes, the number of vehicles per household also is higher than the regional average (2.3 vehicles per household compared to the regional average of 1.7 vehicles per household).

The corridor is dominated by work trips (more than 60 percent). Even though work trips are the most common trip purpose, they are declining as a percent of total trips since 1993 (73 percent in 1993 and 61 percent in 2006). This is likely because more people are telecommuting (19 percent of weekday travelers said they telecommute at least one day per week), there are more job opportunities

on Bainbridge Island and in Kitsap County, and more people can work at home full-time.

Weekday travelers are most likely to travel four or five days per week (more than 40 percent use ferries five days per week) but weekend travelers are most likely to travel only one day per week, indicating that the weekend market is made up of different people than the weekday market and for different purposes (i.e., non-work).

The vast majority of travelers return the same day and using the same ferry route, as expected. But the number of return trips on a different day has increased significantly in recent years (from 11 percent in 1999 to 24 percent in 2006) for weekdays. This is likely because with higher fares, ferry riders are more likely to take fewer trips but stay longer. The 2006 survey also included a question on whether travelers were on their preferred sailing and 30 percent of weekday travelers said that they would prefer a different sailing. The underlying reasons for this result are not well understood, so additional research on this topic is warranted.

There is an increasing trend in ferry riders boarding in a vehicle and a decreasing trend in ferry riders who walk onboard from 1993 to 2006. This may be a result of a combination of factors, including that the increase in non-work trips will less likely be walk-ons, that destinations are more likely to be beyond transit accessible locations, that higher incomes make some ferry riders less sensitive to cost increases, and/or more travelers need their vehicle for work purposes. A significant number of people keep a vehicle at their destination, so that they can drive to their destination, but still walk on the ferry (23 percent for weekday and 15 percent for weekend).

In the Central Sound Corridor, the Seattle-Bainbridge route is the most commuter oriented, with 86 percent of p.m. peak travel heading westbound in the p.m. peak period. This is an increase from 78 percent in 1999. It represents 46 percent of daily traffic. The Seattle-Bremerton and Edmonds-Kingston routes have 74 and 66 percent of travel heading westbound in the p.m peak period, respectively. These routes have not changed significantly since 1999. Seattle-Bremerton has 46 percent of daily traffic in the p.m peak period and Edmonds-Kingston has 34 percent.

4.4 SOUTH SOUND CORRIDOR FINDINGS

The South Sound corridor is the third highest travel corridor in the WSF system, with four million riders per year (this is 17 percent of system ridership). There are five routes in this corridor: Fauntleroy-Vashon, Fauntleroy-Southworth, Vashon-Southworth, Seattle-Vashon Passenger-Only, Pt. Defiance-Tahlequah routes. The corridor serves primarily trips to/from Vashon Island and South Kitsap County.

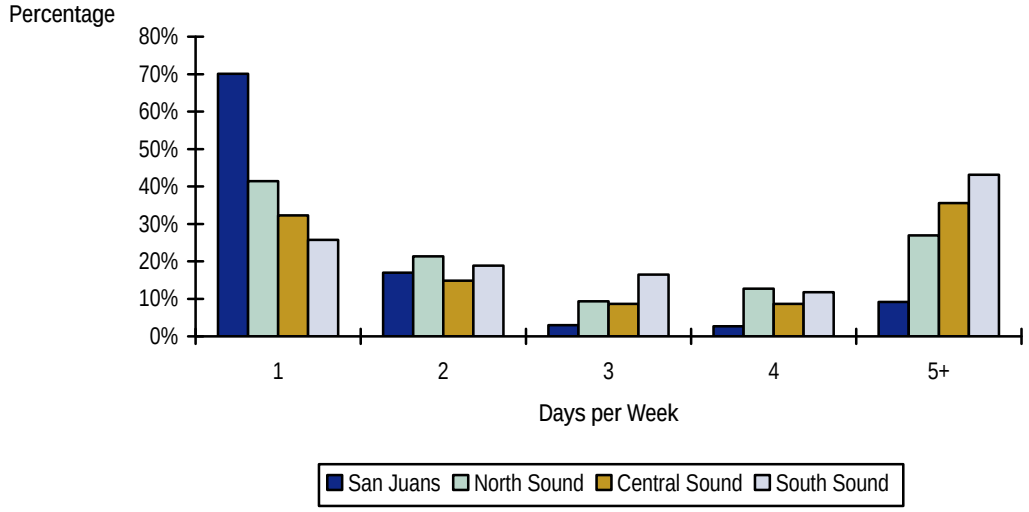
The ferry riders in this corridor are wealthier than average ($94,000 per year self-reported household income) and older than average (48 years old) when

compared to regional averages ($53,000 per year self-reported household income and 35 years of age). Consistent with the average household incomes, the number of vehicles per household also is higher than the regional average (2.4 vehicles per household compared to the regional average of 1.7 vehicles per household).

The corridor is dominated by work trips (more than 74 percent). Even though work trips are the most common trip purpose, they are declining as a percent of total trips since 1999 (from 64 percent in 1999). This may because more people are telecommuting (22 percent of weekday travelers said they telecommute at least one day per week), there are more job opportunities on Vashon Island and in South Kitsap County, and more people can work at home full-time.

More weekday travelers are likely to travel four or five days per week than in any other corridor (more than 43 percent use ferries five days per week) as shown in Figure 4.4. Weekend travelers are most likely to travel only one day per week (55 percent), indicating that the weekend market is made up of different people than the weekday market and for different purposes (i.e., nonwork).

Figure 4.4 Average Number of Days per Week Riding the Ferry by Corridor



The vast majority of travelers return the same day and using the same ferry route, as expected. But the number of return trips on a different day has increased significantly in recent years (from eight percent in 1999 to 16 percent in 2006) for weekdays. This is likely because with higher fares, ferry riders are more likely to take fewer trips but stay longer. The 2006 survey also included a question on whether travelers were on their preferred sailing. More than a quarter of weekday travelers (27 percent) said that they would prefer a different sailing. The underlying reasons for this result may be overcrowding on vehicle ferries in the peak-period, but additional research on this topic is warranted.

There is an increasing trend in ferry riders boarding in a vehicle (from 64 percent in 1993 to 81 percent in 1999) and a corresponding decreasing trend in ferry riders who walk onboard from 1993 to 1999 but the ferry riders boarding in a vehicle has been constant since then (at 81 percent in 2006). This may be a result of a combination of factors, including that the increase in non-work trips are less likely to be walk-ons, that destinations are more likely to be beyond transit accessible locations, higher incomes make some ferry riders less sensitive to cost increases, and/or more travelers need their vehicle for work purposes. A surprising number of people keep a vehicle at their destination terminal, so that they can drive to their destination, but still walk on the ferry (32 percent for weekday and 31 percent for weekend).

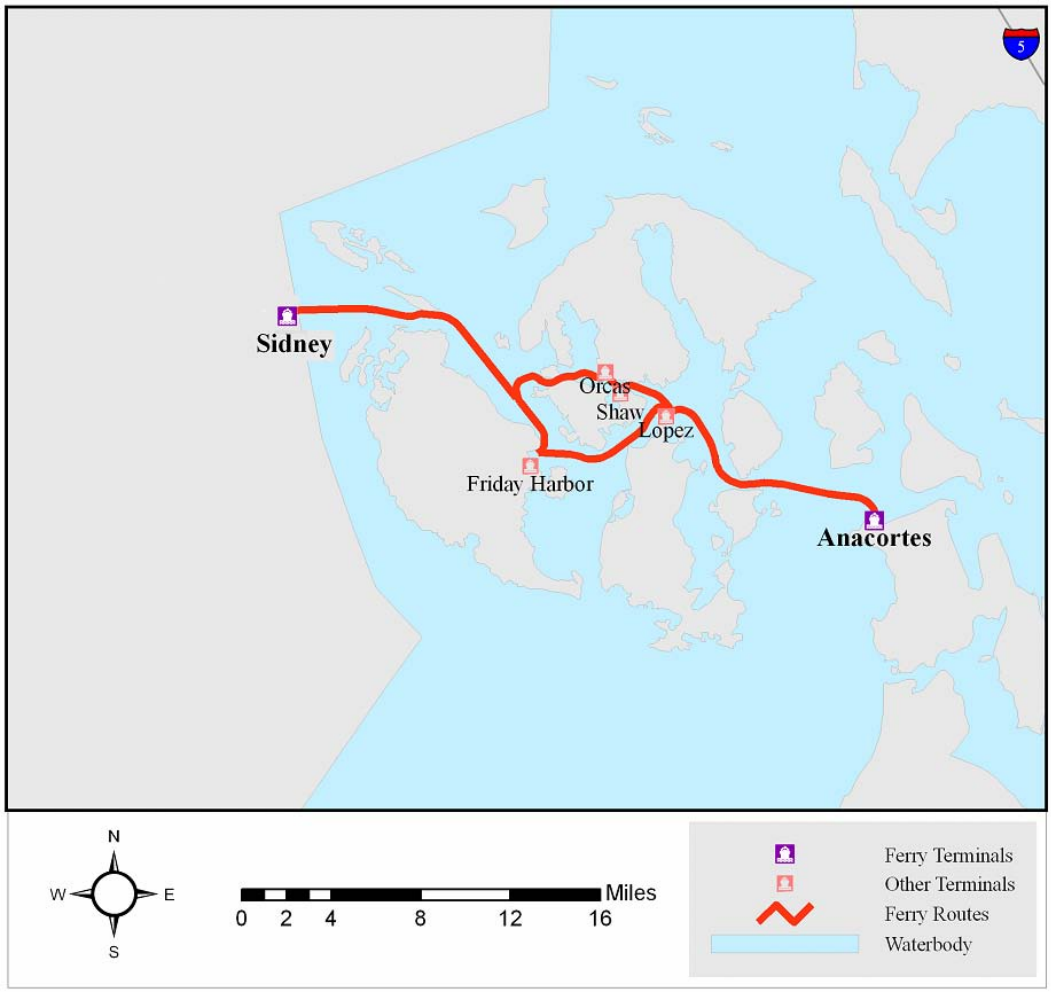
In the South Sound Corridor, the Seattle-Vashon Passenger-Only route is the most commuter oriented, with 98 percent of p.m. peak travel heading westbound in the p.m. peak period. This is an increase from 86 percent in 1999. The other routes in this corridor range from 58 and 73 percent of travel heading westbound in the p.m peak period. Most routes have not changed significantly since 1999, but Southworth-Vashon route has increased from 39 percent to 58 percent traveling westbound in the p.m. peak period and Fauntleroy-Vashon has increased from 63 to 73 percent traveling westbound in the p.m. peak period. These routes range from 36 to 46 percent of daily traffic in the p.m peak period except for Southworth to Vashon, which has 21 percent.

5.0 San Juan Islands Corridor

5.0.1 Description

The routes in the San Juan Islands corridor include: Anacortes-San Juan Islands, and Anacortes-Sidney, as shown in Figure 5.1. This is the lowest traveled corridor in the Washington State Ferries system, with 1.8 million riders per year, or 4,900 riders per day. This is down from a peak of 1.96 million passengers in 1999, and about 1.85 million passengers from the previous survey in 1993. The corridor connects the mainland at Anacortes and other islands that include Lopez, Shaw, Orcas, and Friday Harbor at the San Juan Island. It also connects with Sidney in British Columbia, Canada.

Figure 5.1 San Juan Islands Corridor Routes



There are 28 sailings in each direction a day for the two routes in this corridor, carrying an average of 117 vehicles in each direction for each sailing (on the combined routes). This is the same capacity as it was in 1993. In addition, these vessels can carry up to 1850 passengers for each sailing. Fares on the routes in this corridor average $31.30 for vehicles and $10.37 for passengers (each island has a different fare structure). This has increased more than 57 percent (in 2006 dollars) for vehicles and for passengers since 1999, when fares were $19.90 for vehicles and $6.62 for passengers (in 2006 dollars).

The routes in this corridor travel from Anacortes to the San Juan Islands and stop at one or more islands along the way. The interisland traffic is recorded manually and so did not facilitate their use in developing expansion factors for the purpose of evaluating the interisland surveys. In addition, the surveys collected a very small number of interisland trips, making it difficult to evaluate this market separately. As a result, the interisland trips were not included in this analysis. This chapter provides analyses of data that was available through the surveys, but more data is required to conduct a thorough analysis of the ferry trips to and from the San Juan Islands. The San Juan Islands corridor also includes interisland trips, which were not analyzed for this study.

5.0.2 Frequency of Travel

Table 5.1 shows the frequency of travel for weekday and weekend by trip purpose. Though a majority of trips on this corridor are work trips (40.3 percent), there is also a significant number of recreation, shopping or leisure trips (33.7 percent), which are closely followed by trips for medical, personal business or other trip purposes (27.9 percent). In terms of frequency of trips in this corridor, most riders use these routes one or two times per week for all trip purposes. This is evidenced by about 70 percent of the trips using ferries one or two days a week. The distribution of trips across different trip purposes seems to be close to one another, although the work trips are slightly higher than trips for other purposes. The current trend seems to be shifting towards work trips as the recreational trips peaked in 1999 at 41 percent while the medical or personal business trips remained constant at about 28 percent.

Another significant finding with regard to work trips is the amount of telecommuting. In the 2006 survey, 19 percent of weekday riders said that they telecommute at least one day per week.

5.0.3 Trips by Day of Week

Figure 5.2 shows the weekday and weekend trip frequency by day of the week. The surveys were conducted on Tuesdays and Saturdays and so as expected Tuesday by far has the highest ridership for weekday riders, with Saturday the next highest day but has less than half that of Tuesday riders. The Saturday riders are presumably undertaking many recreational, shopping or leisure trips. As expected, Sunday has the lowest ridership, and both Saturday and Sunday are about half of the ridership for weekday travelers. Weekend riders do not travel much during the week. The 2006 survey was conducted on a Saturday,

rather than a Sunday, and these results show that Saturday travelers are not very likely to also travel on a Sunday. On the other hand, about half of the Saturday travelers also travel on a weekday.

Table 5.1 San Juan Islands Corridor Trips by Purpose and Frequency

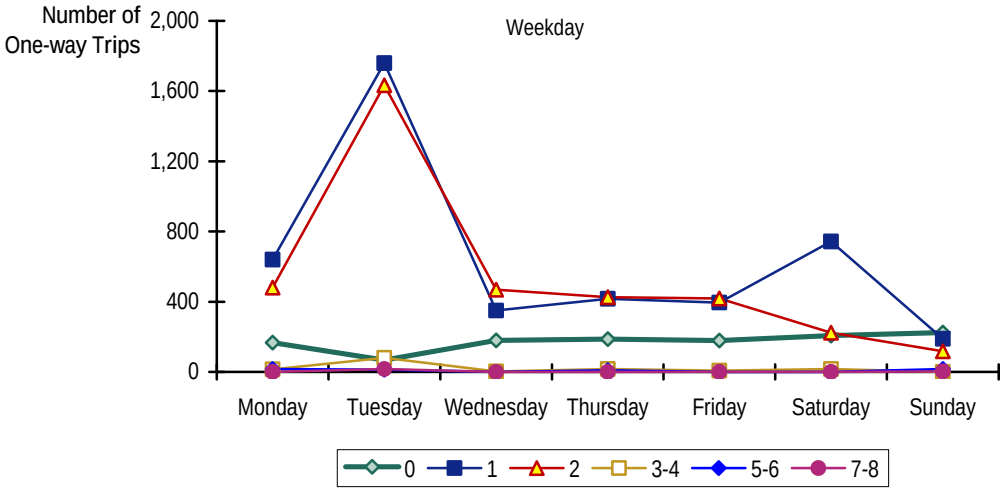
What are/is the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

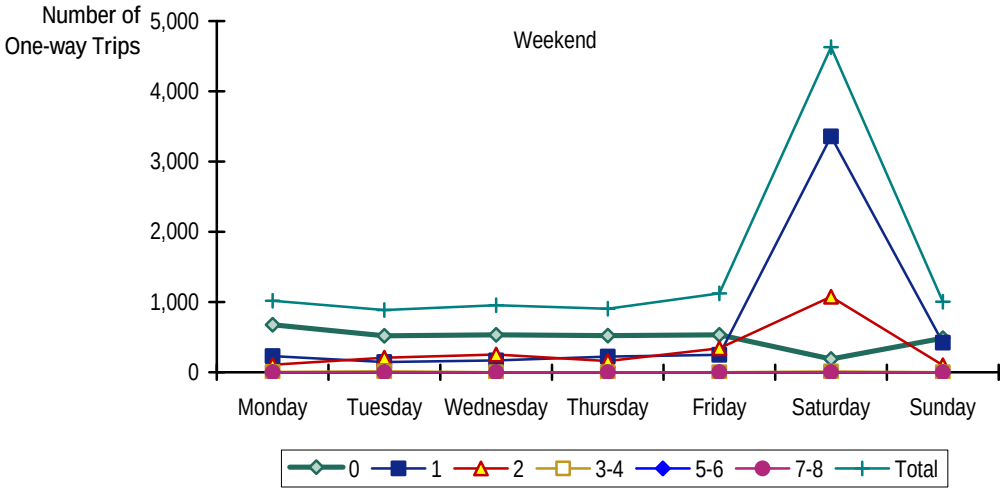
Frequency	Work/School	Personal/ Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	Work / School 2006	Work / School 1999
Weekday								
1	190	246	445	881	22.0%	27.5%	12.0%	13.2%
2	640	581	649	1870	46.8%	32.2%	40.5%	26.4%
3-4	252	231	182	665	16.6%	21.2%	15.9%	24.7%
5-6	61	27	29	117	2.9%	8.0%	3.9%	10.4%
7-8	86	7	13	106	2.7%	3.3%	5.4%	6.9%
9-10	278	3	3	284	7.1%	4.1%	17.6%	7.8%
11+	75	0	1	76	1.9%	3.8%	4.7%	10.6%
Total	1582	1095	1322	3923	100%	100%	100%	100%
Percent 2006	39.6%	27.4%	33.1%	100%				
Percent 1999	31.0%	28.0%	41.0%	100%				
Percent 1993	25.8%	13.4%	60.8%	100%				
Weekend								
1	331	623	1523	2477	54.0%	30.9%		
2	58	198	1117	1373	29.9%	48.4%		
3-4	63	173	296	532	11.6%	14.7%		
4-5	7	26	17	50	1.1%	3.8%		
7-8	60	0	3	63	1.4%	0.8%		
9-10	8	0	5	13	0.3%	0.7%		
11+	41	0	36	77	1.7%	0.7%		
Total	568	1020	2997	4585	100%	100%		
Percent 2006	12.4%	22.2%	65.4%	100%				
Percent 1999	6.5%	17.4%	76.2%	100%				
Percent 1993	10.2%	8.3%	81.6%	100%				

2006 Weekday Trips: 4,513 Missing: 592

2006 Weekend Trips: 5,306 Missing: 718

Figure 5.2 San Juan Islands Corridor Frequency of Trips by Day of Week
How Many One-Way Trips Have You Taken on Monday, Tuesday, etc.





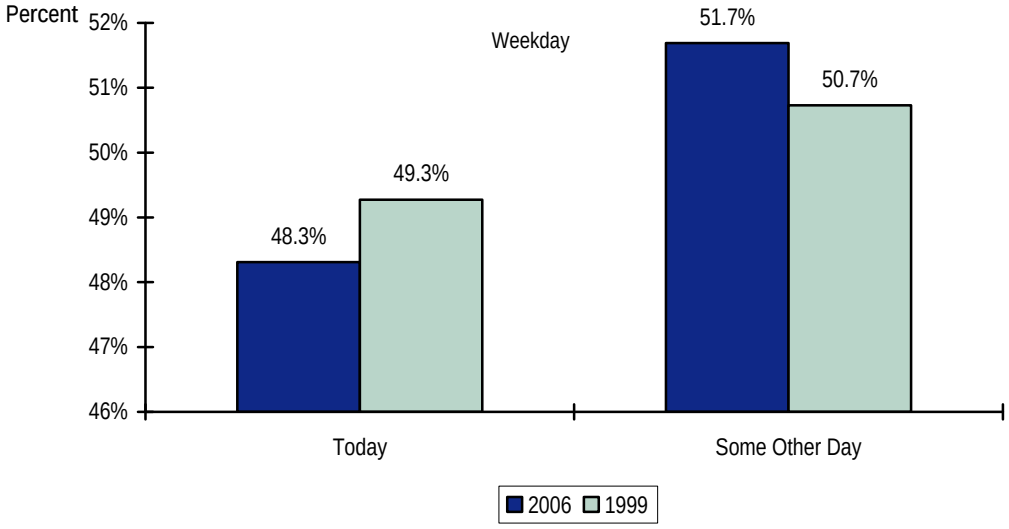
Note: These charts reflect the weekly travel patterns of those travelers who responded to the survey on Tuesday (for weekdays) and on Saturday (for weekends). This does not show that Tuesdays and Saturdays have more travel on average than other days.

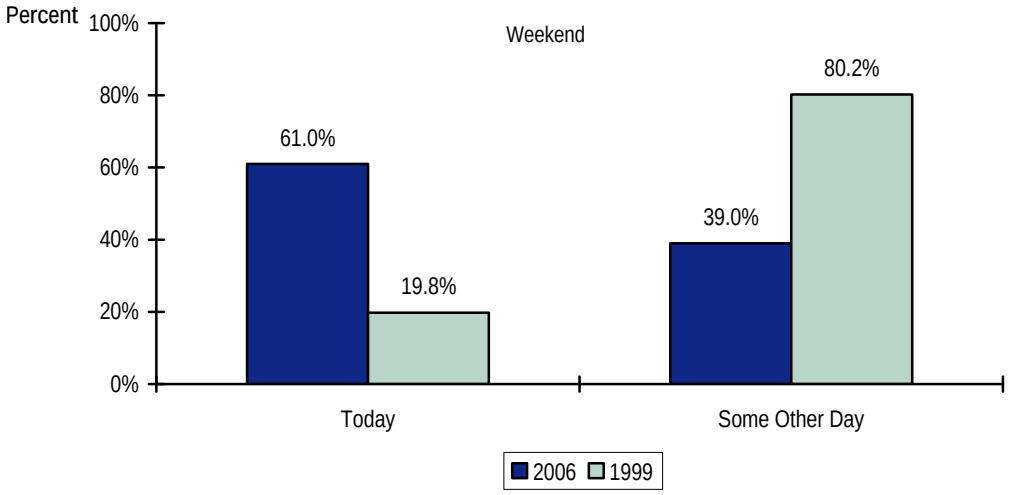
5.0.4 Round Trip Patterns

The percent of ferry travelers in 2006 making a round trip on the same day versus some other day is about evenly split, as shown in Figure 5.3. This also was true in 1999, but the percent of travelers making round trips on the same day has declined slightly since 1999 for weekday travelers and increased for weekend travelers since 1999. The increase in same day round trip travel for weekend travelers is likely a result of the fact that Saturday travelers are more likely to be day-trippers than Sunday travelers, who are more likely to be weekend travelers (i.e., leave on Friday, return on Sunday).[18] The slight decrease in same day round trip travel for weekday travelers may be because rising fares have caused people to take fewer overall trips, but to extend the stay of individual trips from one day to two or more days.

[18] The 2006 survey was conducted on a Saturday, while the 1993 and 1999 surveys were conducted on Sundays, to represent weekend travel.

Figure 5.3 San Juan Islands Corridor Round Trip Patterns by Day
When will you return? When was the first half of your trip?





Note: 2006 Weekend represents Saturday while 1999 Weekend represents Sunday

2006 Weekday Trips: 4,513 Missing: 44

2006 Weekend Trips: 5,306 Missing: 134

A very high percent of people taking round trips use the same ferry route for the return trip (97 percent), with another 2 percent of travelers returning on a different ferry route, and the remaining one percent driving around.[19] The people taking a different ferry route are more likely to be travel for recreational purposes who are visiting more than one location across the Sound. There is an increase in people taking the same ferry route on the return trip in 2006 from 1999 for both weekday and weekend travelers, which may be due to increased gas prices (causing travelers to drive less) or differences in travel behavior between October and May (travelers are more likely to be visiting or recreating in May than October).[20] These round trip patterns are presented in Figure 5.4.

5.0.5 Access, Egress, and Boarding Modes

There is a higher percent of walk and transit access trips during the week than on the weekend, but the walk egress trips are slightly lower during weekdays than on weekends, as shown in Figure 5.5. This is because people who travel more frequently on the ferries for work, school or other purposes, are more likely to choose the reduced fare for passengers than to pay the higher vehicle fares. Conversely, there are almost twice as many car passengers on the weekend, than on the weekday, because these trips are more likely to be for shopping or recreation purposes, leading to a higher likelihood of traveling with others for these purposes.

Tables 5.2 and 5.3 present a more detailed view of access and egress modes, respectively, by boarding mode for the San Juan Island routes. There is a trend towards fewer walk, bike, and transit access modes from 1993 to 2006 for weekday travelers, except for a dip in transit access trips in 1999. Weekend travelers are walking less and also taking transit less often in 2006 and 1999 than 1993. The drive access increased by from 63 percent in 1993 to about 98 percent in 1999 and then dropped to about 93 percent in 2006 for weekday travelers. Though a similar trend is observed for weekend travelers where it went up in 1999 from 1993 but then drooped in 2006, the percentage of drive access trips remained about the same between 1993 and 2006. The trends seem to be different for walk and transit egress modes in 2006 compared to 1999 and 1993, with walk egress actually going up slightly from 1993 to 2006 but dropping significantly in 1999. The transit egress trips dropped from 3 percent in 1993 to less than a percent in 1999 and 2006.

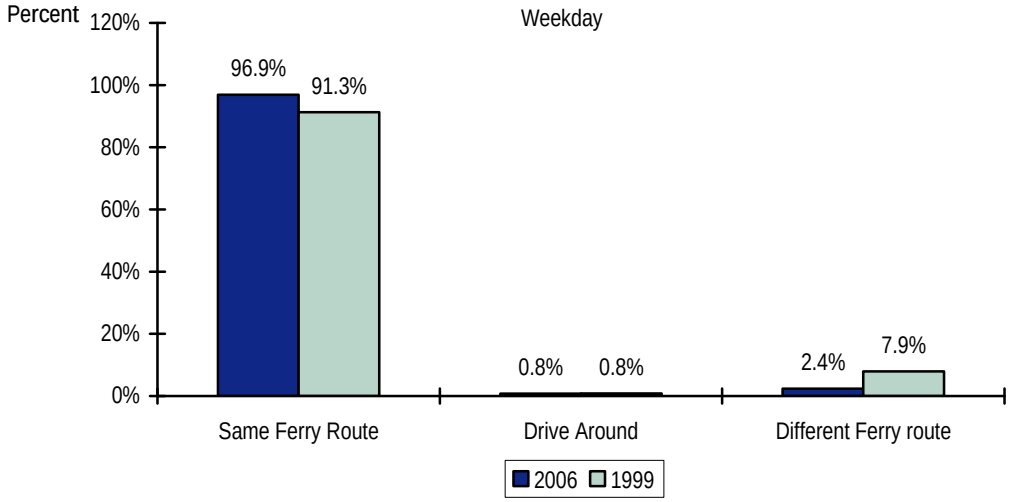
---

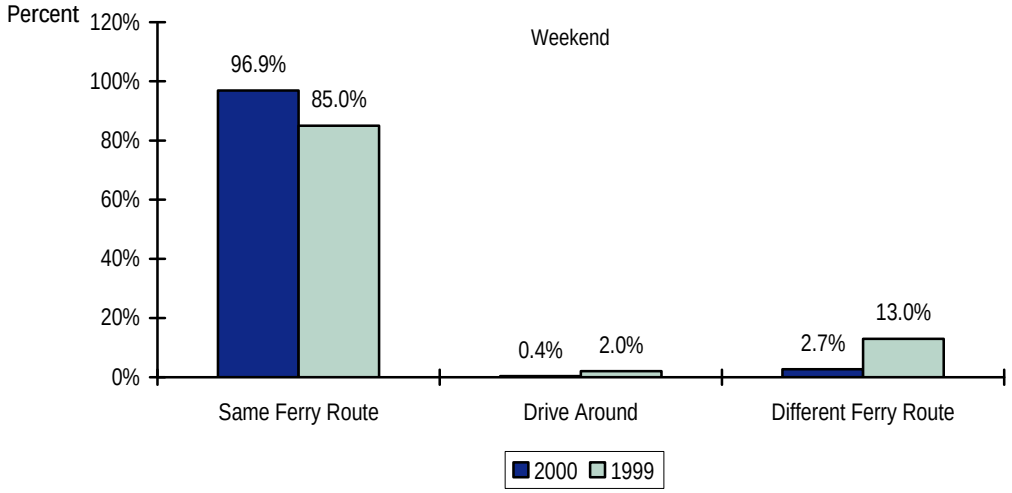
[19] It should be noted that there is likely a slightly higher percentage of people who take the ferry in the a.m. period and drive around for their return trip because the ferry is cheaper in the eastbound direction. All WSF surveys were collected during the p.m. period.

[20] The 2006 survey was conducted in October, and the 1993 and 1999 surveys were conducted in May.

Figure 5.4 San Juan Islands Corridor Round Trip Patterns by Route

How will you return? How did you travel on the first half of your trip?





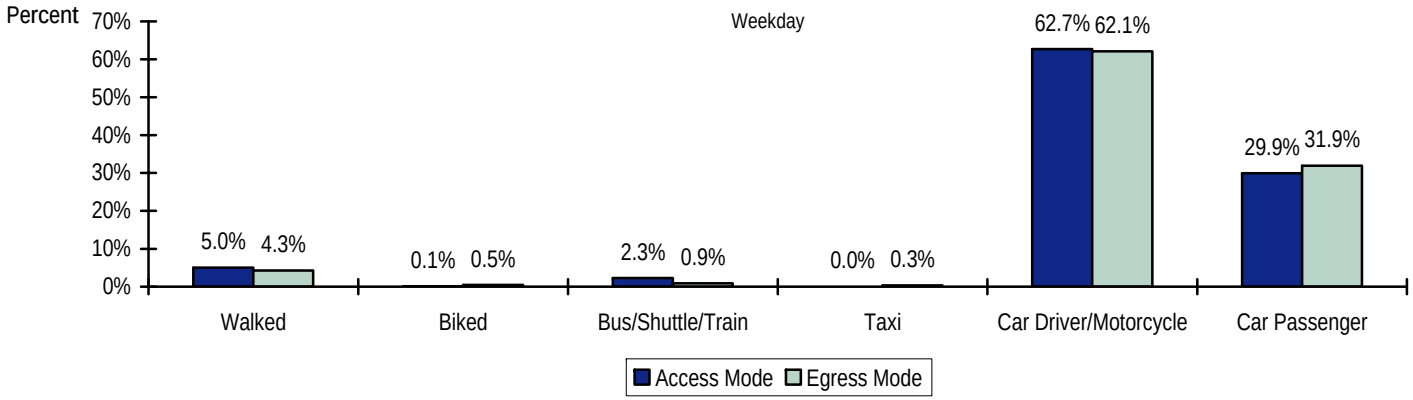
Note: Respondents misinterpreted the question as it is not possible to drive around when going to or from the San Juan Islands or Sidney.

2006 Weekday Trips: 4,513 Missing: 87

2006 Weekend Trips: 5,306 Missing: 241

Figure 5.5 San Juan Islands Corridor Access and Egress Modes

How did you travel from your origin location to this sailing?
How will you travel to the destination you are going to now?



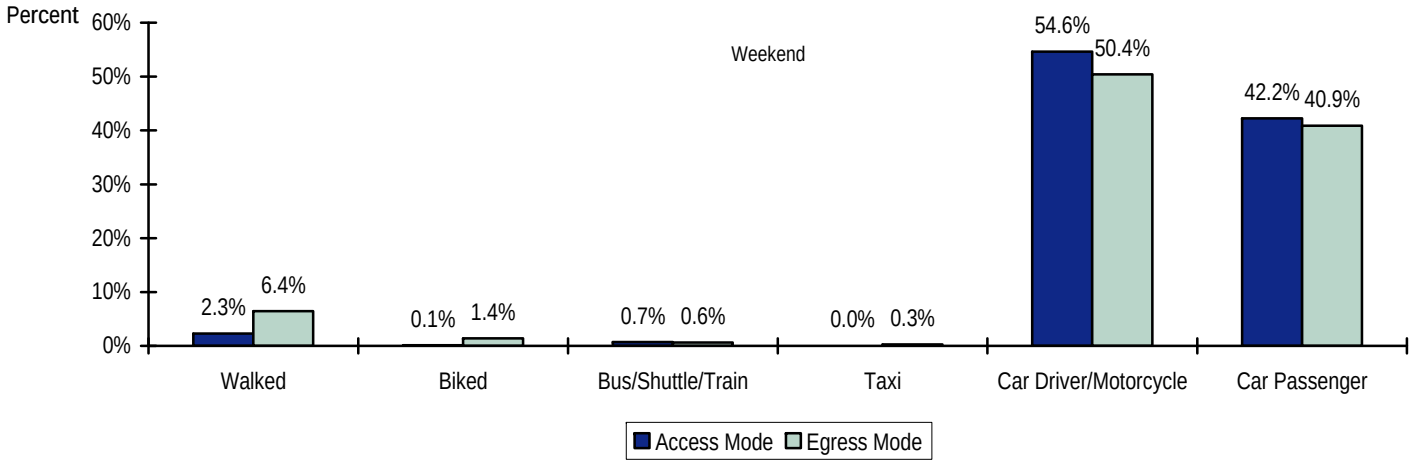


Table 5.2 San Juan Islands Corridor Access Mode and Boarding Method

How did you travel from your origin location to this sailing? How will/did you board this ferry?

Access mode	Drive	Walk	Bicycle	Total	All boardings 2006	All boardings 1999	All boardings 1993
Weekday							
Walked	43	172	10	225	5.0%	1.6%	25.2%
Biked	0	0	3	3	0.1%	0.5%	2.2%
Bus/Shuttle/Train	55	47	0	102	2.3%	0.4%	8.8%
Taxi	0	0	0	0	0.0%		0.4%
Car driver/ motorcycle	2,565	236	4	2,805	62.7%	59.6%	47.4%
Car passenger	1,152	186	0	1,338	29.9%	37.9%	16.0%
Total	3,815	641	17	4,473	100%	100%	100%
Percent 2006	85.3%	14.3%	0.4%	100%			
Percent 1999	88.5%	11.1%	0.4%	100%			
Percent 1993	77.5%	19.7%	2.8%	100%			
Weekend							
Walked	36	84	0	120	2.3%	1.3%	7.9%
Biked	0	0	6	6	0.1%	0.9%	2.2%
Bus/Shuttle/Train	11	27	0	38	0.7%	1.1%	3.1%
Taxi	0	0	0	0	0.0%		0.4%
Car driver/ motorcycle	2,363	441	65	2,869	54.6%	65.9%	54.0%
Car passenger	1,853	364	1	2,218	42.2%	30.8%	32.4%
Total	4,263	916	72	5,251	100%	100%	100%
Percent 2006	81.2%	17.4%	1.4%	100%			
Percent 1999	80.5%	17.5%	2.0%	100%			
Percent 1993	68.5%	27.8%	3.7%	100%			

2006 Weekday Trips: 4,513 Missing: 41

2006 Weekend Trips: 5,306 Missing: 55

Table 5.3 San Juan Island Corridor Egress Mode and Boarding Method

How will you travel to the destination you are going to now?
How will/did you board this ferry?

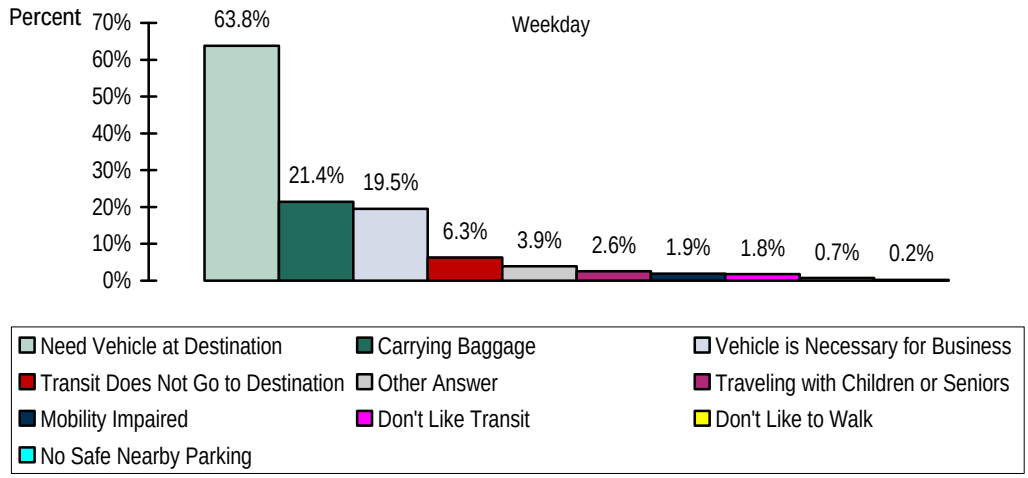
Egress mode	Drive	Walk	Bicycle	Total	All boardings 2006	All boardings 1999	All boardings 1993
Weekday							
Walked	17	170	0	187	4.3%	2.6%	9.9%
Biked	0	4	17	21	0.5%	0.4%	2.2%
Bus/Shuttle/Train	29	10	0	39	0.9%	0.2%	7.5%
Taxi	15	0	0	15	0.3%		0.8%
Car driver/ motorcycle	2,433	291	0	2,724	62.1%	57.8%	59.4%
Car passenger	1,233	165	0	1,398	31.9%	39.0%	20.3%
Total	3,727	640	17	4,384	100%	100%	100%
Percent 2006	85.0%	14.6%	0.4%	100%			
Percent 1999	88.5%	11.1%	0.4%	100%			
Percent 1993	77.5%	19.7%	2.8%	100%			
Weekend							
Walked	29	303	0	332	6.4%	2.2%	6.1%
Biked	0	0	72	72	1.4%	0.6%	1.9%
Bus/Shuttle/Train	0	32	0	32	0.6%	0.9%	3.0%
Taxi	2	12	0	14	0.3%		0.8%
Car driver/ motorcycle	2,391	211	0	2,602	50.4%	67.4%	56.1%
Car passenger	1,736	373	0	2,109	40.9%	29.0%	32.1%
Total	4,158	931	72	5,161	100%	100%	100%
Percent 2006	80.6%	18.0%	1.4%	100%			
Percent 1999	80.5%	17.5%	2.0%	100%			
Percent 1993	68.5%	27.8%	3.7%	100%			

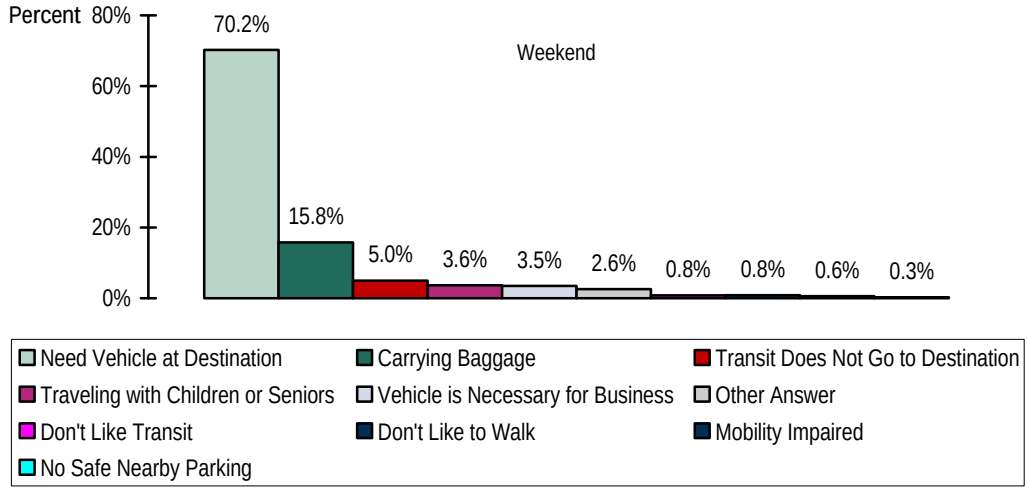
2006 Weekday Trips: 4,513 Missing: 129

2006 Weekend Trips: 5,306 Missing: 147

The biggest reason for taking a vehicle on the ferry was that the vehicle was needed at the destination (about 64 percent of travelers taking their vehicle on gave this reason). Two other prominent reasons for taking a vehicle on were that the vehicle was necessary for business and that the traveler had baggage to carry (about 20 percent each answer). A few percent of people gave their response that they did not like to walk, that they were mobility impaired, that there was no safe nearby parking, that transit did not go to their destination, or that they were traveling with children or seniors. The pattern for weekend travelers is similar to that of weekday travelers, except that needing a vehicle at the destination is even more important (more than 70 percent) and as expected, there is little need for a vehicle for business reasons. Figure 5.6 presents the results of the travelers' reasons for taking a vehicle on-board the ferry.

Figure 5.6 San Juan Islands Corridor Reasons for Taking a Vehicle
Why did you choose to board in a vehicle instead of walk-on?

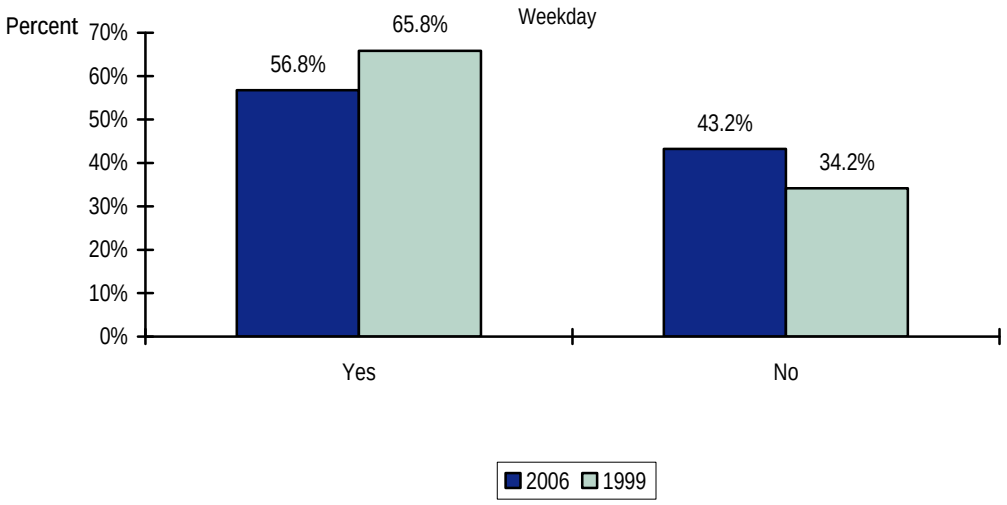


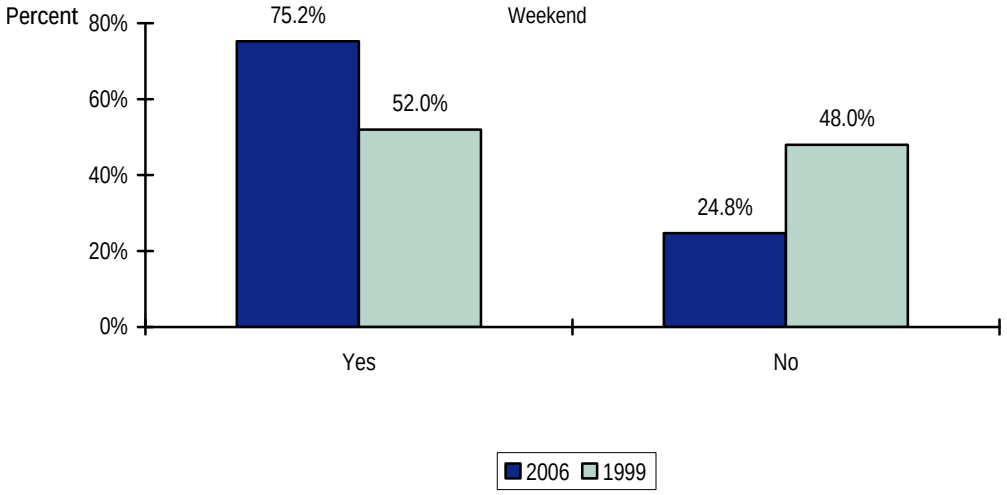


Note: The transit option presented to the respondents was to and/or from the ferry terminal on the mainland.

For travelers who travel to the ferry terminal and not take their car on the ferry, a majority of them park their car at the terminal, as shown in Figure 5.7. The weekend travelers indicate a higher degree of parking at the terminal, probably because parking is more available on weekends than on weekdays.

Figure 5.7 San Juan Islands Corridor Non-motorized Boardings
Did you park a vehicle to board this ferry?





A large number of people keep a vehicle at their destination, so that they can drive to their destination, but still walk on the ferry (about 50 percent for weekday, 28 percent for weekend). On the other hand, a smaller number of people keep bicycles at the terminals for this purpose (about 3 percent for weekday and almost nothing for weekend). This is presented in Table 5.4.

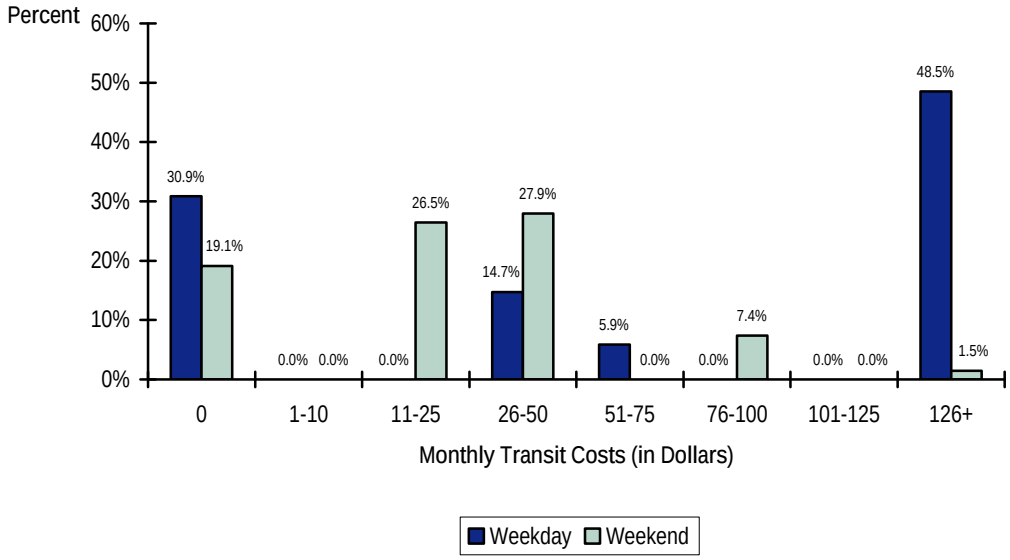
Table 5.4 San Juan Islands Corridor Destination Vehicles
Did you keep either a bike or vehicle at the destination end of this ferry trip?

Egress Vehicle	Responded Yes	Percent
Weekday		
Bike	22	3.3%
Vehicle	328	49.8%
NA	309	46.9%
Total	659	100%
Weekend		
Bike	4	0.4%
Vehicle	285	28.1%
NA	726	71.5%
Total	1,015	100%

Note: Only asked when boarding mode was walk or bike.

For travelers who ride transit to/from the ferry, the average monthly transit cost is $76 for weekday travelers and $29 for weekend travelers. As expected, weekend travelers are less likely to include travelers who commute or travel regularly by ferry and therefore would not have significant monthly costs for transit access trips. Also, the highest share of transit riders indicate that their monthly transit costs were over $126, which is probably due to the fact that respondents interpreted ferry as a transit mode and included ferry fares as well. These costs are presented in Figure 5.8.

Figure 5.8 San Juan Islands Corridor Monthly Transit Costs
If you ride transit (bus/train), what is the average monthly cost that you pay for transit to/from work or school?



Note: The transit option presented to the respondents was to and/or from the ferry terminal on the mainland.

5.0.6 Other Travel Characteristics

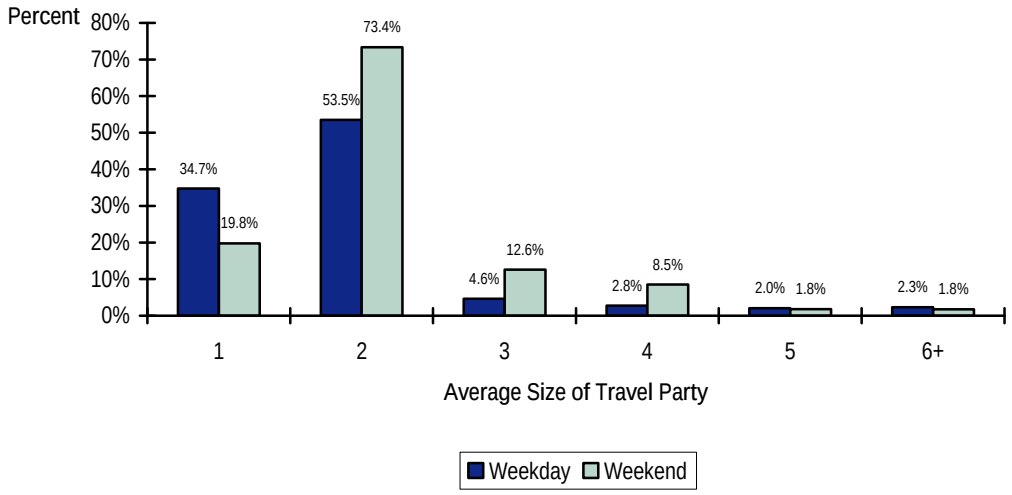
One new question on the 2006 survey was "Is this your preferred sailing?" A significant number of weekday travelers (20 percent) said that it was not their preferred sailing during the week, with 23 percent of travelers saying it was not their preferred sailing on the weekend. Also, a similar percent of walk-on passengers indicated that they do not take their preferred sailing. These survey results are presented in Table 5.5.

Table 5.5 San Juan Islands Corridor Preferred Sailing
Is This Your Preferred Sailing?

			Total	
	Drive	Walk/ Bike	Number	Percent
Weekday				
Yes	2,948	486	3,434	79.7%
No, different departure time	698	119	817	19.0%
No, different route	31	28	59	1.4%
Total	3,677	633	4,310	100.0%
	85.3%	14.7%	100.0%	
Weekend				
Yes	3,146	762	3,908	77.6%
No, different departure time	919	163	1,082	21.5%
No, different route	36	10	46	0.9%
Total	4,101	935	5,036	100.0%
	81.4%	18.6%	100.0%	

Figure 5.9 presents the size of the travel party for weekday and weekend travelers. As expected, the majority of people traveling together occurs on the weekends (73 percent), and a significant percent of people traveling on the weekdays (35 percent) travel alone. It is also found that a majority of the travelers on weekdays travel in groups (54 percent).

Figure 5.9 San Juan Islands Corridor Party Size
How many people are traveling with you?



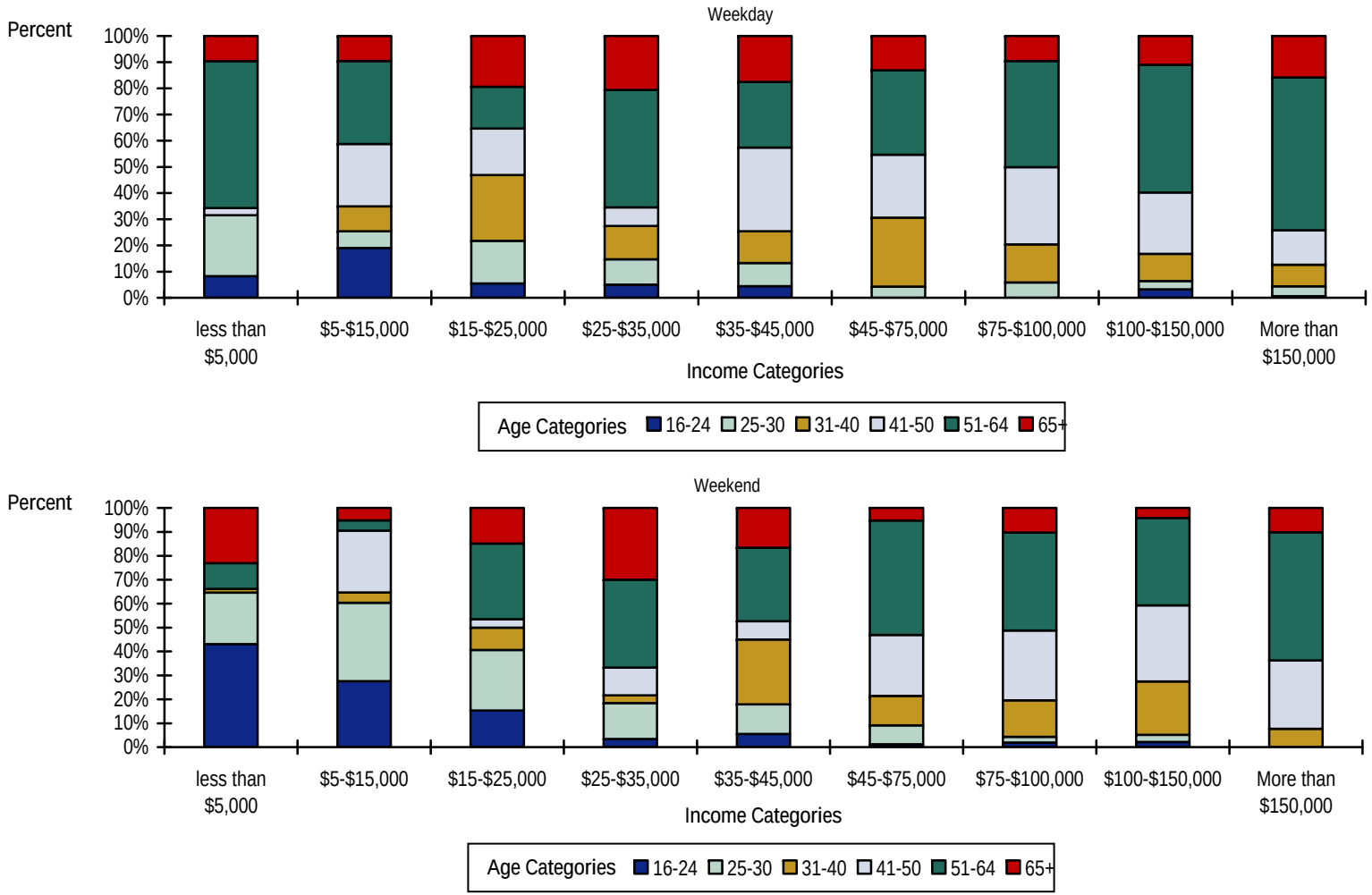
Note: The original question asked "how many people are traveling with you (not including yourself)", but the data implied that most people did not include themselves in the answer, so these data were corrected based on how many people each respondent was traveling with. So the average size of the party in this figure includes the respondent.

5.0.7 Demographic Characteristics

The distribution of age and income of the ferry travelers for weekdays and weekends are presented in figure 5.10. The average age and income of the weekday (47 years, $84K) and weekend travelers (48 years, $80K) is found to be similar along this corridor. The average age of these travelers is higher than the regional average age of 35 years old and it has also been increasing over time, from an average age of 42 in the 1993 survey to 48 in the 2006 survey. The average income for ferry travelers is between $80,000 and $84,000.

Figure 5.10 San Juan Islands Corridor Traveler Age and Income

In what year were your born? What was your estimated household income in 2005 before taxes?



The average number of vehicles owned per household for weekday travelers is about 2.5 vehicles per household. The vehicle ownership remained constant over the years for all groups, except for those households who own one vehicle, that is, one-vehicle households declined from 1993 (22 percent) to 1999 (20 percent) to 2006 (15 percent).

There are about 1.2 workers per household in the 2006 survey. About 35 percent of the total ferry riders come from two-worker households. Data on number of workers in household was not collected during the 1999 or 1993 survey. Of the weekday ferry riders, 65 percent said they were employed, down from the 72 percent reported in the 1999 survey. The biggest change from 1999 was that retired persons increased from 10 to 29 percent, and non-workers and students decreased accordingly.

5.1 ANACORTES-SAN JUAN ISLANDS (INCLUDE INTER-ISLAND ROUTES)

5.1.1 Route Description

This route connects Anacortes on the mainland with the San Juan Islands (Lopez, Shaw, Orcas, and San Juan) in the San Juan Island corridor located well North of Seattle. It takes 50 to 120 minutes to ride this ferry route one-way, depending on how many islands are on each route. The crossing is between 11 and 17 nautical miles, depending on which island the ferry goes to. For 2006, the annual total ridership was 0.7 million passengers plus 0.9 million vehicles and drivers for a total of 1.6 million people, or about 4,500 riders per day. This compares to 5,000 riders per day in 1999 and 4,600 riders per day in 1993. The 1999 year was a peak year systemwide ridership and the trend for this route follows this pattern.

The Anacortes-San Juan Islands route has 18 sailings per day by each direction, which is about the same as it was in 1993 and 1999. The vehicle capacity has also remained constant, with the use of the Evergreen and Super class vessels on these routes. The fare ranges from $24.63 to $35.08 for vehicles (depending on which island), and $10.13 for passengers to any island in 2006. This is a 54 to 63 percent increase in vehicle fares (constant 2006 dollars) and 58 percent increase in passenger fares (constant 2006 dollars) compared to 1999.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip making on this route.

5.1.2 Trips by Purpose

The trip purposes of ferry riders on the Anacortes-San Juan Island route were cross tabulated against the direction of the trip for weekday and weekend and for different survey years. Table 5.6 shows three groups of trip purposes

(work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are east-west routes.

Table 5.6 Anacortes-San Juan Islands Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
Eastbound	888	542	580	2,010	50.0%	48.5%	35.3%
Westbound	624	669	720	2,013	50.0%	51.5%	64.7%
Total	1,512	1,211	1,300	4,023	100%	100%	100%
Total 2006	37.6%	30.1%	32.3%	100%			
Total 1999	32.9%	29.6%	37.5%	100%			
Total 1993	34.0%	17.6%	48.3%	100%			
Weekend							
Eastbound	356	516	1,498	2,370	49.5%	49.7%	45.4%
Westbound	255	522	1,645	2,422	50.5%	50.3%	54.6%
Total	611	1,038	3,143	4,792	100%	100%	100%
Total 2006	12.8%	21.7%	65.6%	100%			
Total 1999	7.6%	20.2%	72.2%	100%			
Total 1993	11.4%	9.3%	79.3%	100%			

[a] 1999 and 1993 survey trips were not rebalanced by direction and as a result there is a large difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999. See Section 2.3 for more details.

2006 Weekday Trips: 4252 Missing: 229

2006 Weekend Trips: 4962 Missing: 170

There is about an even split between eastbound and westbound travelers for all purposes, but there are some notable differences by trip purpose. The personal business/other and the shopping/recreation trips are more concentrated in the westbound direction and the work/school trips are more concentrated in the eastbound direction. This indicates that there are more work trips on the mainland and more non-work trips on the islands, which makes sense. The same phenomenon exists over the weekends for 2006, except that personal business/other trips are evenly split by direction.

Table 5.7 shows the distribution of trips across different time periods and by direction of travel. As expected, the p.m. peak- period defined as 3:00 p.m. to

7:00 p.m. has the highest share of weekday trips (35 percent) because of the return trips of work commute, as well as non-work trip purposes such as personal business, shopping, and recreation. The p.m. off-peak period defined as noon to 3:00 p.m. has the second largest share of riders, representing 19 percent of weekday trips.

Table 5.7 Anacortes-San Juan Islands Trips by Time-of-Day and Direction [a]
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m. to 5:00 a.m.)	A.M. Peak (5:00 a.m. to 9:00 a.m.)	A.M. Off-Peak (9:00 a.m. to 12:00 p.m.)	P.M. Off-Peak (12:00 p.m. to 3:00 p.m.)	P.M. Peak (3:00 p.m. to 7:00 p.m.)	Daily	All Trips 2006	All Trips 1999 [a]	All Trips 1993 [a]
Weekday									
Eastbound	486	558	449	42	347	1,882	44%	48.5%	35.3%
Westbound	18	160	283	763	1,136	2,360	56%	51.5%	64.7%
Total	504	718	732	805	1,483	4,242	100%	100%	100%
Percent 2006	11.9%	16.9%	17.3%	19.0%	35.0%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 4,252 Missing: 0

2006 Weekend Trips: 4,962 Missing: 0

5.1.3 Frequency of Travel

The total number of trips and the purpose behind taking these trips on ferries in an average week in 2006 are shown in Table 5.8. For comparison summaries, the trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Table 5.8 Anacortes-San Juan Islands Trips by Purpose and Frequency[21]

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	157	234	383	774	20.6%	25.0%	40.8%	10.4%	12.8%
2	623	571	594	1,788	47.6%	32.5%	27.7%	41.4%	26.3%
3-4	233	229	162	624	16.6%	22.1%	16.9%	15.5%	24.9%
5-6	56	27	26	109	2.9%	8.6%	5.5%	3.7%	10.4%
7-8	84	7	13	104	2.8%	3.5%	2.4%	5.6%	7.0%
9-10	277	3	3	283	7.5%	4.4%	6.7%	18.4%	7.9%
11+	75	0	0	75	2.0%	4.0%		5.0%	10.8%
Total	1,505	1,071	1,181	3,757	100%	100%	100%	100%	100%
Percent 2006	40.1%	28.5%	31.4%	100%					
Weekend									
1	325	591	1,396	2,312	53.9%	26.1%	46.5%		
2	41	182	1,045	1,268	29.6%	51.5%	37.3%		
3-4	58	172	283	513	12.0%	15.9%	11.7%		
5-6	7	26	13	46	1.1%	4.5%	2.4%		
7-8	60	0	0	60	1.4%	0.6%	0.6%		
9-10	8	0	5	13	0.3%	0.6%	1.5%		
11+	41	0	35	76	1.8%	0.8%			
Total	540	971	2,777	4,288	100%	100%	100%		
Percent 2006	12.6%	22.6%	64.8%	100%					

2006 Weekday Trips: 4252 Missing: 570

2006 Weekend Trips: 4962 Missing: 674

Among commuters and discretionary passengers alike, few use this ferry on an extremely frequent basis. The frequency of ridership is lower than with many of the other routes. In the case of Anacortes-San Juan Islands, 70 percent (2,562 out of 3,682) of all passengers surveyed use this ferry an average of only once or twice per week. Commuters use it slightly more often, with 29 percent (436 out of 1,505) who make seven or more one-way trips per week. Less than one percent of other riders use this ferry with this frequency.

Table 5.8 also provides comparison of trip frequency percents for years 1993,

[21] The total percentage distribution across trip purposes is different in Table 5.6 than in Table 5.8 because there are more missing trips in Table 5.8 that did not have detailed trip frequency information.

1999, and 2006. Commuters represent a slightly larger share of total weekday ferry ridership in recent years. In 1993, 34 percent of riders were commuters; in 1999 this dropped slightly to 33 percent, and rose again in 2006 to 41 percent. Ferry ridership used to be most common for recreational purposes, followed by commuter trips. The share of recreational trips has declined from 48 percent in 1993 to 38 percent in 1999 to 32 percent in 2006. The share of trips for medical and personal business rose from 18 percent in 1993 to 30 percent in 1999 and stayed roughly the same, with 29 percent in 2006.

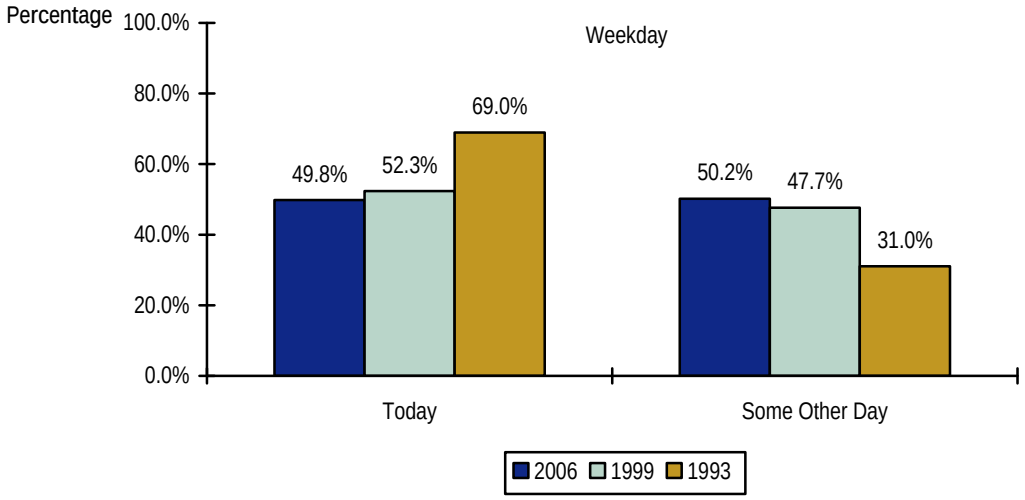
In 1993, 69 percent of riders used the ferry only once or twice in a week. By 1999 this share dropped to 58 percent. Then by 2006, it was back up, this time to 70 percent who said they rode it once or twice per week.

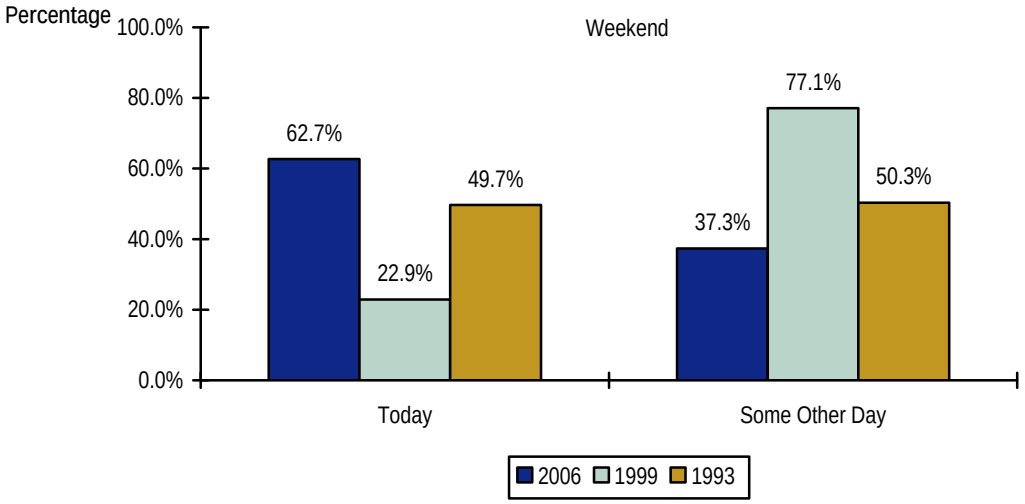
5.1.4 Round-Trip Patterns

In the 2006 surveys, questions on riders' round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 5.11 below shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. This corridor is unlike some of the other corridors insofar as so many riders return on a different day. Specifically, 50 percent of passengers are not returning on the same day they departed. Over the weekend, 37 percent of passengers are traveling this route on different days as part of one trip.

Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on a different day increases from 1993 to 2006. In 2006, this share was 50 percent, compared with 48 percent in 1999 and 31 percent in 1993. For weekend travel, in 1993, 50 percent of weekend trips were made over more than one day; in 1999 that share is high, at 77 percent, and by 2006 it decreases to 37 percent.

Figure 5.11 Anacortes-San Juan Islands Round Trip Patterns by Day
When was the first half of your trip or when will you return?





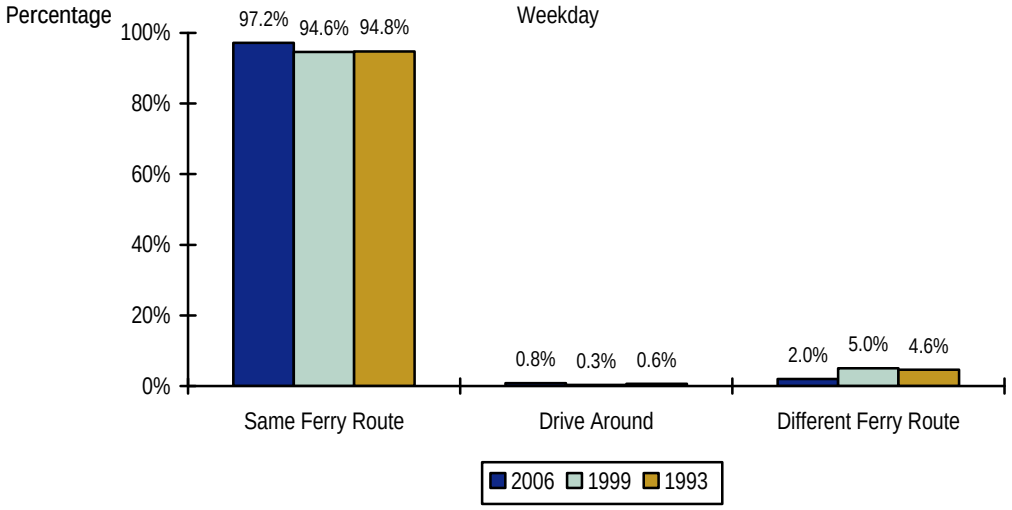
2006 Weekday Trips: 4,252 Missing: 36

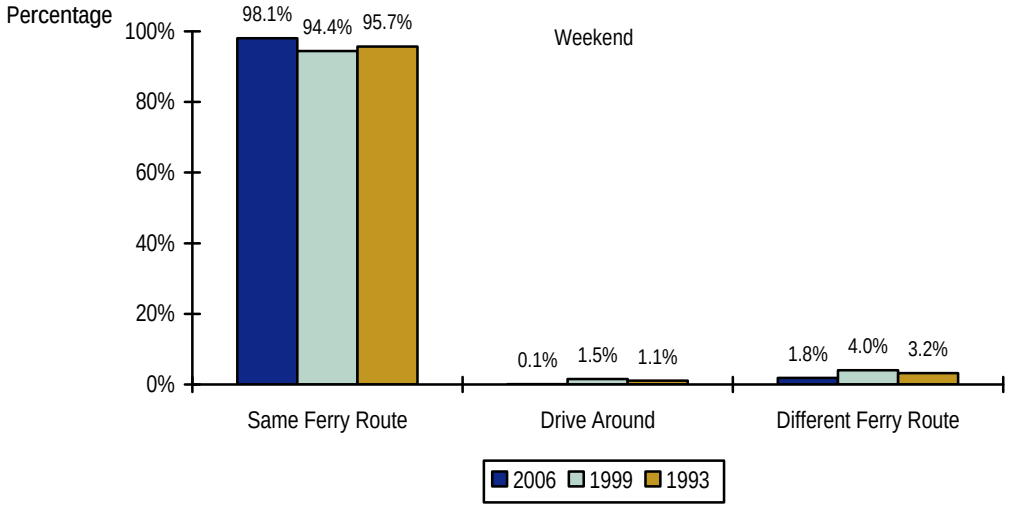
2006 Weekend Trips: 4,962 Missing: 83

For riders who made one-half of their trip on this route, Figure 5.12 shows the mode of travel they chose for the other half of the trip. The three mode options chosen were: use the same ferry route, drive around or use a different ferry route. As expected, a large number of travelers indicated that they chose the same route because of the fact that travelers have to return to their home base. This was particularly true in 2006 when 97 percent used the same ferry route. These numbers were slightly lower in 1993 when 95 percent used the same ferry, and in 1996 when 95 percent did so.

Figure 5.12 Anacortes-San Juan Islands Round Trip Patterns by Route

How will you return or how did you travel on the first half of your trip?





Note: A number of respondents misinterpreted the question as it is not possible to drive around when going to or from the San Juan Islands or Sidney.

2006 Weekday Trips: 4,252 Missing: 83

2006 Weekend Trips: 4,962 Missing: 219

From the weekend estimates, the trends were relatively stable over time. In 1993, 96 percent of boardings were travelers returning on the same ferry route, compared to 94 percent in 1999, and then up slightly to 98 percent in 2006.

5.1.5 Access, Egress, and Boarding Modes

The mode of travel to and from this route was cross-tabulated to analyze the current mode choice of ferry riders and to study the changes over time. Figure 5.13 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

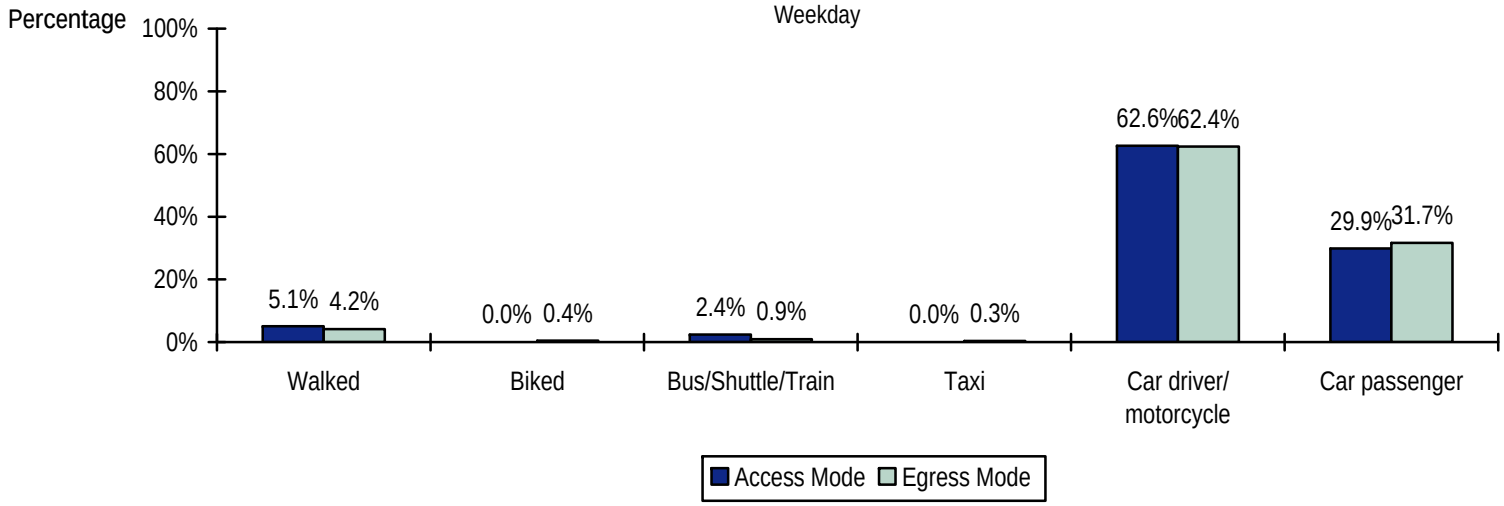
Table 5.9 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, the vast majority of the riders either chose to drive or got dropped off at this ferry. The share who drove was 63 percent. The share of passengers who were in a vehicle was another 30 percent. Only 5 percent walked, none biked and 2 percent took public transit to the terminal. The number of boardings by drive mode decreased just slightly from 88 percent in 1999 to 85 percent in 2006. The number of walk-on boardings increased slightly from 11 percent in 1999 to 15 percent in 2006.

During 2006 weekends, again the vast majority of ferry passengers either drove to the terminal or rode in a car with someone. Specifically, 55 percent drove and another 42 percent were vehicle passengers. Only two percent walked and few biked or took public transportation. It is to be noted that a modal shift to walk on from driving on occurred in 2006 on weekdays than on the weekends.

Table 5.10 shows ferry riders' mode of travel on this route and the corresponding egress modes from the ferry terminal to their final destinations. The differences in ridership estimates across the main mode of travel between table 5.10 and table 5.11 is due to more missing trips that did not have egress mode information. The boardings by egress modes seem to be similar to those of the access modes where a majority of riders use the car driver/motorcycle mode of travel to egress and a significant portion use the car passenger mode of travel. This shows that riders are probably choosing the same mode of travel for their access and egress.

The historic data reveals that the share of ferry passengers who drove or were a passenger has always been high – in the 91 to 94 percent range. Few have walked, biked, or taken public transit. In 2006 weekends, a majority of passengers arrived at the ferry terminal by car that is either driven by the ferry passenger or with another driver. This high rate of vehicle use was equally evident in 1993 and 1999.

Figure 5.13 Anacortes-San Juan Islands Trips by Access and Egress Mode



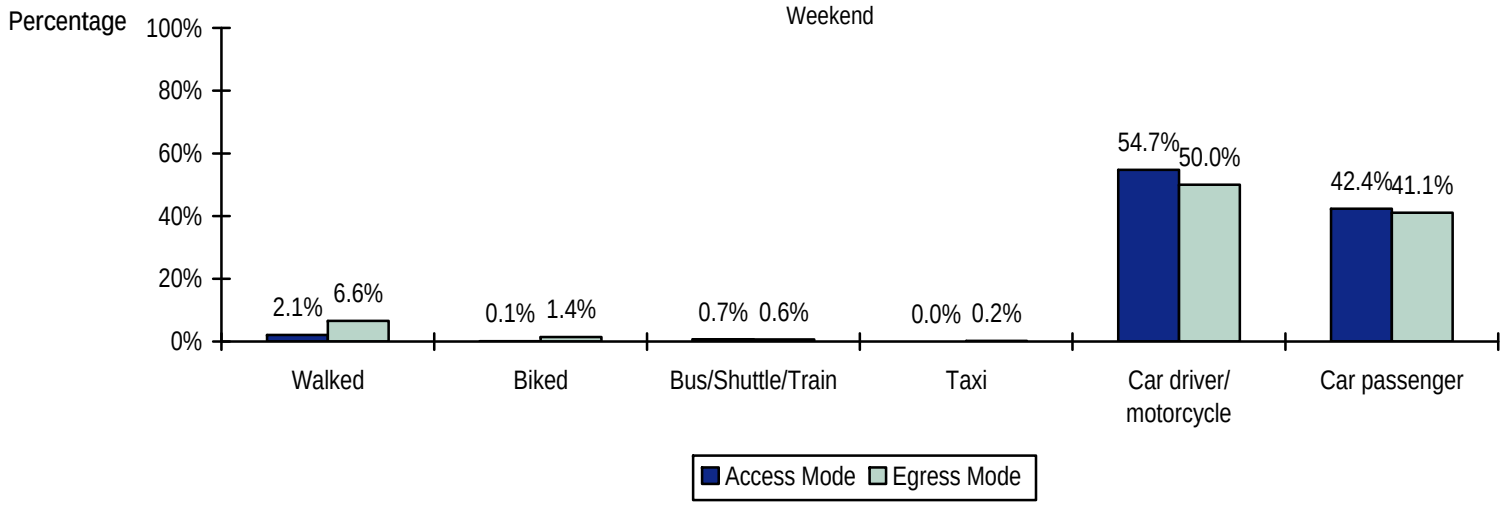


Table 5.9 Anacortes-San Juan Islands Trips by Access Mode and Boarding Method

How will/did you board this ferry? How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	40	164	10	214	5.1%	1.6%	3.9%
Biked	0	0	0	0	0.0%	0.5%	1.4%
Bus/Shuttle/Train	55	47	0	102	2.4%	0.4%	1.8%
Taxi	0	0	0	0	0.0%	–	0.0%
Car Driver/Motorcycle	2,402	232	4	2,638	62.6%	61.4%	62.5%
Car Passenger	1,085	172		1,257	29.9%	36.0%	30.3%
Total	3,582	615	14	4,211	100%	100%	100%
Percent 2006	85.1%	14.6%	0.3%	100%			
Percent 1999	88.3%	11.3%	0.4%	100%			
Percent 1993	77.5%	19.7%	2.8%	100%			
Weekend							
Walked	32	73	0	105	2.1%	1.6%	3.7%
Biked	0	0	4	4	0.1%	1.1%	2.2%
Bus/Shuttle/Train	9	26	0	35	0.7%	0.7%	0.5%
Taxi	0	0	0	0	0.0%	–	0.2%
Car Driver/Motorcycle	2,196	426	65	2,687	54.7%	66.5%	55.3%
Car Passenger	1,727	353	0	2,080	42.4%	30.1%	38.1%
Total	3,964	878	69	4,911	100%	100%	100%
Percent 2006	80.7%	17.9%	1.4%	100%			
Percent 1999	79.1%	18.4%	2.5%	100%			
Percent 1993	68.5%	27.8%	3.7%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 4252 Missing: 41

2006 Weekend Trips: 4962 Missing: 51

Table 5.10 Anacortes-San Juan Islands Trips by Egress Mode and Boarding Method
How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	17	157	0	174	4.2%	2.7%	4.7%
Biked	0	4	14	18	0.4%	0.4%	3.2%
Bus/Shuttle/ Train	29	10	0	39	0.9%	0.1%	1.5%
Taxi	14	0	0	14	0.3%	0%	0.0%
Car Driver/ Motorcycle	2,297	289	0	2,586	62.4%	59.6%	63.3%
Car Passenger	1,157	156	0	1,313	31.7%	37.1%	27.4%
Total	3,514	616	14	4,144	100%	100%	100%
Percent 2006	84.8%	14.9%	0.3%	100%			
Percent 1999	88.3%	11.3%	0.4%	100%			
Percent 1993	77.5%	19.7%	2.8%	100%			
Weekend							
Walked	25	295		320	6.6%	2.5%	3.9%
Biked			69	69	1.4%	0.7%	2.2%
Bus/Shuttle/ Train		31		31	0.6%	0.9%	0.4%
Taxi		10		10	0.2%	0%	0.2%
Car Driver/ Motorcycle	2,219	196		2,415	50.0%	68.0%	56.3%
Car Passenger	1,626	360		1,986	41.1%	28.0%	37.0%
Total	3,870	892	69	4,831	100%	100%	100%
Percent 2006	80.1%	18.5%	1.4%	100%			
Percent 1999	79.1%	18.4%	2.5%	100%			
Percent 1993	68.5%	27.8%	3.7%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

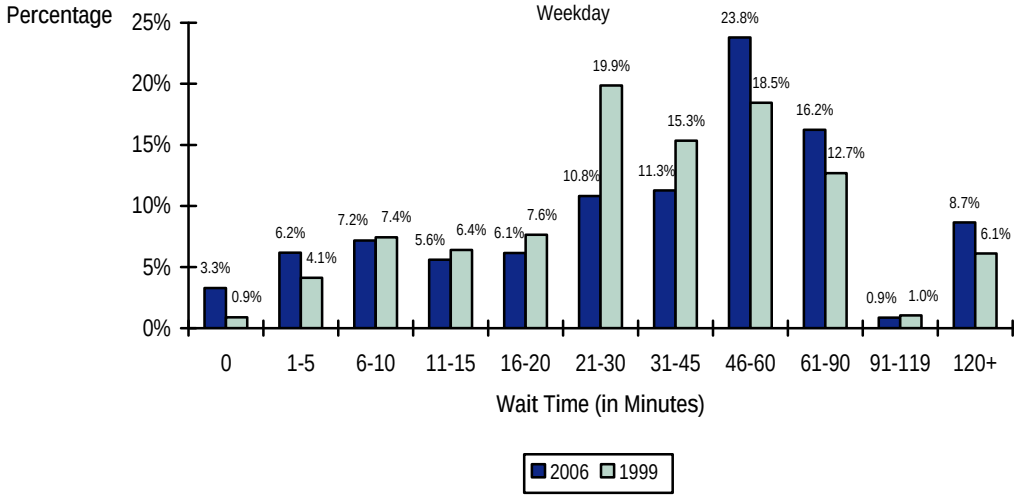
2006 Weekday Trips: 4252 Missing: 108

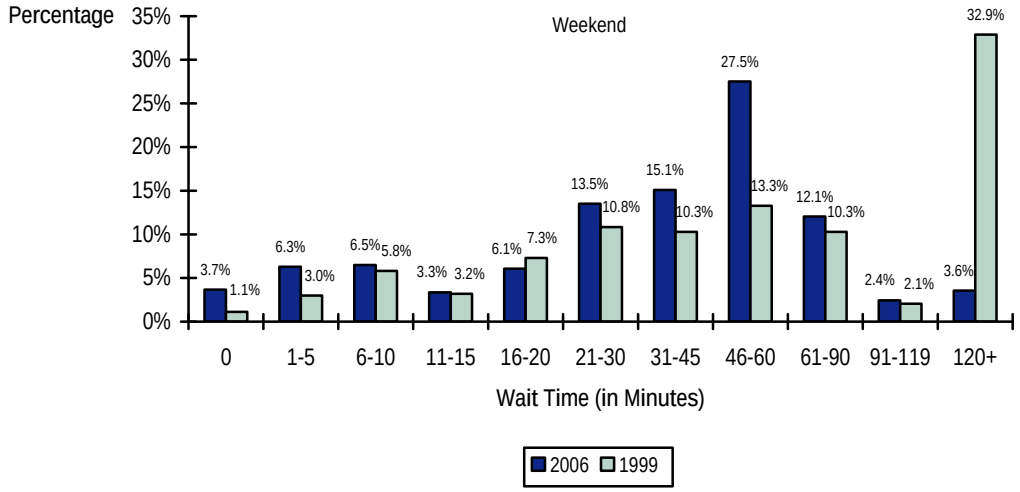
2006 Weekend Trips: 4962 Missing: 131

5.1.6 Wait Time

The out-of-vehicle travel times were measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 5.14 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in sufficient detail for this cross tabulation. For 2006 weekday, the majority of boardings were associated with a perceived wait time of 30 minutes or more. It is also found that 61 percent of ferry passengers waited more than half an hour for a ferry, but only 10 percent waited 1.5 hours or more. In 1999, the perceived wait time was slightly shorter, with 54 percent who waited a half-hour or more, but with only 7 percent who waited 1.5-hour or more. The mean perceived wait time for weekdays in 2006 was 57 minutes.

Figure 5.14 Anacortes-San Juan Islands Trips by Wait Time
About how many minutes did you wait to board this ferry?





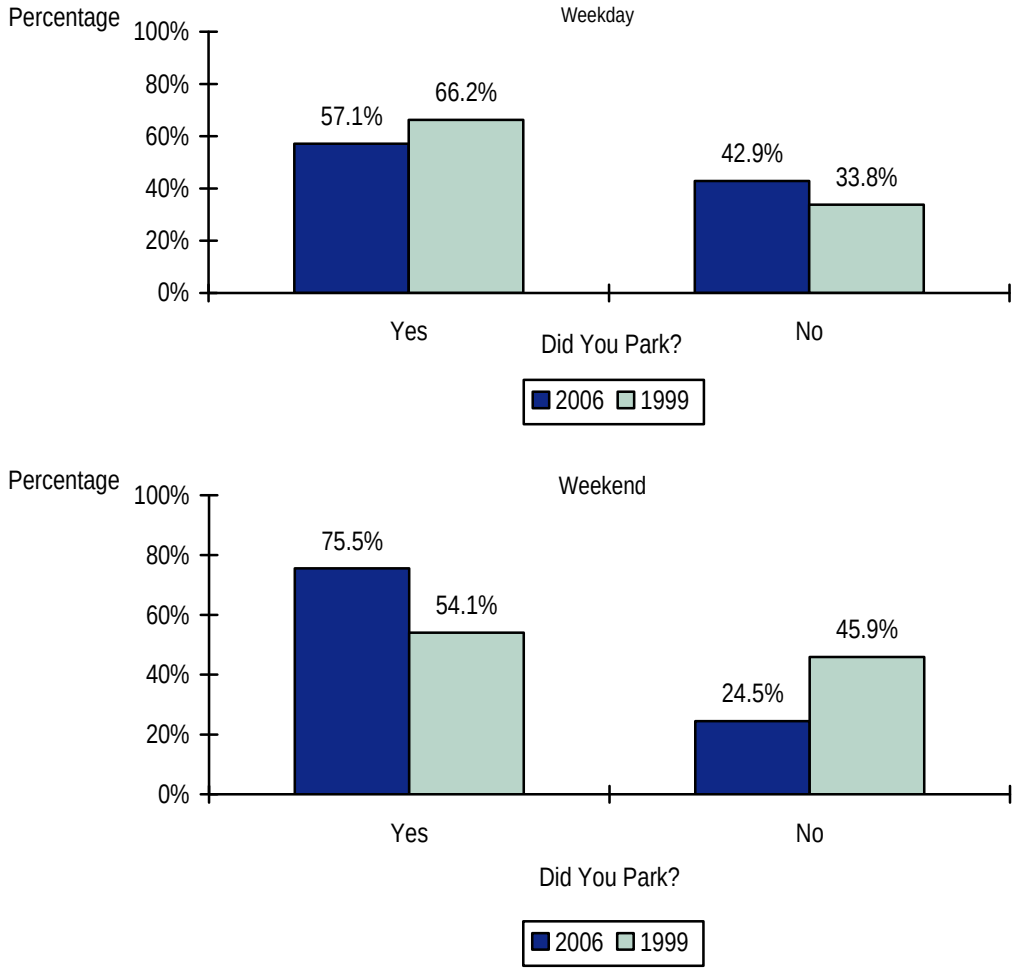
In 2006 weekends, the typical perceived wait time was somewhat longer, with 74 percent waiting over 30 minutes; in 1999, 80 percent waited this amount of time. The mean perceived wait time for weekends in 2006 was 50 minutes.

5.1.7 Parking

The parking statistics of walk-on passengers on this route were also examined. Primarily, these data summarizes if commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 5.15 below shows that 57 percent of weekday ferry riders in 2006 parked their vehicles at the ferry terminals, compared to 66 percent in 1999. This difference between 1999 and 2006 could be due to changes in parking availability and/or parking charges. In 2006 significantly more ferry passengers parked on weekends, 76 percent, than weekdays (57 percent). In 1999, 54 percent of weekend ferry passengers parked, so this is a significant increase. Again, this could be attributable to parking availability, parking charges or some other cause. The average parking cost was $5 per day on weekdays and $5 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 5.15 Anacortes-San Juan Islands Walk-On Passenger Parking Statistics

Did you park a vehicle to board this ferry?



5.1.8 Weekday Eastbound Origins and Destinations

Figure 5.16 for weekday eastbound trips shows the origins and destinations of riders on this route from the San Juan Islands to Anacortes in 2006. The majority of boardings, 85 percent are by auto. This is followed by 15 percent who walk on and 0.3 percent who bring a bicycle. These origins and destinations are detailed by district in Table 5.12. The major destinations are Mount Vernon/Burlington (18 percent), Anacortes/Fidalgo Island (15 percent), and West Whatcom County (10 percent). The major origins of these trips are San Juan Island (56 percent), Orcas Island (31 percent), and Lopez Island (11 percent). The individual locations of each survey respondent's origin and destinations are presented in Figure 5.17 for walk-on and vehicle boarding modes.

In the 1999 survey, Orcas Island had more origins (49 percent) than San Juan Island (42 percent), so the distribution of these weekday eastbound trips has shifted to favor San Juan Island during weekdays. This may reflect a change in pattern over time but could also reflect different patterns from the May survey (in 1999) to the October survey (in 2006).

Figure 5.16 Anacortes-San Juan Islands Weekday Eastbound Origins and Destinations (2006)

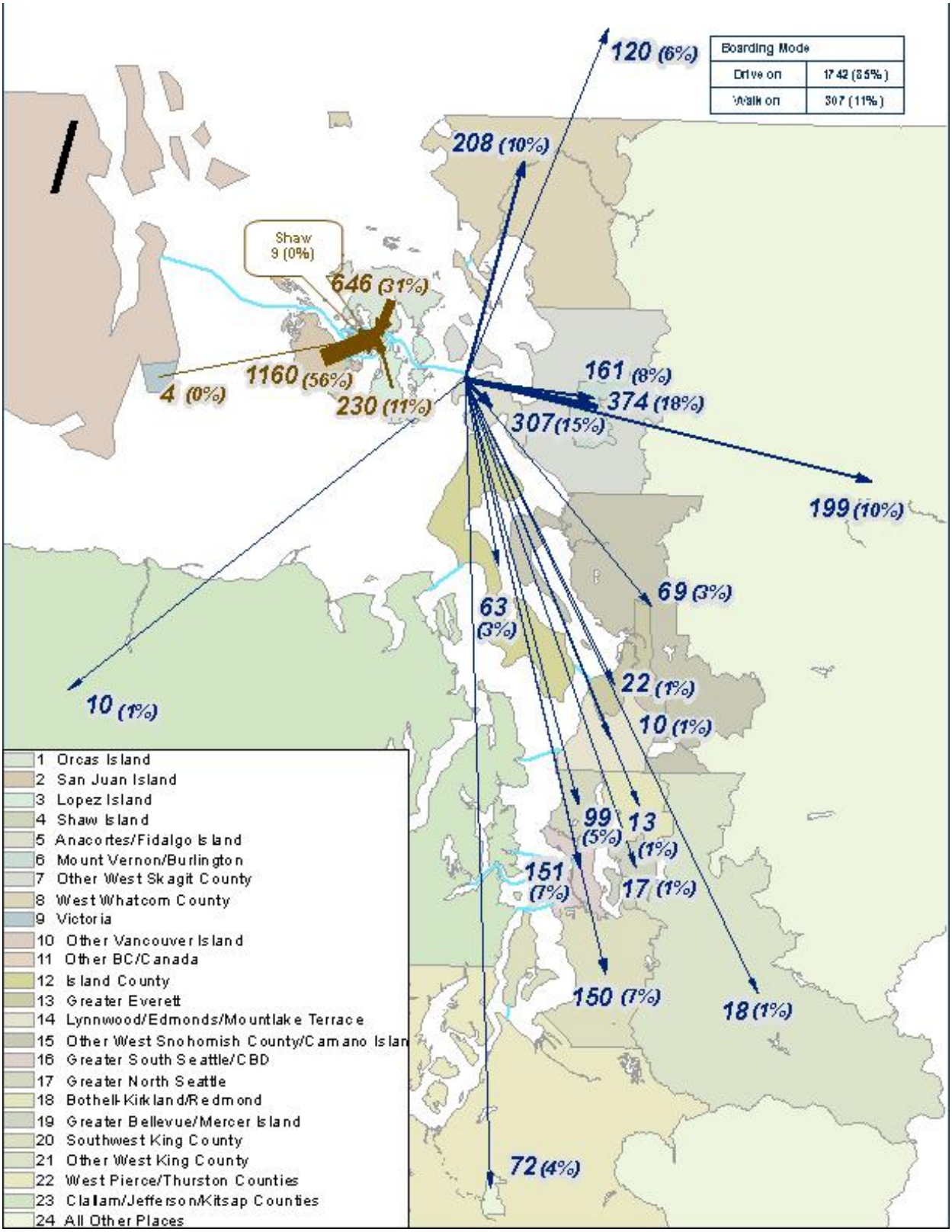
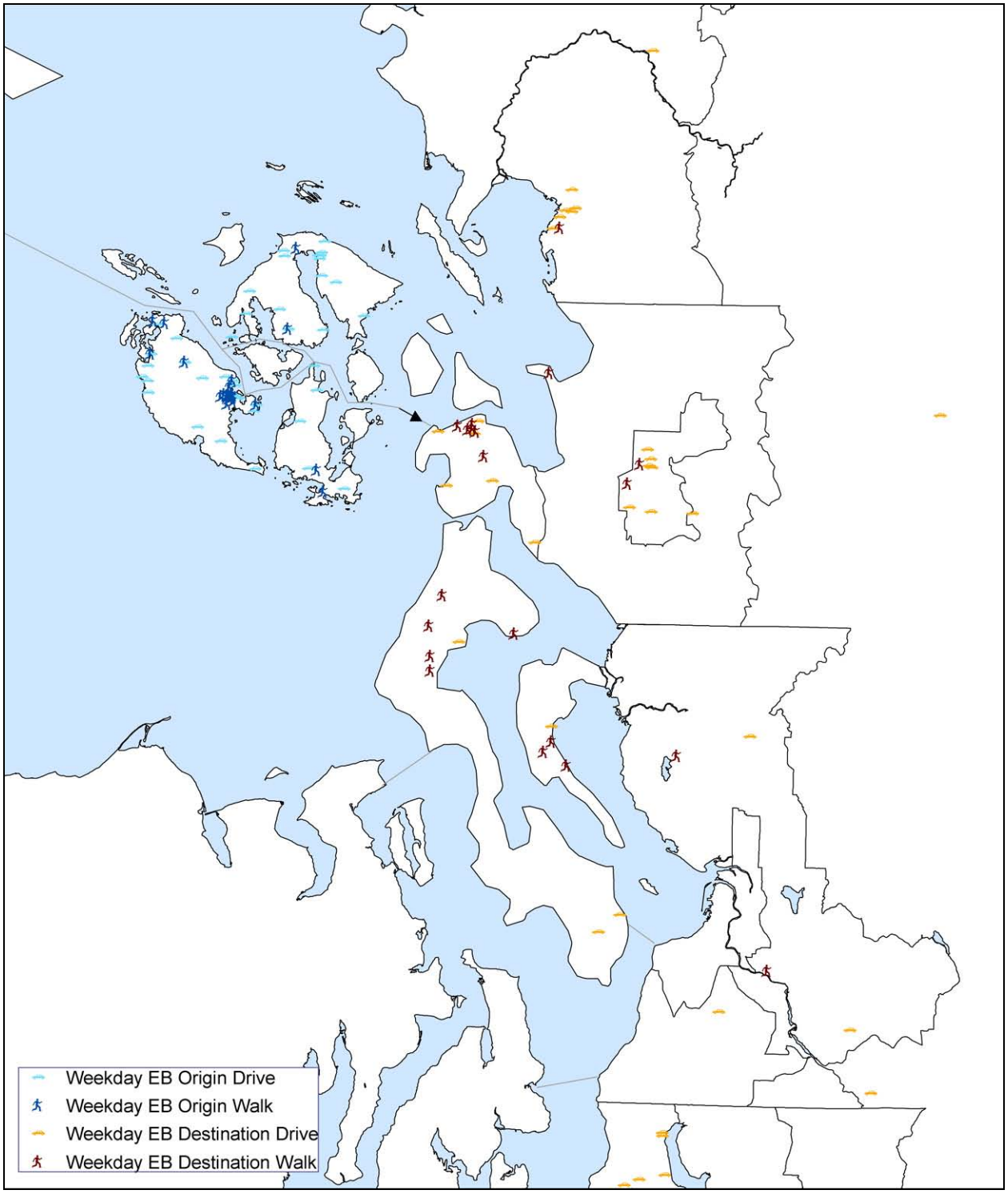


Table 5.11 Anacortes-San Juan Islands Weekday Eastbound Boardings by Origin and Destination District

	Destination District									
Origin District	Anacortes/ Fidalgo Island	Mount Vernon/ Burlington	Other West Skagit County	West Whatcom County	Other BC/Canada	Island County	Greater Everett	Lynnwood/ Edmonds/ Mountlake Terrace	Other West Snohomish County/Camano Island	Greater South Seattle/CBD
Orcas Island	75	56	148	80	11	1	1	1	22	56
San Juan Island	148	248	10	111	107	62	19	9	45	64
Lopez Island	77	67	3	17			2		2	20
Shaw Island	7	2								
Victoria										
All Other Places		1			2					11
Total	307	374	161	208	120	63	22	10	69	151
Percent of Total	14.9%	18.1%	7.8%	10.1%	5.8%	3.1%	1.1%	0.5%	3.3%	7.3%

	Destination District (continued)									
Origin District	Greater North Seattle	Bothell-Kirkland/ Redmond	Greater Bellevue/Mercer Island	Southwest King County	Other West King County	West Pierce/ Thurston Counties	Clallam/ Jefferson/ Kitsap Counties	All Other Places	Total	Percent of Total
Orcas Island	13	2	9	84		16		71	646	31.3%
San Juan Island	69	10	8	63	18	49	7	113	1,160	56.2%
Lopez Island	17	1		3		3	3	15	230	11.1%
Shaw Island									9	0.4%
Victoria						4			4	0.2%
All Other Places									14	0.7%
Total	99	13	17	150	18	72	10	199	2,063	100.0%
Percent of Total	4.8%	0.6%	0.8%	7.3%	0.9%	3.5%	0.5%	9.6%	100.0%	

Figure 5.17 Anacortes-San Juan Islands Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



5.1.9 Weekday Westbound Origins and Destinations

Figure 5.18 presents the travel patterns of riders taking the Anacortes to the San Juan Islands ferry for weekday westbound trips. The majority of boardings, 85 percent are by auto. This is followed by 15 who walk on and 0.3 percent who bring a bicycle. These origins and destinations are detailed by district in Table 5.13. The major destinations are San Juan Island (50 percent) and Orcas Island (26 percent). The major origins of these trips are Mount Vernon/Burlington (18 percent), Anacortes/Fidalgo Island (15 percent), and Other West Snohomish County/Camano Island (13 percent). The individual locations of each survey respondent's origin and destinations are presented in Figure 5.19 for walk-on and vehicle boarding modes.

In the 1999 survey, Orcas Island had fewer origins (42 percent) than San Juan Island (46 percent), so the distribution of these weekday westbound trips has shifted to favor San Juan Island more than in the past. This may reflect a change in pattern over time but is could also reflect different patterns from the May survey (in 1999) to the October survey (in 2006).

Figure 5.18 Anacortes-San Juan Islands Weekday Westbound Origins and Destinations (2006)

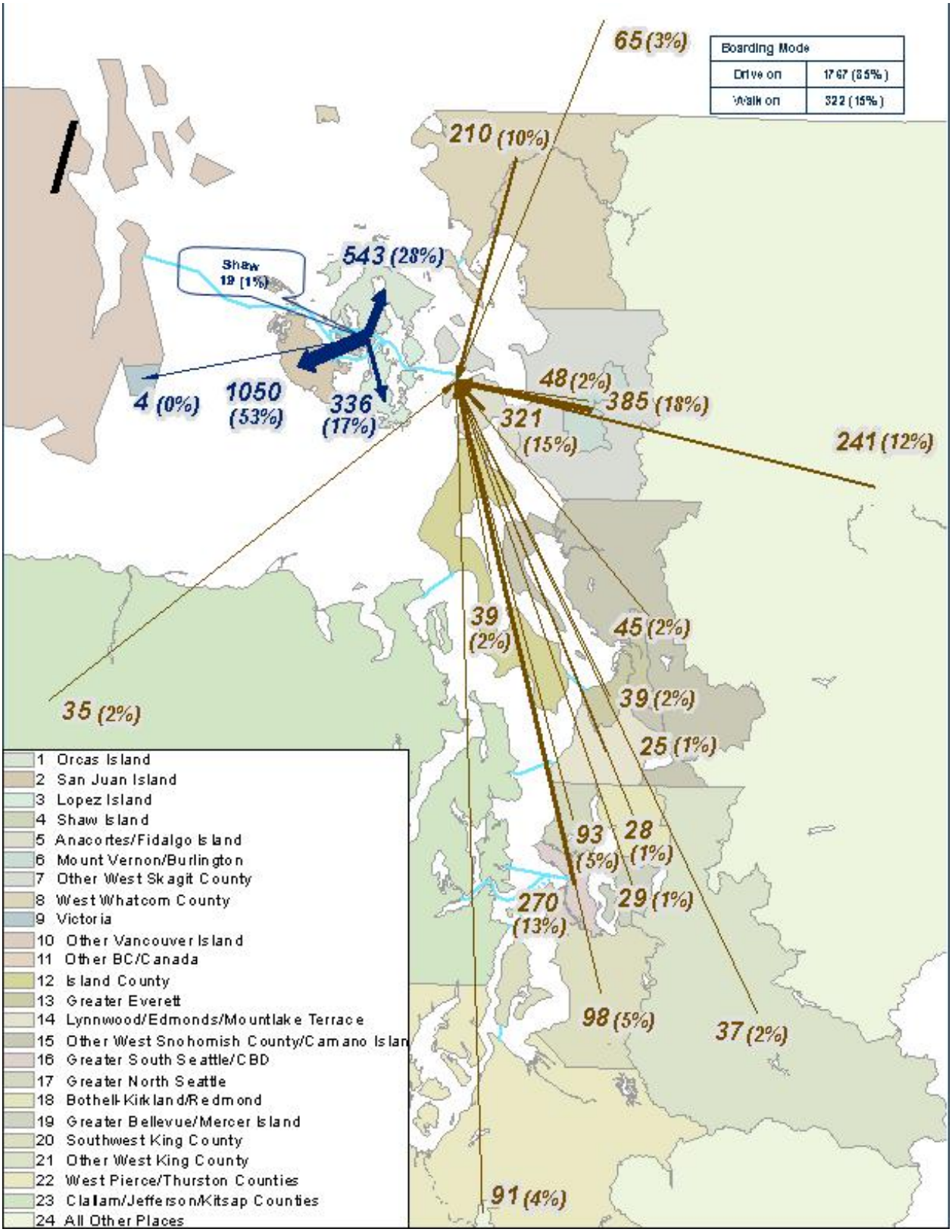
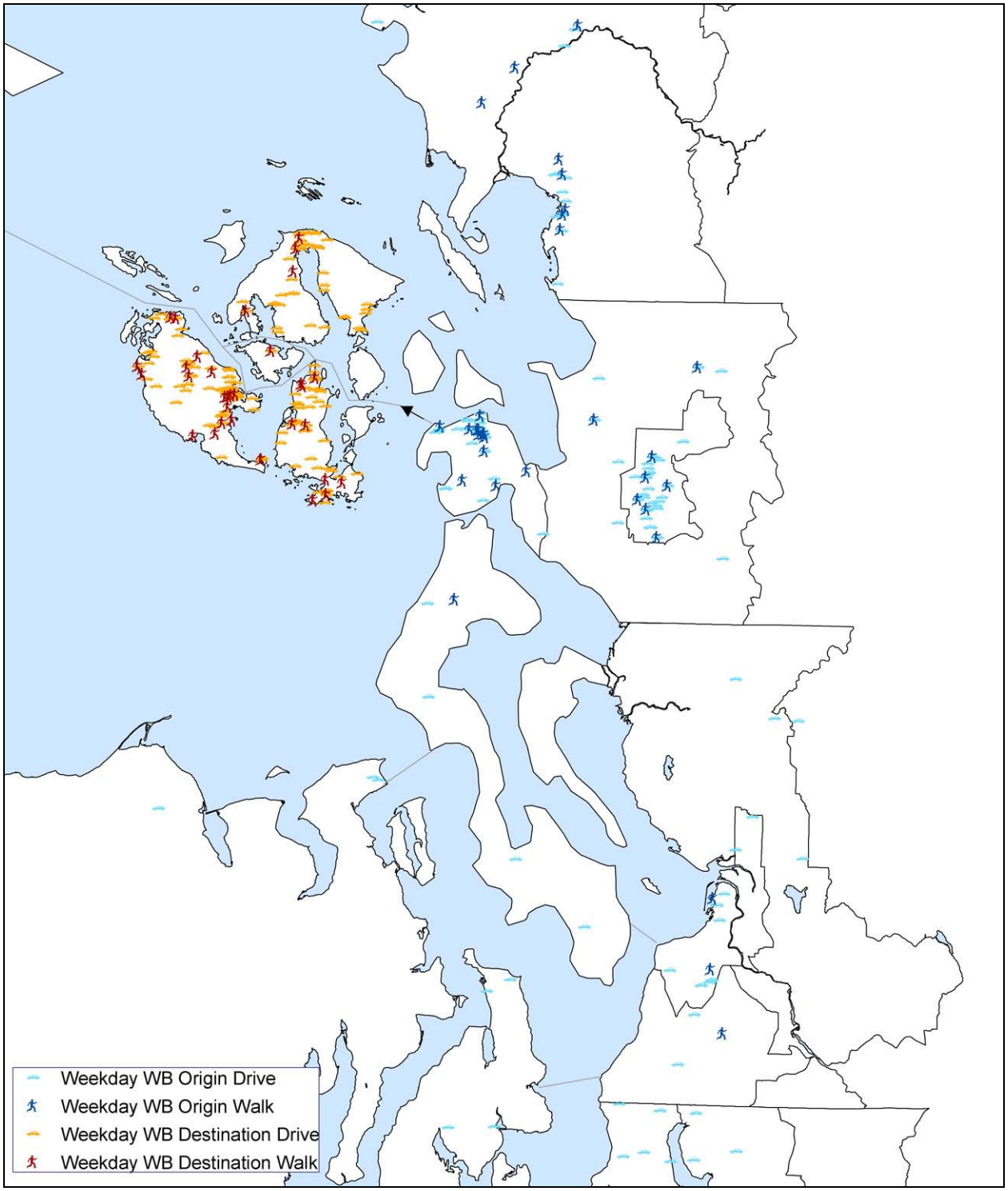


Table 5.12 Anacortes-San Juan Weekday Westbound Boardings by Origin and Destination District

	Destination District								
Origin District	Orcas Island	San Juan Island	Lopez Island	Shaw Island	Victoria	Other Vancouver Island	All Other Places	Total	Percent of Total
Anacortes/Fidalgo Island	66	173	70	12				321	15.4%
Mount Vernon/Burlington	68	230	83	2			2	385	18.4%
Other West Skagit County	26	13	9					48	2.3%
West Whatcom County	94	96	15	5				210	10.1%
Other BC/Canada	14	48					3	65	3.1%
Island County	2	37						39	1.9%
Greater Everett	2	35	2					39	1.9%
Lynnwood/Edmonds/ Mountlake Terrace	20	5						25	1.2%
Other West Snohomish County/Camano Island	19	21	5					45	2.2%
Greater South Seattle/CBD	35	65	38				132	270	12.9%
Greater North Seattle	20	53	20					93	4.5%
Bothell-Kirkland/Redmond	5	12	11					28	1.3%
Greater Bellevue/Mercer Island	8	21						29	1.4%
Southwest King County	40	51	7					98	4.7%
Other West King County	21	16						37	1.8%
West Pierce/Thurston Counties	24	54	9		4			91	4.4%
Clallam/Jefferson/Kitsap Counties	4	14	17					35	1.7%
All Other Places	75	106	50					241	11.5%
Total	543	1,050	336	19	4		127	2,089	100%
Percent of Total	26.0%	50.3%	16.1%	0.9%	0.2%	0.0%	6.1%	100%	

Figure 5.19 Anacortes-San Juan Islands Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



5.1.10 Weekend Eastbound Origins and Destinations

The weekend eastbound travel patterns that occur on the Anacortes to San Juan Islands ferry route are summarized in Figure 5.20. The majority of boardings are by auto (81 percent). This is followed by 18 who walk on and 1.4 percent who bring a bicycle. The origins and destinations are detailed by district in Table 5.13. The major destinations are West Whatcom County (16 percent) and Anacortes-Fidalgo Island (14 percent). The major origins of these trips are Orcas Island (54 percent), San Juan Island (23 percent), and Lopez Island (22 percent). The individual locations of each survey respondent's origin and destinations are presented in Figure 5.21 for walk-on and vehicle boarding modes.

In the 1999 survey, Orcas Island had fewer origins (33 percent) than San Juan Island (45 percent), so the distribution of these weekend eastbound trips has shifted to favor Orcas Island over San Juan Island on the weekend. This may reflect a change in pattern over time but could also reflect different patterns from the May survey (in 1999) to the October survey (in 2006).

Figure 5.20 Anacortes-San Juan Islands Weekend Eastbound Origins and Destinations (2006)

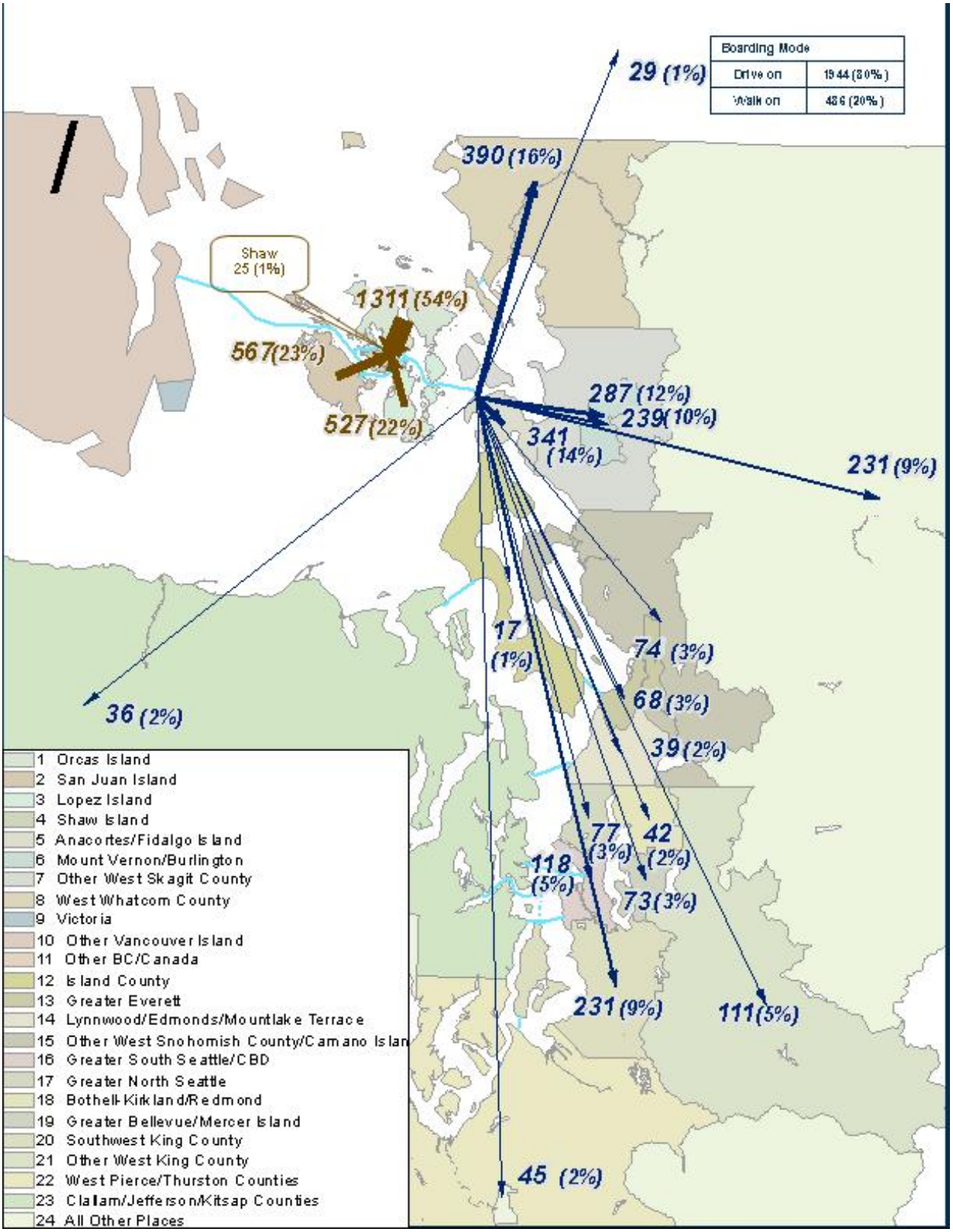
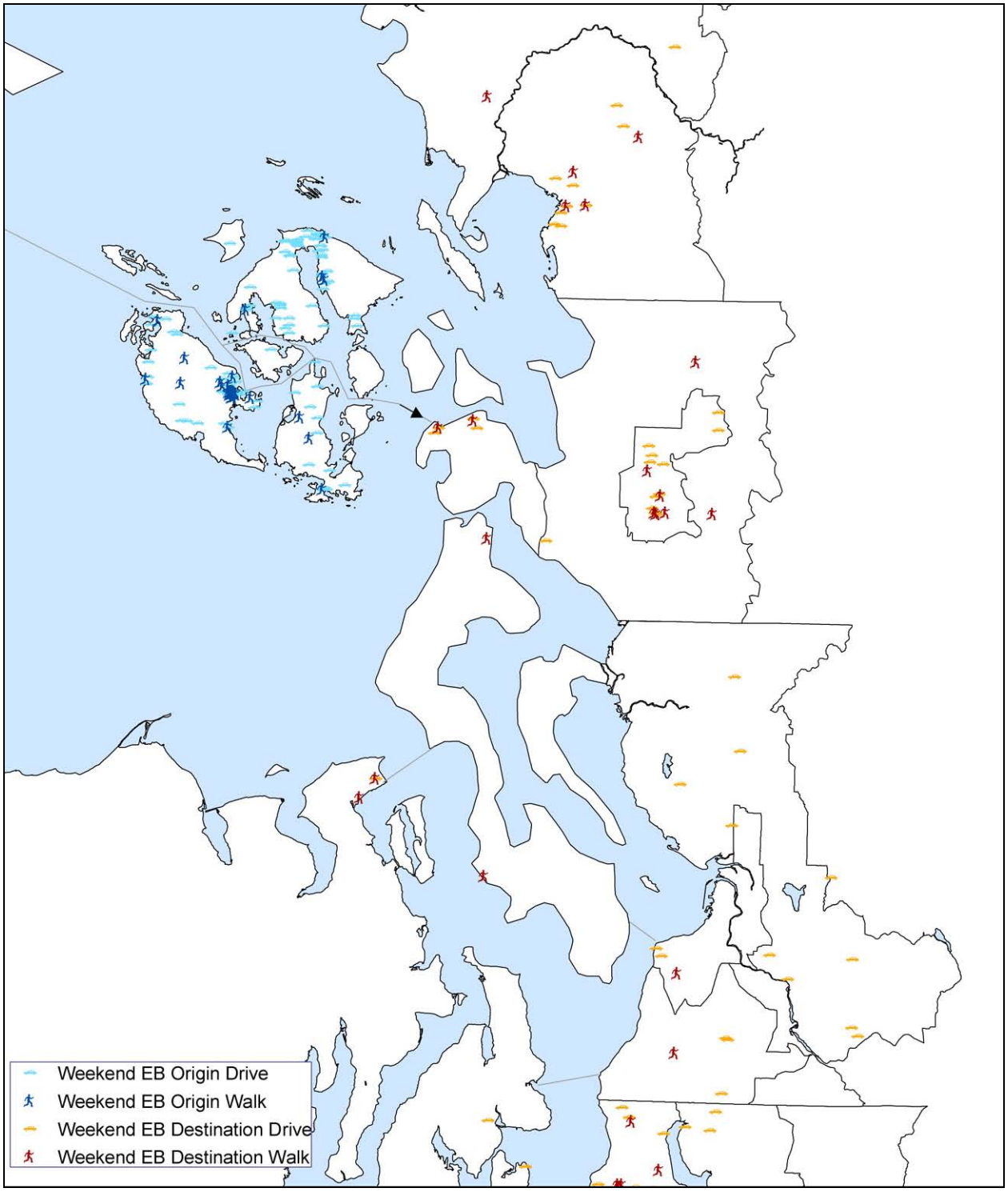


Table 5.13 Anacortes-San Juan Islands Weekend Eastbound Boardings by Origin and Destination District

	Destination District									
Origin District	Anacortes/ Fidalgo Island	Mount Vernon/ Burlington	Other West Skagit County	West Whatcom County	Other BC/Canada	Island County	Greater Everett	Lynnwood/ Edmonds/ Mountlake Terrace	Other West Snohomish County/Camano Island	Greater South Seattle/CBD
Orcas Island	210	91	215	268	29	0	05	18	23	58
San Juan Island	59	62	63	43	0	17	4	21	37	29
Lopez Island	72	86	9	68	0	0	59	0	10	22
Shaw Island	0	0	0	11	0	0	0	0	0	4
All Other Places	0	0	0	0	0	0	0	0	4	5
Total	341	239	287	390	29	17	68	39	74	118
Percent of Total	13.9%	9.8%	11.7%	15.9%	1.2%	0.7%	2.8%	1.6%	3.0%	4.8%

	Destination District (continued)									
Origin District	Greater North Seattle	Bothell-Kirkland/ Redmond	Greater Bellevue/Mercer Island	Southwest King County	Other West King County	West Pierce/ Thurston Counties	Clallam/ Jefferson/Kitsap Counties	All Other Places	Total	Percent of Total
Orcas Island	36	14	5	141	96	24	5	73	1,311	53.6%
San Juan Island	17	14	13	77	10	21	14	66	567	23.2%
Lopez Island	14	14	55	4	5	0	17	92	527	21.5%
Shaw Island	10	0	0	0	0	0	0	0	25	1.0%
All Other Places	0	0	0	9	0	0	0	0	18	0.7%
Total	77	42	73	231	111	45	36	231	2,448	100.0%
Percent of Total	3.1%	1.7%	3.0%	9.4%	4.5%	1.8%	1.5%	9.4%	100%	

Figure 5.21 Anacortes-San Juan Islands Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



5.1.11 Weekend Westbound Origins and Destinations

The weekend westbound trips (in Figure 5.22) also seem to be similar to the weekday westbound travel patterns; that is, 81 percent of riders chose the drive mode, 18 percent chose to walk on to the ferry, and 1 percent rode a bike. These origins and destinations are detailed by district in Table 5.14. The major destinations are Orcas Island (43 percent), Lopez Island (28 percent), and Jan Juan Island (27 percent). The major origins of these trips are Greater South Seattle/CBD (15 percent), Mount Vernon/Burlington (12 percent) and various other districts. The individual locations of each survey respondent's origin and destinations are presented in Figure 5.23 for walk-on and vehicle boarding modes.

In the 1999 survey, Lopez Island had only 13 percent of the trips, and both Orcas (49 percent) and San Juan Island (34 percent) had a greater share than in 2006. This may reflect a change in pattern over time but could also reflect different patterns from the May survey (in 1999) to the October survey (in 2006).

Figure 5.22 Anacortes-San Juan Islands Weekend Westbound Origins and Destinations (2006)

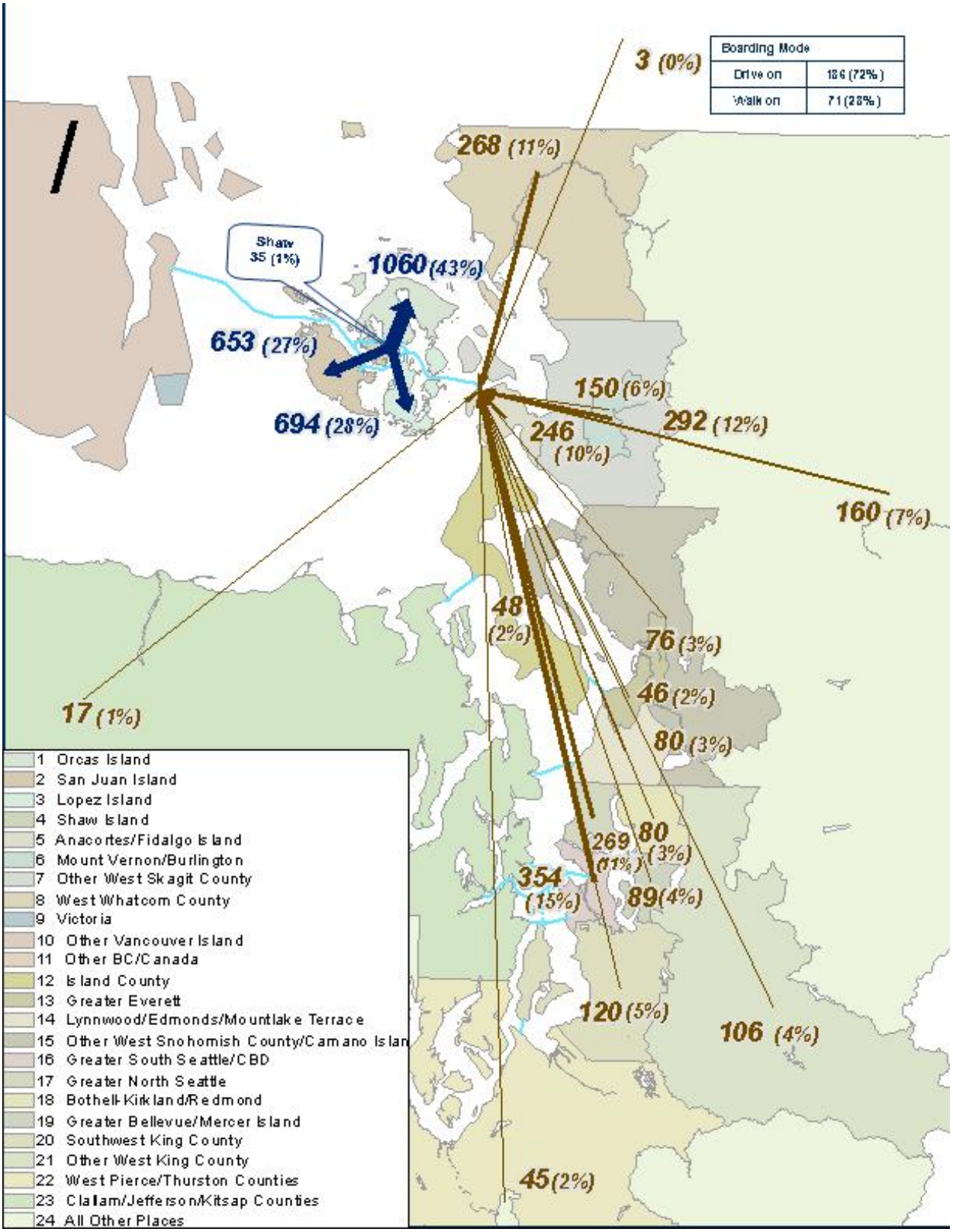
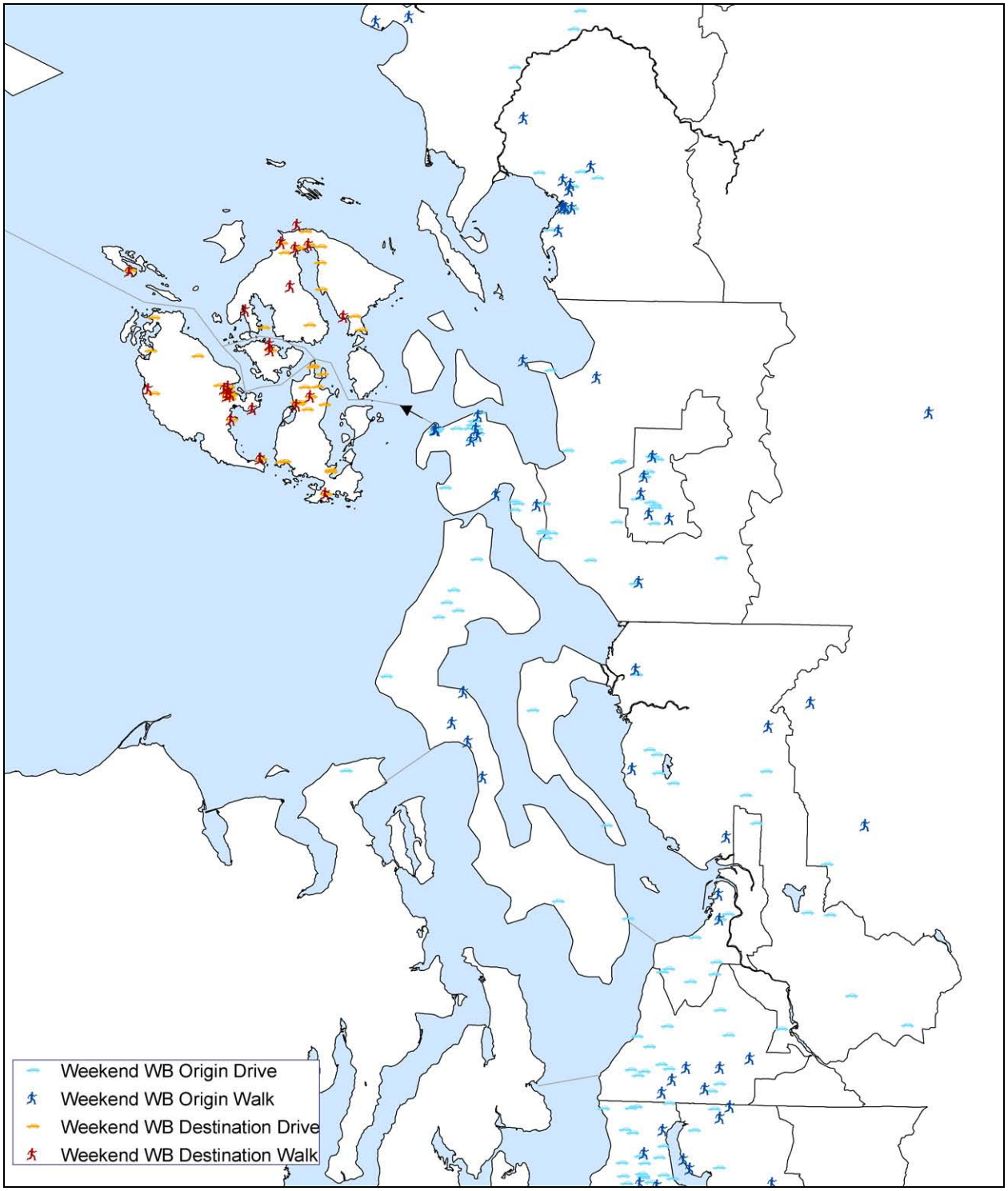


Table 5.14 Anacortes-San Juans Weekend Westbound Origins and Destinations

	Destination District								
Origin District	Orcas Island	San Juan Island	Lopez Island	Shaw Island	Victoria	Other Vancouver Island	All Other Places	Total	Percent of Total
Anacortes/Fidalgo Island	107	69	70					246	10.0%
Mount Vernon/Burlington	115	73	104					292	11.9%
Other West Skagit County	53	78	19					150	6.1%
West Whatcom County	132	68	59	9				268	10.9%
Other BC/Canada		3						3	0.1%
Island County	9	13	26					48	2.0%
Greater Everett	9	16	21					46	1.9%
Lynnwood/Edmonds/Mountlake Terrace	36	26	18					80	3.3%
Other West Snohomish County/Camano Island	21	34	18				3	76	3.1%
Greater South Seattle/CBD	220	34	96				4	354	14.5%
Greater North Seattle	153	64	35	17				269	11.0%
Bothell-Kirkland/Redmond	34	29	17					80	3.3%
Greater Bellevue/Mercer Island	38	13	38					89	3.6%
Southwest King County	46	57	17					120	4.9%
Other West King County	26	10	70					106	4.3%
West Pierce/Thurston Counties	3	12	21	9				45	1.8%
Clallam/Jefferson/Kitsap Counties		8	9					17	0.7%
All Other Places	58	46	56					160	6.5%
Total	1060	653	694	35			7	2449	100%
Percent of Total	43.3%	26.7%	28.3%	1.4%	0.0%	0.0%	0.3%	100%	

Figure 5.23 Anacortes-San Juan Islands Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)



5.2 ANACORTES-SIDNEY, BRITISH COLUMBIA

5.2.1 Route Description

This route connects Anacortes and Sidney in the San Juan Islands corridor located well North of Seattle and connecting Canada. The crossing takes three hours and is approximately 40 nautical miles. During the period of surveying, there was one ferry per day that ran this route, seven days per week. For 2006, the annual total ridership was 71,000 passengers plus 35,000 vehicles and drivers for a total of 106,000 people, or about 300 riders per day. This compares to 365 riders per day in 1999 and 455 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and the trend for this route follows this pattern. It may also be that the events of 9/11 have contributed to fewer people traveling to Canada from the U.S.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

5.2.2 Trips by Purpose

The trip purposes of ferry riders on the Anacortes-Sidney route were cross-tabulated against the direction of the trip for weekday and weekend and for different survey years. Table 5.15 shows the same three groups of trip purposes for 2006 weekday and weekend, and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are east-west routes.

The total number of trips and the purpose of these trips on ferries in an average week in 2006 are shown in Table 5.16. For comparison summaries, trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

This table shows that weekday travelers use the ferry for both non-discretionary and recreational purposes, with an emphasis on the latter. Indeed, 59 percent are using the ferry for recreation, shopping, and leisure. An additional 32 percent of ferry passengers are commuters and 10 percent are using the ferry for medical, personal, and business reasons.

Table 5.15 Anacortes-Sidney Trips by Purpose and Direction

Purpose: What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/ Other	Recreation / Shopping	Total	All Purposes 2006	1999[a]	1993[a]
Weekday							
Eastbound	39	14	47	100	39.8%	55.0%	48.9%
Westbound	45	10	96	151	60.2%	45.0%	51.1%
Total	84	24	143	251	100%	100%	100%
Both dir. 2006	33.5%	9.6%	57.0%	100%			
Both dir. 1999	5.3%	6.6%	88.1%	100%			
Both dir. 1993	2.4%	1.2%	96.4%	100%			
Weekend							
Eastbound	17	35	142	194	57.1%	63.6%	53.5%
Westbound	12	24	110	146	42.9%	36.4%	46.5%
Total	29	59	252	340	100%	100%	100%
Both dir. 2006	8.5%	17.4%	74.1%	100%			
Both dir. 1999	1.5%	5.3%	93.2%	100%			
Both dir. 1993	4.3%	3.4%	92.3%	100%			

1999 and 1993 survey trips were not rebalanced by direction and as a result there is a large difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999. See Section 2.3 for more details.

2006 Weekday trips: 261 Missing: 10

2006 Weekend trips: 344 Missing: 4

There is a marked increase in commute trips between 1993 and 2006 for weekday travel and a decrease in shopping and recreation trips from 1993 to 2006. They may be in part due to rising costs for ferry travel, resulting in a greater share of travel for business or commuting reasons.

The 1993 and 1999 survey trips are different by direction because of differences in expansion of the survey and are not attributable to any real differences in travel behavior.[22] We calculated the p.m. period half-day percent westbound

[22] The 1993 and 1999 surveys were not rebalanced by direction and as a result there is a huge difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999.

during the weekday at 59 percent, which shows a modest increase in westbound travel since 1993 (from 51 percent).

5.2.3 Frequency of Travel

The total number of trips and the purpose behind taking these trips on ferries in an average week in 2006 are shown in Table 5.16. As above, the trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Among commuters and discretionary passengers alike, very few use this ferry on a regular basis. The frequency of ridership is much lower than with other routes, as indicated by 96 percent of riders on the Anacortes-Sidney ferry (229 out of 239) who take the ferry four or fewer times in a month.

Table 5.16 also provides a comparison of trip frequency percent distribution for years 1993, 1999, and 2006. In 1993 only two percent of riders were commuters, in 1999 only five percent were, and by 2006, 32 percent were commuters. The recreational trips share has declined from 96 percent in 1993 to 88 percent in 1999 to 59 percent in 2006. Ridership for medical and personal business crept up from one percent in 1993 to 7 percent in 1999 to 10 percent in 2006.

In terms of frequency of use, most ferry passengers do not use this ferry often. In 1993, 91 percent of riders used the ferry only once or twice in a month. By 1999 this share declined slightly to 87 percent. By 2006, 79 percent rode the ferry only once or twice per month.

During weekdays, three quarters of all ferry trips is discretionary. While 32 percent of the weekday trips are for commuting, only nine percent (28 out of 300) of the weekend trips are for this purpose. Conversely, 74 percent (222 out of 3000) of the weekend trips are for recreation, shopping, and leisure, compared to 59 percent of the weekday trips. The frequency of weekend ferry use also is lower than weekday. In fact, 92 percent of the weekend ferry riders only use the ferry once or twice in a month. This is compared with 79 percent of weekday ferry riders who use the ferry only once per month on average.

Table 5.16 Anacortes-Sidney Trips by Purpose and Frequency

Frequency	Work/ School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
1	33	12	62	107	44.6%	57.5%	65.2%
2	17	9	55	81	33.8%	29.1%	25.9%
3-4	19	2	20	41	17.1%	11.0%	8.9%
5-6	5	0	2	7	2.9%	0.7%	0.0%
7-8	2	0	0	2	0.8%	0.3%	0.0%
9-10	1	0	0	1	0.4%	0.0%	0.0%
11+	0	0	1	1	0.4%	1.4%	0.0%
Total	77	23	140	240	100%	100%	100%
Percent 2006	32.2%	9.6%	58.6%	100%			
Percent 1999	5.3%	6.6%	88.1%	100%			
Percent 1993	2.4%	1.2%	96.4%	100%			
Weekend							
1	6	33	127	166	55.3%	50.8%	72.1%
2	17	16	73	106	35.3%	35.8%	18.9%
3-4	4	1	13	18	6.0%	10.0%	8.0%
5-6	0	0	5	5	1.7%	0.8%	1.0%
7-8	0	0	3	3	1.0%	1.7%	0.0%
9-10	1	0	0	1	0.3%	0.8%	0.0%
11+	0	0	1	1	0.3%	0.0%	0.0%
Total	28	50	222	300	100%	100%	100%
Percent 2006	9.3%	16.7%	74.0%	100%			
Percent 1999	1.5%	5.3%	93.2%	100%			
Percent 1993	4.3%	3.4%	92.3%	100%			

2006 Weekday Trips: 261 Missing: 22

2006 Weekend Trips: 344 Missing: 44

The total percent distribution across purposes is different below in Table 5.15 than in Table 5.16 above due to missing records, something that is expected in surveys of this nature. Table 5.15 shows that 34 percent (84 out of 251) of riders use this route for commuting purposes, compared to 32 percent in Table 5.16 above. The estimates for weekends also are somewhat different. On weekdays, there were more westbound than eastbound travelers for all purposes (151 westbound and 100 eastbound), and on weekend more eastbound than westbound (194 versus 146).

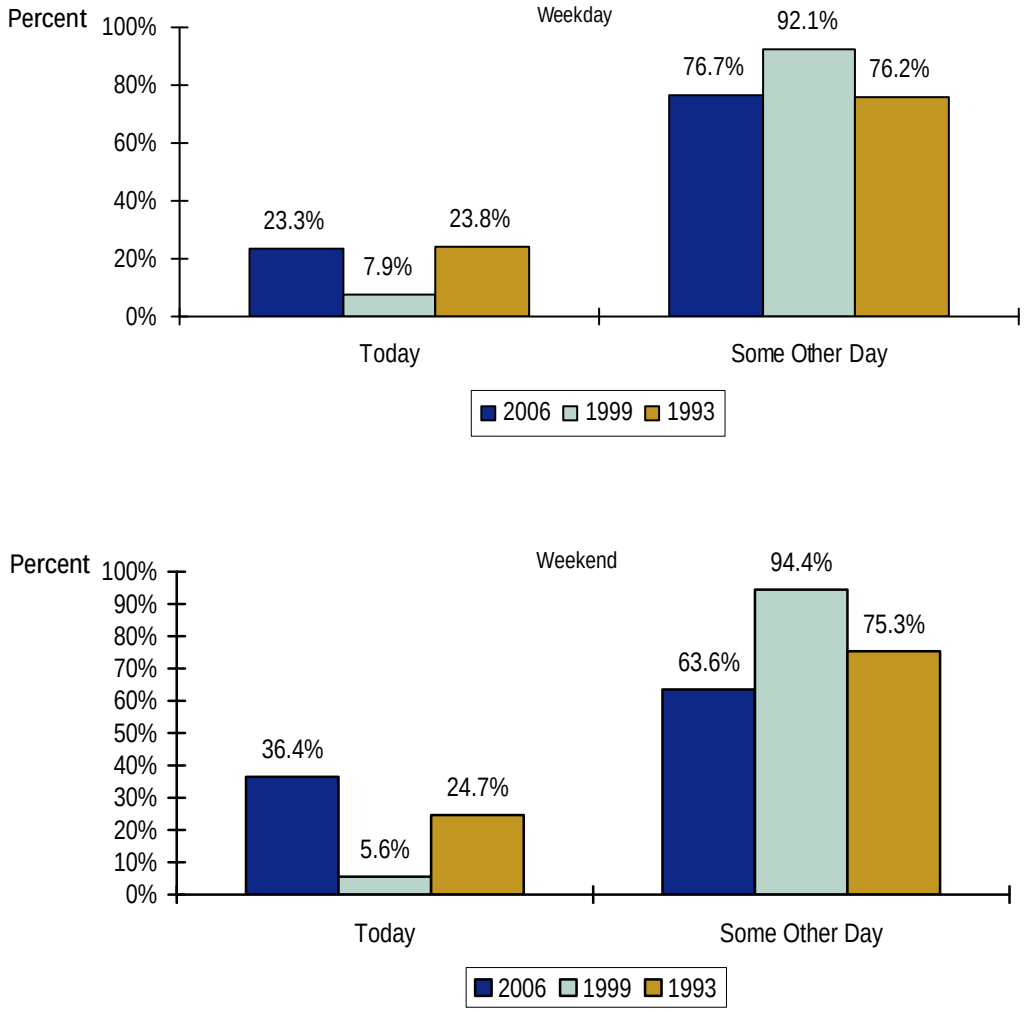
Both tables indicate an increase in trips for commuters and for trips undertaken to conduct personal business, and a proportional slight decline in the share for recreational purposes. The 1993 and 1999 survey records were not rebalanced by direction and as a result there is an observed difference by direction for the various purposes. The 2006 survey records were expanded by direction for all time periods by creating the reverse trips for surveys records returning on the same route based on the information on roundtrip patterns and modal usage. Consequently, the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999.

5.2.4 Round-Trip Patterns

In the 2006 surveys, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 5.24 below shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. This route is unlike other ferries insofar as over three quarters of the riders were returning a different day. Specifically, 77 percent of 253 passengers are not returning on the same day they departed. A similar trend is observed over the weekend as well, with 64 percent of 332 passengers who are traveling this route on different days as part of one trip.

Figure 5.24 Anacortes-Sidney Round Trip Patterns by Day

When was the first half of your trip or when will you return?



2006 Weekday Trips: 261 Missing: 8

2006 Weekend Trips: 344 Missing: 12

In the 2006 surveys, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 5.25 shows the day ferry riders traveled for their first or second half of the trip; that is, if they returned the same day or some other day.

Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on a different day fluctuates. In 2006, this share was 77 percent, compared with 92 percent in 1996 and 76 percent in 1993. The shares also were found to fluctuate when it comes to

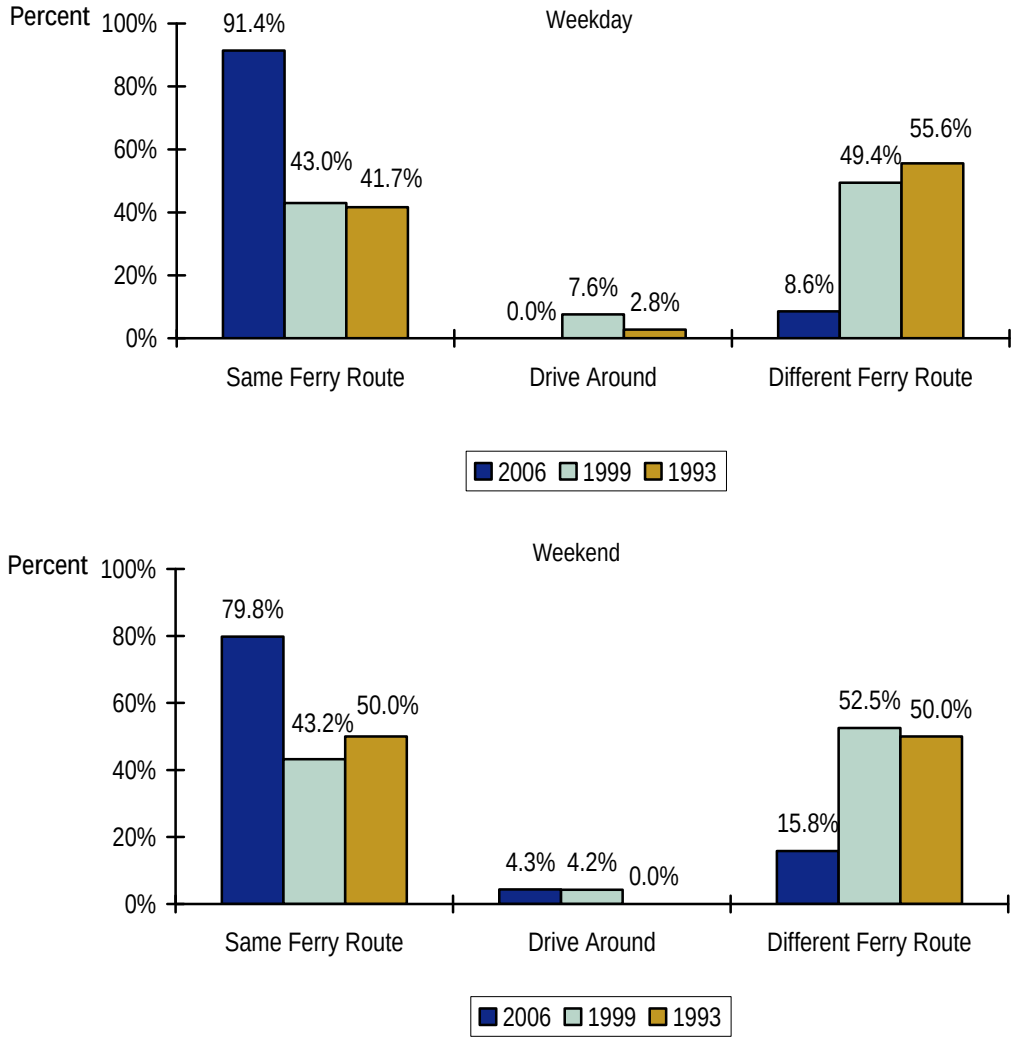
weekend travel. In 1993, 75 percent of weekend trips were conducted over more than one day. In 1999 that share is high, at 94 percent; by 2006 it dips to 64 percent.

For riders who made one-half of their trip on this route, Figure 5.26 shows the travel route they reported for their other half of the trip. The three travel routes chosen were: use the same ferry route, drive around or use a different ferry route. As expected, a large number of travelers indicated that they chose the same route because of the fact that travelers have to return to their home base. These numbers were significantly lower in 1993 when only 42 percent used the same ferry route, and in 1999 when 43 percent did so. This shows that the trend is increasingly to use the same ferry route.

From the weekend estimates, the trends are slightly different, especially in 1999 and 1993 when more boardings were onto a different ferry route for at least one-half of the trip. In 1993, 50 percent of boardings are travelers returning on the same ferry route, compared to 43 percent in 1999, and 80 percent in 2006.

Figure 5.25 Anacortes-Sidney Round Trip Patterns by Mode

How will you return or how did you travel on the first half of your trip?



Note: Respondents misinterpreted the question as it is not possible to drive around when going to or from the San Juan Islands or Sidney.

2006 Weekday Trips: 261 Missing: 4

2006 Weekend Trips: 344 Missing: 22

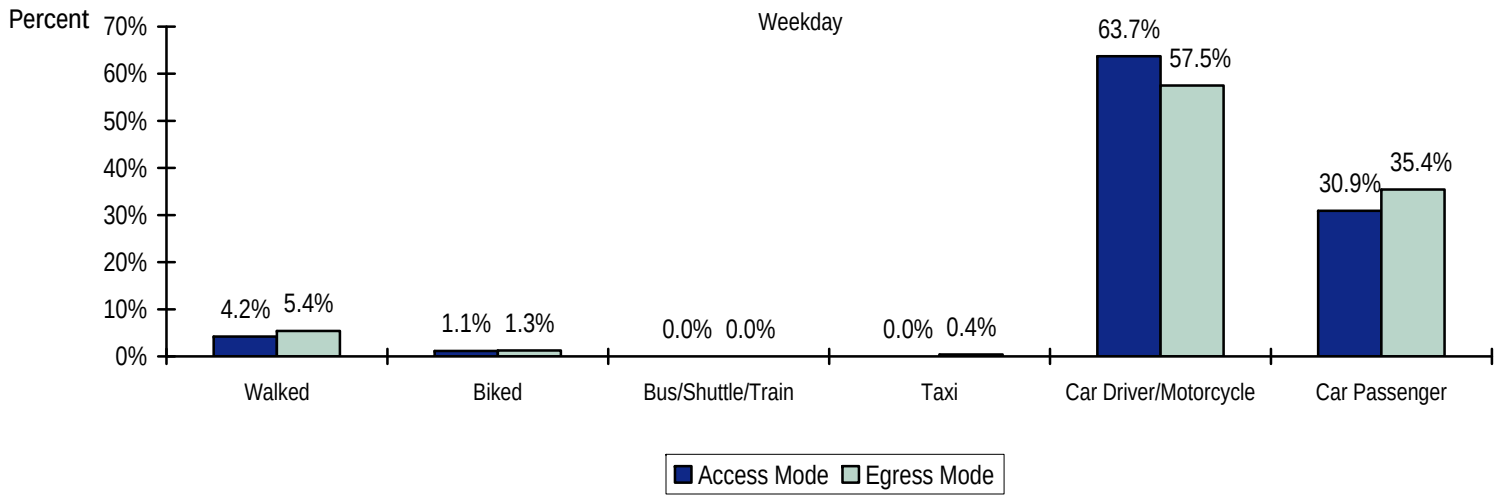
5.2.5 Access, Egress and Boarding Modes

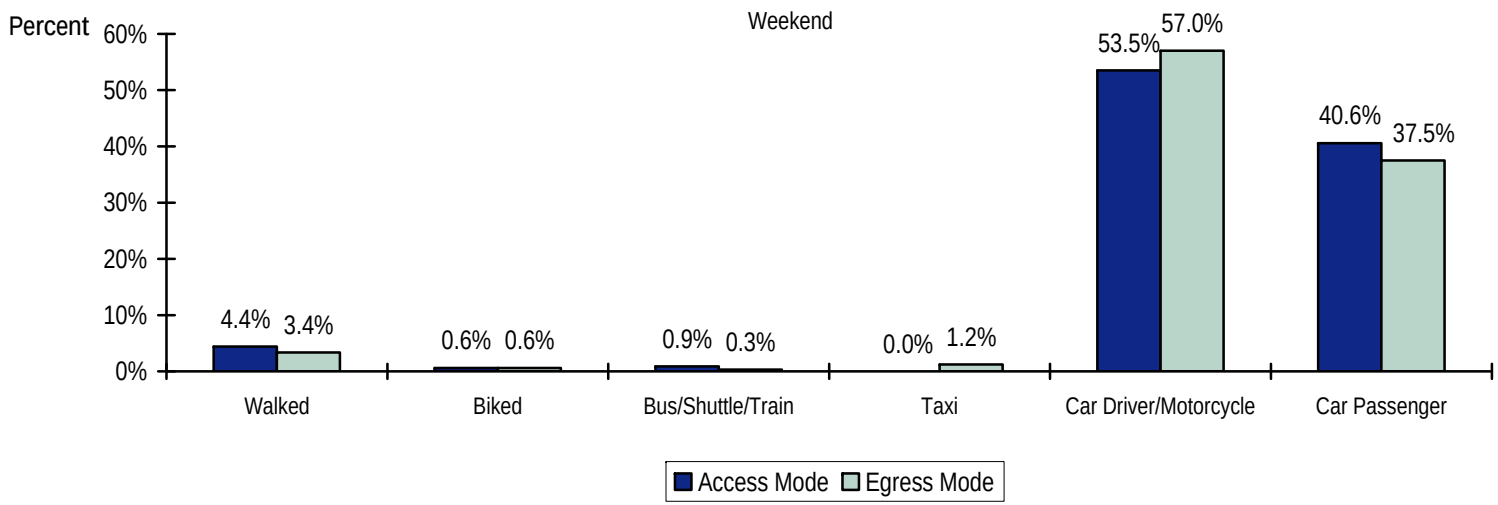
The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 5.26 shows the mode of travel on this route and the corresponding access modes and egress modes to the ferry terminal.

During the 2006 average weekday, the vast majority of the riders either chose to drive or got dropped off at this ferry. The share who drove was about 64 percent. The share who were passengers in a vehicle was about 31 percent. Only four percent walked and one percent biked to the terminal.

During 2006 weekends, again the vast majority of ferry passengers either drove to the terminal or rode in a car with someone. Specifically, 54 percent drove and another 41 percent were a vehicle passenger. Only 4 percent walked and few biked or took public transportation.

Figure 5.26 Anacortes-Sidney Trips by Access and Egress Mode

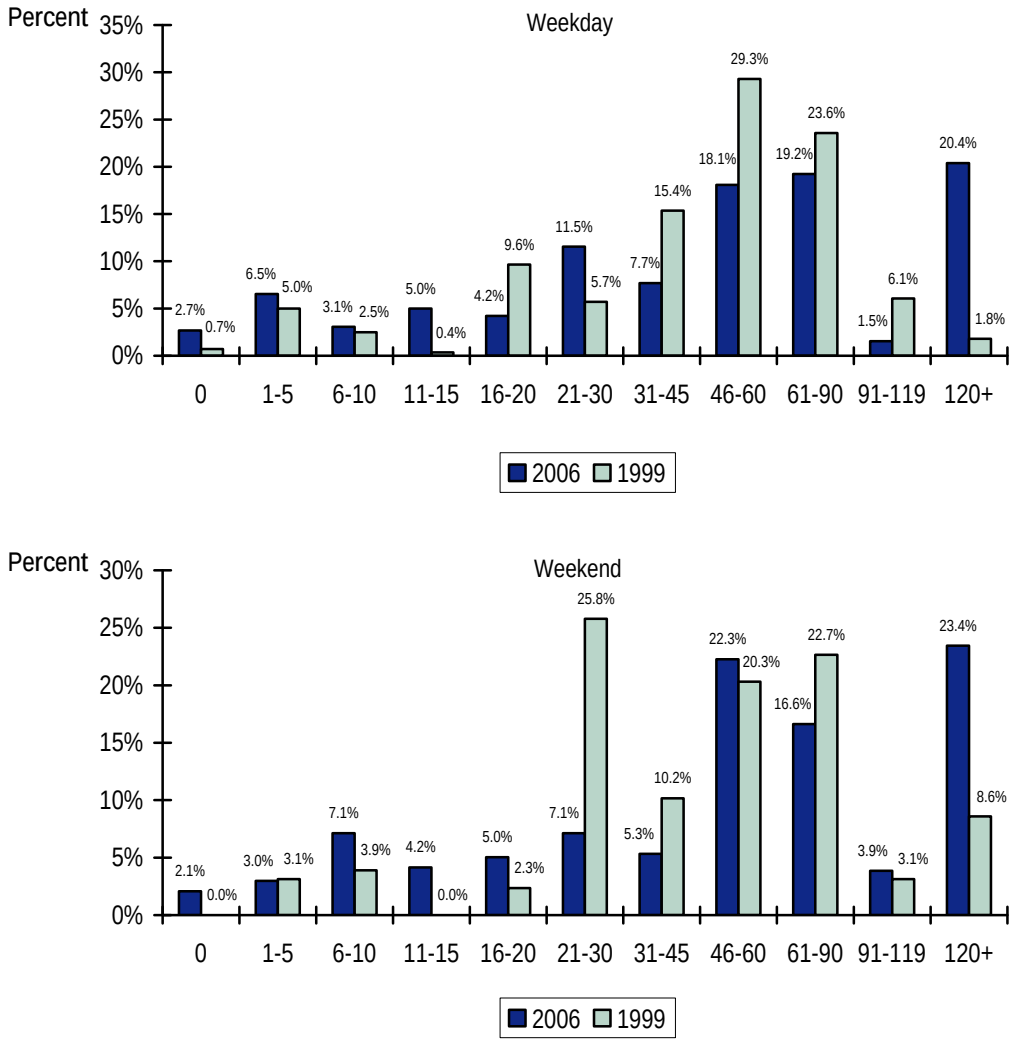




5.2.6 Wait Time

The out of vehicle travel times were measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 5.27 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, the majority of boardings were associated with a perceived wait time of 30 minutes or more. In fact, 67 percent of ferry passengers waited more than half an hour for a ferry and 20 percent waited 1.5 hours or more. In 1999, 80 percent waited a half hour or more, although fewer reported waiting 1.5-hour or more. In 2006 weekends, the typical perceived wait time was even longer, with 72 percent waiting over 30 minutes; in 1999, 65 percent waited this amount of time. The mean perceived wait time for weekends was 76 minutes and for weekends was 83 minutes.

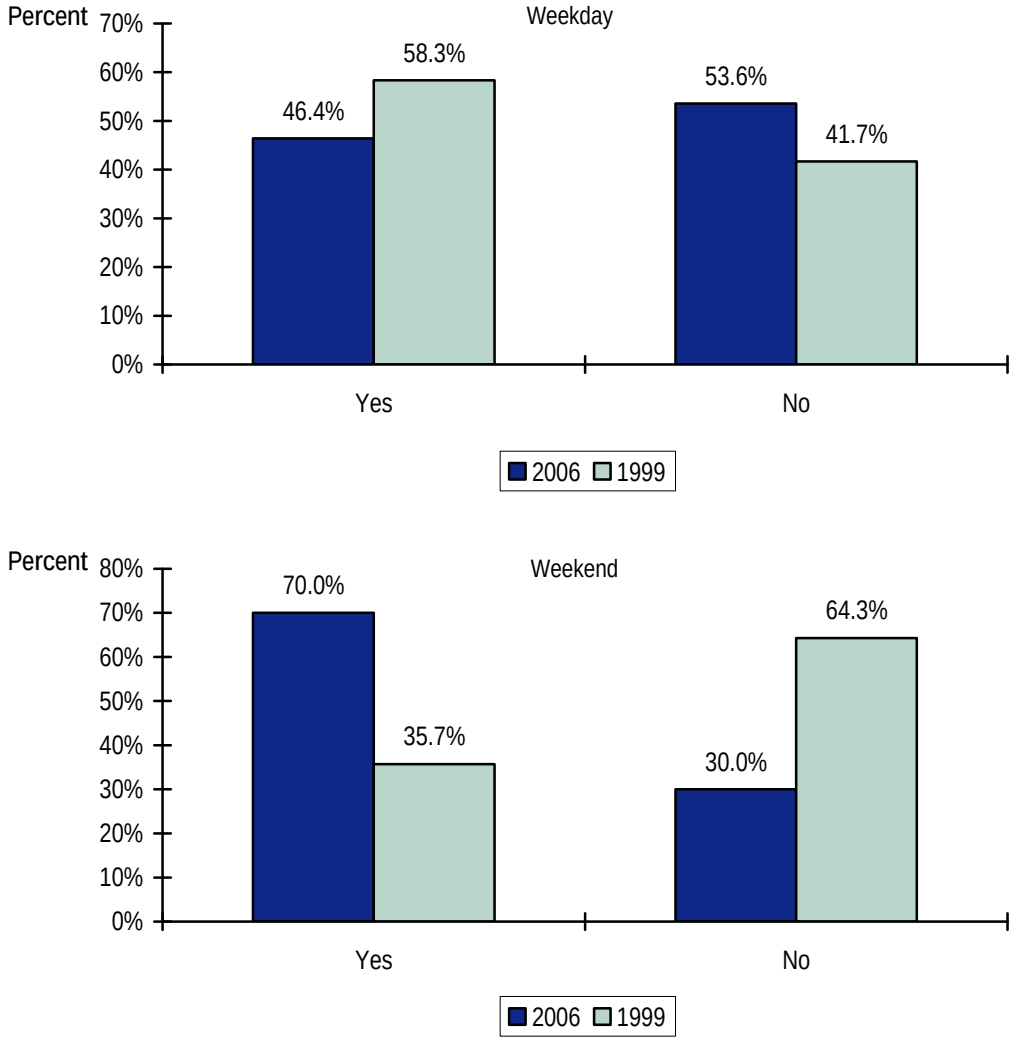
Figure 5.27 Anacortes-Sidney Trips by Wait Time



5.2.7 Parking

The parking statistics of walk-on passengers on this route were examined to understand the extent to which commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 5.28 below shows that 46 percent of weekday ferry riders in 2006 parked their vehicles at the ferry terminals, compared to 58 percent in 1999. This difference between 1999 and 2006 could be due to changes in parking availability and/or parking charges. In 2006, a significant number of ferry passengers parked on weekends (70 percent) compared to weekdays (46 percent). However, in 1999, this trend was the opposite where about 36 percent of weekend ferry passengers parked, compared to 58 percent during weekdays. Again, this could be attributable to parking availability, parking charges or some other cause. The average parking cost was $6 per day for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 5.28 Anacortes-Sidney Walk-On Passenger Parking Statistics



5.2.8 Weekday Origins and Destinations

The weekday eastbound and westbound travel patterns between Anacortes and Sidney are summarized in Figure 5.29 and 5.30 by direction (eastbound and westbound, respectively). The vast majority of boardings are by auto, 89 percent of commuters use the drive mode, 10 percent walk and one percent have a bicycle. These origins and destinations are detailed by district in Table 5.17 and 5.18 by direction. The major destinations are the Seattle Business District (34 percent) and North Seattle/Northgate/Sand Point (19 percent). Similarly, the origins of these trips are predominantly from North Seattle/North Gate/Sand Point (10 percent), Seattle Industrial Area (18 percent), outside the study area (13 percent) and a variety of other districts inside the study area.

Figure 5.29 Anacortes-Sidney Weekday Eastbound Origins and Destinations (2006)

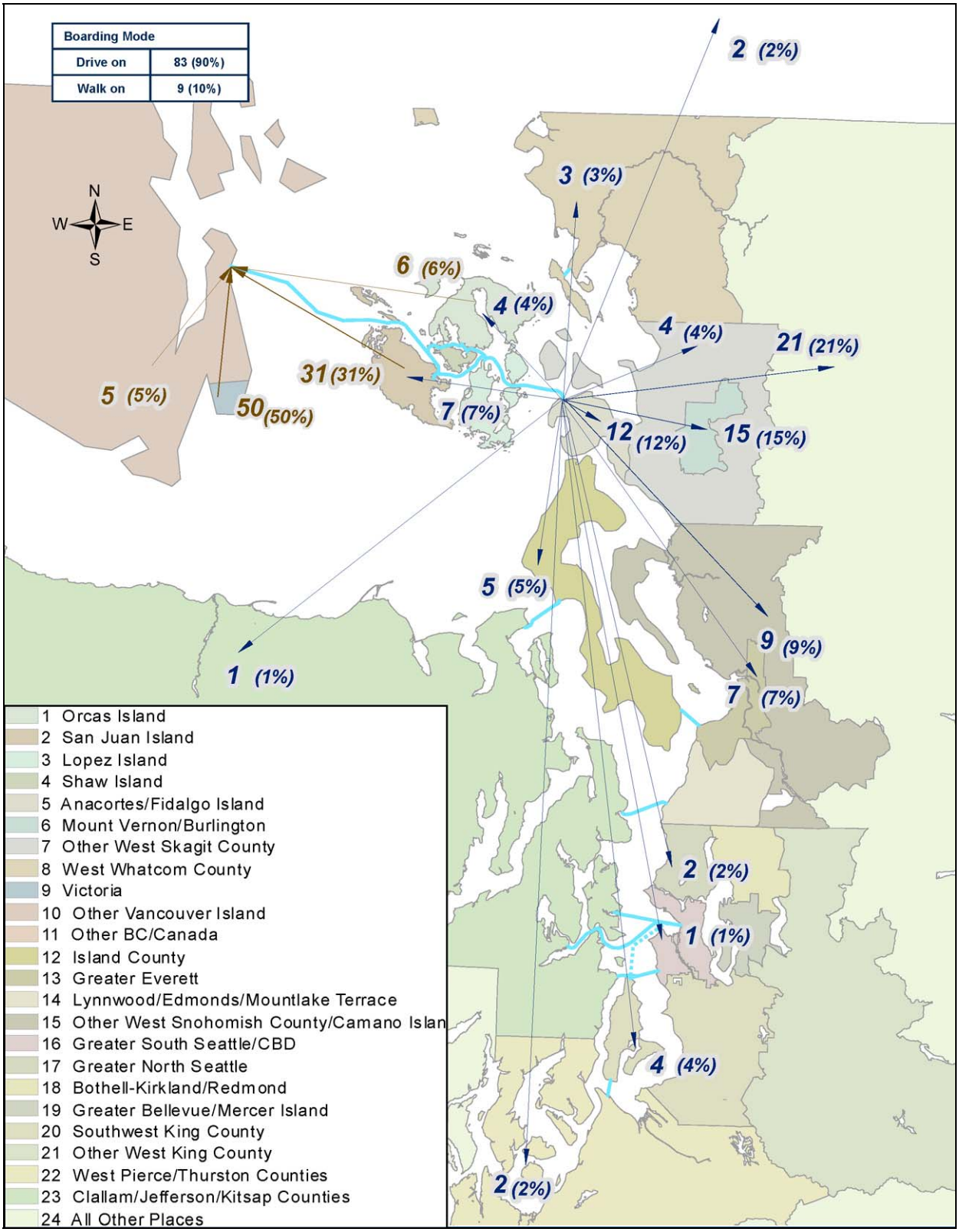


Table 5.17 Anacortes-Sidney Weekday Eastbound Boardings by Origin and Destination District

	Destination District											
Origin District	Orcas Island	San Juan Island	Lopez Island	Anacortes/ Fidalgo Island	Mount Vernon/ Burlington	Other West Skagit County	West Whatcom County	Other BC/ Canada	Island County	Greater Everett	Lynnwood/ Edmonds/ Mountlake Terrace	Other West Snohomish County/ Camano Island
Orcas Island	0	0	0	0	2	0	0	0	0	0	0	2
San Juan Island	0	0	0	3	9	4	3	2	0	2	0	1
Victoria	3	7	0	5	4	0	0	0	5	5	0	0
Other Vancouver Island	1	0	0	4	0	0	0	0	0	0	0	0
All Other Places	0	0	0	0	0	0	0	0	0	0	0	6
Total	4	7	0	12	15	4	3	2	5	7	0	9
Percent of Total	4.0%	7.1%	0.0%	12.1%	15.2%	4.0%	3.0%	2.0%	5.1%	7.1%	0.0%	9.1%

	Destination District (continued)										
Origin District	Greater South Seattle/CBD	Greater North Seattle	Bothell-Kirkland/ Redmond	Greater Bellevue/ Mercer Island	Southwest King County	Other West King County	West Pierce/ Thurston Counties	Clallam/ Jefferson/Kitsap Counties	All Other Places	Total	Percent of Total
Orcas Island	0	0	0	0	0	0	0	0	2	6	6.1%
San Juan Island	1	0	0	0	4	0	2	0	0	31	31.3%
Victoria	0	2	0	0	0	0	0	0	19	50	50.5%
Other Vancouver Island	0	0	0	0	0	0	0	0	0	5	5.1%
All Other Places	0	0	0	0	0	0	0	1	0	7	7.1%
Total	1	2	0	0	4	0	2	1	21	99	100%
Percent of Total	1.0%	2.0%	0.0%	0.0%	4.0%	0.0%	2.0%	1.0%	21.2%	4.0%	100%

Figure 5.30 Anacortes-Sidney Weekday Westbound Origins and Destinations (2006)

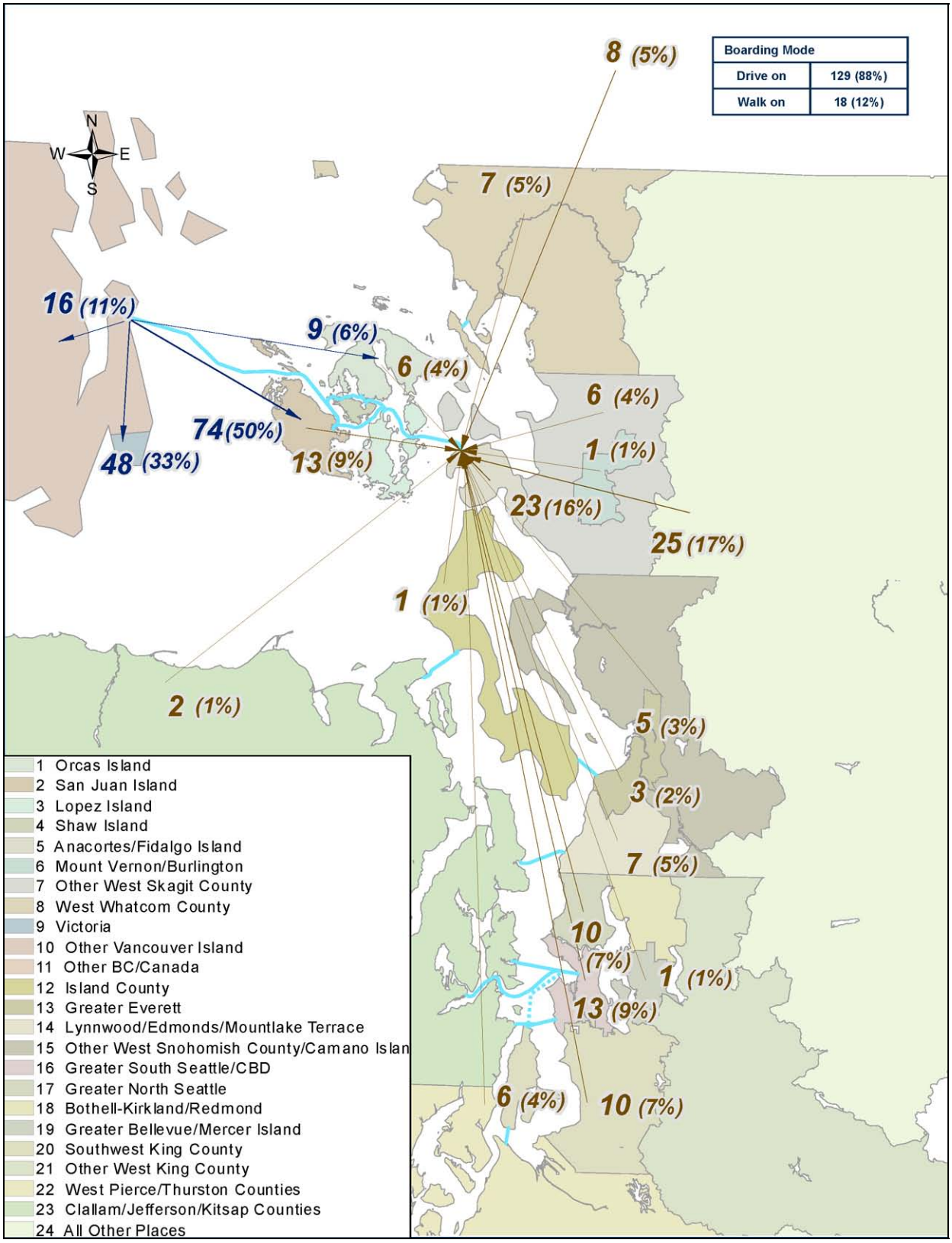


Table 5.18 Anacortes-Sidney Weekday Westbound Boardings by Origin and Destination District

	Destination District							
Origin District	Orcas Island	San Juan Island	Lopez Island	Victoria	Other Vancouver Island	All Other Places	Total	Percent of Total
Orcas Island	0	0	0	6	0	0	321	4.1%
San Juan Island	0	0	0	5	8	0	385	8.8%
Anacortes/Fidalgo Island	0	5	0	12	6	0	48	15.6%
Mount Vernon/Burlington	0	1	0	0	0	0	210	0.7%
Other West Skagit County	0	6	0	0	0	0	65	4.1%
West Whatcom County	0	4	0	3	0	0	39	4.8%
Other BC/Canada	0	8	0	0	0	0	39	5.4%
Island County	0	0	0	1	0	0	25	0.7%
Greater Everett	0	3	0	0	0	0	45	2.0%
Lynnwood/Edmonds/Mountlake Terrace	3	3	0	0	1	0	270	4.8%
Other West Snohomish County/Camano Island	3	1	0	1	0	0	93	3.4%
Greater South Seattle/CBD	0	7	0	6	0	0	28	8.8%
Greater North Seattle	0	10	0	0	0	0	29	6.8%
Greater Bellevue/Mercer Island	0	0	0	1	0	0	98	0.7%
Southwest King County	0	6	0	4	0	0	37	6.8%
West Pierce/Thurston Counties	0	6	0	0	0	0	91	4.1%
Clallam/Jefferson/Kitsap Counties	0	2	0	0	0	0	35	1.4%
All Other Places	3	12	0	9	1	0	241	
Total	9	74	0	48	16	0	2099	100%
Percent of Total	6.1%	50.3%	0.0%	32.7%	10.9%	0%	100%	

5.2.9 Weekend Origins and Destinations

The weekend origins and destinations are presented in Figures 5.31 and 5.32 by direction (eastbound and westbound, respectively). The weekend eastbound and westbound travel patterns between Anacortes and Sidney are similar to that of the weekday patterns, with 88 percent who drive, 11 percent who walk and one percent who bring a bike. These origins and destinations are detailed by district in Table 5.19 and Table 5.20 by direction. The destinations of these trips are: Seattle Industrial Area (19 percent) and North Seattle/North Gate/Sand Point (16 percent). Similarly, the origins of these trips are: Seattle Industrial Area (28 percent), North Seattle/North Gate/Sand Point (16 percent), and a variety of districts both inside and outside the study area.

Figure 5.31 Anacortes-Sidney Weekend Eastbound Origins and Destinations (2006)

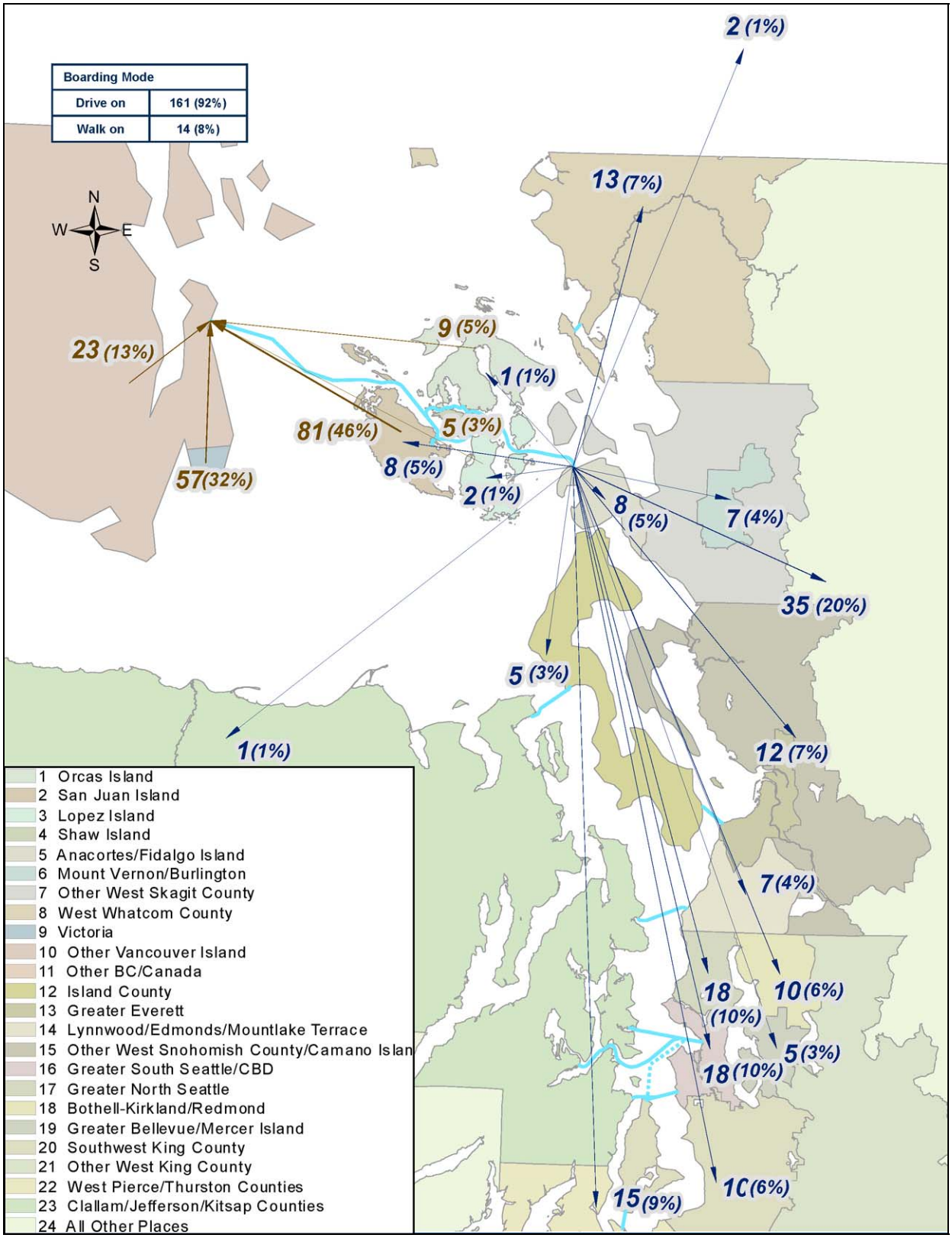


Table 5.19 Anacortes-Sidney Weekend Eastbound Boardings by Origin and Destination District

	Destination District											
Origin District	Orcas Island	San Juan Island	Lopez Island	Anacortes/ Fidalgo Island	Mount Vernon/ Burlington	Other West Skagit County	West Whatcom County	Other BC/ Canada	Island County	Greater Everett	Lynnwood/ Edmonds/ Mountlake Terrace	Other West Snohomish County/ Camano Island
Orcas Island	0	0	0	0	0	0	2	0	0	0	0	0
San Juan Island	0	0	0	4	6	0	5	0	5	0	3	5
Lopez Island	0	0	0	0	0	0	0	0	0	0	0	0
Victoria	1	3	0	2	0	0	6	2	0	0	2	4
Other Vancouver Island	0	5	2	0	1	0	0	0	0	0	2	3
All Other Places	0	0	0	2	0	0	0	0	0	0	0	0
Total	1	8	2	8	7	0	13	2	5	0	7	12
Percent of Total	0.6%	4.5%	1.1%	4.5%	4.0%	0.0%	7.3%	1.1%	2.8%	0.0%	4.0%	6.8%

	Destination District (continued)										
Origin District	Greater South Seattle/CBD	Greater North Seattle	Bothell-Kirkland/ Redmond	Greater Bellevue/ Mercer Island	Southwest King County	Other West King County	West Pierce/ Thurston Counties	Clallam/ Jefferson/ Kitsap Counties	All Other Places	Total	Percent of Total
Orcas Island	0	3	0	2	0	0	0	0	2	9	5.1%
San Juan Island	7	15	10	0	2	0	4	1	14	81	45.8%
Lopez Island	0	0	0	0	0	0	0	0	5	5	2.8%
Victoria	9	0	0	2	8	0	6	0	12	57	32.2%
Other Vancouver Island	2	0	0	1	0	0	5	0	2	23	13.0%
All Other Places	0	0	0	0	0	0	0	0	0	2	1.1%
Total	18	18	10	5	10	0	15	1	35	177	100%
Percent of Total	10.2%	10.2%	5.6%	2.8%	5.6%	0.0%	8.5%	0.6%	19.8%	100%	

Figure 5.32 Anacortes-Sidney Weekend Westbound Origins and Destinations (2006)

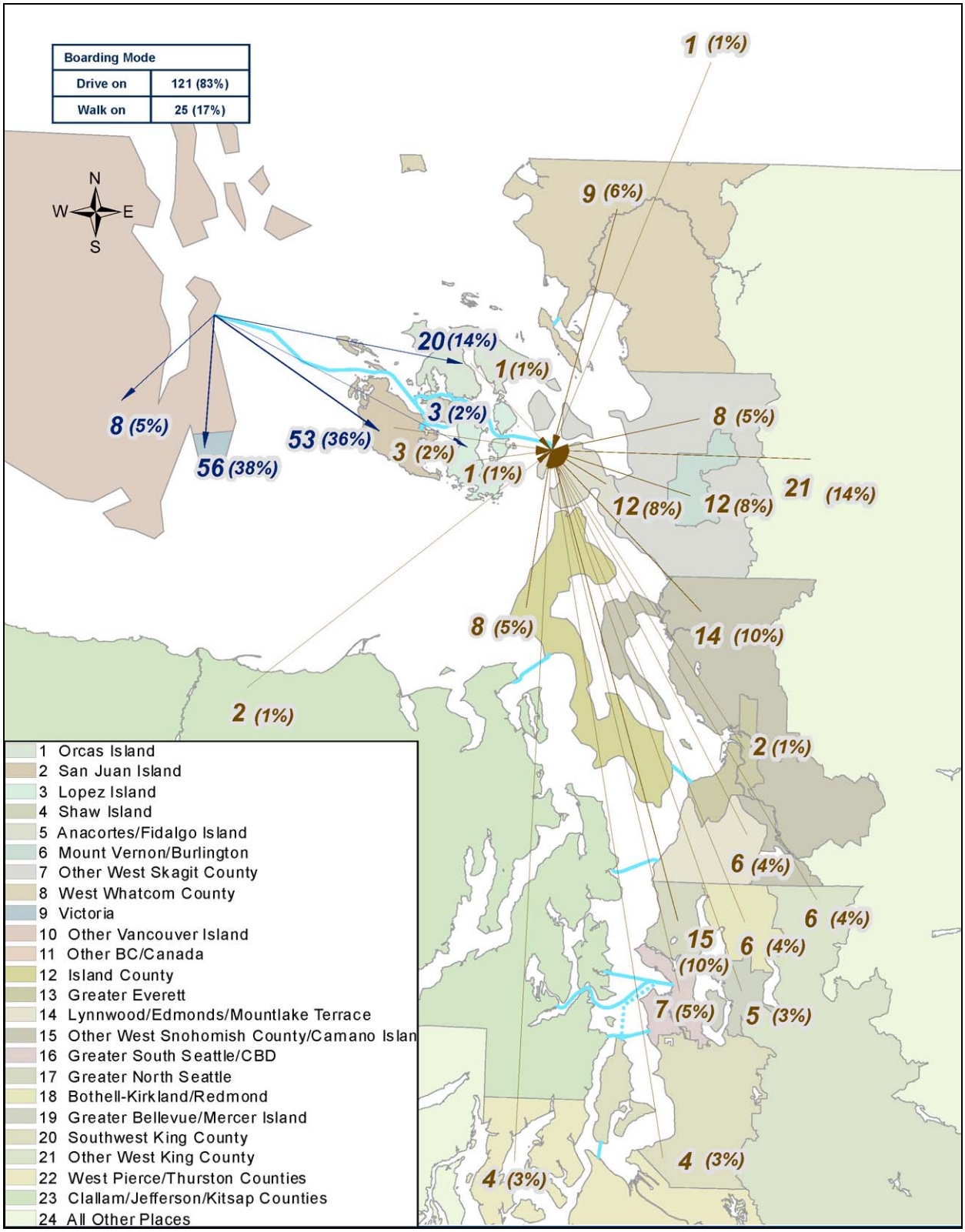


Table 5.20 Anacortes-Sidney Weekend Westbound Boardings by Origin and Destination District

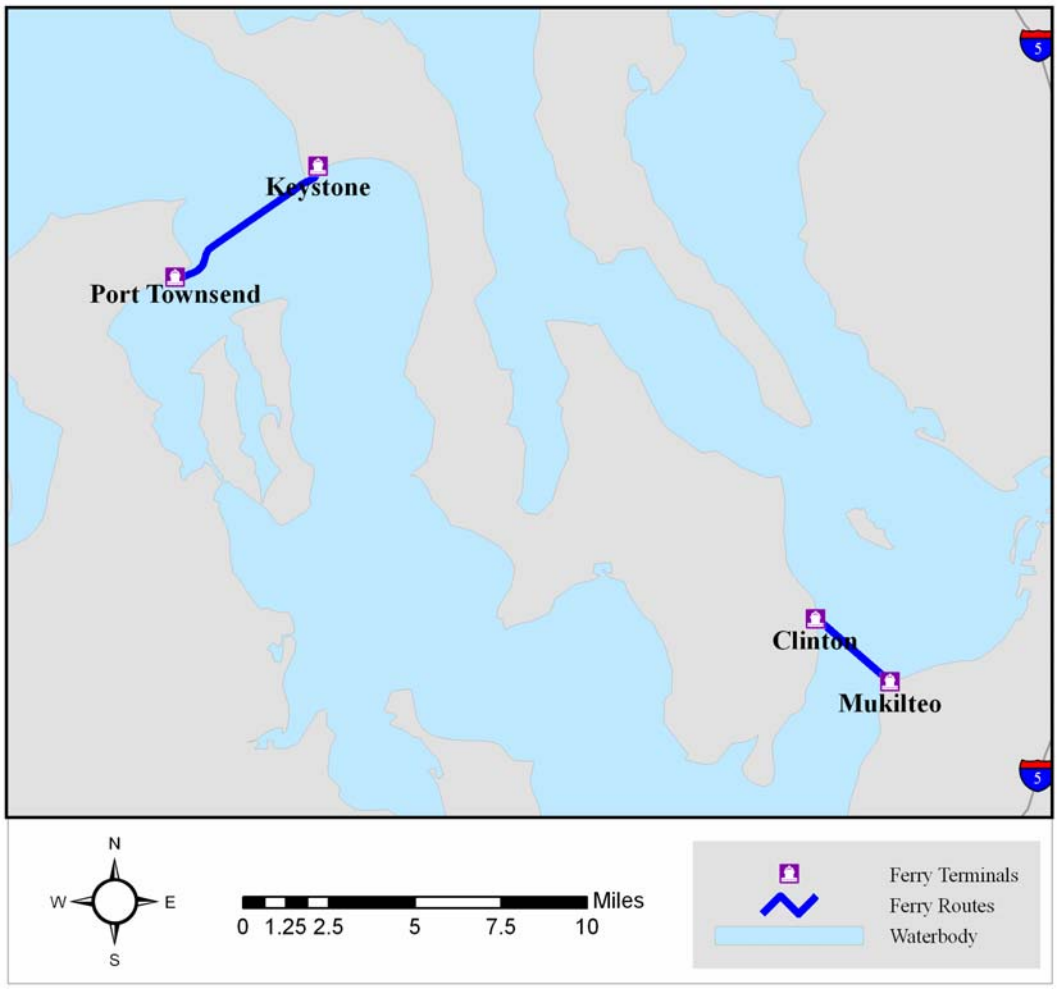
	Destination District							
Origin District	Orcas Island	San Juan Island	Lopez Island	Victoria	Other Vancouver Island	All Other Places	Total	Percent of Total
Orcas Island	0	0	0	1	0	0	321	0.7%
San Juan Island	0	0	0	2	1	0	385	2.0%
Lopez Island	0	0	0	1	0	0	48	0.7%
Anacortes/Fidalgo Island	1	5	0	3	1	2	210	8.2%
Mount Vernon/Burlington	3	5	0	4	0	0	65	8.2%
Other West Skagit County	0	1	0	6	1	0	39	5.4%
West Whatcom County	2	5	0	1	1	0	39	6.1%
Other BC/Canada	0	1	0		0	0	25	0.7%
Island County	1	4	0	1	2	0	45	5.4%
Greater Everett	0		0	2	0	0	270	1.4%
Lynnwood/Edmonds/Mountlake Terrace	1	1	0	4	0	0	93	4.1%
Other West Snohomish County/Camano Island	0	5	0	4	0	5	28	9.5%
Greater South Seattle/CBD	3	3	0	1	0	0	29	4.8%
Greater North Seattle	1	9	0	5	0	0	98	10.2%
Bothell-Kirkland/Redmond	0	5	0	1	0	0	37	4.1%
Greater Bellevue/Mercer Island	3	1	0	1	0	0	91	3.4%
Southwest King County	0		0	3	1	0	35	2.7%
Other West King County	0	1	0	5	0	0	241	4.1%
West Pierce/Thurston Counties	2	2	0	0	0	0	4	2.7%
Clallam/Jefferson/Kitsap Counties	0	2	0	0	0	0	2	1.4%
All Other Places	3	3	3	11	1			14.3%
Total	20	53	3	56	8	7	2105	100%
	13.6%	36.1%	2.0%	38.1%	5.4%	4.8%	100%	

6.0 North Sound Corridor

6.0.1 Description

The routes in the North Sound corridor include: Keystone-Port Townsend and Mukilteo-Clinton, as shown in Figure 6.1. This is the second highest traveled corridor in the Washington State Ferries system, with 4.8 million riders per year, or 13,200 riders per day. This is down from a high of 5.2 million passengers in 1999, and about 4.8 million passengers from the previous survey in 1993. The corridor connects the mainland at Mukilteo and Whidbey Island at Clinton, and also at Keystone and the Olympic peninsula at Port Townsend.

Figure 6.1 North Sound Corridor Routes



There are 47 sailings in each direction a day for the two routes in this corridor and this can carry up to 183 vehicles in each direction for each sailing (on the combined routes). This is up from 149 vehicles in each direction for each sailing in 1993. In addition, these vessels can carry up to 1816 passengers for each sailing. Fares on the two routes in this corridor are $8.70 and $6.65 for vehicles on Port Townsend-Keystone and Mukilteo-Clinton, respectively, and $2.50 and $3.85 for passengers on Port Townsend-Keystone and Mukilteo-Clinton, respectively. The Port Townsend-Keystone route has increased 11 percent (in 2006 dollars) since 1999 for vehicles and increased 12 percent (in constant 2006 dollars) for passengers, and the Mukilteo-Clinton fares have increased about 22 percent (in 2006 dollars) for vehicles and increased 27 percent (in 2006 dollars) for passengers since 1999.

6.0.2 Frequency of Travel

The frequency of travel for weekday and weekend by trip purpose is shown in Table 6.1. A majority of trips on this corridor are work trips (52 percent), but there also are a significant number of recreation, shopping or leisure trips (26 percent), which are closely followed by trips for medical, personal business or other trip purposes (23 percent). It is found that about 75 percent of these trips use the ferries less than four days a week (evidenced by less than or equal to seven to eight one-way trips per respondent). The work trips are the most dominant trip purpose, and have remained about the same when compared against 1999 surveys but there is a decline from the 1993 surveys (56 percent). This could be attributed to more telecommuting or more job opportunities in the Olympic peninsula.

One change in recent years affecting the decline of work trips is the increase in telecommuting. In the 2006 survey, 22 percent of weekday riders said that they telecommute at least one day per week. Among these telecommuters, the average number of days each person telecommuted was 2.9 days per week. Assuming that the amount of telecommuting in 1993 was quite small, this difference accounts for some of the decline in work trips since then.

6.0.3 Trips by Day of Week

Figure 6.2 shows the weekday and weekend trip frequency by day of the week. Thursday has the highest ridership for weekday riders by a large amount, with Monday, Tuesday, and Wednesday having about half of the riders. Sunday has the lowest ridership, and both Saturday and Sunday account for about 14 percent of the ridership for weekday travelers. Weekend riders do not travel during the week and this evidenced by the fact that the riders on Saturday and Sunday are about 48 percent of the total riders. The 2006 survey was conducted on a Saturday, rather than a Sunday, and these results show that Saturday travelers are not likely to also travel on a Sunday and about one-half of the Saturday travelers also travel on a weekday.

Table 6.1 North Sound Corridor Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

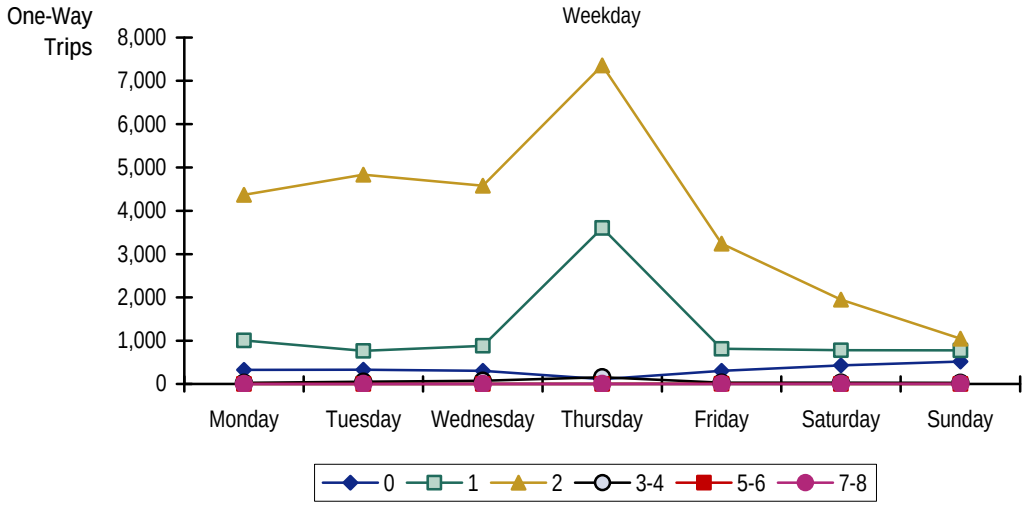
Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	311	363	939	1613	13.5%	17.8%	25.3%	5.0%	9.0%
2	886	970	953	2809	23.5%	18.2%	16.3%	14.3%	7.0%
3-4	831	773	675	2279	19.1%	16.0%	14.0%	13.4%	8.2%
5-6	482	241	274	997	8.4%	9.4%	10.9%	7.8%	10.5%
7-8	1060	175	121	1356	11.4%	6.9%	5.8%	17.1%	7.4%
9-10	1518	74	35	1627	13.6%	17.7%	27.7%	24.5%	31.9%
11+	1111	92	48	1251	10.5%	14.1%		17.9%	26.0%
Total	6199	2688	3045	11932	100%	100%	100%	100%	100%
Percent 2006	52.0%	22.5%	25.5%	100%					
Percent 1999	51.7%	21.8%	26.5%	100%					
Percent 1993	56.2%	12.2%	31.6%	100%					
Weekend									
1	171	780	3616	4567	37.3%	28.8%	43.3%		
2	237	1062	1830	3129	25.5%	39.1%	32.7%		
3-4	173	1355	966	2494	20.3%	16.6%	12.0%		
5-6	232	105	195	532	4.3%	6.2%	5.3%		
7-8	70	100	105	275	2.2%	2.1%	1.2%		
9-10	525	30	99	654	5.3%	1.8%	5.5%		
11+	256	123	227	606	4.9%	5.4%			
Total	1664	3555	7038	12257	100%	100%	100%		
Percent 2006	13.6%	29.0%	57.4%	100%					
Percent 1999	9.6%	15.0%	75.4%	100%					
Percent 1993	13.2%	9.0%	77.8%	100%					

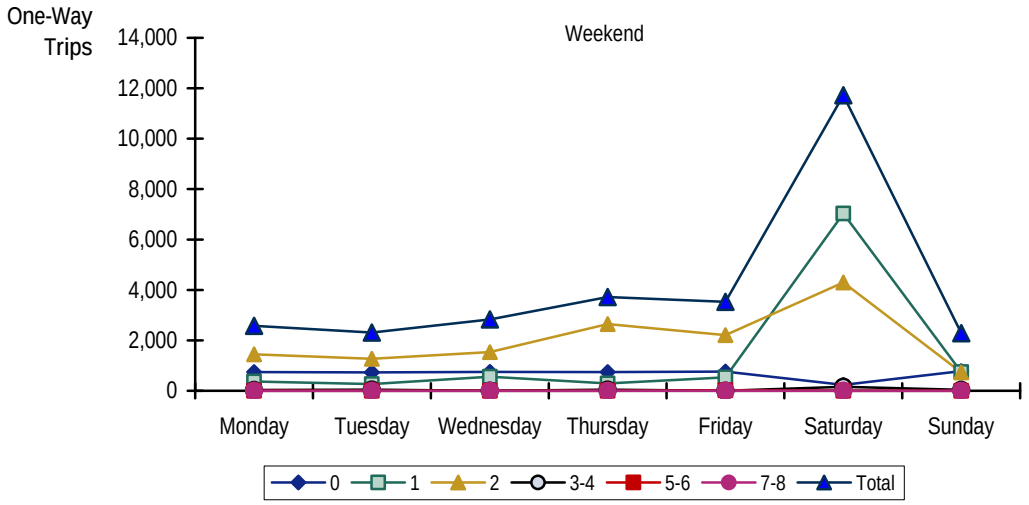
2006 Weekday Trips: 12,756 Missing: 2,080

2006 Weekend Trips: 14,602 Missing: 2,349

Figure 6.2 North Sound Corridor Frequency of Trips by Day of Week

How Many One-Way Trips Have You Taken on Monday, Tuesday, etc.





Note: These charts reflect the weekly travel patterns of those travelers who responded to the survey on Thursday (for weekdays) and on Saturday (for weekends). This does not show that Tuesdays and Saturdays have more travel on average than other days.

6.0.4 Round Trip Patterns

The vast majority of ferry travelers in 2006 make a round trip on the same day, as shown in Figure 6.3. This also was true in 1993 and 1999, but the percent of travelers making round trips on the same day has declined since 1993 (78 percent to 73 percent) for weekday travelers and increased for weekend travelers since 1993 (63 percent to 85 percent). The increase in same day round trip travel for weekend travelers is likely a result of the fact that Saturday travelers are more likely to be day-trippers than Sunday travelers, which are more likely to be weekend travelers (i.e., leave on Friday, return on Sunday).[23] The increase in some other day round trip travel for weekday travelers (27 percent in 2006 versus 18 percent in 1993) may be because rising fares have caused people to take fewer overall trips, but to extend the stay of individual trips from one day to two or more days.

The round trip patterns showing the mode chosen is presented in the Figure 6.4. There are a high percent of people taking round trips use the same ferry route for the return trip (96 percent), while a small fraction of these riders, that is about 3 percent of travelers drive around[24] and 1 percent return on a different ferry route. The people taking a different ferry route are more likely to be travel for recreational purposes who are visiting more than one location across the Sound. However there is a decline in this phenomenon since 1993 when it was about five percent. There is an increase in people taking the same ferry route on the return trip in 2006 from 1999 and 1993 for both weekday and weekend travelers, which may be due to increased gas prices (causing travelers to drive less) or differences in travel behavior between October and May (travelers are more likely to be visiting or recreating in May than October).[25]

---

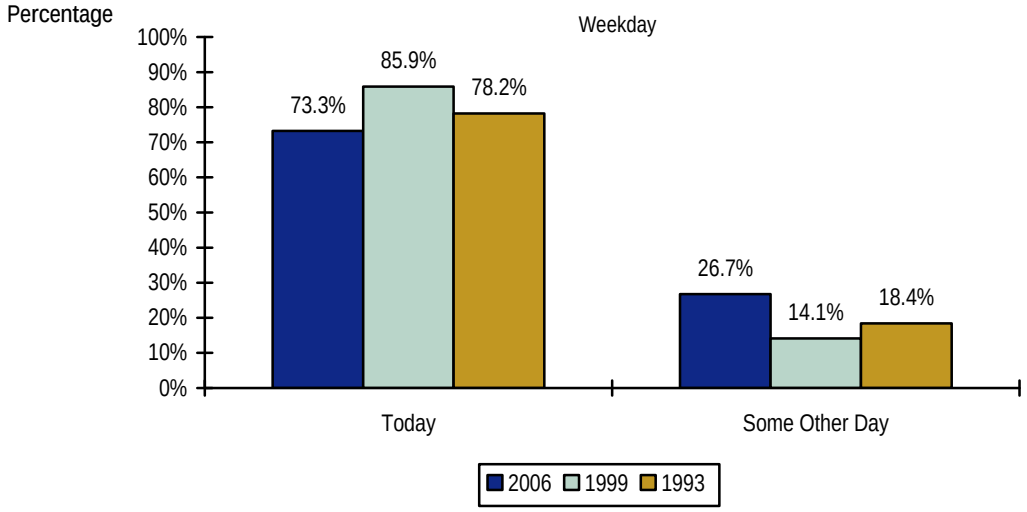
[23] The 2006 survey was conducted on a Saturday, while the 1993 and 1999 surveys were conducted on Sundays, to represent weekend travel.

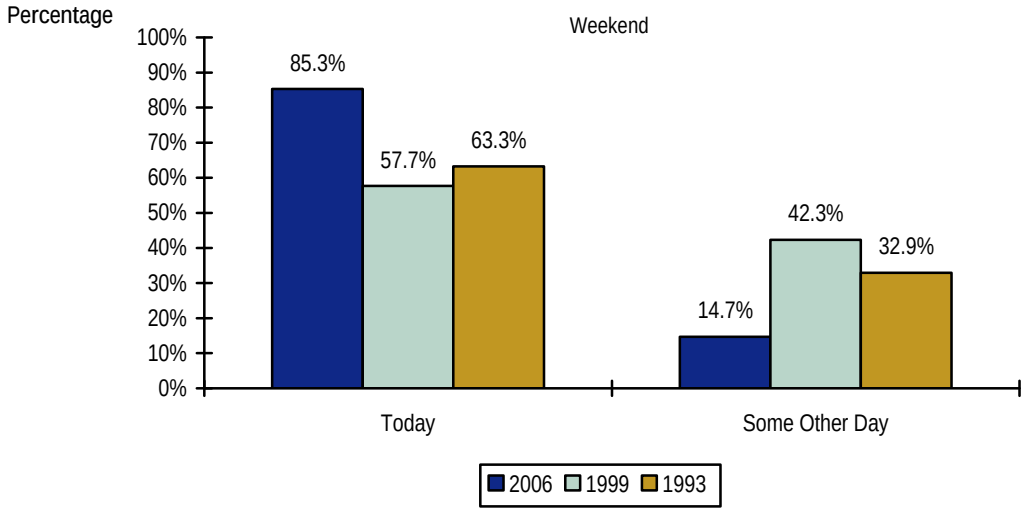
[24] It should be noted that there is likely a slightly higher percentage of people who take the ferry in the a.m. period and drive around for their return trip because the ferry is cheaper in the eastbound direction. All WSF surveys were collected during the p.m. period.

[25] The 2006 survey was conducted in October, and the 1993 and 1999 surveys were conducted in May.

Figure 6.3 North Sound Corridor Round Trip Patterns by Day

When will you return? When was the first half of your trip?

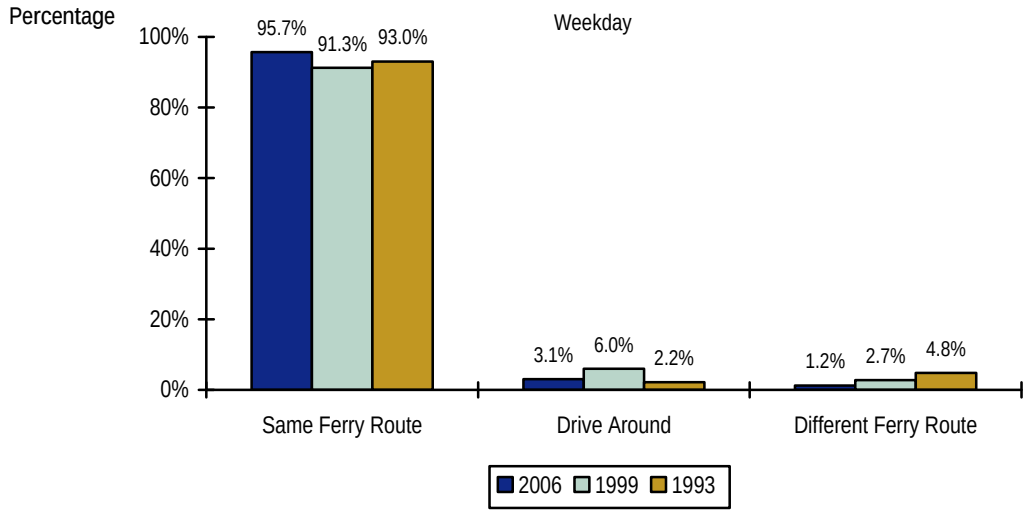


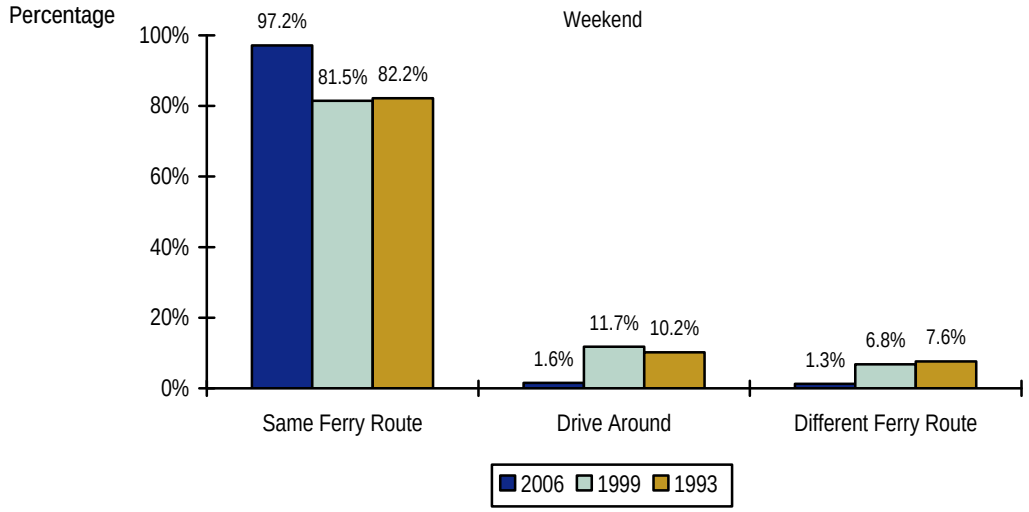


2006 Weekday Trips: 12,756 Missing: 424

2006 Weekend Trips: 14,602 Missing: 208

Figure 6.4 North Sound Corridor Round Trip Patterns by Route
How will you return? How did you travel on the first half of your trip?





2006 Weekday Trips: 12,756 Missing: 530

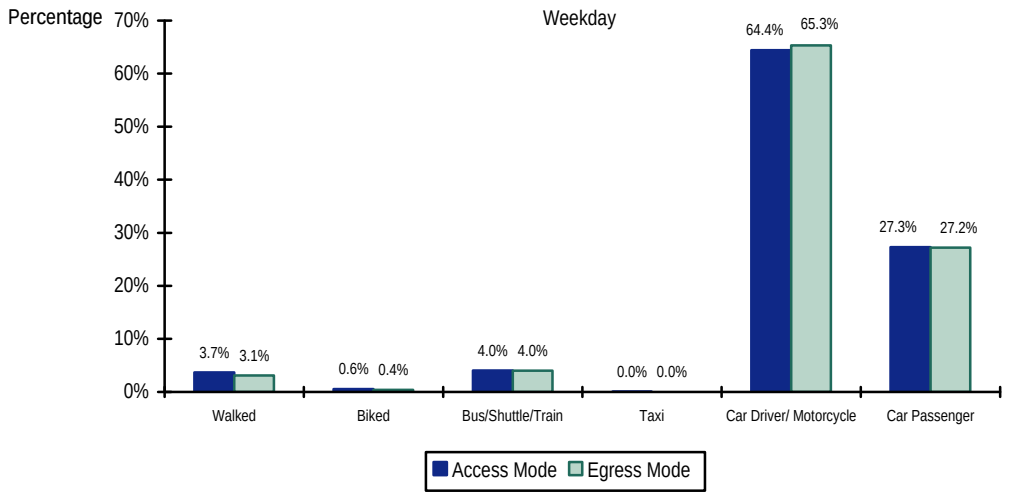
2006 Weekend Trips: 14,602 Missing: 234

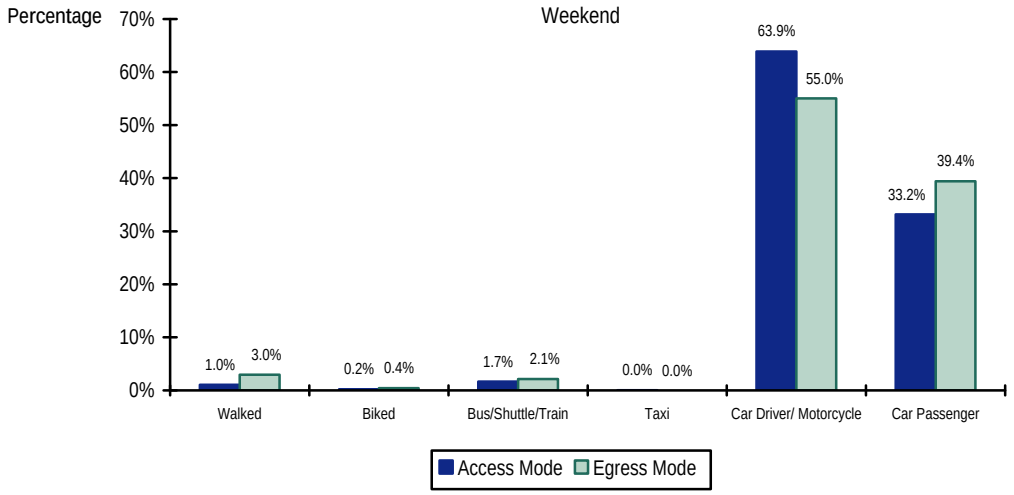
6.0.5 Access, Egress, and Boarding Modes

The mode of access and egress by boarding method are presented in Figure 6.5. As expected, there is a higher percent of walk and transit access and egress trips during the week than on the weekend, and this is due to the fact that people who travel more frequently on the ferries for work, school or other purposes, are more likely to choose the reduced fare for passengers than to pay the higher vehicle fares. On the other hand, there are many car passengers on the weekend

(33 percent) than on the weekday (27 percent), because these trips are more likely to be for shopping or recreation purposes, leading to a higher likelihood of traveling with others for these purposes.

Figure 6.5 North Sound Corridor Access and Egress Modes
How did you travel from your origin location to this sailing?
How will you travel to the destination you are going to now?





Tables 6.2 and 6.3 present the access and egress mode characteristics, respectively, by boarding mode for the North Sound routes. There is a significant decline in travelers who access the ferry system by walk from 1993 (25 percent) to 2006 (four percent). The weekend travelers are walking less (eight percent) but driving (54 percent) and traveling more as a car passenger (32 percent). Similar trends are observed in the egress mode characteristics as well.

Table 6.2 North Sound Corridor Access Mode and Boarding Method

How did you travel from your origin location to this sailing? How will/did you board this ferry?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	85	380	0	465	3.7%	1.4%	25.2%
Biked	0	1	69	70	0.6%	0.1%	2.2%
Bus/Shuttle/Train	94	402	14	510	4.0%	7.0%	8.8%
Taxi	5	0	0	5	0.0%	0.0%	0.4%
Car Driver/ Motorcycle	7704	461	7	8172	64.4%	64.2%	47.4%
Car Passenger	3037	422	0	3459	27.3%	27.3%	16.0%
Total	10925	1666	90	12681	100%	100%	100%
Percent 2006	86.2%	13.1%	0.7%	100%			
Percent 1999	84.9%	15.0%	0.1%	100%			
Percent 1993	79.4%	19.7%	0.9%	100%			
Weekend							
Walked	22	131	0	153	1.0%	1.0%	7.9%
Biked	22		8	30	0.2%	0.4%	2.2%
Bus/Shuttle/Train	25	217	0	242	1.7%	0.5%	3.1%
Taxi	0	5	0	5	0.0%	0.0%	0.4%
Car Driver/ Motorcycle	8757	536	30	9323	63.9%	70.1%	54.0%
Car passenger	4474	360	9	4843	33.2%	28.0%	32.4%
Total	13300	1249	47	14596	100%	100%	100%
Percent 2006	91.1%	8.6%	0.3%	100%			
Percent 1999	89.9%	9.3%	0.8%	100%			
Percent 1993	86.6%	12.9%	0.5%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 12,756 Missing: 73

2006 Weekend Trips: 14,602 Missing: 7

Table 6.3 North Sound Corridor Egress Mode and Boarding Method

How will you travel to the destination you are going to now? How will/did you board this ferry?

Egress Mode	Drive[a]	Walk	Bicycle	Total	All boardings 2006	1999	1993
Weekday							
Walked	30	357	0	387	3.1%	1.2%	9.9%
Biked	0	7	41	48	0.4%	0.1%	2.2%
Bus/Shuttle/Train	86	412	0	498	4.0%	7.4%	7.5%
Taxi	0	0	0	0	0.0%	0.0%	0.8%
Car Driver/Motorcycle	7706	424	0	8130	65.3%	63.7%	59.4%
Car Passenger	2915	427	41	3383	27.2%	27.6%	20.3%
Total	10737	1627	82	12446	100%	100%	100%
Percent 2006	86.3%	13.1%	0.7%	100%			
Percent 1999	84.9%	15.0%	0.1%	100%			
Percent 1993	79.4%	19.7%	0.9%	100%			
Weekend							
Walked	28	398	0	426	3.0%	2.0%	6.1%
Biked	7	9	46	62	0.4%	0.6%	1.9%
Bus/Shuttle/Train	32	275	0	307	2.1%	0.1%	3.0%
Taxi	0	0	0	0	0.0%	0.0%	0.8%
Car Driver/ Motorcycle	7752	155	0	7907	55.0%	68.5%	56.1%
Car Passenger	5292	371	0	5663	39.4%	28.8%	32.1%
Total	13111	1208	46	14365	100%	100%	100%
Percent 2006	91.3%	8.4%	0.3%	100%			
Percent 1999	89.9%	9.3%	0.8%	100%			
Percent 1993	86.6%	12.9%	0.5%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings; i.e., all passengers in vehicles.

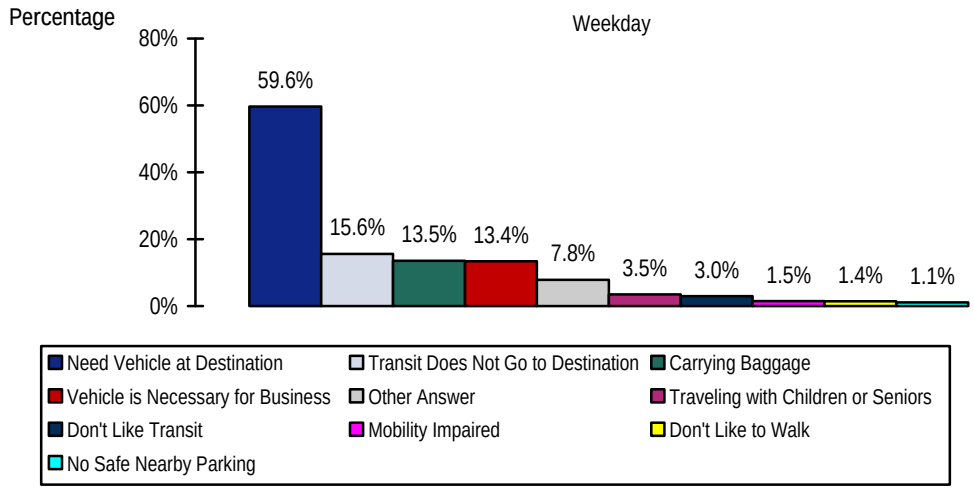
2006 Weekday Trips: 12,756 Missing: 308

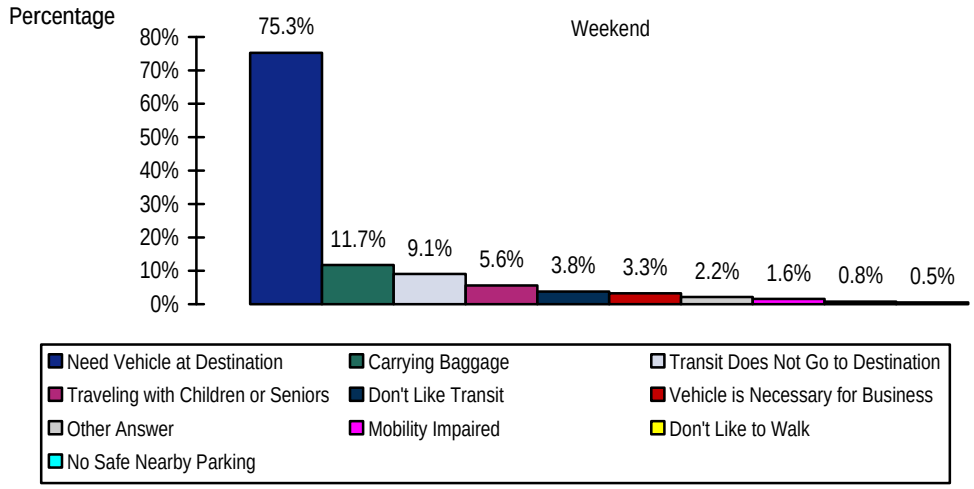
2006 Weekend Trips: 14,602 Missing: 235

Figure 6.6 presents the reasons behind travelers choosing to board in a vehicle. The most common reason for taking a vehicle on the ferry was that the vehicle was needed at the destination (about 60 percent of travelers taking their vehicle on gave this reason). The other common reasons for taking a vehicle on were that the vehicle is necessary for business, that the traveler had baggage to carry, and that transit does not go to their destinations (about 13 to 16 percent each answer). There were very few people who gave the response that they do not

like to walk, that they were mobility impaired, or that there was no safe nearby parking. There is a similar pattern for weekend travelers, except that needing a vehicle at the destination is even more important (more than 75 percent) and there is not as much need for a vehicle for business reasons. Figure 6.6 presents the results of the travelers' reasons for taking a vehicle on-board the ferry.

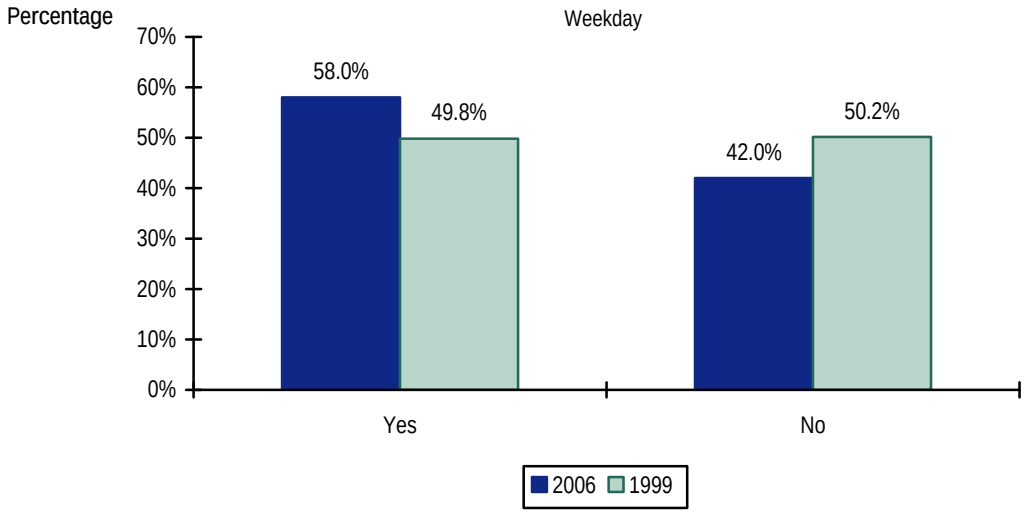
Figure 6.6 North Sound Corridor Reasons for Taking a Vehicle
Why did you choose to board in a vehicle instead of walk-on?

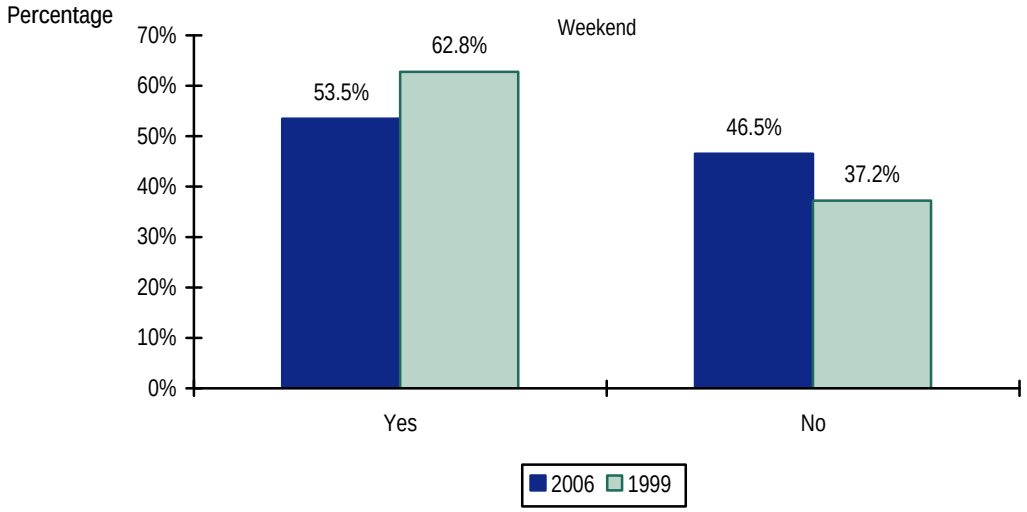




For travelers not taking their car on the ferry in 2006, 58 percent of them park their car at the terminal while the rest of them do not, as shown in Figure 6.7. A similar trend is observed for the weekend travelers as well where about 54 percent park at the terminal while the rest do not.

Figure 6.7 North Sound Corridor Non-Motorized Boardings
Did you park a vehicle to board this ferry?





A large number of people keep a vehicle at their destination, so that they can drive to their destination, but still walk on the ferry (45 percent for weekday, 43 percent for weekend). A smaller number of people keep bicycles at the terminals for this purpose (two to three percent). This is presented in Table 6.4.

Table 6.4 North Sound Corridor Destination Vehicles

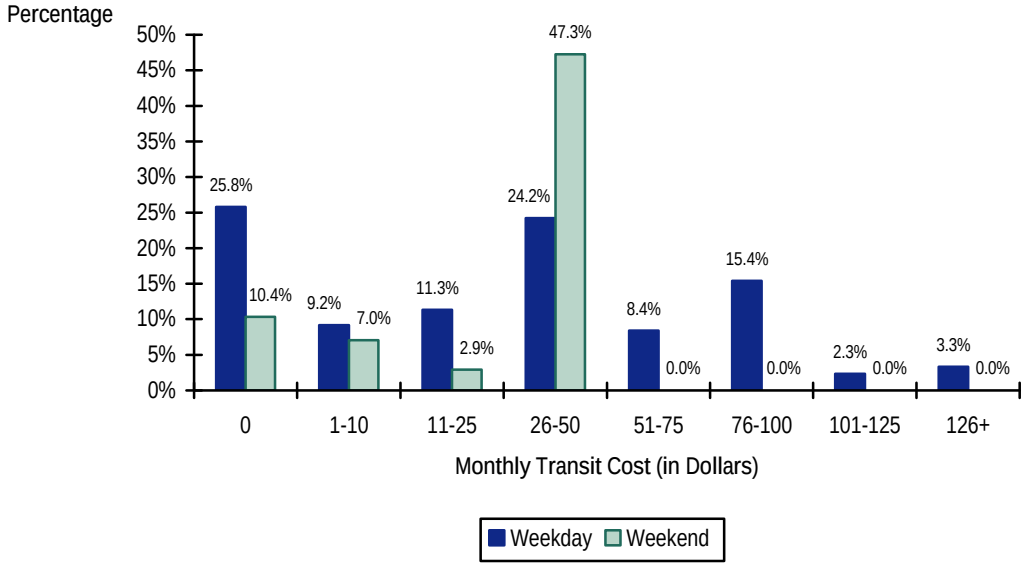
Did you keep either a bike or vehicle at the destination end of this ferry trip?

	Responded Yes	Percent
Weekday		
Bike	32	1.8%
Vehicle	791	44.6%
N/A	949	53.6%
Total	1772	100%
Weekend		
Bike	39	3.0%
Vehicle	562	43.2%
N/A	700	53.8%
Total	1301	100%

For travelers who ride transit to/from the ferry, the average monthly transit cost is $37 for weekday travelers and $27 for weekend travelers. As expected, weekend travelers are less likely to include travelers who commute or travel regularly by ferry and therefore would not have significant monthly costs for transit access trips. These costs are presented in Figure 6.8.

Figure 6.8 North Sound Corridor Monthly Transit Costs

If you ride transit (bus/train), what is the average monthly cost that you pay for transit to/from work or school?



6.0.6 Other Travel Characteristics

In the 2006 survey, a new question was asked if the sailing was their preferred option. As expected, a large number of weekday travelers (72 percent) said that it was their preferred sailing during the week, and with even more travelers at 85 percent saying it was their preferred sailing on the weekend. Also, there are a higher percent of walk-on passengers who take their preferred sailing (80 percent). These survey results are presented in Table 6.5.

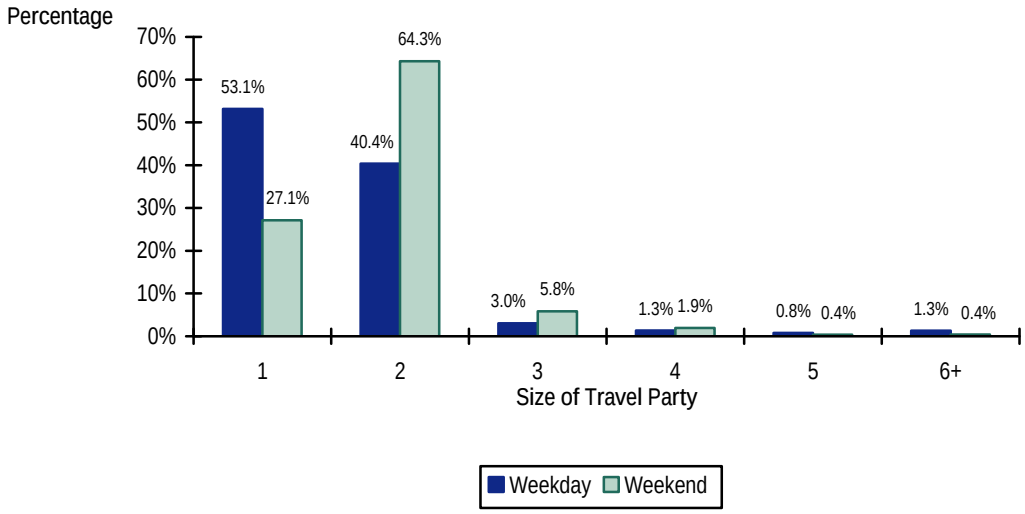
Table 6.5 North Sound Corridor Preferred Sailing
Is This Your Preferred Sailing?

			Total	
	Drive[a]	Walk/ Bike	Number	Percent
Weekday				
Yes	7320	1372	8692	71.6%
No, different departure time	2985	326	3311	27.3%
No, different route	115	14	129	1.1%
Total	10420	1712	12132	100.0%
Weekend				
Yes	10980	923	11903	85.2%
No, different departure time	1612	305	1917	13.7%
No, different route	134	17	151	1.1%
Total	12726	1245	13971	100.0%

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings; i.e., all passengers in vehicles.

Figure 6.9 presents the size of the travel party for weekday and weekend travelers. As expected, the majority of people traveling together occurs on the weekends (73 percent) and the majority of people traveling alone occurs on the weekdays (53 percent).

Figure 6.9 North Sound Corridor Party Size
How many people are traveling with you?



Note: The original question asked "how many people are traveling with you (not including yourself)", but the data implied that most people did not include themselves in the answer, so these data were corrected based on how many people each respondent was traveling with. So the average size of the party in this figure includes the respondent.

6.0.7 Demographic Characteristics

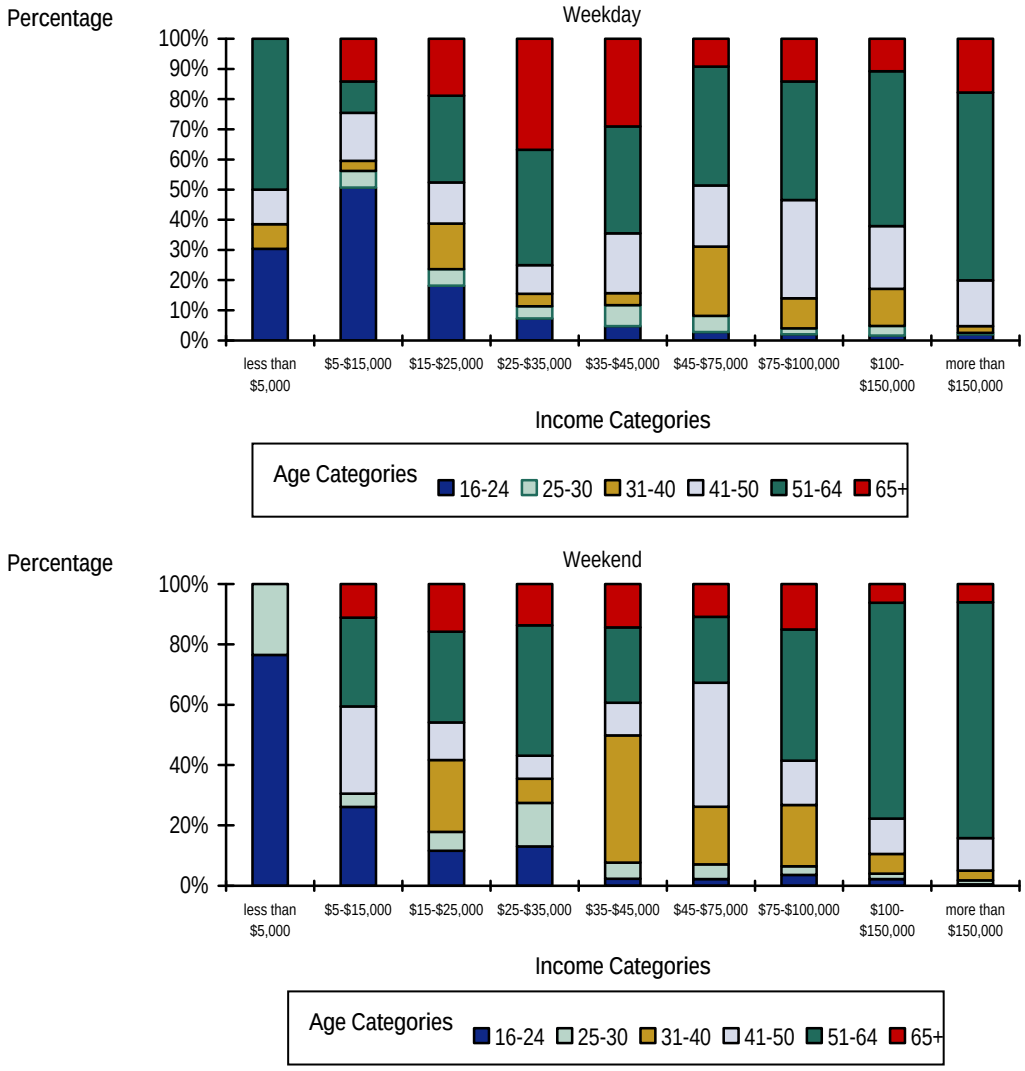
Figure 6.10 presents the age and income of the ferry travelers for weekdays and weekends. While there are some differences, the average age and income of the weekday and weekend travelers is similar. The average age for weekday travelers is 51 and the average age of weekend travelers is 49. This is higher than the regional average age of 35 years old. The average income for ferry travelers is $90,000. Average income has also been increasing over time, from $82,000 average income in 1993 (in 2006 constant dollars).

The average number of vehicles owned per household has been remarkably stable for the ferry riders, and it is at about 2.6 vehicles per household in 2006. This is higher than the regional average of 1.8 vehicles owned per household. There are some minor differences in the data when comparing zero vehicle households and households with three or more vehicles per household, but these differences are more likely to result from differences in the expansion factor process, than any real changes in auto ownership over time.

There are about 1.3 workers per household in the 2006 survey. The highest number of ferry riders comes from two-worker households (37 percent). Data on number of workers was not collected during the 1999 or 1993 survey. Of the weekday ferry riders, 73 percent said they were employed, up from 68 percent reported in the 1999 survey. The biggest change from 1999 was that number of non-workers dropped from 15 percent to two percent and the retired persons increased from 11 to 22 percent since 1999.

Figure 6.10 North Sound Corridor Traveler Age and Income

In what year were your born? What was your estimated household income in 2005 before taxes?



6.1 Port Townsend-Keystone

6.1.1 Route Description

This route connects Keystone and Port Townsend along State Route 20. The ferry is located north of Seattle and south of Oak Harbor and Anacortes. It takes 30 minutes to ride this ferry route one-way. The crossing is approximately 4.5 nautical miles. It runs seven days per week. For 2006, the annual total ridership was 370,000 plus 400,000 vehicles and drivers for a total of 770,000 people, or about 2,100 riders per day. This compares to 2,400 riders day in 1999 and 2,300 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and the trend for this route follows this pattern.

The Port Townsend-Keystone route has 10 sailings per day each direction, down from 15 sailings per day in 1993. The passenger and vehicle capacity of the vessels on this route are unchanged from 1993. The vessels used in 1993 were the Steel Electric class. The fare is $8.70 for vehicles and $2.50 for passengers in 2006.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

6.1.2 Trips by Purpose

The trip purposes of ferry riders on the Keystone-Port Townsend route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 6.6 shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are considered as east-west routes, although Keystone is more precisely located northeast of Port Townsend.

There is fairly even split between eastbound and westbound travelers for all purposes in the 2006 study, but there are some differences by trip purpose worth mentioning. The work/school trips are more commonly eastbound while shopping/recreation/leisure trips are more concentrated in the westbound direction. Over the weekends for 2006, there is a more even split by direction at the trip purpose level, in particular for commuting and recreational trips. As far as personal business trips are concerned, somewhat more are eastbound.

Table 6.6 Port Townsend-Keystone Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999 [a]	All Purposes 1993 [a]
Weekday							
Eastbound	366	185	356	907	49.5%	55.2%	55.0%
Westbound	283	170	474	927	50.5%	44.8%	45.0%
Total	649	355	830	1834	100%	100%	100%
Both dir. 2006	35.4%	19.4%	45.3%	100%			
Both dir. 1999	33.3%	16.6%	50.1%	100%			
Both dir. 1993	26.8%	12.3%	60.9%	100%			
Weekend							
Eastbound	120	293	950	1363	50.9%	68.7%	55.6%
Westbound	121	253	940	1314	49.1%	31.3%	44.4%
Total	241	546	1890	2677	100%	100%	100%
Both dir. 2006	9.0%	20.4%	70.6%	100%			
Both dir. 1999	12.9%	12.9%	74.2%	100%			
Both dir. 1993	11.6%	6.5%	81.9%	100%			

[a] 1999 and 1993 survey trips were not rebalanced by direction and as a result there is a large difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999. See Section 2.3 for more details. See Section 2.3 for more details.

2006 Weekday Trips: 1864 Missing: 30

2006 Weekend Trips: 2692 Missing: 15

There is an increase in weekday commuter trips over the 1993 and 2006 period, and a relative decrease in the share of both shopping and recreation. This is in contrast to the other routes in this corridor. One would expect that with rising costs for ferry travel, and a corresponding drop in overall ridership that a greater percent of the travel might be for business or commuting.

The 1993 and 1999 survey trips vary by direction largely because of differences in expansion of the survey rather than any real differences in travel behavior. We calculated the p.m. period half-day percent westbound during the weekday at 51 percent. This represents an increase in the proportion of westbound travelers surveyed since 1993, when it was 45 percent.

Table 6.7 shows the distribution of trips across different time periods and by direction of travel. As expected, the p.m. peak- period defined as 3:00 p.m. to 7:00 p.m. has the highest share of weekday trips (36 percent) because of the return work commute trips, as well as non-work trip purposes such as personal

business, shopping, and recreation. The p.m. off-peak period defined as noon to 3:00 p.m. has the second largest share of riders, representing 26 percent of weekday trips.

Table 6.7 Port Townsend-Keystone Trips by Time-of-Day and Direction [a]
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	a.m. Peak (5:00 a.m.-9:00 a.m.)	a.m. Off-peak (9:00 a.m.-12:00 p.m.)	p.m. Off-peak (12:00 p.m.-3:00 p.m.)	p.m. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Trips 2006	All Trips 1999	All Trips 1993
Weekday									
Eastbound	4	175	216	230	264	889	48%	55.2%	55.0%
Westbound	84	110	119	254	408	975	52%	44.8%	45.0%
Total	88	285	335	484	672	1,864	100%	100%	100%
Percent 2006	4.7%	15.3%	18.0%	26.0%	36.1%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 1864 Missing: 0

2006 Weekend Trips: 2692 Missing: 0

6.1.3 Frequency of Travel

The total number of ferry rips and purpose in 2006 are shown in Table 6.8. For comparison, trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Table 6.8 Port Townsend-Keystone Trips by Purpose and Frequency[26]

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	130	81	349	560	32.2%	31.0%	39.5%	20.5%	25.6%
2	202	140	316	658	37.8%	26.6%	29.1%	31.8%	14.6%
3-4	92	74	85	251	14.4%	18.7%	14.3%	14.5%	12.6%
5-6	76	4	28	108	6.2%	6.7%	3.6%	12.0%	6.7%
7-8	24	9	20	53	3.0%	2.5%	4.9%	3.8%	2.4%
9-10	81	0	0	81	4.7%	8.5%	8.5%	12.8%	22.8%
11+	30	0	0	30	1.7%	6.0%		4.7%	15.4%
Total	635	308	798	1741	100%	100%	100%	100%	100%
Percent 2006	36.5%	17.7%	45.8%	100%					
Percent 1999	33.3%	16.6%	50.1%	100%					
Percent 1993	26.8%	12.3%	60.9%	100%					
Weekend									
1	106	269	1065	1440	59.1%	23.2%	41.4%		
2	67	108	384	559	22.9%	51.2%	39.1%		
3-4	22	124	171	317	13.0%	16.9%	12.5%		
5-6	7	0	47	54	2.2%	4.3%	3.8%		
7-8	0	7	2	9	0.4%	0.7%	0.6%		
9-10	0	7	7	14	0.6%	0.7%	2.5%		
11+	21	0	23	44	1.8%	2.9%			
Total	223	515	1699	2437	100%	100%	100%		
Percent 2006	9.2%	21.1%	69.7%	100%					
Percent 1999	12.9%	12.9%	74.2%	100%					
Percent 1993	11.6%	6.5%	81.9%	100%					

2006 Weekday Trips: 1864 Missing: 153

2006 Weekend Trips: 2692 Missing: 255

[26] The total percentage distribution across purposes is different in Table 6.6 than in Table 6.8 because of different numbers of missing trips in the two tables.

It is evident that travelers use the ferry for both recreational/shopping/leisure and for work/school purposes, with these trip purposes representing 47 percent and 37 percent respectively. Most commuting riders do not use this ferry on a regular basis, as revealed by the fact that only 18 percent of these riders (111 out of 635) use the ferry nine or more weekdays in a typical week. Trip frequencies for recreational purposes are even lower. In fact, 83 percent make only one or two one-way trips in a typical week. Personal business/other-related activities also are infrequent, with 72 percent taking a one way ferry trip just once or twice in a typical week. In total, only six percent of riders use the Keystone-Port Townsend ferry on a daily basis during a typical week.

Table 6.8 also compares trip frequencies for 1993 and 1999. One general observation is that the ferry is typically used by passengers on an occasional basis. In 1993, nine percent of riders surveyed use this ferry nine or more times in a typical week. In 1999 this share went up to 15 percent, but it fell back to seven percent in the 2006 survey.

During weekends, as expected, there are more riders on this route for shopping/recreation trip purposes than other purposes, that is, 70 percent of 2,437 weekend riders surveyed. An additional 21 percent of weekend trips are for personal business and nine percent for commuting purposes. Over the 1993 to 2006 period, the share of weekend ferry trips for recreational purposes declined from 82 percent to 70 percent. Conversely, trips for personal business increased from seven percent in 1993 to 13 percent in 1999 to 21 percent in 2006. Weekend commuting trips were relatively stable over the time period.

Table 6.9 shows the distribution of trips across different time periods and by direction of travel. As expected, the p.m. period defined as 3:00 p.m. to 7:00 p.m., has the highest share of trips (37 percent) because of the return trips of work commute, as well as people making non-work trips such as personal business, shopping and recreation. This is followed by the p.m. off-peak time period, which is comprised of about 25 percent of weekday trips.

Table 6.9 Port Townsend-Keystone Trips by Purpose and Time-of-Day

What is/are the reason(s) you are riding this ferry today? Time-of-Day, Time of Sailing

Direction	Work/School	Personal/ Business/ Other	Recreation/ Shopping	Total	Work/School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	39	23	25	87	6.0%	6.5%	3.0%	4.7%
A.M. Peak (5 a.m.-9 a.m.)	115	44	125	284	17.7%	12.4%	15.1%	15.5%
A.M. Off-peak (9 a.m.-12 p.m.)	101	81	145	327	15.6%	22.9%	17.5%	17.8%
P.M. Off-peak (12 p.m.-3 p.m.)	113	108	243	464	17.4%	30.5%	29.3%	25.3%
P.M. Peak (3 p.m.-7 p.m.)	280	98	292	670	43.2%	27.7%	35.2%	36.6%
Total	648	354	830	1832	100%	100%	100%	100%
All times 2006	35.4%	19.3%	45.3%	100%				
All times 1999	33.3%	16.6%	50.1%	100%				
All times 1993	26.8%	12.3%	60.9%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

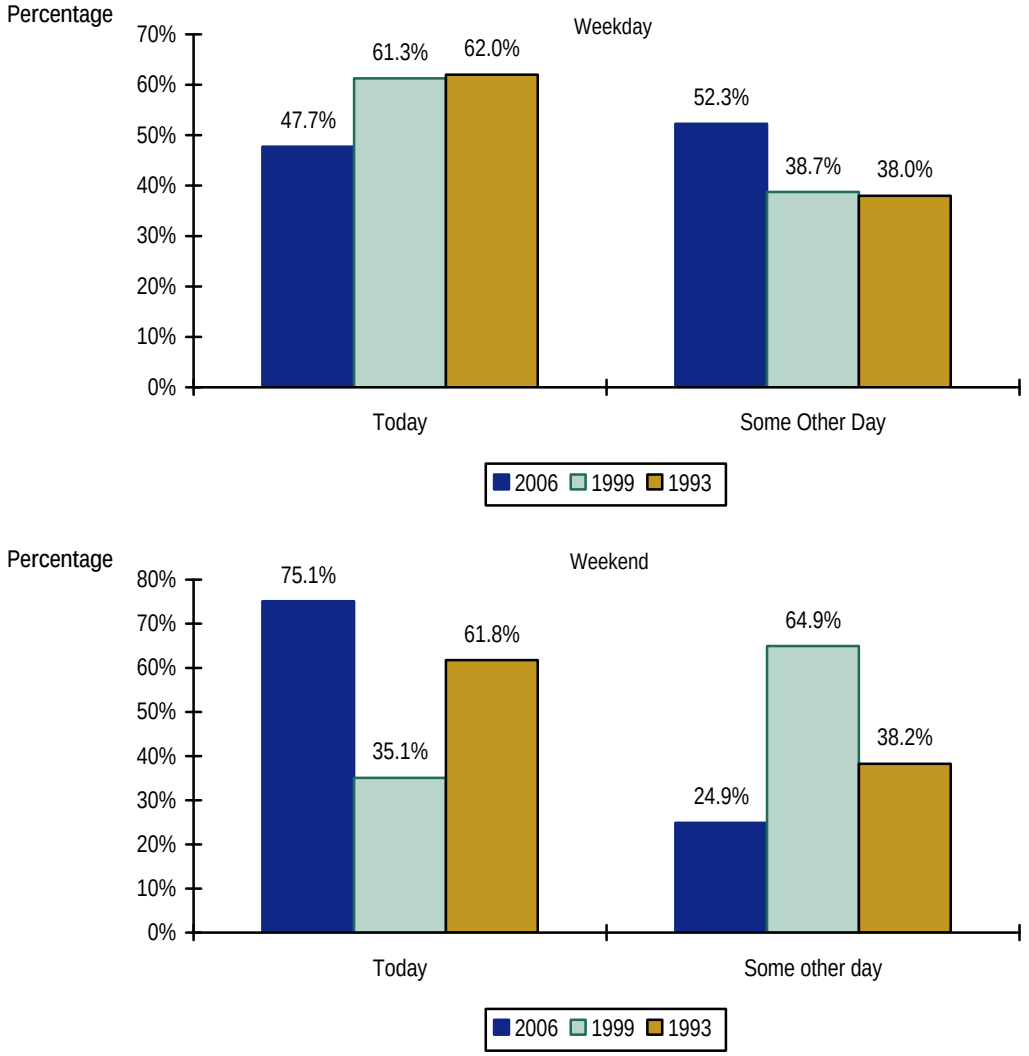
2006 Weekday Trips: 1864 Missing: 32

2006 Weekend Trips: 2692 Missing: 15

6.1.4 Round-Trip Patterns

As the 2006 surveys were conducted only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 6.11 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A slight majority of riders on this route traveled their outbound and inbound journeys on different days, that is, 52 percent of 1,799. Conversely, on weekends 75 percent use this route on the same day for their round trips.

Figure 6.11 Port Townsend-Keystone Round Trip Patterns by Day
When was the first half of your trip or when will you return?



2006 Weekday Trips: 1864 Missing: 359

2006 Weekend Trips: 2692 Missing: 141

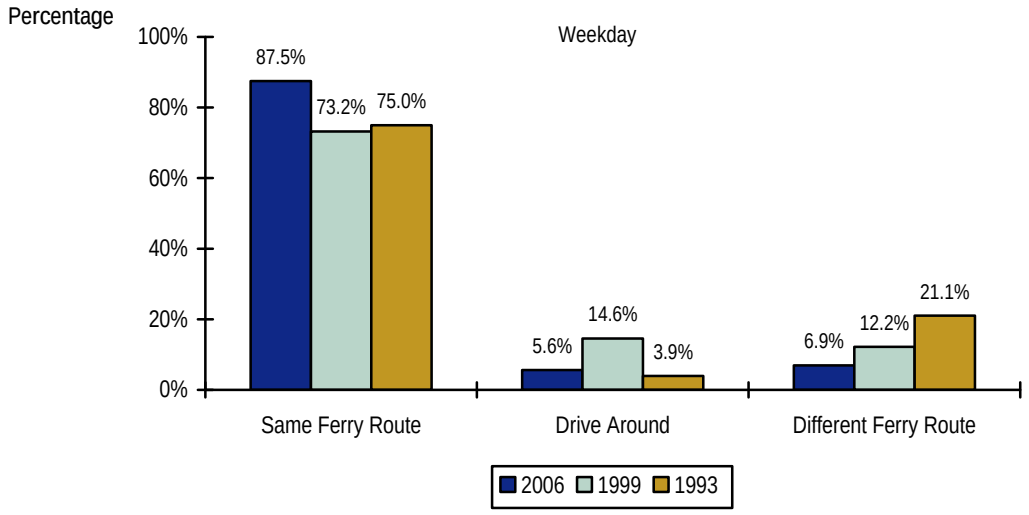
Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on a different day in 2006 is considerably higher than 1993 and 1999 estimates. In 1993 and 1999, the number of boardings on this route on a different day was similar (38 percent and 39 percent, respectively), while in 2006 it was 52 percent.

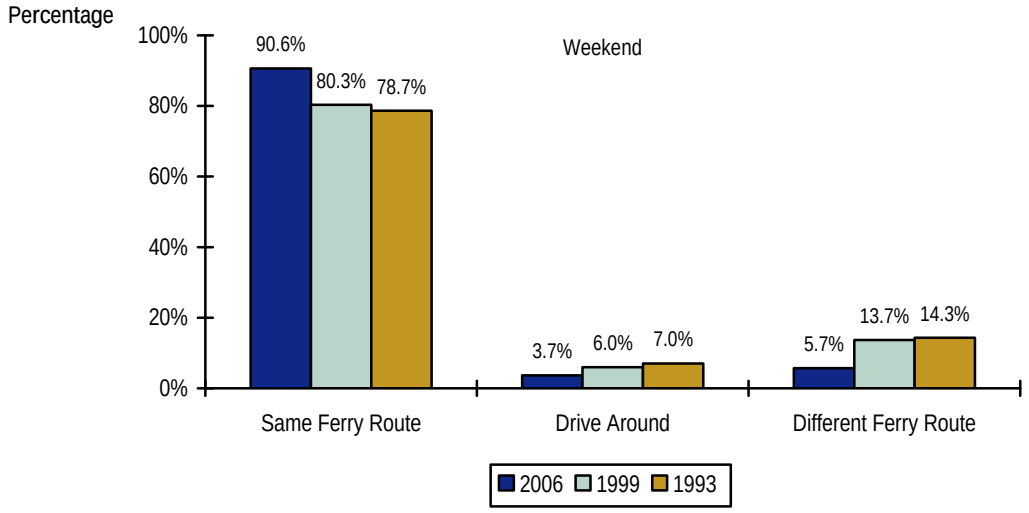
During the weekends in 2006, a majority of trips are made on the same day (75 percent). This is in contrast to the 1993 and 1999 estimates that fluctuate from 62 percent in 1993 to 35 percent in 1999.

For riders who made one-half of their trip on this route, Figure 6.12 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. Most of the boardings are associated with trips in which the traveler will return to their home base on the same ferry. In 2006, 88 percent said they would return on the same ferry route, whereas in 1993 and 1999 a slightly smaller share – 75 percent and 73 percent respectively – indicated thus.

Figure 6.12 Port Townsend-Keystone Round Trip Patterns by Route

How will you return or how did you travel on the first half of your trip?





2006 Weekday Trips: 1864 Missing: 477

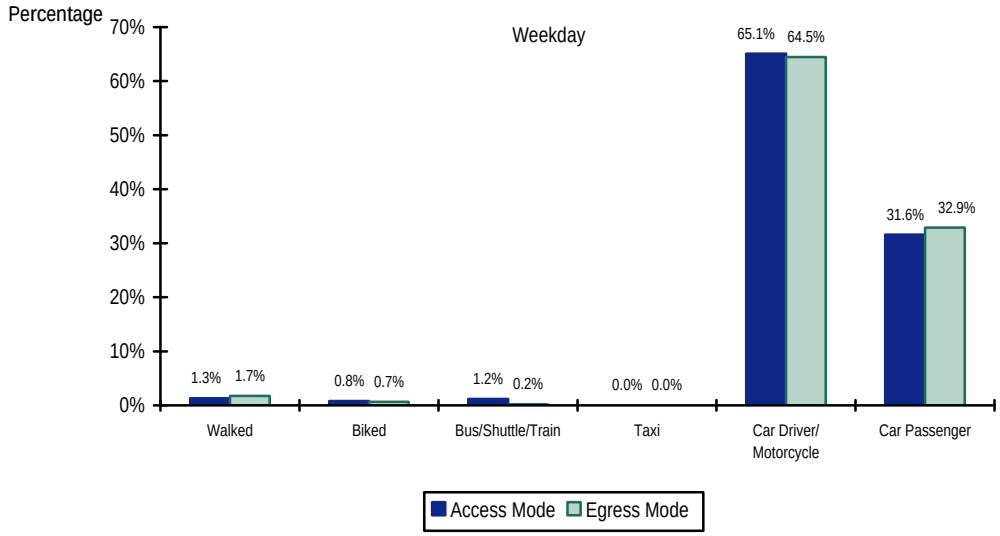
2006 Weekend Trips: 2692 Missing: 138

The weekend estimates are fairly similar, with 91 percent of passengers in the 2006 study reporting that they will return on the same ferry route, compared with 79 percent in 1993 and 80 percent in 1999. On the weekend, passengers who are not returning on the same ferry are more likely than weekday passengers to indicate that they will be returning on a different ferry route rather than using a drive around travel mode.

6.1.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 6.13 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Figure 6.13 Port Townsend-Keystone Trips by Access and Egress Mode
How did you travel from your origin location to this sailing? How did you travel to the destination you are going to now?



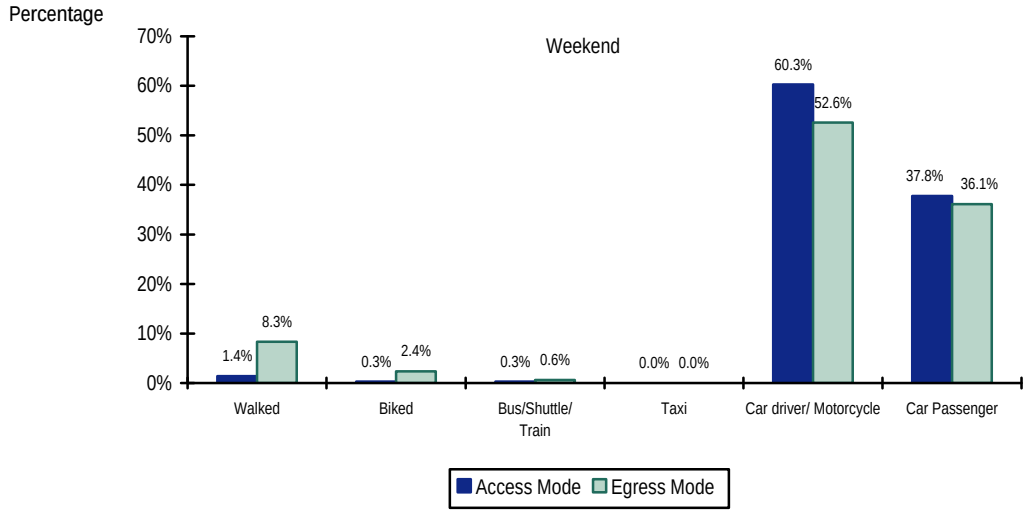


Table 6.10 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, 65 percent of the ferry passengers drove to the terminal and an additional 32 percent were driven.

This leaves a negligible share that walked, biked, or took public transit to the ferry terminal.

The number of boardings by drive mode was 90 percent in 2006. This is similar to 1999 when this share was 93 percent, and is above the 1993 estimate of 86 percent. The share of ferry passengers who walked on-board was eight percent in 2006, compared with seven percent in 1999 and 13 percent in 1993. The number who boarded with a bicycle has remained under two percent over the 1993 to 2006 period.

During 2006 weekends, a majority of passengers drove on-board (88 percent), while the rest were walk-ons (10 percent) and those who biked (two percent). These weekend shares have been fairly constant over the 1993 to 2006 period.

Table 6.11 shows the mode of travel on this route and the corresponding egress modes to the ferry terminal. The egress boarding mode was similarly skewed heavily toward ferry passengers who boarded with a vehicle. On weekdays, 90 percent of passengers boarded with their vehicle, followed by 8 percent who walked on-board and two percent who boarded with a bicycle. These percentages have remained fairly steady over the 1993 to 2006 period. On weekend, 88 percent boarded with their vehicle, 11 percent walked on-board and two percent boarded with a bicycle.

The vast majorities of weekday passengers either drove or were driven to their final destinations. In 2006, 65 percent drove and an additional 33 percent were driven to their final destination. In 1993, 96 percent of passengers used a vehicle, as either a driver or passenger, to reach their final destination and in 1996 this share was 98 percent of passengers who did so.

In 2006 weekends, slightly more ferry passengers walked to their final destination – eight percent compared to two percent on weekdays. This share is higher in the 2006 study of weekend passengers than either the 1993 survey (three percent walked) or the 1999 survey (two percent walked). Vehicles remained the egress mode of choice for the majority of weekend ferry passengers. Indeed, 89 percent of passengers in 2006, 97 percent of passengers in 1999, and 96 percent of passengers in 1993 either drove themselves or were driven to their final destinations.

Table 6.10 Port Townsend-Keystone Trips by Access Mode and Boarding Method

How will/did you board this ferry? How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	5	19	0	24	1.3%	0.3%	0.8%
Biked	0	0	15	15	0.8%	0.3%	1.2%
Bus/Shuttle/Train	4	4	14	22	1.2%	0.3%	1.2%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	1110	94	7	1211	65.1%	57.8%	62.5%
Car Passenger	558	30	0	588	31.6%	41.5%	34.4%
Total	1677	147	36	1860	100%	100%	100%
Percent 2006	90.2%	7.9%	1.9%	100%			
Percent 1999	92.6%	7.1%	0.3%	100%			
Percent 1993	85.5%	13.4%	1.1%	100%			
Weekend							
Walked	0	37	0	37	1.4%	1.2%	2.1%
Biked	0	0	8	8	0.3%	0.5%	0.4%
Bus/Shuttle/Train	8	0	0	8	0.3%	0.9%	0.2%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/Motorcycle	1457	132	30	1619	60.3%	65.9%	58.8%
Car passenger	900	105	9	1014	37.8%	31.6%	38.5%
Total	2365	274	47	2686	100%	100%	100%
Percent 2006	88.0%	10.2%	1.7%	100%			
Percent 1999	89.9%	9.2%	0.9%	100%			
Percent 1993	87.9%	11.7%	0.4%	100%			

2006 Weekday Trips: 1864 Missing: 4

2006 Weekend Trips: 2692 Missing: 6

Table 6.11 Port Townsend-Keystone Trips by Egress Mode and Boarding Method
How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	0	32	0	32	1.7%	1.4%	2.4%
Biked	0	0	12	12	0.7%	0.4%	1.2%
Bus/Shuttle/Train	0	4	0	4	0.2%	0.3%	0.8%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	1103	78	0	1181	64.5%	56.1%	63.9%
Car Passenger	553	33	17	603	32.9%	41.9%	31.7%
Total	1656	147	29	1832	100%	100%	100%
Percent 2006	90.4%	8.0%	1.6%	100%			
Percent 1999	92.6%	7.1%	0.3%	100%			
Percent 1993	85.5%	13.4%	1.1%	100%			
Weekend							
Walked	5	215	0	220	8.3%	2.3%	2.9%
Biked	7	9	46	62	2.4%	0.5%	0.4%
Bus/Shuttle/Train	16	0	0	16	0.6%	0.0%	0.4%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	1345	42	0	1387	52.6%	65.7%	59.7%
Car passenger	941	11	0	952	36.1%	31.6%	36.7%
Total	2314	277	46	2637	100%	100%	100%
Percent 2006	87.8%	10.5%	1.7%	100%			
Percent 1999	89.9%	9.2%	0.9%	100%			
Percent 1993	87.9%	11.7%	0.4%	100%			

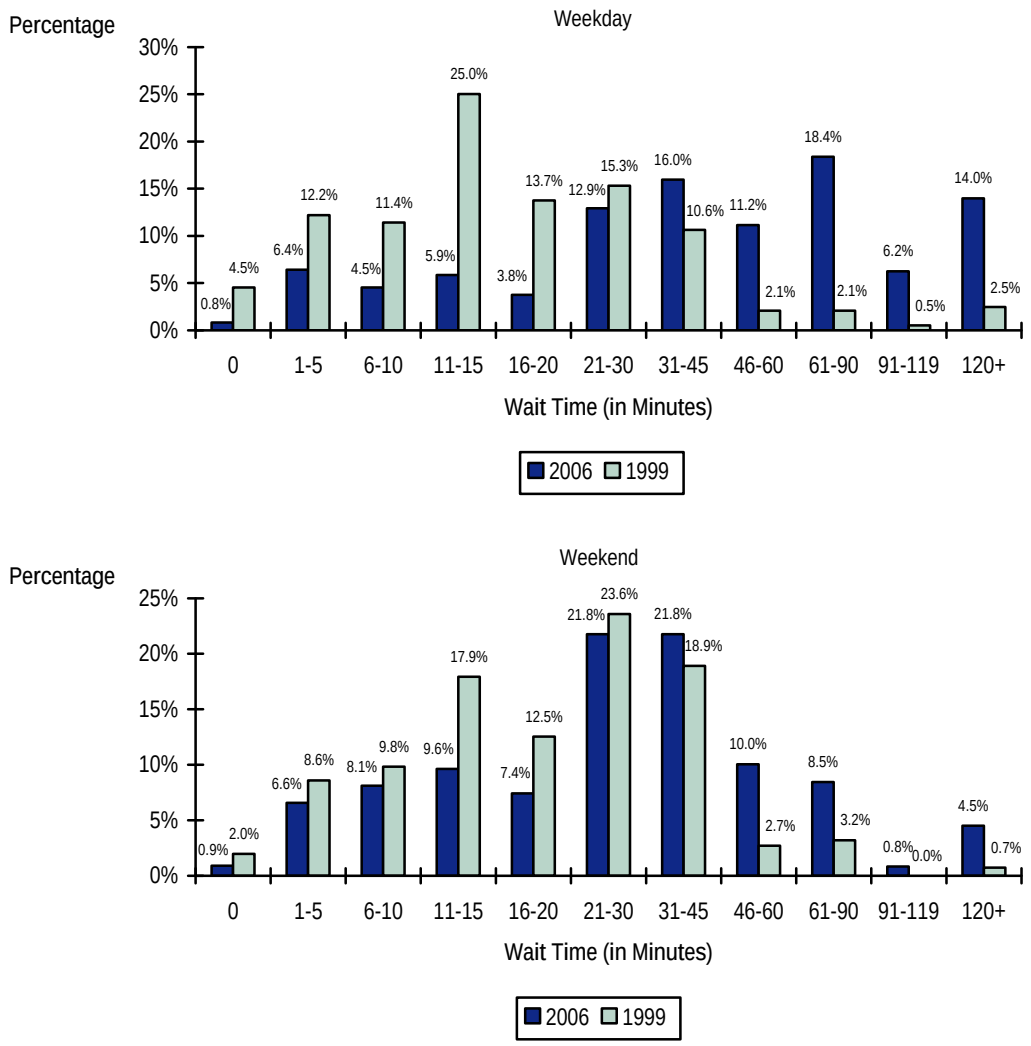
2006 Weekday Trips: 1864 Missing: 32

2006 Weekend Trips: 2692 Missing: 55

6.1.6 Wait Time

The out-of-vehicle travel times were measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 6.14 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, 66 percent of ferry passengers waited for over 30 minutes. This is contrasted with 1999 in which only 18 percent of passengers waited this amount of time. In 2006 weekends, 46 percent of the ferry passengers waited 30 minutes or longer, compared with 26 percent in the 1999 survey who waited 30 minutes or longer. The average perceived wait time was 69 minutes and for weekends was 43 minutes.

Figure 6.14 Port Townsend-Keystone Trips by Wait Time
About how many minutes did you wait to board this ferry

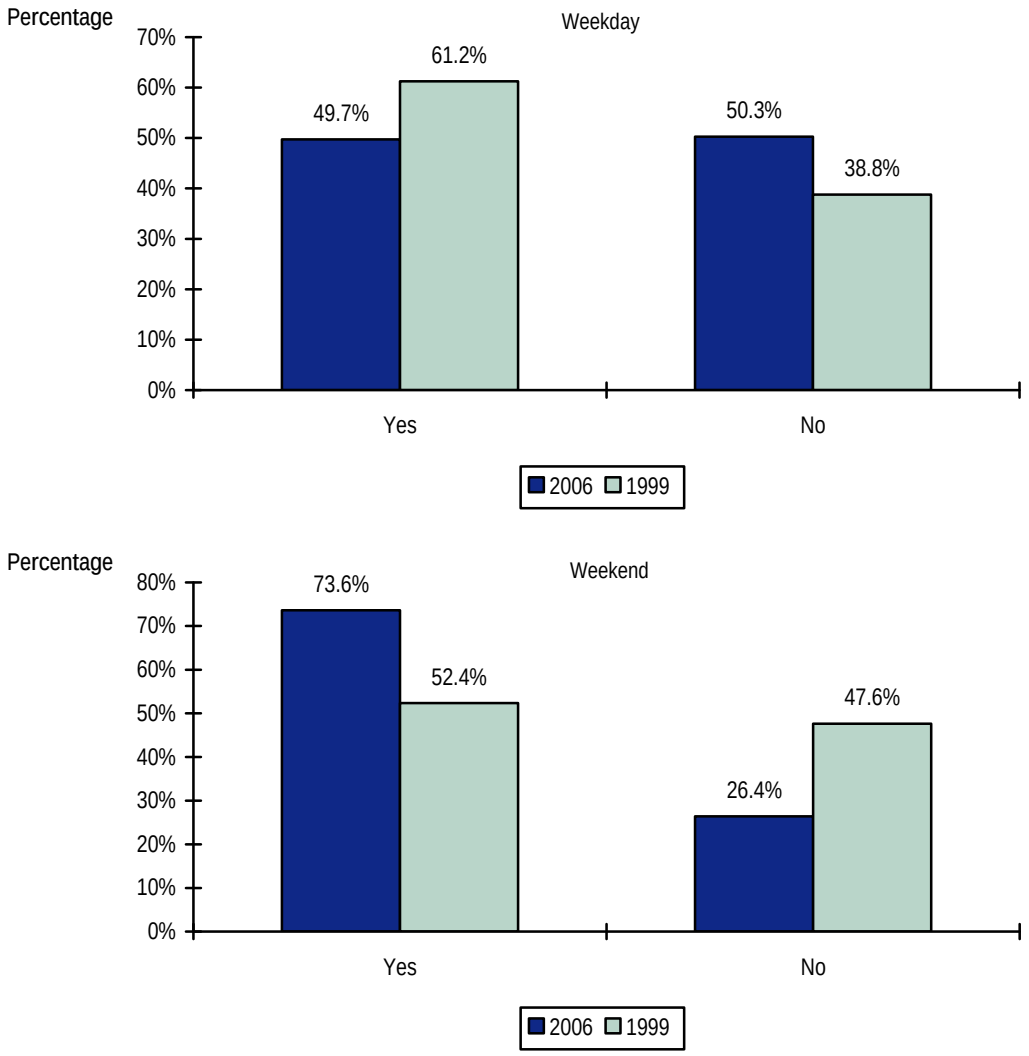


6.1.7 Parking

The parking statistics of walk-on passengers on this route also were examined. Primarily, these data summarize whether commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 6.15 presents the number of boardings by the response on parking from the respondent. About half of the weekday ferry passengers (50 percent) parked their vehicles in the 2006 survey. In the 1999 survey this share was higher, with 61 percent of weekday ferry passengers who reported parking. On weekends in the 2006 survey, passengers were found to be considerably more likely to have parked. Indeed, 74 percent reported that they parked, compared with 52 percent in the 1999 survey who reported that they parked.

These differences could be attributed to the lower traffic over weekends and different rates and availability of parking. The average parking cost was $5 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking). There was not data on people who paid to park on weekdays for this route.

Figure 6.15 Port Townsend-Keystone Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?



6.1.8 Weekday Eastbound Origins and Destinations

Figure 6.16 presents the origins and destinations of weekday eastbound trips riders on this route from Keystone to Port Townsend in 2006. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 6.12. The major destinations are North Whidbey Island which represent 31 percent of destinations, West Whatcom County which represents 14 percent

and Central Whidbey Island which represents 13 percent. The origins of these trips are predominantly Port Townsend which represent 30 percent, followed by Port Angeles which represents 14 percent.

In 1999, only 17 percent of weekday eastbound travel came from Port Townsend (p.m. peak period) and 34 percent came from all other places, compared to 2006 when 30 percent came from Port Townsend and only 5 percent from other places. Both surveys have about the same amount of trips to Whidbey Island in 1999 and 2006 (55 percent).

Figure 6.16 Port Townsend-Keystone Weekday Eastbound Origins and Destinations (2006)

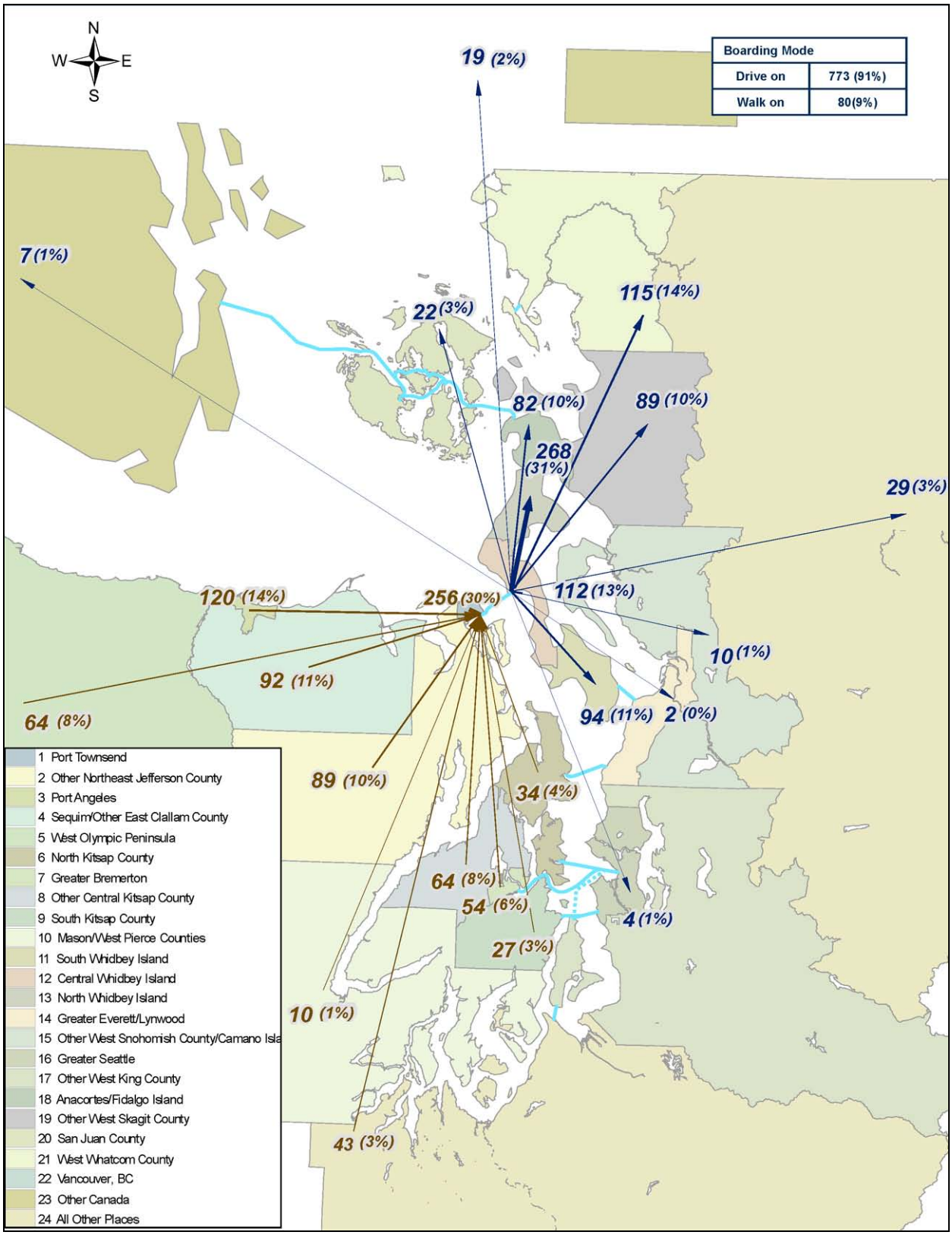


Table 6.12 Port Townsend-Keystone Weekday Eastbound Boardings by Origin and Destination District

	Destination District							
Origin District	South Whidbey Island	Central Whidbey Island	North Whidbey Island	Greater Everett/ Lynnwood	West Snohomish/ Camano	Greater Seattle	Other West King County	Anacortes/Fidalgo Island
Port Townsend	45	48	49	1	10	0	0	10
Jefferson County	16	20	11	0	0	4	0	10
Port Angeles	11	12	32	0	0	0	0	11
Sequim	7	3	25	1	0	0	0	17
West Olympic Peninsula	7	3	12	0	0	0	0	12
North Kitsap County	0	4	18	0	0	0	0	5
Greater Bremerton	0	3	35	0	0	0	0	4
Central Kitsap County	0	6	54	0	0	0	0	3
South Kitsap County	4	1	12	0	0	0	0	4
Mason/West Pierce County	0	0	6	0	0	0	0	0
Out of Study Area	4	12	14	0	0	0	0	6
Total	94	112	268	2	10	4	0	82
Percent of Total	11.0%	13.1%	31.4%	0.2%	1.2%	0.5%	0.0%	9.6%

	Destination District (continued)							
Origin District	West Skagit County	San Juan County	West Whatcom County	Vancouver BC	Other Canada	All Other Places	Total	Percent of Total
Port Townsend	21	6	48	6	3	9	256	30.0%
Jefferson County	6	6	0	3	0	13	89	10.4%
Port Angeles	21	0	18	4	4	7	120	14.1%
Sequim	23	4	7	5	0	0	92	10.8%
West Olympic Peninsula	10		20	0	0	0	64	7.5%
North Kitsap County	1	3	3	0	0	0	34	4.0%
Greater Bremerton	6	1	5	0	0	0	54	6.3%
Central Kitsap County	0	1	0	0	0	0	64	7.5%
South Kitsap County	0	0	6	0	0	0	27	3.2%
Mason/West Pierce County	0	0	4	0	0	0	10	1.2%
Out of Study Area	1	1	4	1	0	0	43	5.0%
Total	89	22	115	19	7	29	853	100%
Percent of Total	10.4%	2.6%	13.5%	2.2%	0.8%	3.4%	100%	

Figure 6.17 Port Townsend-Keystone Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)

6.1.9 Weekday Westbound Origins and Destinations

Figure 6.17 for weekday westbound trips presents the travel patterns of riders taking the Keystone-Port Townsend ferry. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 6.13. The destinations of these trips were predominantly Port Townsend which represented 34 percent, followed by Sequim which represents 15 percent and Jefferson County which represents 13 percent of destinations. The origins of these trips were mainly North Whidbey Island which represented 23 percent of all origins, followed by Central Whidbey Island which represented 15 percent, and a variety of other districts.

In 1999, only 16 percent of weekday westbound travel went to Port Townsend (p.m. peak period) and 9 percent came from all other places, compared to 2006 when 34 percent went to Port Townsend and only 5 percent from other places. Both surveys have about the same amount of trips to Whidbey Island in 1999 (52 percent) and 2006 (48 percent).

Figure 6.18 Port Townsend-Keystone Weekday Westbound Origins and Destinations (2006)

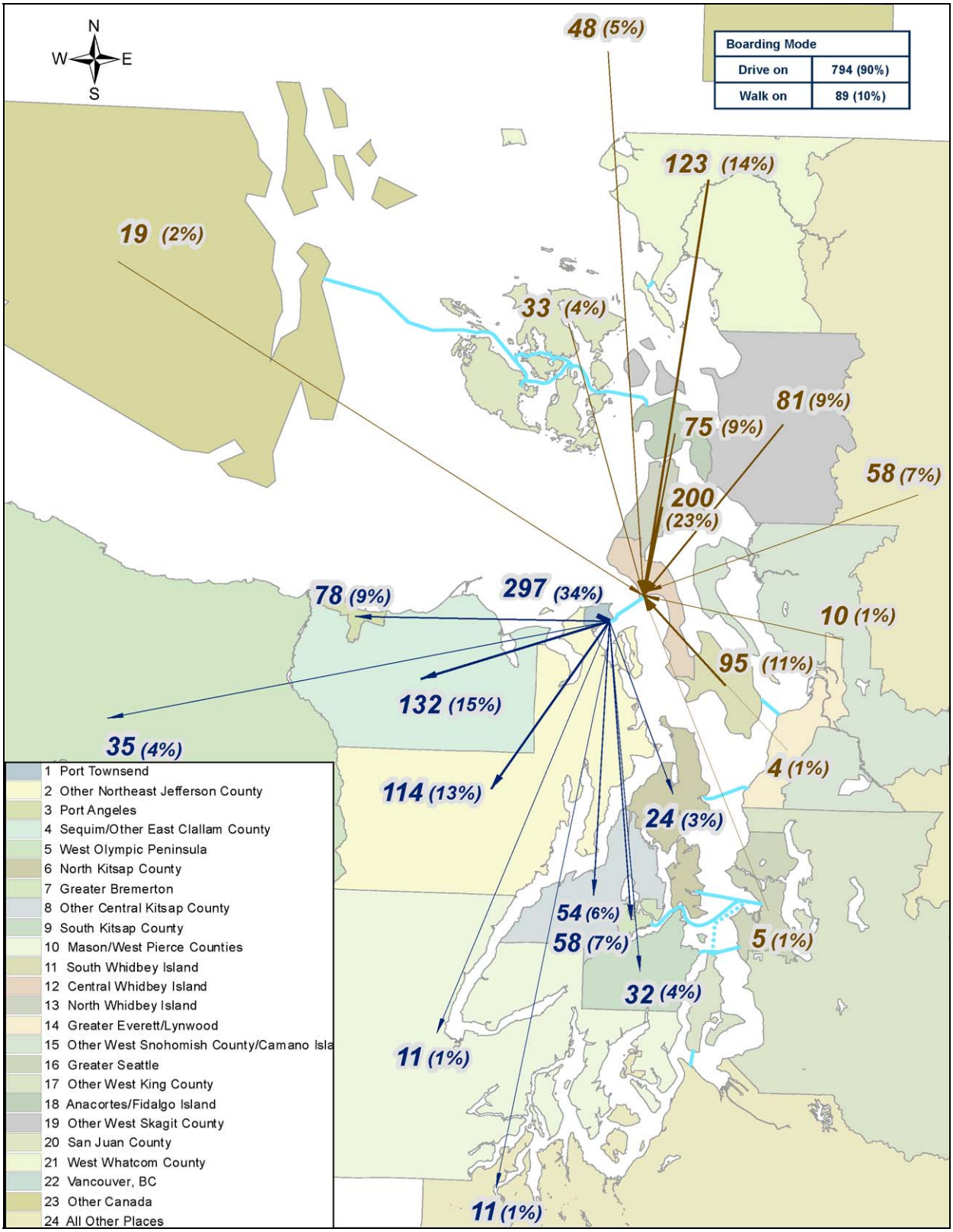
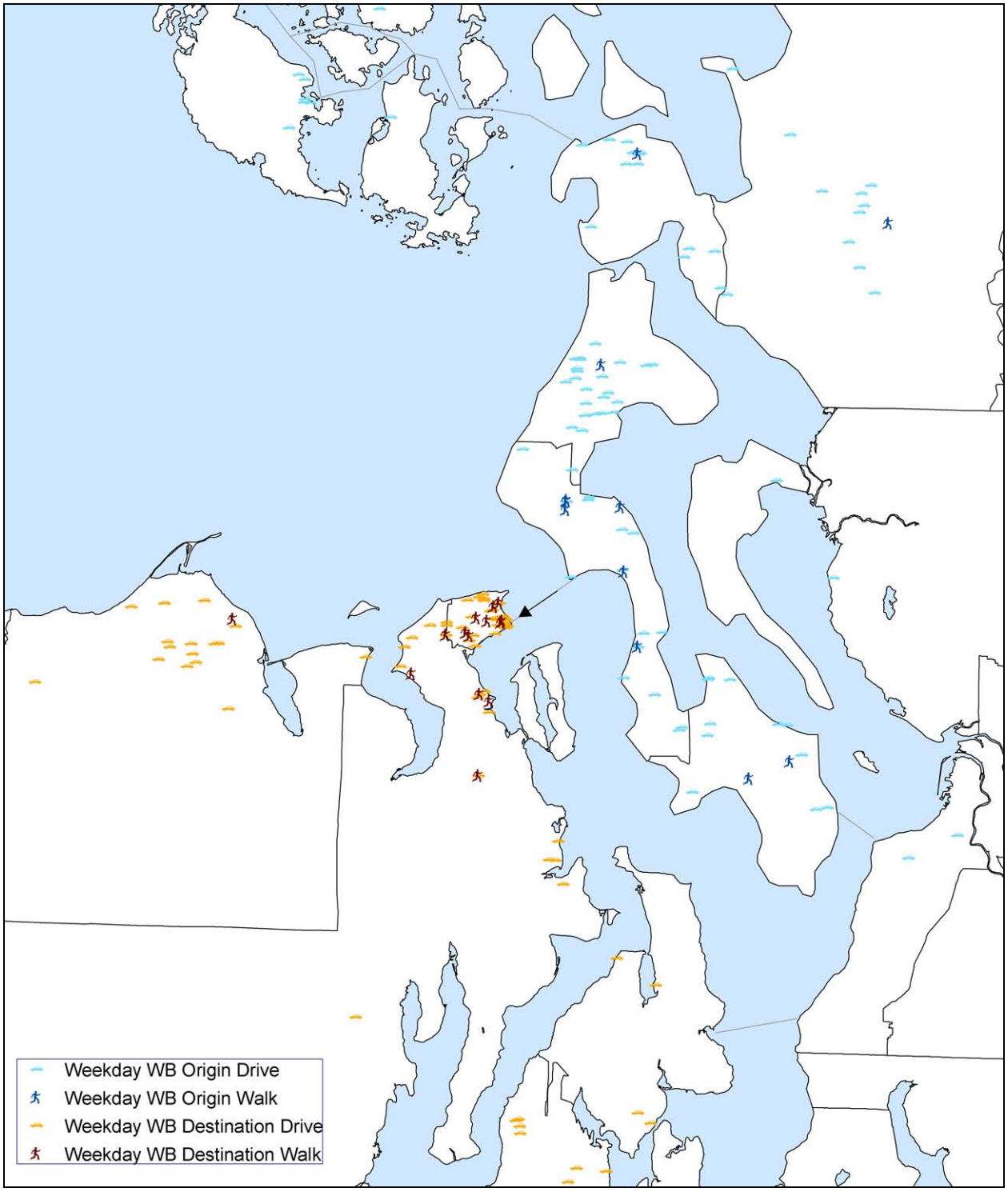


Table 6.13 Port Townsend-Keystone Weekday Westbound Boardings by Origin and Destination District

	Destination District											
Origin District	Port Townsend	Jefferson County	Port Angeles	Sequim	West Olympic Peninsula	North Kitsap County	Greater Bremerton	Central Kitsap County	South Kitsap County	Mason/West Pierce County	All Other Places	Total
South Whidbey Island	38	17	9	17	7	0	0	0	7	0	0	95
Central Whidbey Island	65	19	8	5	0	7	5	4	5	0	13	131
North Whidbey Island	27	14	20	20	7	3	30	38	16	9	16	200
Greater Everett/Lynnwood	2	0	0	2	0	0	0	0	0	0	0	4
West Snohomish/Camano	10	0	0	0	0	0	0	0	0	0	0	10
Greater Seattle	0	5	0	0	0	0	0	0	0	0	0	5
Anacortes/Fidalgo Island	14	14	5	12	9	7	2	5	2	0	5	75
West Skagit County	12	9	20	31	5	2	0	0	0	0	2	81
San Juan County	5	9	0	10	0	0	2	2	0	0	5	33
West Whatcom County	64	0	2	17	7	5	19	0	2	2	5	123
Vancouver BC	9	15	5	18	0	0	0	0	0	0	2	49
Other Canada	17	0	2	0	0	0	0	0	0	0	0	19
All Other Places	34	12	7	0	0	0	0	5	0	0	0	58
Total	297	114	78	132	35	24	58	54	32	11	48	883
Percent of Total	33.6%	12.9%	8.8%	14.9%	4.0%	2.7%	6.6%	6.1%	3.6%	1.2%	5.4%	100%

Figure 6.19 Port Townsend-Keystone Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



6.1.10 Weekend Eastbound Origins and Destinations

The eastbound weekend travel patterns are similar to that of the weekday patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These are presented in Figure 6.18. These origins and destinations are detailed by district in Table 6.14. The destinations of these trips are mainly North Whidbey Island which represents 28 percent, followed by Vancouver, British Columbia with 18 percent and Central Whidbey Island with 14 percent. The origins are mainly Port Townsend with 33 percent and Sequim which represent 23 percent.

In 1999, 28 percent of weekday eastbound travel came from Port Townsend (p.m. peak period) and 2 percent came from all other places, compared to 2006 when 33 percent came from Port Townsend and 2 percent from other places, reflecting very similar patterns. The 1999 survey had only 31 percent of trips to Whidbey Island and this was 45 percent in 2006. This difference may be because of the data collection on Saturday in 2006 and on Sunday in 1999 or it may be a real difference in travel patterns.

Figure 6.20 Port Townsend-Keystone Weekend Eastbound Origins and Destinations (2006)

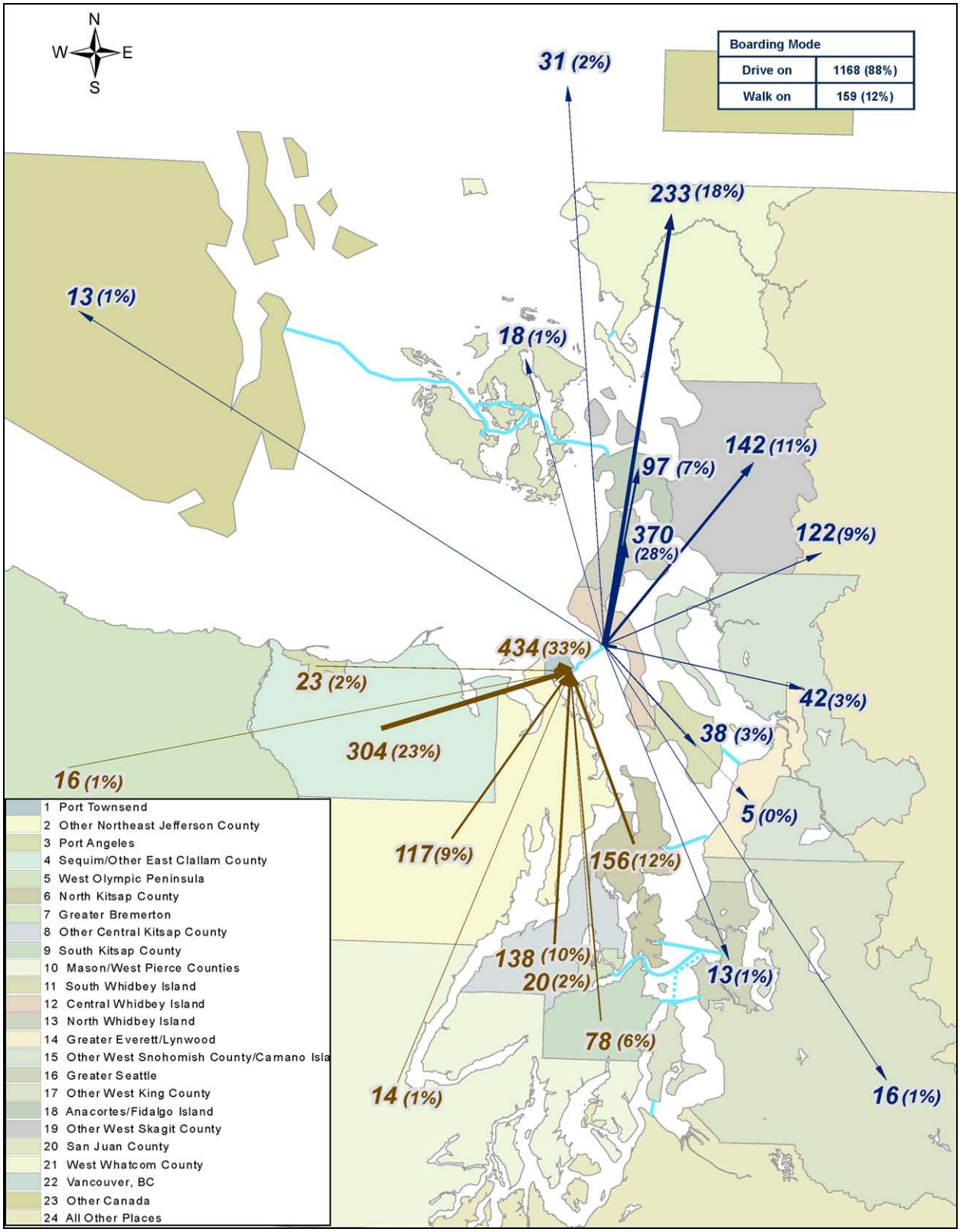
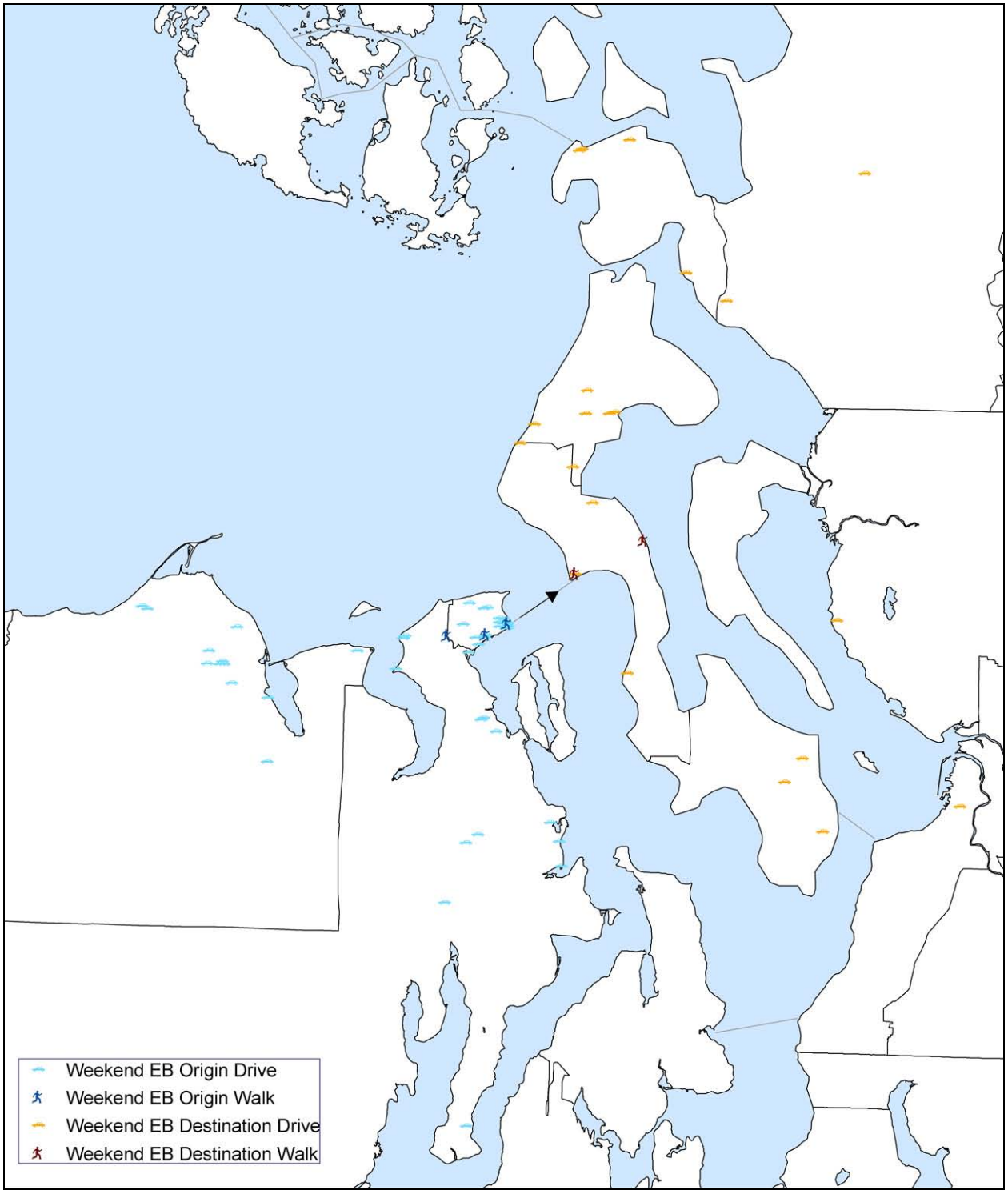


Table 6.14 Port Townsend-Keystone Weekend Eastbound Boardings by Origin and Destination District

	Destination District							
Origin District	South Whidbey Island	Central Whidbey Island	North Whidbey Island	Greater Everett/ Lynnwood	West Snohomish/ Camano	Greater Seattle	Other West King County	Anacortes/Fidalgo Island
Port Townsend	12	61	128	0	3	8	16	11
Jefferson County	0	15	3	0	3	0	0	13
Port Angeles	0	0	17	0	0	0	0	0
Sequim	9	16	41	5	33	5	0	13
West Olympic Peninsula	0	3	0	0	3	0	0	0
North Kitsap County	11	53	42	0	0	0	0	5
Greater Bremerton	3	3	14	0	0	0	0	0
Central Kitsap County	0	15	98	0	0	0	0	8
South Kitsap County	3	10	3	0	0	0	0	47
Mason/West Pierce County	0	6	5	0	0	0	0	0
Out of Study Area	0	5	19	0	0	0	0	0
Total	38	187	370	5	42	13	16	97
Percent of Total	2.9%	14.1%	27.9%	0.4%	3.2%	1.0%	1.2%	7.3%

	Destination District (continued)							
Origin District	West Skagit County	San Juan County	West Whatcom County	Vancouver BC	Other Canada	All Other Places	Total	Percent of Total
Port Townsend	0	6	161	6	10	12	434	32.7%
Jefferson County	35	0	20	10	0	18	117	8.8%
Port Angeles	3	0	3	0	0	0	23	1.7%
Sequim	61	3	24	15	3	76	304	22.9%
West Olympic Peninsula	0	0	10	0	0	0	16	1.2%
North Kitsap County	40	0	0	0	0	5	156	11.8%
Greater Bremerton	0	0	0	0	0	0	20	1.5%
Central Kitsap County	0	0	9	0	0	8	138	10.4%
South Kitsap County	0	9	6	0	0	0	78	5.9%
Mason/West Pierce County	3	0	0	0	0	0	14	1.1%
Out of Study Area	0	0	0	0	0	3	27	2.0%
Total	142	18	233	31	13	122	1327	100%
Percent of Total	10.7%	1.4%	17.6%	2.3%	1.0%	9.2%	100%	

Figure 6.21 Port Townsend-Keystone Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



6.1.11 Weekend Westbound Origins and Destinations

The weekend westbound trips (in Figure 6.19) also seem to be similar to the weekday westbound travel patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These origins and destinations are detailed by district in Table 6.15. The majority of origins of these trips are North Whidbey Island with 30 percent, followed by Central Whidbey with 15 percent and Vancouver, British Columbia, again with 15 percent. The destinations are mainly Port Townsend which represent 32 percent of all destinations, followed with Sequim which represents 17 percent, and a variety of other districts.

In 1999, only 11 percent of weekday eastbound travel came from Port Townsend (p.m. peak period) and 9 percent came from all other places, compared to 2006 when 32 percent came from Port Townsend and only 5 percent from other places. The 1999 survey had only 38 percent of trips to Whidbey Island and this was 53 percent in 2006. This difference may be because of the data collection on Saturday in 2006 and on Sunday in 1999 or it may be a real difference in travel patterns.

Figure 6.22 Port Townsend-Keystone Weekend Westbound Origins and Destinations (2006)

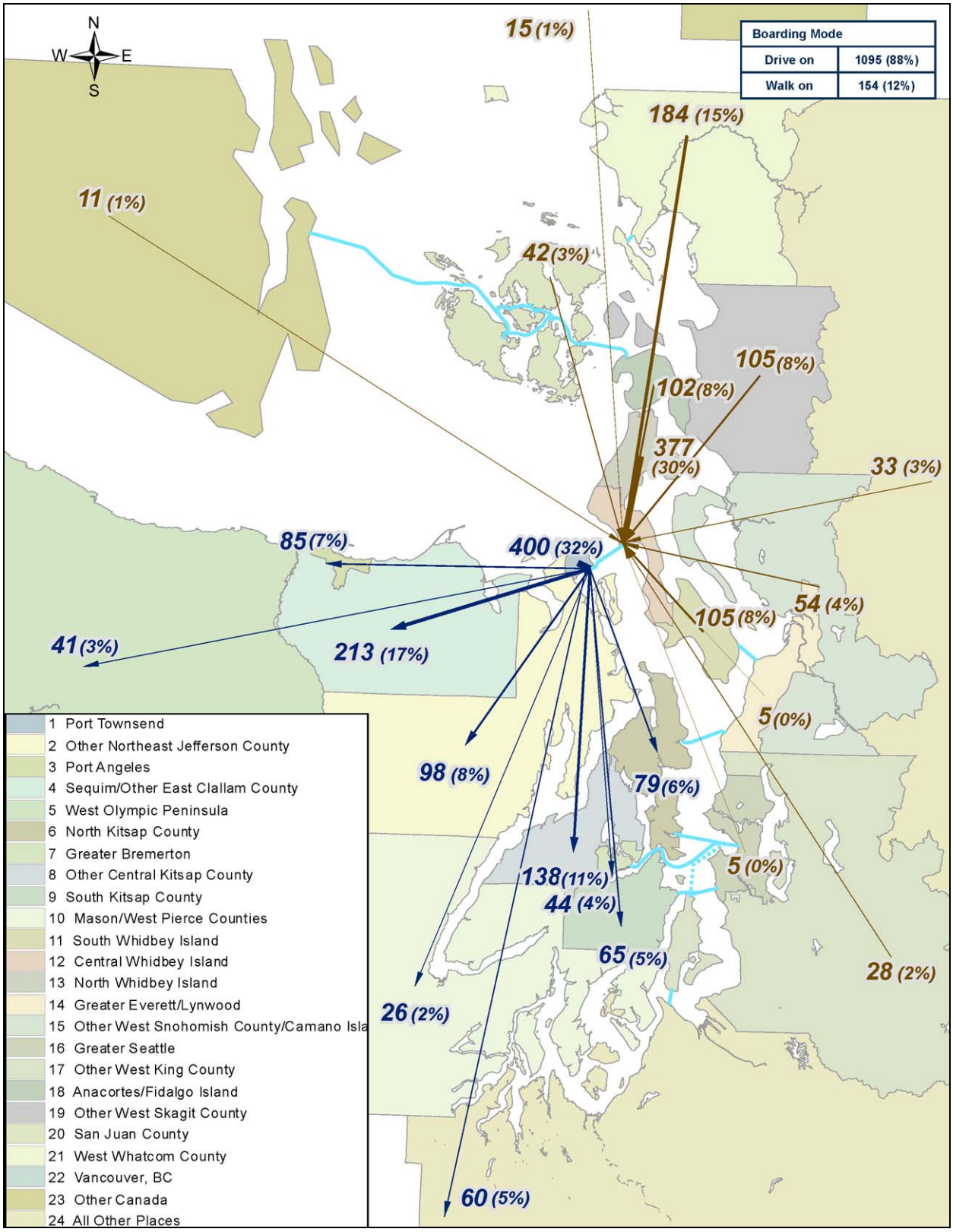
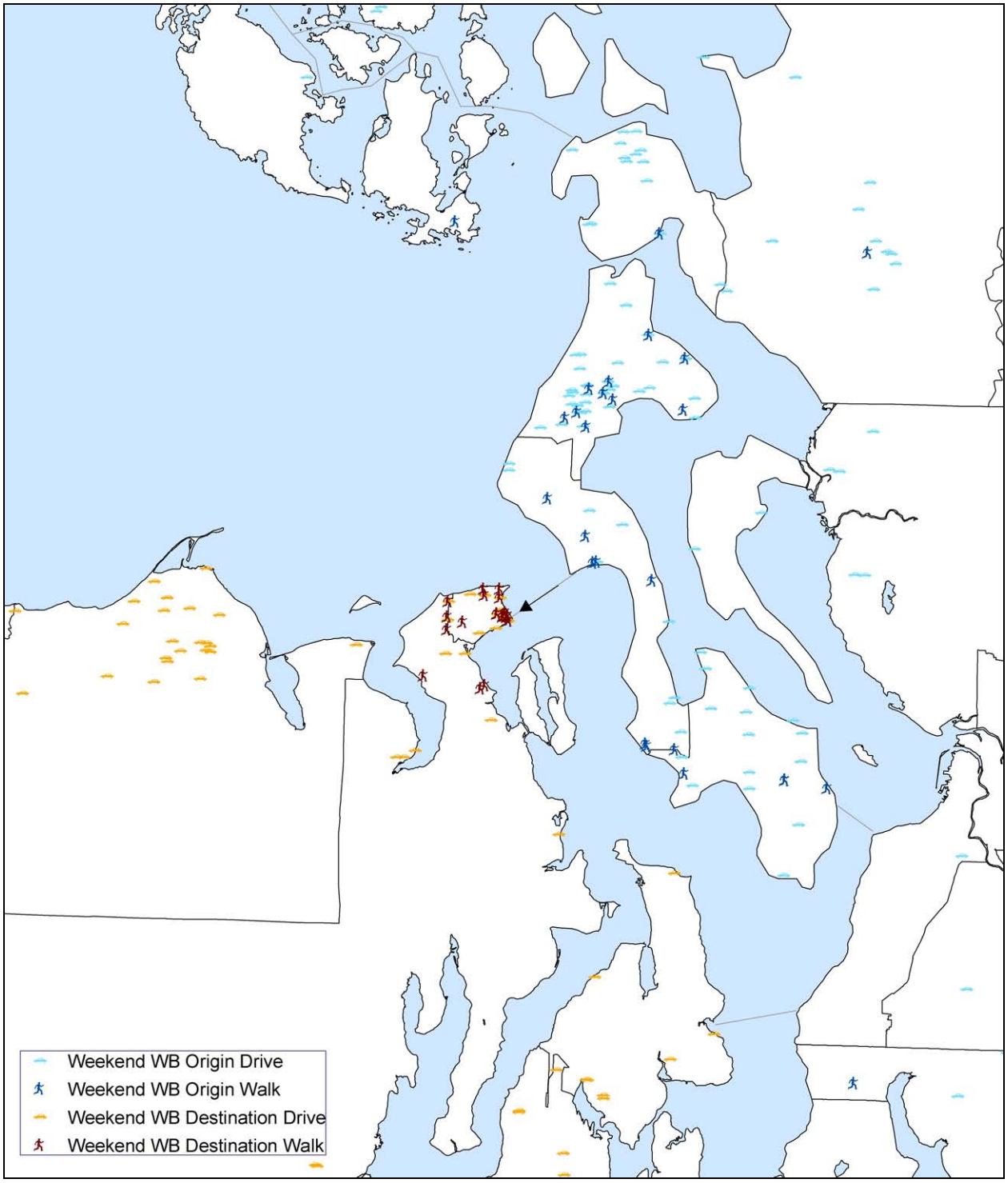


Table 6.15 Port Townsend-Keystone Weekend Westbound Boardings by Origin and Destination District

	Destination District												
Origin District	Port Townsend	Jefferson County	Port Angeles	Sequim	West Olympic Peninsula	North Kitsap County	Greater Bremerton	Central Kitsap County	South Kitsap County	Mason/West Pierce County	All Other Places	Total	Percent of Total
South Whidbey Island	23	11	5	22	0	13	5	11	11	2	2	105	8.4%
Central Whidbey Island	86	9	0	15	6	22	0	29	0	11	5	183	14.7%
North Whidbey Island	107	11	22	42	0	19	34	83	11	13	35	377	30.2%
Greater Everett/Lynnwood	5	0	0	0	0	0	0	0	0	0	0	5	0.4%
West Snohomish/Camano	4	7	0	27	11	5	0	0	0	0	0	54	4.3%
Greater Seattle	5	0	0	0	0	0	0	0	0	0	0	5	0.4%
Anacortes/Fidalgo Island	20	0	3	5	0	0	0	0	0	0	0	28	2.2%
West Skagit County	20	20	13	22	7	2	0	2	11	0	5	102	8.2%
San Juan County	16	9	16	42	11	11	0	0	0	0	0	105	8.4%
West Whatcom County	14	0	0	5	0	5	0	0	16	0	2	42	3.4%
Vancouver BC	85	20	26	15	6	0	5	11	16	0	0	184	14.7%
Other Canada	15	0	0	0	0	0	0	0	0	0	0	15	1.2%
All Other Places	0	0	0	0	0	0	0	0	0	0	11	11	0.9%
South Whidbey Island	0	11	0	18	0	2	0	2	0	0	0	33	2.6%
Total	400	98	85	213	41	79	44	138	65	26	60	1249	100%
Percent of Total	32.0%	7.8%	6.8%	17.1%	3.3%	6.3%	3.5%	11.0%	5.2%	2.1%	4.8%	100%	

Figure 6.23 Port Townsend-Keystone Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)



6.2 MUKILTEO-CLINTON

6.2.1 Route Description

This route connects Mukilteo and Clinton, southeast of the Keystone and Port Townsend route described in section 6.1 above. It takes 20 minutes to ride this ferry route one-way. The crossing is approximately 2.3 nautical miles. It runs seven days a week, although with a slightly reduced schedule on weekend. For 2006, the annual total ridership was 2.2 million passengers plus 1.85 million vehicles and drivers for a total of 4.1 million people, or about 11,200 riders per day. Mukilteo-Clinton has the third highest ridership in the WSF system on an average daily basis. This compares to 12,100 riders per day in 1999 and 11,400 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and the trend for this route follows this pattern.

The Mukilteo-Clinton route has 37 sailings per day each direction, down from 38 sailings per day in 1993. The vehicle capacity has increased from 90 vehicles per boat to 124 vehicles per boat. The vessels used in 1993 were the Issaquah class and from 1999 to current times, the vessels are the Issaquah X class. The weekday fare in 2006 was $6.65 for vehicles and $3.85 for walk on passengers.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

6.2.2 Trips by Purpose

The trip purposes of ferry riders on the Mukilteo-Clinton route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 6.16 shows three trip purposes (work/school, personal business/other, and shopping/recreation for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are east-west routes, although Mukilteo is technically mainly southeast of Clinton

There is somewhat balanced split between eastbound and westbound travelers for all purposes in the 2006 study, but there are some differences by trip purpose worth mentioning. The work/school trips have more westbound trips whereas the personal business and shopping/recreation/leisure trips are more prevalent in the eastbound direction. On the weekends there are a few more eastbound trips for work/school purposes and more westbound for the other trip categories.

Table 6.16 Mukilteo-Clinton Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
Eastbound	2729	1374	1352	5455	51.2%	33.5%	33.0%
Westbound	3044	1083	1070	5197	48.8%	66.5%	67.0%
Total	5773	2457	2422	10652	100%	100%	100%
Both dir. 2006	54.2%	23.1%	22.7%	100%			
Both dir. 1999	54.3%	22.6%	23.1%	100%			
Both dir. 1993	66.1%	12.2%	21.6%	100%			
Weekend							
Eastbound	984	1746	3191	5921	50.9%	55.5%	54.8%
Westbound	956	1446	3318	5720	49.1%	44.5%	45.2%
Total	1940	3192	6509	11641	100%	100%	100%
Both dir. 2006	16.7%	27.4%	55.9%	100%			
Both dir. 1999	8.1%	16.0%	75.9%	100%			
Both dir. 1993	14.4%	11.1%	74.5%	100%			

[a] 1999 and 1993 survey trips were not rebalanced by direction and as a result there is a large difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999. See Section 2.3 for more details. See Section 2.3 for more details.

2006 Weekday Trips: 10,892 Missing: 240

2006 Weekend Trips: 11,910 Missing: 269

There has been a small increase in both commuter trips and trips for personal business reasons between 1993 and 2006 for weekday travel, and a corresponding decrease in shopping and recreational trips over this time period. One consideration is that rising costs for ferry travel and a corresponding drop in overall ridership might be resulting in a greater share of total trips taken for business or commuting reasons.

The 1993 and 1999 survey trips are quite different by direction. This difference is because of differences in expansion of the survey and is not attributable to any real differences in travel behavior. We calculated the p.m. period half-day percent westbound during the weekday at five percent and eastbound 51 percent.

Table 6.17 shows the distribution of trips across different time periods and by direction of travel. As expected, the p.m. period defined as 3:00 p.m. to 7:00 p.m., has the highest share of trips (33 percent) because of the return trips of

work commute, as well as non-work trip purposes such as personal business, shopping and recreation. This is followed by the night time period, defined as 7:00 p.m. to 5:00 a.m. the next day, which is comprised of about 22 percent of weekday trips. This is attributable to the early morning commute trips.

Table 6.17 Mukilteo-Clinton Trips by Time-of-Day and Direction [a]
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	A.M. Peak (5:00 a.m.-9:00 a.m.)	A.M. Off-peak (9:00 a.m.-12:00 p.m.)	P.M. Off-peak (12:00 p.m.-3:00 p.m.)	P.M. Peak (3:00 p.m.-7:00 p.m.)	Total	All Trips		
							2006	1999	1993
Weekday									
Eastbound	396	1,109	1,170	602	955	4,231	39%	33.5%	33.0%
Westbound	1,981	374	411	1,216	2,678	6,661	61%	66.5%	67.0%
Total	2,377	1,483	1,581	1,818	3,633	10,892	100%	100%	100%
Both dir. 2006	21.8%	13.6%	14.5%	16.7%	33.4%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 10,892 Missing: 0

2006 Weekend Trips: 11,910 Missing: 0

6.2.3 Frequency of Travel

The total number of ferry trips in 2006 and their purpose in an average week are shown in Table 6.18. For comparison, trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Table 6.18 Mukilteo-Clinton Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	180	282	589	1051	10.3%	15.8%	20.7%	3.2%	7.4%
2	684	830	637	2151	21.1%	17.0%	12.1%	12.3%	6.3%
3-4	738	699	590	2027	19.9%	15.6%	13.9%	13.3%	7.8%
5-6	405	237	246	888	8.7%	9.8%	13.3%	7.3%	10.9%
7-8	1036	165	101	1302	12.8%	7.5%	6.1%	18.6%	7.9%
9-10	1437	74	35	1546	15.2%	19.0%	34.0%	25.8%	32.8%
11+	1081	92	48	1221	12.0%	15.3%		19.4%	27.0%
Total	5561	2379	2246	10186	100%	100%	100%	100%	100%
Percent 2006	54.6%	23.4%	22.0%	100%					
Percent 1999	54.3%	22.6%	23.1%	100%					
Percent 1993	66.1%	12.2%	21.6%	100%					
Weekend									
1	65	510	2550	3125	31.8%	31.5%	44.8%		
2	170	954	1446	2570	26.2%	33.2%	27.8%		
3-4	150	1232	795	2177	22.2%	16.5%	11.7%		
5-6	224	105	148	477	4.9%	7.1%	6.4%		
7-8	70	93	103	266	2.7%	2.7%	1.6%		
9-10	525	22	92	639	6.5%	2.4%	7.7%		
11+	235	123	204	562	5.7%	6.6%			
Total	1439	3039	5338	9816	100%	100%	100%		
Percent 2006	14.7%	31.0%	54.4%	100%					
Percent 1999	8.1%	16.0%	75.9%	100%					
Percent 1993	11.6%	6.5%	81.9%	100%					

2006 Weekday Trips: 10,892 Missing: 1,927

2006 Weekend Trips: 11,910 Missing: 2,094

From the table above, it is evident that travelers use the ferry predominantly for work/school purposes, that is, 62 percent of weekday riders in 2006 used this route for commuting between Mukilteo-Clinton. Remaining trips are split roughly equally between personal business and recreational trips, with 27 percent and 25 percent respectively.

Among commuting riders, 64 percent make seven or more one way trips in a typical week, and 45 percent use it nearly every day. The trip frequencies for personal business trips are lower. Indeed, 47 percent make only one to two one

way trips in a typical week, and only seven percent who use the ferry daily in a typical week. In total, 31 percent of all the Mukilteo-Clinton riders (2,767 out of 8,965) travel every day for all different rip purposes.

Also included in Table 6.18 is a comparison of trip frequency percents for years 1993, 1999, and 2006. In terms of regular usage of this ferry route for all purposes, the trend is similar across these years. The frequency of riding this ferry route nine times or more during a typical week was 31 percent in 2006, 34 percent in 1999, and 34 percent in 1993. Data by trip purpose was not available at a trip frequency level from the 1993 surveys.

During weekends there are considerably more riders on this route for shopping/recreation trip purposes, 54 percent out of 9,816 riders. This is followed by 31 percent of trips for personal business and 15 percent for weekend commuting.

Table 6.19 shows the distribution of trips across different time periods and by direction of travel. As expected, for weekdays the p.m. period defined as 3:00 p.m. to 7:00 p.m., has the highest share of trips (34 percent) because of the return trips of work commute, as well as people making non-work trips such as personal business, shopping and recreation. This is followed by the night time period, defined as 7:00 p.m. to 5:00 a.m. the next day, which is comprised of about 22 percent of weekday trips, and this is probably due to a large number of early morning commute trips before 5:00 a.m.

Table 6.19 Mukilteo-Clinton Trips by Purpose and Time-of-Day
What is/are the reason(s) you are riding this ferry today?
Time-of-Day, Time of Sailing

Direction	Work/School Commuting/ Business	Medical/ Personal/ Business/ Other	Recreation/ Shopping/ Leisure	Total	Work/School Commuting/ Business	Medical/ Personal Business/ Other	Recreation/ Shopping/ Leisure	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	1583	417	352	2352	27.4%	17.0%	14.5%	22.1%
a.m. Peak (5 a.m.-9 a.m.)	773	330	361	1464	13.4%	13.4%	14.9%	13.7%
a.m. Off-peak (9 a.m.-12 p.m.)	709	444	326	1479	12.3%	18.1%	13.5%	13.9%
p.m. Off-peak (12 p.m.-3 p.m.)	697	588	493	1778	12.1%	23.9%	20.4%	16.7%
p.m. Peak (3 p.m.-7 p.m.)	2013	678	890	3581	34.9%	27.6%	36.7%	33.6%
Daily	5775	2457	2422	10654	100%	100%	100%	100%
All times 2006	54.2%	23.1%	22.7%	100%				
All times 1999	54.3%	22.6%	23.1%	100%				
All times 1993	66.1%	12.2%	21.6%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

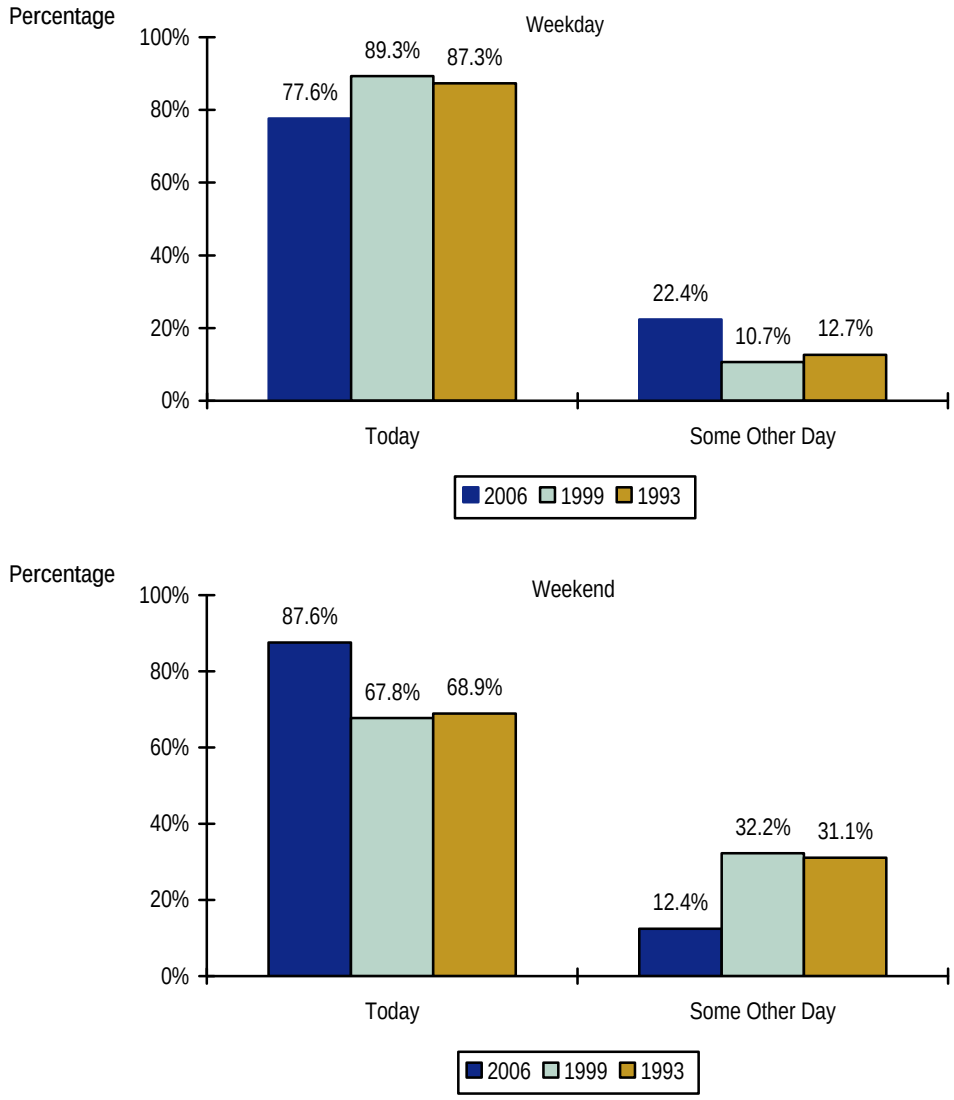
2006 Weekday Trips: 10,892 Missing: 238

2006 Weekend Trips: 11,910 Missing: 269

6.2.4 Round-Trip Patterns

The 2006 surveys were conducted only for one-way ferry trip riders, so questions were posed on round-trip patterns, including the mode of travel and the day chosen to make the return trip (or in some case the outbound journey). Figure 6.20 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. Over two-thirds of weekday riders on this route traveled the same day for both their onward and backward journeys, or 78 percent of 10,892. This share is even greater over the weekends when 88 percent use this route on the same day for their round trips.

Figure 6.24 Mukilteo-Clinton Round Trip Patterns by Day
When was the first half of your trip or when will you return?



2006 Weekday Trips: 10,892 Missing: 359

2006 Weekend Trips: 11,910 Missing: 141

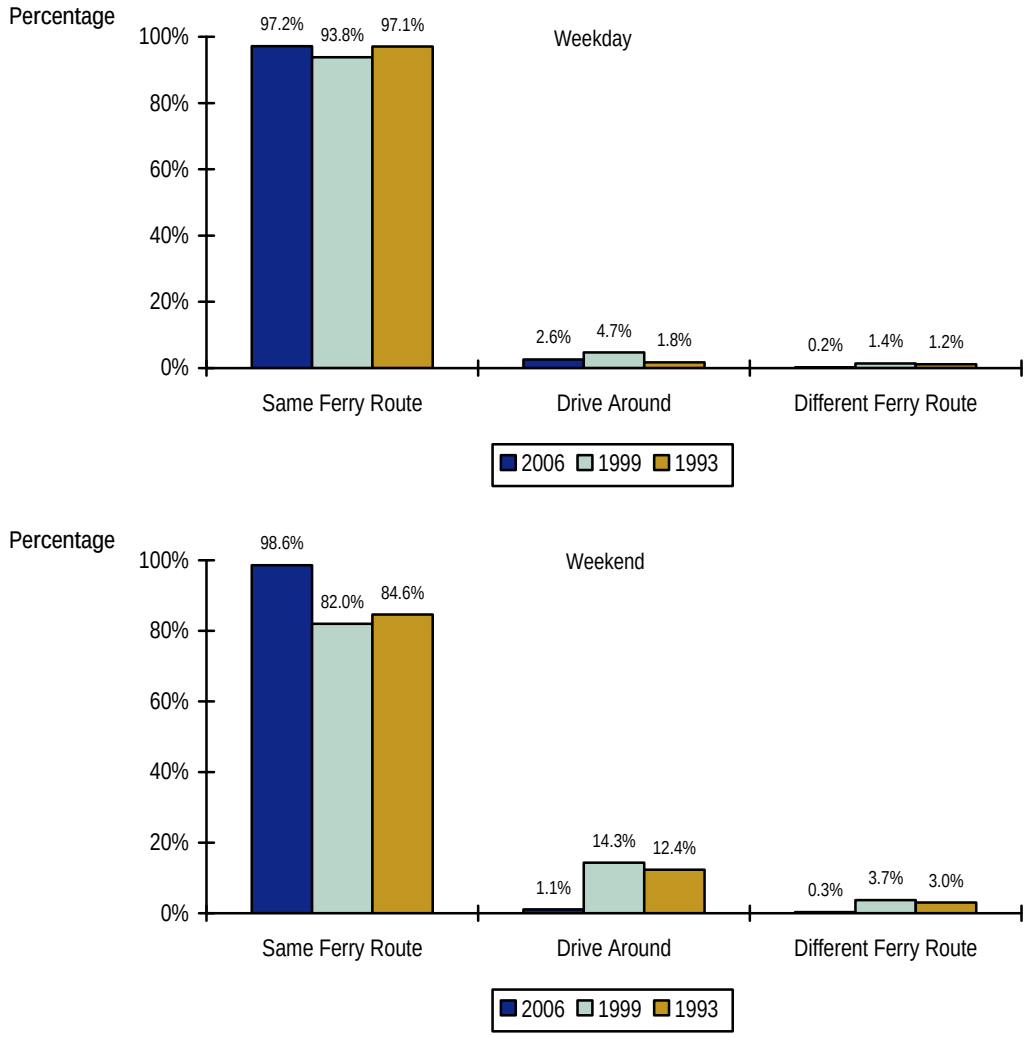
Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that somewhat more weekday travelers returned on the same day in previous years. Indeed, 87 percent of the respondents in the 1993 survey and 89 percent in the 1999 survey returned the same day.

During the weekends in 2006, even more of the total trips were made on the same day, 88 percent. The 1993 and 1999 estimates are notably lower. In 1993, 69 percent returned the same day and in 1999 about the same share, 68 percent did so.

For riders who made one-half of their trip on this route, Figure 6.21 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. An overwhelming number of passengers indicated that they chose the same route to return to their home base. This was true for all the three years, that is, it was 97 percent, 94 percent, and 97 percent in 2006, 1999, and 1993 respectively.

Weekend travel in the 2006 survey is predominantly on the same ferry route in both directions, with 99 percent who did so. This is compared to 82 percent in 1999 and 85 percent in 1993 who took the same route in both directions.

Figure 6.25 Mukilteo-Clinton Round Trip Patterns by Route
How will you return or how did you travel on the first half of your trip



2006 Weekday Trips: 10,892 Missing: 477

2006 Weekend Trips: 11,910 Missing: 138

6.2.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 6.22 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Figure 6.26 Mukilteo-Clinton Trips by Access and Egress Mode
How did you travel from your origin location to this sailing? How did you travel to the destination you are going to now?

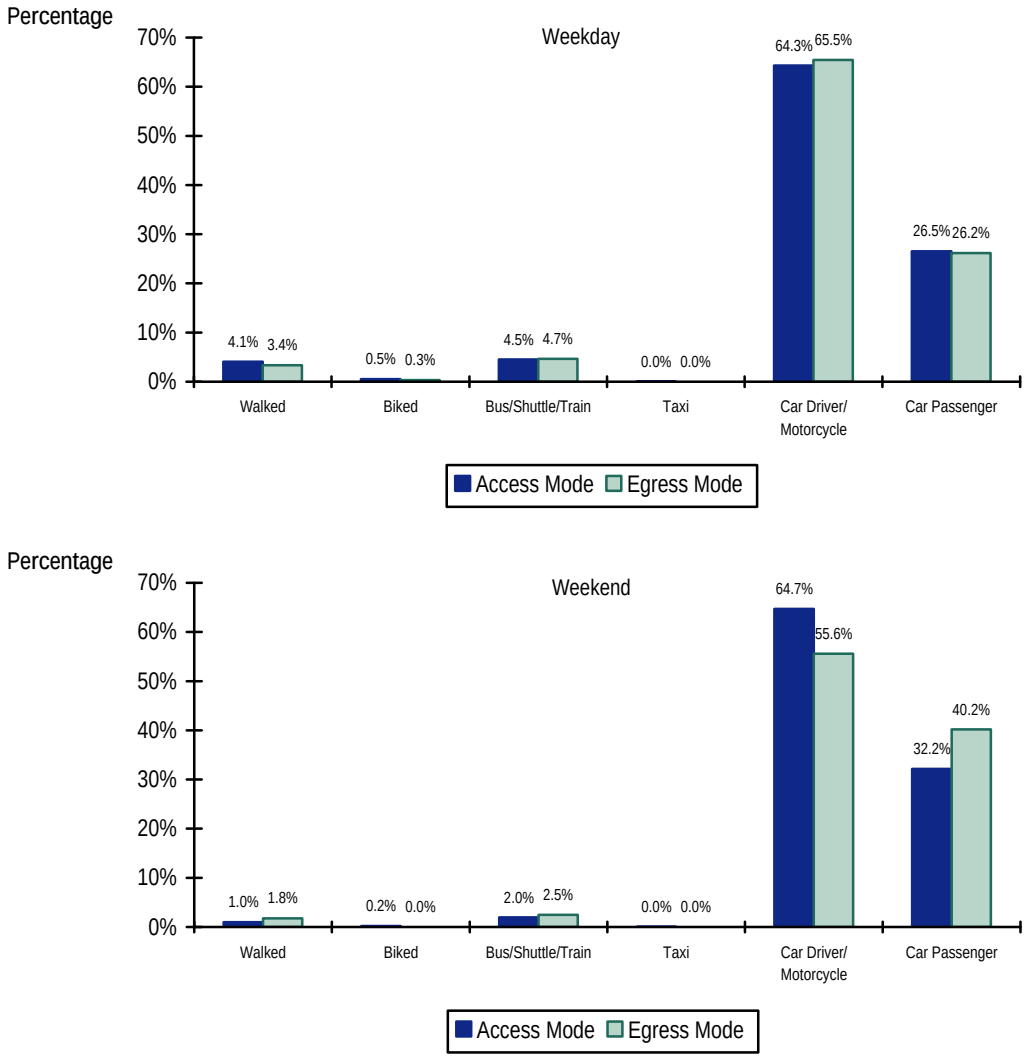


Table 6.20 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, the vast majority of ferry riders either drove or was driven to the terminal. Indeed, 64 percent chose to drive and an additional 27 percent were driven. Only five percent took public transit to the station, four percent walked and less than one percent biked.

Fully 86 percent of ferry passengers boarded the ferry with their vehicle, only 14 percent walked on-board and less than one percent boarded the ferry with a bike.

Table 6.20 Mukilteo-Clinton Trips by Access Mode and Boarding Method

How will/did you board this ferry? How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	80	361	0	441	4.1%	1.5%	0.8%
Biked	0	1	54	55	0.5%	0.1%	0.8%
Bus/Shuttle/Train	90	399	0	489	4.5%	8.0%	7.8%
Taxi	5	0	0	5	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	6594	367	0	6961	64.3%	65.1%	71.8%
Car Passenger	2480	392	0	2872	26.5%	25.3%	18.9%
Total	9249	1520	54	10823	100%	100%	100%
Percent 2006	85.5%	14.0%	0.5%	100%			
Percent 1999	83.8%	16.2%	0.1%	100%			
Percent 1993	77.3%	21.9%	0.9%	100%			
Weekend							
Walked	22	93	0	115	1.0%	0.9%	0.7%
Biked	22	0	0	22	0.2%	0.3%	0.6%
Bus/Shuttle/Train	16	217	0	233	2.0%	0.3%	1.0%
Taxi	0	5	0	5	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	7300	405	0	7705	64.7%	72.0%	66.1%
Car passenger	3575	254	0	3829	32.2%	26.4%	31.6%
Total	10935	974	0	11909	100%	100%	100%
Percent 2006	91.8%	8.2%	0.0%	100%			
Percent 1999	89.9%	9.4%	0.7%	100%			
Percent 1993	85.5%	13.8%	0.7%	100%			

2006 Weekday Trips: 10,892 Missing: 69

2006 Weekend Trips: 11,910 Missing: 1

During the weekends in 2006, even more people drove or were driven to the platform. These shares are 65 percent who drove and 32 percent who were driven. Only two percent took public transit, one percent walked and less than one percent biked to the platform. Weekend travelers overwhelmingly brought their cars on-board the ferry. Indeed, 92 percent did so. Only eight percent walked on-board and none brought a bicycle. These shares have not changed dramatically since 1999. In 1993, slightly more passengers walked on-board than in 2006 (14 percent versus eight percent) and slightly fewer brought their cars on-board.

Table 6.21 shows ferry riders' mode of travel on this route and the corresponding egress modes from the ferry terminal to their final destinations. The differences in ridership estimates across the main mode of travel between table 6.20 and table 6.21 is due to more missing trips that did not have egress mode information. The boardings by egress modes seem to be similar to those of the access modes where a majority of riders use the car driver/motorcycle mode of travel to egress and a significant portion use the car passenger mode of travel. This shows that riders are probably choosing the same mode of travel for their access and egress.

The historic data reveals that the number of riders who chose to walk to their final destinations from the ferry terminal has remained low. It was two percent in 1993, one percent in 1999, and three percent in 2006. Public transit usage has fluctuated over the 1993 to 2006 period, with a low of two percent in 1993, a high of eight percent in 1999 and an estimate of five percent in 2006. The vast majority of ferry passengers have always left the terminal by car, as either a driver or a passenger.

In 2006 weekends, passengers also overwhelmingly left the ferry terminal by vehicle. Indeed, between 96-97 percent of passengers have done so. They have exited the ferry with a vehicle in 92 percent of cases with a bike in eight percent of the time.

Table 6.21 Mukilteo-Clinton Trips by Egress Mode and Boarding Method
How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	30	326	0	356	3.4%	1.2%	2.2%
Biked	0	7	29	36	0.3%	0.1%	0.9%
Bus/Shuttle/Train	86	408	0	494	4.7%	8.4%	2.7%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	6603	347	0	6950	65.5%	64.8%	77.5%
Car Passenger	2362	394	24	2780	26.2%	25.5%	16.7%
Total	9081	1482	53	10616	100%	100%	100%
Percent 2006	85.5%	14.0%	0.5%	100%			
Percent 1999	83.8%	16.2%	0.1%	100%			
Percent 1993	77.3%	21.9%	0.9%	100%			
Weekend							
Walked	22	184	0	206	1.8%	1.9%	1.2%
Biked	0	0	0	0	0.0%	0.6%	0.4%
Bus/Shuttle/Train	16	275	0	291	2.5%	0.1%	0.9%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	6408	113	0	6521	55.6%	69.8%	66.8%
Car passenger	4352	360	0	4712	40.2%	27.5%	30.7%
Total	10798	932	0	11730	100%	100%	100%
Percent 2006	92.1%	7.9%	0.0%	100%			
Percent 1999	89.9%	9.4%	0.7%	100%			
Percent 1993	85.5%	13.8%	0.7%	100%			

2006 Weekday Trips: 10,892 Missing: 276

2006 Weekend Trips: 11,910 Missing: 180

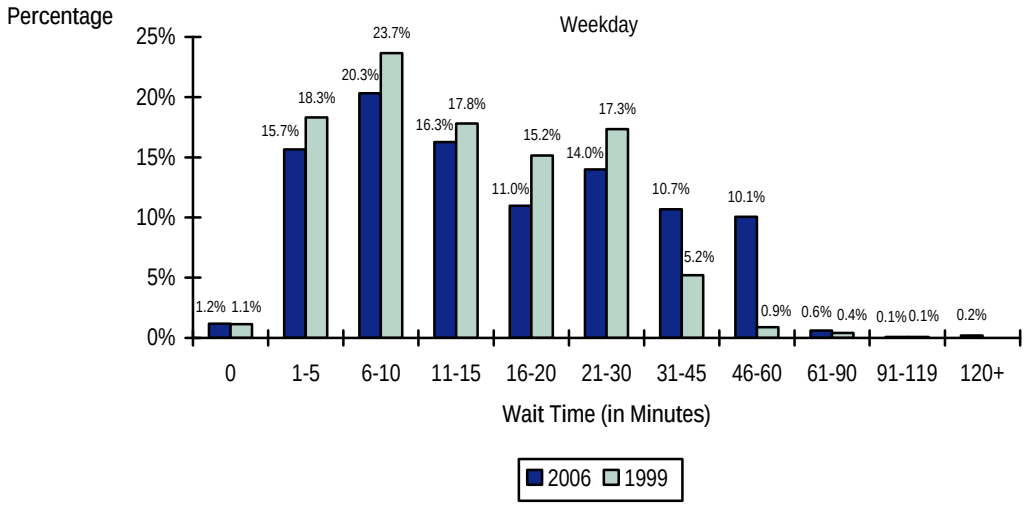
6.2.6 Wait Time

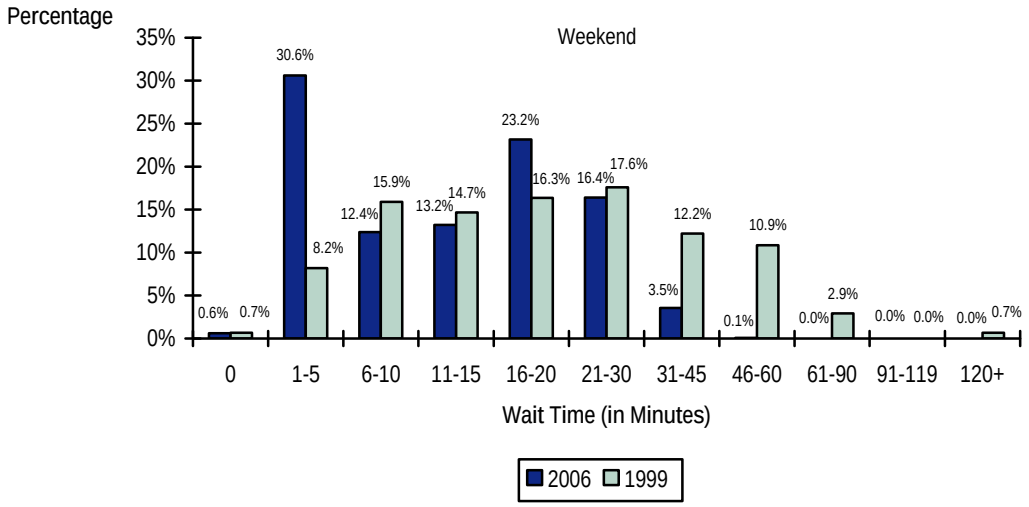
The out of vehicle travel times was measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 6.23 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006, 53 percent of weekday passengers waited less than 15 minutes for the ferry, and 89 percent waited less than 45 minutes. Similarly in the 1999 survey, 61 percent of ferry passengers on this route waited 15 minutes or less and 99 waited less than 45 minutes.

On weekends in 2006, 57 percent of passengers waited less than 15 minutes and less than one percent waited more than 45 minutes. In the 1999 survey, 40 percent waited less than 15 minutes and 86 percent waited less than 45 minutes. Average perceived wait time was 24 minutes for weekday and 16 minutes for weekend riders.

Figure 6.27 Mukilteo-Clinton Trips by Wait Time

About how many minutes did you wait to board this ferry?

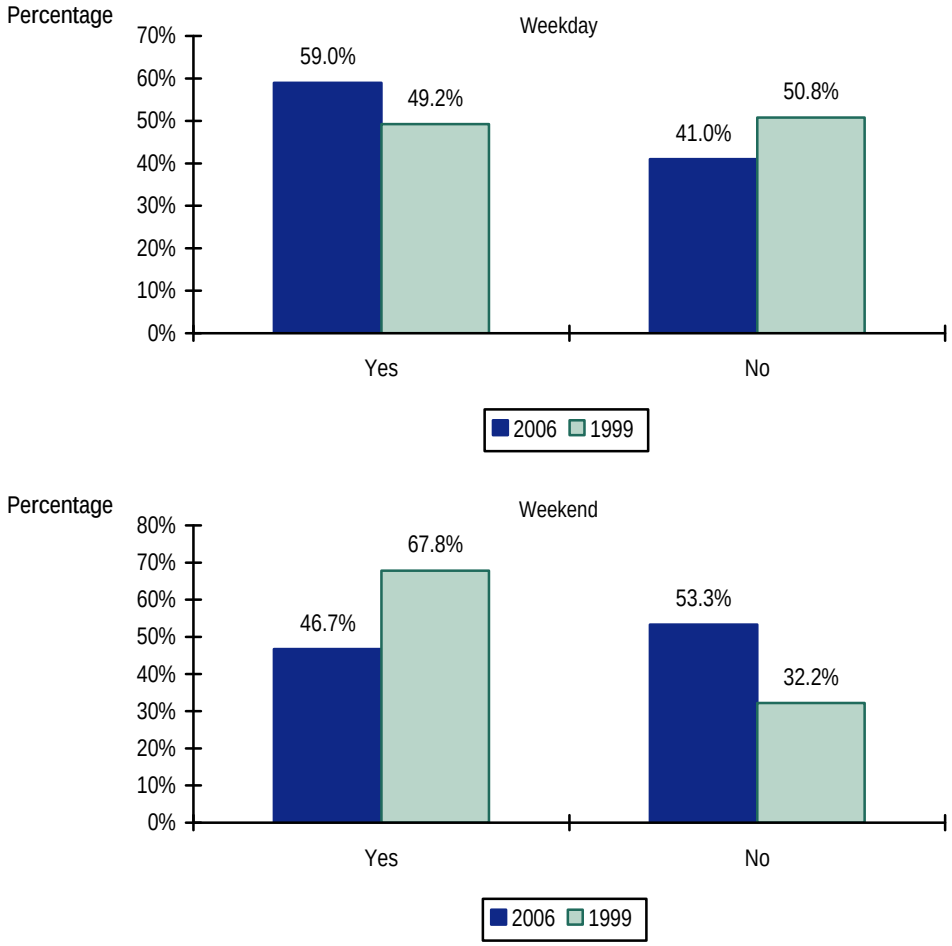




6.2.7 Parking

The parking statistics of walk-on passengers on this route also were examined. Primarily, these data summarizes if commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 6.24 presents the number of boardings by the response on parking from the respondent. A slight majority of riders in 2006 weekday parked their vehicles at the ferry terminals, that is 59 percent. In the 1999 survey, this weekday share was 49 percent who parked. On weekends, 47 percent parked at the terminal and in 1999 this share was 68 percent. These changes in weekend parking could be attributed to the lower traffic over weekends and so the availability is higher and the parking rates are lower. The average parking cost was $4 per day on weekdays and $7 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 6.28 Mukilteo-Clinton Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?



6.2.8 Weekday Eastbound Origins and Destinations

Figure 6.25 and Table 6.22 for weekday eastbound trips shows the origins and destinations of riders on this route from Mukilteo to Clinton in 2006. Passengers overwhelmingly boarded the ferry with their vehicles. The major eastbound destinations on this ferry were Seattle CBD which represented 14 percent of trips, Lynnwood/Edmonds which represented 11 percent, South Everett which represented 10 percent, and North Seattle which represented nine percent of trips. The origins of these trips were predominantly South Whidbey Island representing 69 percent of total and Central Whidbey Island with 24 percent of total trips.

In 1999, 52 percent of travelers came from South Whidbey Island, compared to 69 percent in 2006 for this route. Central Whidbey Island stayed about the same from 1999 to 2006, with 24 percent. The percent allocation for destinations is similar between 1999 and 2006, except that North Seattle has dropped from 14 percent in 1999 to 9 percent in 2006. The number of trips to Seattle CBD increased from about 12 percent in 1999 to 14 percent in 2006.

Figure 6.29 Mukilteo-Clinton Weekday Eastbound Origins and Destinations (2006)

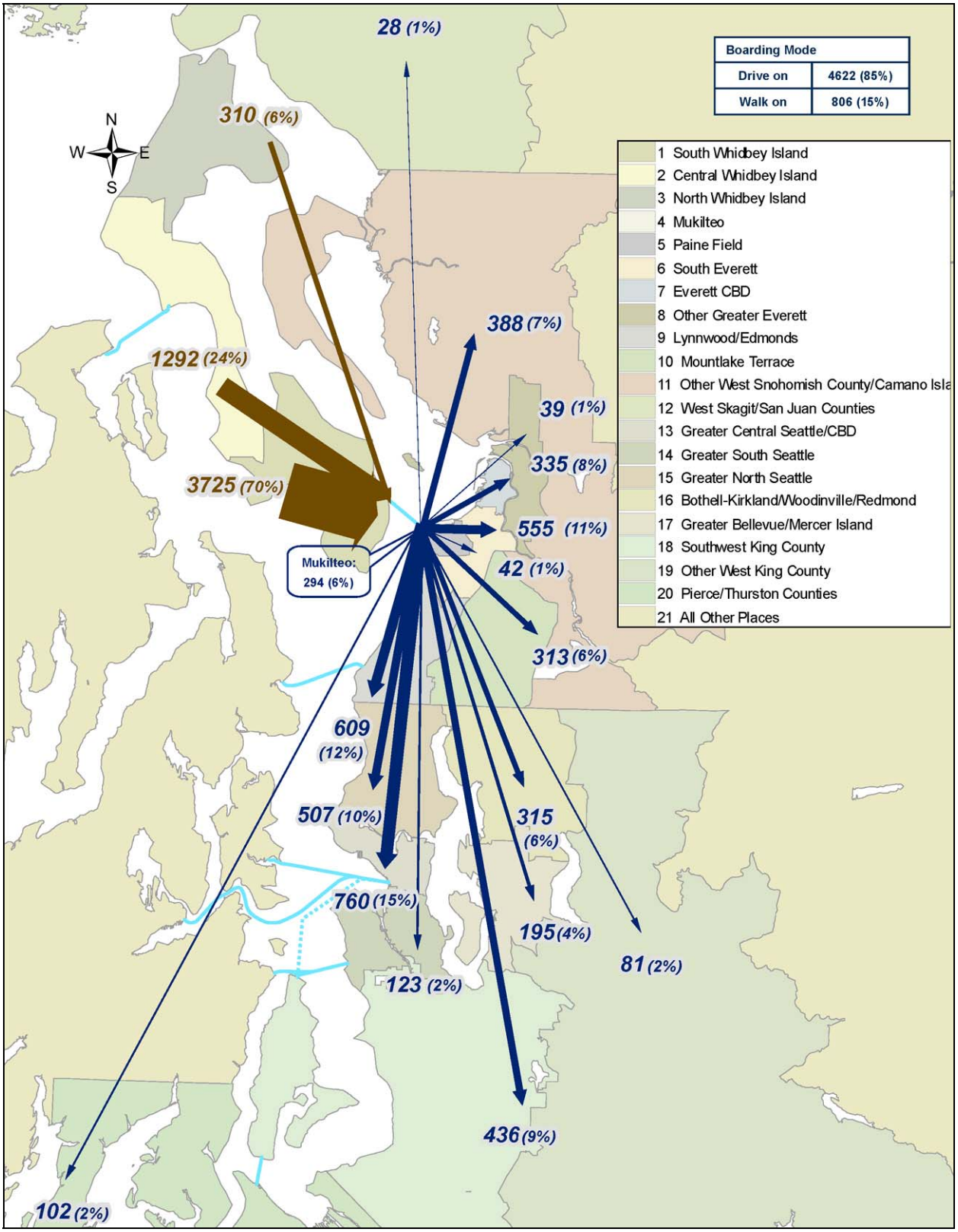
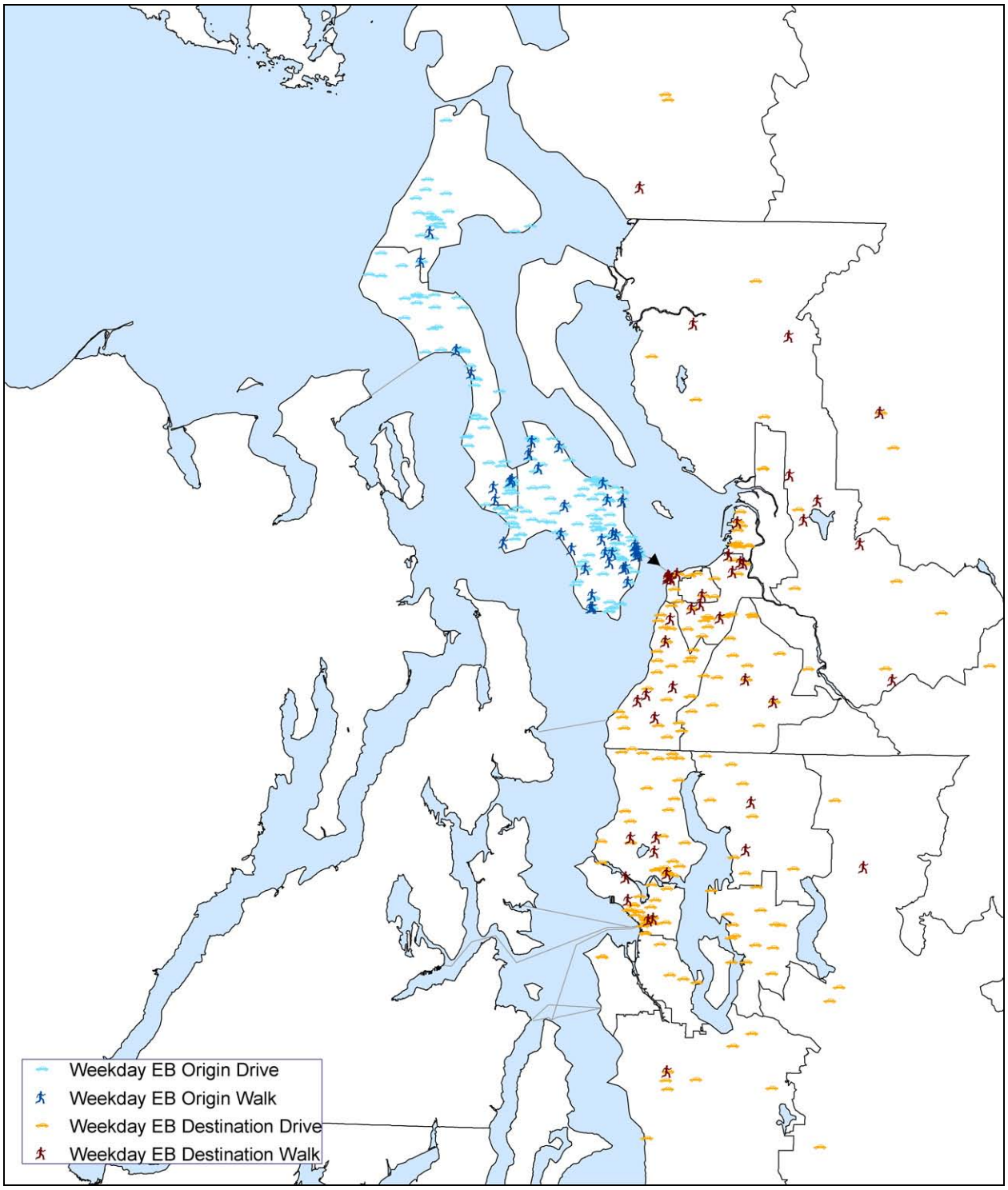


Table 6.22 Mukilteo-Clinton Weekday Eastbound Boardings by Origin and Destination District

	Destination District									
Origin District	Mukilteo	Paine Field	South Everett	Everett CBD	Other Everett	Lynnwood/ Edmonds	Mountlake Terrace	West Snohomish/ Camano	West Skagit	Seattle CBD
South Whidbey Island	249	35	377	221	29	405	243	343	28	553
Central Whidbey Island	39	2	147	111	10	168	55	29	0	197
North Whidbey Island	6	5	29	3	0	36	10	11	0	10
All Other Places	0	0	2	0	0	0	5	5	0	0
Total	294	42	555	335	39	609	313	388	28	760
Percent of Total	5.4%	0.8%	10.2%	6.2%	0.7%	11.2%	5.8%	7.1%	0.5%	14.0%

	Destination District (continued)									
Origin District	South Seattle	North Seattle	Bothell/Kirkland	Bellevue/ Mercer	SW King	West King	Pierce	All Other Places	Total	Percent of Total
South Whidbey Island	64	381	237	40	263	63	60	134	3725	68.6%
Central Whidbey Island	44	114	76	118	87	18	30	47	1292	23.8%
North Whidbey Island	15	12	2	37	86	0	5	43	310	5.7%
All Other Places	0	0	0	0	0	0	7	82	101	1.9%
Total	123	507	315	195	436	81	102	306	5428	100%
Percent of Total	2.3%	9.3%	5.8%	3.6%	8.0%	1.5%	1.9%	5.6%	100%	

Figure 6.30 Mukilteo-Clinton Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



6.2.9 Weekday Westbound Origins and Destinations

Figure 6.27 and Table 6.23 for weekday westbound trips presents the travel patterns of riders taking the Mukilteo-Clinton ferry. Passengers overwhelmingly boarded the ferry with their vehicles. The major westbound destinations were predominantly South Whidbey Island with 69 percent and Central Whidbey Island with 24 percent. The Origins of these trips were South Everett representing 15 percent, Lynnwood/Edmonds representing 14 percent and Seattle CBD representing 14 percent.

In 1999, 68.2 percent of travelers went to South Whidbey Island, compared to 67.8 percent in 2006 for this route, or about the same allocation. Central Whidbey Island increased slightly from 27.2 percent in 1999 to 28.4 percent in 2006. The percent allocation for destinations is similar between 1999 and 2006, except that South Everett has increased from 10.1 percent in 1999 to 15.1 percent in 2006.

Figure 6.31 Mukilteo-Clinton Weekday Westbound Origins and Destinations (2006)

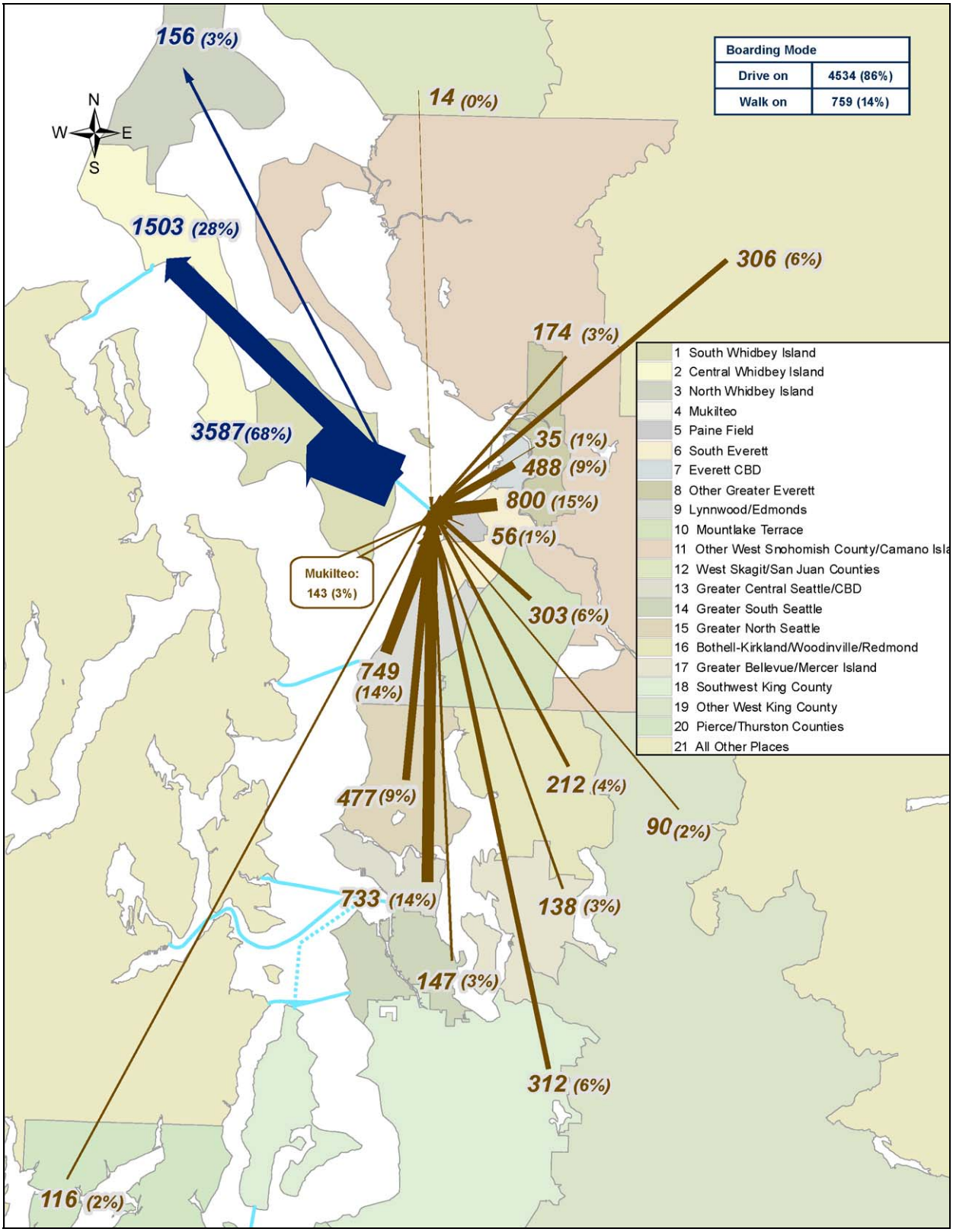
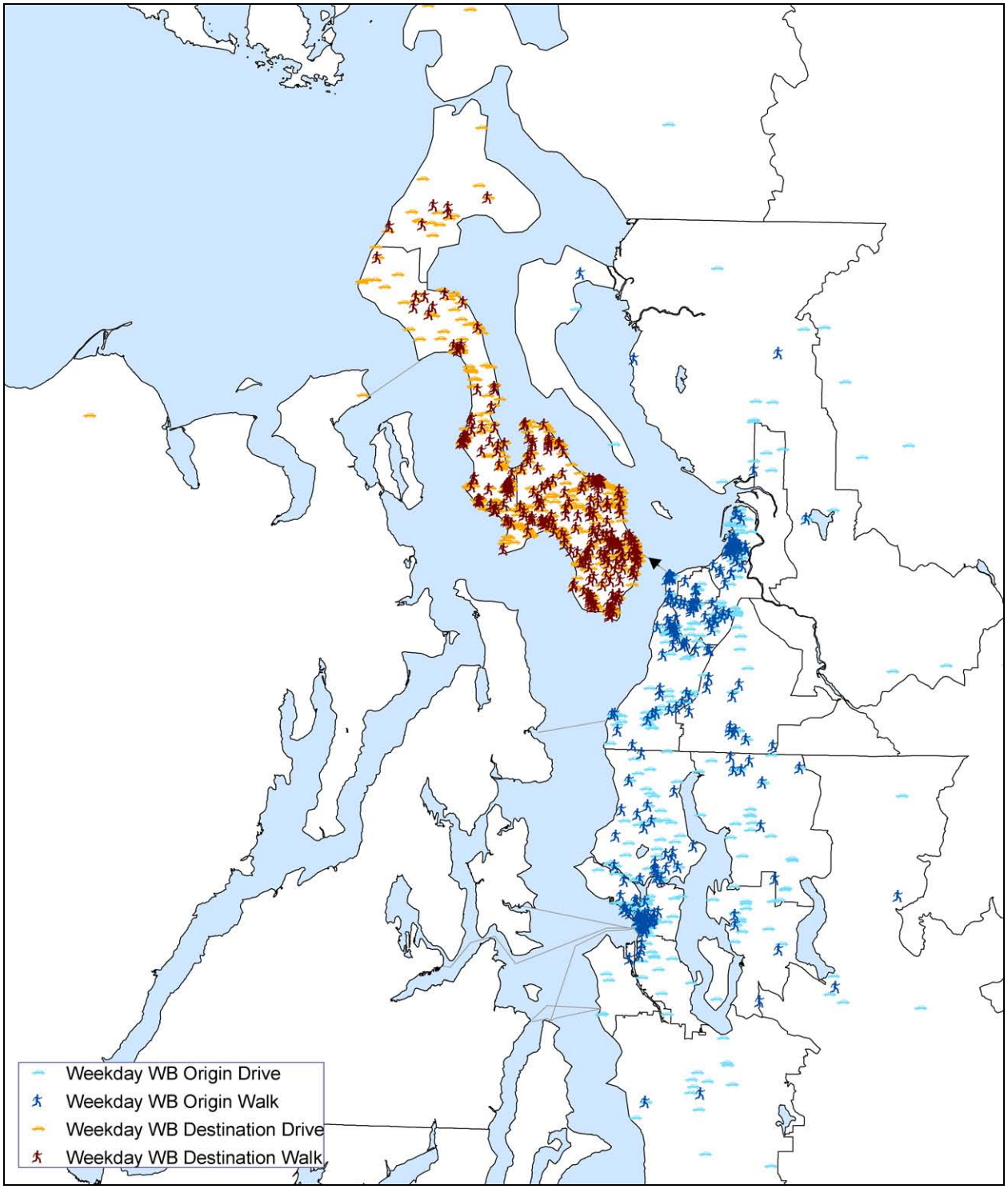


Table 6.23 Mukilteo-Clinton Weekday Westbound Boardings by Origin and Destination District

	Destination District					
Origin District	South Whidbey Island	Central Whidbey Island	North Whidbey Island	All Other Places	Total	Percent of Total
Mukilteo	108	28	7	0	143	2.7%
Paine Field	44	7	5	0	56	1.1%
South Everett	509	268	11	12	800	15.1%
Everett CBD	321	156	11	0	488	9.2%
Other Everett	31	4	0	0	35	0.7%
Lynnwood/Edmonds	491	227	31	0	749	14.2%
Mountlake Terrace	241	52	5	5	303	5.7%
West Snohomish/Camano	148	23	1	2	174	3.3%
West Skagit	14	0	0	0	14	0.3%
Seattle CBD	547	183	3	0	733	13.8%
South Seattle	81	61	2	3	147	2.8%
North Seattle	341	123	13	0	477	9.0%
Bothell/Kirkland	148	61	3	0	212	4.0%
Bellevue/Mercer	30	89	16	3	138	2.6%
SW King	192	108	12	0	312	5.9%
West King	74	16	0	0	90	1.7%
Pierce	88	16	2	10	116	2.2%
All Other Places	179	81	34	12	306	5.8%
Total	3587	1503	156	47	5293	100%
Percent of Total	67.8%	28.4%	2.9%	0.9%	100%	

Figure 6.32 Mukilteo-Clinton Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



6.2.10 Weekend Eastbound Origins and Destinations

The eastbound weekend travel patterns for the Mukilteo-Clinton ferry are presented in Figure 6.29 and Table 6.24. Passengers overwhelmingly boarded the ferry with their vehicles. The major eastbound destinations were Lynnwood/Edmonds representing 18 percent of trips, South Everett representing 136 percent and North Seattle representing 12 percent of trips. The origins of these trips were South Whidbey Island which represented 80 percent of trips and Central Whidbey Island which represented 16 percent of trips. Figure 6.30 presents the origins and destination locations of individual survey respondent by boarding mode.

In 2006, most weekend travelers on this route come from South Whidbey Island (80 percent) while fewer than half (48 percent) came from South Whidbey Island in 1999. In addition, most people traveled to Seattle CBD in 1999 (17 percent) but in 2006 only 7 percent of travelers went to Seattle CBD. These differences may be due to differences in Saturday (2006) versus Sunday (1999) travel behavior, but may also reflect different travel patterns over time.

Figure 6.33 Mukilteo-Clinton Weekend Eastbound Origins and Destinations (2006)

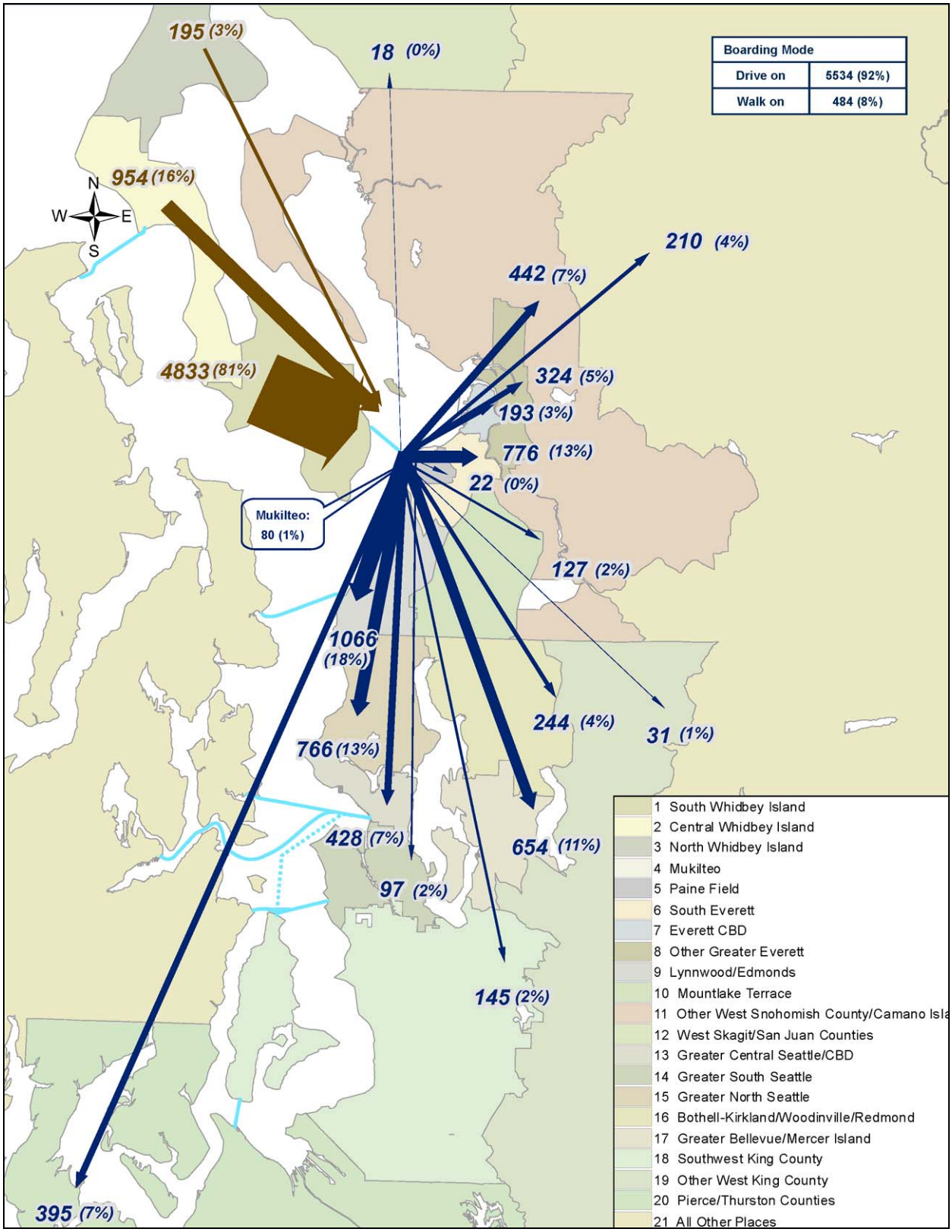
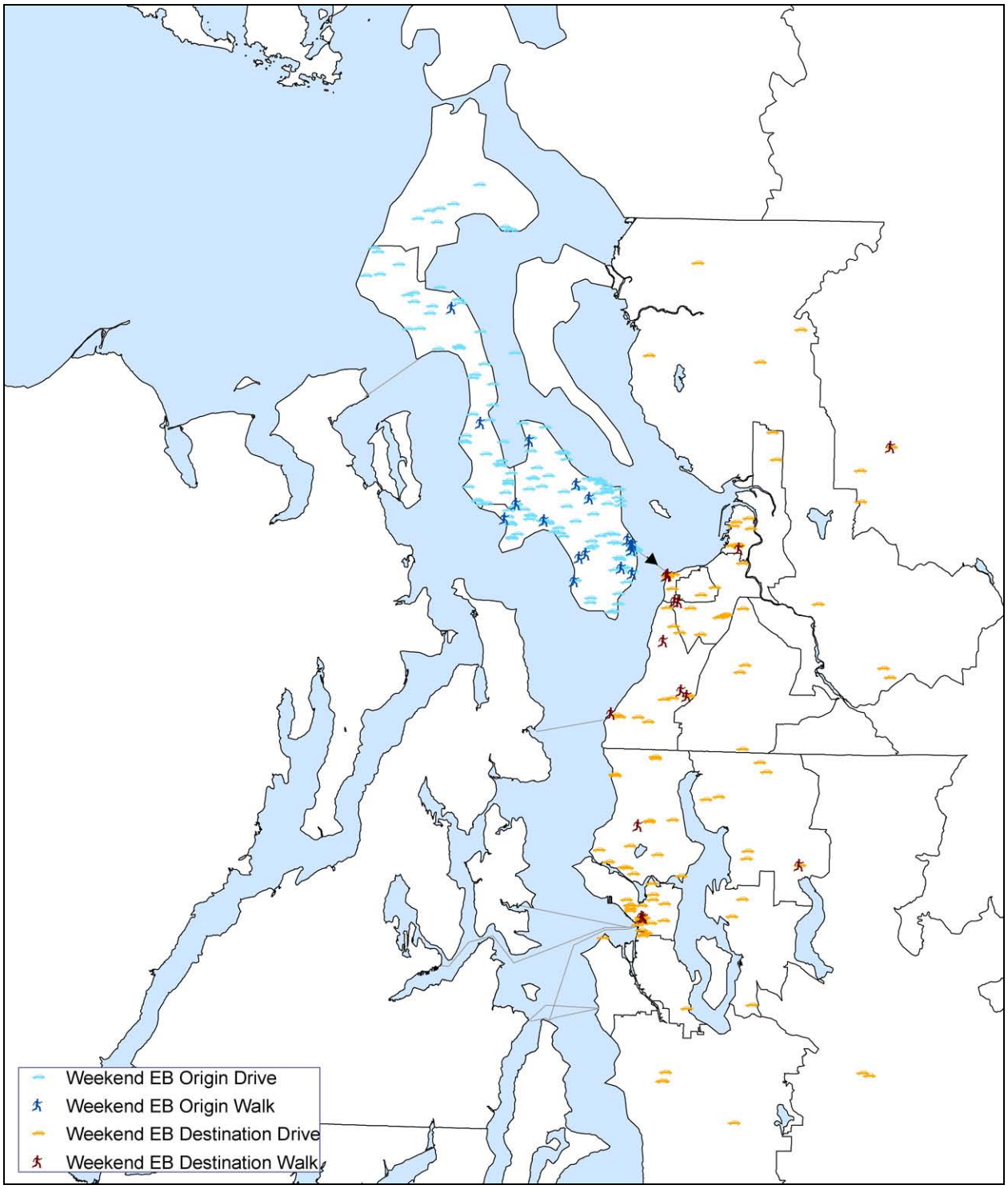


Table 6.24 Mukilteo-Clinton Weekend Eastbound Boardings by Origin and Destination District

	Destination District									
Origin District	Mukilteo	Paine Field	South Everett	Everett CBD	Other Everett	Lynnwood/Edmonds	Mountlake Terrace	West Snohomish/Camano	West Skagit	Seattle CBD
South Whidbey Island	46	4	707	109	310	886	90	442	4	190
Central Whidbey Island	34	18	59	63	10	149	21	0	0	179
North Whidbey Island	0	0	10	21	0	31	8	0	14	43
All Other Places	0	0	0	0	4	0	8	0	0	16
Total	80	22	776	193	324	1066	127	442	18	428
Percent of Total	1.3%	0.4%	12.9%	3.2%	5.4%	17.7%	2.1%	7.3%	0.3%	7.1%

	Destination District (continued)									
Origin District	South Seattle	North Seattle	Bothell/Kirkland	Bellevue/ Mercer	SW King	West King	Pierce	All Other Places	Total	Percent of Total
South Whidbey Island	73	521	199	617	74	31	377	153	4833	80.3%
Central Whidbey Island	16	227	35	37	55	0	10	41	954	15.9%
North Whidbey Island	8	10	10	0	16	0	8	16	195	3.2%
All Other Places	0	8	0	0	0	0	0	0	36	0.6%
Total	97	766	244	654	145	31	395	210	6018	100%
Percent of Total	1.6%	12.7%	4.1%	10.9%	2.4%	0.5%	6.6%	3.5%	100%	

Figure 6.34 Mukilteo-Clinton Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



6.2.11 Weekend Westbound Origins and Destinations

The weekend westbound trips are presented in Figure 6.31 and in Table 6.25 for the Mukilteo-Clinton ferry. Passengers overwhelmingly boarded the ferry with their vehicles. The major destinations were South Whidbey Island representing 72 percent of travel, followed by Central Whidbey Island representing 21 percent. The origins of these trips were diverse, including Lynnwood/Edmonds representing 16 percent of trips, North Seattle representing 15 percent, Seattle CBD representing 11 percent and South Everett representing 11 percent. Figure 6.32 presents the origins and destination locations of individual survey respondent by boarding mode.

In 2006, most weekend travelers on this route go to South Whidbey Island (72 percent) while just over half (56 percent) go to South Whidbey Island in 1999. The origins of these westbound trips are very similar from 1999 to 2006. The differences noted may be due to differences in Saturday (2006) versus Sunday (1999) travel behavior, but may also reflect different travel patterns over time.

Figure 6.35 Mukilteo-Clinton Weekend Westbound Origins and Destinations (2006)

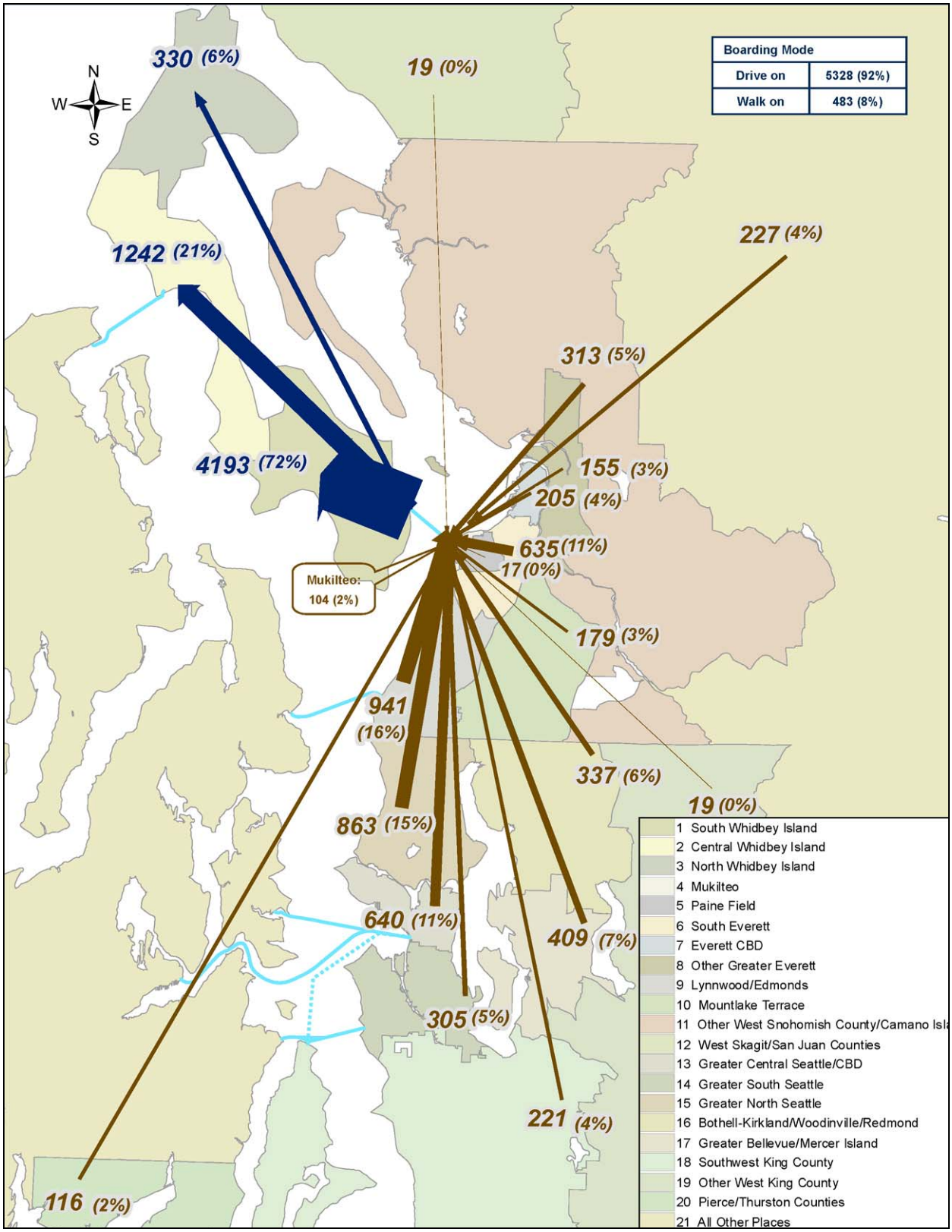
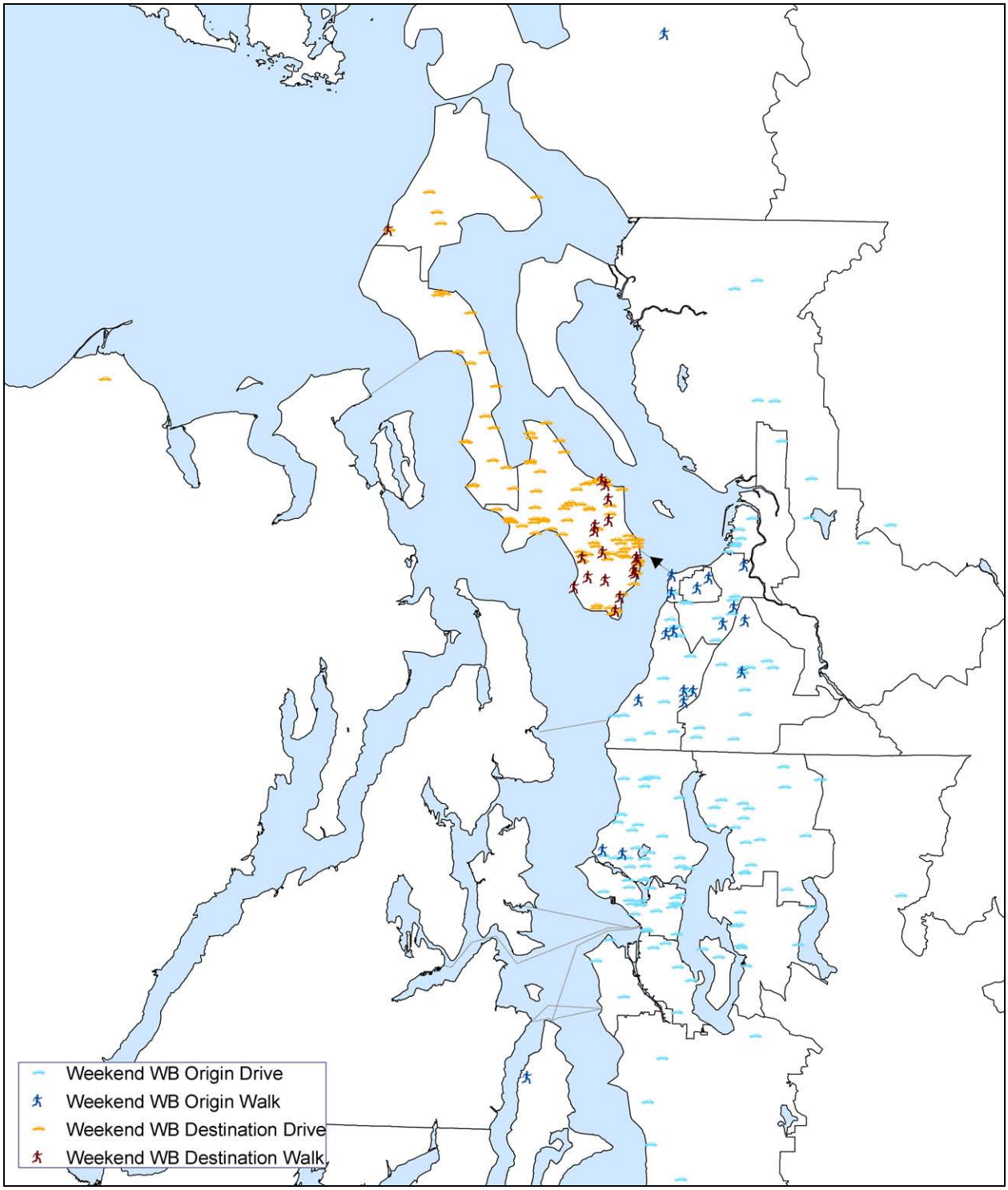


Table 6.25 Mukilteo-Clinton Weekend Westbound Boardings by Origin and Destination District

	Destination District					
Origin District	South Whidbey Island	Central Whidbey Island	North Whidbey Island	All Other Places	Total	Percent of Total
Mukilteo	67	37	0	0	104	1.8%
Paine Field	11	6	0	0	17	0.3%
South Everett	540	78	17	0	635	10.9%
Everett CBD	130	69	6	0	205	3.5%
Other Everett	138	6	0	11	155	2.7%
Lynnwood/Edmonds	699	190	52	0	941	16.2%
Mountlake Terrace	125	19	14	21	179	3.1%
West Snohomish/Camano	313	0	0	0	313	5.4%
West Skagit	11	0	8	0	19	0.3%
Seattle CBD	268	303	69	0	640	11.0%
South Seattle	131	160	14	0	305	5.2%
North Seattle	627	209	13	14	863	14.9%
Bothell/Kirkland	254	64	19	0	337	5.8%
Bellevue/Mercer	311	69	29	0	409	7.0%
SW King	194	13	14	0	221	3.8%
West King	6	13	0	0	19	0.3%
Pierce	195	0	27	0	222	3.8%
All Other Places	173	6	48	0	227	3.9%
Total	4193	1242	330	46	5811	100%
Percent of Total	72.2%	21.4%	5.7%	0.8%	100%	

Figure 6.36 Mukilteo-Clinton Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)

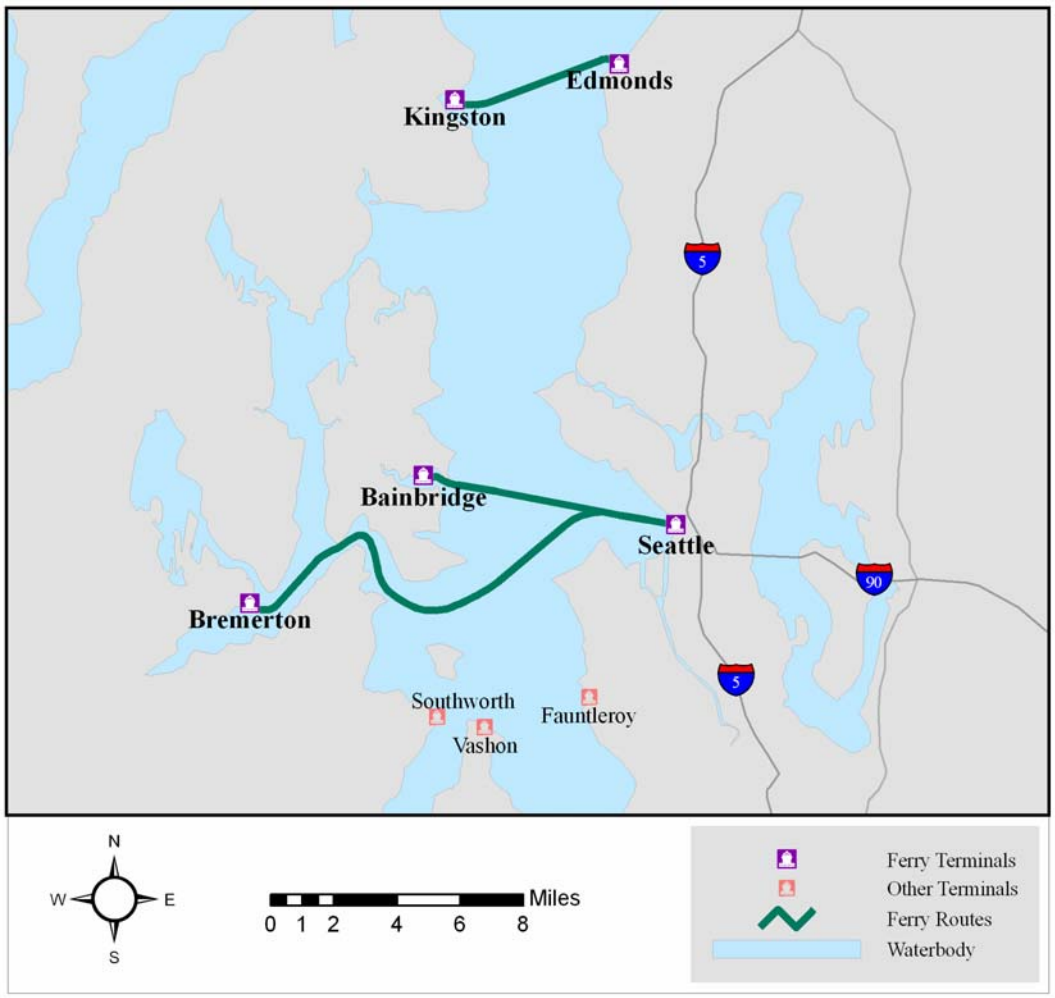


7.0 Central Sound Corridor

7.0.1 Description

The routes in the Central Sound corridor include: Seattle-Bainbridge, Seattle-Bremerton, and Edmonds-Kingston, as shown in Figure 7.1. This is the highest travel corridor in the Washington State Ferries system, with 13.2 million riders per year, or 36,000 riders per day. This is down from a peak of 14.4 million passengers in 1999, but up from the previous survey in 1993, when the ridership was 12.2 million passengers. The corridor serves Kitsap County, Bainbridge Island, and the Olympic Peninsula via the Hood Canal Bridge.

Figure 7.1 Central Sound Corridor Routes



There are 62 sailings in each direction a day for the three routes in this corridor and this can up to 548 vehicles in each direction for each sailing (on the combined three routes). This is up from 422 vehicles in each direction for each sailing in 1993. In addition, these vessels can carry up to 7,500 passengers for each sailing. Fares on the three routes in this corridor are set equal, at $11.25 for vehicles and $6.50 for passengers. This has increased 43 percent (in 2006 dollars) for vehicles and increased 45 percent (in 2006 dollars) since 1999, when fares were $7.87 for vehicles and $4.48 for passengers (in 2006 dollars).

7.0.2 Frequency of Travel

The corridor is dominated by work trips, with more than 60 percent of the total travel for work, school, or business purposes, as shown in Table 7.1. These trips also are the most frequent, with more than 40 percent of the trips using ferries five days a week (evidenced by 9 to 10 one-way trips per respondent). Even though work trips are the most dominant trip purpose, they have been declining as a percent of total trips since 1993. There were 73 percent work trips in 1993, 67 percent in 1999, and 61 percent in 2006. This may be due to a variety of factors: higher fares, more telecommuting, more job opportunities on Bainbridge Island and the Kitsap peninsula, and more people who can work at home full-time.

One change in recent years affecting the decline of work trips is the increase in telecommuting. In the 2006 survey, 19 percent of weekday riders said that they telecommute at least one day per week. Among these telecommuters, the average number of days each person telecommuted was 2.5 days per week. Assuming that the amount of telecommuting in 1993 was quite small, this difference accounts for at least some of the decline in work trips since then.

7.0.3 Trips by Day of Week

Figure 7.2 shows the weekday and weekend trip frequency by day of the week. Tuesday has the highest ridership for weekday riders, with Thursday close behind. Sunday has the lowest ridership, and both Saturday and Sunday are about one-third of the ridership for weekday travelers. Weekend riders do not travel much during the week. The 2006 survey was conducted on a Saturday, rather than a Sunday, and these results show that Saturday travelers are not likely to also travel on a Sunday and about one-quarter of the Saturday travelers also travel on a weekday.

Table 7.1 Central Sound Corridor Trips by Purpose and Frequency

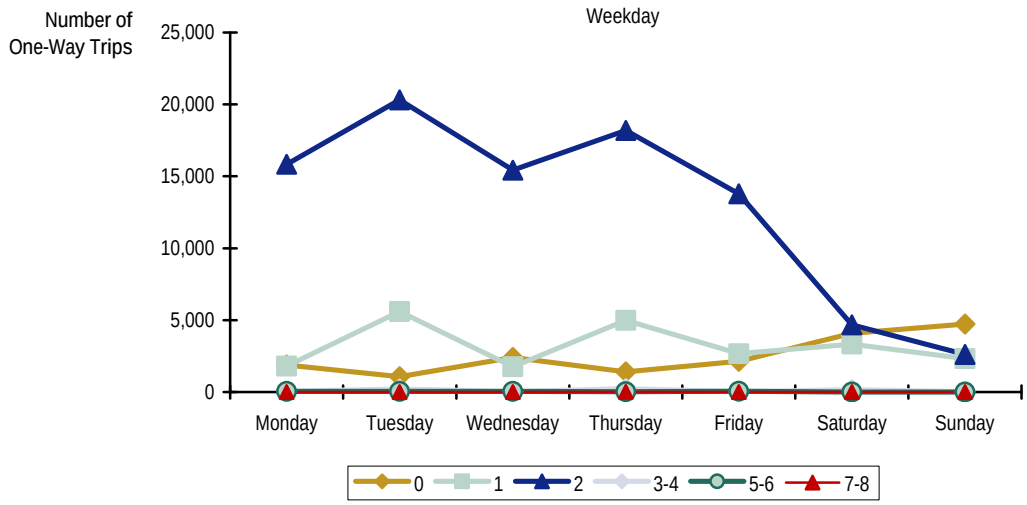
What is/are the reason(s) you are riding this ferry today? Frequency: How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

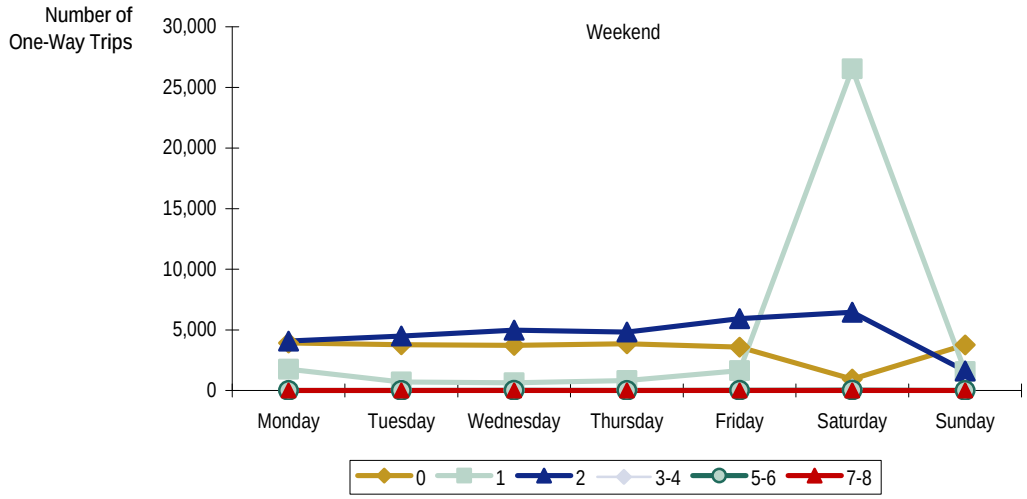
Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	855	1,055	2,305	4,215	12.3%	12.6%	18.6%	4.1%	5.9%
2	1,914	2,301	2,595	6,810	19.9%	15.3%	11.7%	9.2%	7.2%
3-4	1,689	1,598	1,784	5,071	14.8%	12.4%	10.8%	8.1%	8.5%
5-6	2,259	352	352	2,963	8.7%	8.6%	11.8%	10.8%	8.1%
7-8	2,649	240	74	2,963	8.7%	11.0%	4.7%	12.7%	14.3%
9-10	8,640	127	146	8,913	26.1%	26.9%	42.3%	41.3%	37.7%
11+	2,906	191	141	3,238	9.5%	13.2%		13.9%	18.3%
Total	20,912	5,864	7,397	34,173	100%	100%	100%	100%	100%
Percent 2006	61.2%	17.2%	21.6%	100%					
Percent 1999	67.4%	12.9%	19.8%	100%					
Percent 1993	72.7%	9.3%	18.0%	100%					
Weekend									
1	1,261	4,009	12,386	17,656	52.4%	29.6%	44.7%		
2	377	1,488	3,756	5,621	16.7%	37.8%	29.0%		
3-4	1,062	1,602	1,854	4,518	13.4%	16.8%	10.9%		
5-6	331	400	529	1,260	3.7%	5.7%	4.3%		
7-8	451	67	304	822	2.4%	1.9%	2.3%		
9-10	723	239	319	1,281	3.8%	2.8%	8.8%		
11+	1,336	561	635	2,532	7.5%	5.4%			
Total	5,541	8,366	19,783	33,690	100%	100%	100%		
Percent 2006	16%	25%	59%	100%					
Percent 1999	10%	17%	72%	100%					
Percent 1993	18%	10%	72%	100%					

2006 Weekday Trips: 36,146 Missing: 5,219

2006 Weekend Trips: 36,498 Missing: 2,809

Figure 7.2 Central Sound Corridor Frequency of Trips by Day of Week
How Many One-Way Trips Have You Taken on Monday, Tuesday, etc.





Note: These charts reflect the weekly travel patterns of those travelers who responded to the survey on Tuesday (for weekdays) and on Saturday (for weekends). This does not show that Tuesdays and Saturdays have more travel on average than other days.

7.0.4 Round Trip Patterns

The vast majority of ferry travelers in 2006 make a round trip on the same day, as shown in Figure 7.3. This also was true in 1993 and 1999, but the percent of travelers making round trips on the same day has declined since 1993 for weekday travelers and increased for weekend travelers since 1993. The increase in same day round trip travel for weekend travelers is likely a result of the fact that Saturday travelers are more likely to be day-trippers than Sunday travelers, which are more likely to be weekend travelers (i.e., leave on Friday, return on Sunday).[27] The decrease in same day round trip travel for weekday travelers may be because rising fares have caused people to take fewer overall trips, but to extend the stay of individual trips from one day to two or more days.

A high percent of people taking round trips use the same ferry route for the return trip (93 percent), with another 4 percent of travelers returning on a different ferry route, and the remaining 3 percent driving around.[28] The people taking a different ferry route are more likely to be travel for recreational purposes who are visiting more than one location across the Sound. There is an increase in people taking the same ferry route on the return trip in 2006 from 1999 and 1993 for both weekday and weekend travelers, which may be due to increased gas prices (causing travelers to drive less) or differences in travel behavior between October and May (travelers are more likely to be visiting or recreating in May than October).[29] These round trip patterns are presented in Figure 7.4.

---

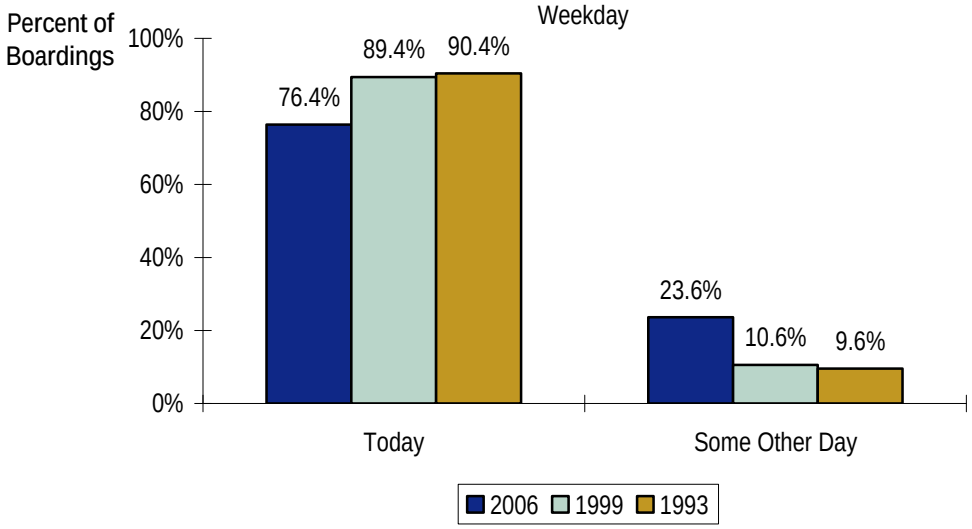
[27] The 2006 survey was conducted on a Saturday, while the 1993 and 1999 surveys were conducted on Sundays, to represent weekend travel.

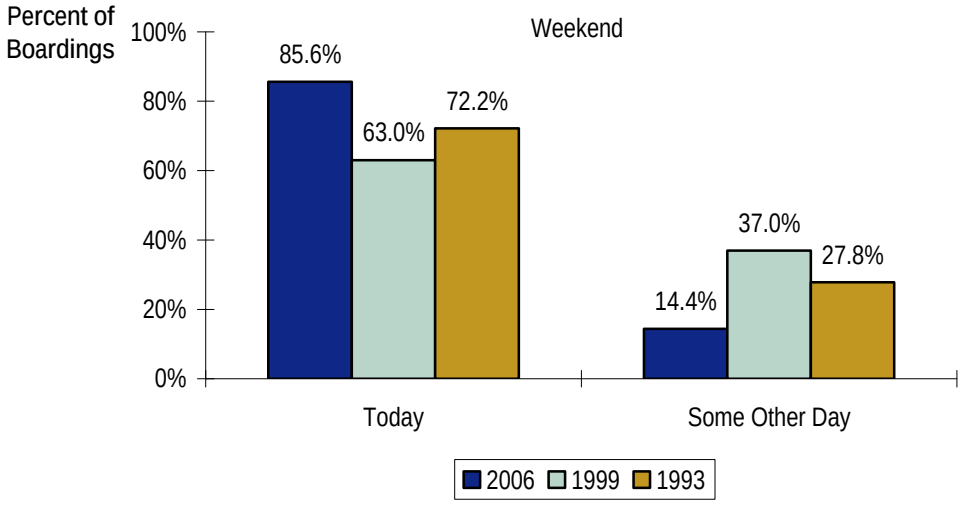
[28] It should be noted that there may be a slightly higher percentage of people who take the ferry in the a.m. period and drive around for their return trip because the ferry is cheaper in the eastbound direction. All WSF surveys were collected during the p.m. period.

[29] The 2006 survey was conducted in October, and the 1993 and 1999 surveys were conducted in May.

Figure 7.3 Central Sound Corridor Round Trip Patterns by Day

When will you return? When was the first half of your trip?

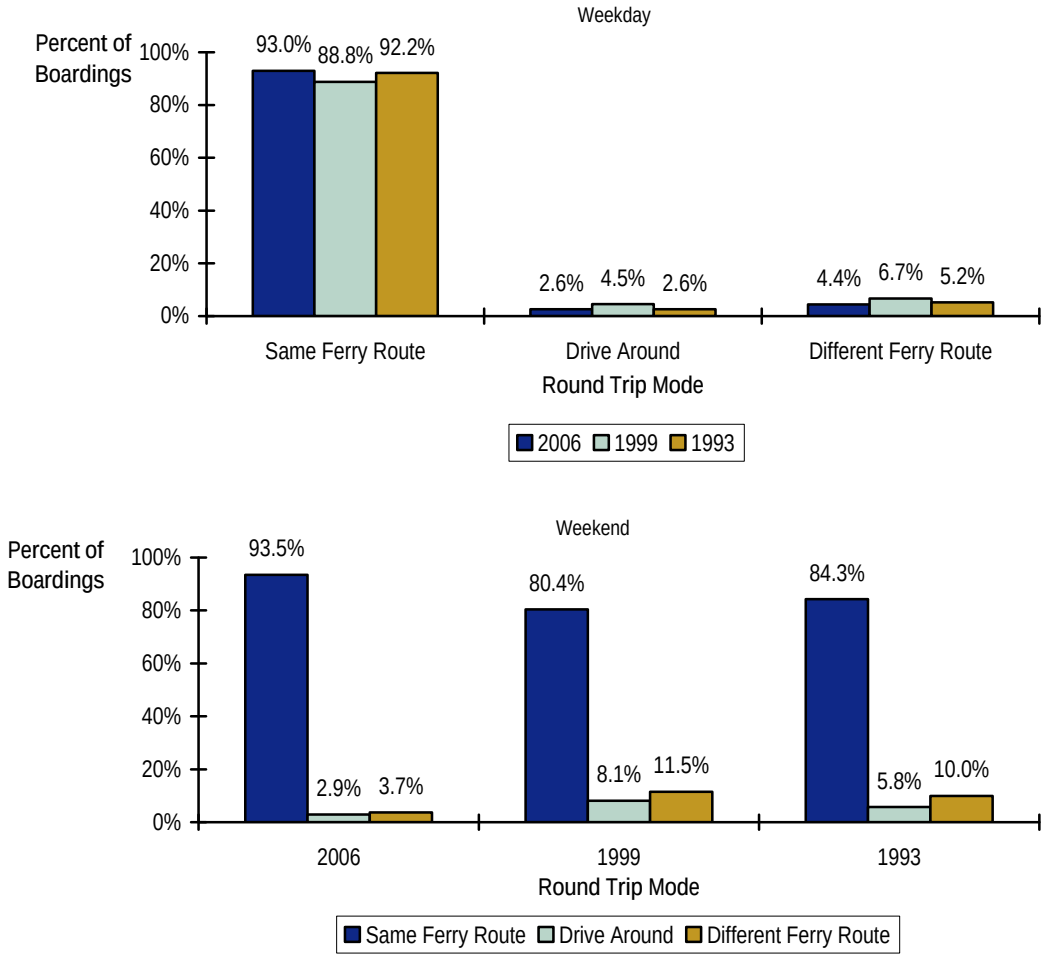




2006 Weekday Trips: 36,146 Missing: 547

2006 Weekend Trips: 36,498 Missing: 509

Figure 7.4 Central Sound Corridor Round Trip Patterns by Route
How will you return? How did you travel on the first half of your trip?



2006 Weekday Trips: 36,146 Missing: 766

2006 Weekend Trips: 36,498 Missing: 499

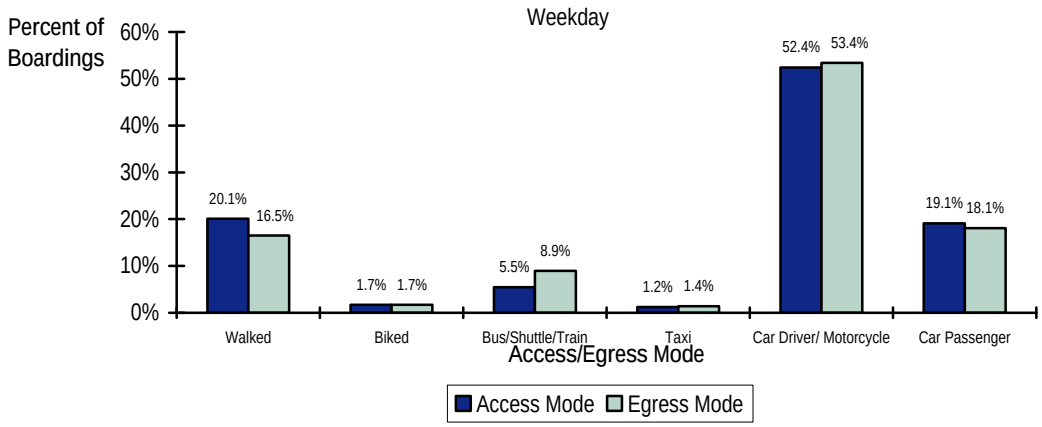
7.0.5 Access, Egress, and Boarding Modes

There is a higher percent of walk and transit access and egress trips during the week than on the weekend, as shown in Figure 7.5. This is because people who travel more frequently on the ferries for work, school or other purposes, are more likely to choose the reduced fare for passengers than to pay the higher vehicle fares. Also, there destination is more likely to be downtown Seattle and this is more accessible by foot or transit. Conversely, there are almost twice as many car passengers on the weekend, than on the weekday, because these trips are more likely to be for shopping or recreation purposes, leading to a higher likelihood of traveling with others for these purposes.

Tables 7.2 and 7.3 shows a more detailed view of access and egress modes, respectively, by boarding mode for the Central Sound routes. There is a trend towards fewer walk, bike, and transit access modes from 1993 to 2006 for weekday travelers. However, comparing 1999 with 2006, the walk and bike access mode shares are about the same while the 1999 transit access share is about the same as the 1993 transit access share. Weekend travelers are walking less in 2006 compared to 1993 but not in 1999. These travelers are taking transit more often in 2006 than in 1999 and 1993. There is a reverse of these trends for weekday walk and transit egress modes in 2006 compared to 1999 and 1993, with walk access increasing by almost 7 percent from 1993 (10 percent) and 1999 (8 percent) to 2006. The drive access reduced by 6 percent for weekday travelers from 1993 to 2006, while it increase by about a percent from 1999 to 2006.

Figure 7.5 Central Sound Corridor Access and Egress Modes

How did you travel from your origin location to this sailing? How will you travel to the destination you are going to now?



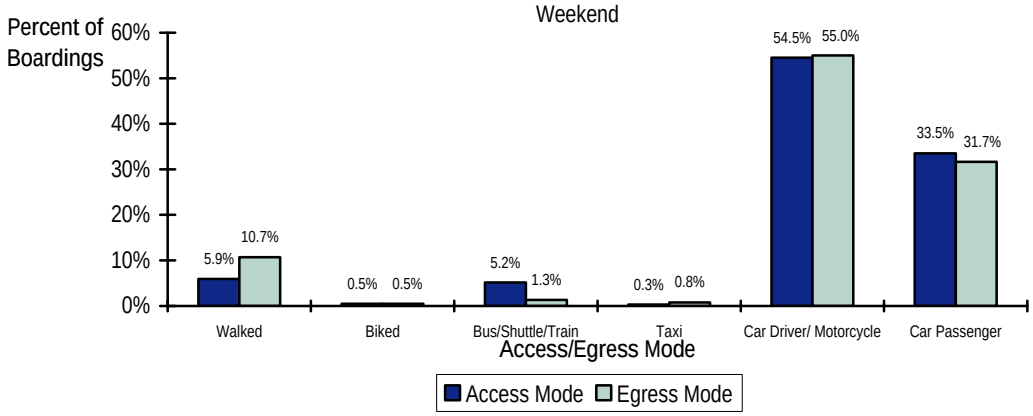


Table 7.2 Central Sound Corridor Trips by Access Mode and Boarding Method

How did you travel from your origin location to this sailing? How will/did you board this ferry?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	188	7,007	3	7,198	20.1%	20.1%	25.2%
Biked	28	135	445	608	1.7%	1.7%	2.2%
Bus/Shuttle/Train	223	1,734	0	1,957	5.5%	9.1%	8.8%
Taxi	0	444	0	444	1.2%	-	0.4%
Car Driver/ Motorcycle	16,811	1,992	0	18,803	52.4%	47.3%	47.4%
Car Passenger	5,416	1,432	3	6,851	19.1%	21.8%	16.0%
Total	22,666	12,744	451	35,861	100%	100%	100%
Percent 2006	63.2%	35.5%	1.3%	100%			
Percent 1999	54.4%	44.0%	1.6%	100%			
Percent 1993	44.5%	53.6%	1.9%	100%			
Weekend							
Walked	17	2,147	0	2,164	5.9%	5.6%	7.9%
Biked	4	31	148	183	0.5%	0.6%	2.2%
Bus/Shuttle/Train	92	1,788	0	1,880	5.2%	1.6%	3.1%
Taxi	0	121	0	121	0.3%	-	0.4%
Car Driver/ Motorcycle	18,131	1,715	0	19,846	54.5%	64.7%	54.0%
Car passenger	9,783	2,418	0	12,201	33.5%	27.5%	32.4%
Total	28,027	8,220	148	36,395	100%	100%	100%
Percent 2006	77.0%	22.6%	0.4%	100%			
Percent 1999	81.5%	17.8%	0.7%	100%			
Percent 1993	66.8%	31.1%	2.2%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 36,146 Missing: 286

2006 Weekend Trips: 36,498 Missing: 105

Table 7.3 Central Sound Corridor Trips by Egress Mode and Boarding Method

How will you travel to the destination you are going to now? How will/did you board this ferry?

					All boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	405	5,328	40	5,773	16.5%	8.3%	9.9%
Biked	11	172	411	594	1.7%	1.5%	2.2%
Bus/Shuttle/Train	131	2,996	0	3,127	8.9%	13.9%	7.5%
Taxi	17	469	0	486	1.4%	0.0%	0.8%
Car Driver/ Motorcycle	16,694	1,984	0	18,678	53.4%	52.4%	59.4%
Car Passenger	4,797	1,523	0	6,320	18.1%	23.9%	20.3%
Total	22,055	12,472	451	34,978	100%	100%	100%
Percent 2006	63.1%	35.7%	1.3%	100%			
Percent 1999	54.4%	44.0%	1.6%	100%			
Percent 1993	44.5%	53.6%	1.9%	100%			
Weekend							
Walked	108	3,677	0	3,785	10.7%	6.0%	6.1%
Biked	26	9	141	176	0.5%	0.7%	1.9%
Bus/Shuttle/Train	62	410	0	472	1.3%	1.8%	3.0%
Taxi	18	256	0	274	0.8%	0.0%	0.8%
Car Driver/ Motorcycle	17,594	1,832	0	19,426	55.0%	63.8%	56.1%
Car Passenger	9,184	1,993	6	11,183	31.7%	27.7%	32.1%
Total	26,992	8,177	147	35,316	100%	100%	100%
Percent 2006	76.4%	23.2%	0.4%	100%			
Percent 1999	81.5%	17.8%	0.7%	100%			
Percent 1993	66.8%	31.1%	2.2%	100%			

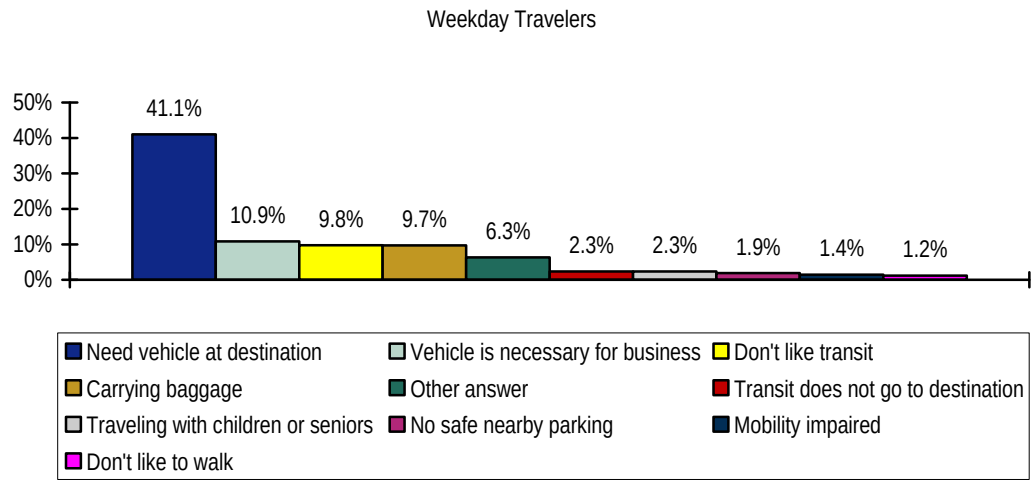
[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings; i.e., all passengers in vehicles.

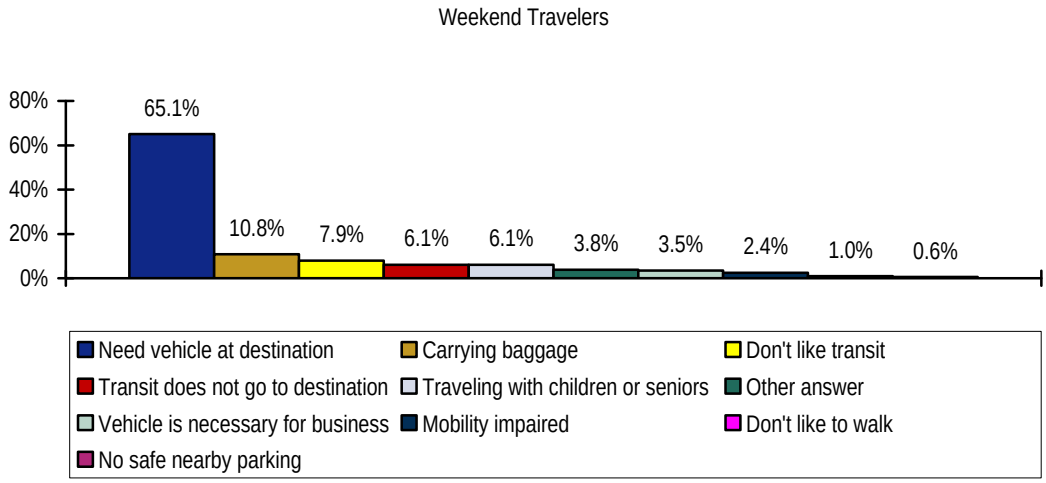
2006 Weekday Trips: 36,146 Missing: 1,165

2006 Weekend Trips: 36,498 Missing: 1,184

The biggest reason for taking a vehicle on the ferry was that the vehicle was needed at the destination (more than 40 percent of travelers taking their vehicle on gave this reason). Additional reasons for taking a vehicle on were that the vehicle is necessary for business, that the traveler had baggage to carry, and that the traveler does not like to take transit (10 percent gave these answers). There were few people who gave the response that they do not like to walk, that they were mobility impaired, that there was no safe nearby parking, that transit did not go to their destination, or that they were traveling with children or seniors. There is a similar pattern for weekend travelers, except that needing a vehicle at the destination is even more important (more than 60 percent) and there is almost no need for a vehicle for business reasons. Figure 7.6 presents the results of the travelers' reasons for taking a vehicle on-board the ferry.

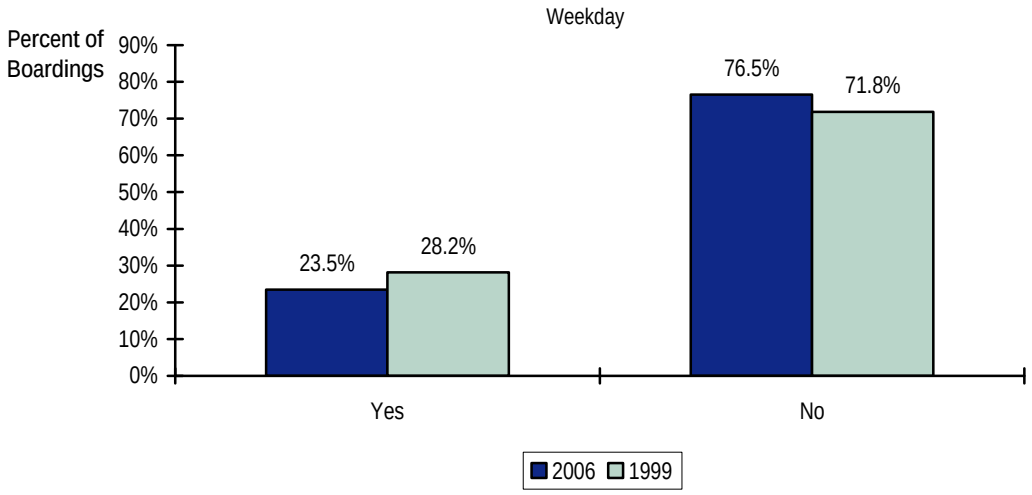
Figure 7.6 Central Sound Corridor Reasons for Taking a Vehicle
Why did you choose to board in a vehicle instead of walk-on?

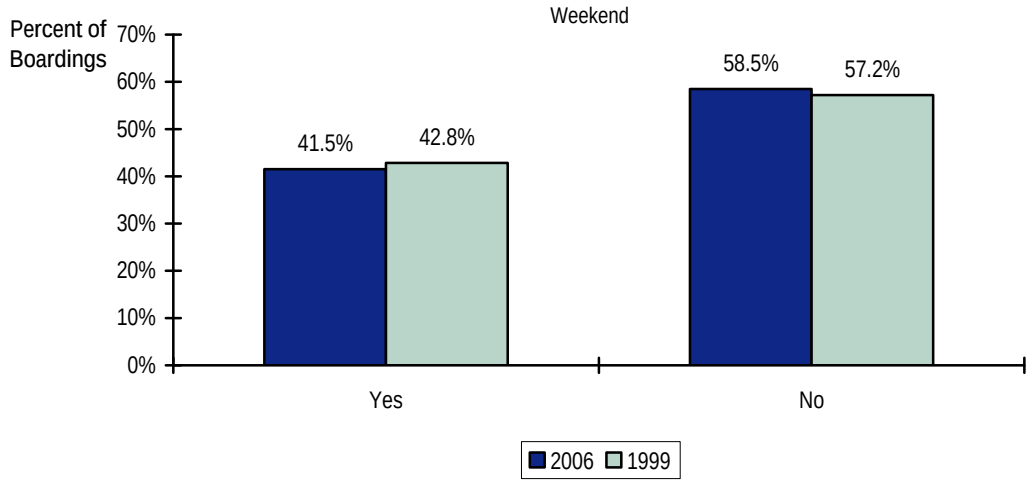




For travelers not taking their car on the ferry, the majority do not park their car at the terminal, as shown in Figure 7.7. This is likely a result of the fact that the survey was conducted during the p.m. period hours and focus on eastbound travelers, who would have fewer parking options in downtown Seattle than they would at other ferry terminals. The weekend travelers do report a higher degree of parking at the terminal, probably because parking is more available on weekends than on weekdays.

Figure 7.7 Central Sound Corridor Non-Motorized Boardings
Did you park a vehicle to board this ferry?





A significant number of people keep a vehicle at their destination, so that they can drive to their destination, but still walk on the ferry (23 percent for weekday, 15 percent for weekend). A smaller number of people keep bicycles at the terminals for this purpose (2 percent). This is presented in Table 7.4.

Table 7.4 Central Sound Corridor Destination Vehicles

Did you keep either a bike or vehicle at the destination end of this ferry trip?

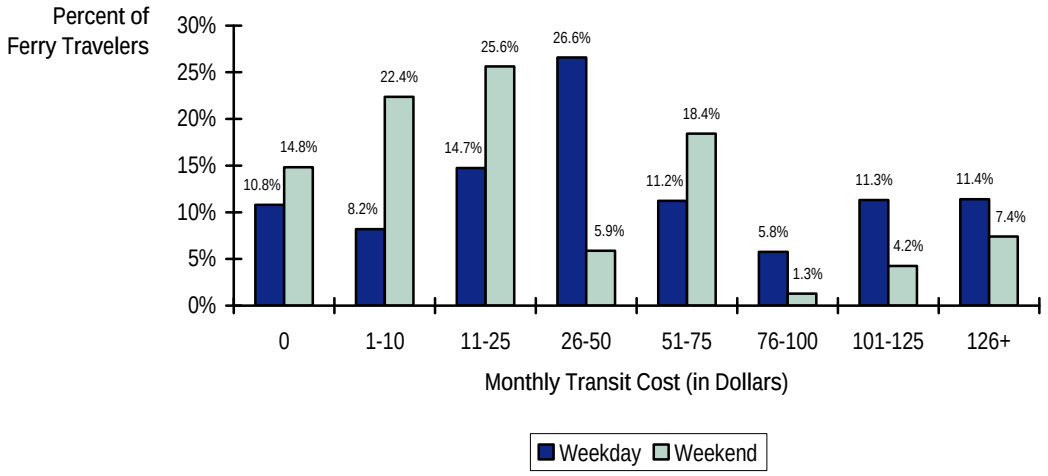
	Responded Yes	Percent
Weekday		
Bike	305	2.3%
Vehicle	3,096	23.2%
N/A	9,955	74.5%
Total	13,356	100%
Weekend		
Bike	159	1.9%
Vehicle	1,238	14.7%
N/A	7,029	83.4%
Total	8,426	100%

Note: Only asked when boarding mode was walk or bike.

For travelers who ride transit to/from the ferry, the average monthly transit cost is $53 for weekday travelers and $35 for weekend travelers. As expected, weekend travelers are less likely to include travelers who commute or travel regularly by ferry and therefore would not have significant monthly costs for transit access trips. These costs are presented in Figure 7.8.

Figure 7.8 Central Sound Corridor Monthly Transit Costs

If you ride transit (bus/train), what is the average monthly cost that you pay for transit to/from work or school?



7.0.6 Other Travel Characteristics

One new question on the 2006 survey was "Is this your preferred sailing?" A high number of weekday travelers (30 percent) said that it was not their preferred sailing during the week, with 15 percent of travelers saying it was not their preferred sailing on the weekend. Also, there are the same percent of walk-on passengers who do not take their preferred sailing. This is not a capacity issue, so there must be other reasons causing travelers not to take their preferred sailing (had to work late, got stuck in traffic, missed the bus, etc.) These survey results are presented in Table 7.5.

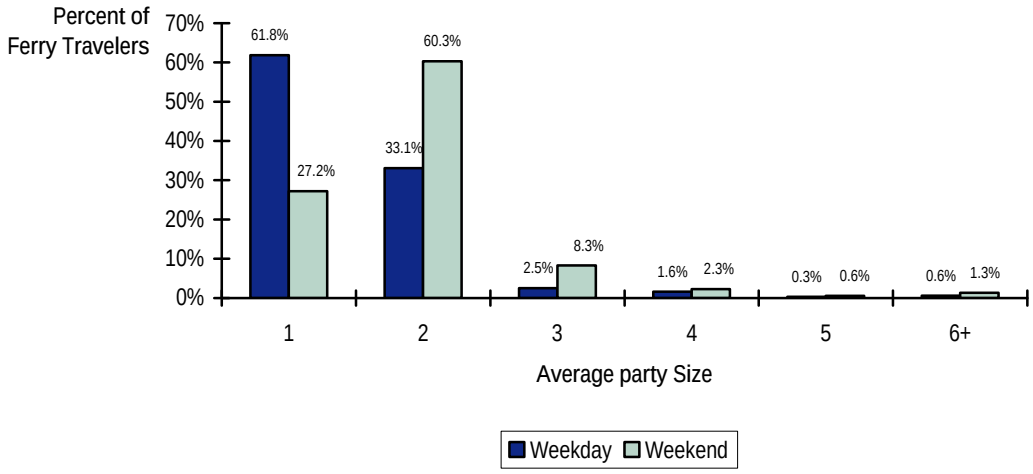
Table 7.5 Central Sound Corridor Preferred Sailing
Is This Your Preferred Sailing?

	Drive[a]	Walk/ Bike	Total	Percent
Weekday				
Yes	15,075	8,913	23,988	70.2%
No, different departure time	5,528	3,528	9,056	25.7%
No, different route	882	392	1,274	4.1%
Total	21,485	12,833	34,318	100.0%
Weekend				
Yes	23,264	6,650	29,914	85.9%
No, different departure time	3,130	1,283	4,413	11.6%
No, different route	698	160	858	2.6%
Total	27,092	8,093	35,185	100.0%

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings; i.e., all passengers in vehicles.

Figure 7.9 presents the size of the travel party for weekday and weekend travelers. As expected, the majority of people traveling together occurs on the weekends (72 percent) and the majority of people traveling alone occurs on the weekdays (62 percent).

Figure 7.9 Central Sound Corridor Party Size
How many people are traveling with you?

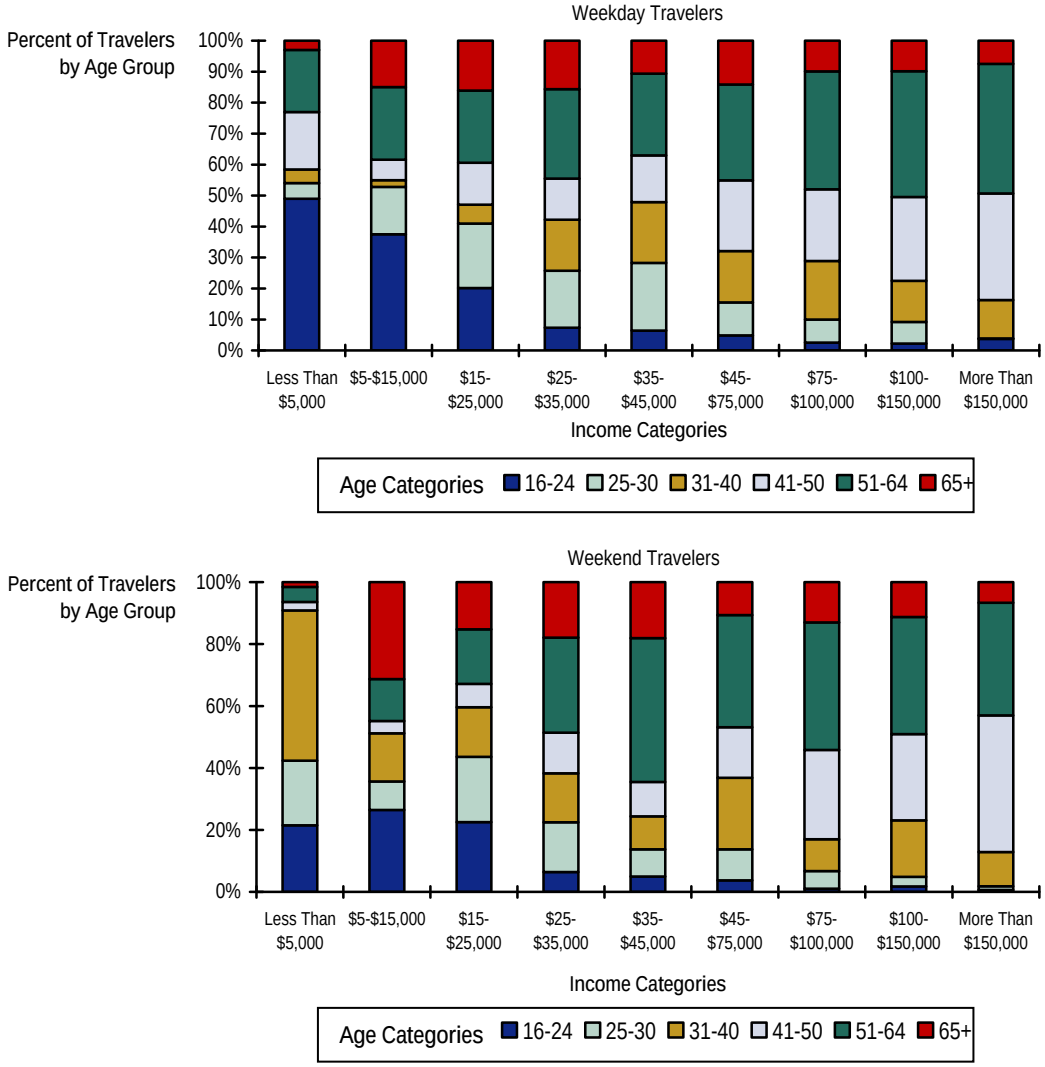


Note: The original question asked "how many people are traveling with you (not including yourself)", but the data implied that most people did not include themselves in the answer, so these data were corrected based on how many people each respondent was traveling with. So the average size of the party in this figure includes the respondent.

7.0.7 Demographic Characteristics

Figure 7.10 presents the age and income of the ferry travelers for weekdays and weekends. While there are some differences, the average age and income of the weekday and weekend travelers is similar. The average age for weekday travelers is 47 and the average age of weekend travelers is 48. This is higher than the regional average age of 35 years old. It has also been increasing over time, from an average age of 42 in the 1993 survey to 48 in the 2006 survey. The average income for ferry travelers is $100,000. Average income has also been increasing over time, from $95,000 average income in 1993 (in 2006 constant dollars).

Figure 7.10 Central Sound Corridor Traveler Age and Income
What was your estimated household income in 2005 before taxes?



The average number of vehicles owned per household has been remarkably stable for the ferry riders, at about 1.8 vehicles per household since 1993. This is consistent with the regional average of vehicles owned per household. There are some minor differences in the data when comparing 0 vehicle households and households with three or more vehicles per household, but these differences are more likely to result from differences in the expansion factor process, then any real changes in auto ownership over time.

There are about 1.3 workers per household in the 2006 survey. And about 37 percent of the total ferry riders come from two-worker households. Data on number of workers was not collected during the 1999 or 1993 survey. Of the weekday ferry riders, 78 percent said they were employed, up slightly from the 76 percent reported in the 1999 survey. The biggest change from 1999 was that

retired persons increased from 6 to 16 percent since 1999 and non-workers, students and military persons decreased accordingly. This may be due to a real increase in retired persons using the ferry in the central corridor or it could also be differences in travel by retired persons in October 2006 compared to May 1999.

7.1 SEATTLE-BAINBRIDGE

7.1.1 Route Description

This route connects Seattle and Bainbridge Island, much of north and central Kitsap County, and the Olympic Peninsula via the Hood Canal Bridge. It is the busiest route in the WSF system and takes 35 minutes to ride this ferry route one-way. The crossing is approximately 7.5 nautical miles. It runs on all days, including Saturdays and Sundays. For 2006, the annual total ridership was 4.3 million passengers plus 2.1 million vehicles and drivers for a total of 6.4 million people, or about 18,000 riders per day. Seattle-Bainbridge has the highest ridership in the WSF system on an average daily basis. This compares to 20,000 riders per day in 1999 and 17,000 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and the trend for this route follows this pattern.

The Seattle-Bainbridge route has 23 sailings per day each direction, down from 24 sailings per day in 1993, but the passenger capacity per boat has increased from 2,000 passengers per boat to 2,500 passengers per boat, so the overall total capacity per day has increased. The vehicle capacity has increased slightly as well, from 188 vehicles per boat to 202 vehicles per boat. The vessels used in 1993 were the Jumbo class and from 1999 to current times, the vessels are the Jumbo Mark II class. The fare is $11.25 for vehicles and $6.50 for passengers in 2006.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

7.1.2 Trips by Purpose

The trip purposes of ferry riders on the Seattle-Bainbridge route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 7.6 shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are east-west routes.

There is about even split between eastbound and westbound travelers for all purposes but there are some notable differences by trip purpose. The work/school trips and personal business/other trips are about equal in both

directions while the shopping/recreation trips are more concentrated in the eastbound direction. This is due to the fact that the Seattle downtown and surrounding areas are known for its tourist attractions and so it is in line with our expectations that there will be more eastbound travel for recreational and shopping purposes during weekdays in the p.m. period (which is how the 1999 and 1993 surveys are reported). However, this phenomenon does not exist over the weekends for 2006, where there is almost an even split by direction, because we have included representative travel from the full day of travel rather than just the p.m. peak period.

Table 7.6 Seattle-Bainbridge Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
Eastbound	4,850	1,488	2,697	9,035	50.3%	25.7%	33.3%
Westbound	6,162	1,492	1,282	8,936	49.7%	74.3%	66.7%
Total	11,012	2,980	3,979	17,971	100%	100%	100%
Both dir. 2006	61.3%	16.6%	22.1%	100%			
Both dir. 1999	66.8%	13.5%	19.8%	100%			
Both dir. 1993	74.7%	9.6%	15.7%	100%			
Weekend							
Eastbound	2,373	1,566	4,391	8,330	50.7%	53.4%	48.3%
Westbound	1,573	1,661	4,879	8,113	49.3%	46.6%	51.7%
Total	3,946	3,227	9,270	16,443	100%	100%	100%
Both dir. 2006	24.0%	19.6%	56.4%	100%			
Both dir. 1999	10.9%	16.3%	72.8%	100%			
Both dir. 1993	22.3%	9.7%	67.9%	100%			

[a] 1999 and 1993 survey trips were not rebalanced by direction and as a result there is a large difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999. See Section 2.3 for more details. See Section 2.3 for more details.

2006 Weekday Trips: 18,175 Missing: 204

2006 Weekend Trips: 16,583 Missing: 140

There is a clear decline in commute trips between 1993 and 2006 for weekday travel and a corresponding increase in both shopping and recreation from 1993 to 2006. One would expect that with rising costs for ferry travel, and a corresponding drop in overall ridership that a greater percent of the travel would be for business or commuting reasons because these trips are work/school; however, this is not the case.

The 1993 and 1999 survey trips are quite different by direction. This difference is because of differences in expansion of the survey and is not attributable to any real differences in travel behavior. We calculated the p.m. period half-day percent westbound during the weekday at 77 percent, which shows an increase in westbound travel since 1993 (from 67 percent).

Table 7.7 shows the distribution of trips across different time periods and by direction of travel. As expected, the p.m. period defined as 3:00 p.m. to 7:00 p.m., has the highest share of trips (46.5 percent) because of the return trips of work commute, as well as people indulging in non-work trip purposes such as personal business, shopping and recreation. This is followed by the night time period, defined as 7:00 p.m. to 5:00 a.m. the next day, which is comprised of about 20 percent of weekday trips. This is attributable to the early morning commute trips.

Table 7.7 Seattle-Bainbridge Trips by Time-of-Day and Direction[a]
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	A.M. Peak (5:00 a.m.-9:00 a.m.)	A.M. Off-Peak (9:00 a.m.-12:00 p.m.)	P.M. Off-Peak (12:00 p.m.-3:00 p.m.)	P.M. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Trips 2006	All Trips 1999	All Trips 1993
Weekday									
Eastbound	440	1,789	1,277	899	1,173	5,578	31%	25.7%	33.3%
Westbound	3,161	258	390	1,510	7,275	12,594	69%	74.3%	66.7%
Total	3,601	2,047	1,667	2,409	8,448	18,172	100%	100%	100%
Both dir. 2006	19.8%	11.3%	9.2%	13.3%	46.5%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 18,175 Missing: 3

2006 Weekend Trips: 16,583 Missing: 0

7.1.3 Frequency of Travel

The total number of trips and the purpose behind taking these trips on ferries in an average week in 2006 are shown in Table 7.8. For comparison summaries, the trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

From the table, it is evident that travelers use the ferry predominantly for work/school purposes, that is, 70 percent of all riders in 2006 used this route for commuting between Seattle and Bainbridge. This is expected as most of the jobs in the Puget Sound region are located in the Seattle metropolitan area. A

significant amount of riders (25 percent) use the ferry system for recreational purposes as well because of the many tourist spots in downtown Seattle and riding the ferry itself across the Sound. Out of the commuting riders, almost half of them use the ferry system on a regular basis and this is evident from the fact that 45 percent of these riders (4,860 out of 10,869) ride the ferry 9 to 10 times on weekdays in a typical week. The trip frequencies for undertaking personal business/other-related activities is not as high (19 percent) as these trip purposes are not constrained by time and so most people use other modes of travel during non-congested times to accomplish these. In total, about a third of all the Seattle-Bainbridge riders (5,078 out of 15,515 or 33 percent) travel every day for all different trip purposes.

Also included in Table 7.8 is a comparison of trip frequency percents for years 1993, 1999, and 2006. In terms of regular usage of this ferry route for all purposes, the trend is similar across these years, that is the frequency of riding this ferry route nine times or more during a typical week was 46 percent in 2006, 42 percent in 1999, and 45 percent in 1993. However, for regular commute purposes (9 to 10 trips), the ridership has gone up from 39 percent in 1999 to 45 percent in 2006. The data by purpose was not available at a trip frequency level from the 1993 surveys.

Table 7.8 Seattle-Bainbridge Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	219	398	1050	1667	9.5%	10.1%	14.2%	2.0%	3.6%
2	726	1124	990	2840	16.1%	14.2%	10.7%	6.7%	5.7%
3-4	829	849	1177	2855	16.2%	12.3%	11.6%	7.6%	8.2%
5-6	1156	165	275	1596	9.1%	9.4%	13.0%	10.6%	8.6%
7-8	1297	138	44	1479	8.4%	12.0%	5.3%	11.9%	15.4%
9-10	4860	81	137	5078	28.8%	28.1%	45.2%	44.7%	39.3%
11+	1782	166	141	2089	11.9%	13.9%		16.4%	19.3%
Total	10869	2921	3814	17604	100%	100%	100%	100%	100%
Percent 2006	61.7%	16.6%	21.7%	100%					
Percent 1999	66.8%	13.5%	19.8%	100%					
Percent 1993	74.7%	9.6%	15.7%	100%					
Weekend									
1	503	1,174	4,880	6,557	43.0%	28.5%	38.1%		
2	141	595	1,802	2,538	16.6%	37.8%	27.4%		
3-4	677	388	910	1,975	12.9%	15.4%	11.7%		
5-6	211	60	305	576	3.8%	6.8%	5.8%		
7-8	210	54	211	475	3.1%	2.4%	3.2%		
9-10	703	213	242	1,158	7.6%	3.0%	13.8%		
11+	1,118	415	445	1,978	13.0%	6.2%			
Total	3,563	2,899	8,795	15,257	100%	100%	100%		
Percent 2006	23.4%	19.0%	57.6%	100%					
Percent 1999	10.9%	16.3%	72.8%	100%					
Percent 1993	22.3%	9.7%	67.9%	100%					

The total percentage distribution across purposes is different in Table 7.1 than in Table 7.2 because of the many missing trips in Table 7.2 that did not have detailed trip frequency information. So Table 7.1 shows that 61.3 percent of riders use this route for commuting purposes compared to 70.1 percent in Table 7.2. This difference is also is found in the weekend estimates.

2006 Weekday Trips: 18,175 Missing: 2,660

2006 Weekend Trips: 16,583 Missing: 1,327

During weekends, as expected there are more riders on this route for shopping/recreation trip purposes than other purposes, that is, 8,795 out of 15,257. It is little surprising that there are a significant portion of trips (23 percent) that are made for work and business-related purposes over the weekend as well. This is actually higher and more than double when compared to the 1999 estimate (11 percent). This can probably be attributed to the fact that the frequency of usage of this ferry route in 2006 during weekends has gone up significantly, that is, riders making nine trips or more is 21 percent in 2006 while it is only 10 percent and 14 percent in 1999 and 1993 surveys.

Table 7.9 provides the time of distribution of trips along this route by trip purpose. About half of all weekday trips, that is 8,387 out of 17,971 or about 47 percent of travel occurs during the PM peak period (3:00 p.m. to 7:00 p.m.), while a significant number of the trips (20 percent) occur during the Night time period (7:00 p.m. to 5:00 a.m.). Trips occurring in the other time periods are about evenly distributed. A majority of the work/school commuting trips occur in the PM peak period (5,953 out of 11,012), while most of the personal business trips and recreation/shopping trips occur during the PM peak period and the NT time periods, that is between 3:00 p.m. and 5:00 a.m.

Table 7.9 Seattle-Bainbridge Trips by Purpose and Time-of-Day
Purpose: What is/are the reason(s) you are riding the ferry today?

Direction	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	Total	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	1703	751	1070	3524	15.5%	25.2%	26.9%	19.6%
a.m. Peak (5 a.m.-9 a.m.)	1401	313	321	2035	12.7%	10.5%	8.1%	11.3%
a.m. Offpeak (9 a.m.-12 p.m.)	762	417	474	1653	6.9%	14.0%	11.9%	9.2%
p.m. Offpeak (12 p.m.-3 p.m.)	1193	581	598	2372	10.8%	19.5%	15.0%	13.2%
p.m. Peak (3 p.m.-7 p.m.)	5953	918	1516	8387	54.1%	30.8%	38.1%	46.7%
Daily	11012	2980	3979	17971	100%	100%	100%	100%
Percent 2006	61.3%	16.6%	22.1%					
Percent 1999	66.8%	13.5%	19.8%					
Percent 1993	74.7%	9.6%	15.7%					

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 18,175 Missing: 204

2006 Weekend Trips: 16,584 Missing: 141

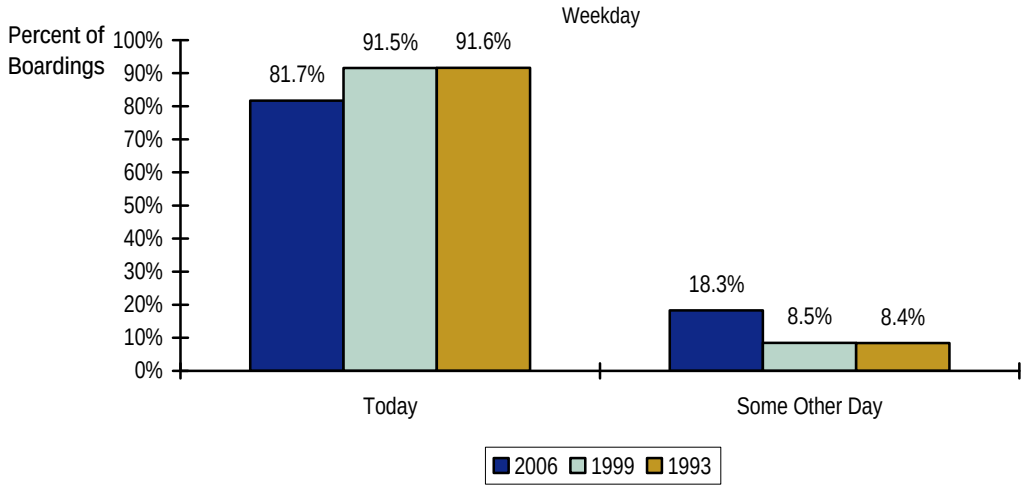
7.1.4 Round-Trip Patterns

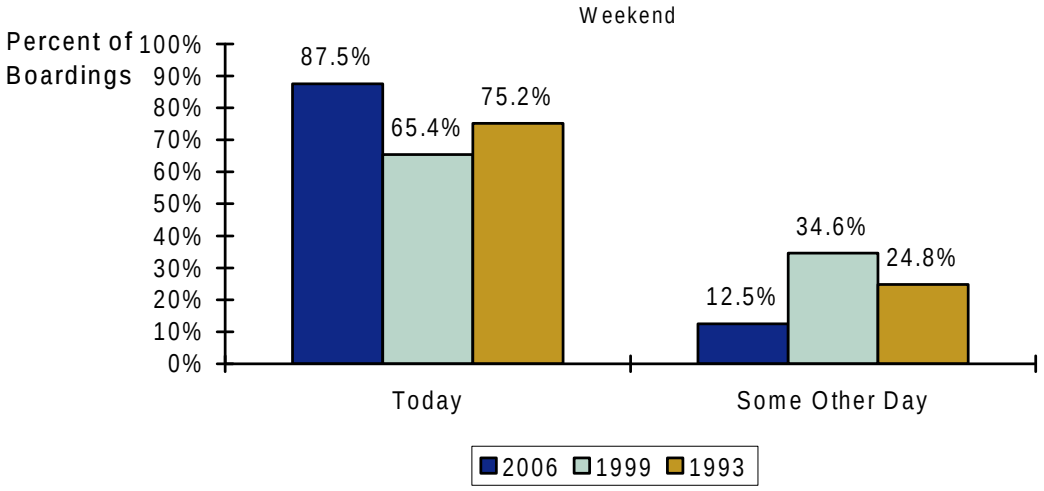
As the 2006 surveys were done only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 7.11 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled the same day for both their onward and backward journeys, that is, 82 percent of 17,922. The same trend is observed over the weekends as well where 88 percent use this route on the same day for their round trips.

However, when comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on a different day in 2006 is more than twice that of 1993 and 1999 estimates. In 1993 and 1999, the number of boardings on this route on a different day was about the same (8 percent and 9 percent, respectively) while in 2006, it was 18 percent.

During the weekends in 2006, similar trends were observed where a majority of trips are made on the same day (88 percent). However, the 1993 and 1999 estimates are quite different over the weekends when compared against the weekday estimates. More than a third of boardings (35 percent) that happened in 1999 chose a different day for one-half of their trip while about a quarter (25 percent) chose a different day in 1993. This is likely because of the difference between collecting surveys on a Sunday (in 1999 and 1993) and on a Saturday (in 2006) because Sunday trips are more likely to be part of a weekend journey where the outbound part of the trip occurred on Friday or Saturday.

Figure 7.11 Seattle-Bainbridge Round Trip Patterns by Day
When was the first half of your trip or when will you return?



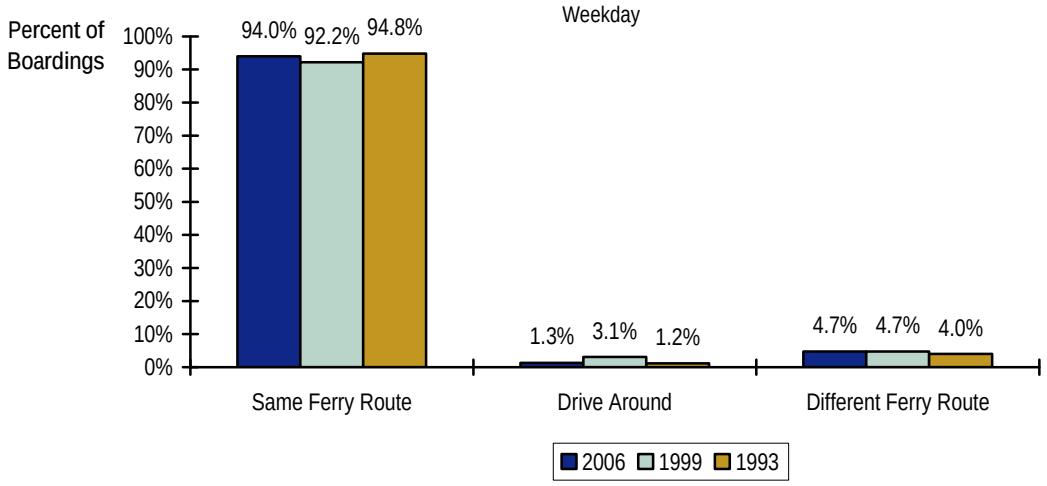


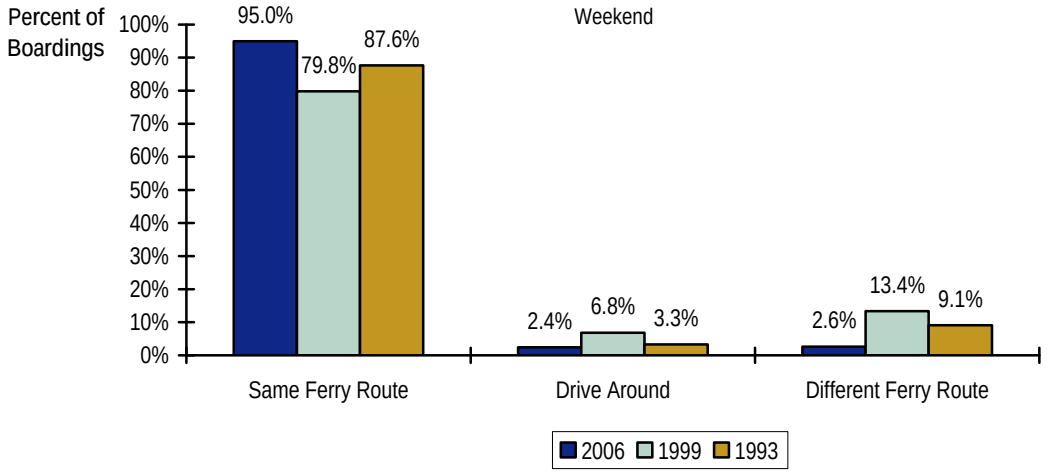
2006 Weekday Trips: 18,175 Missing: 253

2006 Weekend Trips: 16,584 Missing: 225

For riders who made one-half of their trip on this route, Figure 7.12 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. As expected, a overwhelming number of boardings indicated that they chose the same route because of the fact that travelers have to return to their home base. This was true for all the three years, that is, it was 94, 92, and 95 percent in 2006, 1999, and 1993.

Figure 7.12 Seattle-Bainbridge Round Trip Patterns by Route
How will you return or how did you travel on the first half of your trip?





2006 Weekday Trips: 18,175 Missing: 495

2006 Weekend Trips: 16,584 Missing: 179

From the weekend estimates, it is evident that the trends are slightly different especially in 1999 and 1993 where a significant portion of boardings did happen on a different ferry route for at least one-half of the trip. It was 13 percent in 1999 and 9 percent in 1993 compared to only 3 percent in 2006. It is likely that this trend is because the previous surveys were collected on a Sunday, when the trips are more likely to be part of a weekend journey and involve multiple destinations, and the current survey was collected on a Saturday, when the trips are more likely to be single destinations, such as shopping.

7.1.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 7.13 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Figure 7.13 Seattle-Bainbridge Trips by Access and Egress Mode
How did you travel from your origin location to this sailing? How did you travel to the destination you are going to now?

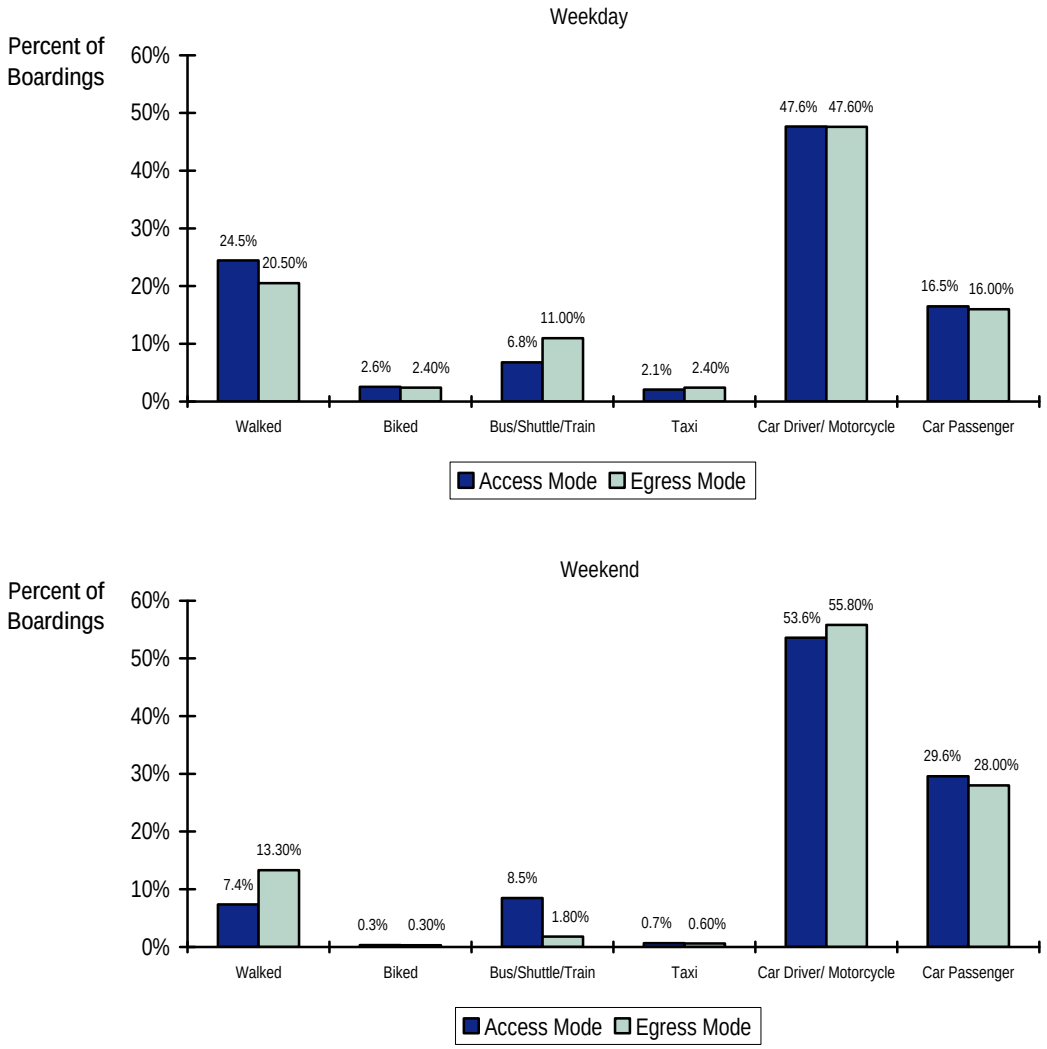


Table 7.10 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, most of the riders either chose to drive or walk on to this ferry route and a small fraction chose to bike. A majority of those riders (75 percent) who chose to drive used

the car driver/motorcycle mode of travel as their access mode, that is, 7,383 out of 9,851. About half the riders who chose to walk on to the ferry walked to the ferry terminal, that is, 4,346 out of 7,835. Most of the remainder walk on passengers chose the public transportation system (1,098) and drove to (1,210) or got dropped off (693) at the ferry terminal.

Table 7.10 Seattle-Bainbridge Trips by Access Mode and Boarding Method

How will/did you board this ferry?
How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	64	4,346	0	4,410	24.5%	24.1%	28.6%
Biked	0	114	347	461	2.6%	2.4%	2.4%
Bus/Shuttle/Train	125	1,098	0	1,223	6.8%	8.9%	8.9%
Taxi	0	374	0	374	2.1%	0.0%	0.3%
Car Driver/ Motorcycle	7,383	1,210	0	8,593	47.6%	45.2%	45.0%
Car Passenger	2,279	693	3	2,975	16.5%	19.4%	14.8%
Total	9,851	7,835	350	18,036	100%	100%	100%
Percent 2006	54.6%	43.4%	1.9%	100%			
Percent 1999	49.5%	48.2%	2.3%	100%			
Percent 1993	40.6%	57.4%	2.0%	100%			
Weekend							
Walked	17	1,200	0	1,217	7.4%	6.8%	9.5%
Biked	0	13	44	57	0.3%	0.9%	2.8%
Bus/Shuttle/Train	74	1,323	0	1,397	8.5%	1.7%	4.2%
Taxi	0	108	0	108	0.7%	0.0%	0.4%
Car Driver/ Motorcycle	8,035	818	0	8,853	53.6%	63.1%	53.5%
Car Passenger	3,708	1,180	0	4,888	29.6%	27.6%	29.6%
Total	11,834	4,642	44	16,520	100%	100%	100%
Percent 2006	71.6%	28.1%	0.3%	100%			
Percent 1999	79.7%	19.4%	0.9%	100%			
Percent 1993	61.4%	35.8%	2.8%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 18,175 Missing: 139

2006 Weekend Trips: 16,583 Missing: 63

While comparing the 2006 weekday estimates by boarding method across 1999 and 1993 in both directions, it is found that number of boardings by drive mode increased from 41 percent in 1993 to 50 percent in 1999 and 55 percent in 2006, while the number of walk on boardings went down from 57 percent in 1993 to 48 percent in 1999 and 43 percent in 2006. The access modes across years did not change much and remained pretty constant for all boardings.

During 2006 weekends, more people preferred to drive (72 percent) than walk on (28 percent) to the ferry system compared to the weekday, when fewer people drove (55 percent) and more walked (43 percent). There is a clear trend

for both weekday and weekend trips toward more people driving on the ferry than walking.

Table 7.10 shows ferry riders' mode of travel on this route and the corresponding egress modes from the ferry terminal to their final destinations. The differences in ridership estimates across the main mode of travel between table 7.10 and table 7.11 is due to more missing trips that did not have egress mode information. The boardings by egress modes seem to be similar to those of the access modes where a majority of riders use the car driver/motorcycle mode of travel to egress and a significant portion use the car passenger mode of travel. This shows that riders are probably choosing the same mode of travel for their access and egress.

The historic data reveals that the number of riders who chose to walk to their final destinations from the ferry terminal almost doubled, that is, 11 percent in 1993 and 10 percent in 1999 to 21 percent in 2006. This is probably because there are more jobs accessible to the ferry terminal, people prefer walking as a means to exercise, or they do not want to drive due to congestion or increase in fuel prices. This is corroborated by the drop in car driver/motorcycle mode share from 58 percent in 1993 to 48 percent in 2006. In 1999, the car driver/motorcycle was about 50 percent while the transit egress mode share was the highest (16 percent) compared to 8 percent in 1993 and 11 percent in 2006.

In 2006 weekends, the percent of riders using public transit as their egress mode drops from 3 percent in 1993 to about 2 percent each in 1999 and 2006, and this is probably due to the shift towards the walk mode, which is evident by the increase in its share from 8 percent in 1993 to 13 percent in 2006. However, in 1999, the walk share was the lowest at 7 percent as the car driver/motorcycle share was the highest in this year at 62 percent compared to about 56 percent each in 1993 and 2006. The rest of the egress modal shares are about the same across years as well and the trend is similar to that of the access modal shares. The only notable difference being that the transit usage for access to ferry terminals during weekends has gone up from 4 percent in 1993 to 9 percent in 2006 while it dipped to the lowest in 1999 to about 2 percent.

Table 7.11 Seattle-Bainbridge Trips by Egress Mode and Boarding Method
How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	216	3,339	37	3,592	20.5%	9.2%	10.6%
Biked	0	100	313	413	2.4%	2.2%	2.3%
Bus/Shuttle/ Train	51	1,882	0	1,933	11.0%	16.4%	7.9%
Taxi	17	408	0	425	2.4%	0%	1.1%
Car Driver/ Motorcycle	7,254	1,078	0	8,332	47.6%	49.9%	57.9%
Car Passenger	1,970	839	0	2,809	16.0%	22.3%	20.1%
Total	9,508	7,646	350	17,504	100%	100%	100%
Percent 2006	54.3%	43.7%	2.0%	100%			
Percent 1999	49.5%	48.2%	2.3%	100%			
Percent 1993	40.6%	57.4%	2.0%	100%			
Weekend							
Walked	70	2,069	0	2,139	13.3%	7.2%	8.4%
Biked	9	0	44	53	0.3%	0.9%	2.6%
Bus/Shuttle/ Train	53	241	0	294	1.8%	2.0%	3.2%
Taxi	0	103	0	103	0.6%	0%	1.0%
Car Driver/ Motorcycle	7,559	1,419	0	8,978	55.8%	61.9%	55.6%
Car Passenger	3,707	802	0	4,509	28.0%	28.0%	29.2%
Total	11,398	4,634	44	16,076	100%	100%	100%
Percent 2006	70.9%	28.8%	0.3%	100%			
Percent 1999	79.7%	19.4%	0.9%	100%			
Percent 1993	61.4%	35.8%	2.8%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 18,175 Missing: 671

2006 Weekend Trips: 16,583 Missing: 507

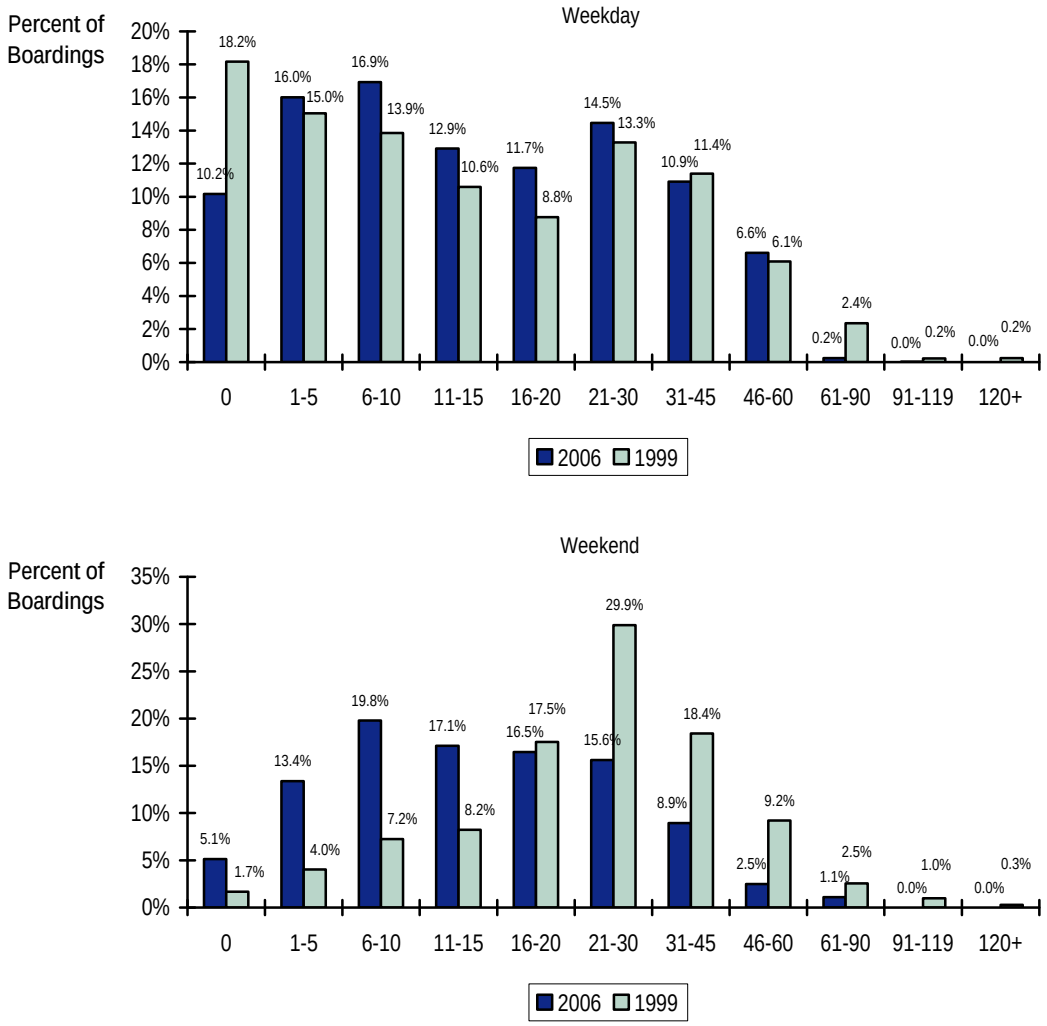
7.1.6 Wait Time

The out of vehicle travel times was measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 7.14 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, the majority of boardings were associated with a perceived wait time of about 6 to 10 minutes but overall the perceived wait times were evenly split between 0 to 45 minutes. This seems to be quite different from what it was in 1999. In 1999, there was a significant dip in perceived wait times between 11 and 20 minutes. The mean perceived wait time in 2006 was 20 minutes for weekday travel.

In 2006 weekends, the perceived wait times seems to follow a normal

distribution where the perceived wait times increase from 0 to 10 minutes and then decreases from 10 to 60 minutes. However, in 1999, the perceived wait times peaked between 21 and 30 minutes as opposed to 6 to 10 minutes in 2006. because traffic was heavier in 1999 The mean perceived wait time in 2006 was also 20 minutes on the weekend.

Figure 7.14 Seattle-Bainbridge Trips by Wait Time
About how many minutes did you wait to board this ferry?

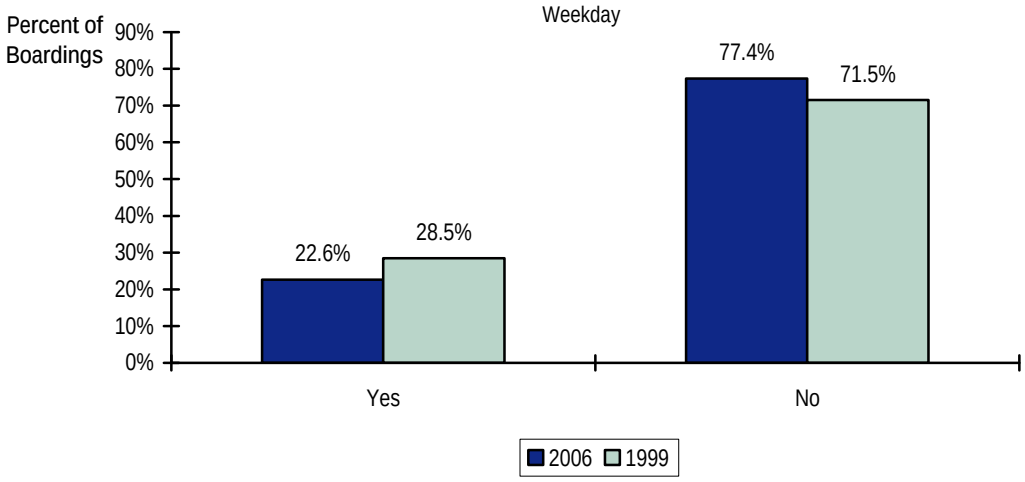


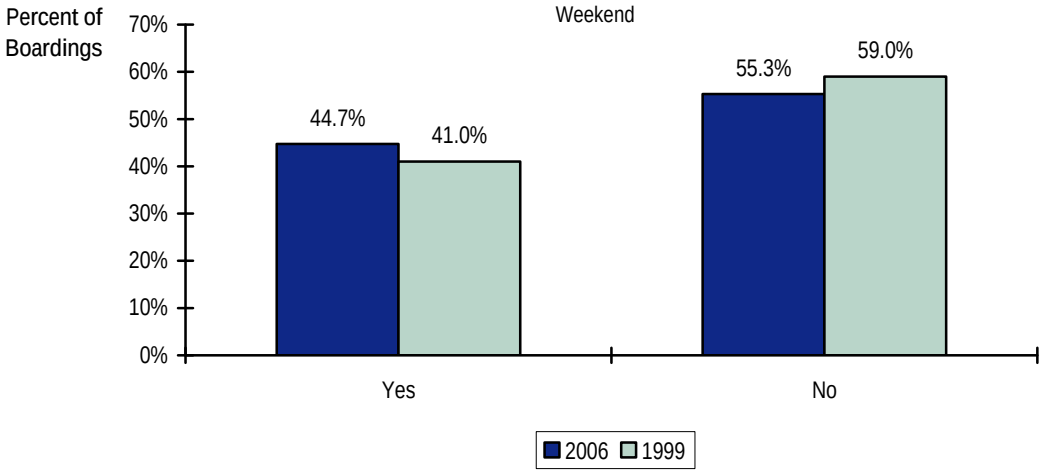
7.1.7 Parking

The parking statistics of walk-on passengers on this route were also examined. Primarily, these data summarizes if commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 7.15 presents the number of boardings by the response on parking from the respondent. A majority of riders in 2006 weekday did not park their vehicles at the ferry terminals, that is,

77 percent, and this is comparable to 1999. This could be due to the fact that the parking availability is low and the parking charges are high. However, during weekends, there is a significant difference where it almost evenly split between riders who park and who do not. This could be attributed to the lower traffic over weekends and so the availability is higher and the parking rates are lower. The average parking cost was $5 per day on weekdays and $7 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 7.15 Seattle-Bainbridge Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?





7.1.8 Weekday Eastbound Origins and Destinations

Figure 7.16 for weekday eastbound trips shows the origins and destinations of riders on this route from Bainbridge Island to Seattle in 2006. The boardings by auto and walk are about the same, that is, 55 percent of commuters use the drive mode while 45 percent are walk on passengers towards Seattle over the weekdays. These origins and destinations are detailed by district in Table 7.12. Figure 7.17 presents the individual locations of survey respondents' origins and destinations by boarding mode.

The major destinations are those that have high-employment density such as Seattle CBD (30 percent), Ballard-Green Lake (10 percent), and Capitol Hill (9 percent), Queen Anne (8 percent) and University District (5 percent). The rest of trips (40 percent) are pretty much dispersed through out greater Seattle area and King County.

Comparing to 1999 survey, the dominance of Seattle CBD as destination has increased slightly from 25 percent to 30 percent. This increasing pattern is also found for other major destinations in Seattle: Ballard-Green Lake (6 percent to 10 percent) and Capital Hill (5 percent to 8 percent). Interestingly, trips destined to University District are decreased from 12 percent to 5 percent.

The origins of these trips are predominantly from the South Bainbridge Island (45 percent) and North Bainbridge Island (16 percent). In total, Bainbridge Island riders constitute 61 percent of the total riders on the eastbound sailings. The other major origins are North Kitsap County (13 percent), Poulsbo (5 percent), Silverdale (3 percent) and Central Kitsap (2 percent).

Comparing to 1999 survey, the dominance of Bainbridge Island as trip origins, has increased from 54 percent to 61 percent. At the same time, trips from North Kitsap are decreased from 16 percent to 13 percent.

Both origins and destinations indicate there is an increasing dominance of riders live on Bainbridge Island and work in Seattle CBD, and they are live and work closer to the ferry terminals than ever before.

Figure 7.16 Seattle-Bainbridge Weekday Eastbound Origins and Destinations (2006)

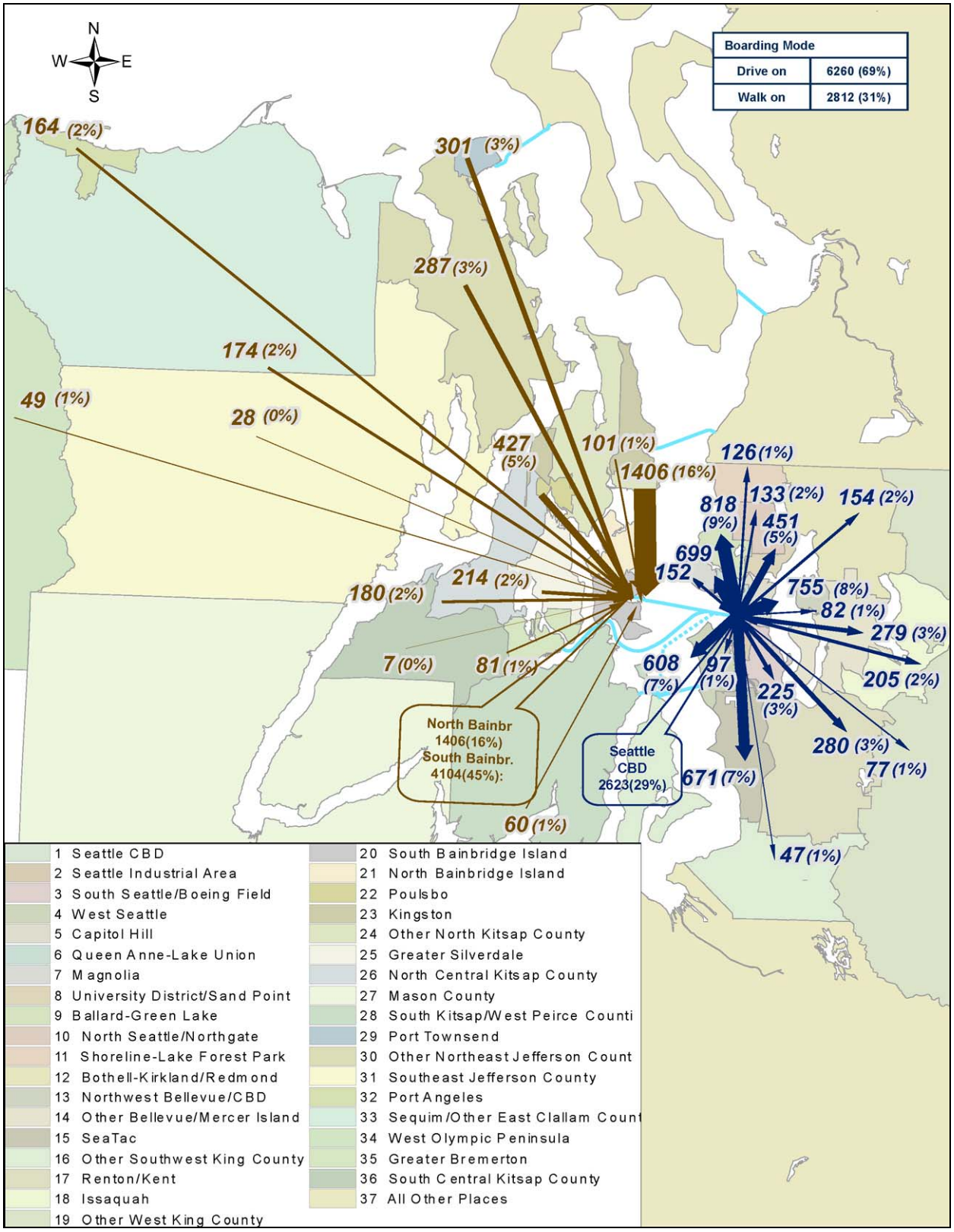


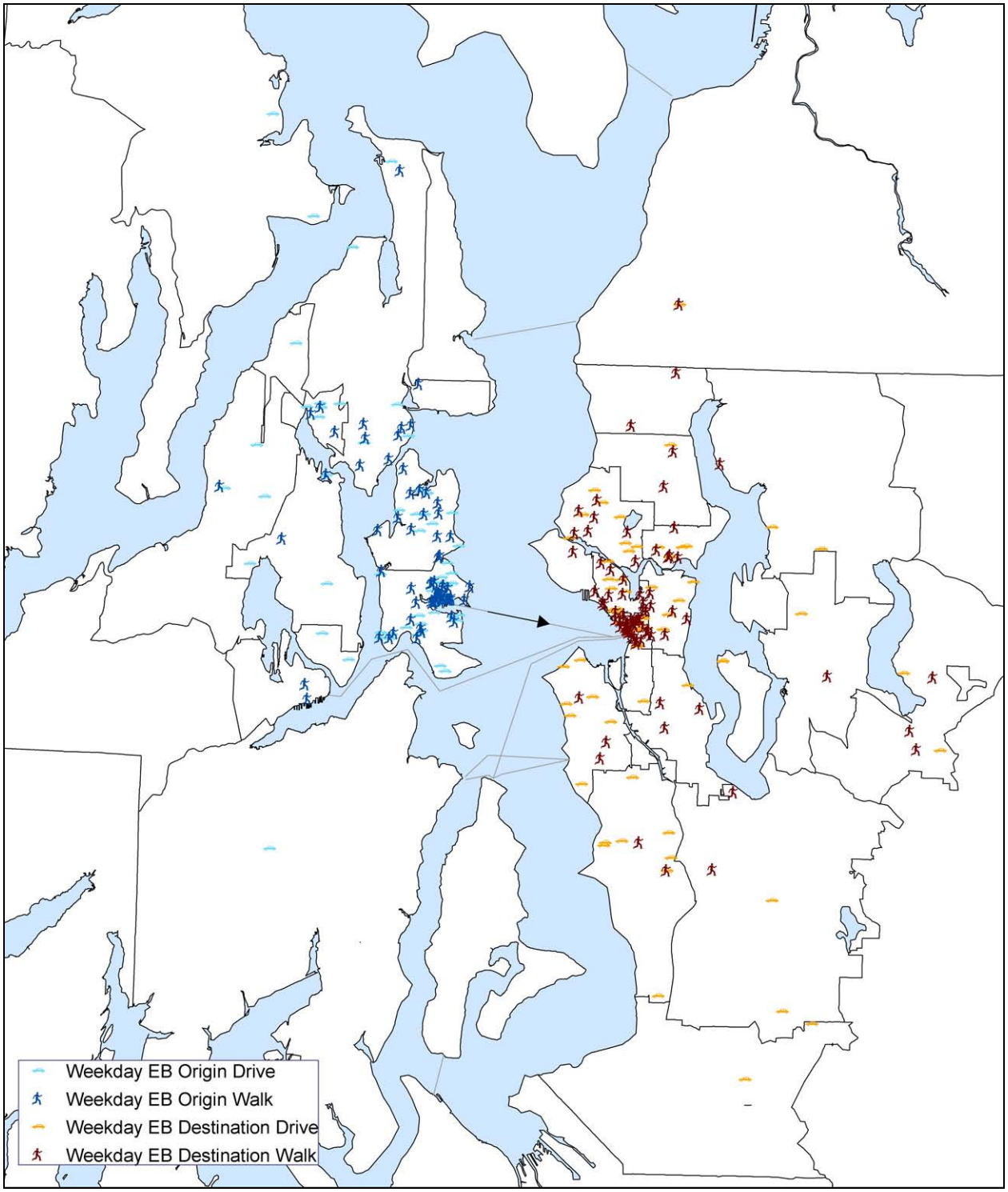
Table 7.12 Seattle-Bainbridge Weekday Eastbound Boardings by Origin and Destination District

	Destination District										
Origin District	Seattle CBD	Seattle Industrial Area	South Seattle/ Boeing Field	West Seattle	Capitol Hill	Queen Anne-Lane Union	Magnolia	University District/ Sand Point	Ballard-Green Lane	North Seattle/ Northgate	Shoreline-Lake Forest Park
South Bainbridge Island	1,080	34	139	184	385	182	93	181	555	120	126
North Bainbridge Island	471	27	14	16	115	151	23	233	66		
Poulsbo	86		7	66	59	66			46	13	
Kingston	34	7	24					2			
Other North Kitsap County	452	5		323	43	141	36	12	37		
Greater Silverdale	37			17	57	36			30		
North Central Kitsap County	63	7		2	16	7		7	7		
South Kitsap/West Pierce Counties	17				13				30		
Port Townsend	35		41		47	15					
Other Northeast Jefferson County	114				13				30		
Southeast Jefferson County	21					7					
Port Angeles	52								17		
Sequim/Other East Clallam County	93				7	13					
West Olympic Peninsula	2					47					
Greater Bremerton	18	17						16			
South Central Kitsap County	7										
All Other Places	41					34					
Total	2,623	97	225	608	755	699	152	451	818	133	126
Percent of Total	28.9%	1.1%	2.5%	6.7%	8.3%	7.7%	1.7%	5.0%	9.0%	1.5%	1.4%

Table 7.12 Seattle-Bainbridge Weekday Eastbound Boardings by Origin and Destination District (continued)

	Destination District										
Origin District	Bothell-Kirkland/ Redmond	Northwest Bellevue/CBD	Other Bellevue/ Mercer Island	SeaTac	Other Southwest King County	Renton/ Kent	Issaquah	Other West King County	All Other Places	Total	Percent of Total
South Bainbridge Island	87	14	75	260	17	143	126	51	252	4,104	45.2%
North Bainbridge Island	67	11	35	95		75			7	1,413	15.6%
Poulsbo			13	17		7		13	34	427	4.7%
Kingston						34				101	1.1%
Other North Kitsap County			102	108		21	41	13	45	1,386	15.3%
Greater Silverdale		13					17		7	214	2.4%
North Central Kitsap County			24	17					30	180	2.0%
South Kitsap/West Pierce Counties										60	0.7%
Port Townsend				17			14		132	301	3.3%
Other Northeast Jefferson County		44	30	14			7		35	287	3.2%
Southeast Jefferson County										28	0.3%
Port Angeles				61					34	164	1.8%
Sequim/Other East Clallam County				61						174	1.9%
West Olympic Peninsula										49	0.5%
Greater Bremerton					30					81	0.9%
South Central Kitsap County										7	0.1%
All Other Places				21						96	1.1%
Total	154	82	279	671	47	280	205	77	576	9,072	100%
Percent of Total	1.7%	0.9%	3.1%	7.4%	0.5%	3.1%	2.3%	0.8%	6.3%	100%	

Figure 7.17 Seattle-Bainbridge Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



7.1.9 Weekday Westbound Origins and Destinations

Figure 7.18 for weekday westbound trips presents the travel patterns of riders taking the Seattle to Bainbridge Island ferry. A majority of these commuters (8,884) chose the drive mode to travel on this ferry route compared to 2,358 walk on passengers. These origins and destinations are detailed by district in Table 7.13. Figure 7.19 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Nearly 41 percent of riders reported trip origins in Seattle CBD. The other major origins are: Queen Anne (8 percent), Capitol Hill (7 percent), SeaTac (6 percent) and University District (4 percent).

Comparing to 1999 survey, the dominance of Seattle CBD as trip origins on westbound has decreased significantly from 55 percent to 41 percent. This indicates that westbound trip origins are more dispersed than ever before and riders are traveling farther to the ferry terminal.

Bainbridge Island is the predominant destination with nearly 60 percent of the westbound trips, followed by North Kitsap with 13 percent. Other major destinations are: Poulsbo 7 percent, Silverdale 3 percent and Central Kitsap 2 percent.

Comparing to 1999 survey, the destination pattern did not change much. Bainbridge Island maintains the 60 percent dominating share. But notably, North Kitsap dropped from 17 percent to 13 percent, and also Central Kitsap from 4 percent to 2 percent. It seems that trips destined to locations outside Bainbridge Island are more dispersed. The number of trips destined to the West Olympic Peninsula remained the same at about 1 percent in 1999 and 2006.

Figure 7.18 Seattle-Bainbridge Weekday Westbound Origins and Destinations (2006)

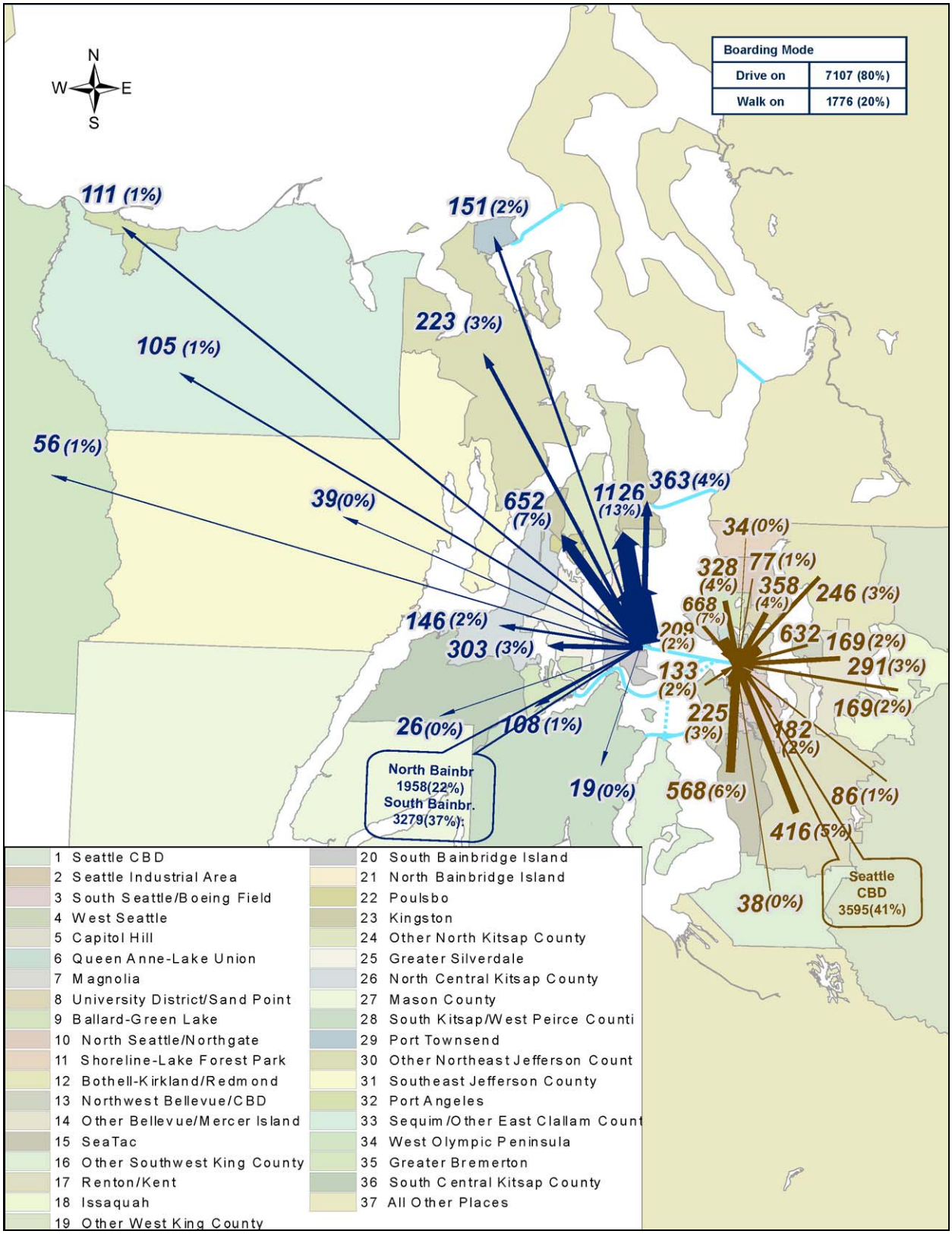


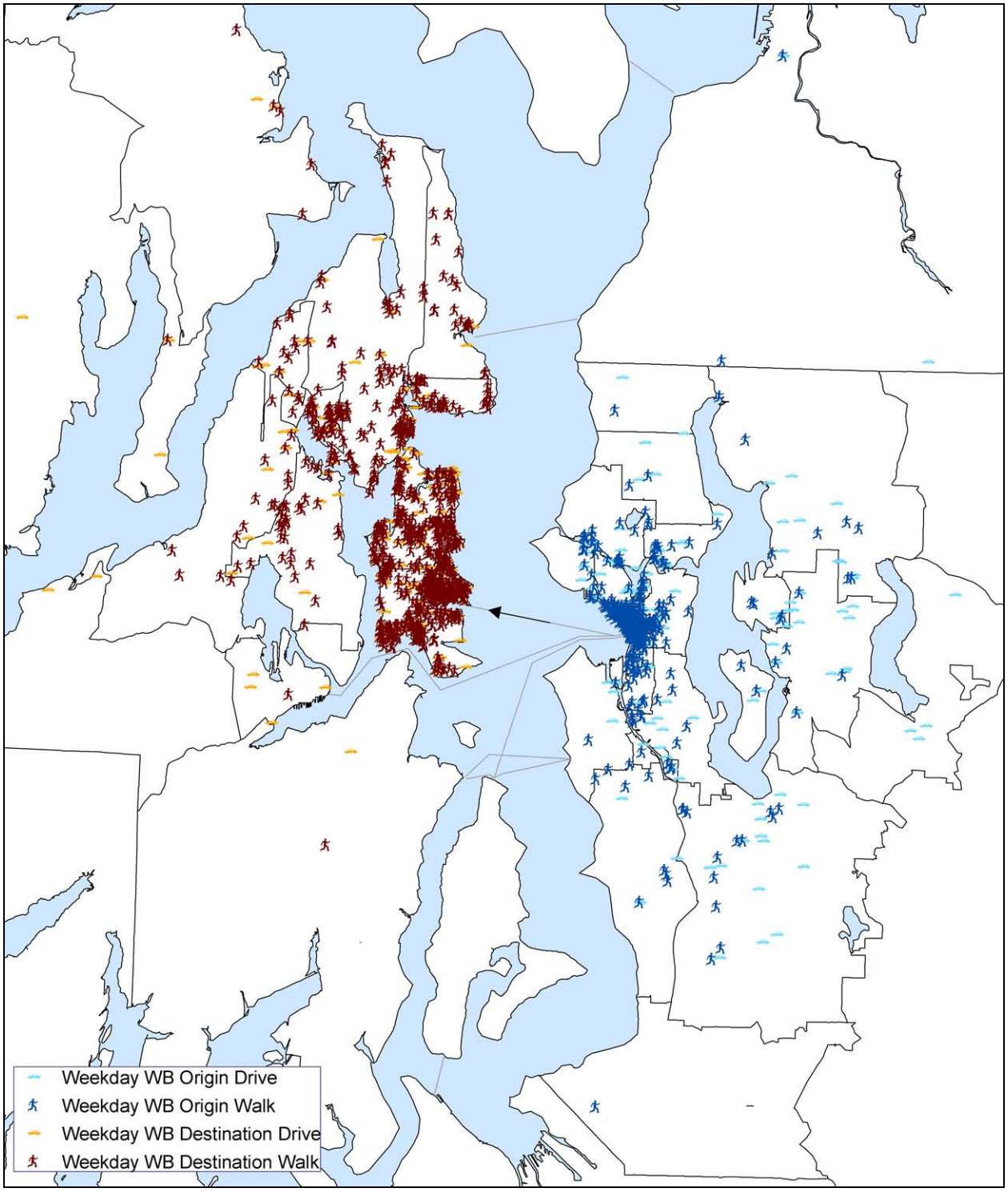
Table 7.13 Seattle-Bainbridge Weekday Westbound Boardings by Origin and Destination District

	Destination District									
Origin District	South Bainbridge Island	North Bainbridge Island	Poulsbo	Kingston	Other North Kitsap County	Greater Silverdale	North Central Kitsap County	South Kitsap/ West Pierce Counties	Port Townsend	Other Northeast Jefferson County
Seattle CBD	1,284	822	340	133	476	87	53	3	26	93
Seattle Industrial Area	92	47	5	16	43	3	13		3	3
South Seattle/Boeing Field	75	26	13	30	5	3			20	10
West Seattle	37	33	10		10	9	8		13	13
Capitol Hill	256	178	27	3	34	39	8	16	26	16
Queen Anne-Lake Union	230	209	38	5	81	16	13		9	3
Magnolia	60	113	3		27	3	3			
University District/Sand Point	161	106	5	8	30	8	13			
Ballard-Green Lake	160	69	27		25	26	13		8	
North Seattle/Northgate	55	3	16	3						
Shoreline-Lake Forest Park	31	3								
Bothell-Kirkland/Redmond	76	148			3	19				
Northwest Bellevue/CBD	34	12				77				46
Other Bellevue/Mercer Island	96	55	77		43		10			
SeaTac	135	56	12		204	3	12			26
Other Southwest King County	9	3								
Renton/Kent	118	65	10	165	31					
Issaquah	128				10				21	10
Other West King County	28		16		42					
All Other Places	214	10	53		62	10			25	3
Total	3,279	1,968	655	363	1,136	303	146	19	151	223
Percent of Total	36.9%	22.2%	7.4%	4.1%	12.8%	3.4%	1.6%	0.2%	1.7%	2.5%

Table 7.13 Seattle-Bainbridge Weekday Westbound Boardings by Origin and Destination District (continued)

	Destination District								
Origin District	Southeast Jefferson County	Port Angeles	Sequim/ Other East Clallam County	West Olympic Peninsula	Greater Bremerton	South Central Kitsap County	All Other Places	Total	Percent of Total
Seattle CBD	29	30	34	21	5	10	149	3595	40.5%
Seattle Industrial Area								225	2.5%
South Seattle/Boeing Field								182	2.0%
West Seattle								133	1.5%
Capitol Hill			13			16		632	7.1%
Queen Anne-Lake Union	10			35	16		3	668	7.5%
Magnolia								209	2.4%
University District/Sand Point					24		3	358	4.0%
Ballard-Green Lake								328	3.7%
North Seattle/Northgate								77	0.9%
Shoreline-Lake Forest Park								34	0.4%
Bothell-Kirkland/Redmond								246	2.8%
Northwest Bellevue/CBD								169	1.9%
Other Bellevue/Mercer Island					10			291	3.3%
SeaTac		63	35				22	568	6.4%
Other Southwest King County					26			38	0.4%
Renton/Kent					27			416	4.7%
Issaquah								169	1.9%
Other West King County								86	1.0%
All Other Places		18	23					418	4.7%
Total	39	111	105	56	124	26	180	8,884	100%
Percent of Total	0.4%	1.2%	1.2%	0.6%	1.4%	0.3%	2.0%	100%	

Figure 7.19 Seattle-Bainbridge Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



7.1.10 Weekend Eastbound Origins and Destinations

The eastbound weekend travel patterns to Seattle are similar to that of the weekday patterns in terms of an even split in the boarding method, that is, 4,917 drive and 4,124 walk on to the ferry. These are presented in Figure 7.20. However, the destinations of these trips are spread all over. These origins and destinations are detailed by district in Table 7.14.

Bainbridge Island is still the predominant trip origins with nearly 67 percent, followed by Poulsbo 6 percent and Port Townsend 4 percent. The rest of trips are dispersed all over Kitsap county and east peninsula.

The destinations are even more dispersed than origins. Only 18 percent of trips destined to Seattle CBD. The other major destinations are West Seattle 8 percent, Ballard 6 percent and Queen Anne 6 percent. The rest of trips are dispersed all over Seattle and King County areas.

Comparing to 1999 survey, Bainbridge Island has also gained significant dominance as trip origins from 54 percent to 67 percent in 2006. It is similar to what seen in weekday pattern. But Seattle CBD has lost dominance as a major trip destination from 25 percent in 1999 to 18 percent in 2006. The locations of destination are more dispersed than ever before.

Figure 7.21 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.20 Seattle-Bainbridge Weekend Eastbound Origins and Destinations (2006)

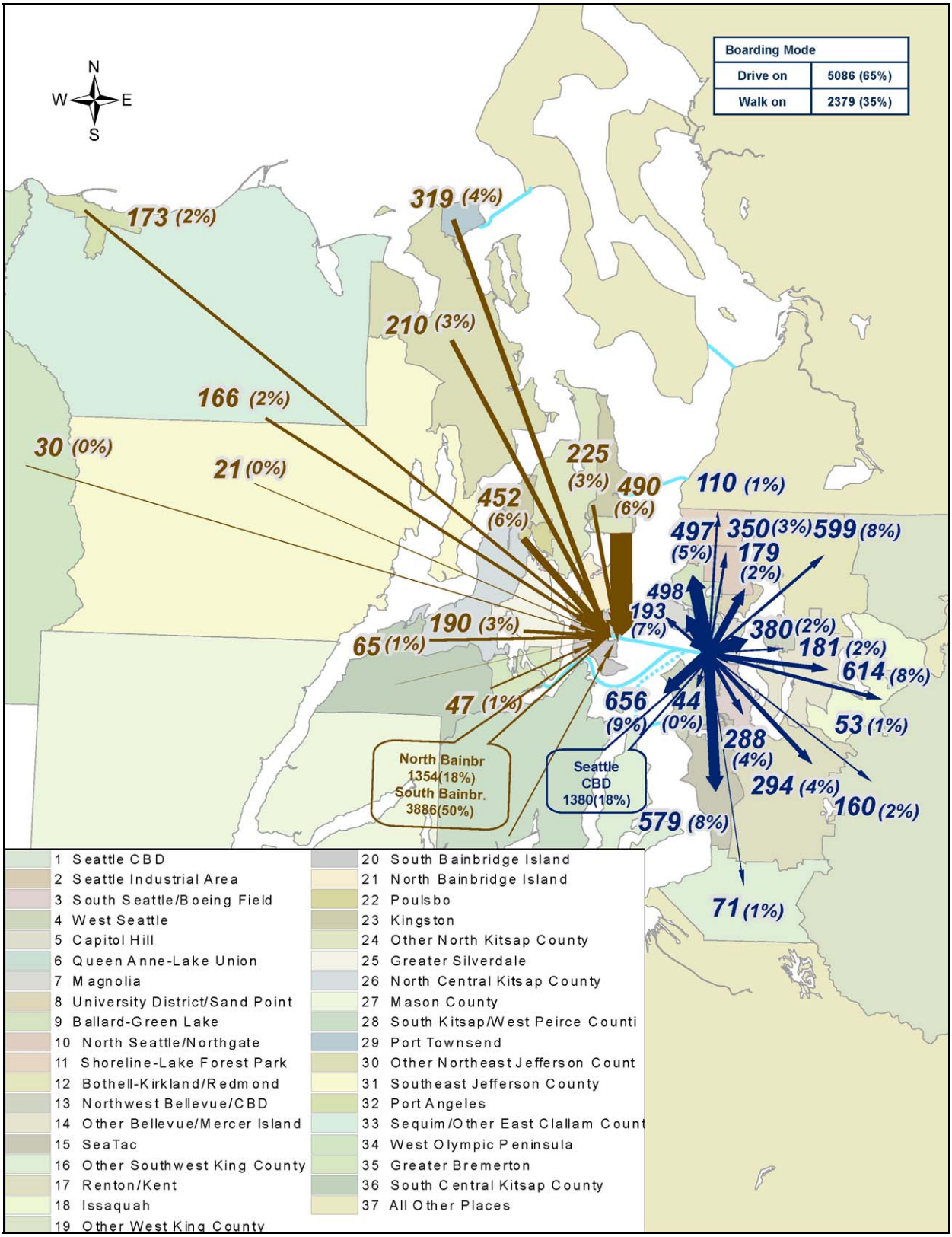


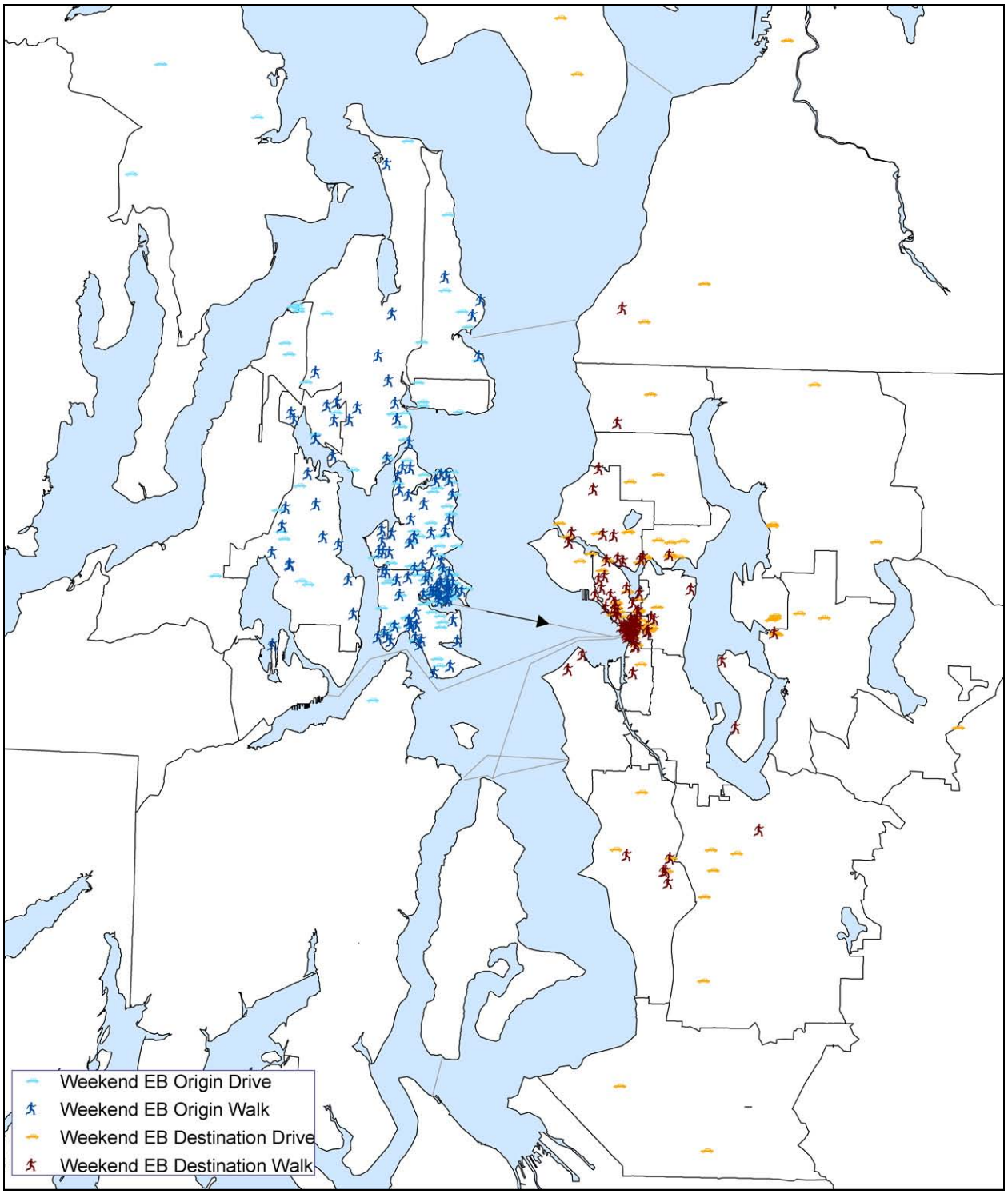
Table 7.14 Seattle-Bainbridge Weekend Eastbound Boardings by Origin and Destination District

	Destination District										
Origin District	Seattle CBD	Seattle Industrial Area	South Seattle/ Boeing Field	West Seattle	Capitol Hill	Queen Anne-Lake Union	Magnolia	University District/Sand Point	Ballard-Green Lane	North Seattle/ Northgate	Shoreline-Lake Forest Park
South Bainbridge Island	855		267	471	254	147	131	90	136	182	110
North Bainbridge Island	124	16	17	20	46	116		34	61	159	
Poulsbo	30	2	4	11		32	11	4	122		
Kingston	105	4			31	50					
Other North Kitsap County	57	12		21	28	42	38	20	20		
Greater Silverdale	57	2				2		11	6		
North Central Kitsap County	13										
South Kitsap/West Pierce Counties						20					
Port Townsend	22			116	21	19			110	9	
Other Northeast Jefferson County	21			17		2	11				
Southeast Jefferson County									21		
Port Angeles	36					14	2	9			
Sequim/Other East Clallam County	28	4				50					
West Olympic Peninsula											
Greater Bremerton	4					2			21		
All Other Places	28	4				2		11			
Total	1,380	44	288	656	380	498	193	179	497	350	110
Percent of Total	17.6%	0.6%	3.7%	8.4%	4.9%	6.4%	2.5%	2.3%	6.4%	4.5%	1.4%

Table 7.14 Seattle-Bainbridge Weekend Eastbound Boardings by Origin and Destination District (continued)

	Destination District										
Origin District	Bothell-Kirkland/ Redmond	Northwest Bellevue/ CBD	Other Bellevue/ Mercer Island	SeaTac	Other Southwest King County	Renton/Kent	Issaquah	Other West King County	Outside Region Study Area	Total	Percent of Total
South Bainbridge Island	93	20	302	261		77	9	108	373	3,888	49.7%
North Bainbridge Island	247	128	217	27		51	11	11	69	1,354	17.3%
Poulsbo	120	11	21		41		11		32	452	5.8%
Kingston				24		9			2	225	2.9%
Other North Kitsap County	108	11	24	9	19	19		41	21	589	7.5%
Greater Silverdale				101	11					190	2.4%
North Central Kitsap County	9		32			11				65	0.8%
South Kitsap/West Pierce Counties										20	0.3%
Port Townsend							11		11	319	4.1%
Other Northeast Jefferson County				20		99			40	210	2.7%
Southeast Jefferson County										21	0.3%
Port Angeles				112						173	2.2%
Sequim/Other East Clallam County	11	11	9	23		19			11	166	2.1%
West Olympic Peninsula							11		19	30	0.4%
Greater Bremerton	11		9							58	0.7%
All Other Places				2		9				65	0.8%
Total	599	181	614	579	71	294	53	160	578	7,825	100%
Percent of Total	7.7%	2.3%	7.8%	7.4%	0.9%	3.8%	0.7%	2.0%	7.4%	100%	

Figure 7.21 Seattle-Bainbridge Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



7.1.11 Weekend Westbound Origins and Destinations

The weekend westbound trips (in Figure 7.22) indicate that 71 percent of riders opt for the drive mode and the 29 percent chose to walk on to the ferry. These origins and destinations are detailed by district in Table 7.15.

The majority of origins of these trips are same as those listed in the previous section under weekend eastbound trips. All of these origins are either tourist attractions or major shopping locations in the region. These trips are probably returning home to their destinations mostly in Bainbridge Island and North Kitsap County. Figure 7.23 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.22 Seattle-Bainbridge Weekend Westbound Origins and Destinations (2006)

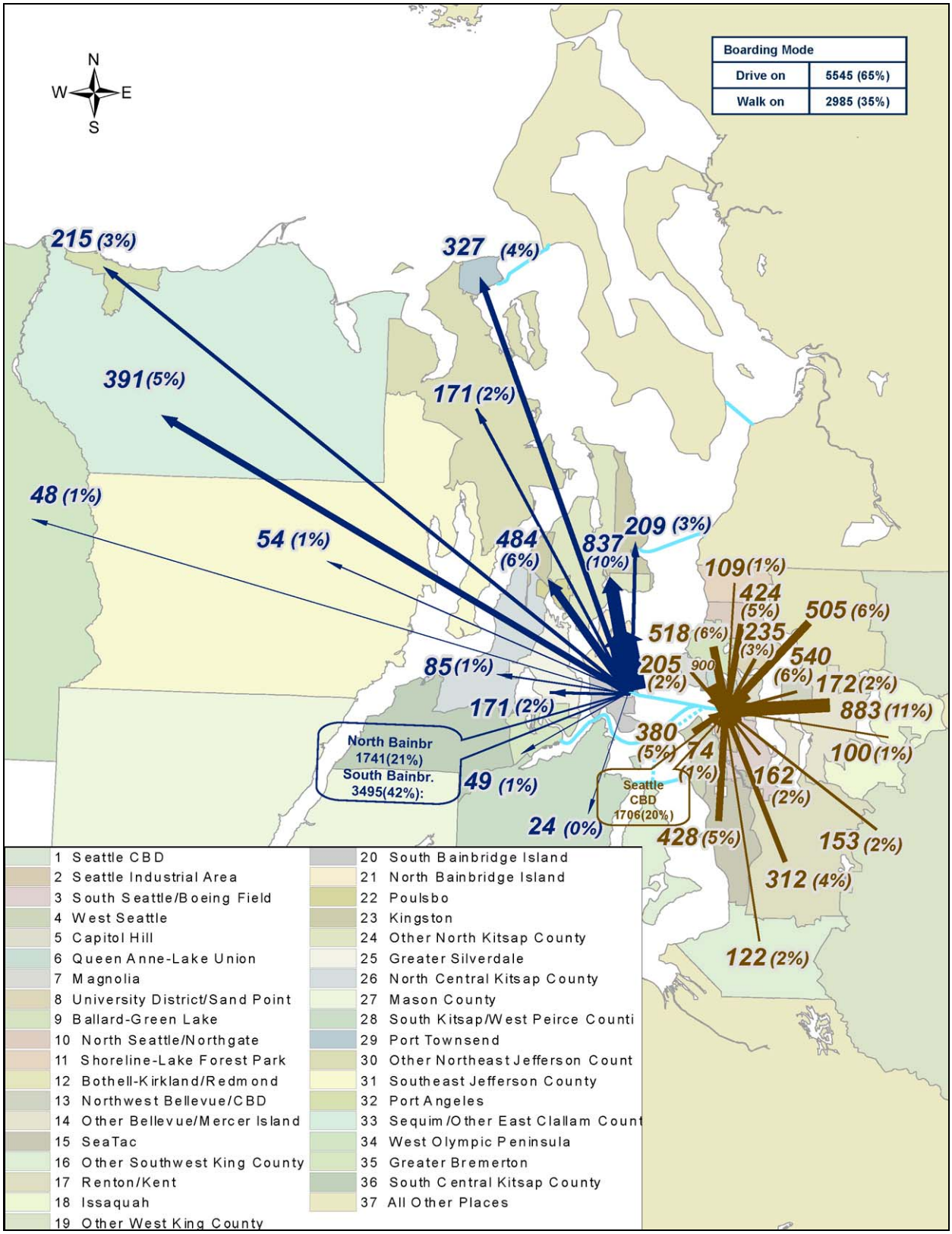


Table 7.15 Seattle-Bainbridge Weekend Westbound Boardings by Origin and Destination District

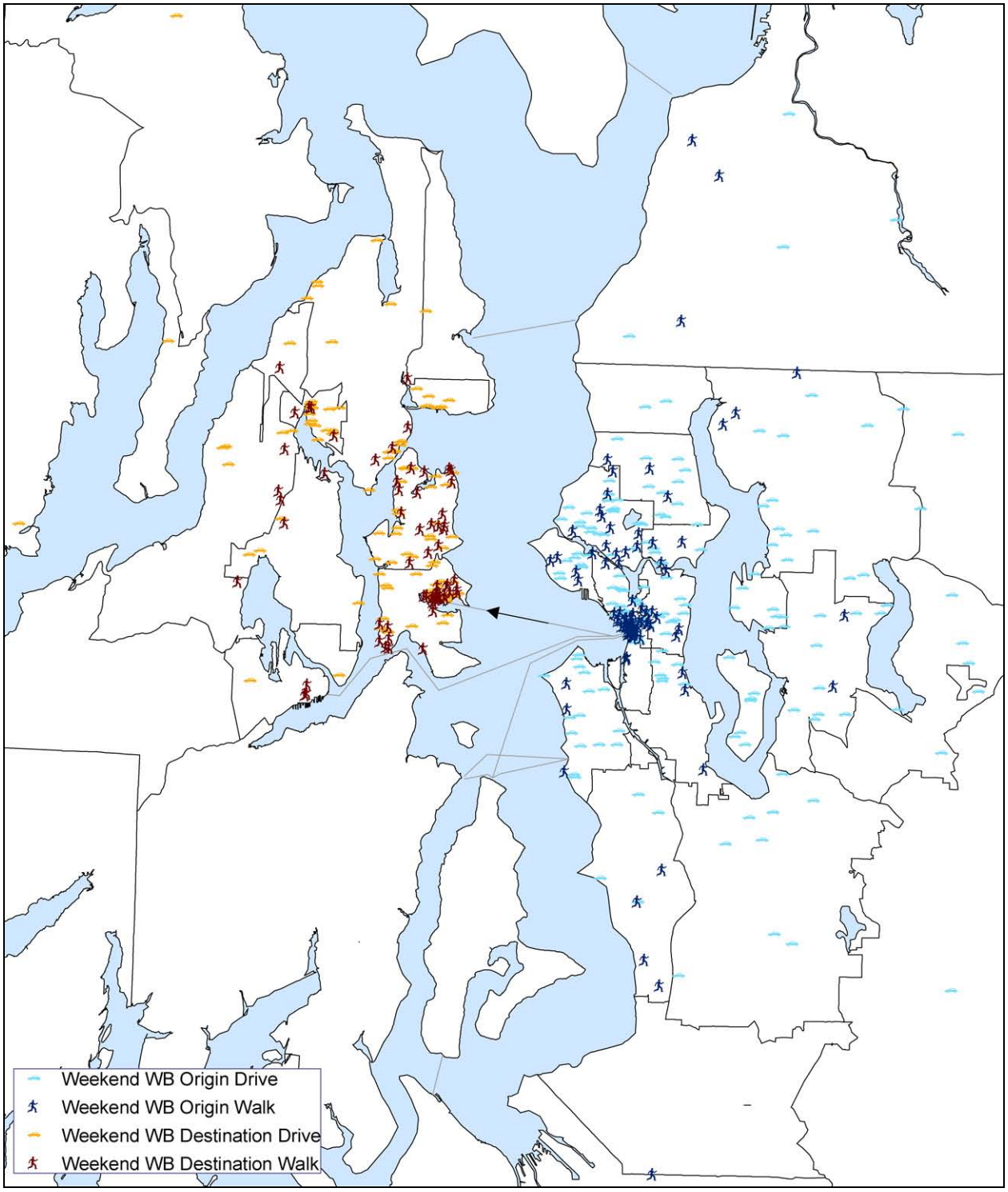
	Destination District								
Origin District	South Bainbridge Island	North Bainbridge Island	Poulsbo	Kingston	Other North Kitsap County	Greater Silverdale	North Central Kitsap County	South Kitsap/ West Pierce Counties	Port Townsend
Seattle CBD	871	191	53	52	129	60	15		61
Seattle Industrial Area		39	9	2	9	11			
South Seattle/Boeing Field	137	17	2						
West Seattle	243	30	6		36				48
Capitol Hill	243	67	17	36	55	15	2		47
Queen Anne-Lake Union	200	197	50	78	59	9		24	47
Magnolia	79		6		70				
University District/Sand Point	163	32	2		13	17			
Ballard-Green Lake	215	98	54		36	9			54
North Seattle/Northgate	167	216			24				17
Shoreline-Lake Forest Park	109								
Bothell-Kirkland/Redmond	146	217	54		59		17		
Northwest Bellevue/CBD	30	82	6		48				
Other Bellevue/Mercer Island	372	334	60		62		19		13
SeaTac	98	89		24	76	50			
Other Southwest King County			105		17				
Renton/Kent	106	54		17	35		6		
Issaquah	17	6	6				17		6
Other West King County	59	6	6		65				17
All Other Places	240	66	48		44		9		17
Total	3,504	1,741	484	209	878	171	85	24	327
Percent of Total	41.4%	20.6%	5.7%	2.5%	10.4%	2.0%	1.0%	0.3%	3.9%

Table 7.15 Seattle-Bainbridge Weekend Westbound Boardings by Origin and Destination District (continued)

	Destination District								
Origin District	Other Northeast Jefferson County	Southeast Jefferson County	Port Angeles	Sequim/ Other East Clallam County	West Olympic Peninsula	Greater Bremerton	All Other Places	Total	Percent of Total
Seattle CBD	39		94	102		11	28	1,706	20.2%
Seattle Industrial Area				2			2	74	0.9%
South Seattle/Boeing Field	6							162	1.9%
West Seattle				17				380	4.5%
Capitol Hill			17	41				540	6.4%
Queen Anne-Lake Union	11		35	132		17	41	900	10.6%
Magnolia		41	9					205	2.4%
University District/Sand Point			2				6	235	2.8%
Ballard-Green Lake	24	13				15		518	6.1%
North Seattle/Northgate								424	5.0%
Shoreline-Lake Forest Park								109	1.3%
Bothell-Kirkland/Redmond				6		6		505	6.0%
Northwest Bellevue/CBD				6				172	2.0%
Other Bellevue/Mercer Island			17	6				883	10.4%
SeaTac	15		41	35				428	5.1%
Other Southwest King County								122	1.4%
Renton/Kent	59			35				312	3.7%
Issaquah					48			100	1.2%
Other West King County								153	1.8%
All Other Places	17			9				450	5.3%
Total	171	54	215	391	48	55	97	8,454	100%
Percent of Total	2.0%	0.6%	2.5%	4.6%	0.6%	0.7%	1.1%	100%	

Note: District 9999 is outside study area.

Figure 7.23 Seattle-Bainbridge Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)



7.2 SEATTLE-BREMERTON

7.2.1 Route Description

This route connects Seattle and Bremerton, and is the longest of all the central cross-Sound routes with a crossing time of about 60 minutes. The crossing is approximately 13.5 nautical miles. It runs on all days, including Saturdays and Sundays. For 2006, the annual total ridership was 1.7 million passengers plus about 0.7 million vehicles and drivers for a total of 2.4 million people, or about 6,800 riders per day. This compares to 6,500 riders per day in 1999 and 5,300 riders per day in 1993.

The Seattle-Bremerton route has 14 sailings per day each direction, an increase of 2 sailings per day since 1993. In 1999, there was also a passenger-only ferry on the Seattle-Bremerton route, which had 14 sailings per day each direction. This was discontinued in September 2003 and a private company was running limited services for this passenger-only route during the survey time period. The vehicle capacity per vessel has also increased, from 90 vehicles per vessel in 1993 (on the Issaquah class vessel) to 124 vehicles per vessel on the Issaquah X class vessel and 144 vehicles per vessel on the Super class vessel in 2006. Passenger capacity on these vessels is the same for the Issaquah and Issaquah X class vessels (1,200 passengers per vessel) and the Super class vessel can carry 2,500 passengers per vessel. The fare is $11.25 for vehicles and $6.50 for passengers in 2006. In 2006 constant dollars, this represents a 43 percent increase in vehicle fares and a 45 percent increase in passenger fares since 1999.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip making on this route.

7.2.2 Trips by Purpose

The trip purposes of ferry riders on the Seattle-Bremerton route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 7.16 below shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as the Seattle-Bremerton ferry route is an east-west route.

There is about even split between eastbound and westbound travelers for all purposes (3,391 eastbound and 3,299 westbound). There are some small differences by trip purpose, particularly for recreational trips in which there are 585 eastbound trips and 450 westbound. This slight difference may also be attributed to the fact that Seattle and surrounding areas have tourist attractions that are more likely to attract shopping and recreation trips in the eastbound direction during weekdays in the p.m. period (which is how the 1999 and 1993 surveys are reported). This phenomenon does not exist over the weekends for

any of the survey years, where there is an almost even split by direction, because the weekend surveys were collected during the midday and afternoon periods rather than the p.m. peak period.

Table 7.16 Seattle-Bremerton Trips by Purpose and Direction

Direction	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	1999[a]	1993[a]
Weekday							
Eastbound	2,352	454	585	3,391	50.7%	30.4%	35.9%
Westbound	2,370	479	450	3,299	49.3%	69.6%	64.1%
Total	4,722	933	1,035	6,690	100%	100%	100%
Both dir. 2006	70.6%	13.9%	15.5%	100%			
Both dir. 1999	77.3%	7.8%	14.9%	100%			
Both dir. 1993	75.0%	8.3%	16.8%	100%			
Weekend							
Eastbound	369	1,204	1,553	3,126	52.9%	50.5%	49.0%
Westbound	291	692	1,798	2,781	47.1%	49.5%	51.0%
Total	660	1,896	3,351	5,907	100%	100%	100%
Both dir. 2006	11.2%	32.1%	56.7%	100%			
Both dir. 1999	12.5%	19.7%	67.8%	100%			
Both dir. 1993	14.9%	9.0%	76.1%	100%			

[a] 1999 and 1993 survey trips were not rebalanced by direction and as a result there is a large difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999. See Section 2.3 for more details. See Section 2.3 for more details.

2006 Weekday Trips: 6,901 Missing: 211

2006 Weekend Trips: 5,983 Missing: 76

Table 7.16 indicate an overall decline in commute trips between 1993 and 2006 for weekday travel and a corresponding increase in trips for medical, personal, and business purposes.

Table 7.17 shows the distribution of trips across time periods and by direction of travel. As expected, the p.m. period defined as 3 p.m. to 7 p.m., has the highest share of trips (56 percent) because of the return trips for work commutes, as well as people conducting personal business, shopping, and recreation. The a.m. peak period has 22 percent of travel because of the morning work commutes, but does not tend to have as many non-work trip purposes.

The 1993 and 1999 survey trips are quite different by direction. This difference is because of differences in expansion of the survey and is not attributable to any real differences in travel behavior. We calculated the p.m. period half-day percent westbound during the weekday at 77 percent, which represents an increase in westbound travel from 1993 (from 67 percent) to 2006.

Table 7.17 Seattle-Bremerton Trips by Time-of-Day and Direction [a]

Direction	Night (7:00 p.m.-5:00 a.m.)	A.M. Peak (5:00 a.m.-9:00 a.m.)	A.M. Off-Peak (9:00 a.m.-12:00 p.m.)	P.M. Off-Peak (12:00 p.m.-3:00 p.m.)	P.M. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Times 2006	All Times 1999	All Times 1993
Weekday									
Eastbound	22	1,147	542	184	1,008	2,903	42%	25.7%	33.3%
Westbound	528	351	69	220	2,832	4,000	58%	74.3%	66.7%
Total	550	1,498	611	404	3,840	6,903	100%	100%	100%
Both dir. 2006	8.0%	21.7%	8.9%	5.9%	55.6%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 6,903 Missing: 0

2006 Weekend Trips: 5,983 Missing: 1

7.2.3 Trip Frequency

The total number of trips and the purpose behind taking these trips on ferries in an average week in 2006 are shown in Table 7.18. For comparison summaries, the trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

This table shows that weekday travelers use the ferry for both work/school and nonwork trip purposes. Commuters represent 71 percent of all riders in on the Seattle and Bremerton ferry in 2006, about the same as on the Seattle-Bainbridge ferry. An additional 16 percent use the ferry on weekdays for medical, personal, and business reasons, and 17 percent use it for recreational purposes. In terms of frequency of usage, 39 percent of the Seattle and Bremerton riders (2,174 out of 5,631) take the ferry 9 to 10 times on weekdays in a typical week, and 48 percent of commuters use it this frequently. Nearly two-thirds of the commuters (64 percent) on the Seattle-Bremerton ferry ride the ferry between one and eight times per week.

Table 7.18 Seattle-Bremerton Trips by Purpose and Frequency

When was the first half of your trip or When will you return? How many one-way trips have you taken on a Washington State Ferry in the past 7 days, including this ride?

Frequency	Work/School	Personal Business Other	Recreation/ Shopping	Total	All Purpose 2006	All Purpose 1999	All Purpose 1993	Work/School 2006	Work/School 1999
Weekday									
1	161	142	313	616	16.4%	13.4%	20.9%	10.7%	5.8%
2	310	506	517	1333	35.5%	9.4%	9.7%	20.6%	4.7%
3-4	310	147	126	583	15.5%	9.2%	9.3%	20.6%	6.6%
5-6	423	22	11	456	12.1%	7.4%	11.9%	28.1%	7.4%
7-8	458	11	0	469	12.5%	15.2%	4.7%	30.4%	18.8%
9-10	2142	26	6	2174	57.9%	30.5%	43.5%	142.3%	38.6%
11+	702	24	0	726	19.3%	15.0%		46.6%	18.2%
Total	4506	878	973	6357	100%	100%	100%	100%	100%
Percent 2006	70.9%	13.8%	15.3%	100%					
Percent 1999	77.3%	7.8%	14.9%	100%					
Percent 1993	75.0%	8.3%	16.8%	100%					
Weekend									
1	159	889	1,758	2,806	53.6%	44.7%	56.0%		
2	43	299	624	966	18.4%	26.3%	25.0%		
3-4	83	435	371	889	17.0%	14.7%	10.8%		
5-6	40	51	138	229	4.4%	3.8%	3.6%		
7-8	193	1	18	212	4.0%	1.5%	1.4%		
9-10	20	0	6	26	0.5%	2.6%	3.2%		
11+	35	25	48	108	2.1%	6.4%			
Total	573	1,700	2,963	5,236	100%	100%	100%		
Percent 2006	10.9%	32.5%	56.6%	100%					
Percent 1999	12.5%	19.7%	67.8%	100%					
Percent 1993	14.9%	9.0%	76.1%	100%					

2006 Weekday Trips: 6,903 Missing: 1,272

2006 Weekend Trips: 5,983 Missing: 747

Table 7.18 also provides a comparison of trip frequency percents for years 1993, 1999, and 2006. The percent of ferry passengers that use the Seattle-Bremerton ferry for commuting purposes has fluctuated over the 1993 to 2006 time period, rising from 75 percent in 1993 to 77 percent in 1999 and then declining to 71 percent in 2006. Passengers are making greater use of the ferry in 2006 for medical, personal and other business reasons, increasing from 8 percent in 1993 to 14 percent in 2006, with a slight dip in between in the year 1999. Use of the ferry for recreational purposes has hovered around the 15 to 17 percent range over the 13-year period.

The percent of passengers who ride the ferry frequently has increased from 56.8 percent who used it nine or more times per week in 1999 to 63 percent in 2006 that use it this frequently. However, frequency of ridership in the one to eight days per week range has fluctuated over the 13-year period enough that a clear pattern is not evident.

During weekends there are far more nonwork ferry trips than those for commuting purposes. While 71 percent of the weekday trips are for commuting, only 10.9 percent (573 out of 5,236) of the weekend trips are for this purpose. Conversely, 56 percent (2,963 out of 5,236) of the weekend trips are for recreation, shopping, and leisure, whereas 15 percent (973 out of 6,357) of the weekday trips are for this purpose. The frequency of weekend ferry use is also lower than weekday. In fact, 56 percent (2,806 out of 5,236) of the weekend ferry riders only use the ferry once in a typical month. This is compared with only 10 percent (616 out of 6,357) of weekday ferry riders who use the ferry only once per month on average.

Over the 1993 to 2006 time period some minor trends are observed. Recreational weekend trips declined from 76 percent in 1993 to 68 percent in 1999 to 57 percent in 2006. Use of the ferry for medical, personal, and business purposes on weekends has increased over time, from 9 percent in 1993 to 20 percent in 1999 to 33 percent in 2006.

Table 7.19 provides the time of distribution of trips along this route by trip purpose. More than half of the trips, that is 3,770 out of 6,690 or about 57 percent of travel occurs during the PM peak period (3:00 p.m. to 7:00 p.m.), while the trips that occur during the AM peak period (5:00 a.m. to 9:00 a.m.) is a distant second at 22 percent. Trips occurring in the other off-peak periods are about evenly distributed (6 to 8 percent). A majority of the work/school commuting trips occur in the PM peak period (2,991 out of 4,722). Most of the personal business trips and recreation/shopping trips also occur during the PM peak period (367 out of 933 and 412 out of 1,035 respectively).

Table 7.19 Seattle-Bremerton Trips by Purpose and Time-of-Day
Purpose: What is/are the reason(s) you are riding the ferry today?

Direction	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	Total	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	304	118	99	521	6.4%	12.6%	9.6%	7.8%
A.M. Peak (5 a.m.-9 a.m.)	1218	155	111	1484	25.8%	16.6%	10.7%	22.2%
P.M. Off-Peak (9 a.m.-12 p.m.)	209	123	201	533	4.4%	13.2%	19.4%	8.0%
P.M. Off-Peak (12 p.m.-3 p.m.)		170	212	382	0.0%	18.2%	20.5%	5.7%
P.M. Peak (3 p.m.-7 p.m.)	2991	367	412	3770	63.3%	39.3%	39.8%	56.4%
Total	4722	933	1035	6690	100%	100%	100%	100%
Percent 2006	70.6%	13.9%	15.5%	100%				
Percent 1999	66.8%	13.5%	19.8%	100%				
Percent 1993	74.7%	9.6%	15.7%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

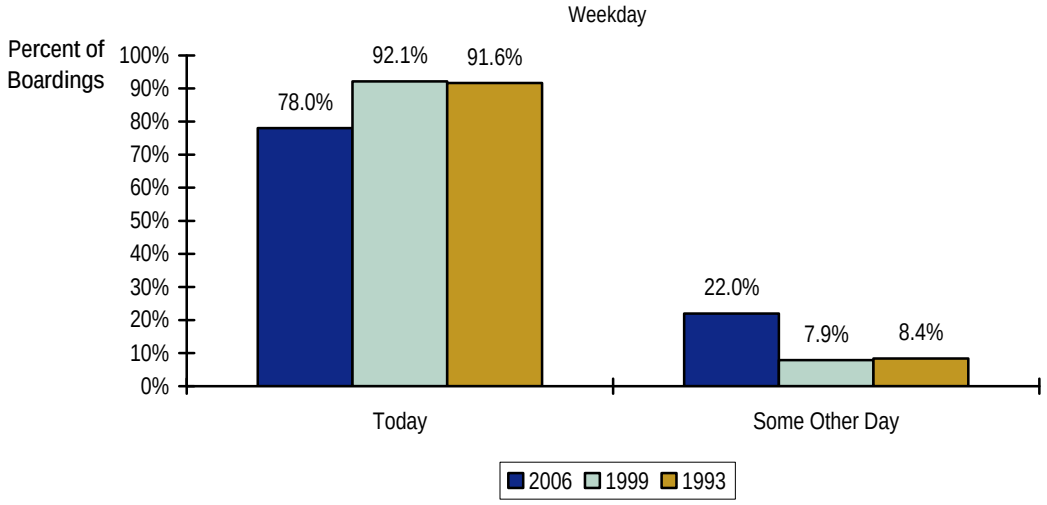
2006 Weekday Trips: 6,903 Missing: 213

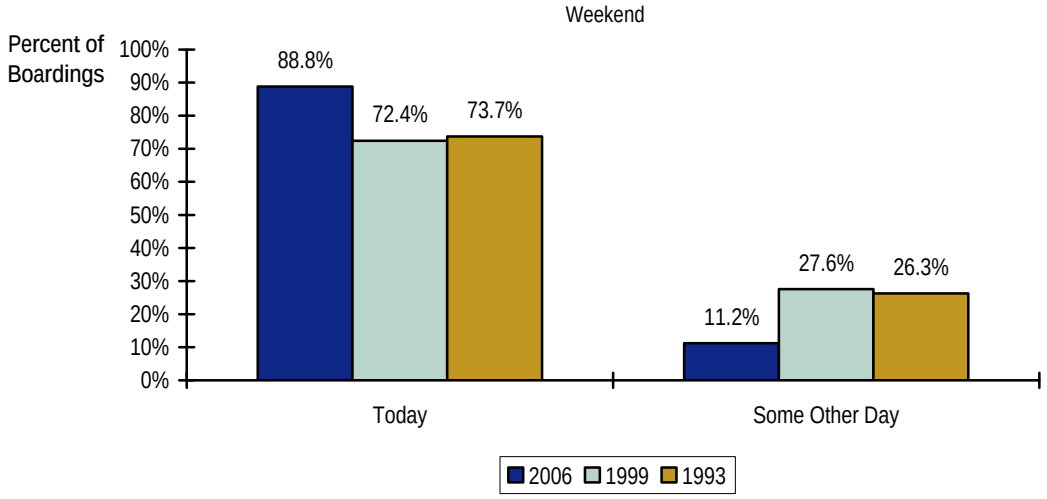
2006 Weekend Trips: 5,983 Missing: 76

7.2.4 Round-Trip Patterns

As the 2006 surveys were done only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 7.20 below shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled the same day for both their onward and backward journeys, that is, 78 percent of 6,823 on weekdays and 89 percent of 5,836 on weekends.

Figure 7.24 Seattle-Bremerton Round Trip Patterns by Day
When was the first half of your trip or When will you return?





2006 Weekday Trips: 6,903 Missing: 80
2006 Weekend Trips: 5,983 Missing: 147

However, when comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on a different day in 2006 is higher than the 1993 and 1999 estimates. In 1993 and 1999, the number of boardings on this route on a different day was 8 percent and 8 percent, respectively, while in 2006, it was 22 percent.

During the weekends in 2006, a majority of trips are made on the same day (89 percent). The 1993 and 1999 estimates are lower, at 72 and 74 percent respectively. On weekends, 26 percent of the boardings in the 1993 study were for turn trips on some other day, and 28 percent of the trips in the 1999 study—

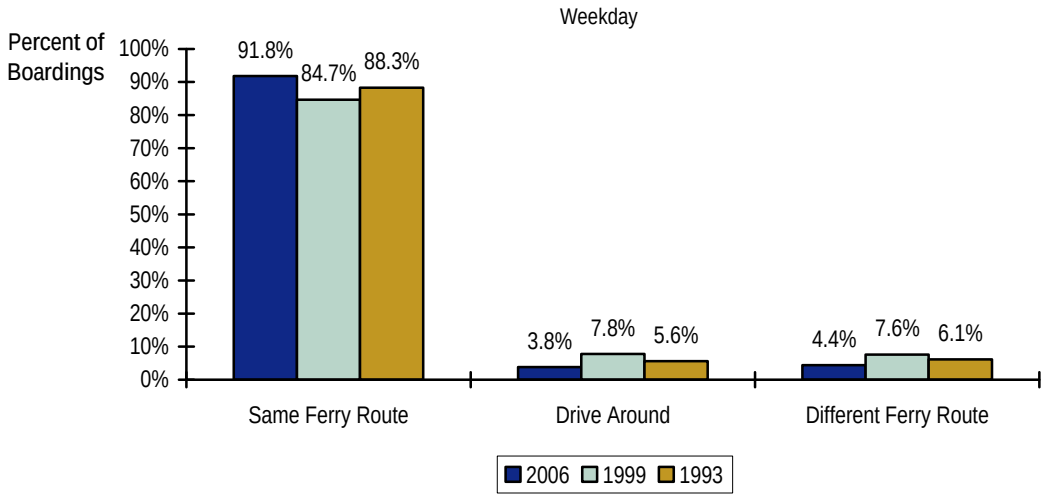
both well above the 11 percent in the 2006 study who returned on a different day.

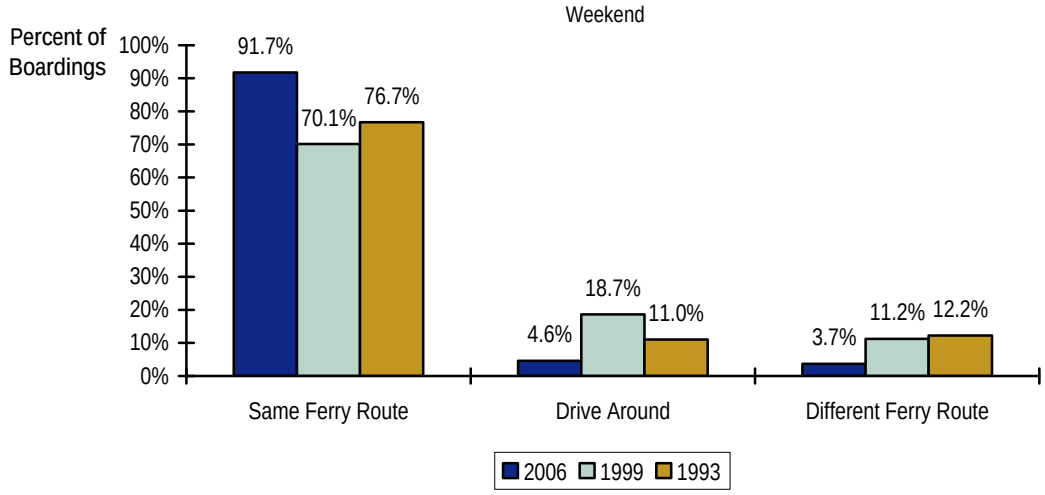
Some differences may be due to difference between collecting surveys on a Sunday (in 1999 and 1993) and on a Saturday (in 2006) because Sunday trips are more likely to be part of a weekend journey where the outbound part of the trip occurred on Friday or Saturday.

For riders who made one-half of their trip on this route, Figure 7.25 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. As expected, a large number of boardings indicated that they chose the same route because of the fact that travelers have to return to their home base. This was particularly true in 2006 when 92 percent used the same ferry route. These numbers were just slightly lower in 1993 when 88 percent used the same ferry and 1996 when 85 percent did so.

From the weekend estimates, the trends are slightly different, especially in 1999 and 1993 when more boardings were onto a different ferry route for at least one-half of the trip. It was 11 percent in 1999 and 12 percent in 1993 compared to only 4 percent in 2006. It is likely that this trend is because the previous surveys were collected on a Sunday, when the trips are more likely to be part of a weekend journey and involve multiple destinations, and the current survey was collected on a Saturday, when the trips are more likely to be single destinations, such as shopping.

Figure 7.25 Seattle-Bremerton Round Trip Patterns by Route
How will you return OR How did you travel on the first half of your trip?





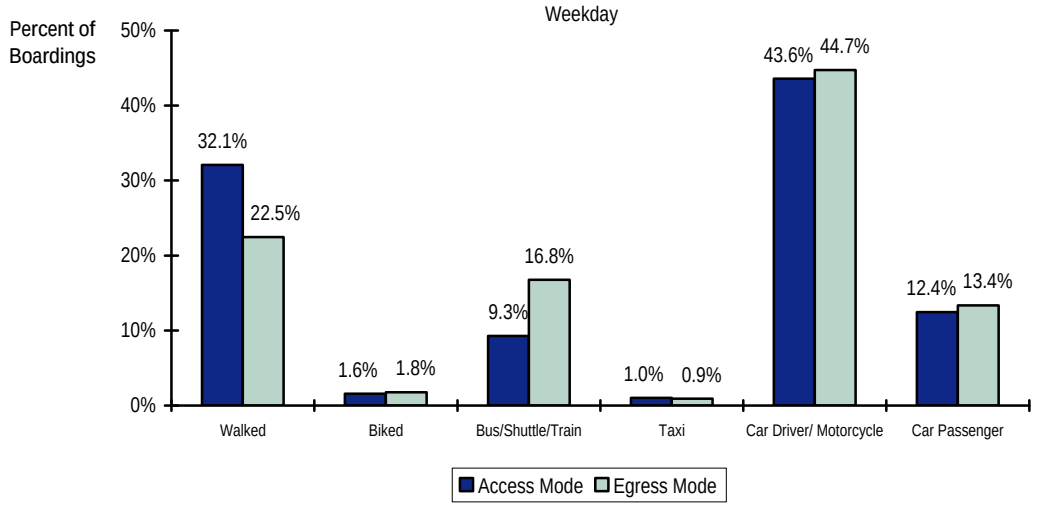
2006 Weekday Trips: 6,903 Missing: 89

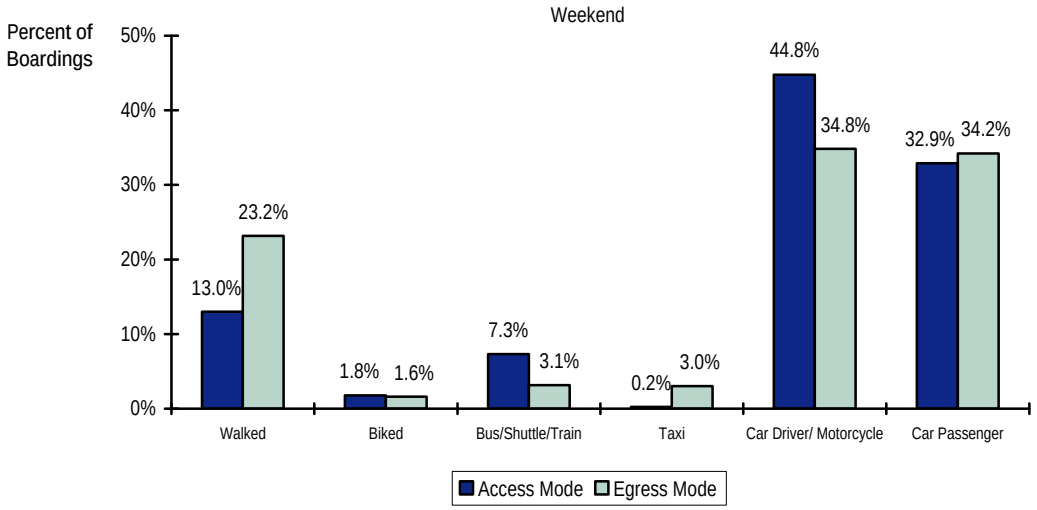
2006 Weekend Trips: 5,983 Missing: 185

7.2.5 Access, Egress and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 7.26 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Figure 7.26 Seattle-Bremerton Trips by Access and Egress Mode
How did you travel from your origin location to this sailing? How did you travel to the destination you are going to now?





The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Table 7.20 shows the mode of travel on this route and the corresponding access modes to the ferry terminal.

Table 7.20 Seattle-Bremerton Trips by Access Mode and Boarding Method

How will/did you board this ferry? How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	52	2,134	3	2,189	32.1%	31.8%	33.3%
Biked	11	3	93	107	1.6%	2.0%	2.8%
Bus/Shuttle/ Train	71	562	0	633	9.3%	16.9%	13.7%
Taxi	0	70	0	70	1.0%	0%	0.8%
Car Driver/ Motorcycle	2,691	281	0	2,972	43.6%	30.6%	37.1%
Car Passenger	448	401	0	849	12.4%	18.8%	12.2%
Total	3,273	3,451	96	6,820	100%	100%	100%
Percent 2006	48.0%	50.6%	1.4%	100%			
Percent 1999	32.8%	65.2%	1.9%	100%			
Percent 1993	31.0%	66.4%	2.6%	100%			
Weekend							
Walked	0	773	0	773	13.0%	11.1%	12.2%
Biked	0	9	97	106	1.8%	0.7%	2.3%
Bus/Shuttle/ Train	0	435	0	435	7.3%	4.5%	4.7%
Taxi	0	14	0	14	0.2%	0%	0.3%
Car Driver/ Motorcycle	2,211	454	0	2,665	44.8%	59.5%	47.4%
Car Passenger	1,508	450	0	1,958	32.9%	24.2%	33.2%
Total	3,719	2,135	97	5,951	100%	100%	100%
Percent 2006	62.5%	35.9%	1.6%	100%			
Percent 1999	64.7%	34.3%	1.0%	100%			
Percent 1993	55.3%	42.6%	2.1%	100%			

[a]Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 6,901 Missing: 83

2006 Weekend Trips: 5,983 Missing: 32

During the 2006 average weekday, most of the riders either chose to drive or walk onto this ferry, and a small fraction chose to bike. A majority of those riders who drove, 88 percent (2,691 out of 3,273) arrived at the terminal in a car or on a motorcycle. In fact, 62 percent (2,134 out of 3,451) of the ferry riders who chose to walk onto the ferry walked directly to its terminal, 16 percent used public transportation, 12 percent got dropped off, 8 percent drove to the ferry terminal. The number of boardings by drive mode increased from 31 percent in 1993 to 33 percent in 1999 to 48 percent in 2006. The number of walk-on boardings went down from 66 percent in 1993, to 65 percent in 1999 to 51 percent in 2006.

During 2006 weekends, more people chose to drive (63 percent) than walk on (36 percent) to the ferry system. On weekdays slightly fewer people drove (48 percent) and slightly more walked (51 percent). On both weekdays and weekends there is a trend (from 1993 to 2006) toward more people driving on the ferry than walking.

Table 7.21 shows ferry riders' mode of travel on this route and the corresponding egress modes from the ferry terminal to their final destinations. The differences between tables 7.20 and 7.21 are due to the fact that there are more missing records pertaining to mode of egress than access. The results, however, are nearly identical for access and egress. The vast majority of riders use the car driver/motorcycle mode of travel and a significant portion use the car passenger mode of travel. Ferry riders are choosing the same mode of travel for both their access and egress.

The historic data reveals that the number of riders who chose to walk to their final destinations from the ferry terminal was relatively flat between 1993 and 1999 at about 12 percent, than increased to 23 percent in 2006. The percent who took public transit varied, from a low of 11 percent in 1993, rising to 23 percent in 1999 and dipping to 17 percent in 2006. Driving remained the most common egress mode, with a 53 percent share in 1993, declining to 42 percent in 1999 and rising again slightly to 45 percent in 2006. The number of car passengers went from the 20 to 21 percent range in 1993 and 1999 to 13 percent in 2006.

In 2006 weekends, the percent of ferry passengers whose egress mode was walking increased significantly from 7 percent in 1993 to 12 percent in 1999 to 23 percent in 2006. Other egress modal shares fluctuated, with no discernable trend.

Table 7.21 Seattle-Bremerton Trips by Egress Mode and Boarding Method
How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	117	1,388	3	1,508	22.5%	12.5%	12.2%
Biked	11	15	93	119	1.8%	1.5%	3.2%
Bus/Shuttle/Train	52	1,073	0	1,125	16.8%	22.9%	10.8%
Taxi	0	61	0	61	0.9%	-	0.6%
Car Driver/ Motorcycle	2,622	382	0	3,004	44.7%	42.2%	53.4%
Car Passenger	425	472	0	897	13.4%	21.0%	19.8%
Total	3,227	3,391	96	6,714	100%	100%	100%
Percent 2006	48.1%	50.5%	1.4%	100%			
Percent 1999	32.8%	65.2%	1.9%	100%			
Percent 1993	31.0%	66.4%	2.6%	100%			
Weekend							
Walked	33	1,278	0	1,311	23.2%	12.1%	6.7%
Biked	0	0	91	91	1.6%	1.0%	1.9%
Bus/Shuttle/Train	9	169	0	178	3.1%	5.9%	6.5%
Taxi	18	153	0	171	3.0%	-	1.2%
Car Driver/ Motorcycle	1,891	81	0	1,972	34.8%	58.5%	50.4%
Car Passenger	1,498	433	6	1,937	34.2%	22.5%	33.1%
Total	3,449	2,114	97	5,660	100%	100%	100%
Percent 2006	60.9%	37.3%	1.7%	100%			
Percent 1999	64.7%	34.3%	1.0%	100%			
Percent 1993	55.3%	42.6%	2.1%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings; i.e., all passengers in vehicles.

2006 Weekday Trips: 6,901 Missing: 189

2006 Weekend Trips: 5,983 Missing: 323

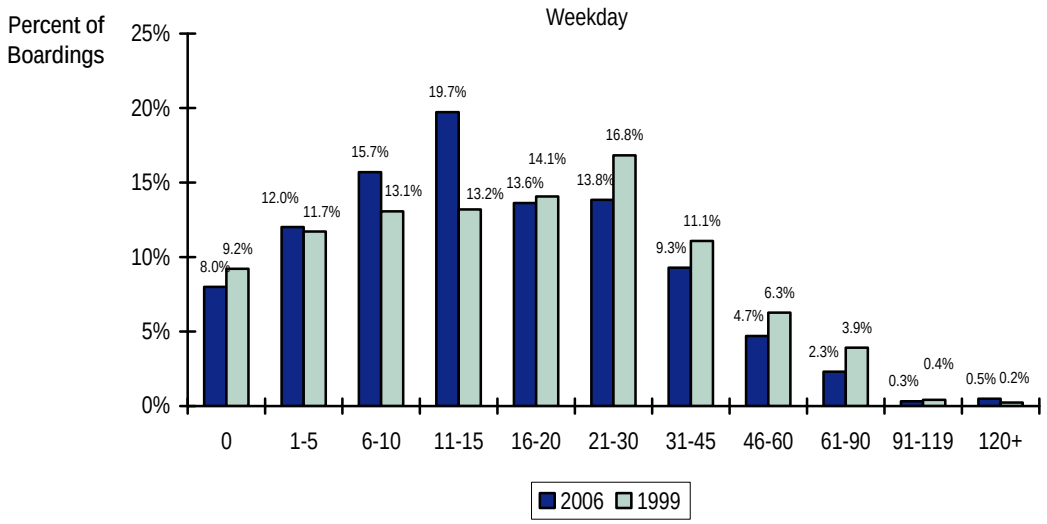
7.2.6 Wait Time

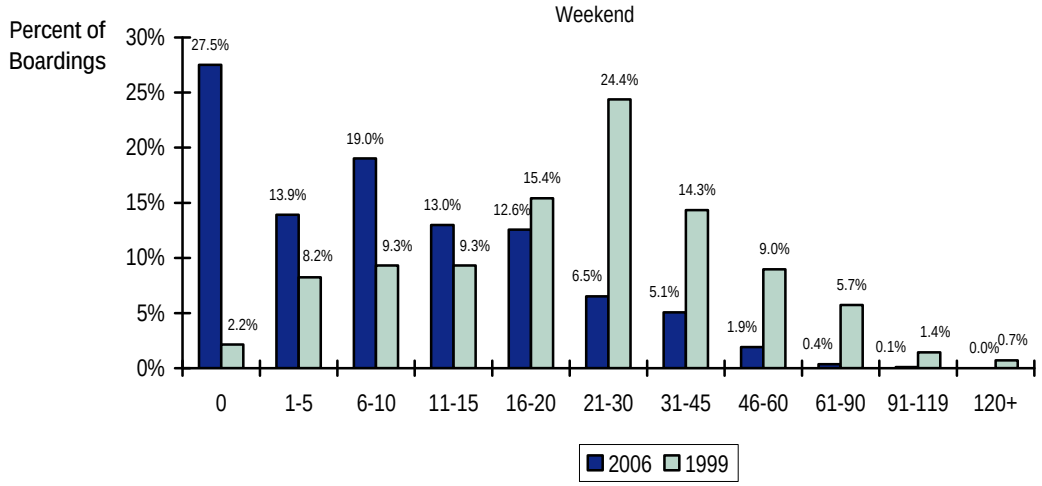
The out-of-vehicle travel times were measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 7.27 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, the majority of boardings were associated with a perceived wait time of about 11 to 15 minutes. In both 1999 and in 2006, 61 percent of the ferry passengers waited 20

minutes or less for a ferry. The mean perceived wait time for weekdays in 2006 was 22 minutes.

In 2006 weekends, again the typical perceived wait time was even less, with 27 percent saying they did not wait at all, and 86 percent waiting under 20 minutes. In 1999, perceived wait times were somewhat longer with 44 percent waiting under 20 minutes. The mean perceived wait time for weekends in 2006 was 13 minutes.

Figure 7.27 Seattle-Bremerton Trips by Wait Time
About how many minutes did you wait to board this ferry?

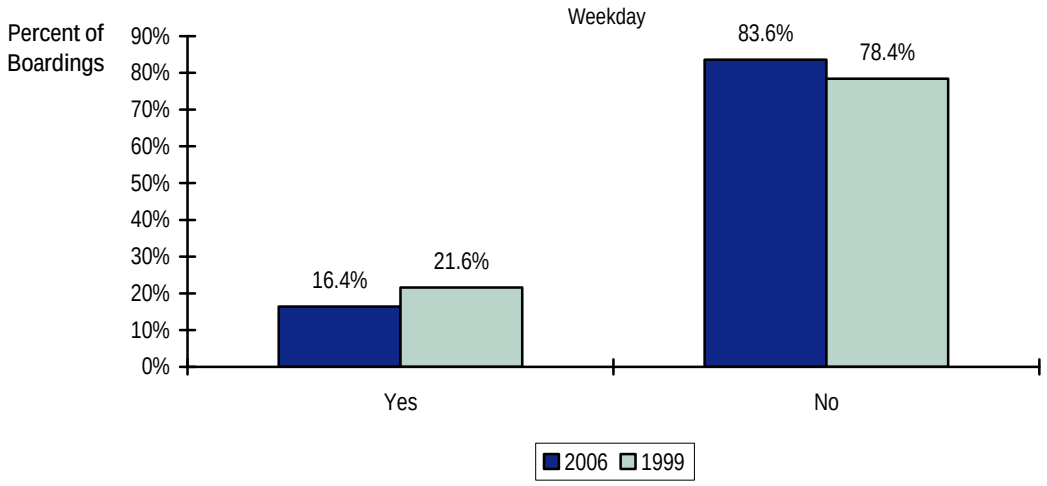


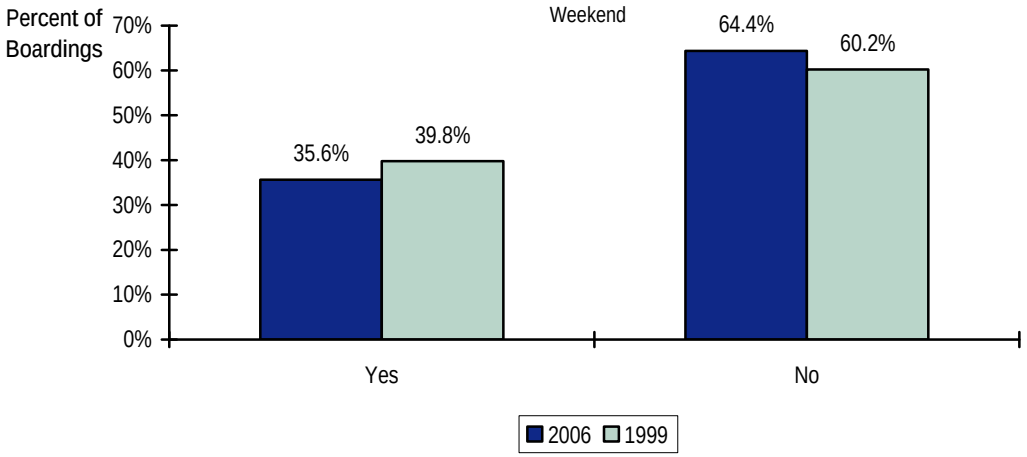


7.2.7 Parking

The parking statistics of walk-on passengers on this route were examined to understand the extent to which commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 7.28 below shows that just 16 percent of weekday ferry riders in 2006 parked their vehicles at the ferry terminals, compared to 22 percent in 1999. This difference between 1999 and 2006 could be due to changes in parking availability and/or parking charges. In 2006 more ferry passengers parked on weekends, 36 percent, than weekdays. In 1999, that percent was slightly higher at 40 percent. Again, this could be attributable to parking availability, parking charges or some other cause. The average parking cost was $7 per day on weekdays and $6 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 7.28 Seattle-Bremerton Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?





7.2.8 Weekday Eastbound Origins and Destinations

Figure 7.29 for weekday eastbound trips presents the travel patterns of riders taking the Seattle to Bremerton ferry. The weekday eastbound travel patterns from Seattle and Bremerton are summarized in Table 7.20. The majority of boardings are by auto (48 percent) or walking (51 percent).

West Bremerton is the predominant location as trip origins with nearly 44 percent, where the Naval Ship Yard is located. It is followed by locations in the greater Silverdale (17 percent) area. Other concentrations of trip origin are North Central Kitsap County (6 percent), South Central Kitsap County (6 percent) and greater Port Orchard area (3 percent). Comparing to 1999 survey, trips originated from the greater Silverdale area has a significant jump, from 3 percent to 17 percent.

Seattle CBD is the predominant destination for the eastbound trips with nearly 34 percent, followed by South King County (9 percent). Other major destinations are Queen Anne/Lake Union (7 percent), Capital Hill (7 percent) and Ballard/Green Lake (5 percent). Comparing 1999 survey, Seattle CBD has gained considerable dominance as trip destinations, from 13 percent to 34 percent.

Figure 7.30 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.29 Seattle-Bremerton Weekday Eastbound Origins and Destinations (2006)

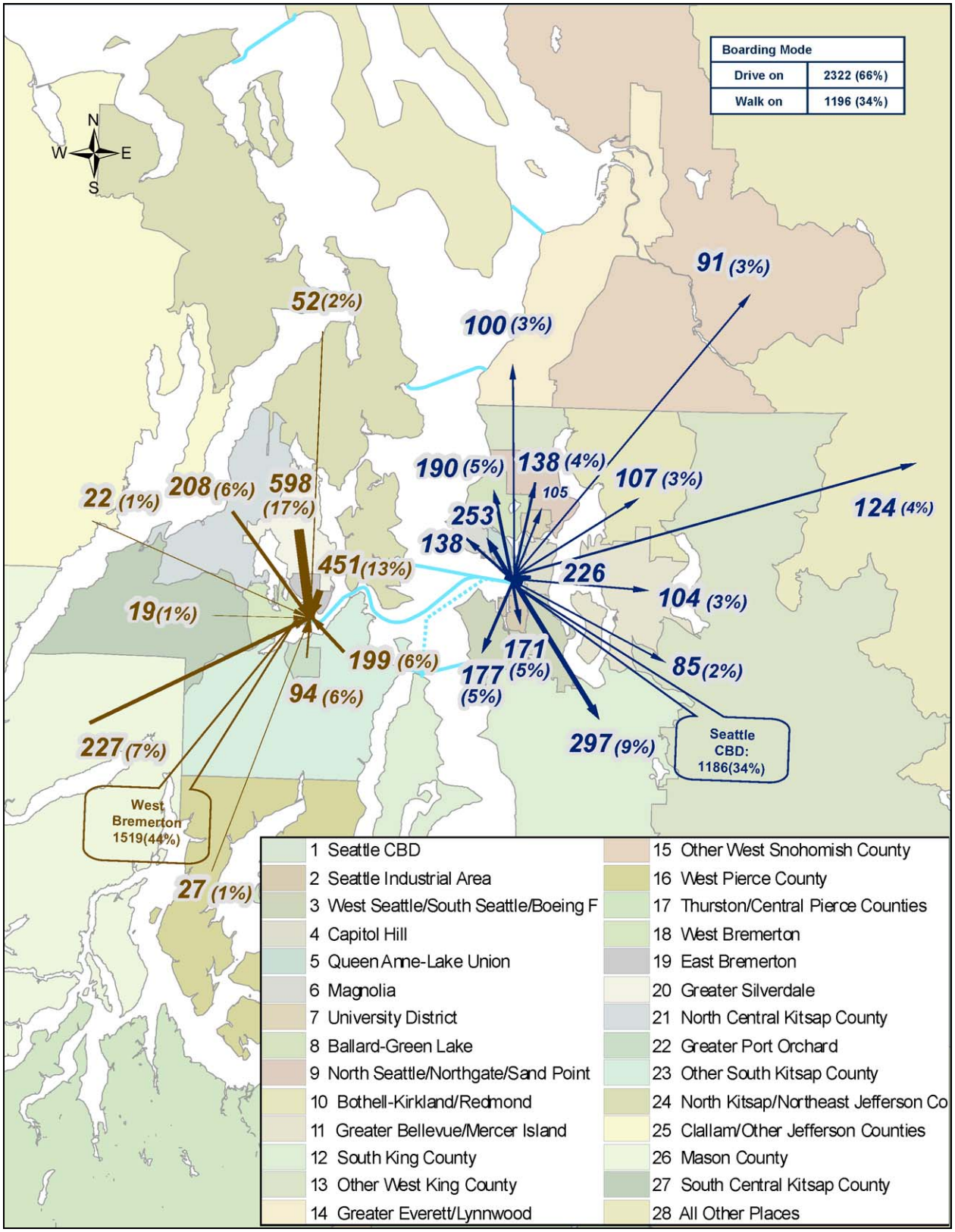


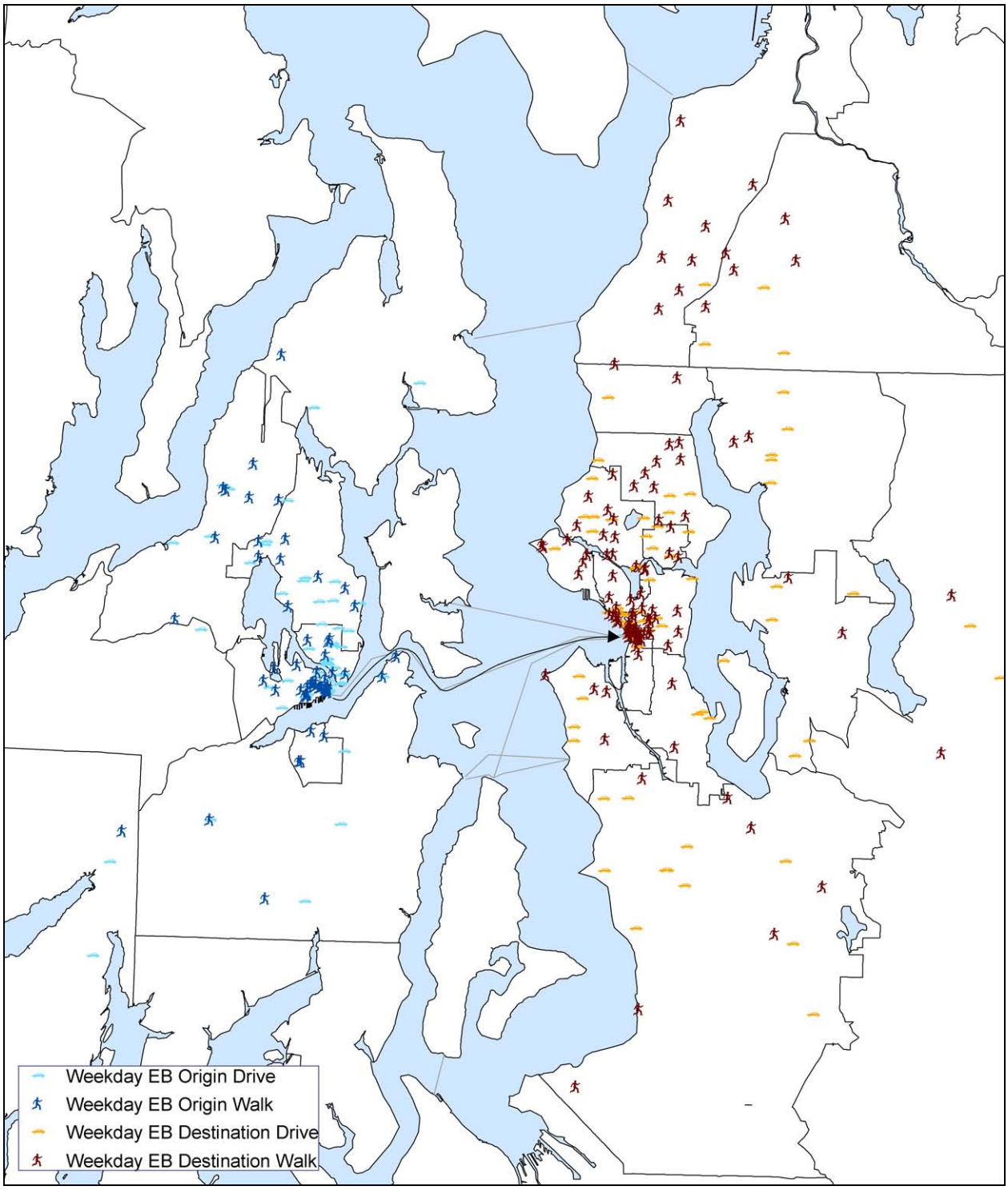
Table 7.22 Seattle-Bremerton Weekday Eastbound Boardings by Origin and Destination District

	Destination District								
Origin District	Seattle CBD	Seattle Industrial Area	West Seattle/ South Seattle/ Boeing Field	904	905	Magnolia	University District	Ballard-Green Lake	North Seattle/ Northgate/ Sand Point
West Pierce County	5				10				
West Bremerton	436	33	104	118	58	54	48	131	118
East Bremerton	181	12	18	34	35	27	13	27	
Greater Silverdale	198	67	19	26	79	49	16	19	2
North Central Kitsap County	64	22	17	30	15		1	1	10
Greater Port Orchard	73				2	8	1		
Other South Kitsap County	86	6	7	4	34		3	6	
North Kitsap/Northeast Jefferson Counties	32	2	6	2	1				
Clallam/Other Jefferson Counties	14								2
Mason County	74	23		12	12		22	6	6
South Central Kitsap County	5				1		1		
All Other Places	18	6	6		6				
Total	1,186	171	177	226	253	138	105	190	138
Percent of Total	34.0%	4.9%	5.1%	6.5%	7.2%	4.0%	3.0%	5.4%	4.0%

Table 7.22 Seattle-Bremerton Weekday Eastbound Boardings by Origin and Destination District (continued)

	Destination District								
Origin District	Bothell-Kirkland/ Redmond	Greater Bellevue/ Mercer Island	South King County	Other West King County	Greater Everett/ Lynnwood	Other West Snohomish County	All Other Places	Total	Percent of Total
West Pierce County						6	6	27	0.8%
West Bremerton	62	48	77	60	86	49	37	1,519	43.5%
East Bremerton	15	8	68	7			6	451	12.9%
Greater Silverdale	18	28	53	6	1	10	7	598	17.1%
North Central Kitsap County	6	8	10	12		6	6	208	6.0%
Greater Port Orchard			10					94	2.7%
Other South Kitsap County			15				38	199	5.7%
North Kitsap/Northeast Jefferson Counties		6	2		1			52	1.5%
Clallam/Other Jefferson Counties							6	22	0.6%
Mason County	6		44		12	10		227	6.5%
South Central Kitsap County		6	6					19	0.5%
All Other Places			12			10	18	76	2.2%
Total	107	104	297	85	100	91	124	3,492	100%
Percent of Total	3.1%	3.0%	8.5%	2.4%	2.9%	2.6%	3.6%	100%	

Figure 7.30 Seattle-Bremerton Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



7.2.9 Weekday Westbound Origins and Destinations

Figure 7.31 for weekday westbound trips presents the travel patterns of riders taking the Seattle to Bremerton ferry. The weekday westbound travel patterns from Bremerton to Seattle are summarized in Table 7.21. The majority of boardings are by auto (63 percent) and walking (36 percent).

The westbound travel pattern closely mirrored the eastbound. Seattle CBD maintains the predominant location as trip origins nearly 44 percent, followed by Magnolia (6 percent). Other major origins are Seattle industrial area (5 percent), North Seattle/Northgate/Sand Point (5 percent) and South King County (4 percent).

Comparing to 1999 survey, origin locations in westbound trips are more dispersed. It is reflected by the significantly lower percentage of trips originated from Seattle CBD, from 53 percent down to 44 percent. The decrease is offset by the increase in other Seattle locations such as: Magnolia (2 to 6 percent), North Seattle (1 to 5 percent) and Seattle industrial area (4 to 6 percent).

West Bremerton has the highest concentration as trip destinations with nearly 26 percent. It is closely followed by Greater Silverdale area (22 percent). Other major destinations are North Central Kitsap County, East Bremerton (12 percent) and Mason County (11 percent).

Similar to origins, westbound destinations are also showing more dispersed pattern when compare to 1999 survey. Both West Bremerton and Greater Silverdale have lost 4 percents each, from 30 to 26 and 26 to 22 respectively. At the same time, North Central Kitsap County and Mason County have shown notable increases, from 8 to 14 percent and 8 to 11 percent respectively.

Figure 7.31 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.31 Seattle-Bremerton Weekday Westbound Origins and Destinations (2006)

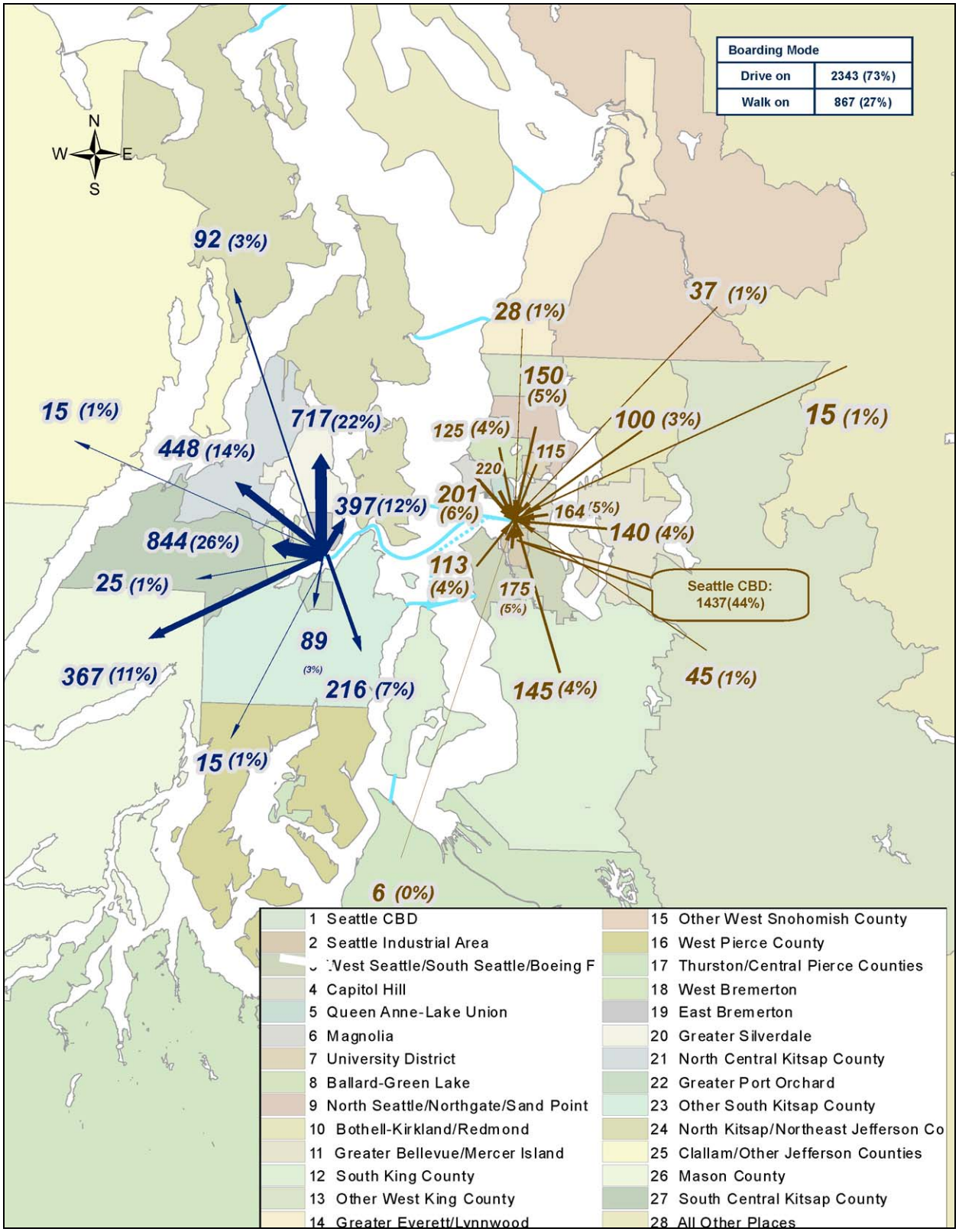
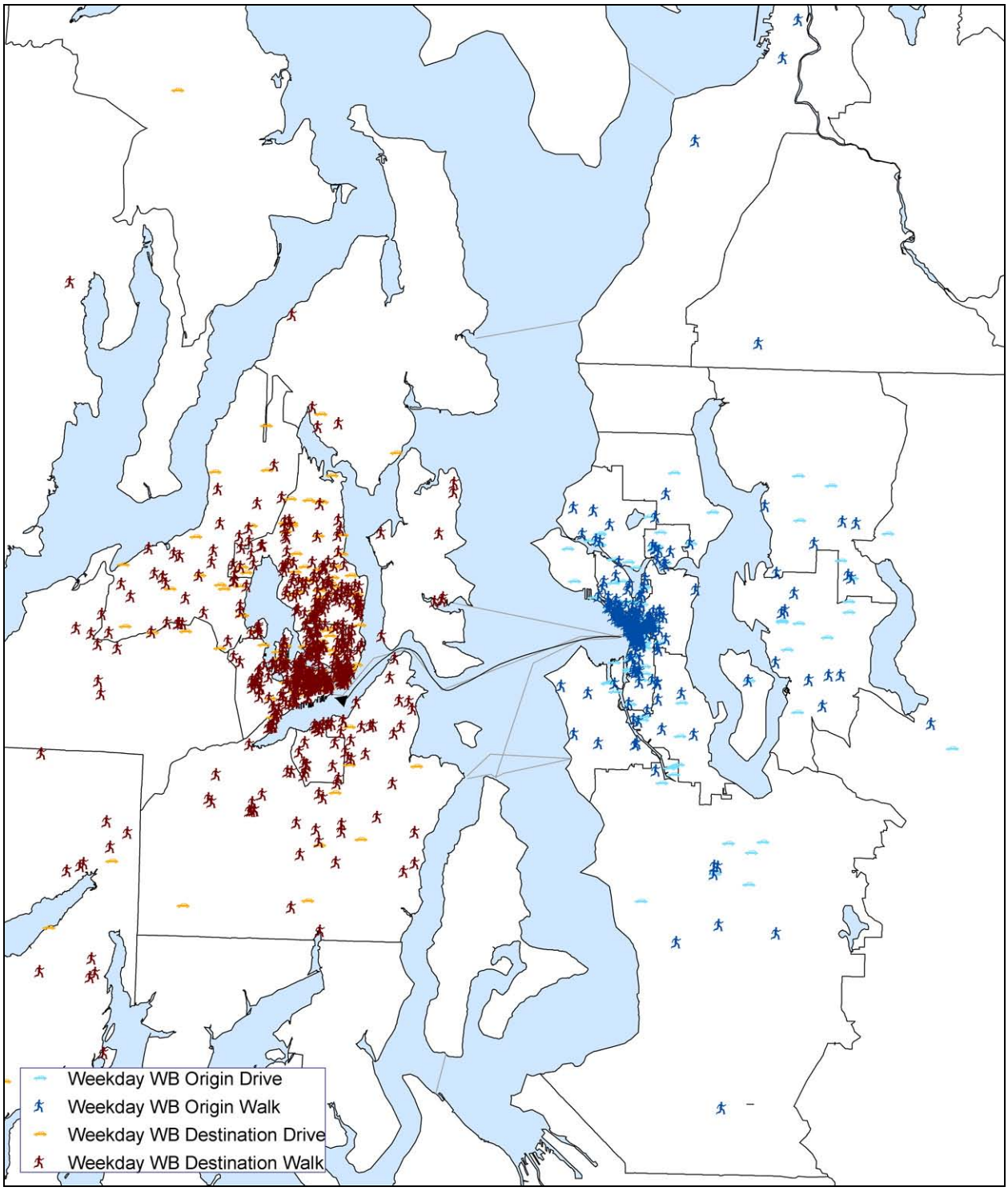


Table 7.23 Seattle-Bremerton Weekday Westbound Boardings by Origin and Destination District

	Destination District													
Origin District	West Pierce County	West Bremerton	East Bremerton	Greater Silverdale	North Central Kitsap County	Greater Port Orchard	Other South Kitsap County	North Kitsap/ Northeast Jefferson Counties	Clallam/ Other Jefferson Counties	Mason County	South Central Kitsap County	All Other Places	Total	Percent of Total
Seattle CBD	12	368	179	266	215	64	139	27	4	132	12	19	1,437	43.9%
Seattle Industrial Area		32	26	50	23		8	10		23		3	175	5.4%
West Seattle/South Seattle/Boeing Field	2	52	8	24	17		4	6					113	3.5%
Magnolia		10	3	30	78	2				78			201	6.1%
University District		34	18	22	19	2	6			12	2		115	3.5%
Ballard-Green Lake		53	7	49	8		8						125	3.8%
North Seattle/Northgate/Sand Point		43		14	1				8	84			150	4.6%
Bothell-Kirkland/Redmond		43	12	31	8					6			100	3.1%
Greater Bellevue/Mercer Island		41	7	26	35			25			6		140	4.3%
South King County		21	40	61	1		1	4		8	3	6	145	4.4%
Other West King County		12	5	19	9								45	1.4%
Greater Everett/Lynnwood		12		2				8		6			28	0.9%
Other West Snohomish County		11		4	3	17				1		1	37	1.1%
Thurston/Central Pierce Counties		6											6	0.2%
All Other Places		17	6	10			19	6	3			9	70	2.1%
Total	14	844	397	717	448	89	216	92	15	367	25	46	3,271	100%
Percent of Total	0.5%	25.8%	12.1%	21.9%	13.7%	2.7%	6.6%	2.8%	0.5%	11.2%	0.8%	1.4%	100%	

Figure 7.32 Seattle-Bremerton Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



7.2.10 Weekend Eastbound Origins and Destinations

Figure 7.33 for weekend eastbound trips presents the travel patterns of riders taking the Seattle to Bremerton ferry. The eastbound weekend travel patterns from Seattle and Bremerton are similar to that of the weekday patterns, although even more drive to the ferry (90 percent). These are presented in Table 7.22. The majority of boardings are by auto (63 percent) and walking by 36 percent.

Weekend travel pattern closely resembles the weekday but with wider dispersal. West Bremerton maintains the dominating location as trip origins with nearly 23 percent. It is closely followed by Greater Silverdale with more than 20 percent. Other major locations are North Central Kitsap County (14 percent), South Kitsap County (5 percent) and Greater Port Orchard (3 percent).

Comparing to 1999 survey, the pattern of wider dispersal is clear. West Bremerton is decreased from 32 to 23 percent and has lost the position as the predominant origin location. At the same time, percentages from Greater Silverdale were doubled, from 10 percent to 20 percent. North Central Kitsap County has also shown notable increase, from 8 percent to 14 percent.

Major destinations of weekend eastbound trips are Seattle CBD (25 percent), West Seattle/South Seattle/Boeing Field (25 percent), and University District (9 percent).

Comparing to 1999 survey, trip destinations are more concentrated to fewer locations. Trips to Seattle CBD were more than doubled, from 11 percent to 25 percent. However, West Seattle/South Seattle/Boeing Field had the largest increase, from 6 percent to 25 percent.

Figure 7.34 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.33 Seattle-Bremerton Weekend Eastbound Origins and Destinations (2006)

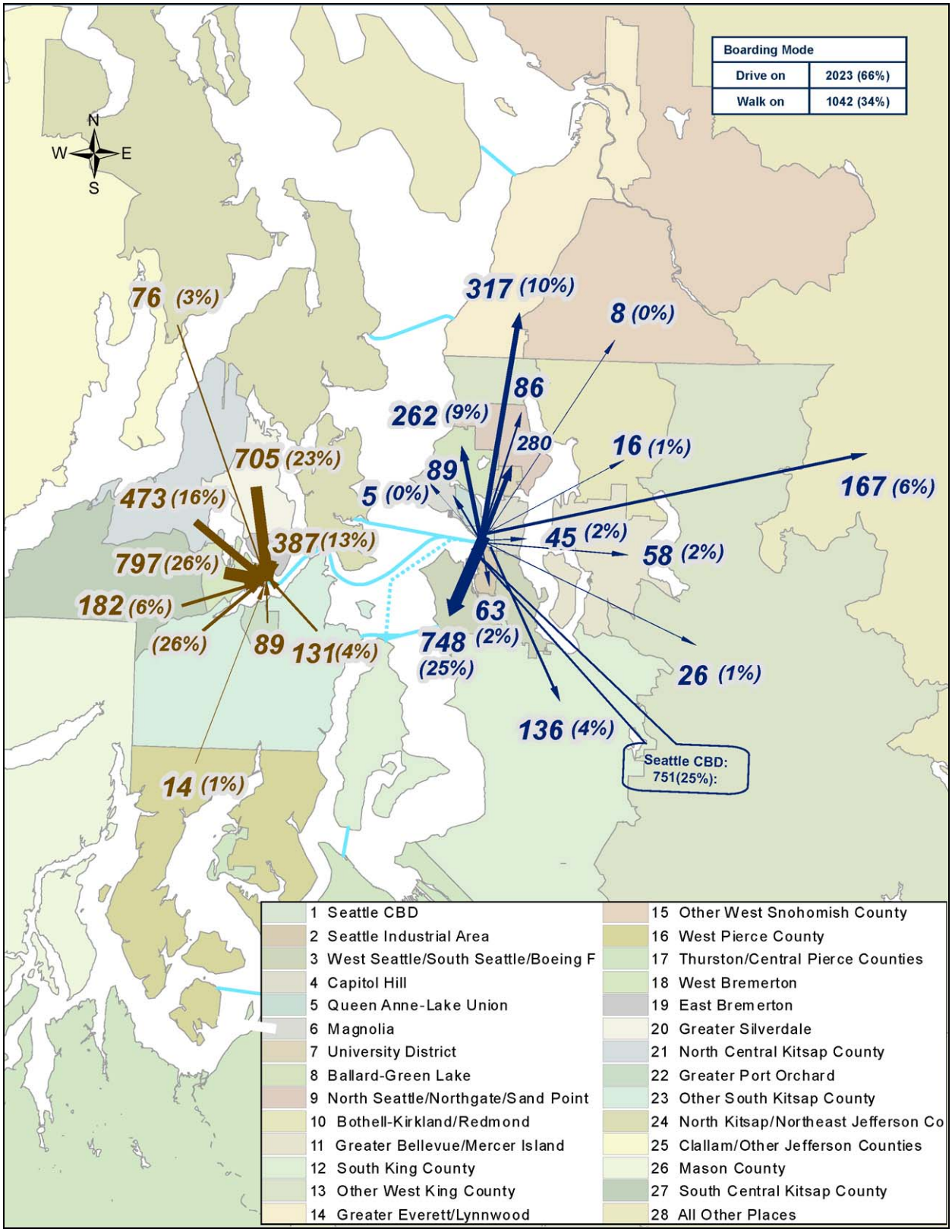
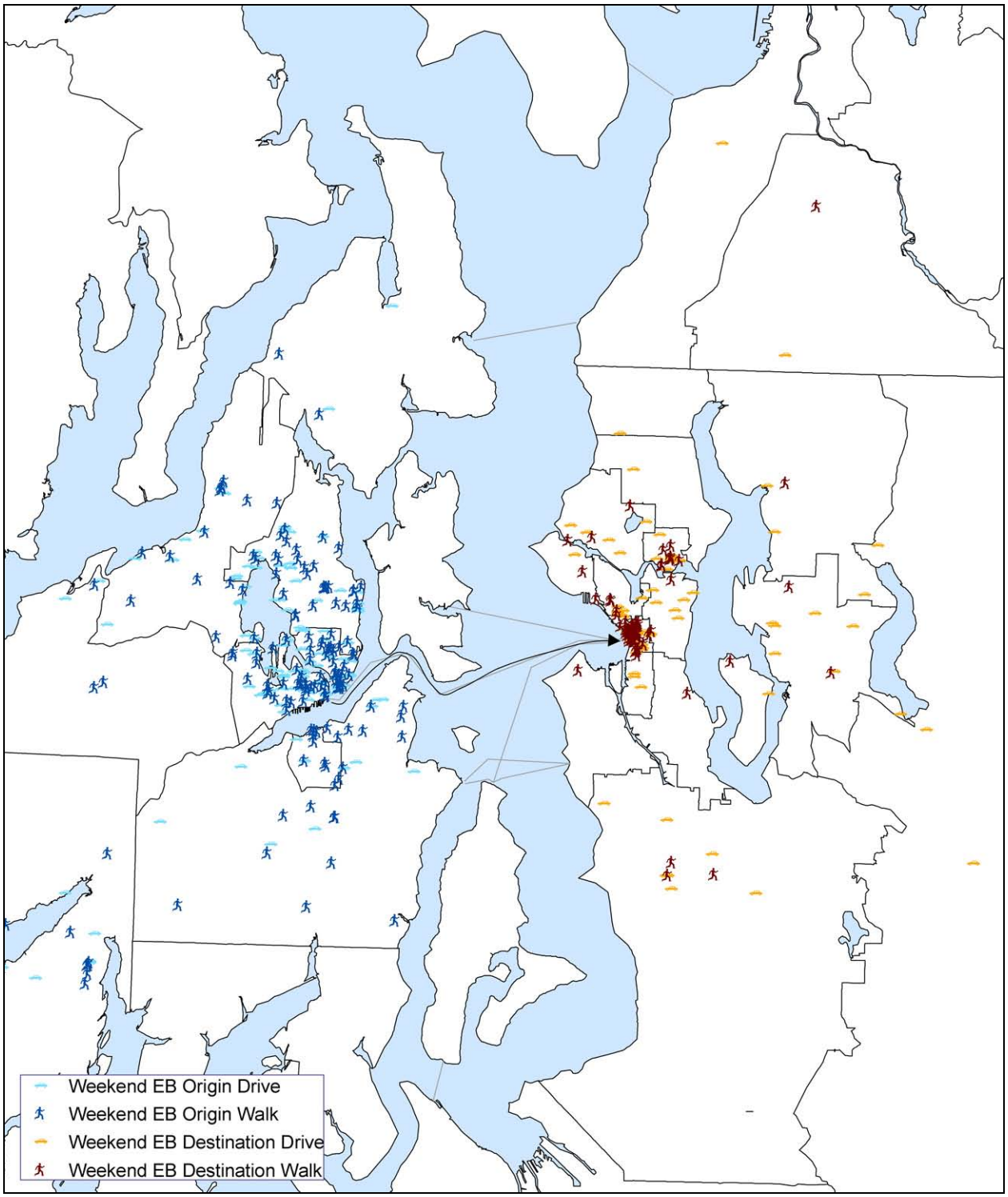


Table 7.24 Seattle-Bremerton Weekend Eastbound Boardings by Origin and Destination District

	Destination District								
Origin District	Seattle CBD	Seattle Industrial Area	West Seattle/ South Seattle/ Boeing Field	904	905	Magnolia	University District	Ballard-Green Lake	North Seattle/ Northgate/ Sand Point
West Pierce County	8	2			3		1		
West Bremerton	177	25	1	5	5		107	232	3
East Bremerton	45	3	218		34		27	12	5
Greater Silverdale	61	23	461	12	28		50	9	
North Central Kitsap County	26	2		15	1	3	22		68
Greater Port Orchard	73	2						9	
Other South Kitsap County	100				1	1	18		
North Kitsap/Northeast Jefferson Counties	1		68				7		
Mason County	100			10	17	1	40		10
South Central Kitsap County	154	5		3			5		
All Other Places	6	1					3		
Total	751	63	748	45	89	5	280	262	86
Percent of Total	24.6%	2.1%	24.5%	1.5%	2.9%	0.2%	9.2%	8.6%	2.8%

	Destination District (continued)								
Origin District	Bothell-Kirkland/ Redmond	Greater Bellevue/ Mercer Island	South King County	Other West King County	Greater Everett/ Lynnwood	Other West Snohomish County	All Other Places	Total	Percent of Total
West Pierce County								14	0.4%
West Bremerton	5	5	76	10	9	7	130	797	22.8%
East Bremerton	1	9	25	3			5	387	11.1%
Greater Silverdale	6	20	15	3			17	705	20.2%
North Central Kitsap County		18	5		308		5	473	13.5%
Greater Port Orchard	4					1		89	2.5%
Other South Kitsap County		1	5				5	131	3.8%
North Kitsap/Northeast Jefferson Counties								76	2.2%
Mason County		5		5				188	5.4%
South Central Kitsap County			5	5			5	182	5.2%
All Other Places			5					15	0.4%
Total	16	58	136	26	317	8	167	3,057	100%
Percent of Total	0.5%	1.9%	4.4%	0.9%	10.4%	0.3%	5.5%	100%	

Figure 7.34 Seattle-Bremerton Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



7.2.11 Weekend Westbound Origins and Destinations

Figure 7.35 for weekday westbound trips presents the travel patterns of riders taking the Seattle to Bremerton ferry. The weekend westbound trips from Bremerton to Seattle are like the weekday patterns, with even more ferry riders who drive to the ferry (90 percent). These are presented in Table 7.23.

Seattle CBD maintains the predominant location as trip origins with nearly 44 percent. Other notable locations are Magnolia (6 percent), Seattle Industrial area (5 percent) and North Seattle/Northgate (5 percent). Comparing to 1999 survey, trip origins are more concentrated to fewer locations. Seattle CBD has shown a significant increase, from 16 percent to 44 percent.

West Bremerton has the highest concentration of trip destinations with nearly 26 percent. It is closely followed by Greater Silverdale area (22 percent). Other major destinations are North Central Kitsap County (14 percent), East Bremerton (12 percent) and Mason County (11 percent).

Comparing to 1999 survey, westbound destinations are more dispersed than origins. West Bremerton is no longer the predominant location as trip destinations, down from 40 percent to 26 percent. At the same time, Greater Silverdale has doubled its dominance, from 11 percent to 22 percent. Notable increases are also seen in North Central Kitsap County (8 percent to 14 percent), East Bremerton (8 percent to 12 percent), and Mason County (7 percent to 11 percent).

Figure 7.36 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.35 Seattle-Bremerton Weekend Westbound Origins and Destinations (2006)

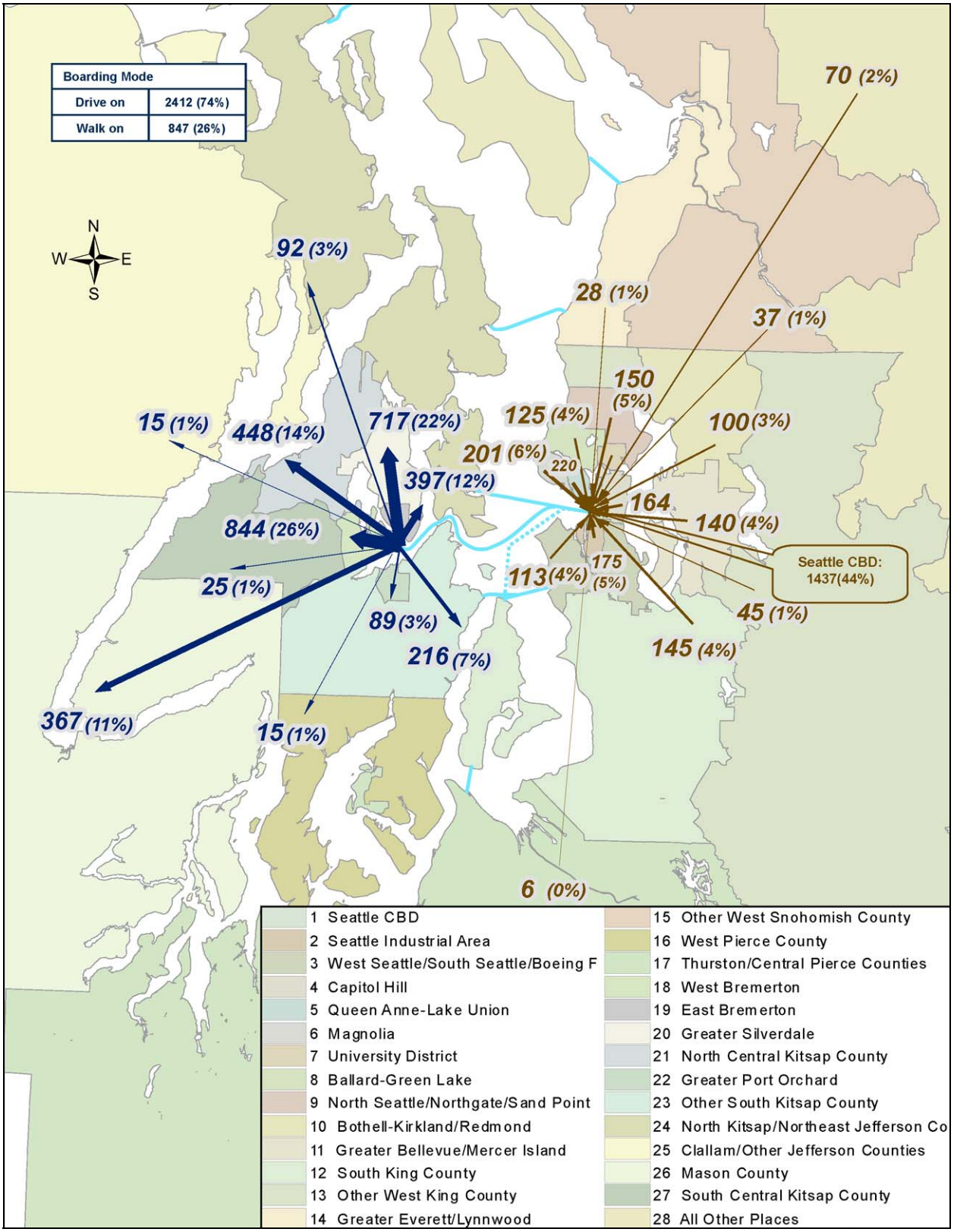
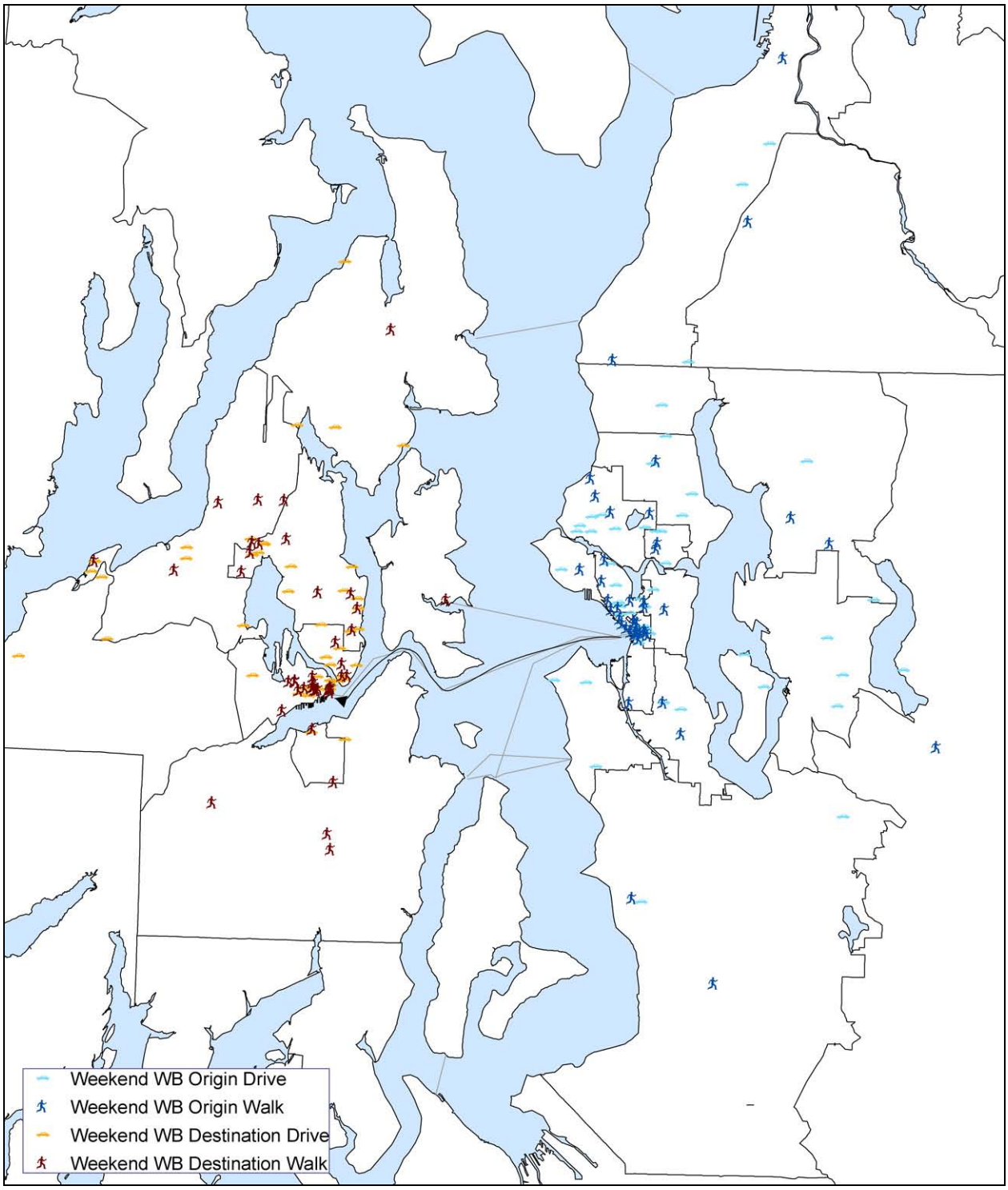


Table 7.25 Seattle-Bremerton Weekend Westbound Boardings by Origin and Destination District

	Destination District													
Origin District	West Pierce County	West Bremerton	East Bremerton	Greater Silverdale	North Central Kitsap County	Greater Port Orchard	Other South Kitsap County	North Kitsap/ Northeast Jefferson Counties	Clallam/ Other Jefferson Counties	Mason County	South Central Kitsap County	All Other Places	Total	Percent of Total
Seattle CBD	12	368	179	266	215	64	139	27	4	132	12	19	1,437	43.9%
Seattle Industrial Area		32	26	50	23		8	10		23		3	175	5.4%
West Seattle/South Seattle/Boeing Field	2	52	8	24	17		4	6					113	3.5%
Magnolia		10	3	30	78	2				78			201	6.1%
University District		34	18	22	19	2	6			12	2		115	3.5%
Ballard-Green Lake		53	7	49	8		8						125	3.8%
North Seattle/Northgate/Sand Point		43		14	1				8	84			150	4.6%
Bothell-Kirkland/Redmond		43	12	31	8					6			100	3.1%
Greater Bellevue/Mercer Island		41	7	26	35			25			6		140	4.3%
South King County		21	40	61	1		1	4		8	3	6	145	4.4%
Other West King County		12	5	19	9								45	1.4%
Greater Everett/Lynnwood		12		2				8		6			28	0.9%
Other West Snohomish County		11		4	3	17				1		1	37	1.1%
Thurston/Central Pierce Counties		6											6	0.2%
All Other Places		17	6	10			19	6	3			9	70	2.1%
Total	15	844	397	717	448	89	216	92	15	367	25	46	3,271	100%
Percent of Total	0.5%	25.8%	12.1%	21.9%	13.7%	2.7%	6.6%	2.8%	0.5%	11.2%	0.8%	1.4%	100%	

Figure 7.36 Seattle- Bremerton Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)



7.3 EDMONDS-KINGSTON

7.3.1 Route Description

This route connects Edmonds and Kingston in the Central Sound corridor located north of Seattle and Bainbridge. It takes 30 minutes to ride this ferry route one-way. The crossing is approximately 4.5 nautical miles. It runs seven days per week, but with reduced early morning schedule on Sunday. For 2006, the annual total ridership was 2 million passengers plus 2.3 million auto passengers (including drivers) for a total of 4.3 million people, or about 12,200 riders per day. This represents the second highest ridership of any route in the WSF system (behind Seattle-Bainbridge) and the highest route overall for vehicles. This compares to 12,800 riders per day in 1999 and 10,800 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and the trend for this route follows this pattern.

The Edmonds-Kingston route has 25 sailings per day, down from 27 sailings per day in 1999 and 26 sailings per day in 1993. The passenger capacity per boat has decreased from 2,500 passengers per boat to 2,000 passengers per boat (for the Jumbo class vessels). The vehicle capacity has increased, though, from 144 vehicles per boat to 202 vehicles per boat for the Jumbo Mark II class vessels and 188 vehicles per boat for the Jumbo class vessels. The vessels used in 1993 were the Super class vessels and from 1999 to current times, the vessels are the Jumbo Mark II and the Jumbo class vessels. The fare is $11.25 for vehicles and $6.50 for passengers in 2006. In 2006 constant dollars, this represents a 43 percent increase in vehicle fares and a 45 percent increase in passenger fares since 1999.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

7.3.2 Trips by Purpose

The trip purposes of ferry riders on the Edmonds-Kingston route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 7.26 below shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as the Edmonds-Kingston ferry route is an east-west route.

Table 7.26 shows that 54 percent (5,804 out of 10,821) of riders use this route for commuting purposes. There is about even split between eastbound and westbound travelers for all purposes (5,481 eastbound and 5,340 westbound). There are some small differences by trip purpose, particularly for recreational trips in which there are 1,488 eastbound trips and 1,237 westbound.

Table 7.26 Edmonds-Kingston Trips by Purpose and Direction

Purpose: What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
Eastbound	2,797	1,196	1,488	5,481	50.7%	42.0%	42.9%
Westbound	3,007	1,096	1,237	5,340	49.3%	58.0%	57.1%
Total	5,804	2,292	2,725	10,821	100%	100%	100%
Both dir. 2006	53.6%	21.2%	25.2%	100%			
Both dir. 1999	59.5%	16.3%	24.2%	100%			
Both dir. 1993	63.0%	10.0%	26.9%	100%			
Weekend							
Eastbound	739	2,202	4,077	7,018	51.0%	55.1%	43.2%
Westbound	701	1,658	4,377	6,736	49.0%	44.9%	56.8%
Total	1,440	3,860	8,454	13,754	100%	100%	100%
Both dir. 2006	10.5%	28.1%	61.5%	100%			
Both dir. 1999	8.6%	18.2%	73.1%	100%			
Both dir. 1993	12.2%	10.3%	77.5%	100%			

[a] 1999 and 1993 survey trips were not rebalanced by direction and as a result there is a large difference by direction for all purposes. The 2006 survey trips were expanded by direction for all time periods by creating the reverse trips for surveys trips returning on the same route based on the information on round-trip patterns and modal usage. So the number of directional trips is more balanced in 2006 for weekdays and weekends than they were in 1993 and 1999. See Section 2.3 for more details.

2006 Weekday Trips: 11,068 Missing: 247

2006 Weekend Trips: 13,932 Missing: 178

There is a decline in commute trips between 1993 and 2006 for weekday travel and a corresponding increase in personal business and other trips. Shopping and recreation trips have remained relatively stable over time.

Table 7.27 shows the distribution of trips across time periods and by direction of travel. As expected, the p.m. period (from 3 p.m. to 7 p.m.) has the highest share of trips (34 percent) and the a.m. period has the next highest share of trips (19 percent), but this route has more trips in the night and evening periods than other routes in this corridor. This is because there are more non-work trips on this route (46 percent) than on either Bainbridge (39 percent) or Bremerton (29 percent).

The 1993 and 1999 survey trips are quite different by direction. This difference is because of differences in expansion of the survey and is not attributable to any real differences in travel behavior.

Table 7.27 Edmonds-Kingston Trips by Time-of-Day and Direction [a]

Direction	Night (7:00 p.m.-5:00 a.m.)	a.m. Peak (5:00 a.m.-9:00 a.m.)	a.m. Off-Peak (9:00 a.m.-12:00 p.m.)	p.m. Off-Peak (12:00 p.m.-3:00 p.m.)	p.m. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Times 2006	All Times 1999	All Times 1993
Weekday									
Eastbound	711	1,428	1,124	462	1,254	4,979	45%	25.7%	33.3%
Westbound	1,066	668	525	1,371	2,459	6,089	55%	74.3%	66.7%
Total	1,777	2,096	1,649	1,833	3,713	11,068	100%	100%	100%
Both dir. 2006	16.1%	18.9%	14.9%	16.6%	33.5%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 11,068 Missing: 0

2006 Weekend Trips: 13,932 Missing: 1

7.3.3 Trip Frequency

The total number of trips and the purpose behind taking these trips on ferries in an average week in 2006 are shown in Table 7.28. For comparison summaries, the trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

This table shows that weekday travelers use the ferry for both work/school and nonwork purposes. Commuters represent 57 percent of all riders in on the Edmonds-Kingston ferry in 2006. An additional 21 percent use the ferry on weekdays for medical, personal, and business reasons, and 27 percent use it for recreational purposes. Among the commuters, fewer use the ferry system on a regular basis than the heavily traveled Seattle-Bainbridge ferry. This is evident from the fact that 30 percent of the Edmonds-Kingston riders (1,639 out of 5,533) take the ferry 9 to 10 times on weekdays in a typical week. Nearly two-thirds of the commuters on the Edmonds and Kingston ferry ride the ferry between one and eight times per week (3,473 out of 5,533).

Table 7.28 also provides a comparison of trip frequency percents for years 1993, 1999, and 2006. There is a small but distinct trend away from the use of the Edmonds-Kingston ferry for commuting and greater use for medical, personal, and other business reasons. Whereas commuters represent 57 percent (5,533 out of 9,781) of the weekday passengers in 2006, they represented 60 percent in 1999 and 63 percent in 1993. Use of the ferry for non-work purposes were 21 percent (2,061 out of 9,781) in 2006, compared with 16 percent in 1999 and 10.0 percent in 1993. Ferry ridership for recreational purposes has remained in the 24 to 27 percent range over the 13-year period, with a slight dip in 1999.

In terms of frequency of use, commuters are using this ferry less heavily in 2006 than in 1999. While 37 percent (2,060 out of 5,553) of the commuters in 2006 used the ferry nine or more times per week, 50 percent used it with this frequency in 1999. The data by purpose was not available at a trip frequency level from the 1993 surveys.

Table 7.28 Edmonds-Kingston Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Commute 2006	Commute 1999
Weekday									
1	474	515	941	1930	51.4%	16.4%	29.1%	8.6%	10.9%
2	877	671	1088	2636	70.2%	22.8%	17.8%	15.9%	13.0%
3-4	549	601	480	1630	43.4%	15.4%	10.4%	9.9%	11.0%
5-6	680	164	67	911	24.2%	8.3%	8.2%	12.3%	8.1%
7-8	893	90	29	1012	26.9%	5.4%	2.9%	16.1%	6.9%
9-10	1639	20	3	1662	44.2%	21.4%	31.6%	29.6%	33.7%
11+	421	0	0	421	11.2%	10.3%		7.6%	16.4%
Total	5533	2061	2608	10202	100%	100%	100%	100%	100%
Percent 2006	54.2%	20.2%	25.6%	100%					
Percent 1999	59.5%	16.3%	24.2%	100%					
Percent 1993	63.0%	10.0%	26.9%	100%					
Weekend									
1	600	1,946	5,748	8,294	62.8%	25.2%	48.1%		
2	192	594	1,330	2,116	16.0%	42.4%	34.1%		
3-4	302	779	573	1,654	12.5%	19.9%	9.8%		
5-6	79	289	86	454	3.4%	4.8%	2.3%		
7-8	49	12	75	136	1.0%	1.4%	1.3%		
9-10		26	71	97	0.7%	2.6%	4.4%		
11+	183	121	142	446	3.4%	3.7%			
Total	1,405	3,767	8,025	13,197	100%	100%	100%		
Percent 2006	10.6%	28.5%	60.8%	100%					
Percent 1999	8.6%	18.2%	73.1%	100%					
Percent 1993	12.2%	10.3%	77.5%	100%					

2006 Weekday Trips: 11,068 Missing: 1,287

2006 Weekend Trips: 13,932 Missing: 735

During weekends there are far more nonwork ferry trips than those for commuting purposes. While 57 percent (5,533 out of 9,781) of the weekday trips are for commuting, only 11 percent (1,405 out of 13,197) of the weekend trips are for this purpose. Conversely, 61 percent (8,025 out of 13,197) of the weekend trips are for recreation, shopping, and leisure, whereas 27 percent (2,608 out of 9,781) of the weekday trips are for this purpose. The frequency of weekend ferry use also is lower than weekday. In fact, 63 percent (8,294 out of 13,197) of the weekend ferry riders only use the ferry once in a typical month. This is compared with only 20 percent (1,930 out of 9,781) of weekday ferry riders who use the ferry only once per month on average.

Over the 1993 to 2006 time period, some minor trends are observed. Recreational weekend trips declined from 78 percent in 1993 to 73 percent in 1999 to 61 percent in 2006. Use of the ferry for medical, personal, and business purposes on weekends has increased over time, from 10 percent in 1993 to 18 percent in 1999 to 29 percent in 2006.

Table 7.29 provides the time of distribution of trips along this route by trip purpose. A third of the trips, that is 3,674 out of 10,821 or about 34 percent of travel occurs during the PM peak period (3:00 p.m. to 7:00 p.m.), while the rest of the trips are evenly distributed among the other four time periods (range between 14 and 19 percent). As expected, a majority of the work/school commuting trips occur in the PM peak period but we also observe a significant number of work trips in the Night and AM peak periods as well. This can be attributed to the early morning and morning commute trips. Most of the personal business trips and the recreation/shopping trips also occur during the PM peak period.

Table 7.29 Edmonds-Kingston Trips by Purpose and Time-of-Day
Purpose: What is/are the reason(s) you are riding the ferry today?

Direction	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	Total	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	1091	330	323	1744	18.8%	14.4%	11.9%	16.1%
A.M. Peak (5 a.m.-9 a.m.)	1209	378	492	2079	20.8%	16.5%	18.1%	19.2%
A.M. Off-Peak (9 a.m.-12 p.m.)	757	372	417	1546	13.0%	16.2%	15.3%	14.3%
P.M. Off-Peak (12 p.m.-3 p.m.)	725	490	563	1778	12.5%	21.4%	20.7%	16.4%
P.M. Peak (3 p.m.-7 p.m.)	2023	721	930	3674	34.8%	31.5%	34.1%	34.0%
Total	5805	2291	2725	10821	100%	100%	100%	100%
Percent 2006	53.6%	21.2%	25.2%	100%				
Percent 1999	66.8%	13.5%	19.8%	100%				
Percent 1993	74.7%	9.6%	15.7%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

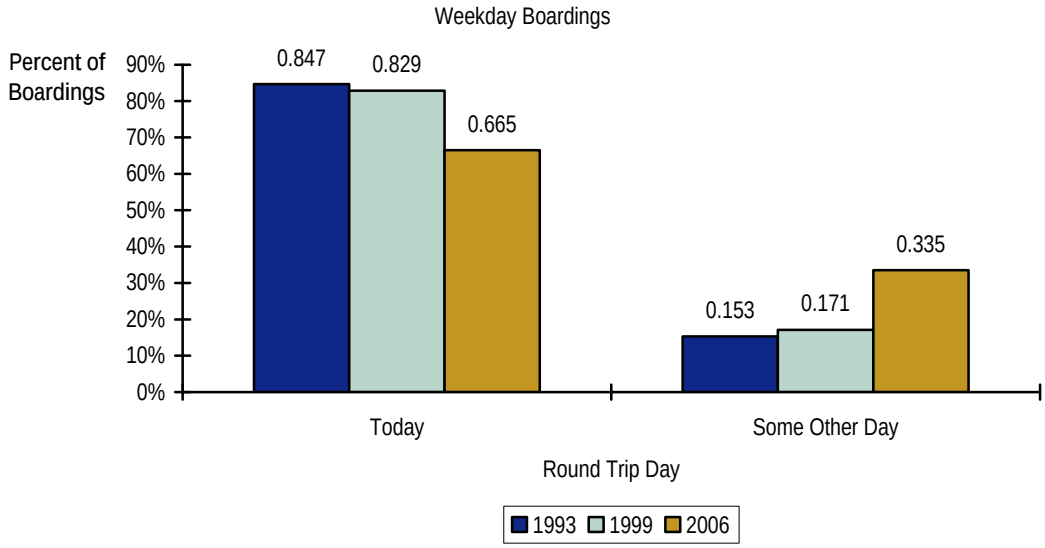
2006 Weekday Trips: 11,068 Missing: 247

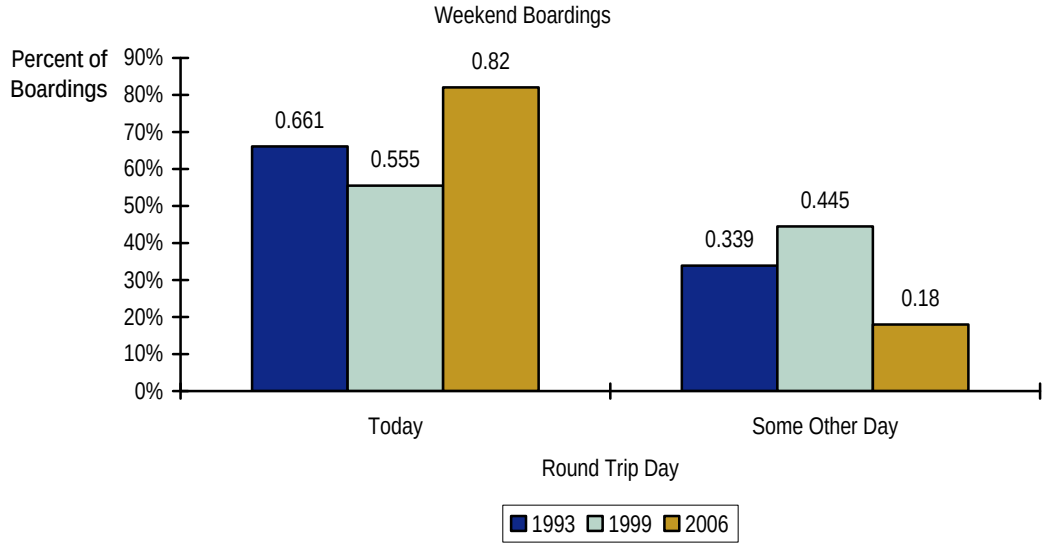
2006 Weekend Trips: 13,932 Missing: 177

7.3.4 Round-Trip Patterns

As the 2006 surveys were done only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 7.37 below shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled the same day for both their onward and backward journeys, that is, 67 percent of 10,854. The same trend is observed over the weekends as well where 82 percent of 13,785 use this route on the same day for their round trips.

Figure 7.37 Edmonds-Kingston Round Trip Patterns by Day
When was the first half of your trip OR When will you return?





2006 Weekday Trips: 11,068 Missing: 214

2006 Weekend Trips: 13,932 Missing: 137

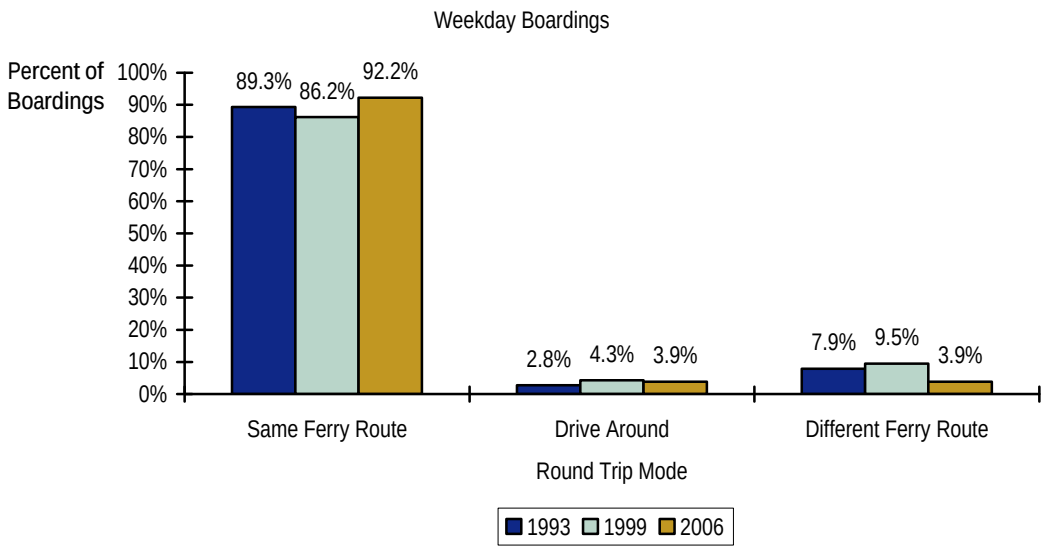
However, when comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on a different day in 2006 is higher than the 1993 and 1999 estimates. In 1993 and 1999, the number of boardings on this route on a different day was 15 percent and 17 percent, respectively, while in 2006, it was 34 percent. This may be due to increasing fares, pushing travelers to consider taking fewer, longer trips (i.e.,

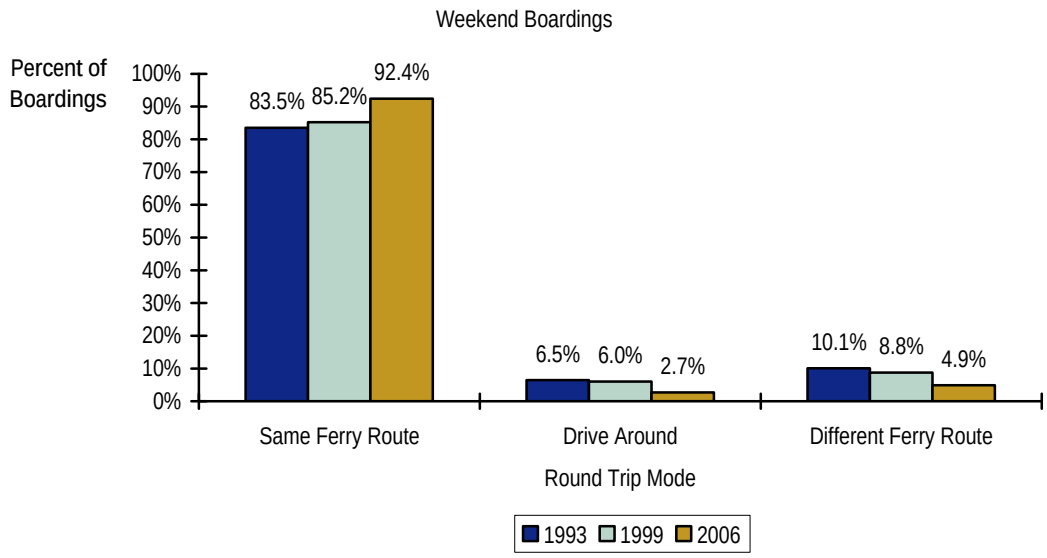
fewer trips per week, but staying longer each time to avoid multiple fares).

During the weekends in 2006, similar trends were observed where a majority of trips are made on the same day (82 percent). However, the 1993 and 1999 estimates are quite different over the weekends when compared against the weekday estimates. More than a third of boardings (45 percent) that happened in 1999 chose a different day for one-half of their trip while about a quarter (34 percent) chose a different day in 1993. This is likely because of the difference between collecting surveys on a Sunday (in 1999 and 1993) and on a Saturday (in 2006) because Sunday trips are more likely to be part of a weekend journey where the outbound part of the trip occurred on Friday or Saturday.

For riders who made one-half of their trip on this route, Figure 7.38 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. As expected, a large number of boardings indicated that they chose the same route because travelers have to return to their home base. This was particularly true in 2006 when 92 percent used the same ferry route. These numbers were just slightly lower in 1993 when 89 percent used the same ferry and 1996 when 86 percent did so.

Figure 7.38 Edmonds-Kingston Round Trip Patterns by Route
How will you return or How did you travel on the first half of your trip?





2006 Weekday Trips: 11,068 Missing: 185

2006 Weekend Trips: 13,932 Missing: 231

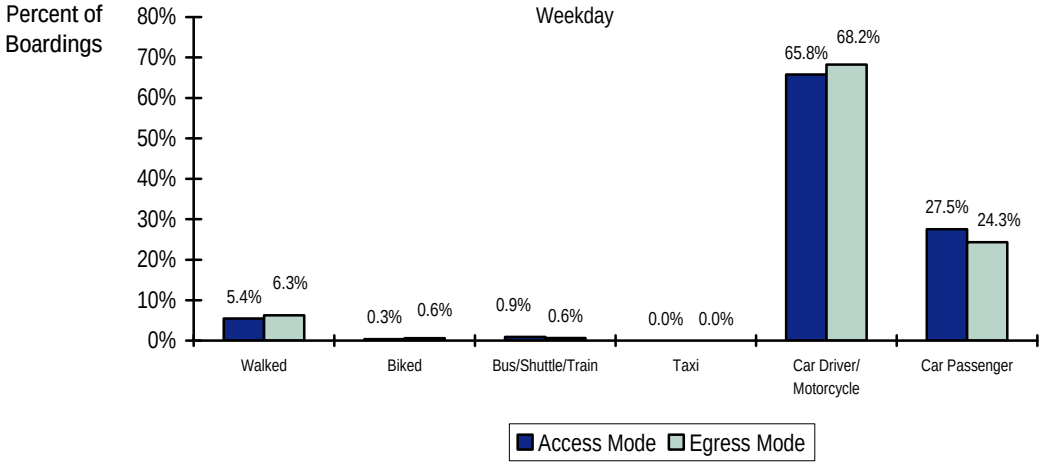
From the weekend estimates, the trends are slightly different, especially in 1999 and 1993 when more trips were made on a different ferry route for at least one-half of the trip. There were 9 percent of total trips in 1999 and 10 percent in 1993 compared to only 5 percent in 2006 that returned on a different ferry route. It is likely that this trend is because the previous surveys were collected on a Sunday, when the trips are more likely to be part of a weekend journey and involve

multiple destinations, and the current survey was collected on a Saturday, when the trips are more likely to be single destinations, such as shopping.

7.3.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 7.39 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes (with well over 90 percent of total access and egress modes). These access and egress modes are described in more detail below.

Figure 7.39 Edmonds-Kingston Trips by Access and Egress Mode



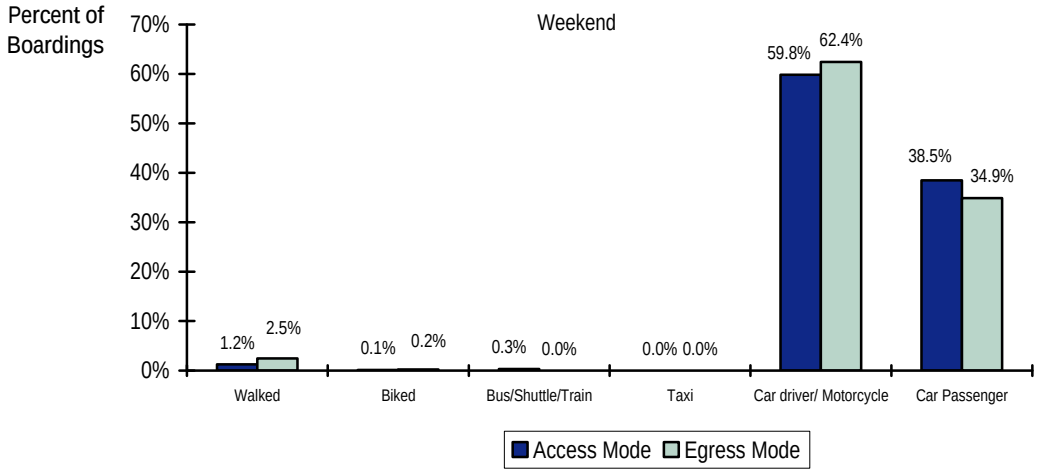


Table 7.30 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, most of the riders either chose to drive or walk onto this ferry, and a small fraction chose to

bike. A majority of those riders who drove, 71 percent (6,737 out of 9,542) arrived at the terminal in a car or on a motorcycle. Over one-third (527 out of 1,457) of the ferry riders who chose to walk onto the ferry walked directly to its terminal, and an additional third (501) of these walk-on passengers drove to the area. An additional 23 percent (338) got dropped off and 5 percent (74) used public transportation system to get to the ferry terminal.

The number of boardings by drive mode increased from 83 percent in 1999 to 87 percent in 2006. The number of walk-on boardings went down from 17 percent in 1999 to 13 percent in 2006.

During 2006 weekends, far more people chose to drive (90 percent) than walk on (10 percent) to the ferry system. On weekdays slightly fewer people drove (87 percent) and slightly more walked (13 percent). On both weekdays and weekends there is a trend toward people driving on the ferry than walking.

Table 7.31 shows ferry riders' mode of travel on this route and the corresponding egress modes from the ferry terminal to their final destinations. The differences between Tables 7.30 and 7.31 is due to the fact that there are more missing trips pertaining to mode of egress than access. The results, however, are nearly identical for access and egress. The vast majority of riders use the car driver/motorcycle mode of travel and a significant portion use the car passenger mode of travel. Ferry riders are choosing the same mode of travel for both their access and egress.

The historic data reveals that the number of riders who chose to walk to their final destinations from the ferry terminal fluctuated over the years, with 4 percent in 1993, dipping to 3 percent in 1999 and coming back up to 6 percent in 2006. The percent that drove in a car or motorcycle also fluctuated from 73 percent in 1993, down to 66 percent in 1999 then coming up slightly to 68 percent in 2006. In addition, the number of ferry passengers who were car passengers fluctuated over the 13-year period with no real discernable trend.

In 2006 weekends, the percent of riders using public transit as their egress mode was practically zero over the 13-year period, as compared to hovering around 1 percent on weekdays. The remaining egress modal shares fluctuated, with no discernable trend.

Table 7.30 Edmonds-Kingston Trips by Access Mode and Boarding Method

Boarding Method: How will/did you board this ferry? Access Mode: How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	72	527	0	599	5.4%	2.3%	3.3%
Biked	16	17	5	38	0.3%	0.0%	0.9%
Bus/Shuttle/Train	28	74	0	102	0.9%	2.3%	1.7%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/Motorcycle	6,737	501	0	7,238	65.8%	66.4%	69.4%
Car Passenger	2,689	338	0	3,027	27.5%	29.0%	24.8%
Total	9,542	1,457	5	11,004	100%	100%	100%
Percent 2006	86.7%	13.2%	0.0%	100%			
Percent 1999	82.8%	17.2%	0.0%	100%			
Percent 1993	76.1%	23.5%	0.4%	100%			
Weekend							
Walked	0	174	0	174	1.2%	1.5%	2.6%
Biked	4	9	7	20	0.1%	0.1%	1.1%
Bus/Shuttle/Train	17	30	0	47	0.3%	0.3%	0.2%
Taxi	0	0	0	0	0.0%	0.0%	0.3%
Car Driver/Motorcycle	7,885	442	0	8,327	59.8%	69.3%	59.0%
Car Passenger	4,567	787	0	5,354	38.5%	28.8%	36.7%
Total	12,473	1,442	7	13,922	100%	100%	100%
Percent 2006	89.6%	10.4%	0.1%	100%			
Percent 1999	91.1%	8.6%	0.3%	100%			
Percent 1993	83.0%	15.7%	1.3%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 11,068 Missing: 64

2006 Weekend Trips: 13,932 Missing: 10

Table 7.31 Edmonds-Kingston Trips by Egress Mode and Boarding Method

Boarding Method: How will/did you board this ferry? Egress Mode: How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	72	601	0	673	6.3%	2.7%	4.2%
Biked	0	58	5	63	0.6%	0.2%	0.4%
Bus/Shuttle/Train	28	41	0	69	0.6%	1.3%	1.4%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	6,818	524	0	7,342	68.2%	66.4%	72.5%
Car Passenger	2,403	213	0	2,616	24.3%	29.5%	21.4%
Total	9,321	1,437	5	10,763	100%	100%	100%
Percent 2006	86.6%	13.4%	0.0%	100%			
Percent 1999	82.8%	17.2%	0.0%	100%			
Percent 1993	76.1%	23.5%	0.4%	100%			
Weekend							
Walked	4	330	0	334	2.5%	1.6%	2.1%
Biked	16	9	7	32	0.2%	0.3%	0.7%
Bus/Shuttle/Train	0	0	0	0	0.0%	0.0%	0.2%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	8,144	332	0	8,476	62.4%	68.9%	60.8%
Car Passenger	3,979	757	0	4,736	34.9%	29.2%	36.2%
Total	12,143	1,428	7	13,578	100%	100%	100%
Percent 2006	89.4%	10.5%	0.1%	100%			
Percent 1999	91.1%	8.6%	0.3%	100%			
Percent 1993	83.0%	15.7%	1.3%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings; i.e., all passengers in vehicles.

2006 Weekday Trips: 11,068 Missing: 305

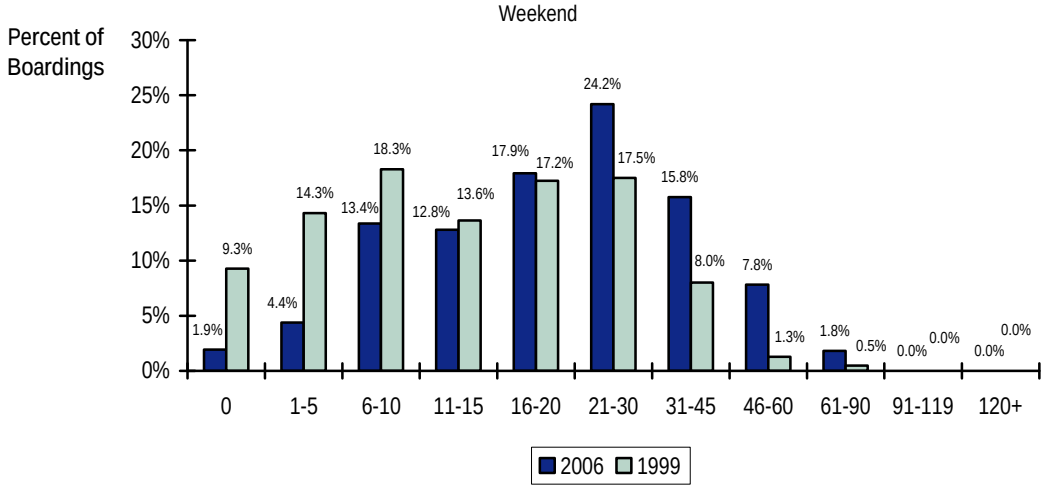
2006 Weekend Trips: 13,932 Missing: 354

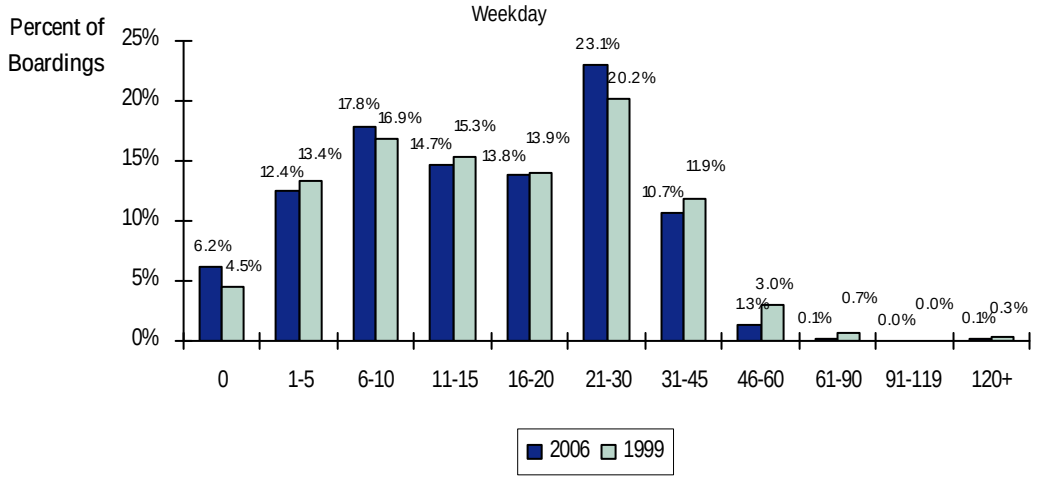
7.3.6 Wait Time

The out of vehicle travel times was measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 7.40 contains the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, the majority of boardings were associated with a perceived wait time of about 21 to 30 minutes. Just over two-thirds of the ferry passengers wait 6 to 30 minutes, a perceived wait time that has been essentially unchanged between 1999 and 2006. The mean perceived wait time for weekdays in 2006 was 28 minutes. This is the highest perceived wait time in the Central Corridor.

In 2006 weekends, again the typical perceived wait time was 21 to 30 minutes. In 2006, 69 percent of ferry passengers waited 6 to 30 minutes, and in 1999 and estimated 66 percent waited this amount of time. The mean perceived wait time for weekends in 2006 was 20 minutes.

Figure 7.40 Edmonds-Kingston Trips by Wait Time
About how many minutes did you wait to board this ferry?

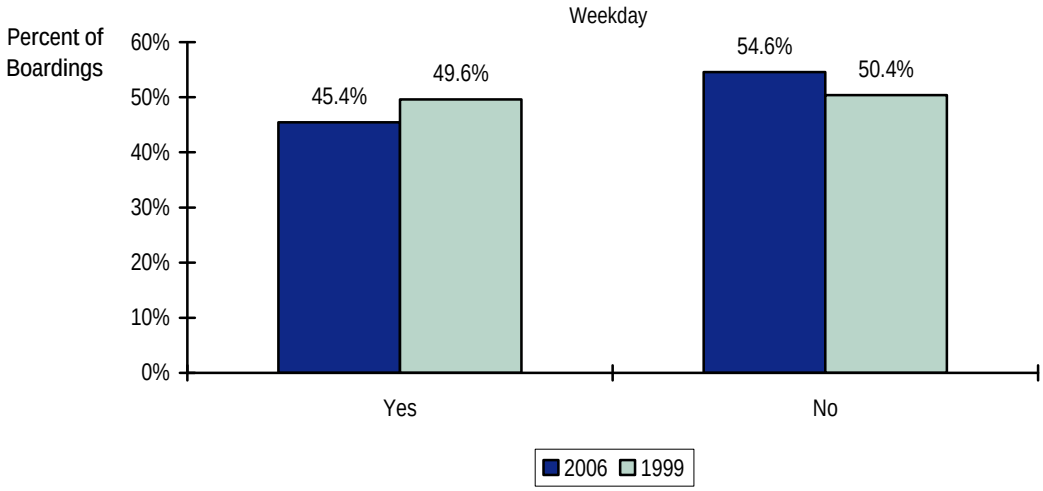


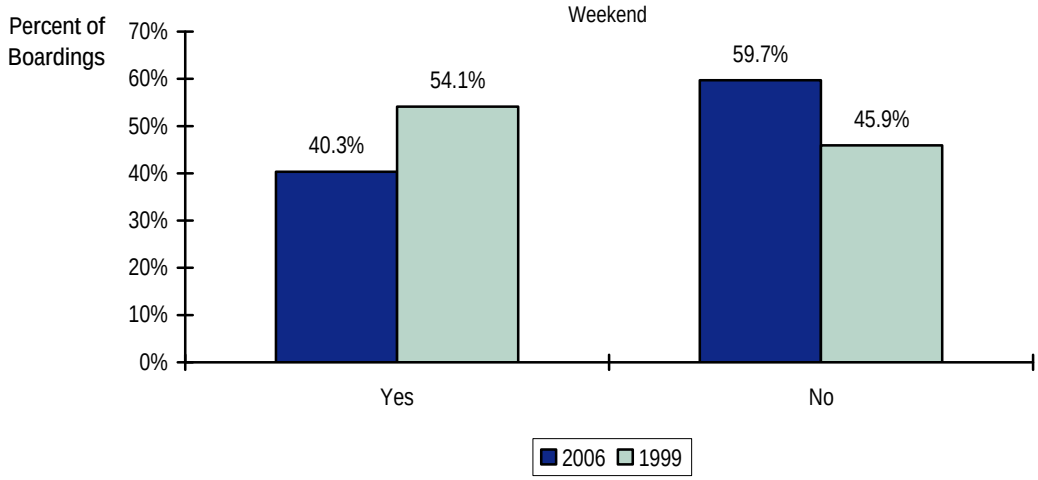


7.3.7 Parking

The parking statistics of walk-on passengers on this route were examined to understand the extent to which commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 7.41 below shows that 45 percent of weekday ferry riders in 2006 parked their vehicles at the ferry terminals, compared to 50 percent in 1999. This difference between 1999 and 2006 could be due to changes in parking availability and/or parking charges. In 2006, fewer ferry passengers parked on weekends (40 percent), than weekdays. In 1999, more weekend ferry passengers parked, 54 percent. Again, this could be attributable to parking availability, parking charges. The average parking cost was $6 per day on weekdays and $5 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 7.41 Edmonds-Kingston Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?





7.3.8 Weekday Eastbound Origins and Destinations

Figure 7.42 for weekday eastbound trips presents the travel patterns of riders taking the Edmonds to Kingston ferry. The weekday eastbound travel patterns from Edmonds to Kingston are summarized in Table 7.32. The majority of boardings are by auto (87 percent) or walking (13 percent). The destinations vary widely; with the highest destination was Edmonds (12 percent) and Everett (9 percent) and the remaining destinations distributed throughout the various districts. The origins of these trips are Kingston (16 percent), North Kitsap (14 percent), and Sequim (11 percent).

In the 1999 survey, there were also a wide variation of destinations, with a similar pattern to 2006 survey. The origins have changed somewhat from 1999, with Bremerton decreasing from 19 percent in 1999 to 5 percent in 2006 and Kingston increasing from 7 percent in 1999 to 16 percent in 2006.

Figure 7.43 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.42 Edmonds-Kingston Weekday Eastbound Origins and Destinations (2006)

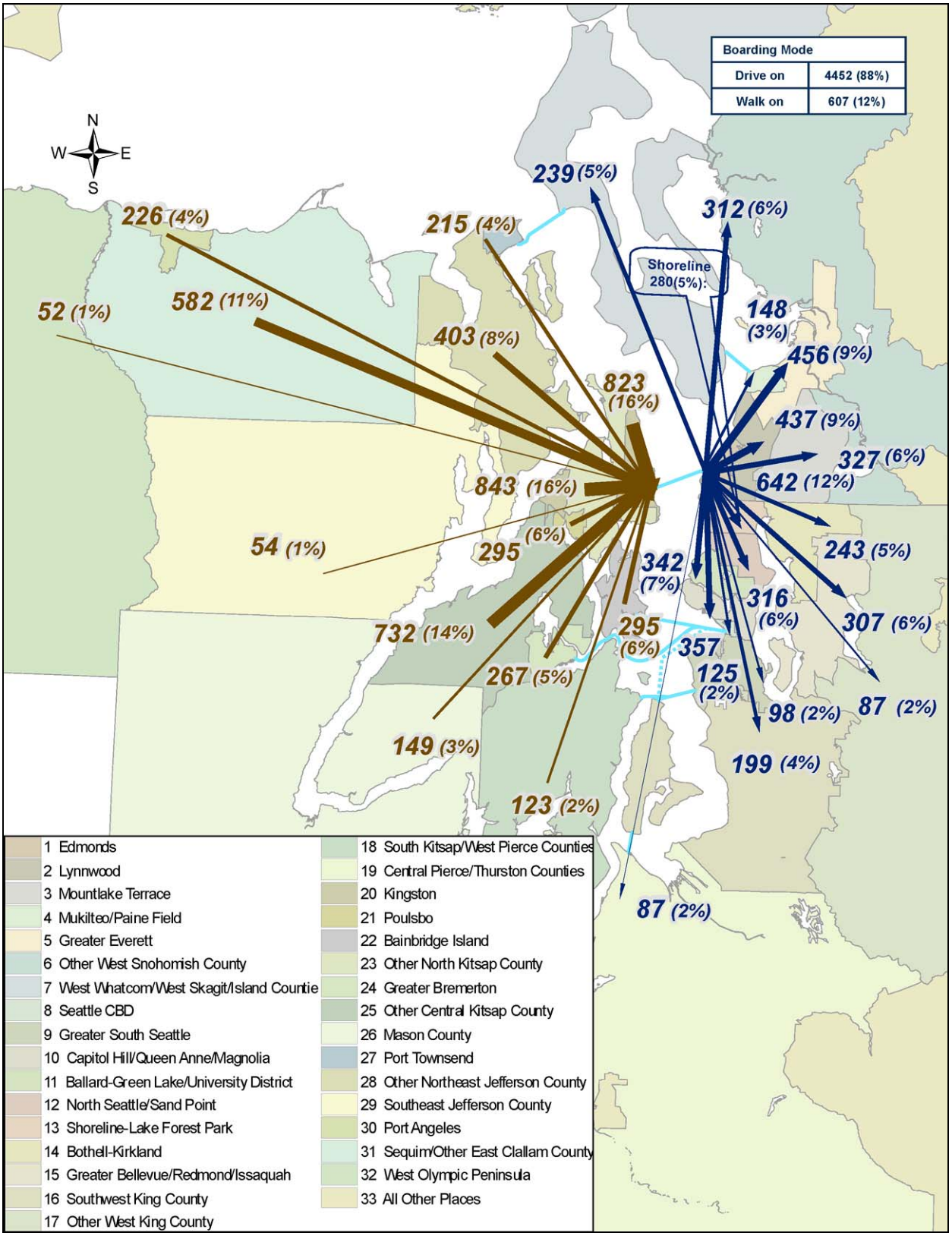


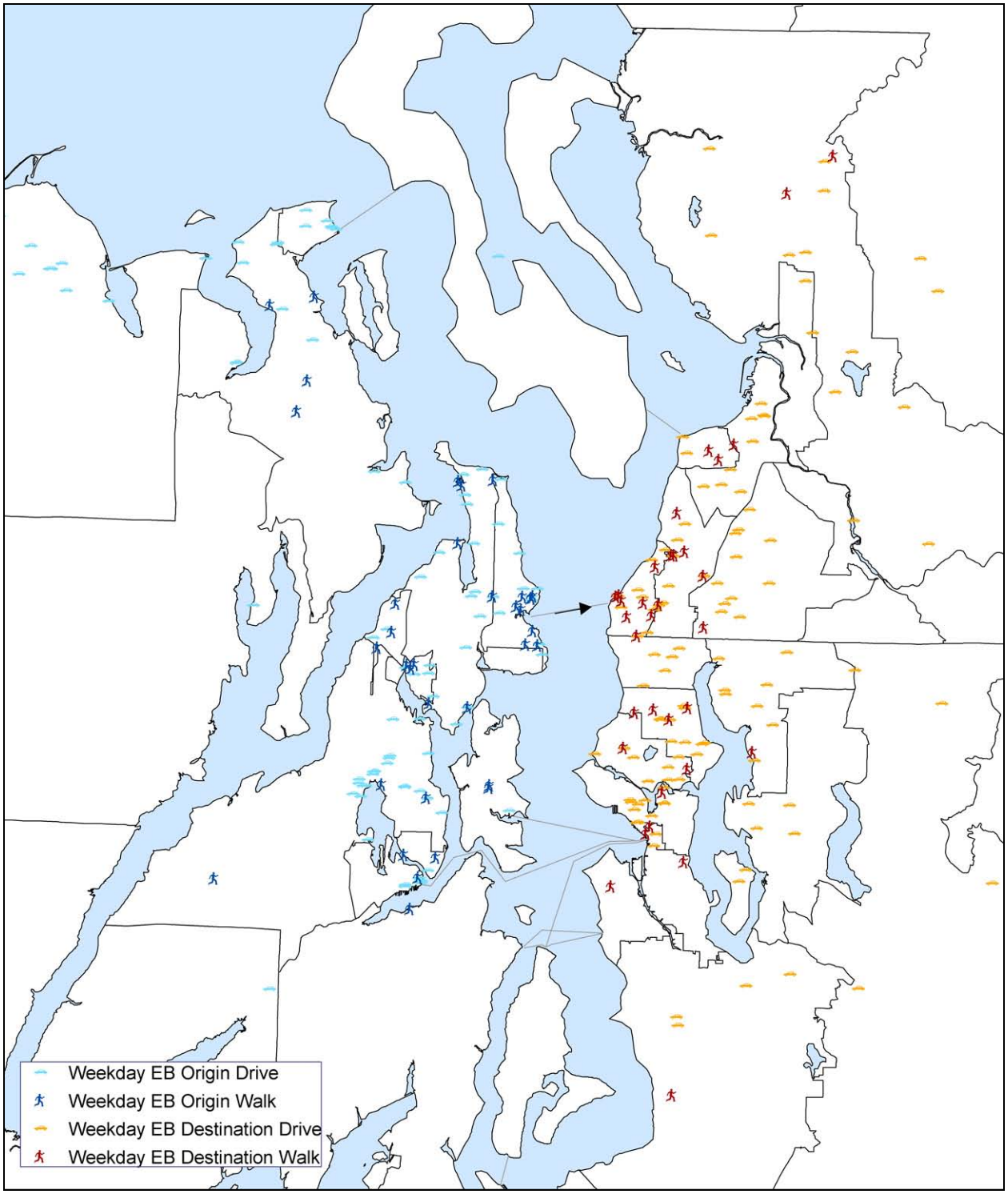
Table 7.32 Edmonds-Kingston Weekday Eastbound Boardings by Origin and Destination District

	Destination District										
Origin District	Edmonds	Lynnwood	Mountlake Terrace	Mukilteo/ Paine Field	Greater Everett	Other West Snohomish County	West Whatcom/ West Skagit/ Island Counties	Seattle CBD	Greater South Seattle	Capitol Hill/ Queen Anne/ Magnolia	Ballard-Green Lake/ University District
South Kitsap/West Pierce Counties	29	11	18				29				
Kingston	81	68	92	15	44	20	17	35	34	95	94
Poulsbo	68	47	11		36		27	11	19		29
Bainbridge Island	164	54	9		9	51					8
Other North Kitsap County	128	68	44	30	60	23	8	15		56	48
Greater Bremerton		19	8		115	45	32				
Other Central Kitsap County	51	62	79	19	112	44	101	8	9		47
Mason County			9	55	8	41	17				
Port Townsend	11	11	11		11					32	39
Other Northeast Jefferson County	65	34	10		16			21	9	24	25
Southeast Jefferson County					8						
Port Angeles	8	11	9			29		8		60	30
Sequim/Other East Clallam County	29	52	27		37	48		16	27	79	11
West Olympic Peninsula						11		11			11
All Other Places	8			29			8			11	
Total	642	437	327	148	456	312	239	125	98	357	342
Percent of Total	12.4%	8.5%	6.3%	2.9%	8.8%	6.0%	4.6%	2.4%	1.9%	6.9%	6.6%

Table 7.32 Edmonds-Kingston Weekday Eastbound Boardings by Origin and Destination District (continued)

	Destination District									
Origin District	North Seattle/ Sand Point	Shoreline- Lake Forest Park	Bothell- Kirkland	Greater Bellevue/ Redmond/Issa quah	Southwest King County	Other West King County	Central Pierce/ Thurston Counties	All Other Places	Total	Percent of Total
South Kitsap/West Pierce Counties		8		9				19	123	2.4%
Kingston	65	20	41	41	9	20		32	823	15.9%
Poulsbo			8	10	29				295	5.7%
Bainbridge Island									295	5.7%
Other North Kitsap County	73	73	48	70	44		8	47	843	16.3%
Greater Bremerton		9	9	8				22	267	5.2%
Other Central Kitsap County	73	29	51	12	11			24	732	14.2%
Mason County		11	8						149	2.9%
Port Townsend		35	23	11		11	11	9	215	4.2%
Other Northeast Jefferson County	47		39	60	42			11	403	7.8%
Southeast Jefferson County	8				11			27	54	1.0%
Port Angeles		11	8	17	8	27			226	4.4%
Sequim/Other East Clallam County	39	84	8	37	29	29		30	582	11.3%
West Olympic Peninsula				11	8				52	1.0%
All Other Places	11			21	8			11	107	2.1%
Total	316	280	243	307	199	87	19	232	5,166	100%
Percent of Total	6.1%	5.4%	4.7%	5.9%	3.9%	1.7%	0.4%	4.5%	100%	

Figure 7.43 Edmonds-Kingston Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



7.3.9 Weekday Westbound Origins and Destinations

Figure 7.44 for weekday westbound trips presents the travel patterns of riders taking the Edmonds-Kingston ferry. The weekday westbound travel patterns from Edmonds to Kingston are summarized in Table 7.33. The majority of boardings are by auto (87 percent) and walking (13 percent). The destinations of these trips are Kingston (19 percent), followed by North Kitsap (18 percent) and various other counties. The major origins are the Edmonds (9 percent), Lynnwood (9 percent) and various other locations.

In the 1999 survey, there were also a wide variation of origins, with a similar pattern to 2006 survey. The destinations have changed somewhat from 1999, with North Kitsap County decreasing from 29 percent in 1999 to 18 percent in 2006 and Sequim increasing from 5 percent in 1999 to 11 percent in 2006. The trips to Central Kitsap County has decreased from about 14 percent in 1999 to 11 percent in 2006.

Figure 7.45 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.44 Edmonds-Kingston Weekday Westbound Origins and Destinations (2006)

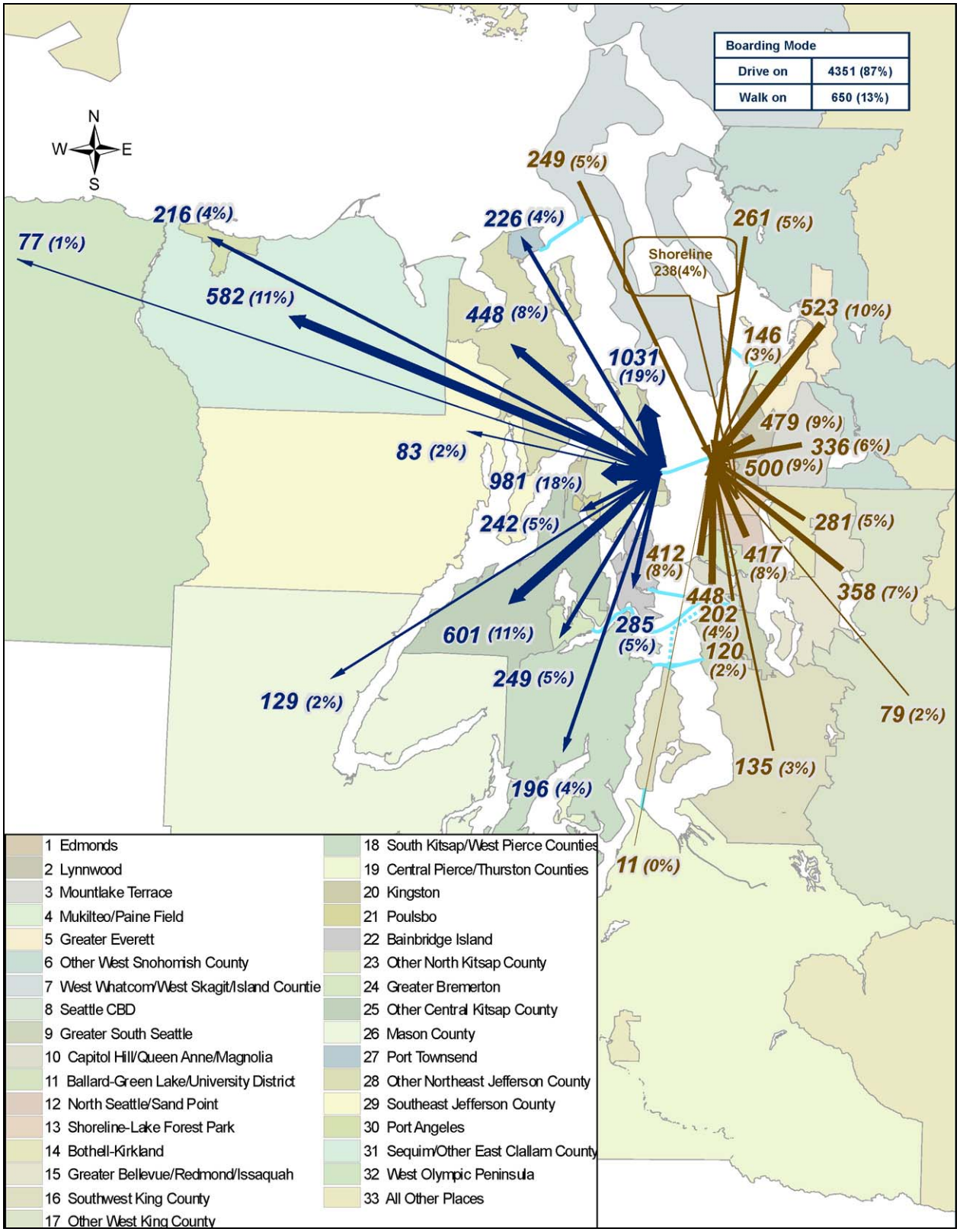


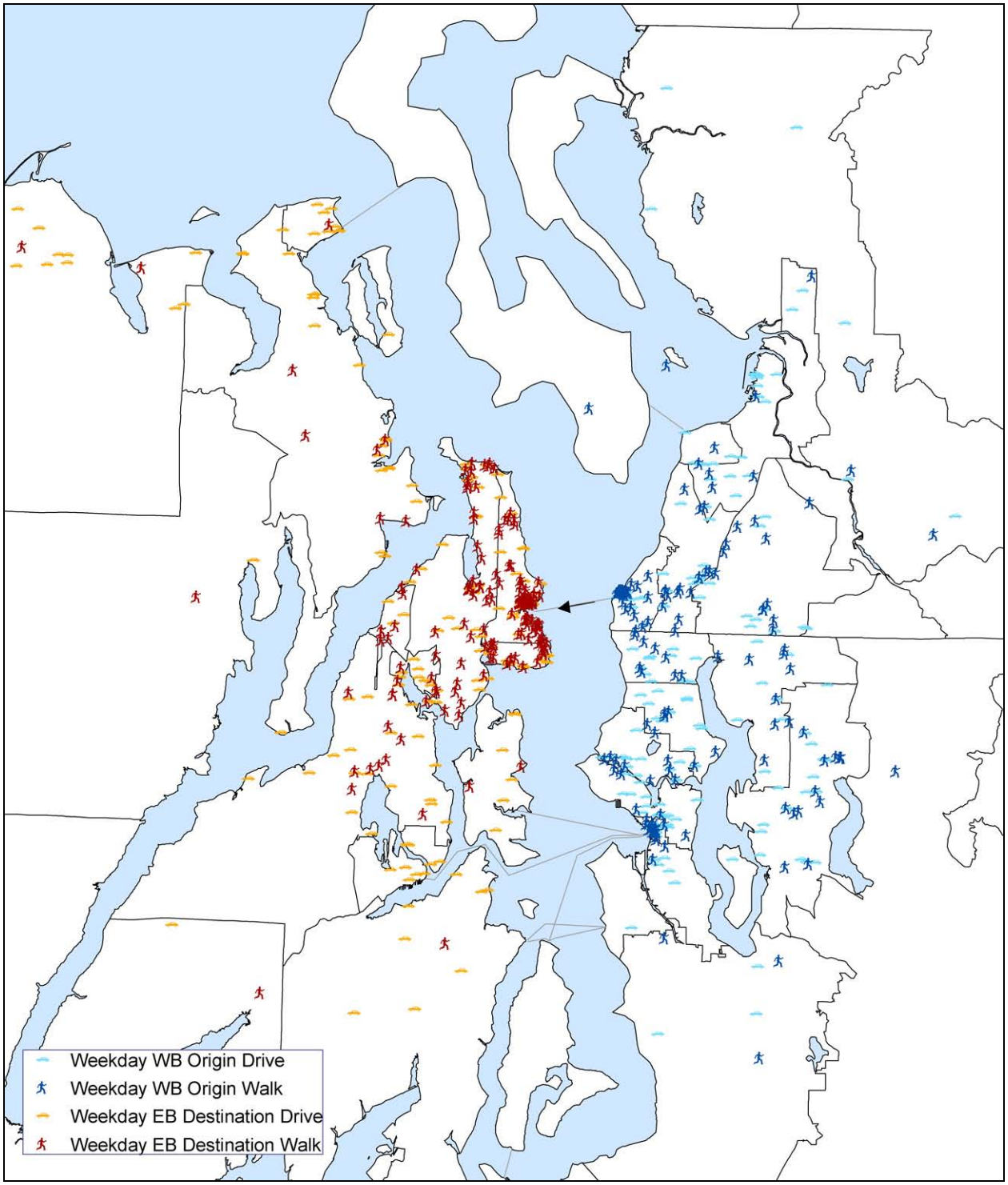
Table 7.33 Edmonds-Kingston Weekday Westbound Boardings by Origin and Destination District

	Destination District								
Origin District	South Kitsap/ West Pierce Counties	Kingston	Poulsbo	Bainbridge Island	Other North Kitsap County	Greater Bremerton	Other Central Kitsap County	Mason County	Port Townsend
Edmonds	28	73	42	55	102		67	13	2
Lynnwood	19	92	41	54	88	11	61		8
Mountlake Terrace	33	67	2	27	60	9	52	11	8
Mukilteo/Paine Field		13		9	74		17	33	
Greater Everett	9	58	36	25	79	114	81	9	8
Other West Snohomish County	9	23		106	9	10	35	8	9
West Whatcom/West Skagit/Island Counties	25	22	25		9	53	77	27	
Seattle CBD		38	17		19		9		13
Greater South Seattle		48	11				11		9
Capitol Hill/Queen Anne/Magnolia		133			62		11		27
Ballard-Green Lake/University District		115	27	9	76		33	11	38
North Seattle/Sand Point		101			81		57		
Shoreline-Lake Forest Park	9	30	2		65	33	13	8	34
Bothell-Kirkland	9	84	9		65		33	9	16
Greater Bellevue/Redmond/Issaquah	11	71	13		89	9	10		8
Southwest King County		15	17		32		8		
Other West King County		8			29				8
South Kitsap/West Pierce Counties									
Central Pierce/Thurston Counties		2			9				
All Other Places	44	38			33	10	26		38
Total	196	1031	242	285	981	249	601	129	226
Percent of Total	3.6%	19.0%	4.5%	5.3%	18.1%	4.6%	11.1%	2.4%	4.2%

Table 7.33 Edmonds-Kingston Weekday Westbound Boardings by Origin and Destination District (continued)

	Destination District							
Origin District	Other Northeast Jefferson County	Southeast Jefferson County	Port Angeles	Sequim/ Other East Clallam County	West Olympic Peninsula	All Other Places	Total	Percent of Total
Edmonds	53	17	9	30		9	500	9.2%
Lynnwood	39		8	58			479	8.8%
Mountlake Terrace	32	2	33				336	6.2%
Mukilteo/Paine Field							146	2.7%
Greater Everett	17	9		58		20	523	9.6%
Other West Snohomish County			17	27	8		261	4.8%
West Whatcom/West Skagit/Island Counties						11	249	4.6%
Seattle CBD	28		9	61	8		202	3.7%
Greater South Seattle	11			30			120	2.2%
Capitol Hill/Queen Anne/Magnolia	37		33	118	27		448	8.3%
Ballard-Green Lake/University District	65		22	8	8		412	7.6%
North Seattle/Sand Point	77	36	22	34	9		417	7.7%
Shoreline-Lake Forest Park			8	36			238	4.4%
Bothell-Kirkland	38		9	9			281	5.2%
Greater Bellevue/Redmond/Issaquah	42		20	58	8	19	358	6.6%
Southwest King County	9	8	9	19	9	9	135	2.5%
Other West King County			17	17			79	1.5%
South Kitsap/West Pierce Counties						9	9	0.2%
Central Pierce/Thurston Counties							11	0.2%
All Other Places		11		19			219	4.0%
Total	448	83	216	582	77	77	5423	100%
Percent of Total	8.3%	1.5%	4.0%	10.7%	1.4%	1.4%	100%	

Figure 7.45 Edmonds-Kingston Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



7.3.10 Weekend Eastbound Origins and Destinations

Figure 7.46 for weekend eastbound trips presents the travel patterns of riders taking the Seattle to Bremerton ferry. The eastbound weekend travel patterns from Seattle and Bremerton are similar to that of the weekday patterns, although even more drive to the ferry (90 percent). These are presented in Table 7.34. The destinations vary widely; with the highest destination was Lynnwood (11 percent), Shoreline (11 percent) and Ballard (10 percent) and the remaining destinations distributed throughout the various districts. The origins of these trips are Kingston and Poulsbo (12 percent), North Kitsap (18 percent), and Sequim (19 percent). Figure 7.47 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.46 Edmonds-Kingston Weekend Eastbound Origins and Destinations (2006)

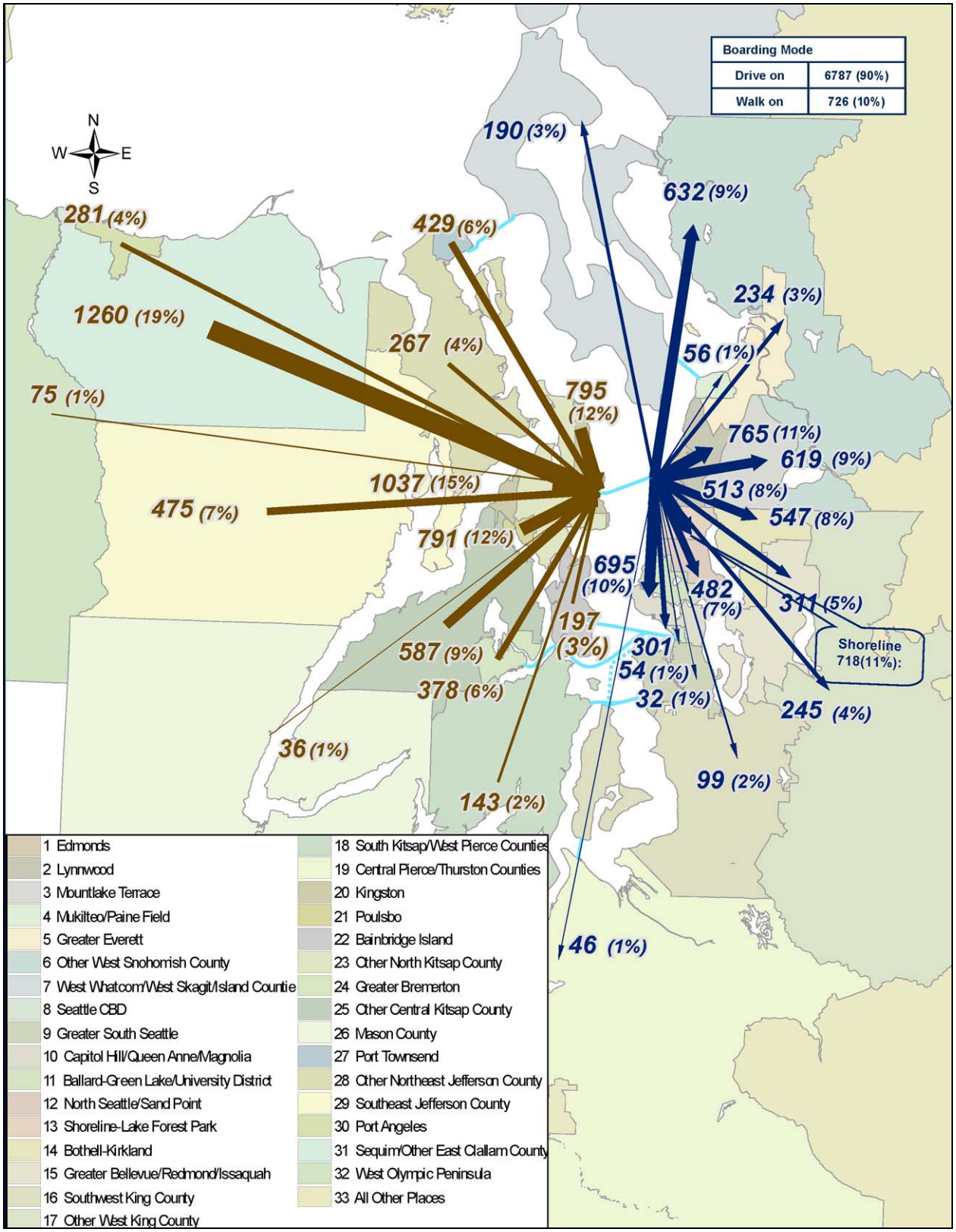


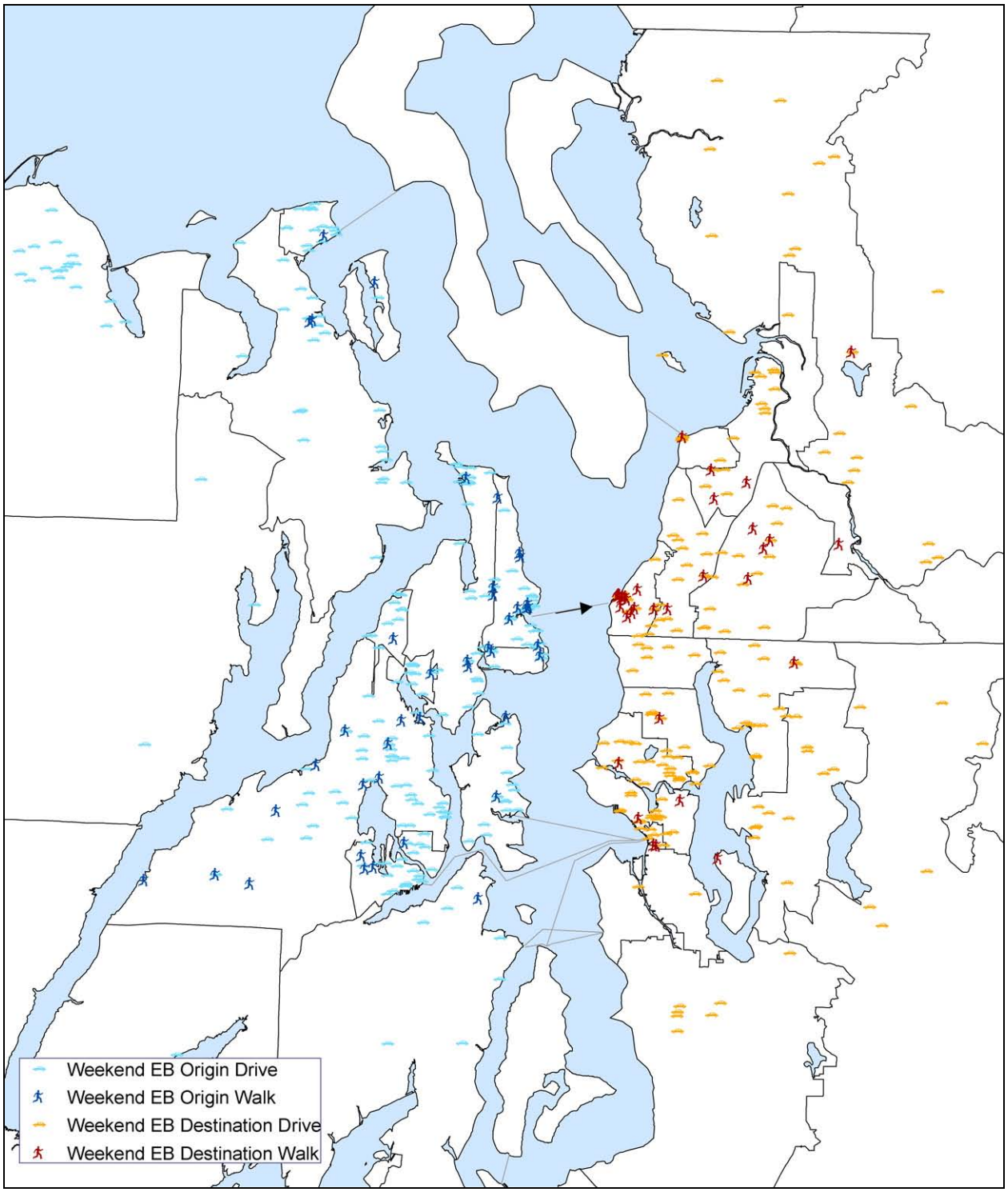
Table 7.34 Edmonds-Kingston Weekend Eastbound Boardings by Origin and Destination District

	Destination District										
Origin District	Edmonds	Lynnwood	Mountlake Terrace	Mukilteo/Paine Field	Greater Everett	Other West Snohomish County	West Whatcom/ West Skagit/ Island Counties	Seattle CBD	Greater South Seattle	Capitol Hill/ Queen Anne/ Magnolia	Ballard-Green Lake/ University District
South Kitsap/West Pierce Counties	25	6	14	6	6	24	11				6
Kingston	202	36	12	6	48	51	18	11	12	28	164
Poulsbo	55	162			2	11	11			6	188
Bainbridge Island	28	11	24		18	46	22		6	13	12
Other North Kitsap County	78	17	25			175	47	8	6	30	37
Greater Bremerton	13	23	46	20	34	40	6			6	6
Other Central Kitsap County	53	201	5	12	69	45	69	6			11
Mason County		22									
Port Townsend	12	45	13		6	12		11	6	165	36
Other Northeast Jefferson County	10	35	13		6	17		6	2	20	39
Southeast Jefferson County	9		142		11	142					155
Port Angeles	9	149	11		11	23		6		6	24
Sequim/Other East Clallam County	19	52	314	12	11	29	6	6		17	17
West Olympic Peninsula		6			6	17				4	
All Other Places					6					6	
Total	513	765	619	56	234	632	190	54	32	301	695
Percent of Total	7.6%	11.3%	9.1%	0.8%	3.4%	9.3%	2.8%	0.8%	0.5%	4.4%	10.2%

Table 7.34 Edmonds-Kingston Weekend Eastbound Boardings by Origin and Destination District (continued)

	Destination District									
Origin District	North Seattle/ Sand Point	Shoreline- Lake Forest Park	Bothell- Kirkland	Greater Bellevue/ Redmond/ Issaquah	Southwest King County	Other West King County	Central Pierce/ Thurston Counties	All Other Places	Total	Percent of Total
South Kitsap/West Pierce Counties		6	11					28	143	2.1%
Kingston	38	12	64	29	17	6	6	35	795	11.7%
Poulsbo	6	155	12	149	11	6		17	791	11.7%
Bainbridge Island			11	6					197	2.9%
Other North Kitsap County	321	160	37	31		12	6	47	1,037	15.3%
Greater Bremerton	12	154		6		6		6	378	5.6%
Other Central Kitsap County	24	24	23	6	6	11	11	11	587	8.6%
Mason County		12	2						36	0.5%
Port Townsend	12	12	26	31		19	6	17	429	6.3%
Other Northeast Jefferson County	12	17	17	17	22	12	11	11	267	3.9%
Southeast Jefferson County	4		6					6	475	7.0%
Port Angeles	11	6	13			6		6	281	4.1%
Sequim/Other East Clallam County	36	160	319	24	19	161	6	52	1,260	18.6%
West Olympic Peninsula	6			6	18	6		6	75	1.1%
All Other Places			6	6	6			6	36	0.5%
Total	482	718	547	311	99	245	46	248	6,787	100%
Percent of Total	7.1%	10.6%	8.1%	4.6%	1.5%	3.6%	0.7%	3.7%	100%	

Figure 7.47 Edmonds-Kingston Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



7.3.11 Weekend Westbound Origins and Destinations

Figure 7.48 for weekday westbound trips presents the travel patterns of riders taking the Seattle to Bremerton ferry. The weekend westbound trips from Bremerton to Seattle are like the weekday patterns, with even more ferry riders who drive to the ferry (90 percent). These are presented in Table 7.35. The destinations of these trips are Sequim (16 percent), followed by North Kitsap (14 percent) and various other counties. The major origins are the Edmonds (9 percent), Lynnwood (11 percent), and Ballard (10 percent). Figure 7.49 presents the individual locations of survey respondents' origins and destinations by boarding mode.

Figure 7.48 Edmonds-Kingston Weekend Westbound Origins and Destinations (2006)

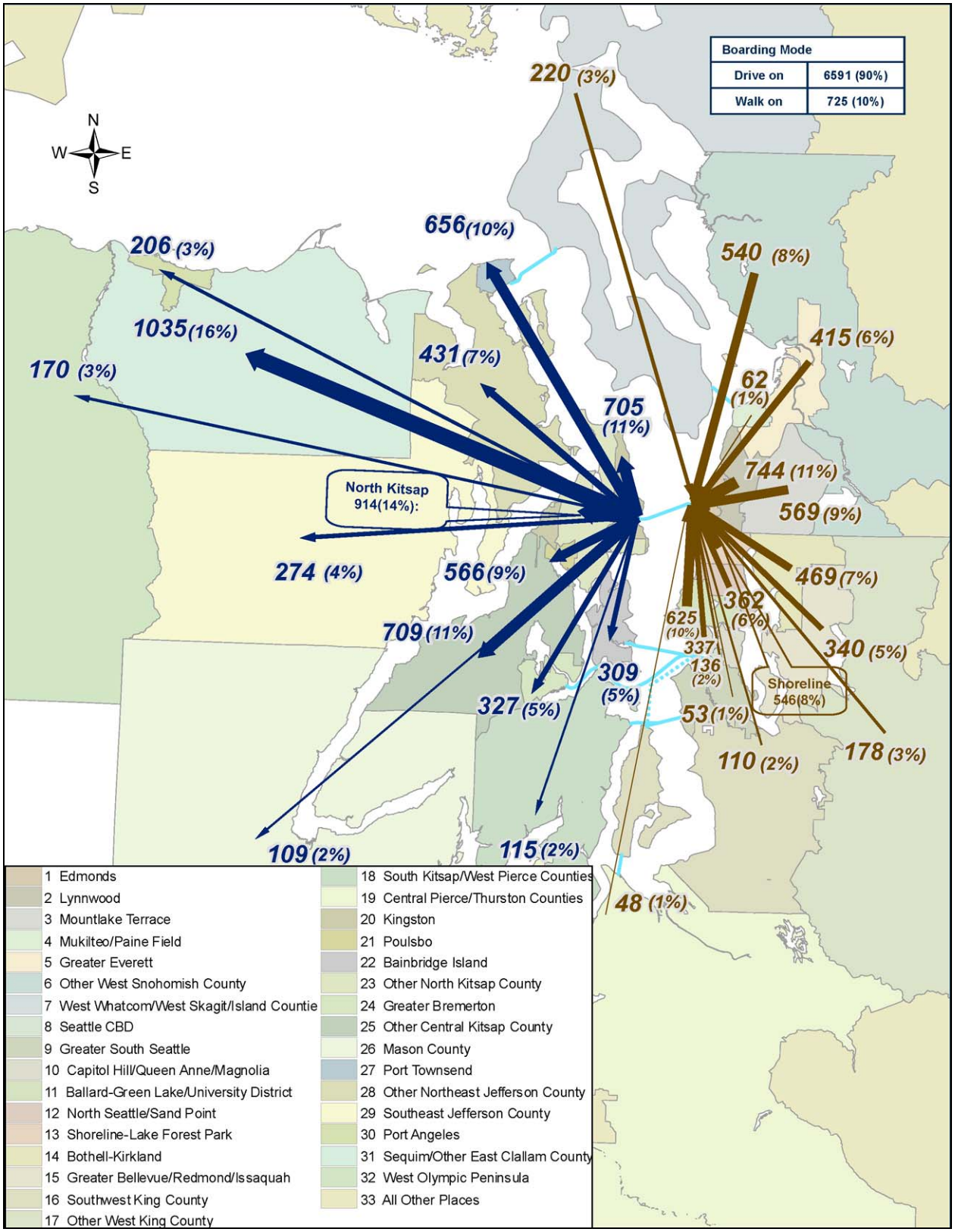


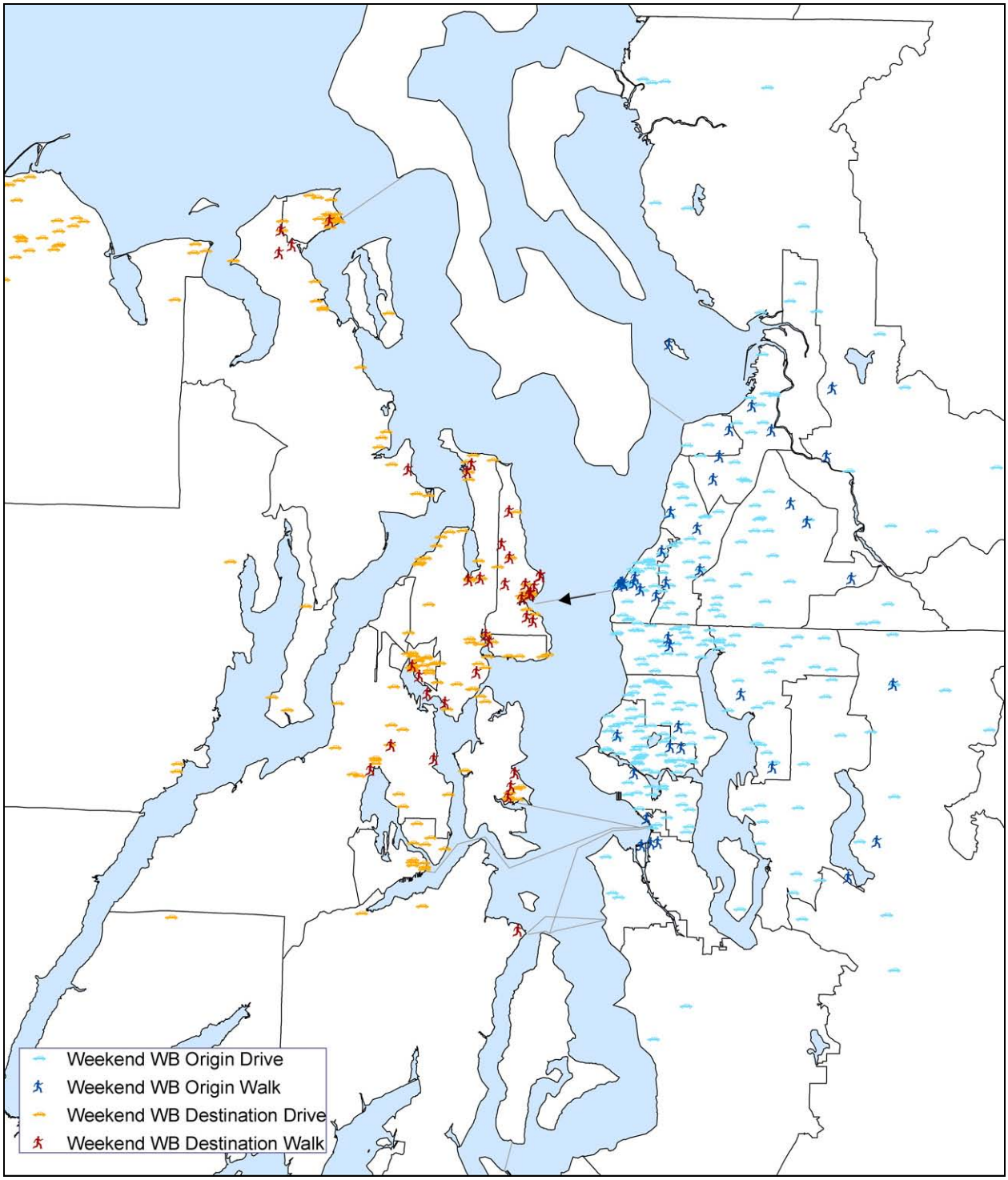
Table 7.35 Edmonds-Kingston Weekend Westbound Boardings by Origin and Destination District

	Destination District								
Origin District	South Kitsap/ West Pierce Counties	Kingston	Poulsbo	Bainbridge Island	Other North Kitsap County	Greater Bremerton	Other Central Kitsap County	Mason County	Port Townsend
Edmonds	20	150	54	53	111	29	102		16
Lynnwood		26	103	35	66	28	142	24	90
Mountlake Terrace	4	11	12	16	101	91	17	24	9
Mukilteo/Paine Field		3				34	9		
Greater Everett		60	74	47	21	12	82	9	9
Other West Snohomish County	12	39	24	56	99	21	87	4	15
West Whatcom/West Skagit/Island Counties	24	21	12	52	26	12	21		12
Seattle CBD		47			18				55
Greater South Seattle	7	7		3	4				13
Capitol Hill/Queen Anne/Magnolia		41		7	29				162
Ballard-Green Lake/University District	12	86	88	16	41		24	4	34
North Seattle/Sand Point		50	9		178	16	37		4
Shoreline-Lake Forest Park	12	13	63		103	72	83	4	72
Bothell-Kirkland	12	96	16	24	28		28	12	60
Greater Bellevue/Redmond/Issaquah		31	64		58		12		54
Southwest King County								24	13
Other West King County		12	12		15		24		22
Central Pierce/Thurston Counties		4			12		17		
Kingston									
Other Central Kitsap County						12			
Port Townsend									
Sequim/Other East Clallam County	12								
All Other Places (outside study area)		8	35		4		24	4	16
Total	115	705	566	309	914	327	709	109	656
Percent of Total	1.7%	10.7%	8.6%	4.7%	13.9%	5.0%	10.8%	1.7%	10.0%

Table 7.35 Edmonds-Kingston Weekend Westbound Boardings by Origin and Destination District (continued)

	Destination District							
Origin District	Other Northeast Jefferson County	Southeast Jefferson County	Port Angeles	Sequim/ Other East Clallam County	West Olympic Peninsula	All Other Places	Total	Percent of Total
Edmonds	31	7	11	17		4	605	9.2%
Lynnwood	114		60	32	12	12	744	11.3%
Mountlake Terrace	9	55		220			569	8.6%
Mukilteo/Paine Field				16			62	0.9%
Greater Everett	9	24	12	28	28		415	6.3%
Other West Snohomish County	28	79	25	35	16		540	8.2%
West Whatcom/West Skagit/Island Counties			12	24	4		220	3.3%
Seattle CBD			16				136	2.1%
Greater South Seattle	7			12			53	0.8%
Capitol Hill/Queen Anne/Magnolia	31	12	4	35	4	12	337	5.1%
Ballard-Green Lake/University District	44	69	22	95	90		625	9.5%
North Seattle/Sand Point	16	4		48			362	5.5%
Shoreline-Lake Forest Park	16	16	4	88			546	8.3%
Bothell-Kirkland	4	4	21	152		12	469	7.1%
Greater Bellevue/Redmond/Issaquah	41			80			340	5.2%
Southwest King County	24			21	12	16	110	1.7%
Other West King County	9		4	76	4		178	2.7%
Central Pierce/Thurston Counties	12		3				48	0.7%
Kingston	12						12	0.2%
Other Central Kitsap County							12	0.2%
Port Townsend	24						24	0.4%
Sequim/Other East Clallam County							12	0.2%
All Other Places (outside study area)		4	12	56		9	172	2.6%
Total	431	274	206	1,035	170	65	6,591	100%
Percent of Total	6.5%	4.2%	3.1%	15.7%	2.6%	1.0%	100%	

Figure 7.49 Edmonds-Kingston Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)

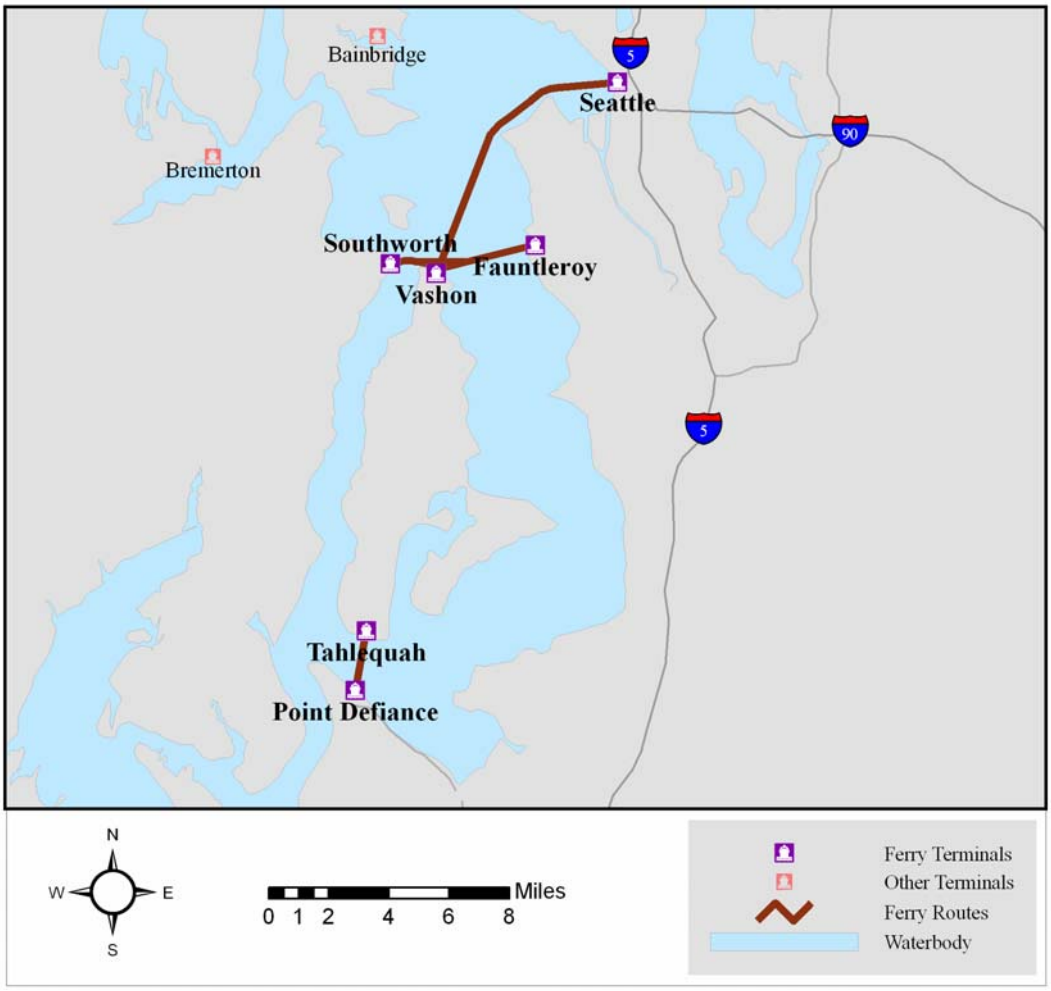


8.0 South Sound Corridor

8.0.1 Description

The routes in the South Sound corridor include: Seattle-Vashon Passenger-Only, Fauntleroy-Vashon, Fauntleroy-Southworth, Southworth-Vashon and Point Defiance-Tahlequah, as shown in Figure 8.1. This corridor is the third highest traveled corridor in the Washington State Ferries system, with 4 million riders per year, or 11,000 riders per day. This is down from high of 13,000 riders per day in 1999, and about 11,200 riders per day from the previous survey in 1993. The corridor is south of Seattle and includes routes that cross the Puget Sound connecting the mainland at Fauntleroy and Point Defiance on the east side with Southworth on the west side, and Vashon Island (Vashon terminal at the north tip and Tahlequah at the south tip) in between.

Figure 8.1 South Sound Corridor Routes



There are 101 sailings in each direction a day for the 5 routes in this corridor and this can handle up to 355 vehicles in each direction for each sailing (on the combined routes). There were 115 sailings in each direction a day in 1999; part of the loss of ridership may be due to fewer sailings. Taking this into account, there are about the same number of passengers per sailing in 2006 (109 passengers per sailing) as there were in 1999 (113 passengers per sailing). Fares on the five routes in this corridor average $5.54 for vehicles and $2.26 for passengers. This has increased 24 percent (in 2006 dollars) since 1999 for passengers, when average fares were $1.83 for passengers (in 2006 dollars). Average vehicle fares increased by about 23 percent since 1999 when average fares were $4.50 (in 2006 dollars).

8.0.2 Frequency of Travel

Table 8.1 shows the frequency of travel for weekday and weekend by trip purpose. Though a majority of trips on this corridor are work trips (64 percent), there are also a significant number of recreation, shopping or leisure trips (21 percent). This is followed by trips for medical, personal business or other purposes (15 percent). Frequency of trips in this corridor vary more than on other routes. This is evidenced by about 22 percent of the passengers making one-way trip one or two days a week and 37 percent making 9 or more one-way trips in an average week. In other words, a significant share of passengers take the ferry only a few times and a slightly larger share of passengers take it nearly every day. Passengers making work trips tend to be more frequent riders. In fact, 37 percent of the passengers making work trips use the ferry nearly every day, whereas only 12 percent of those traveling for personal business do so and 9 percent of those traveling for recreational purposes. In both the 1993 and 1999 surveys, 19 percent of the passengers were infrequent users making just one or two one-way trips. More passengers in earlier years used the ferry very frequently, as evidenced by the 50 percent in 1993 who used the ferry nearly every day and 42 percent in 1999.

Another significant finding with regard to work trips is the amount of telecommuting. In the 2006 survey, 19 percent of weekday riders said that they telecommute at least one day per week.

8.0.3 Trips by Day of Week

Figure 8.2 shows the weekday and weekend trip frequency by day of the week. Wednesday has the highest ridership for weekday riders, followed by Thursday. Sunday ridership is the lowest, followed by Saturday. Many of the weekend passengers are using the ferry for recreational, shopping or leisure trips. These weekend riders, it turns out, do not travel a great deal on the ferry during the week. The 2006 survey was conducted on a Saturday, rather than on a Sunday. These results reveal that Saturday travelers are not very likely to also travel on a Sunday and most do not use the ferry on weekdays

Table 8.1 South Sound Corridor Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

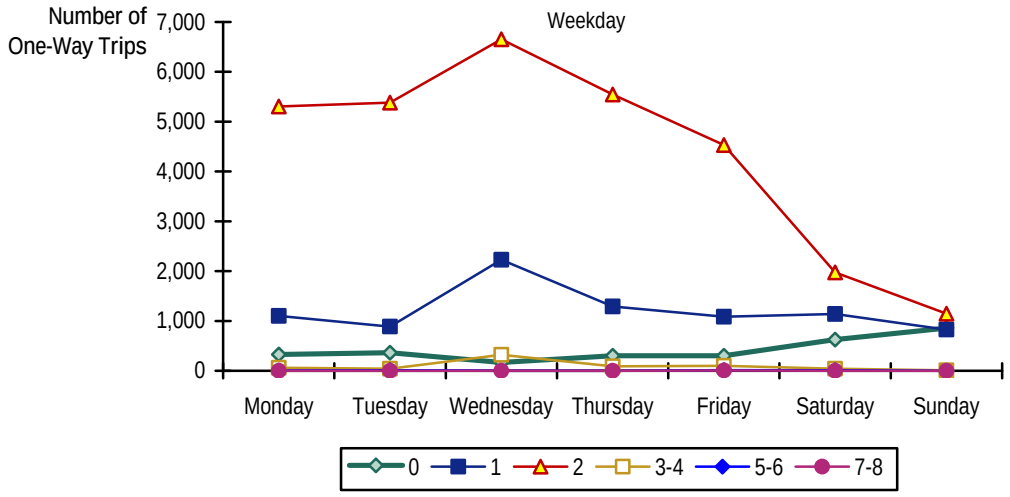
Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/ School 2006	Work/ School 1999
Weekday									
1	186	382	356	924	8.6%	7.7%	10.4%	2.7%	4.3%
2	496	235	742	1473	13.7%	11.2%	8.2%	7.2%	7.1%
3-4	830	502	420	1752	16.2%	15.4%	9.7%	12.1%	8.6%
5-6	917	244	371	1532	14.2%	15.6%	13.8%	13.4%	13.1%
7-8	823	70	202	1095	10.2%	8.2%	7.8%	12.0%	8.2%
9-10	2337	134	55	2526	23.4%	23.9%	50.2%	34.1%	33.7%
11+	1262	69	152	1483	13.8%	18.0%		18.4%	25.0%
Total	6851	1636	2298	10785	100%	100%	100%	100%	100%
Percent 2006	63.5%	15.2%	21.3%	100%					
Percent 1999	65.0%	18.1%	16.9%	100%					
Percent 1993	81.1%	7.0%	11.9%	100%					
Weekend									
1	97	1267	1181	2545	26.4%	23.1%	34.5%		
2	154	261	2367	2782	28.9%	26.4%	27.3%		
3-4	116	573	973	1662	17.3%	17.9%	14.3%		
5-6	140	109	414	663	6.9%	8.6%	7.6%		
7-8	182	289	222	693	7.2%	4.3%	4.4%		
9-10	134	41	132	307	3.2%	4.7%	11.9%		
11+	431	178	365	974	10.1%	14.9%			
Total	1254	2718	5654	9626	100%	100%	100%		
Percent 2006	13.0%	28.2%	58.7%	100%					
Percent 1999	11.6%	21.3%	67.1%	100%					
Percent 1993	18.5%	11.5%	70.0%	100%					

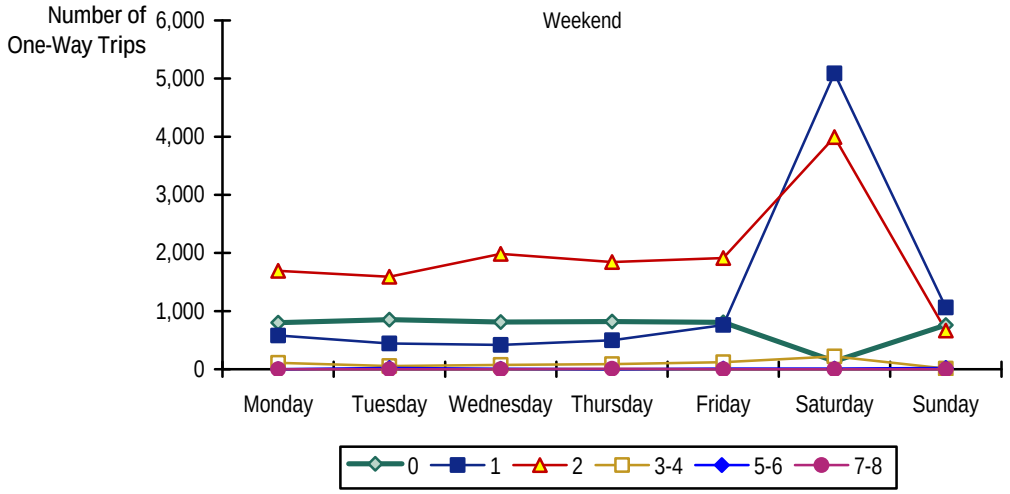
2006 Weekday Trips: 11,427 Missing: 642

2006 Weekend Trips: 10,053 Missing: 423

Figure 8.2 South Sound Corridor Frequency of Trips by Day of Week

How Many One-Way Trips Have You Taken on Monday, Tuesday, etc.





Note: These charts reflect the weekly travel patterns of those travelers who responded to the survey on Wednesday (for weekdays) and on Saturday (for weekends). This does not show that Tuesdays and Saturdays have more travel on average than other days.

8.0.4 Round Trip Patterns

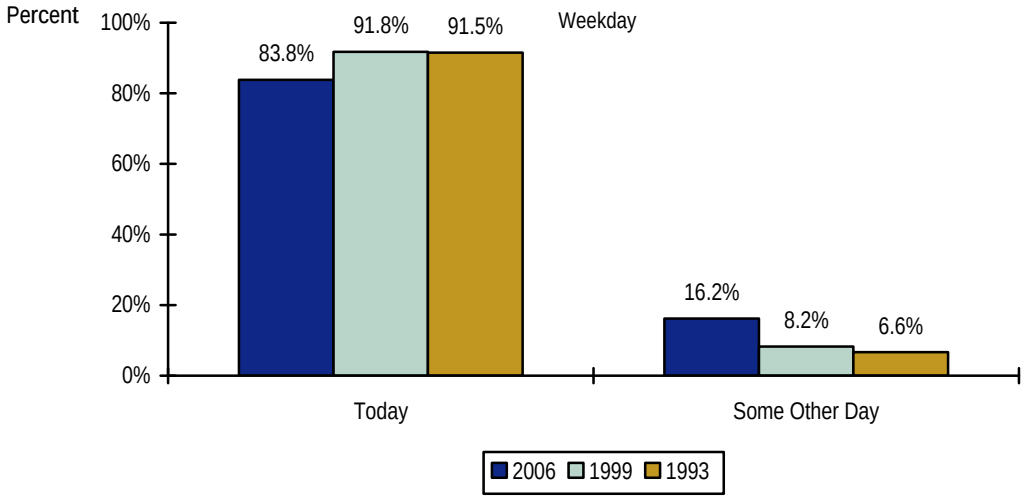
The percent of ferry travelers in 2006 making a round trip on the same day was 84 percent, as shown in Figure 8.3. This share was higher in previous years, 92 percent in both the 1993 and 1999 surveys. Conversely, more weekend travelers are now making their round trips on the same day as compared to earlier years. In 2006, 90 percent of travelers did so, compared to 74 percent in 1993 and 72 percent in 1999. Saturday travelers are typically more likely to be day-trippers than Sunday travelers. Passengers traveling on a Sunday are more likely to be weekend travelers (i.e., leave on Friday, return on Sunday).[30]

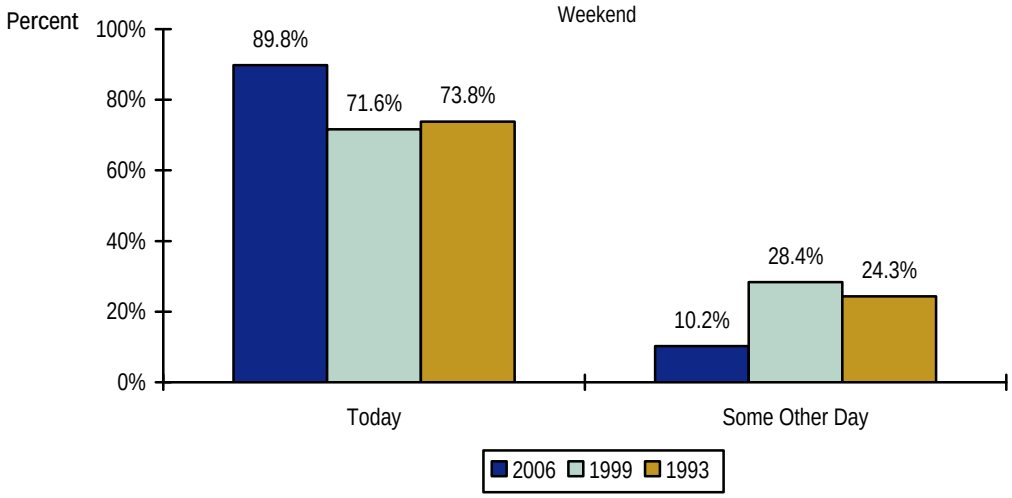
A high percentage of people taking round trips use the same ferry route for the return trip (84 percent), with another 16 percent of travelers returning on a different ferry route. The people taking a different ferry route are more likely to travel for recreational purposes and who visit more than one location across the Sound. On the return trip, 91 percent are taking the same ferry route as the outbound trip. This is higher than in 1993 when 86 percent took the same ferry route on the return trip, and in 1999 when 88 percent did so. Weekend travelers were more likely to take the same ferry route on their return trip—95%, which is slightly up from previous years.

[30] The 2006 survey was conducted on a Saturday, while the 1993 and 1999 surveys were conducted on Sundays, to represent weekend travel.

Figure 8.3 South Sound Corridor Round Trip Patterns by Day

When will you return? When was the first half of your trip?



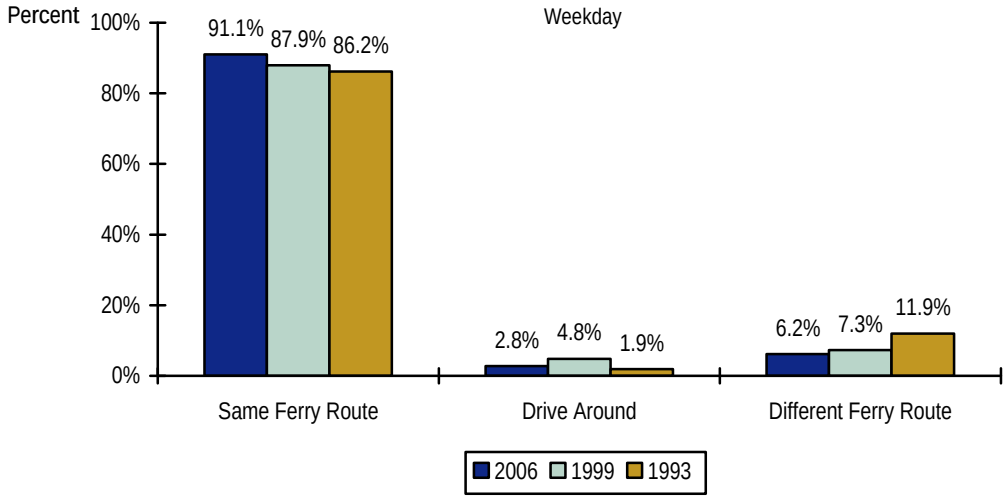


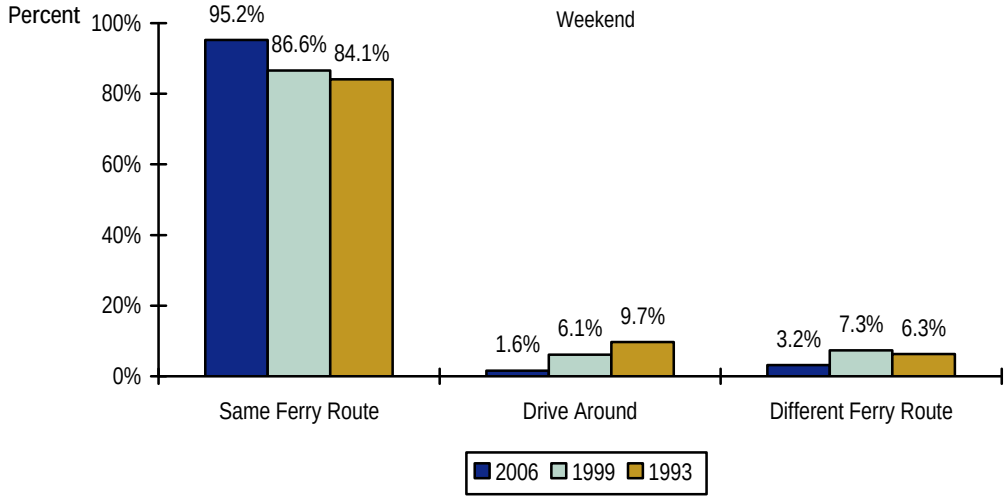
2006 Weekday Trips: 11,427 Missing: 155

2006 Weekend Trips: 10,053 Missing: 237

Figure 8.4 South Sound Corridor Round Trip Patterns by Route

How will you return? How did you travel on the first half of your trip?





2006 Weekday Trips: 11,427 Missing: 270

2006 Weekend Trips: 10,053 Missing: 313

8.0.5 Access, Egress, and Boarding Modes

The majority of passengers drive their vehicles on board the ferry, and this trend has become more pronounced over time as fewer passengers walk on board. In addition, far fewer passengers today are walking to the ferry terminal than in 1993. In 2006, 79 percent of passengers boarded the ferry with their vehicles, compared with 45 percent in 1993. The share of weekday passengers who walked on board decreased from 54 percent in 1993 to 20 percent in 2006. On weekends, passengers were even more likely to board with their vehicles. Specifically, 89 percent did so, compared with 67 percent in 1993.

For egress trips, the share of passengers boarding with their vehicles rose from 45 percent in 1993 to 79 percent in 2006. This is compared with 54 percent who walked on board in 1993 to 20 percent who did so in 2006. On weekends an even larger share brought their vehicles on board, as shown in Figure 8.5. It may be that people travel more frequently on the ferries for work or school are more likely to walk on board because it is less expensive than boarding with a vehicle. Conversely, there are almost twice as many passengers who board with a vehicle on the weekend, than on the weekday, because these trips are more likely to be for shopping or recreation purposes.

Tables 8.2 and 8.3 provides a more detailed view of access and egress modes, respectively, by boarding mode for the South Sound corridor. There is a significant trend between 1993 and 2006 from walking to the ferry terminal to arriving by car. Specifically in 1993, 25 percent of passengers arrived on foot, versus 8 percent by 2006. On weekend, the share who walked was 8 percent in 1993 down to 1 percent in 2006.

In 2006, 60 percent of all weekday passengers drove to the terminal and an additional 22 percent were driven for a total of 82 percent who arrive by vehicle. This is significantly higher than 63 percent in 1993 who did so but little lower than 86 percent in 1999. On weekends, 96 percent of the ferry passengers arrive at the ferry terminal by car (driving or being driven) versus 97 percent in 1999 and 86 percent of weekend passengers in 1993. The share of passengers who board the ferry with their vehicles for both access and egress has increased significantly since 1993 but decreased slightly since 1999.

The share of passengers who board the ferry with their vehicles for both access and egress has increased since 1993, and this could be mainly due to the curtailment of the Vashon passenger only service. On weekday, looking at boarding method trends, only 45 percent of passengers board with their vehicles, compared to 77 percent in 1999 and 79 percent by 2006. On the weekend this share rose from 67 percent in 1993 to 90 percent in 1999 but dropped slightly to 89 percent in 2006 who boarded with their vehicle. In 1993, 54 percent of ferry passengers boarded the ferry on foot on weekday, compared to 21 percent in 1999 and 20 percent by 2006. Similarly on weekends, 31 percent of travelers who walk on board in 1993 compared to 10 percent in 2006 while it had dropped to about 8 percent in 1999.

Figure 8.5 South Sound Corridor Access and Egress Modes

How did you travel from your origin location to this sailing? How will you travel to the destination you are going to now?

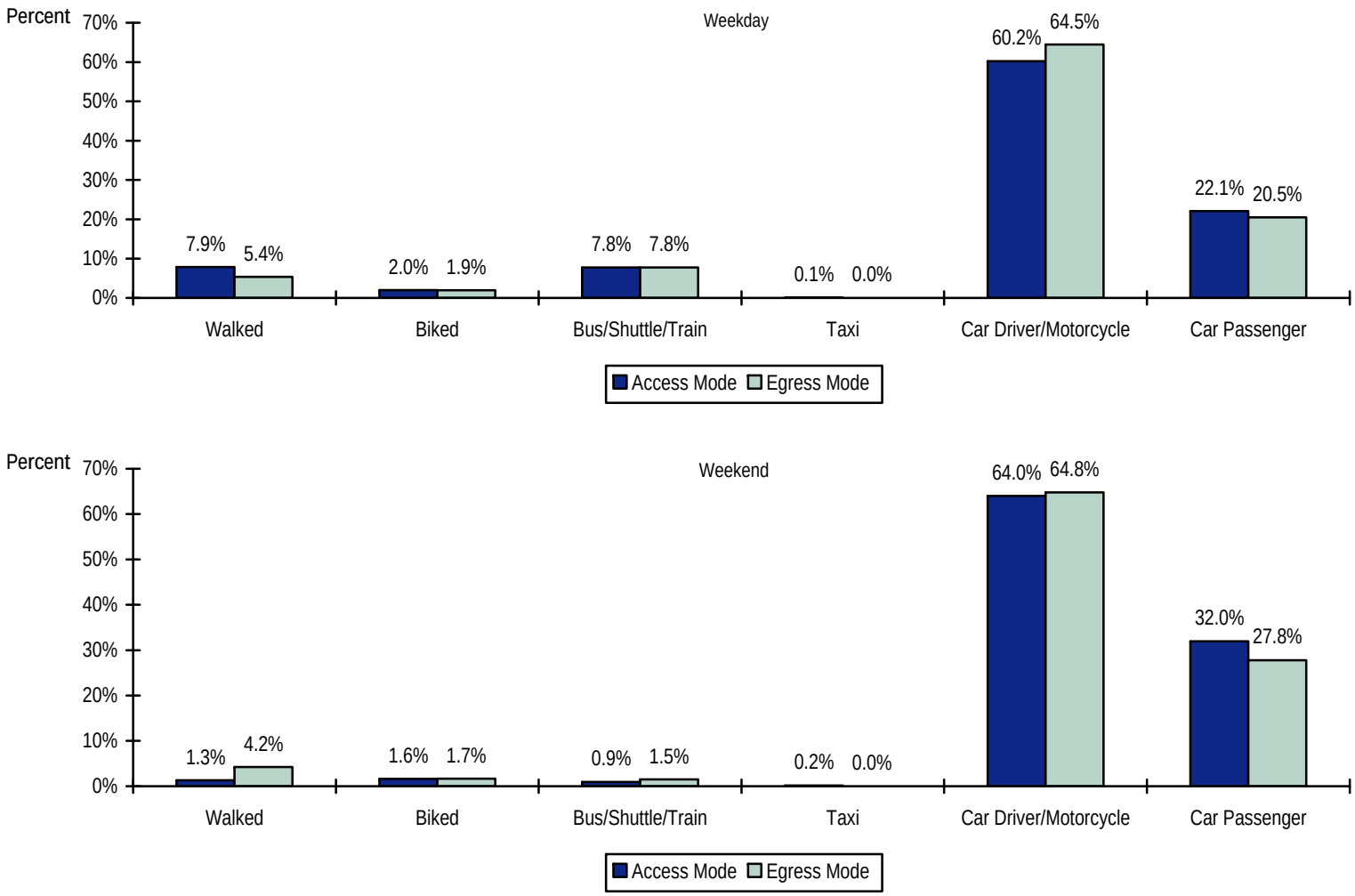


Table 8.2 South Sound Corridor Trips by Access Mode and Boarding Method

How did you travel from your origin location to this sailing? How will/did you board this ferry?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	147	747	0	894	7.9%	5.3%	25.2%
Biked	17	57	152	226	2.0%	1.1%	2.2%
Bus/Shuttle/Train	193	689	0	882	7.8%	7.3%	8.8%
Taxi	0	9	0	9	0.1%	0.0%	0.4%
Car Driver/ Motorcycle	6388	442	23	6853	60.2%	62.7%	47.4%
Car Passenger	2194	317	0	2511	22.1%	23.6%	16.0%
Total	8939	2261	175	11375	100%	100%	100%
Percent 2006	78.6%	19.9%	1.5%	100%			
Percent 1999	77.4%	21.2%	1.4%	100%			
Percent 1993	44.5%	53.6%	1.9%	100%			
Weekend							
Walked	12	120	0	132	1.3%	0.4%	7.9%
Biked	0	0	163	163	1.6%	1.4%	2.2%
Bus/Shuttle/Train	12	81	0	93	0.9%	0.9%	3.1%
Taxi	0	17	0	17	0.2%	0.0%	0.4%
Car Driver/ Motorcycle	5863	572	0	6435	64.0%	70.8%	54.0%
Car passenger	3018	194	0	3212	32.0%	26.5%	32.4%
Total	8905	984	163	10052	100%	100%	100%
Percent 2006	88.6%	9.8%	1.6%	100%			
Percent 1999	90.3%	7.8%	1.9%	100%			
Percent 1993	66.8%	31.1%	2.2%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 11,427 Missing: 53

2006 Weekend Trips: 10,053 Missing: 1

Table 8.3 South Sound Corridor Trips by Egress Mode and Boarding Method

How did you travel from your origin location to this sailing? How will/did you board this ferry?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	68	524	5	597	5.4%	2.7%	9.9%
Biked	32	61	124	217	1.9%	1.0%	2.2%
Bus/Shuttle/Train	155	705	5	865	7.8%	5.8%	7.5%
Taxi	0	0	0	0	0.0%	0.0%	0.8%
Car Driver/ Motorcycle	6620	551	20	7191	64.5%	65.5%	59.4%
Car Passenger	1881	391	13	2285	20.5%	25.0%	20.3%
Total	8756	2232	167	11155	100%	100%	100%
Percent 2006	78.5%	20.0%	1.5%	100%			
Percent 1999	77.4%	21.2%	1.4%	100%			
Percent 1993	44.5%	53.6%	1.9%	100%			
Weekend							
Walked	12	406	0	418	4.2%	0.8%	6.1%
Biked	0	3	163	166	1.7%	1.6%	1.9%
Bus/Shuttle/Train	35	113	0	148	1.5%	0.5%	3.0%
Taxi	0	0	0	0	0.0%	0.0%	0.8%
Car Driver/ Motorcycle	6253	173	0	6426	64.8%	70.2%	56.1%
Car passenger	2482	275	0	2757	27.8%	27.0%	32.1%
Total	8782	970	163	9915	100%	100%	100%
Percent 2006	88.6%	9.8%	1.6%	100%			
Percent 1999	90.3%	7.8%	1.9%	100%			
Percent 1993	66.8%	31.1%	2.2%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 11,427 Missing: 274

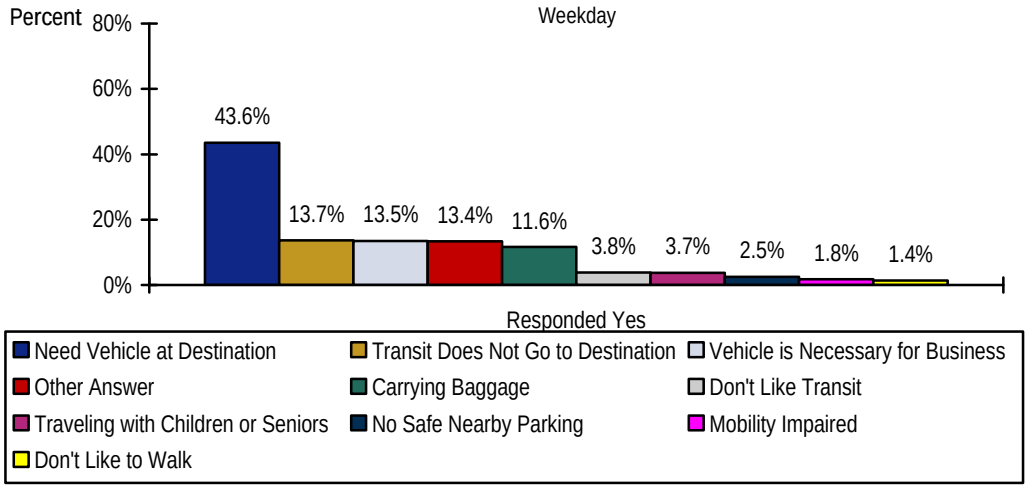
2006 Weekend Trips: 10,053 Missing: 138

The most significant reason for taking a vehicle on the ferry was a belief on the part of the passenger that a vehicle was needed at the destination (about 44 percent of travelers taking their vehicle on gave this reason). Two other reasons for taking a vehicle on board were, first, that the vehicle is necessary for business (14 percent) and, second, that the traveler had baggage to carry (12 percent). Only 1 percent of the people said that they do not like to walk. The pattern for weekend travelers is similar to that of weekday travelers, except that the assumption that a vehicle is necessary was reported by 70 percent of the passengers. Figure 8.6 presents the results of the travelers' reasons for taking a vehicle on-board the ferry.

For travelers who travel who do not take their car on the ferry, only 26 percent park their car at the terminal, as shown in Figure 8.7 The weekend travelers indicate a higher rate of parking at the terminal, 42 percent, perhaps because parking is more available on weekends than on weekdays.

Figure 8.6 South Sound Corridor Reasons for Taking a Vehicle

Why did you choose to take board in a vehicle instead of walk-on?



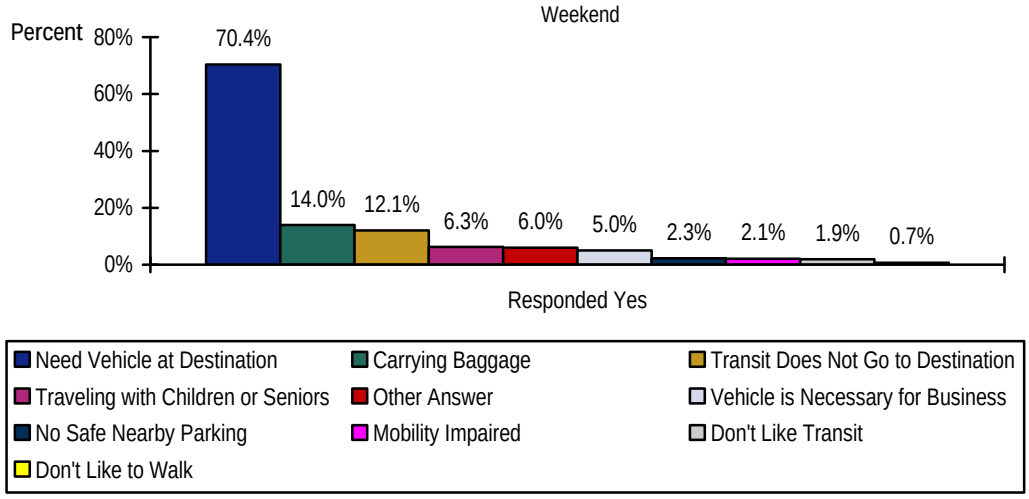
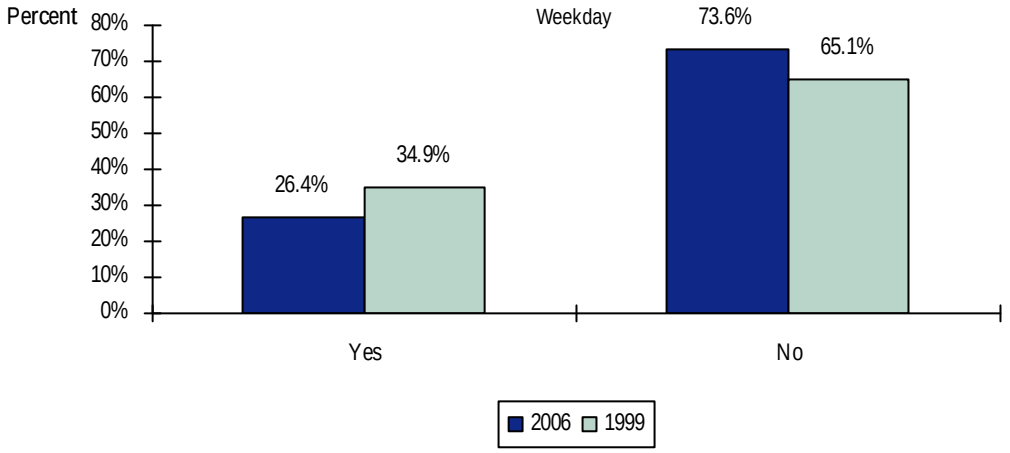
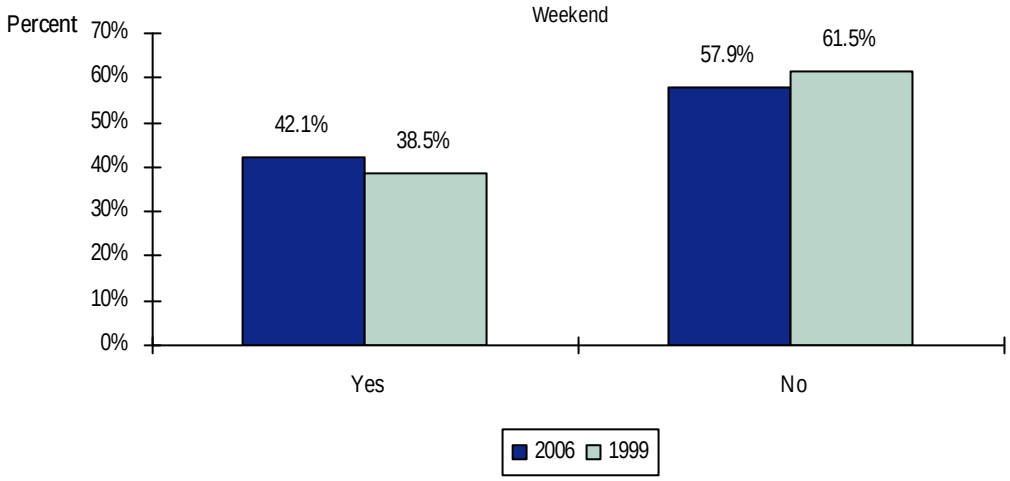


Figure 8.7 South Sound Corridor Non-Motorized Boardings
Did you park a vehicle to board this ferry?





About one third of the people surveyed keep a vehicle at their destination so they can drive when they get there, but still walk onto the ferry (32 percent weekday, 31 percent weekend). A smaller share of people keep bicycles at the terminals for this purpose (about 4 percent for weekday and 5 percent for weekend). This is presented in Table 8.4.

Table 8.4 South Sound Corridor Destination Vehicles
Did you keep either a bike or vehicle at the destination end of this ferry trip?

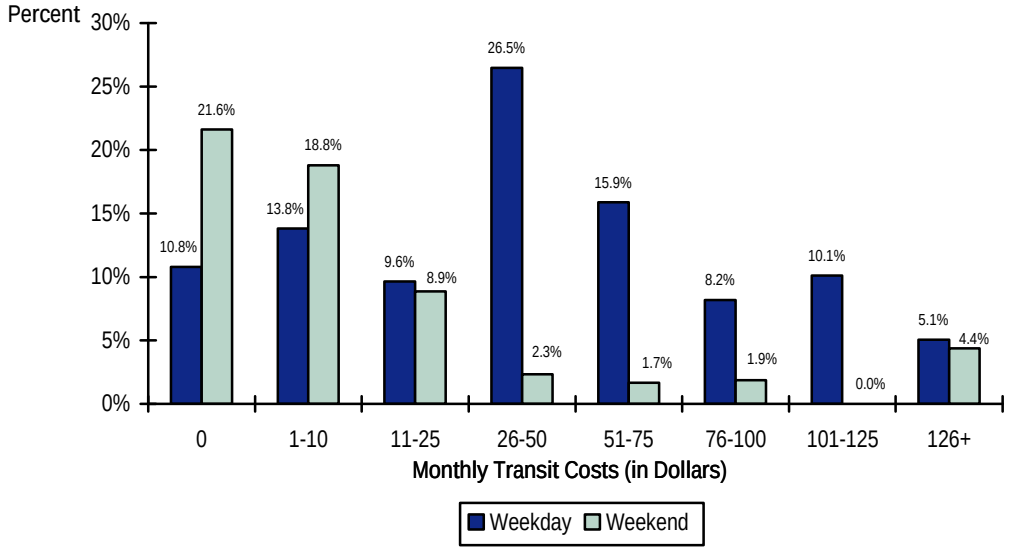
	Responded Yes	Percent
Weekday		
Bike	107	4.4%
Vehicle	784	32.1%
N/A	1554	63.6%
Total	2445	100.0%
Weekend		
Bike	60	5.2%
Vehicle	356	31.0%
N/A	733	63.8%
Total	1149	100.0%

Note: Only asked when boarding mode was walk or bike.

For travelers who ride transit to/from the ferry, the average monthly transit cost is shown in Figure 8.3. As expected, weekend travelers are less likely to include travelers who commute or travel regularly by ferry and therefore would not have significant monthly costs for transit access trips.

Figure 8.8 South Sound Corridor Monthly Transit Costs

If you ride transit (bus/train), what is the average monthly cost that you pay for transit to/from work or school?



8.0.6 Other Travel Characteristics

One new question on the 2006 survey was "Is this your preferred sailing?" A significant number of weekday travelers (27 percent) said that it was not their preferred sailing during the week, with 19 percent of travelers saying it was not their preferred sailing on the weekend. Also, a similar percent of walk-on passengers indicated that they do not take their preferred sailing. These survey results are presented in Table 8.5.

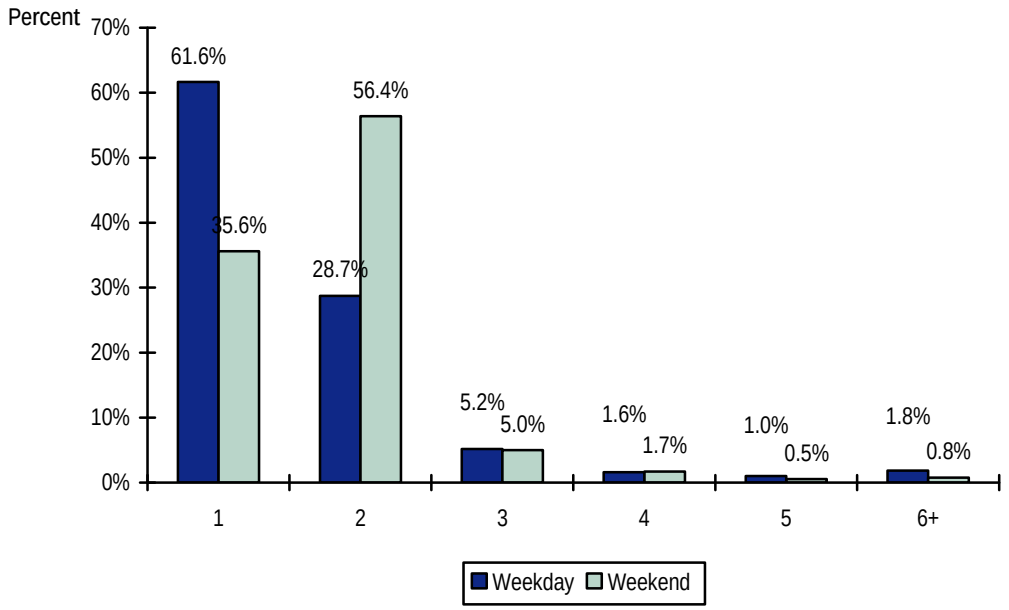
Table 8.5 South Sound Corridor Preferred Sailing
Is This Your Preferred Sailing?

	Drive[a]	Walk/ Bike	Total	Percentage
Weekday				
Yes	6237	1766	8003	73.2%
No, different departure time	1933	402	2335	21.4%
No, different route	409	189	598	5.5%
Total	8579	2357	10936	
Weekend				
Yes	6885	903	7788	80.6%
No, different departure time	1503	134	1637	16.9%
No, different route	193	49	242	2.5%
Total	8581	1086	9667	

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings; i.e., all passengers in vehicles.

Figure 8.9 presents the size of the travel party for weekday and weekend travelers. As expected, ferry passengers are more likely to be traveling as a group on the weekends (64 percent) than during the week. In fact, during the week, the majority of passengers (62 percent) are traveling alone.

Figure 8.9 South Sound Corridor Party Size
How many people are traveling with you?



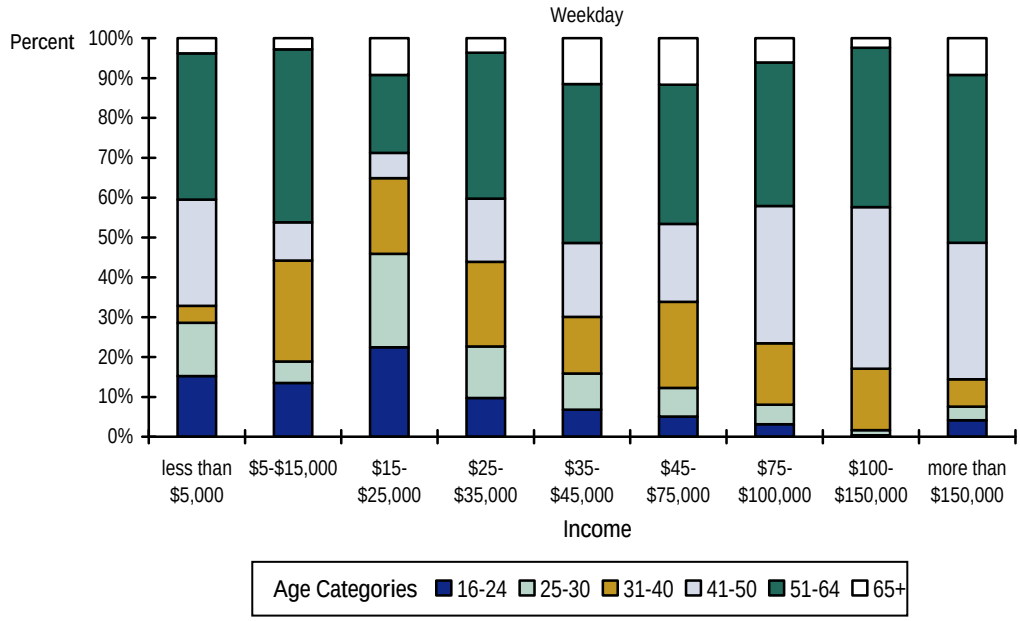
Note: The original question asked "how many people are traveling with you (not including yourself)", but the data implied that most people did not include themselves in the answer, so these data were corrected based on how many people each respondent was traveling with. So the average size of the party in this figure includes the respondent.

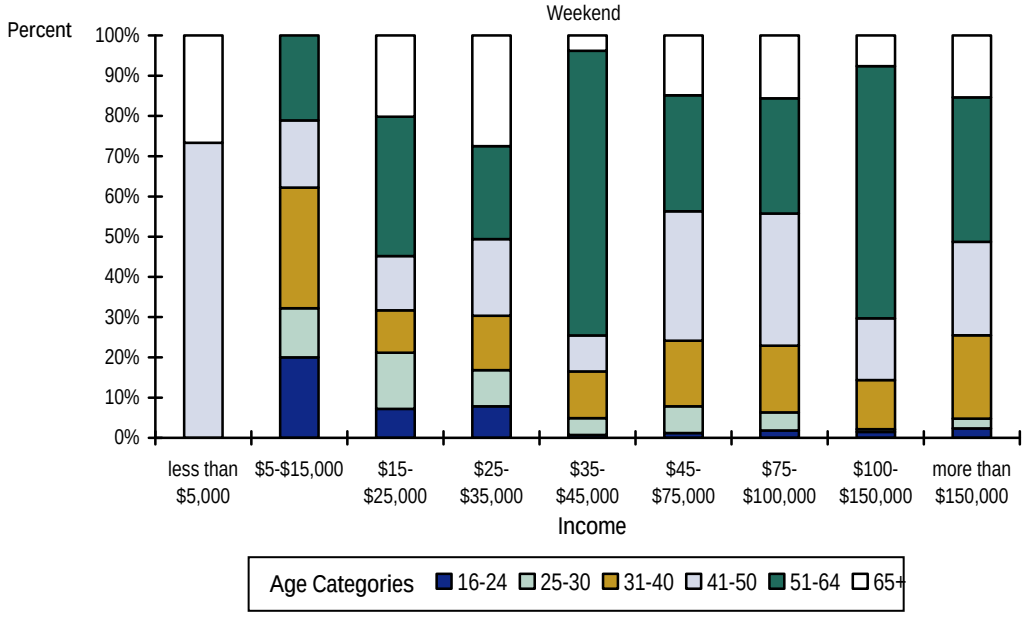
8.0.7 Demographic Characteristics

The distribution of age and income of ferry travelers for weekdays and weekends are presented in Figure 8.10. The average age and income of the weekday (47 years, $84K) and weekend travelers (48 years, $80K) is found to be very similar along this corridor. The average age of these travelers is much higher than the regional average age of 35 years old and it has also been increasing over time, from an average age of 42 in the 1993 survey to 48 in the 2006 survey. The average income for ferry travelers is between $80,000-$84,000.

Figure 8.10 South Sound Corridor Traveler Age and Income

In what year were your born? What was your estimated household income in 2005 before taxes?





The average number of vehicles owned per household for weekday travelers is 2, with ownership rates remaining constant over the years for all groups except for the those households who own one vehicle. That is, one-vehicle households declined from 1993 to 2006.

There are about 1.2 workers per household in the 2006 survey, of which 37 percent of total ferry riders come from two-worker households and 38 percent from two income households. Data on number of workers was not collected during the 1999 or 1993 survey. Of the weekday ferry riders, 77 percent said they were employed, which was relatively constant since 1999 when this share was 77 percent.

8.1 SEATTLE-VASHON PASSENGER-ONLY

8.1.1 Route Description

This route connects Seattle and Vashon Island and is the only passenger-only ferry route in the WSF system. It takes 25 minutes to ride this ferry route one-way and the crossing is approximately 8.5 nautical miles. It travels nearly twice as fast as the vehicle boats because of its smaller size. It runs on weekdays only, except for holidays when there is no service. For 2006, the annual total ridership was 130,000 passengers, or about 400 riders per day. This compares to 1,100 riders per day in 1999 and 700 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and the trend for this route follows this pattern.

The Seattle-Vashon Passenger-Only route has 3 sailings per day in each direction, down from 9 sailings per day in 1993. This is the primary reason for the loss of ridership. The passenger capacity is 350 passengers per vessel. The vessels on this route are the Mono Hull class. The fare is $8.50 for passengers in 2006. Fares in 1999 on this route were $4.48, which is a 90 percent increase in fares.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

8.1.2 Trips by Purpose

The trip purposes of ferry riders on the Seattle-Vashon Passenger-Only route were cross-tabulated against the direction of the trip for weekday and for different years. This route is not operational over weekends. Table 8.6 shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are east-west routes.

There is about even split between eastbound and westbound travelers for all

purposes but there are some notable differences by trip purpose. The work/school trips are about 60 percent traveling westbound towards Vashon while almost all of the personal business/other trips are traveling eastbound towards Seattle. There are no recreation/shopping/leisure trips to Vashon as it is primarily comprises of residential neighborhoods. Also, the Seattle downtown and surrounding areas are known for its tourist attractions and so it is in line with our expectations that there will be more eastbound travel for recreational and shopping purposes during weekdays in the p.m. period (which is how the 1999 and 1993 surveys are reported). However, the number of trips estimated on this route are low as this is a low volume corridor across the sound.

Table 8.6 Seattle-Vashon Passenger-Only Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
Eastbound	157	46	46	249	50.1%	11.8%	10.6%
Westbound	244	4	0	248	49.9%	88.2%	89.4%
Total	401	50	46	497	100%	100%	100%
Percent 2006	80.7%	10.1%	9.3%	100%			
Percent 1999	88.2%	5.9%	5.9%	100%			
Percent 1993	95.6%	1.1%	3.3%	100%			

Note: 1999 and 1993 survey records were not rebalanced by direction.
2006 Weekday Trips: 498 Missing: 0

There is a clear decline in commute trips between 1993 and 2006 for weekday travel and a corresponding increase in both shopping and recreation from 1993 to 2006. One would expect that with rising costs for ferry travel, and a corresponding drop in overall ridership that a greater percent of the travel would be for business or commuting reasons because these trips are work/school.

The 1993 and 1999 survey trips are quite different by direction. This difference is because of differences in expansion of the survey and not attributable to any real differences in travel behavior.

Table 8.7 shows the distribution of trips across different time periods and by direction of travel. As expected, the p.m. period defined as 3:00 p.m. to 7:00 p.m., has the highest share of trips (92 percent) because of the return trips of work commute, as well as people indulging in non-work trip purposes such as personal business, shopping and recreation. The rest of the trips fall under the a.m. period, defined as 5:00 a.m. to 9:00 a.m., which is comprised of about 8 percent of weekday trips. There are no trips that occur in other time periods as this route is primarily used for work or school commute trip purposes.

Table 8.7 Seattle-Vashon Passenger-Only Trips by Time-of-Day and Direction
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	A.M. Peak (5:00 a.m.-9:00 a.m.)	A.M. Off-Peak (9:00 a.m.-12:00 p.m.)	P.M. Off-Peak (12:00 p.m.-3:00 p.m.)	P.M. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Trips 2006	All Trips 1999	All Trips 1993
Weekday									
Eastbound	-	41	-	-	11	52	10%	11.8%	10.6%
Westbound	-	1	-	-	445	446	90%	88.2%	89.4%
Total	-	42	-	-	456	498	100%	100%	100%
Percent 2006	0.0%	8.4%	0.0%	0.0%	91.6%	100%			

2006 Weekday Trips: 498 Missing: 0

The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction.

Note that even thought there were no off-peak or night time trips that were surveyed, there are trips in this time period in the counts, but we were not able to use this for expansion, since we did not have any representative trips in this time period.

8.1.3 Frequency of Travel

The total number of trips and the purpose behind taking these trips on ferries in an average week in 2006 are shown in Table 8.8. For comparison summaries, the trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Table 8.8 Seattle-Vashon Passenger-Only Trips by Purpose and Frequency[31]
What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	1	0	0	1	0.2%	2.0%	0.9%	0.3%	1.4%
2	2	0	0	2	0.5%	4.5%	3.6%	0.6%	0.6%
3-4	6	1	46	53	11.9%	4.7%	5.0%	1.7%	1.4%
5-6	81	47	0	128	28.8%	9.2%	10.0%	23.3%	9.9%
7-8	19	0	0	19	4.3%	10.5%	7.2%	5.5%	10.4%
9-10	161	1	0	162	36.5%	34.7%	73.3%	46.3%	38.6%
11+	78	1	0	79	17.8%	34.4%		22.4%	37.7%
Total	348	50	46	444	100%	100%	100%	100%	100%
Percent 2006	78.4%	11.3%	10.4%	100%					
Percent 1999	88.2%	5.9%	5.9%	100%					
Percent 1993	95.6%	1.1%	3.3%	100%					

2006 Weekday Trips: 498 Missing: 54

The above table shows that the travelers use the ferry predominantly for work/school purposes, that is, 78 percent of all riders in 2006 used this route for commuting between Seattle and Vashon. This is expected as most of the jobs in the Puget Sound region are located in the Seattle metropolitan area. Almost an equal number of riders use the ferry system for medical/personal business (11 percent) and recreational purposes (10 percent) because of the various types of businesses and tourist spots in downtown Seattle and riding the ferry itself across the Sound. Out of the commuting riders, almost half of them use the ferry system on a regular basis and this is evident from the fact that 54 percent of these riders (239 out of 348) ride the ferry more than 9 times on weekdays in a typical week. In total, a little over a third of all the Seattle-Vashon Passenger-Only riders (162 out of 444 or 37 percent) travel every day for all different trip purposes.

Also included in Table 8.8 is a comparison of trip frequency percents for years 1993, 1999, and 2006. In terms of regular usage of this ferry route for all purposes, the trend seems to be declining across these years, that is the frequency

[31] The total percentage distribution across purposes is different in Table 8.6 than in Table 8.8 because of the many missing trips in Table 8.8 that did not have detailed trip frequency information.

of riding this ferry route nine times or more during a typical week was 73 percent in 1993, 69 percent in 1999, and 54 percent in 2006. However, for regular commute purposes (9 or more trips per week), the ridership has gone down slightly from 76 percent in 1999 to 69 percent in 2006. The data by purpose was not available at a trip frequency level from the 1993 surveys.

Table 8.9 includes a review of the time-of-day distribution of trips along this route by trip purpose. A vast majority of the trips, that is 456 out of 498 or about 92 percent of travel occurs during the PM peak period (3:00 p.m. to 7:00 p.m.), while the rest of the trips occur during the AM peak period (5:00 a.m. to 9:00 a.m.). The reason behind this imbalance of trips between the two peak periods is that the counts are imbalanced as well. A majority of observed counts, about 65 to 70 percent are in the p.m. peak period, and there was no other information available to cross-check this. Out of these 92 percent of trips, almost all of them (360 out of 456) are for work and school commute purpose while a small number of trips, 50 and 46 out of 456, are for medical/personal business and recreation/shopping purposes respectively.

Table 8.9 Seattle-Vashon Passenger-Only Trips by Purpose and Time-of-Day
Purpose: What is/are the reason(s) you are riding the ferry today?

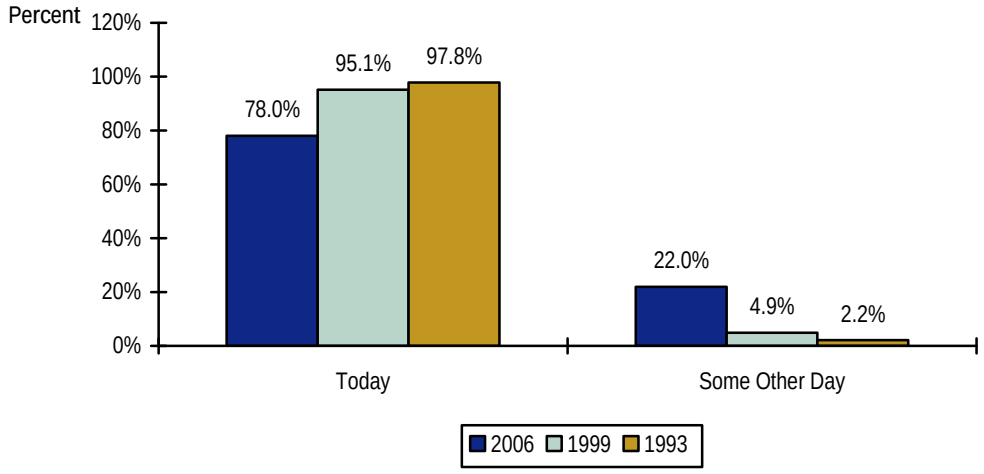
Direction	Work/School	Personal/ Business/ Other	Recreation/ Shopping	Total	Work/School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
A.M. Peak (5 a.m.-9 a.m.)	42	0	0	42	10.4%	0.0%	0.0%	8.4%
A.M. Off-Peak (9 a.m.-12 p.m.)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
P.M. Off-Peak (12 p.m.-3 p.m.)	0	0	0	0	0.0%	0.0%	0.0%	0.0%
P.M. Peak (3 p.m.-7 p.m.)	360	50	46	456	89.6%	100.0%	100.0%	91.6%
Daily	402	50	46	498	100%	100%	100%	100%
Percent 2006	80.7%	10.0%	9.2%	100%				
Percent 1999	88.2%	5.9%	5.9%	100%				
Percent 1993	95.6%	1.1%	3.3%	100%				

2006 Weekday Trips: 498 Missing: 0

8.1.4 Round-Trip Patterns

As the 2006 surveys were done only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 8.11 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled the same day for both their onward and backward journeys, that is, 78 percent of 498.

Figure 8.11 Seattle-Vashon Passenger-Only Round Trip Patterns by Day
When was the first half of your trip or when will you return?

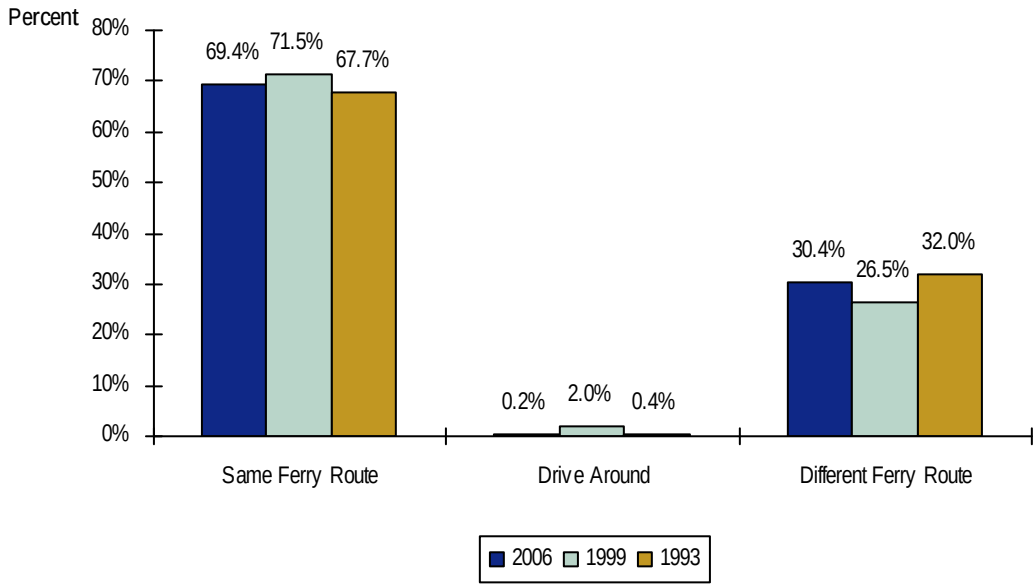


2006 Weekday Trips: 498 Missing: 6

However, when comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on a different day in 2006 is more than four times that of 1993 and 1999 estimates. In 1993 and 1999, the number of boardings on this route on a different day was very small (2 percent and 5 percent, respectively) while in 2006, it was 22 percent.

For riders who made one-half of their trip on this route, Figure 8.12 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. As expected, a large number of boardings indicated that they chose the same route because of the fact that travelers have to return to their home base. This was true for all the three years, that is, it was 69, 72, and 68 percent in 2006, 1999, and 1993.

Figure 8.12 Seattle-Vashon Passenger-Only Round Trip Patterns by Route
How will you return or how did you travel on the first half of your trip?



2006 Weekday Trips: 498 Missing: 4

8.1.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 8.13 shows the access and egress modes for weekday. Unlike most of the other routes, walk and transit are the most dominant access and egress modes. These access and egress modes are described in more detail below.

Figure 8.13 Seattle-Vashon Passenger-Only Trips by Access and Egress Mode

How did you travel from your origin location to this sailing? How did you travel to the destination you are going to now?

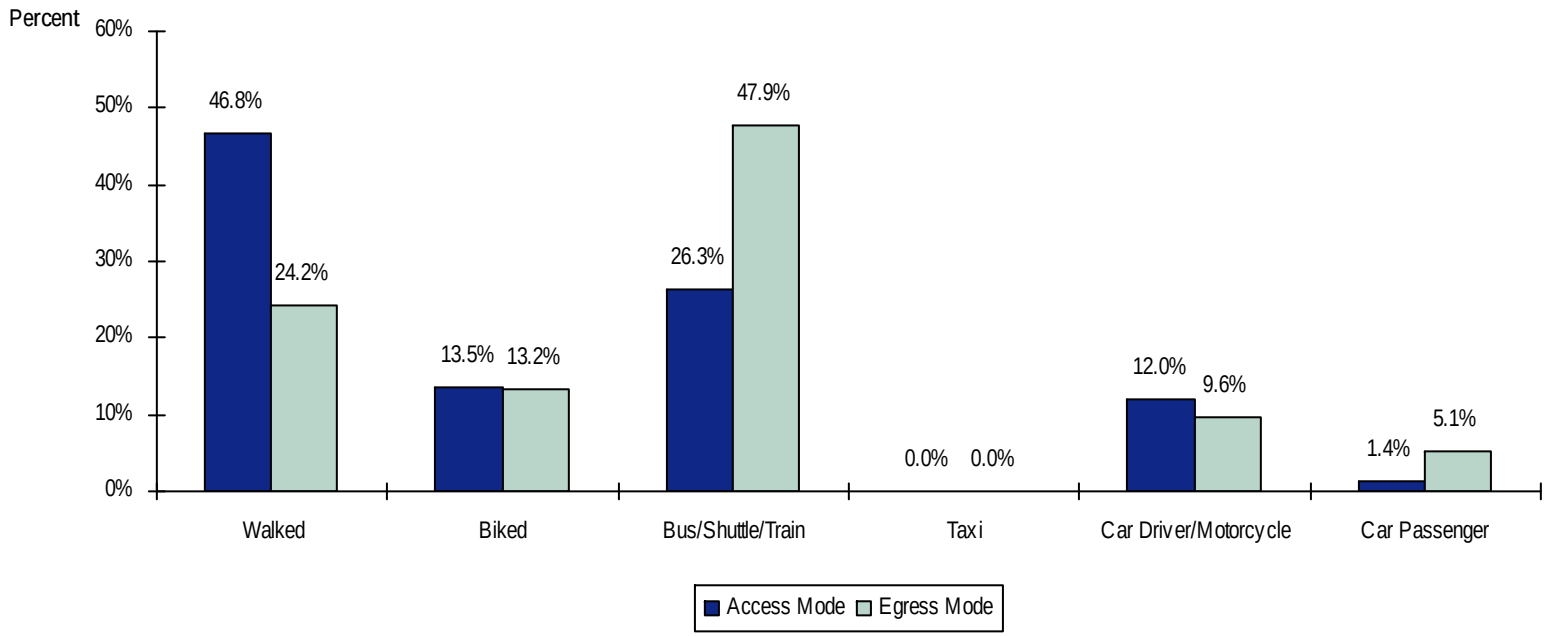


Table 8.10 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, most of the riders either chose to walk or rode transit to this ferry route, and equal number of people biked and drove to the terminals. About half the riders who chose to walk on to the ferry walked to the ferry terminal, that is, 233 out of 486. Most of the remainder walk on passengers chose public transportation (131) and drove to (60) or biked (55) to the ferry terminal.

Table 8.10 Seattle-Vashon Passenger-Only Trips by Access Mode and Boarding Method
How will/did you board this ferry?
How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	0	233	0	233	46.8%	59.7%	61.0%
Biked	0	55	12	67	13.5%	4.7%	2.6%
Bus/Shuttle/Train	0	131	0	131	26.3%	21.8%	20.2%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	0	60	0	60	12.0%	10.2%	11.4%
Car Passenger	0	7	0	7	1.4%	3.6%	4.8%
Total	0	486	12	498	100%	100%	100%
All Frequencies 2006	0.0%	97.6%	2.4%	100%			
All Frequencies 1999	0.0%	97.2%	2.8%	100%			
All Frequencies 1993	0.0%	97.2%	2.8%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 498 Missing: 0

While comparing the 2006 weekday estimates by boarding method across 1999 and 1993, it is found that number of boardings by walk and bike mode has remained constant. The access modes increased for the transit access mode. There is also a decline observed in the walk access mode across these years.

Table 8.11 shows ferry riders' mode of travel on this route and the corresponding egress modes from the ferry terminal to their final destinations. The boardings by egress modes seem to be similar to those of the access modes where a majority of riders either walk or use the transit to egress from the ferry terminal. However, when looking at the percent distribution between these two modes, it is a mirror image of the corresponding access modes.

Table 8.11 Seattle-Vashon Passenger-Only Trips by Egress Mode and Boarding Method
How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	0	118	1	119	24.2%	11.8%	13.2%
Biked	0	54	11	65	13.2%	5.0%	3.9%
Bus/Shuttle/ Train	0	235	0	235	47.9%	34.0%	8.5%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	0	47	0	47	9.6%	39.2%	62.0%
Car Passenger	0	25	0	25	5.1%	9.9%	12.4%
Total	0	479	12	491	100%	100%	100%
Percent 2006	0.0%	97.6%	2.4%	100%			
Percent 1999	0.0%	97.2%	2.8%	100%			
Percent 1993	0.0%	97.2%	2.8%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

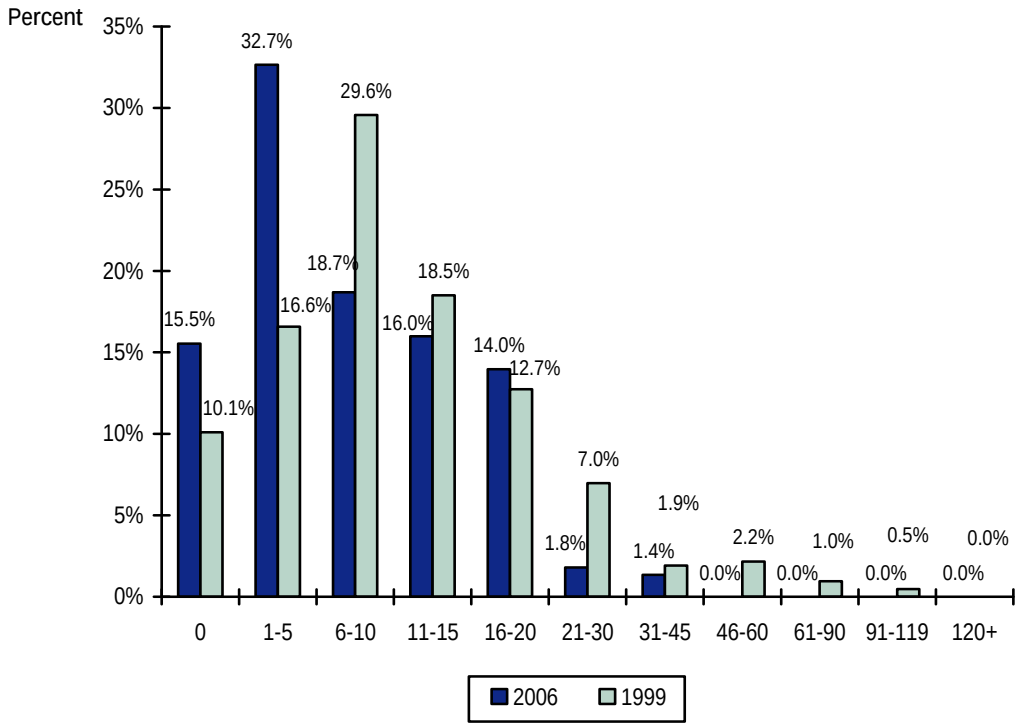
2006 Weekday Trips: 498 Missing: 7

The historic data reveals that the number of riders who chose to walk to their final destinations from the ferry terminal decreased from 13 percent in 1993 to 12 percent in 1999 but increased significantly to 24 percent in 2006. This may be because there are more jobs accessible to the ferry terminal, people prefer walking as a means to exercise, or they do not want to drive due to congestion or increase in fuel prices. This is corroborated by the drop in car driver/motorcycle mode share from 62 percent in 1993 to 39 percent in 1999 and less than 10 percent in 2006 and an increase in the transit access share from 9 percent in 1993 to 34 percent in 1999 and 48 percent in 2006.

8.1.6 Wait Time

The wait time was measured by asking the respondents the amount of time they spent waiting before boarding this ferry route. Figure 8.14 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great sufficient for this cross-tabulation. In 2006 weekday, the highest share of travelers or about 33 percent were associated with a perceived wait time of about 1 to 5 minutes, which is followed by 14 to 19 percent of travelers whose perceived wait times were in the range of 0 to 20 minutes. The number of travelers drops off after 20 minutes. This seems to be similar to what it was in 1999 except that the peak perceived wait time was between 6 to 10 minutes (30 percent). The mean perceived wait time in 2006 was 10 minutes for weekday travel.

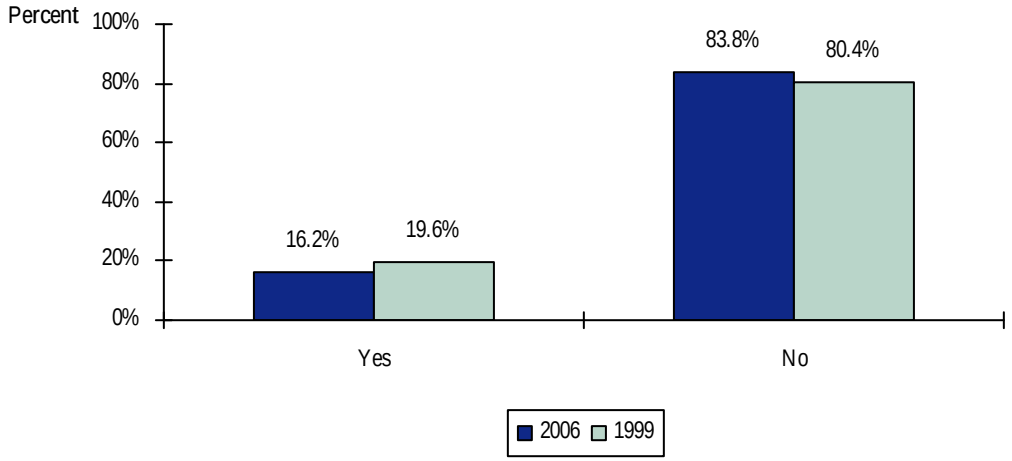
Figure 8.14 Seattle-Vashon Passenger-Only Trips by Wait Time
About how many minutes did you wait to board this ferry?



8.1.7 Parking

The parking statistics of walk-on passengers on this route were also examined. Primarily, these data summarize if commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 8.15 presents the number of boardings by the response to the parking question. A majority of riders in 2006 weekday did not park their vehicles at the ferry terminals, that is, 84 percent. This is comparable to 1999 (80 percent). This could be due to the fact that parking availability is low and parking charges are high. The average parking cost was $6 per day on weekdays for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 8.15 Seattle-Vashon Passenger-Only Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?



8.1.8 Weekday Eastbound Origins and Destinations

Figure 8.16 for weekday eastbound trips shows the origins and destinations of riders on this route from Vashon to Seattle in 2006. This is a passenger-only ferry There are no boardings by auto and so all the boardings are walk-ons. These origins and destinations are detailed by district in Table 8.12. The major destinations or almost all of the destinations are those that have high-employment density such as Seattle CBD (43 percent), Ballard-Green Lake (37 percent), and University District (19 percent). The origins of these trips are predominantly from the North and South Vashon Island (98 percent) which has lot of residential neighborhoods and a small portion from South Kitsap County (2 percent). Figure 8.17 presents the individual locations of survey respondents' origins and destinations by boarding mode.

In the 1999 survey, 28 percent of eastbound Seattle-Vashon Passenger-Only passengers were destined to the Seattle CBD and this increased to 43 percent in 2006. Trips to North Seattle/Green Lake were about the same between 1999 and 2006.

In 1999, there were 14 percent of the passengers on the Seattle-Vashon Passenger-Only ferry from Kitsap County and in the 2006 survey there were 11 percent of eastbound passengers on this ferry from Kitsap County. This is not a significant change and also represents low demand for the Seattle to Southworth market.

Figure 8.16 Seattle-Vashon Passenger-Only Weekday Eastbound Origins and Destinations (2006)

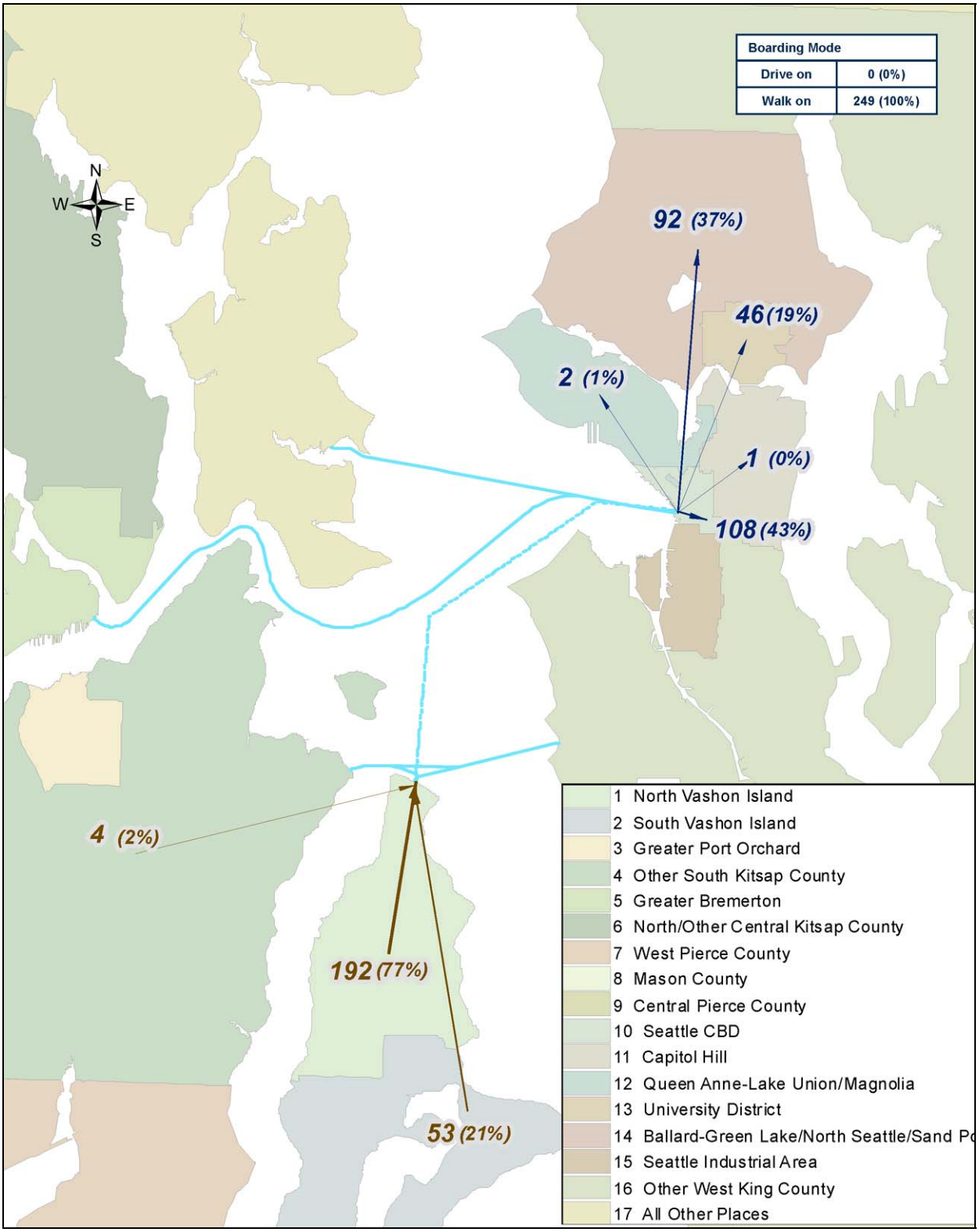
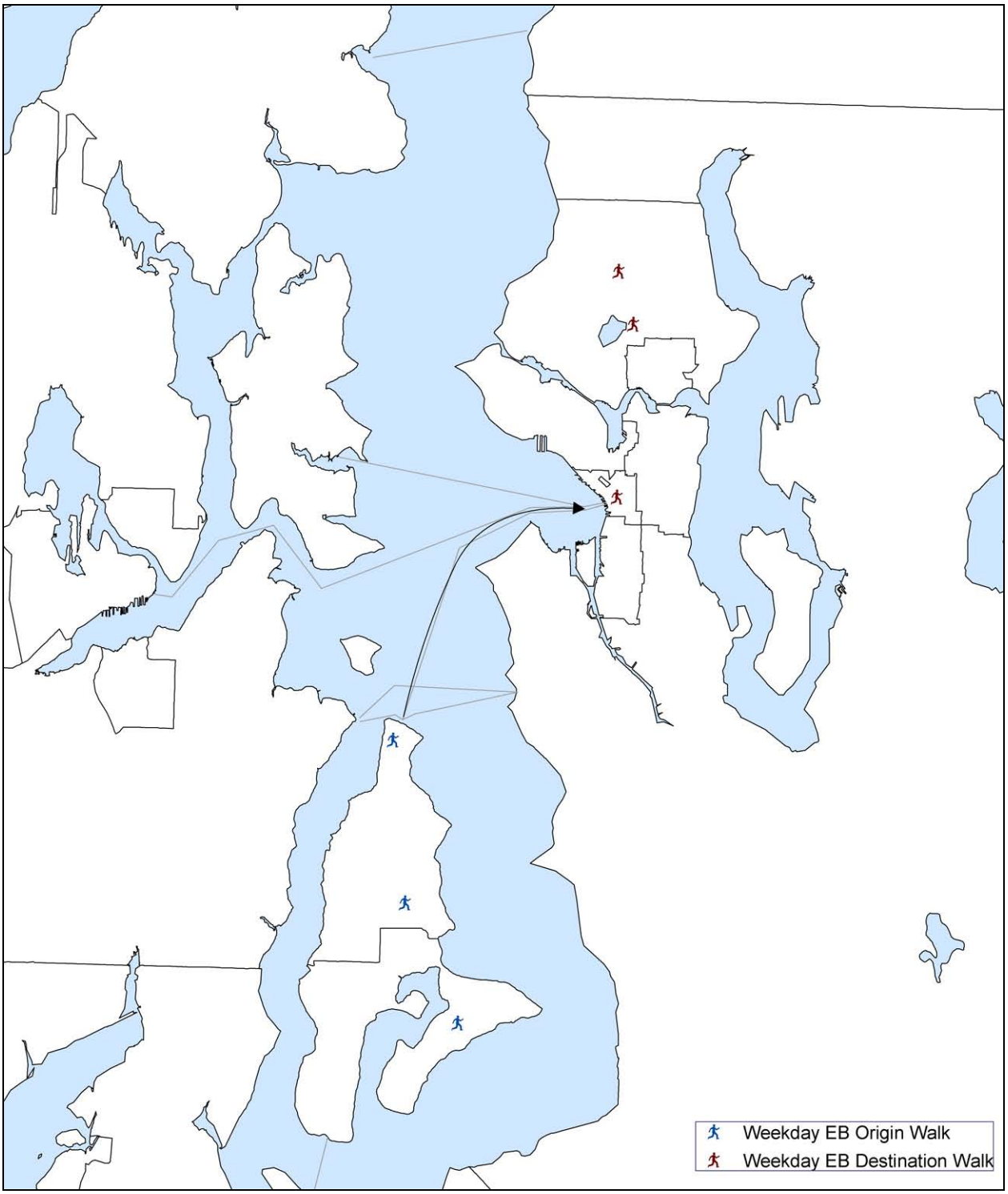


Table 8.12 Seattle-Vashon Passenger-Only Weekday Eastbound Boardings by Origin and Destination District

	Destination District									
Origin District	Central Pierce County	Seattle CBD	Capitol Hill	Queen Anne-Lake Union/Magnolia	University District	Ballard-Green Lake/North Seattle/Sand Po	Seattle Industrial Area	Other West King County	Total	Percent of Total
North Vashon Island	0	98	1	1	46	46	0	0	192	77.1%
South Vashon Island	0	6	0	1	0	46	0	0	53	21.3%
Other South Kitsap County	0	4	0	0	0	0	0	0	4	1.6%
Total	0	108	1	2	46	92	0	0	249	100%
Percent of Total	0.0%	43.4%	0.4%	0.8%	18.5%	36.9%	0.0%	0.0%	100%	

Figure 8.17 Seattle-Vashon Passenger-Only Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



8.1.9 Weekday Westbound Origins and Destinations

Figure 8.18 for weekday westbound trips presents the travel patterns of riders taking the Seattle to Vashon Island ferry. The origins and destinations along this route are detailed by district in Table 8.13. The majority of the origins were Seattle CBD (75 percent), which is followed by other high-employment density locations such as Queen Anne-Lake Union/Magnolia (9 percent), and Ballard-Green Lake (8 percent). These are all probably return-home trips. The destinations of these trips are mostly the residential areas of Vashon Island and South Kitsap County. Figure 8.19 presents the individual locations of survey respondents' origins and destinations by boarding mode.

In 1999, 68 percent of westbound travelers were from the Seattle CBD and in 2006 this increased to 75 percent. Also in 1999, there were 52 percent of westbound travelers heading to Kitsap County and this dropped to 21 percent in 2006. This is significant change and also represents low demand for the Seattle to Southworth market.

Figure 8.18 Seattle-Vashon Passenger-Only Weekday Westbound Origins and Destinations (2006)

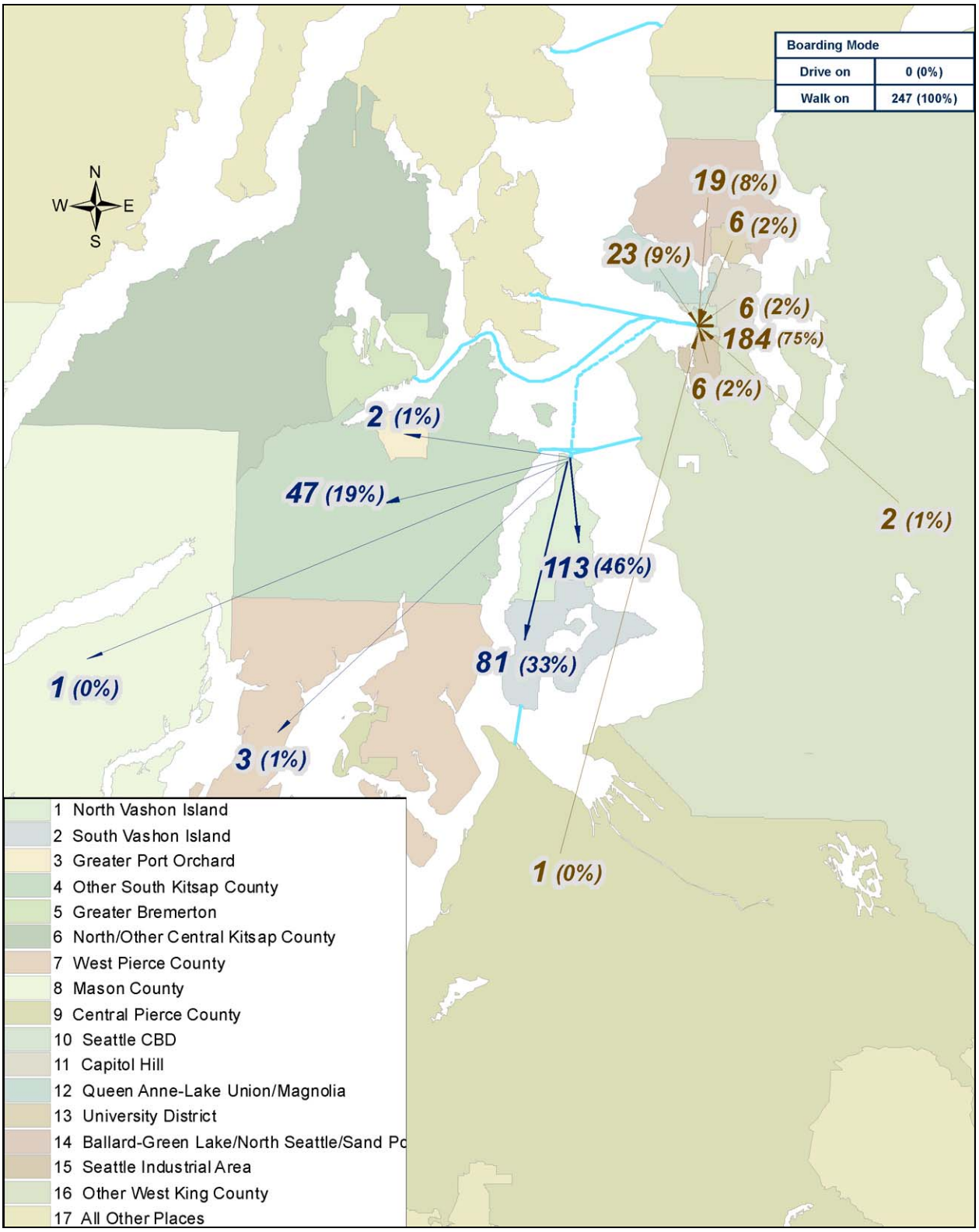
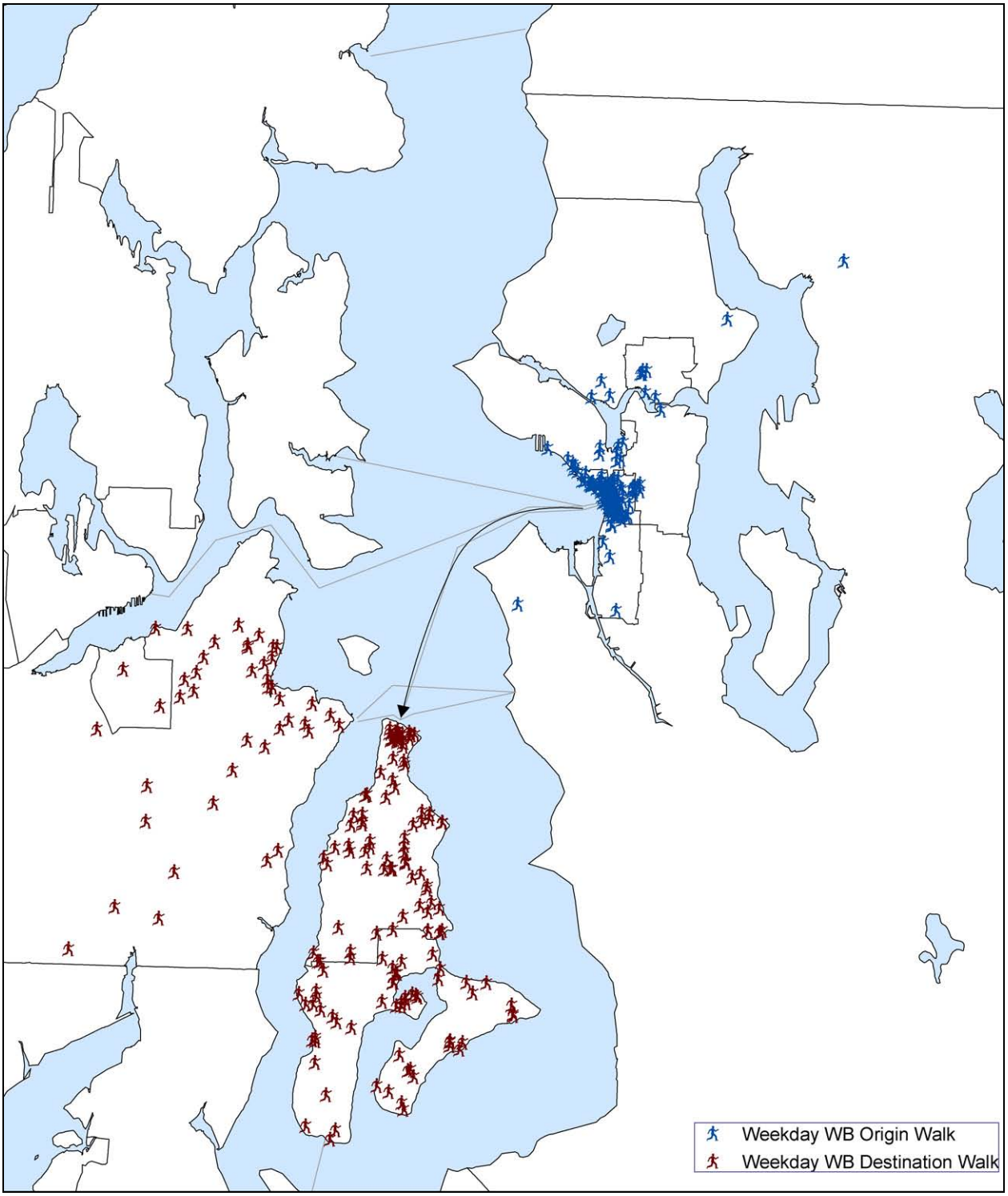


Table 8.13 Seattle-Vashon Passenger-Only Weekday Westbound Boardings by Origin and Destination District

	Destination District							
Origin District	North Vashon Island	South Vashon Island	Greater Port Orchard	Other South Kitsap County	West Pierce County	Mason County	Total	Percent of Total
Central Pierce County	1						1	0.4%
Seattle CBD	82	59	2	38	3		184	74.5%
Capitol Hill	5	1					6	2.4%
Queen Anne-Lake Union/Magnolia	7	8		8			23	9.3%
University District	3	3					6	2.4%
Ballard-Green Lake/North Seattle/Sand Po	10	9					19	7.7%
Seattle Industrial Area	4	1				1	6	2.4%
Other West King County	1			1			2	0.8%
Total	113	81	2	47	3	1	247	100%
Percent of Total	45.7%	32.8%	0.8%	19.0%	1.2%	0.4%	100%	

Figure 8.19 Seattle-Vashon Passenger-Only Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



8.2 FAUNTLEROY-VASHON

8.2.1 Route Description

This ferry route connects Fauntleroy and Vashon on the southern tip of Vashon Island south of Seattle. It takes about 15 minutes to ride this ferry route one-way. The crossing is approximately 2.8 nautical miles. It runs seven days per week. For 2006, the annual total ridership was 0.9 million passengers plus 1.1 million vehicles and drivers for a total of 2.0 million people, or about 5,622 riders per day. This compares to 5,700 riders per day in 1999 and 5,500 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and it trend drops off very slightly in 2006.

The Fauntleroy-Vashon route has 34 weekday sailings per day each direction, down from 35 sailings per day in 1999. The vehicle capacity is 124 vehicles per boat on the Issaquah X class and 87 vehicles per boat on the Evergreen class. The fare is $14.40 for vehicles and $4.20 for passengers in 2006. In 1999, vehicle fares on this route were $10.91 and passenger fares were $3.03 (in 2006 constant dollars) representing a 32 percent increase in vehicle fares and a 39 percent increase in passenger fares.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

8.2.2 Trips by Purpose

The trip purposes of ferry riders on the Fauntleroy-Vashon route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 8.14 shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are northbound and southbound (most of the other ferry routes are east-west routes).

The split between northbound and southbound travelers is 48 percent and 52 percent, respectively. There are some differences by trip purpose worth mentioning. There are more northbound work/school trips, and more southbound medical/personal/business purposes and shopping/recreation/leisure trips. Over the weekends for 2006, overall travel direction is similarly balanced with 48 percent northbound and 52 percent southbound, with some differences by trip purpose.

Table 8.14 Fauntleroy-Vashon Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/ School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	91	254	139	484	8.8%	6.7%	8.5%	2.8%	4.2%
2	282	152	514	948	17.2%	11.6%	9.5%	8.7%	9.0%
3-4	421	253	193	867	15.7%	16.8%	8.7%	13.0%	9.4%
5-6	326	85	239	650	11.8%	17.3%	16.8%	10.0%	12.3%
7-8	473	60	136	669	12.1%	9.7%	7.8%	14.6%	8.8%
9-10	936	75	37	1048	19.0%	20.5%	48.7%	28.8%	31.0%
11+	719	36	105	860	15.6%	17.3%		22.1%	25.3%
Total	3248	915	1363	5526	100%	100%	100%	100%	100%
All Frequencies 2006	58.8%	16.6%	24.7%	100%					
All Frequencies 1999	60.3%	23.0%	16.7%	100%					
All Frequencies 1993	80.8%	8.0%	11.2%	100%					
Weekend									
1	7	802	331	1140	21.8%	21.9%	24.6%		
2	70	148	1813	2031	38.9%	29.2%	26.9%		
3-4	33	226	436	695	13.3%	16.8%	15.0%		
5-6	82	68	158	308	5.9%	8.8%	11.9%		
7-8	53	208	146	407	7.8%	4.3%	4.6%		
9-10	95	12	67	174	3.3%	5.3%	16.9%		
11+	225	104	135	464	8.9%	13.7%			
Total	565	1568	3086	5219	100%	100%	100%		
All Frequencies 2006	10.8%	30.0%	59.1%	100%					
All Frequencies 1999	11.0%	22.5%	66.4%	100%					
All Frequencies 1993	22.3%	11.0%	66.8%	100%					

2006 Weekday Trips: 5,718 Missing: 192

2006 Weekend Trips: 5,382 Missing: 163

There has been a decrease in the share of weekday commuter trips on this route from over 80 percent in 1993 to 60 percent in 1999 and 59 percent in 2006, and an increase in the share of personal business trips from 8 percent in 1993 to 23 percent in 1999 and a slight drop to 17 percent in 2006. This is consistent with the changes by trip purpose observed on other routes. The rising costs of ferry travel have not deterred ferry riders as there is still a large share of travel along this route for commuting purposes as observed on certain other routes.

The 1993 and 1999 survey trips vary by direction largely because of differences in expansion of the survey rather than any real differences in travel behavior. We calculated the p.m. period half-day percent southbound during the weekday at 52 percent. This is below the 1993 surveys in which 68 percent were southbound and 1999 surveys in which 64 percent were southbound.

Table 8.15 shows the distribution of trips across different time periods and by direction of travel. The p.m. peak period defined as 3:00 p.m. to 7:00 p.m. has the highest share of weekday trips (36 percent) because of the evening commute, as well as non-work trip purposes such as personal business, shopping and recreation. The night time defined as 7:00 p.m. until 5:00 a.m. has the next largest share of ridership (27 percent), followed by the p.m. off-peak defined as 12:00 p.m. to 3:00 p.m. (15 percent).

Table 8.15 Fauntleroy-Vashon Trips by Time-of-Day and Direction [a]

What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	a.m. Peak (5:00 a.m.-9:00 a.m.)	a.m. Off-Peak (9:00 a.m.-12:00 p.m.)	p.m. Off-Peak (12:00 p.m.-3:00 p.m.)	p.m. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Trips 2006	All Trips 1999 [a]	All Trips 1993 [a]
Weekday									
Eastbound	288	467	476	205	565	2,000	35%	46.4%	22.8%
Westbound	1,235	175	142	648	1,516	3,717	65%	53.6%	77.2%
Total	1,523	642	618	853	2,081	5,717	100%	100%	100%
Percent 2006	26.6%	11.2%	10.8%	14.9%	36.4%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 5,718 Missing: 1

2006 Weekday Trips: 5,382 Missing: 0

8.2.3 Frequency of Travel

The total number of ferry rips and purpose in 2006 are shown in Table 8.16. For comparison, trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Table 8.16 Fauntleroy-Vashon Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	1999[a]	1993[a]
Weekday							
Eastbound	1444	446	915	2805	49.7%	46.4%	22.8%
Westbound	1846	497	500	2843	50.3%	53.6%	77.2%
Total	3290	943	1415	5648	100%	100%	100%
Both Directions 2006	58.3%	16.7%	25.1%	100%			
Both Directions 1999	60.3%	23.0%	16.7%	100%			
Both Directions 1993	80.8%	8.0%	11.2%	100%			
Weekend							
Eastbound	207	737	1744	2688	50.1%	47.3%	42.3%
Westbound	395	863	1416	2674	49.9%	52.7%	57.7%
Total	602	1600	3160	5362	100%	100%	100%
Both Directions 2006	11.2%	29.8%	58.9%	100%			
Both Directions 1999	11.0%	22.5%	66.4%	100%			
Both Directions 1993	22.3%	11.0%	66.8%	100%			

Note: 1999 and 1993 survey records were not rebalanced by direction.

2006 Weekday Trips: 5,718 Missing: 70

2006 Weekday Trips: 5,382 Missing: 20

Fifty percent of the commuting riders use this ferry on a regular basis, with 479 out of 950 who use the ferry 9 or more weekdays in a typical week. Trip frequencies for recreational purposes are lower for commuter trips, as expected. In fact, 23 percent of the travelers using the ferry for personal business/other-related activities and 12 percent of the ones using it for recreation/shopping/leisure use the ferry every day. In total, 37 percent of riders use the Fauntleroy-Vashon ferry on a daily basis during a typical week and 16 percent make only one or two one way trips in a typical week.

Table 8.16 also compares trip frequencies for 1993 and 1999. In 1993, 33 percent of riders surveyed use this ferry nine or more times in a typical week. In both 1999 and 2006 this share was 37 percent.

During weekends, as expected, there are far more riders on this route for shopping/recreation trip purposes, that is 59 percent compared to 25 percent on weekdays. An additional 30 percent of weekend trips are for personal business and 11 percent for commuting purposes. Over the 1993 to 2006 period, the share of weekend ferry trips for recreational purposes decreased from 67 percent in 1993 to 66 percent in 1999 and then to 59 percent in 2006. Trips for personal business increased from 11 percent in 1993 to 23 percent in 1999 and to 30 percent in 2006. Weekend commuting trips decreased by half over the 1993 to 2006 time period from 22 percent to 11 percent.

Table 8.17 provides the time of distribution of trips along this route by trip purpose. More than a third of the trips, that is 2,074 out of 5,645 or about 37 percent of travel occurs during the PM peak period (3:00 p.m. to 7:00 p.m.), while the trips that occur during the AM peak period (5:00 a.m. to 9:00 a.m.) is a close second at 26 percent. Trips occurring in the other off-peak periods are about evenly distributed. A majority of the work/school commuting trips occur in the PM peak period (43 percent), most of the personal business trips occur during the PM offpeak period (30 percent between 12:00 p.m. and 3:00 p.m.), and as expected majority of the recreation/shopping trips (32 percent) occur late in the evening between 7:00 p.m. and 5:00 a.m.

Table 8.17 Fauntleroy-Vashon Trips by Purpose and Time-of-Day
Purpose: What is/are the reason(s) you are riding the ferry today?

Direction	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	Total	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	802	218	452	1472	24.4%	23.1%	32.0%	26.1%
A.M. Peak (5 a.m.-9 a.m.)	463	69	108	640	14.1%	7.3%	7.6%	11.3%
A.M. Off-Peak (9 a.m.-12 p.m.)	275	123	208	606	8.4%	13.1%	14.7%	10.7%
P.M. Off-Peak (12 p.m.-3 p.m.)	332	282	239	853	10.1%	29.9%	16.9%	15.1%
P.M. Peak (3 p.m.-7 p.m.)	1417	250	407	2074	43.1%	26.5%	28.8%	36.7%
Total	3289	942	1414	5645	100%	100%	100%	100%
Percent 2006	58.3%	16.7%	25.0%	100%				
Percent 1999	60.3%	23.0%	16.7%	100%				
Percent 1993	80.8%	8.0%	11.2%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

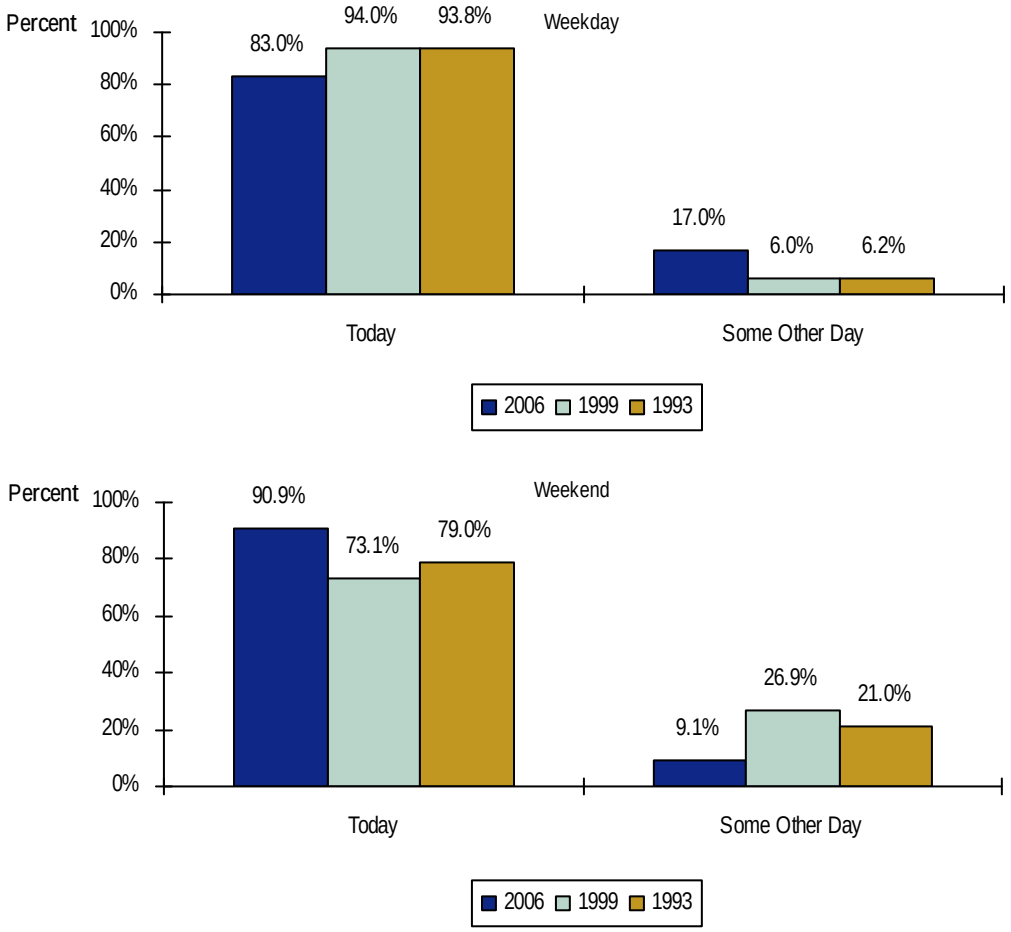
2006 Weekday Trips: 5,718 Missing: 0

2006 Weekday Trips: 5,382 Missing: 0

8.2.4 Round-Trip Patterns

As the 2006 surveys were conducted only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 8.20 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled their onward and backward journeys on the same day, that is 84 percent of 1,762 passengers surveyed. On weekends a somewhat higher share – 89 percent use this route on the same day for their round trips.

Figure 8.20 Fauntleroy-Vashon Round Trip Patterns by Day
When was the first half of your trip or when will you return?

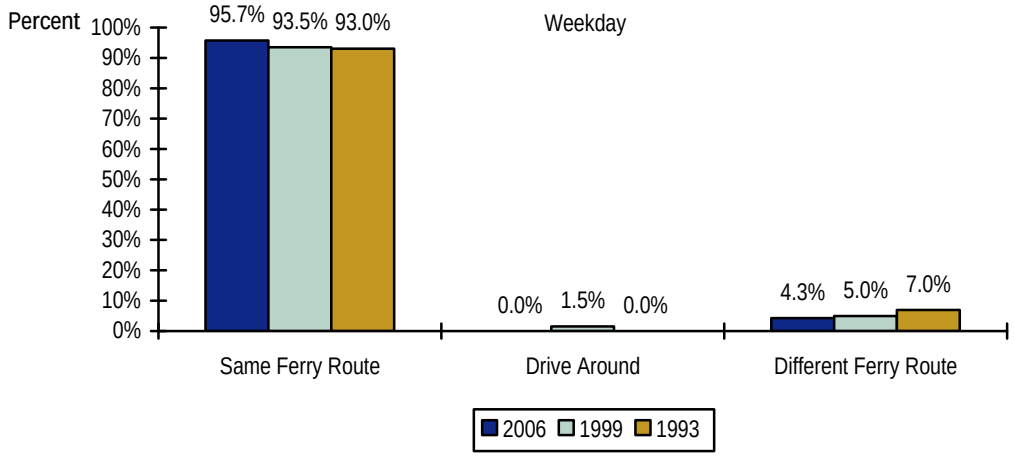


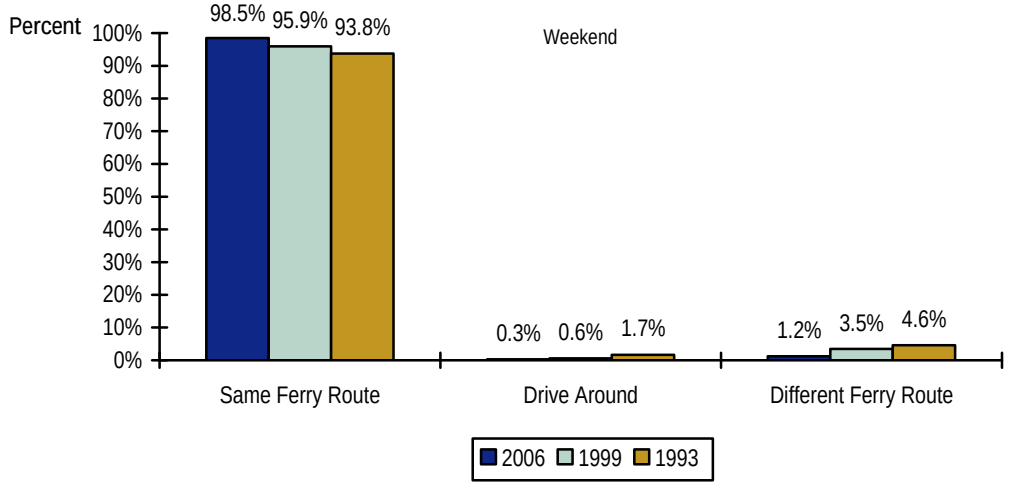
2006 Weekday Trips: 5,718 Missing: 50
2006 Weekday Trips: 5,382 Missing: 173

Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on the same day in 2006, 84 percent, is somewhat lower than the results in 1993 and 1999, which were 92 percent and 94 percent respectively. During the weekends in 2006, 89 percent of trips are made on the same day, compared to 81 percent in 1993 and 78 percent in 1999.

For riders who made one-half of their trip on this route, Figure 8.21 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. The vast majority of boardings are associated with trips in which the traveler will return to their home base on the same ferry. In 2006, 95 percent said they would return on the same ferry route. In both 1993 and 1996, 91 percent did so.

Figure 8.21 Fauntleroy-Vashon Round Trip Patterns by Route
How will you return or how did you travel on the first half of your trip?





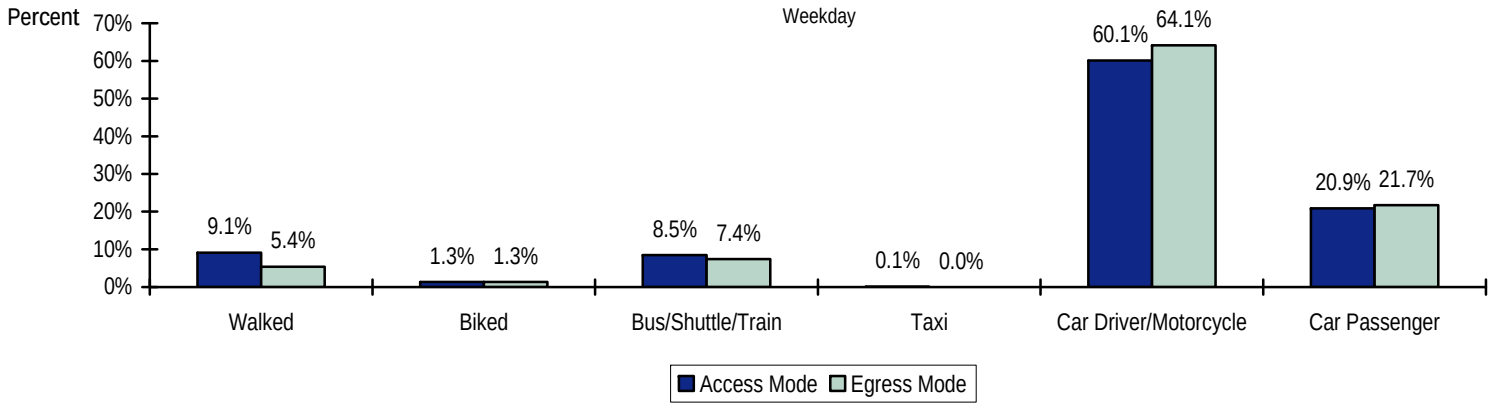
2006 Weekday Trips: 5,718 Missing: 129
2006 Weekday Trips: 5,382 Missing: 189

On the weekend, 93 percent of passengers in the 2006 study reported that they would return on the same ferry route, compared with 95 percent in 1993 and 87 percent in 1993. In 2006, the passengers who did not return on the same ferry all took a different ferry route for the rest of their journey.

8.2.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice of ferry riders and to study the changes over the years. Figure 8.22 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Figure 8.22 Fauntleroy-Vashon Trips by Access and Egress Mode
How did you travel from your origin location to this sailing?
How did you travel to the destination you are going to now?



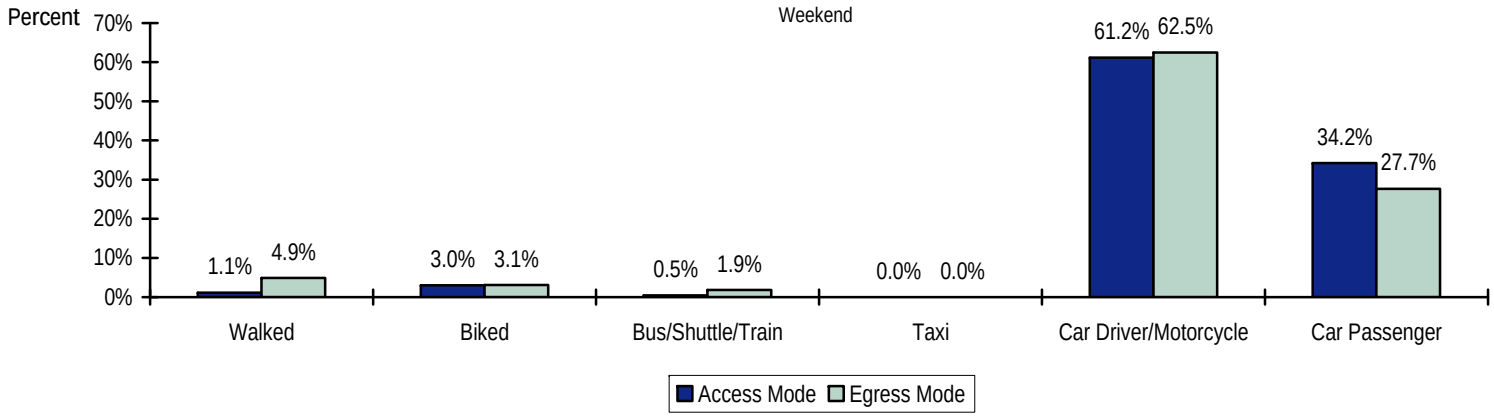


Table 8.18 Fauntleroy-Vashon Trips by Access Mode and Boarding Method

How will/did you board this ferry?
How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	123	395	0	518	9.1%	1.8%	2.2%
Biked	3	2	71	76	1.3%	1.2%	2.4%
Bus/Shuttle/Train	177	306	0	483	8.5%	6.7%	20.1%
Taxi	0	4	0	4	0.1%	0%	0.0%
Car Driver/ Motorcycle	3276	134	9	3419	60.1%	65.2%	59.4%
Car Passenger	1081	106	0	1187	20.9%	25.1%	15.8%
Total	4660	947	80	5687	100%	100%	100%
All Frequencies 2006	81.9%	16.7%	1.4%	100%			
All Frequencies 1999	82.7%	15.7%	1.7%	100%			
All Frequencies 1993	67.7%	29.9%	2.4%	100%			
Weekend							
Walked	12	49	0	61	1.1%	0.6%	1.7%
Biked	0	0	163	163	3.0%	1.7%	1.7%
Bus/Shuttle/Train	12	13	0	25	0.5%	1.1%	1.7%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	3018	275	0	3293	61.2%	68.1%	65.9%
Car Passenger	1739	103	0	1842	34.2%	28.5%	29.1%
Total	4781	440	163	5384	100%	100%	100%
All Frequencies 2006	88.8%	8.2%	3.0%	100%			
All Frequencies 1999	90.2%	7.1%	2.7%	100%			
All Frequencies 1993	79.7%	18.0%	2.2%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 5,718 Missing: 31

2006 Weekend Trips: 5,382 Missing: 0

Table 8.18 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, 70 percent of the ferry passengers drove to the terminal and an additional 26 percent were driven. An additional 3 percent took public transit and 1 percent walked.

The number of boardings by drive mode was 82 percent in 2006. This is little lower than 83 percent in 1999 but significantly higher than in 1993 when this share was 68 percent. The share of ferry passengers who walked on board was 17 percent in 2006, compared with 16 percent in 1999 and 30 percent in 1993. The number who boarded with a bicycle has remained under 2 percent in 1999 and 2006 while it was over 2 percent in 1993.

During 2006 weekends, the majority of passengers drove on board (89 percent), followed by 8 percent who walked, and about 3 percent who boarded with a bicycle. Similar shares were observed in 1999 as well, while in 1993, 80 percent of the ferry passengers boarded with their vehicle on weekends, 18 percent walked on and 2 percent biked..

Table 8.19 shows the mode of travel on this route and the corresponding egress modes to the ferry terminal. The egress boarding mode was heavily skewed toward ferry passengers who boarded with a vehicle. On weekdays, 81 percent of passengers boarded with their vehicle, followed by 17 percent who walked on board and 2 percent who boarded with a bicycle. The share boarding with their vehicle has increased from 68 percent in 1993 to 83 percent in 1999 but decreased to 81 percent in 2006. The share walking on board has decreased from 30 percent in 1993 to 16 percent in 1999 and increased to 17 percent in 2006. The share boarding with a bicycle has remained around 2 percent.

The vast majority of weekday passengers either drove or were driven to their final destinations. In 2006, 66 percent drove or were driven to their final destination. In 1993, 95 percent either drove or were driven to their final destination and in 1999 this was 93 percent.

In 2006 weekends, 90 percent of ferry passengers drive to their final destination while the remaining 5 percent walked, 3 percent biked and 2 percent took the transit. In the 1993 and 1996 surveys, 95 percent and 96 percent respectively used a vehicle (either drove or were driven) to their final destinations.

Table 8.19 Fauntleroy-Vashon Trips by Egress Mode and Boarding Method
How will/did you board this ferry?
How did you travel from your origin location to this sailing?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	53	243	4	300	5.4%	2.3%	6.4%
Biked	21	0	54	75	1.3%	0.8%	1.6%
Bus/Shuttle/Train	94	316	4	414	7.4%	4.1%	7.4%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	3318	250	6	3574	64.1%	66.2%	73.0%
Car Passenger	1053	144	13	1210	21.7%	26.6%	11.7%
Total	4539	953	81	5573	100%	100%	100%
All Frequencies 2006	81.4%	17.1%	1.5%	100%			
All Frequencies 1999	82.7%	15.7%	1.7%	100%			
All Frequencies 1993	67.7%	29.9%	2.4%	100%			
Weekend							
Walked	12	250	0	262	4.9%	0.8%	2.9%
Biked	0	3	163	166	3.1%	2.3%	1.3%
Bus/Shuttle/Train	35	64	0	99	1.9%	0.7%	1.0%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	3294	41	0	3335	62.5%	67.1%	63.1%
Car Passenger	1403	73	0	1476	27.7%	29.0%	31.7%
Total	4744	431	163	5338	100%	100%	100%
All Frequencies 2006	88.9%	8.1%	3.1%	100%			
All Frequencies 1999	90.2%	7.1%	2.7%	100%			
All Frequencies 1993	79.7%	18.0%	2.2%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 5,718 Missing: 145
2006 Weekend Trips: 5,382 Missing: 44

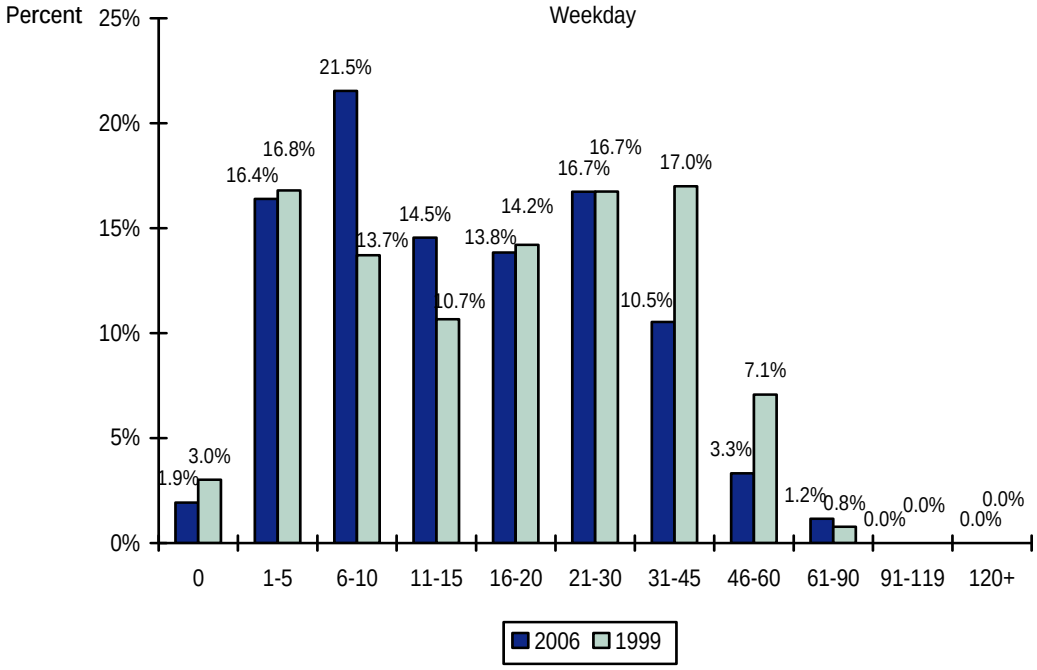
8.2.6 Wait Time

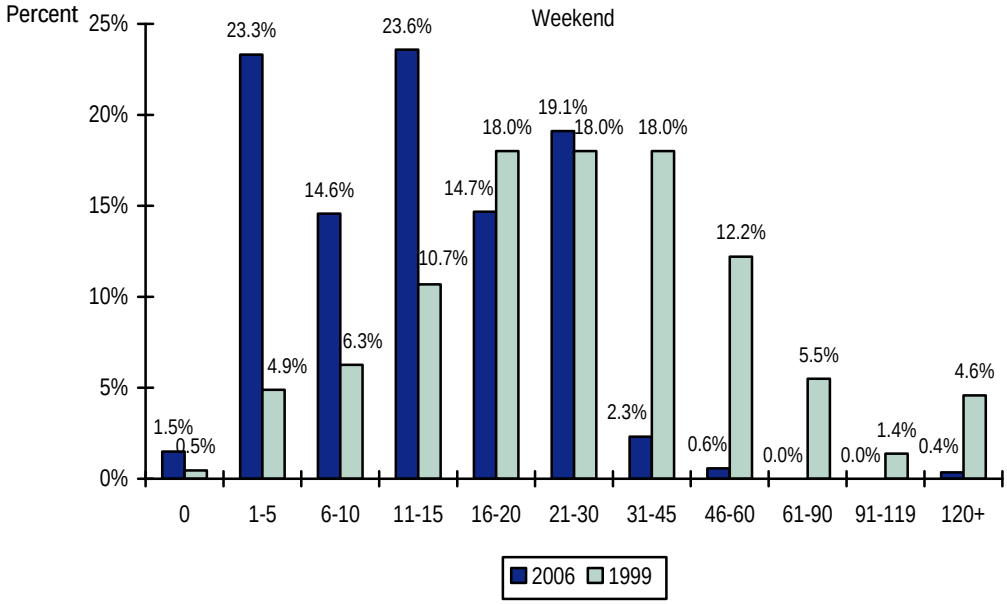
The out-of-vehicle travel times were measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 8.23 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, 81 percent of ferry passengers waited less than 30 minutes. This is very similar to results in the 1999 survey in which 80 percent of passengers waited this amount of time.

In 2006 weekends, 87 percent of the ferry passengers waited less than 30 minutes, compared with 90 percent in the 1999 survey who waited 30 minutes or less. Average perceived wait time was 21 minutes for weekday and 17 minutes for weekend riders.

Figure 8.23 Fauntleroy-Vashon Trips by Wait Time

About how many minutes did you wait to board this ferry?



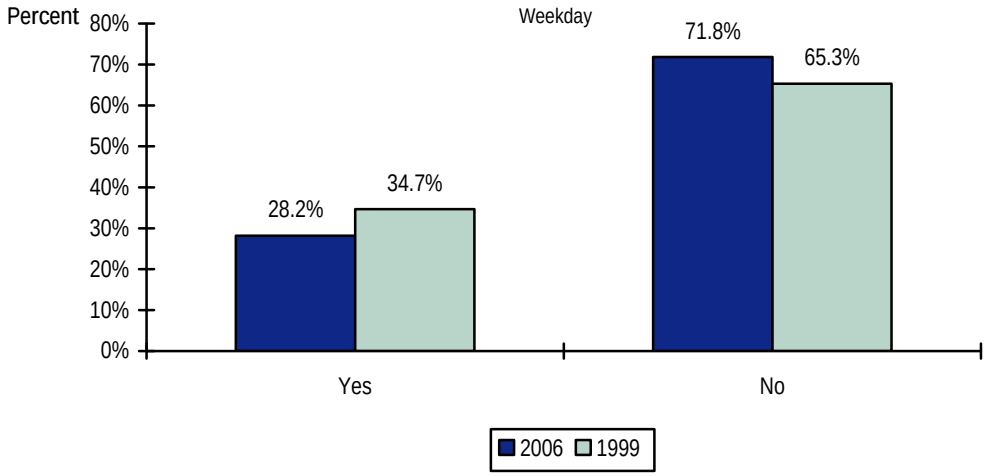


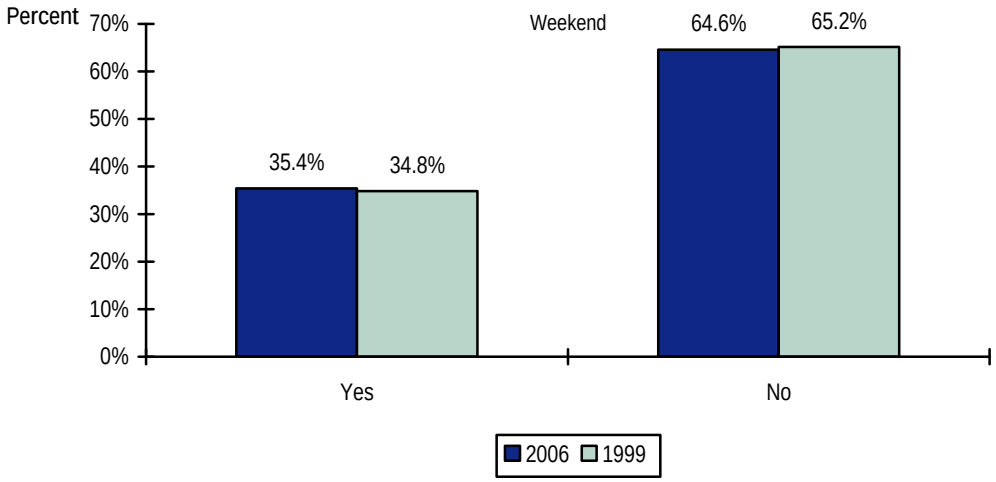
8.2.7 Parking

The parking statistics of walk-on passengers on this route were also examined. Primarily, these data summarize whether commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 8.24 presents the number of boardings by the response on parking from the respondent. In 1996, 52 percent of the weekday ferry passengers parked their vehicles. In the 1999 survey this share was similar, with 54 percent of weekday ferry passengers who reported parking. Weekends in the 2006 survey showed similar results. Indeed, 51 percent reported that they parked, compared with 53 percent of the ferry passengers in the 1999 survey who reported that they parked. The average parking cost was $3 per day on weekdays for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

These parking statistics are stable over time when weekdays are compared to weekends. On other routes, there were differences attributable to lower traffic over weekends, different rates and/or availability of parking.

Figure 8.24 Fauntleroy-Vashon Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?





8.2.8 Weekday Eastbound Origins and Destinations

Figure 8.25 shows weekday eastbound trips and the origins and destinations of riders on this route between Fauntleroy and Vashon in 2006. The boardings are overwhelmingly by car (82 percent). These origins and destinations are detailed by district in Table 8.20. The destinations are divided between the Seattle CBD (17 percent), SeaTac (15 percent) and West Seattle (14 percent). The origins of these trips are mainly North Vashon (59 percent) and East Vashon (39 percent).

The primary origins in the 1999 and 2006 surveys have been both the North and South Vashon Island, and for 1999 they are 55 percent and 45 percent respectively. The primary destinations in 1999 is West Seattle (32 percent) whereas the share for every other destination is small and about the same. The number of trips to the Seattle CBD in 1999 are about 4 percent (compared to 17 percent in 2006), and about 8 percent to Sea Tac (compared to 15 percent in 2006).

The origin and destination locations of survey respondents are presented by boarding mode in Figure 8.26.

Figure 8.25 Fauntleroy-Vashon Weekday Eastbound Origins and Destinations (2006)

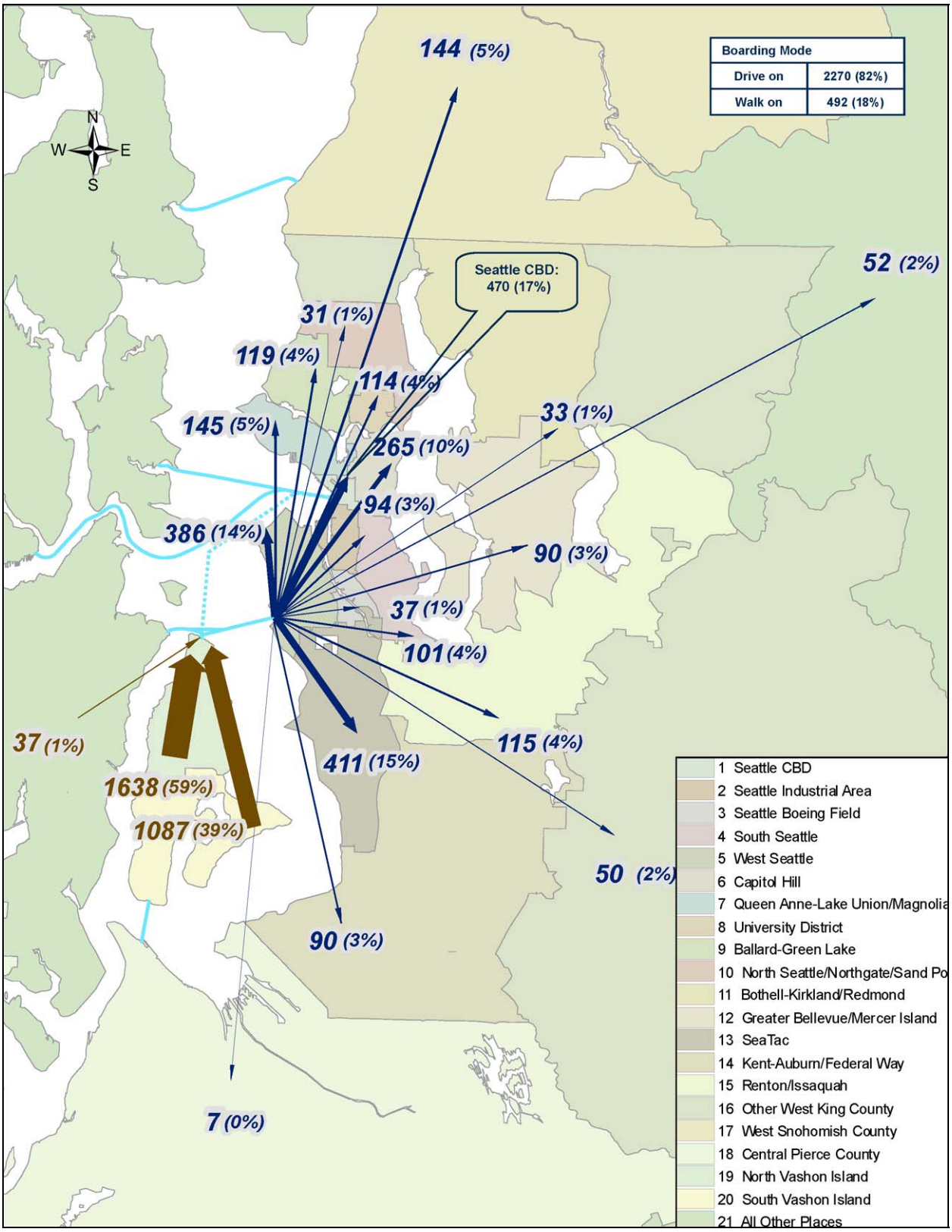
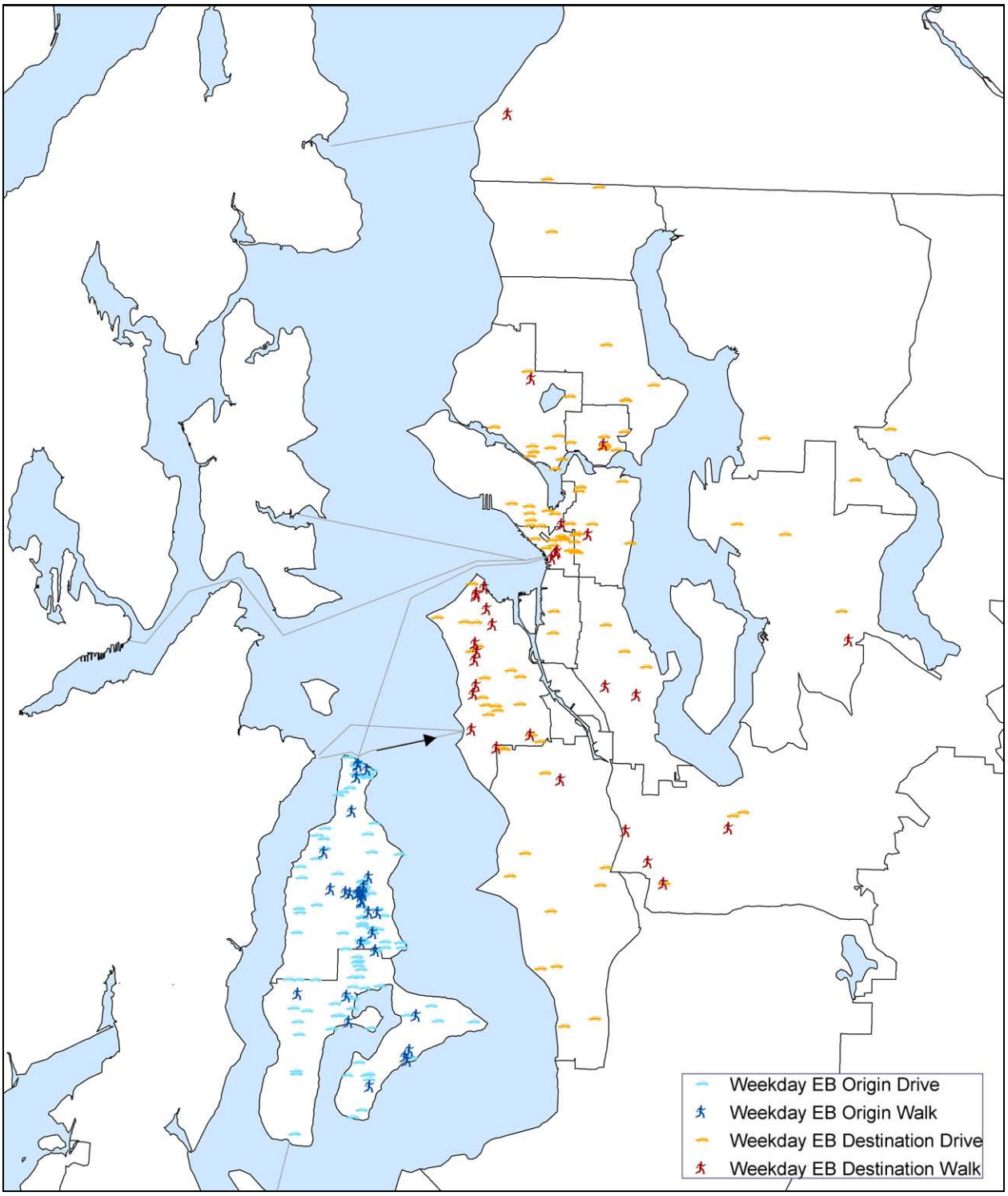


Table 8.20 Fauntleroy-Vashon Weekday Eastbound Boardings by Origin and Destination District

	Destination District											
Origin District	Seattle CBD	Seattle Industrial Area	Seattle Boeing Field	South Seattle	West Seattle	Capitol Hill	Queen Anne-Lake Union/ Magnolia	University District	Ballard-Green Lake	North Seattle/ Northgate/S and Point	Bothell-Kirkland/ Redmond	Greater Bellevue/ Mercer Island
North Vashon Island	204	28	11	79	272	163	102	59	71	8	13	72
South Vashon Island	258	66	26	22	94	102	39	55	48	23	16	18
All Other Places	8	0	0	0	20	0	4	0	0	0	4	0
Total	470	94	37	101	386	265	145	114	119	31	33	90
Percent of Total	17.0%	3.4%	1.3%	3.7%	14.0%	9.6%	5.2%	4.1%	4.3%	1.1%	1.2%	3.3%

	Destination District (continued)										
	SeaTac	Kent-Auburn/ Federal Way	Renton/ Issaquah	Other West King County	West Snohomish County	Central Pierce County	North Vashon Island	South Vashon Island	All Other Places	Total	Percent of Total
North Vashon Island	164	76	94	39	143	1	0	1	38	1638	59.3%
South Vashon Island	247	14	21	11	1	6	6	0	14	1087	39.4%
All Other Places	0	0	0	0	0	0	0	1	0	37	1.3%
Total	411	90	115	50	144	7	6	2	52	2762	100%
Percent of Total	14.9%	3.3%	4.2%	1.8%	5.2%	0.3%	0.2%	0.1%	1.9%	100%	

Figure 8.26 Fauntleroy-Vashon Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



8.2.9 Weekday Westbound Origins and Destinations

Figure 8.27 for weekday westbound trips presents the travel patterns of riders taking the Fauntleroy-Vashon ferry. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 8.21. The destinations of these trips were mainly North Vashon (52 percent) and South Vashon (46 percent). The origins of these trips were the Seattle CBD (23 percent), West Seattle (8 percent) and SeaTac (13 percent) and a variety of other districts.

The primary destinations in the 1999 survey are also the North and South Vashon Island, and they are about 63 percent and 37 percent respectively. The primary origins in 1999 are Seattle CBD (9 percent), West Seattle (10 percent) and Sea Tac (14 percent).

The origin and destination locations of survey respondents are presented by boarding mode in Figure 8.28.

Figure 8.27 Fauntleroy-Vashon Weekday Westbound Origins and Destinations (2006)

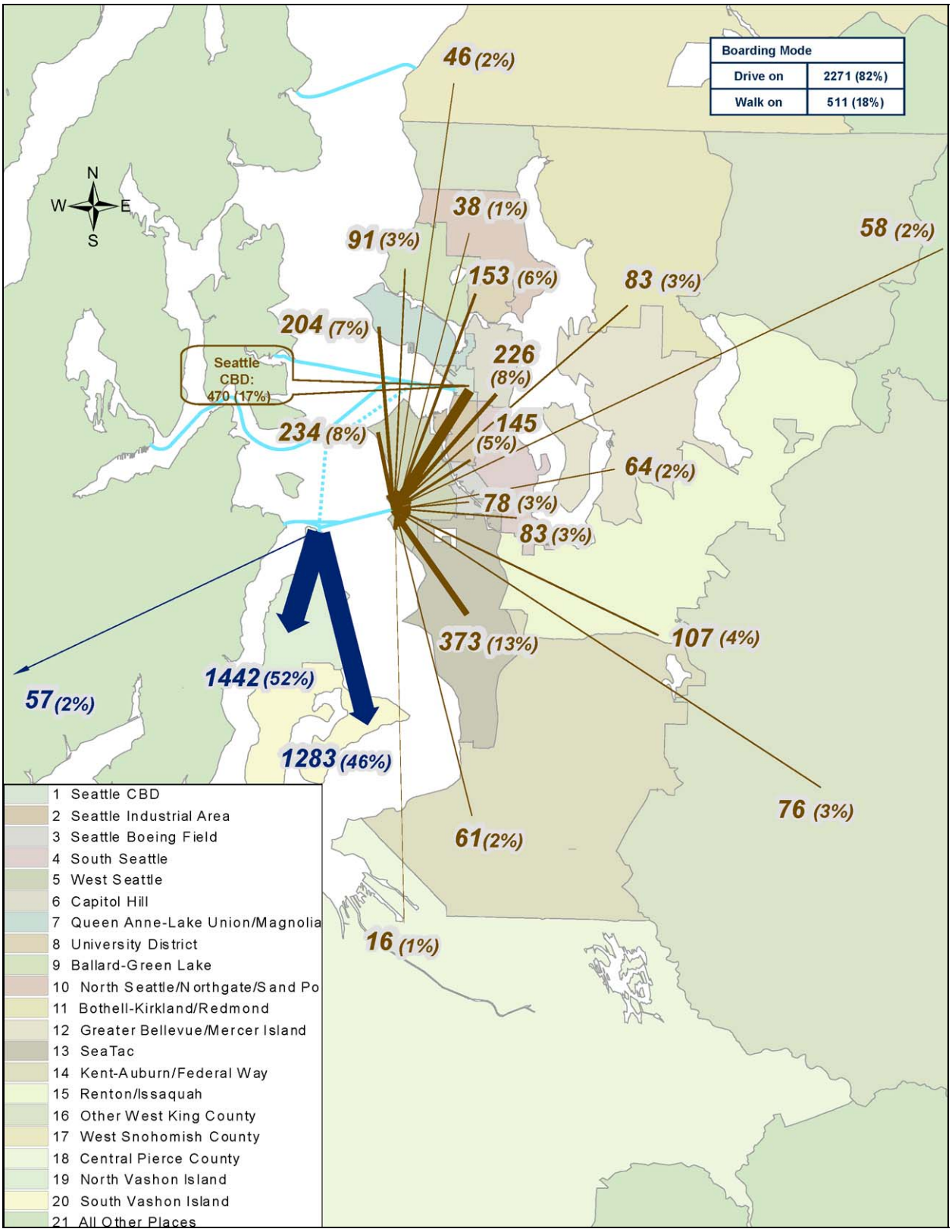
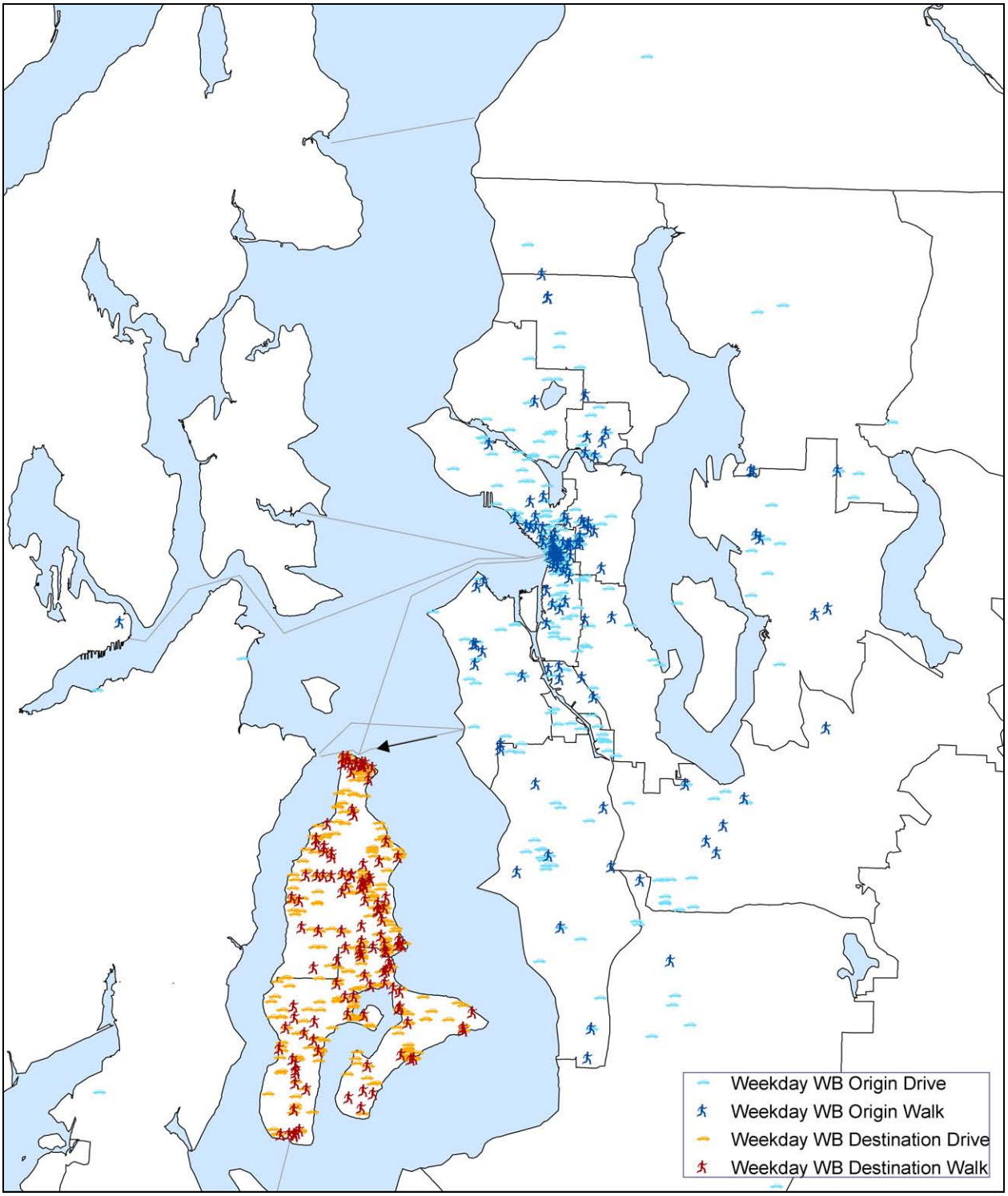


Table 8.21 Fauntleroy-Vashon Weekday Westbound Boardings by Origin and Destination District

	Destination District				
Origin District	North Vashon Island	South Vashon Island	All Other Places	Total	Percent of Total
Seattle CBD	314	300	32	646	23.2%
Seattle Industrial Area	49	96		145	5.2%
Seattle Boeing Field	36	42		78	2.8%
South Seattle	53	30		83	3.0%
West Seattle	155	73	6	234	8.4%
Capitol Hill	115	111		226	8.1%
Queen Anne-Lake Union/Magnolia	87	111	6	204	7.3%
University District	72	81		153	5.5%
Ballard-Green Lake	38	53		91	3.3%
North Seattle/Northgate/Sand Point	17	21		38	1.4%
Bothell-Kirkland/Redmond	43	27	13	83	3.0%
Greater Bellevue/Mercer Island	35	29		64	2.3%
SeaTac	169	204		373	13.4%
Kent-Auburn/Federal Way	54	7		61	2.2%
Renton/Issaquah	73	34		107	3.8%
Other West King County	58	18		76	2.7%
West Snohomish County	28	18		46	1.7%
Central Pierce County	16			16	0.6%
All Other Places	30	28		58	2.1%
Total	1442	1283	57	2782	100%
Percent of Total	51.8%	46.1%	2.0%	100%	

Figure 8.28 Fauntleroy-Vashon Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



8.2.10 Weekend Eastbound Origins and Destinations

The eastbound weekend travel patterns to are similar to that of the weekday patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These are presented in Figure 8.29. These origins and destinations are detailed by district in Table 8.22.

The primary origins in the 1999 and 2006 surveys are very different as the trips coming out of North and South Vashon Island were about the same in 1999 but a large number of trips (78 percent) in 2006 are originating from the North Vashon Island. The major destinations in 2006 are Seattle CBD (25 percent), Capitol Hill (19 percent) and Renton/Issaquah (19 percent) whereas in 1999 the trips are scattered all over with the exception of Capitol Hill (10 percent) and West Seattle (10 percent).

The origin and destination locations of survey respondents are presented by boarding mode in Figure 8.30.

Figure 8.29 Fauntleroy-Vashon Weekend Eastbound Origins and Destinations (2006)

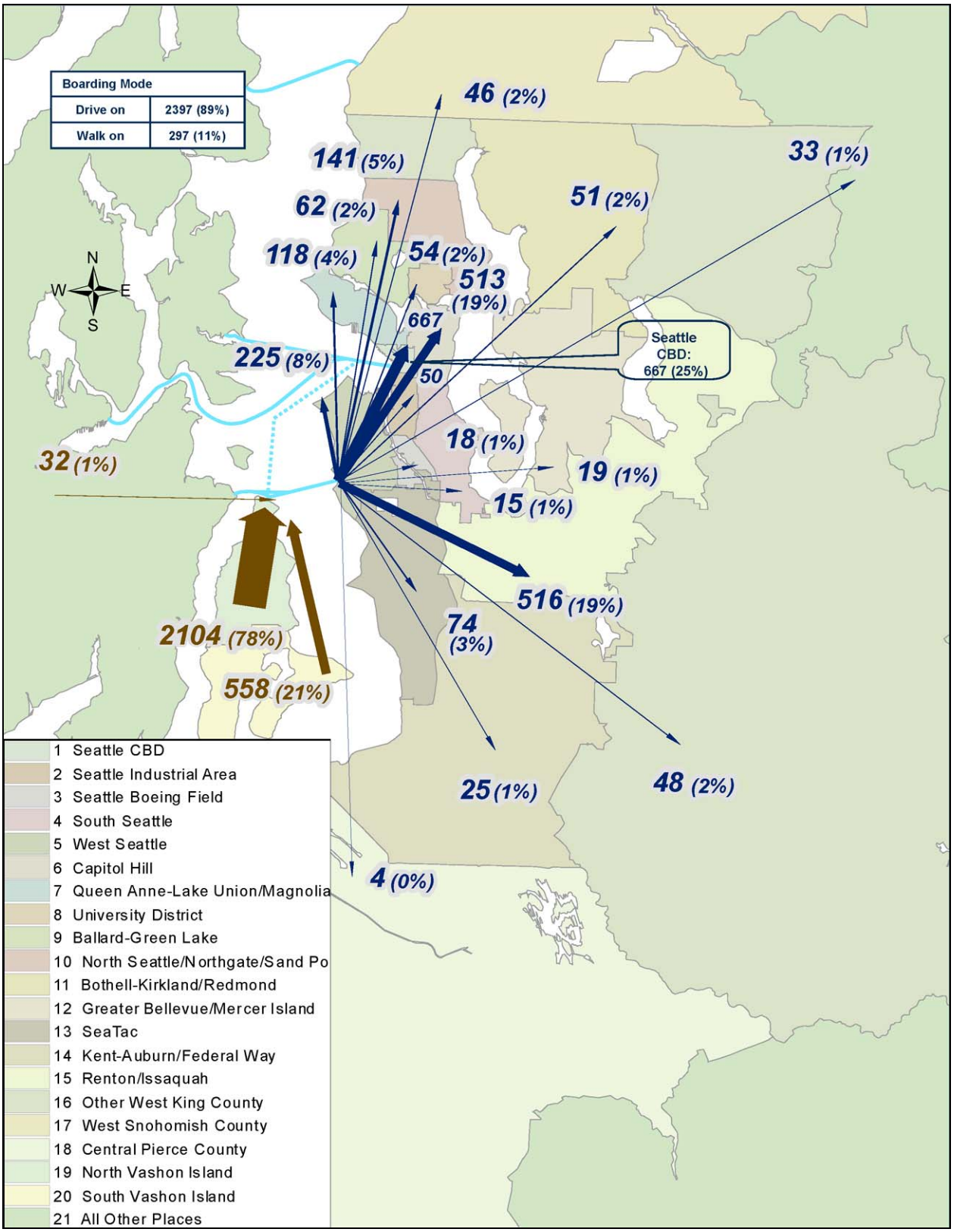
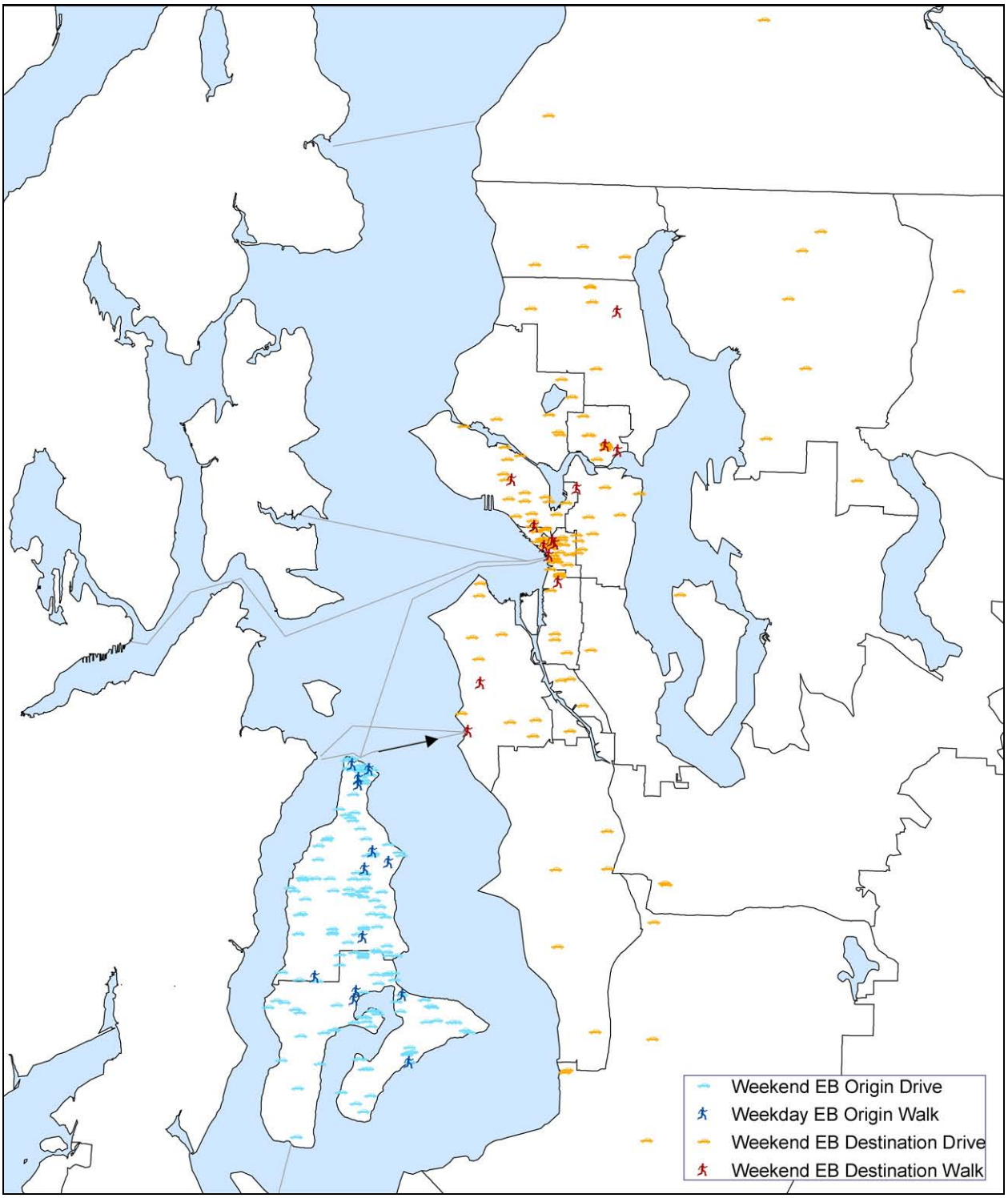


Table 8.22 Fauntleroy-Vashon Weekend Eastbound Boardings by Origin and Destination District

	Destination District											
Origin District	Seattle CBD	Seattle Industrial Area	Seattle Boeing Field	South Seattle	West Seattle	Capitol Hill	Queen Anne-Lake Union/ Magnolia	University District	Ballard-Green Lake	North Seattle/ Northgate/ Sand Point	Bothell-Kirkland/Redmond	Greater Bellevue/Mercer Island
North Vashon Island	554	32	11	11	169	495	71	22	33	24	40	15
South Vashon Island	106	18	7	4	50	18	47	32	29	117	11	
All Other Places	7				6							4
Total	667	50	18	15	225	513	118	54	62	141	51	19
Percent of Total	24.8%	1.9%	0.7%	0.6%	8.4%	19.0%	4.4%	2.0%	2.3%	5.2%	1.9%	0.7%

	Destination District (continued)										
	SeaTac	Kent-Auburn/ Federal Way	Renton/ Issaquah	Other West King County	West Snohomish County	Central Pierce County	North Vashon Island	South Vashon Island	All Other Places	Total	Percent of Total
North Vashon Island	47	18	479	37	28				18	2104	78.1%
South Vashon Island	27	7	37	11	18	4			15	558	20.7%
All Other Places							8	7		32	1.2%
Total	74	25	516	48	46	4	8	7	33	2694	100%
Percent of Total	2.7%	0.9%	19.2%	1.8%	1.7%	0.1%	0.3%	0.3%	1.2%	100%	

Figure 8.30 Fauntleroy-Vashon Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



8.2.11 Weekend Westbound Origins and Destinations

Weekend westbound trips (in Figure 8.31) are similar to the weekday southbound travel patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These origins and destinations are detailed by district in Table 8.23. The destinations of these trips are North Vashon Island (59 percent) and South Vashon Island (41 percent). The origins are diverse where only the trips from Seattle CBD stand out at 21 percent.

In 1999, the primary origins were West Seattle (10 percent) and Sea Tac (14 percent) while in 2006 it was Seattle CBD (21 percent). The major destinations were North Vashon and South Vashon Island in 1999 and 2006.

The origin and destination locations of survey respondents are presented by boarding mode in Figure 8.32.

Figure 8.31 Fauntleroy-Vashon Weekend Westbound Origins and Destinations (2006)

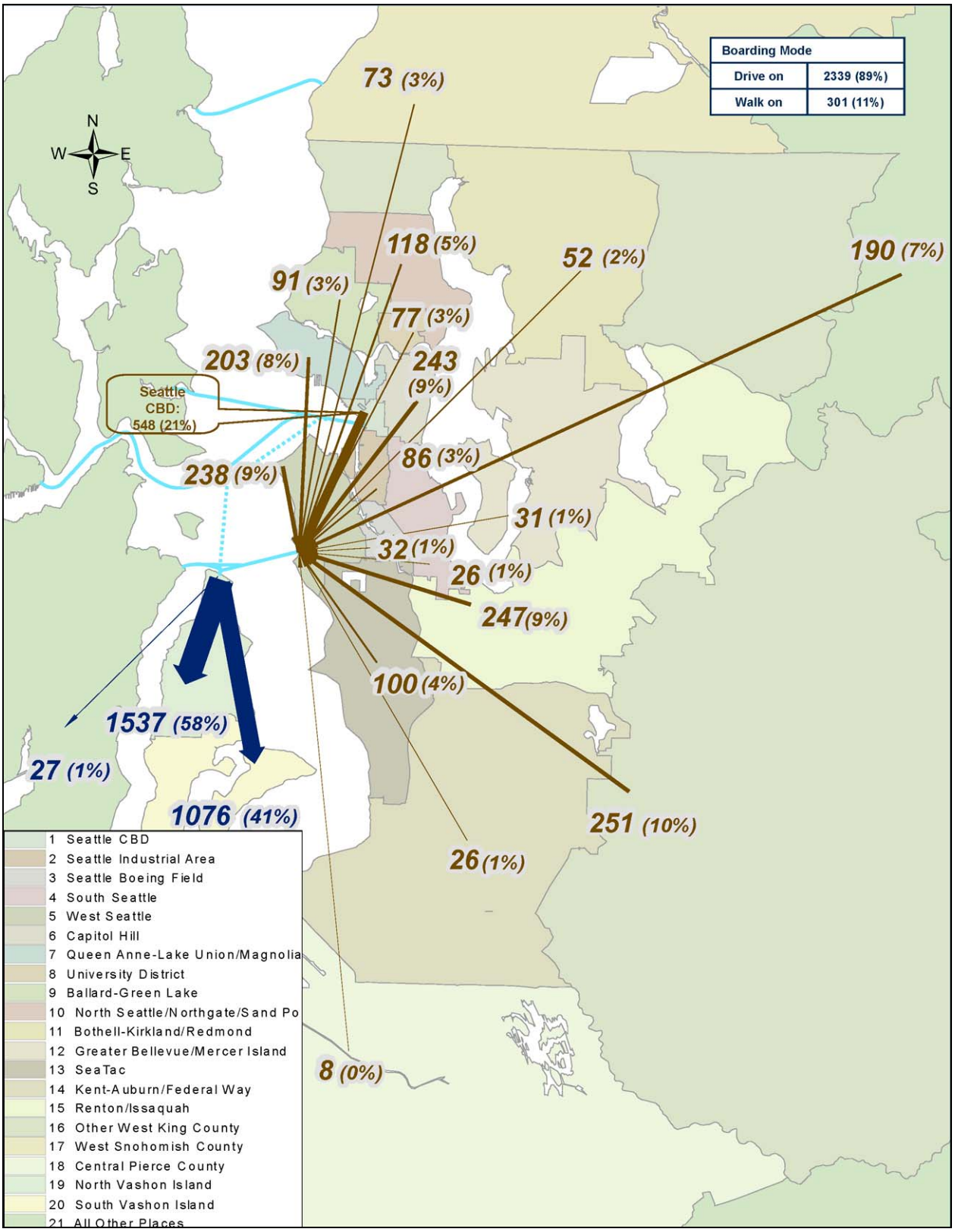
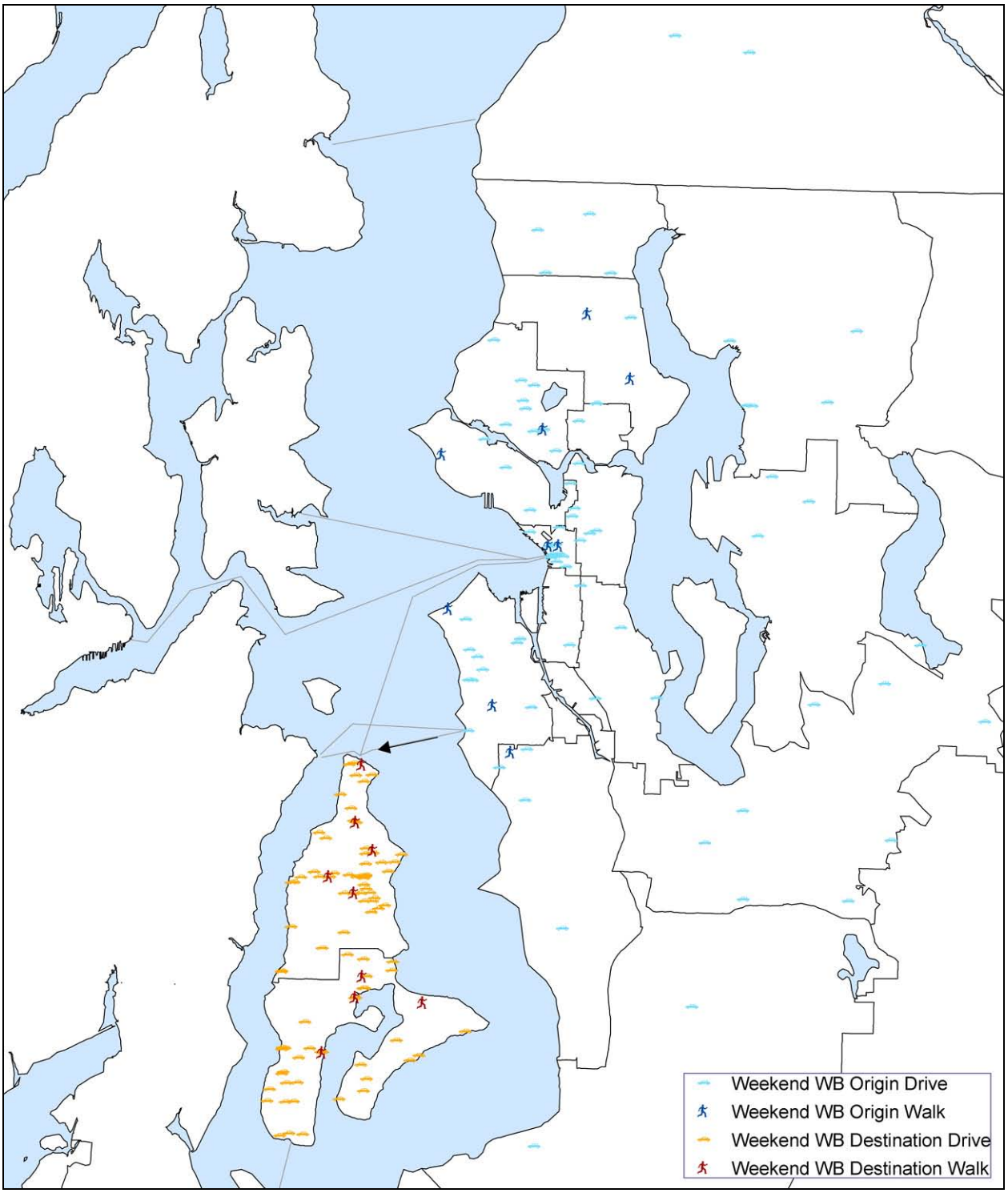


Table 8.23 Fauntleroy-Vashon Weekend Westbound Boardings by Origin and Destination District

	Destination District				
Origin District	North Vashon Island	South Vashon Island	All Other Places	Total	Percent of Total
Seattle CBD	357	180	11	548	20.8%
Seattle Industrial Area	63	23		86	3.3%
Seattle Boeing Field	24	8		32	1.2%
South Seattle	18	8		26	1.0%
West Seattle	162	63	13	238	9.0%
Capitol Hill	209	34		243	9.2%
Queen Anne-Lake Union/Magnolia	117	86		203	7.7%
University District	30	47		77	2.9%
Ballard-Green Lake	48	43		91	3.4%
North Seattle/Northgate/Sand Point	31	87		118	4.5%
Bothell-Kirkland/Redmond	44	8		52	2.0%
Greater Bellevue/Mercer Island	21	7	3	31	1.2%
SeaTac	74	26		100	3.8%
Kent-Auburn/Federal Way	15	11		26	1.0%
Renton/Issaquah	192	55		247	9.4%
Other West King County	61	190		251	9.5%
West Snohomish County	47	26		73	2.8%
Central Pierce County		8		8	0.3%
All Other Places	24	166		190	7.2%
Total	1537	1076	27	2640	100%
Percent of Total	58.2%	40.8%	1.0%	100%	

Figure 8.32 Fauntleroy-Vashon Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)



8.3 FAUNTLEROY-SOUTHWORTH

8.3.1 Route Description

This ferry route connects Fauntleroy (West Seattle) and Southworth, located south of Seattle and crossing the Puget Sound just north of Vashon Island. It takes about 40 minutes to ride this ferry route one-way. The crossing is approximately 4.1 nautical miles. It runs seven days a week. For 2006, the annual total ridership was 0.42 million passengers plus 0.56 million vehicles and drivers for a total of 0.98 million riders, or about 2,692 riders per day. This compares to 2,600 riders per day in 1999 and 2,330 riders per day in 1993. The trend in ridership seems to be increasing along this route since 1993.

The Fauntleroy-Southworth route has 26 weekday sailings per day for each direction, up from 24 sailings per day in 1993, and unchanged since 1999. The vehicle capacity is 124 vehicles per vessel on the Issaquah X class and 87 vehicles per vessel on the Evergreen class. The vessels on this route are unchanged since 1993. The fare is $8.70 for vehicles and $5.00 for passengers in 2006. In 1999, vehicle fares on this route were $7.87 and passenger fares were $4.48 (in 2006 constant dollars) representing a 11 percent decrease in vehicle fares and a 12 percent increase in passenger fares.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

8.3.2 Trips by Purpose

The trip purposes of ferry riders on the Fauntleroy-Southworth route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 8.24 shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are considered as east-west routes.

There is an even split between eastbound and westbound travelers for all purposes in the 2006 study, but there are some differences by trip purpose worth mentioning. The work/school trips are more commonly westbound whereas shopping/recreation/leisure trips are more concentrated in the eastbound direction, as are trips for medical/personal/business purposes. Over the weekends for 2006, travel direction is less well balanced between eastbound and westbound.

Table 8.24 Fauntleroy-Southworth Trips by Purpose and Frequency
What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School Commuting/ Business	Medical/ Personal Business/ Other	Recreation/ Shopping/ Leisure	Total	All Purposes		
					2006	1999*	1993*
Weekday							
Eastbound	924	264	309	1,497	51.5%	35.1%	38.1%
Westbound	1,070	190	150	1,410	48.5%	64.9%	61.9%
Total	1,994	454	459	2,907	100%	100%	100%
Both dir. 2006	68.6%	15.6%	15.8%	100%			
Both dir. 1999	74.5%	10.3%	15.2%	100%			
Both dir. 1993	78.3%	8.6%	13.1%	100%			
Weekend							
Eastbound	108	466	562	1,136	54.0%	60.2%	65.8%
Westbound	211	287	469	967	46.0%	39.8%	34.2%
Total	319	753	1031	2,103	100%	100%	100%
Both dir. 2006	15.2%	35.8%	49.0%	100%			
Both dir. 1999	14.6%	19.6%	65.8%	100%			
Both dir. 1993	16.1%	12.5%	71.4%	100%			

2006 Weekday Trips: 2,922 Missing: 15

2006 Weekend Trips: 2,124 Missing: 21

*1999 and 1993 survey records were not rebalanced by direction.

There has been a decrease in the share of weekday commuter trips on this route over the 1993 and 2006 period, and a relative increase in the share of both shopping and recreational trips. The rising costs of ferry travel have not resulted in a lager share of travel along this route for commuting purposes as observed on other routes.

The 1993 and 1999 survey trips vary by direction largely because of differences in expansion of the survey rather than any real differences in travel behavior. We calculated the p.m. period half-day percent westbound during the weekday at 49 percent. This represents an decrease in the proportion of westbound travelers surveyed since 1993, when it was 62 percent.

Table 8.25 shows the distribution of trips across different time periods and by direction of travel. As expected, the p.m. peak period defined as 3:00 p.m. to 7:00 p.m. has the highest share of weekday trips (46 percent) because of the return trips of work commute, as well as non-work trip purposes such as personal business, shopping and recreation. The a.m. peak period defined as 5:00 a.m. to 9:00 a.m. has the second largest share of riders, representing 16 percent of weekday trips.

Table 8.25 Fauntleroy-Southworth Trips by Time-of-Day and Direction[a]
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	A.M. Peak (5:00 a.m.-9:00 a.m.)	A.M. Off-Peak (9:00 a.m.-12:00 p.m.)	P.M. Off-Peak (12:00 p.m.-3:00 p.m.)	P.M. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Times 2006	All Times 1999	All Times 1993
Weekday									
Eastbound	93	368	201	178	360	1,199	41%	35.1%	38.1%
Westbound	316	112	109	191	992	1,721	59%	64.9%	61.9%
Total	409	480	310	369	1,352	2,920	100%	100%	100%
Percent. 2006	14.0%	16.4%	10.6%	12.6%	46.3%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 2,922 Missing: 2

2006 Weekday Trips: 2,124 Missing: 2

8.3.3 Frequency of Travel

The total number of ferry rips and purpose in 2006 are shown in Table 8.26. For comparison, trip purposes are aggregated into three groups – work/school, personal business /other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Table 8.26 Fauntleroy-Southworth Trips by Purpose and Direction

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past 7 days, including this ride?

Frequency	Work/School Commuting/ Business	Medical/ Personal Business/ Other	Recreation/ Shopping/ Leisure	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	71	79	140	290	10.6%	12.2%	15.3%	3.7%	6.7%
2	149	77	106	332	12.1%	13.3%	10.6%	7.8%	7.6%
3-4	244	120	104	468	17.1%	12.6%	10.3%	12.7%	7.8%
5-6	281	66	52	399	14.5%	14.5%	11.2%	14.6%	18.2%
7-8	200	10	21	231	8.4%	3.4%	7.1%	10.4%	4.4%
9-10	759	10	5	774	28.2%	27.3%	45.6%	39.5%	34.2%
11+	217	21	12	250	9.1%	16.8%		11.3%	21.2%
Total	1,921	383	440	2,744	100%	100%	100%	100%	100%
All freq. 2006	70.0%	14.0%	16.0%	100%					
All freq. 1999	74.5%	10.3%	15.2%	100%					
All freq. 1993	78.3%	8.6%	13.1%	100%					
Weekend									
1	35	384	535	954	47.0%	30.6%	45.3%		
2	61	58	226	345	17.0%	31.2%	33.3%		
3-4	30	254	155	439	21.6%	16.5%	14.3%		
5-6	41	12	32	85	4.2%	7.3%	3.0%		
7-8	39	0	7	46	2.3%	3.4%	0.3%		
9-10	7	12	18	37	1.8%	3.4%	3.7%		
11+	106	0	19	125	6.2%	7.6%			
Total	319	720	992	2,031	100%	100%	100%		
All freq. 2006	15.7%	35.5%	48.8%	100%					
All freq. 1999	14.6%	19.6%	65.8%	100%					
All freq. 1993	16.1%	12.5%	71.4%	100%					

Note: 1999 and 1993 survey records were not rebalanced by direction.

2006 Weekday Trips: 2,922 Missing: 178

2006 Weekday Trips: 2,124 Missing: 93

It is evident that travelers use the ferry largely for school or work, which represented 70 percent of travel. The majority of commuting riders use this ferry on a regular basis, as revealed by the fact that 51 percent of these riders (976 out of 1921) use the ferry 9 or more weekdays in a typical week. Trip frequencies for recreational purposes are lower, as expected; the surveys revealed that 56 percent make only one or two one-way trips in a typical week. Personal business/other-related activities are also less frequent than commuter trips, with 41 percent taking a one way ferry trip just once or twice in a typical week. In total, 37 percent of riders use the Fauntleroy-Southworth ferry on a daily basis during a typical week and 23 percent make only one or two one way trips in a typical week.

Table 8.26 also compares trip frequencies for 1993 and 1999. In 1993, 46 percent of riders surveyed use this ferry nine or more times in a typical week. In 1999 this share was 44 percent, and in 2006 it was up to 51 percent.

During weekends, as expected, there are more riders on this route for shopping/recreation trip purposes, that is 49 percent. An additional 36 percent of weekend trips are for personal business and 16 percent for commuting purposes. Over the 1993 to 2006 period, the share of weekend ferry trips for recreational purposes declined from 71 percent in 1993 to 66 percent in 1999 and 49 percent in 2006. Conversely, trips for personal business increased from 13 percent in 1993 to 20 percent in 1999 and 35 percent in 2006. Weekend commuting trips were relatively stable over the time period.

Table 8.27 provides the time of distribution of trips along this route by trip purpose. Almost half of the trips, that is 1,343 out of 2,907 or about 46 percent of travel occurs during the PM peak period (3:00 p.m. to 7:00 p.m.), while the rest of the trips are evenly distributed in other time periods. As expected a majority of the work/school commuting trips occur in the PM peak period (50 percent). Most of the personal business trips (34 percent) and recreation/shopping trips (43 percent) also occur during the PM offpeak period.

Table 8.27 Fauntleroy-Southworth Trips by Purpose and Time-of-Day
Purpose: What is/are the reason(s) you are riding the ferry today?

Direction	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	Daily	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	258	75	75	408	12.9%	16.5%	16.3%	14.0%
A.M. Peak (5 a.m.-9 a.m.)	379	56	45	480	19.0%	12.3%	9.8%	16.5%
A.M. Off-Peak (9 a.m.-12 p.m.)	171	81	57	309	8.6%	17.8%	12.4%	10.6%
P.M. Off-Peak (12 p.m.-3 p.m.)	194	86	87	367	9.7%	18.9%	19.0%	12.6%
P.M. Peak (3 p.m.-7 p.m.)	992	156	195	1,343	49.7%	34.4%	42.5%	46.2%
Daily	1,994	454	459	2,907	100%	100%	100%	100%
Percent 2006	68.6%	15.6%	15.8%	100%				
Percent 1999	74.5%	10.3%	15.2%	100%				
Percent 1993	78.3%	8.6%	13.1%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

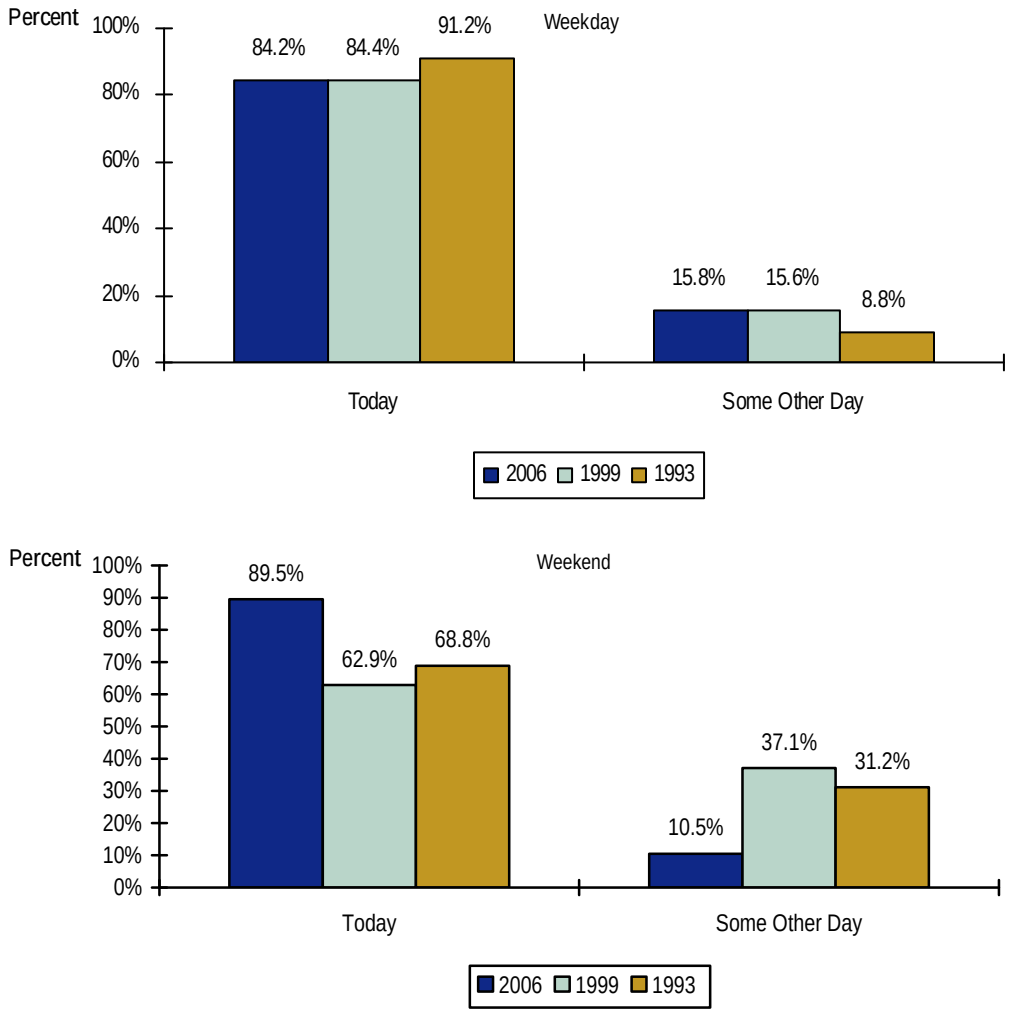
2006 Weekday Trips: 2,922 Missing: 15

2006 Weekend Trips: 2,124 Missing: 21

8.3.4 Round-Trip Patterns

In the 2006 surveys, questions on their round-trip patterns were asked which included the mode of travel and the day of the return trip, or in some cases, to make the outbound journey. Figure 8.33 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled their outbound and inbound journeys on the same day, that is 84 percent of 2,922. On weekends 91 use this route on the same day for their round trips.

Figure 8.33 Fauntleroy-Southworth Round Trip Patterns by Day
When was the first half of your trip or when will you return?



2006 Weekday Trips: 2,922 Missing: 86

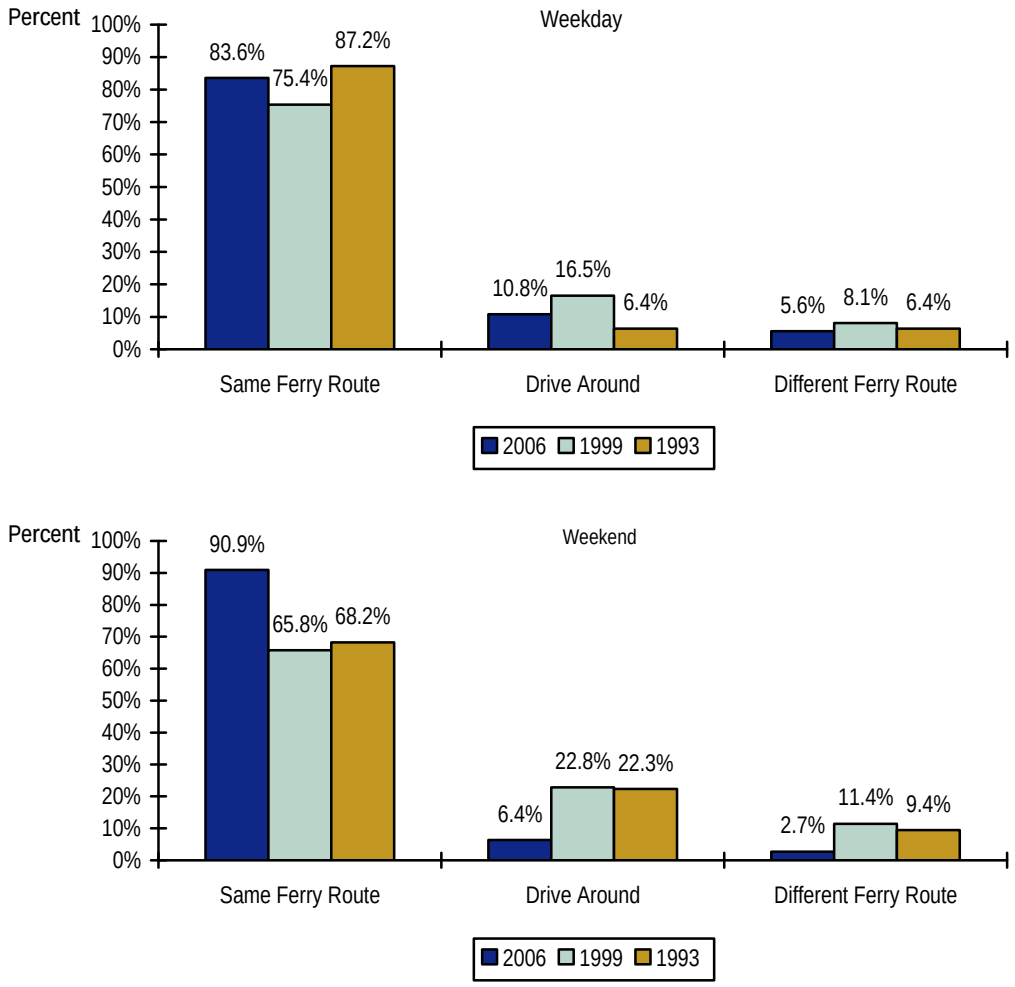
2006 Weekend Trips: 2,124 Missing: 46

Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on the same day in 2006, 84 percent, is basically identical to results in 1999. In 1993, the share was 91 percent. During the weekends in 2006, even more of the trips are made on the same day (90 percent). Estimates in prior years are lower, 69 percent in 1993 and 63 percent in 1999.

For riders who made one-half of their trip on this route, Figure 8.34 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route.

Most of the boardings are associated with trips in which the traveler will return to their home base on the same ferry. In 2006, 84 percent said they would return on the same ferry route. In 1993, 87 percent did so and in 1999 that share is 75 percent.

Figure 8.34 Fauntleroy-Southworth Round Trip Patterns by Route
How will you return or how did you travel on the first half of your trip?



2006 Weekday Trips: 2,922 Missing: 93

2006 Weekend Trips: 2,124 Missing: 70

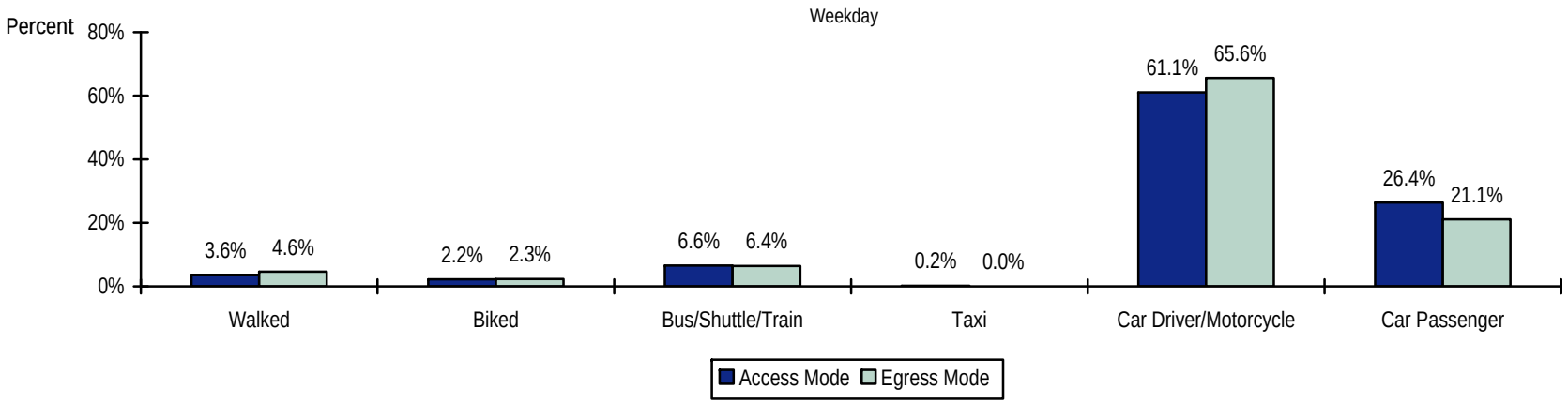
On the weekend, 91 percent of passengers in the 2006 study reported that they will return on the same ferry route, compared with 66 percent in 1993 and 66 percent in 1999. The drive around option was more common in previous years, representing 22 percent of travelers in 1993, 23 percent in 1999, and only 6 percent in 2006.

8.3.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 8.35 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Table 8.28 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, 61 percent of the ferry passengers drove to the terminal and 26 percent were vehicle passengers. An additional 7 percent took public transit, 4 percent walked and 2 percent biked.

Figure 8.35 Fauntleroy-Southworth Trips by Access and Egress Mode
How did you travel from your origin location to this sailing?
How did you travel to the destination you are going to now?



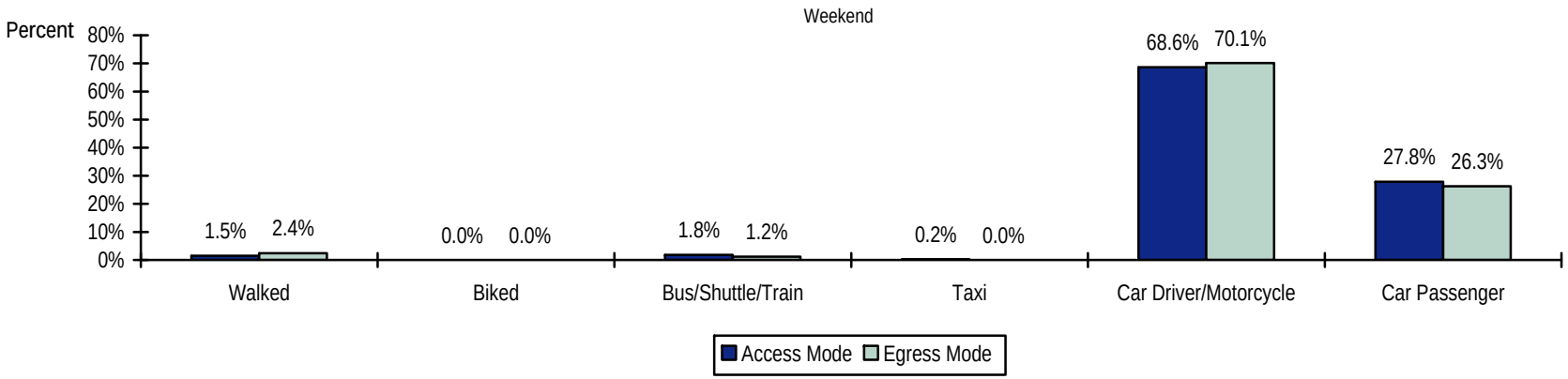


Table 8.28 Fauntleroy-Southworth Trips by Access Mode and Boarding Method

How will/did you board this ferry? How did you travel from your origin location to this sailing?

					All Boardings		
Access mode	Drive	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	19	87	0	106	3.6%	3.0%	1.0%
Biked	14	0	50	64	2.2%	1.2%	0.8%
Bus/Shuttle/Train	16	175	0	191	6.6%	9.1%	15.2%
Taxi	0	5	0	5	0.2%	0%	0.0%
Car driver/ motorcycle	1,662	115	0	1,777	61.1%	63.3%	60.5%
Car passenger	632	135	0	767	26.4%	23.4%	22.5%
Total	2,343	517	50	2,910	100%	100%	100%
Percent 2006	80.5%	17.8%	1.7%	100%			
Percent 1999	76.8%	21.6%	1.6%	100%			
Percent 1993	65.0%	34.0%	1.0%	100%			
Weekend							
Walked	0	32	0	32	1.5%	0.6%	1.1%
Biked	0	0	0	0	0.0%	1.1%	1.1%
Bus/Shuttle/Train	0	38	0	38	1.8%	0.8%	0.6%
Taxi	0	5	0	5	0.2%	0%	0.0%
Car driver/ motorcycle	1,323	134	0	1,457	68.6%	75.1%	61.4%
Car passenger	568	23	0	591	27.8%	22.4%	35.8%
Total	1,891	232	0	2,123	100%	100%	100%
Percent 2006	89.1%	10.9%	0.0%	100%			
Percent 1999	89.4%	9.2%	1.4%	100%			
Percent 1993	89.0%	9.0%	2.0%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings (i.e., all passengers in vehicles).

2006 Weekday Trips: 2,922 Missing: 12

2006 Weekend Trips: 2,124 Missing: 1

The number of boardings by drive mode was 81 percent in 2006. This is somewhat higher than in 1999 when this share was 77 percent, and is above the 1993 estimate of 65 percent. The share of ferry passengers who walked on board was 18 percent in 2006, compared with 22 percent in 1999 and 34 percent in 1993. The number who boarded with a bicycle has remained under 2 percent over the 1993 to 2006 period.

During 2006 weekends, the majority of passengers drove on board (89 percent), followed by 11 percent who walked, and none who boarded with a bicycle. These weekend shares have been fairly constant over the 1993 to 2006 period.

Table 8.29 shows the mode of travel on this route and the corresponding egress modes to the ferry terminal. The egress boarding mode was similarly skewed heavily toward ferry passengers who boarded with a vehicle. On weekdays, 81 percent of passengers boarded with their vehicle, followed by 18 percent who walked on board and 2 percent who boarded with a bicycle. The share boarding with their vehicle has increased from 65 percent in 1993 to 77 percent in 1999 and 81 percent in 2006. Conversely, the share walking on board has declined from 34 percent in 1993 to 22 percent in 1999 and 18 percent in 2006. The share boarding with a bicycle has remained below 2 percent.

The vast majority of weekday passengers either drove or were driven to their final destinations. In 2006, 66 percent drove and an additional 21 percent were driven to their final destination. In 1993, 92 percent of ferry passengers used a vehicle, as either a driver or passenger, to reach their final destination and in 1999 this share was 91 percent of ferry passengers who did so.

In 2006 weekends, the majority of ferry passengers either drive to their final destination (70 percent) or were driven (26 percent). Vehicles remained the egress mode of choice for the majority of weekend ferry passengers. Indeed, 96 percent of passengers in 2006, 98 percent of passengers in both 1993 and 1999 either drove themselves or were driven to their final destinations.

Table 8.29 Fauntleroy-Southworth Trips by Egress Mode and Boarding Method

How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress mode	Drive	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	15	116	0	131	4.6%	1.9%	2.3%
Biked	11	7	48	66	2.3%	1.1%	0.5%
Bus/Shuttle/Train	61	119	2	182	6.4%	5.6%	5.3%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car driver/ motorcycle	1,719	149	0	1,868	65.6%	66.2%	75.0%
Car passenger	492	108	0	600	21.1%	25.2%	16.9%
Total	2,298	499	50	2,847	100%	100%	100%
All freq. 2006	80.7%	17.5%	1.8%	100%			
All freq. 1999	76.8%	21.6%	1.6%	100%			
All freq. 1993	65.0%	34.0%	1.0%	100%			
Weekend							
Walked	0	51	0	51	2.4%	0.8%	1.2%
Biked	0	0	0	0	0.0%	0.8%	1.4%
Bus/Shuttle/Train	0	25	0	25	1.2%	0.3%	1.4%
Taxi	0	0	0	0	0.0%	0%	0.3%
Car driver/ motorcycle	1,407	63	0	1,470	70.1%	74.5%	60.9%
Car passenger	466	85	0	551	26.3%	23.5%	34.8%
Total	1,873	224	0	2,097	100%	100%	100%
All freq. 2006	89.3%	10.7%	0.0%	100%			
All freq. 1999	89.4%	9.2%	1.4%	100%			
All freq. 1993	89.0%	9.0%	2.0%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings (i.e., all passengers in vehicles).

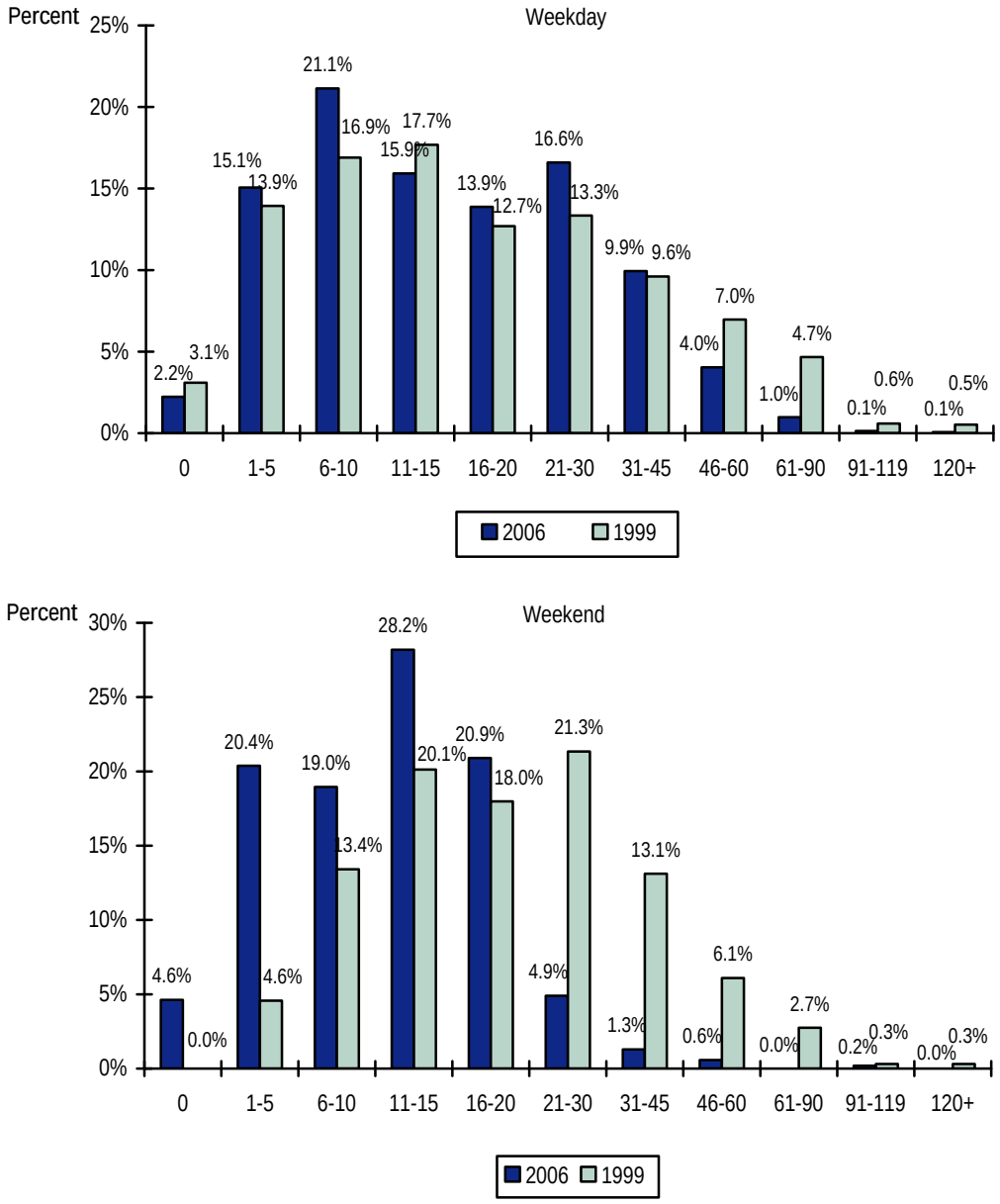
2006 Weekday Trips: 2,922 Missing: 75

2006 Weekend Trips: 2,124 Missing: 27

8.3.6 Wait Time

The out of vehicle travel times were measured by asking the respondents the amount of time they spent waiting before boarding this ferry route. Figure 8.36 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. In 2006 weekday, 66 percent of ferry passengers waited less than 30 minutes. This is contrasted with 1999 in which 78 percent of passengers waited this amount of time. In 2006 weekends, 98 percent of the ferry passengers waited less than 30 minutes, compared with 78 percent in the 1999 survey who waited 30 minutes or less. Average perceived wait time was 24 minutes for weekday and 16 minutes for weekend riders.

Figure 8.36 Fauntleroy-Southworth Trips by Wait Time
About how many minutes did you wait to board this ferry?

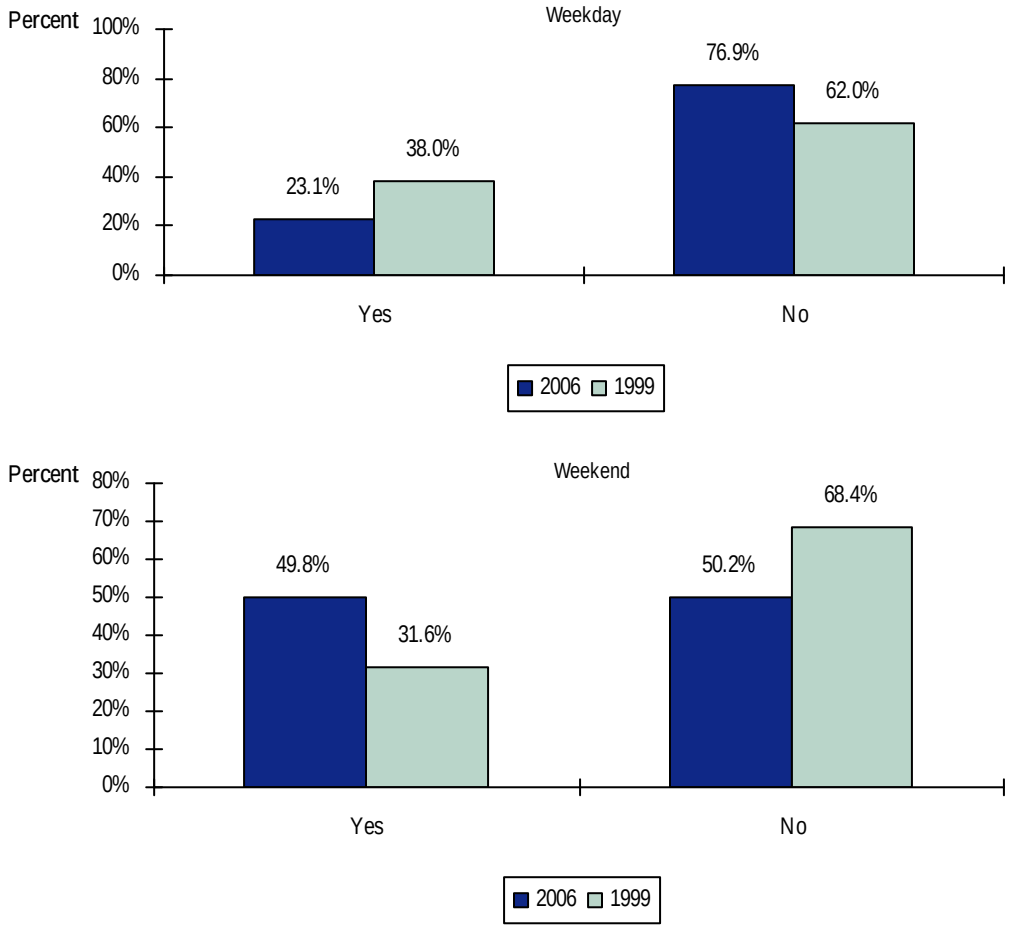


8.3.7 Parking

The parking statistics of walk-on passengers on this route were also examined. Primarily, these data summarize whether commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 8.37 presents the number of boardings by the response on parking from the respondent. In 1996, 23 percent of the weekday ferry passengers parked their vehicles. In the 1999

survey this share was higher, with 38 percent of weekday ferry passengers who reported parking. On weekends in the 2006 survey, passengers were found to be considerably more likely to have parked. Indeed, 50 percent reported that they parked, compared with 32 percent in the 1999 survey who reported that they parked. The average parking cost was $5 per day on weekdays and $2 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking). These differences could be attributed to the lower traffic over weekends and different rates and availability of parking.

Figure 8.37 Fauntleroy-Southworth Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?



8.3.8 Weekday Eastbound Origins and Destinations

Figure 8.38 shows weekday eastbound trips and the origins and destinations of riders on this route between Fauntleroy to Southworth in 2006. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 8.30. The major destinations are West Seattle which represent 20 percent of a destinations, Seattle CBD which represents 13 percent and Greater Bellevue/Mercer Island which represents 13 percent. The origins of these trips are predominantly South Kitsap County which represents 59 percent, with Greater Port Orchard a distant second with 15 percent.

The major origin in 2006 is Other South Kitsap County at 59 percent while in 1999 it was Other South Kitsap (30 percent) and Mason Counties (26 percent). The primary destination in 2006 is West Seattle (20 percent) whereas the major destination in 1999 survey was Seattle CBD (20 percent).

The origins and destinations of survey respondents are presented in Figure 8.39 by boarding mode.

Figure 8.38 Fauntleroy-Southworth Weekday Eastbound Origins and Destinations (2006)

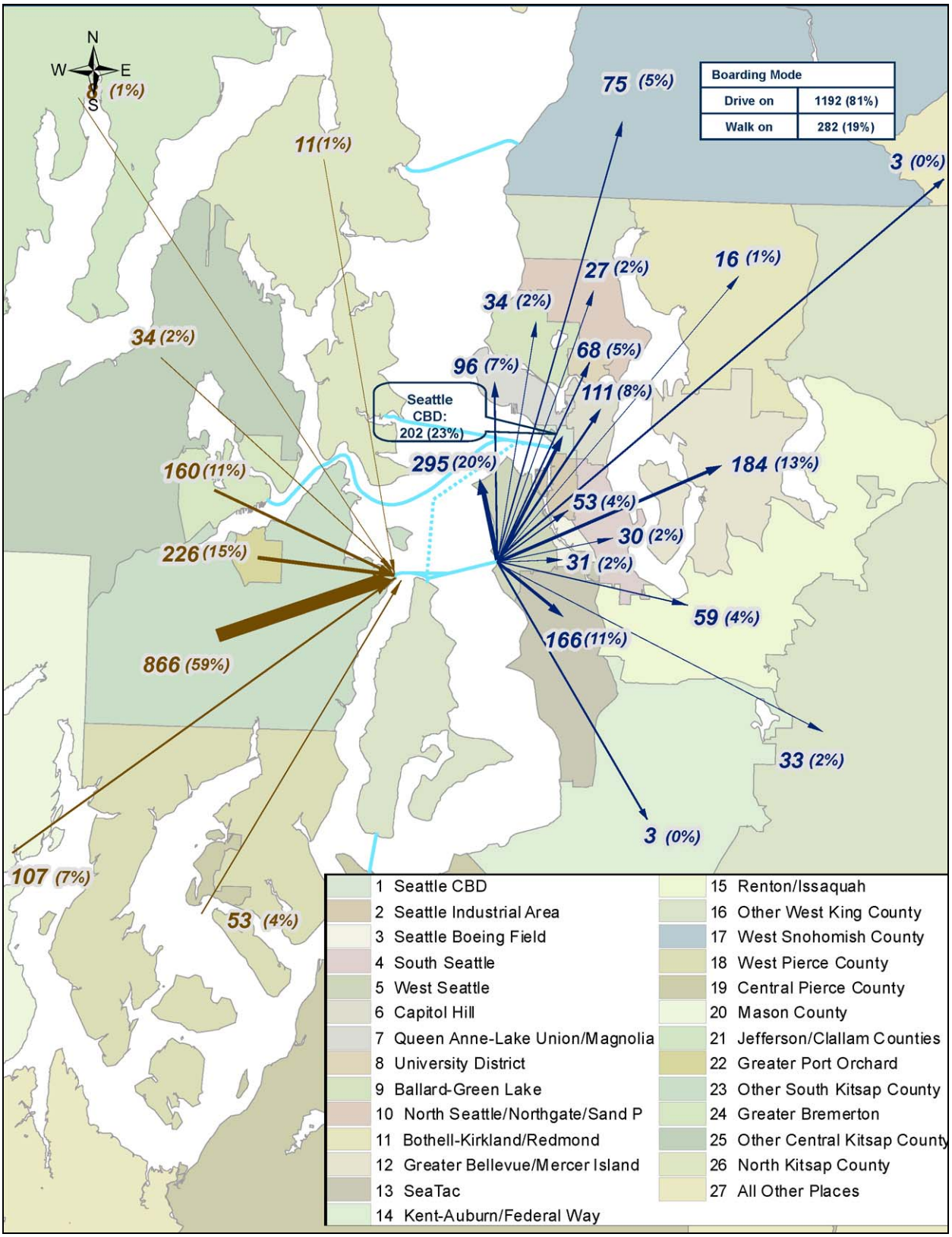
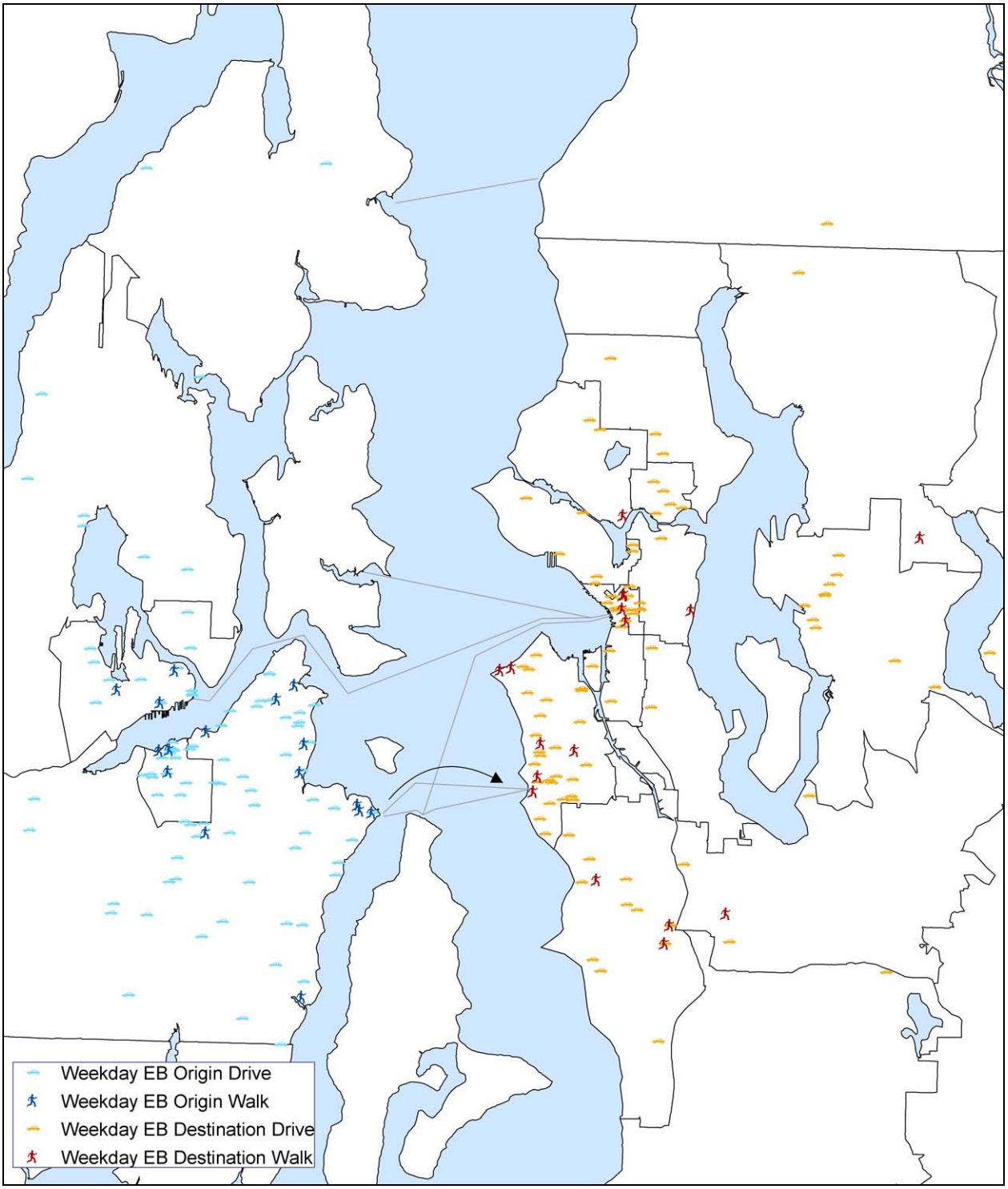


Table 8.30 Fauntleroy-Southworth Weekday Eastbound Boardings by Origin and Destination District

	Destination District									
Origin District	Seattle CBD	Seattle Industrial Area	Seattle Boeing Field	South Seattle	West Seattle	Capitol Hill	Queen Anne-Lake Union/ Magnolia	University District	Ballard-Green Lake	North Seattle/ Northgate/ Sand Point
West Pierce County	10	5	2		8		6	3		3
Mason County	8	4		2	19	5		7		4
Jefferson/Clallam Counties					5					
Greater Port Orchard	19	6		2	44	10		2		3
Other South Kitsap County	150	38	29	16	121	87	84	53	34	17
Greater Bremerton	3			5	74	3		3		
Other Central Kitsap County				2	16	6				
North Kitsap County					8		3			
Rest of the Area				3			3			
Total	190	53	31	30	295	111	96	68	34	27
Percent of Total	12.9%	3.6%	2.1%	2.0%	20.0%	7.5%	6.5%	4.6%	2.3%	1.8%

	Destination District (continued)									
	Bothell-Kirkland/ Redmond	Greater Bellevue/ Mercer Island	SeaTac	Kent-Auburn/ Federal Way	Renton/ Issaquah	Other West King County	West Snohomish County	Rest of the Area	Total	Percent of Total
West Pierce County		5	2			9			53	3.6%
Mason County	3	3	37		4	8	3		107	7.3%
Jefferson/Clallam Counties			3						8	0.5%
Greater Port Orchard	6	47	17		20	3	44	3	226	15.3%
Other South Kitsap County	6	78	98	3	30	7	15		866	58.8%
Greater Bremerton		41	9		3	6	13		160	10.9%
Other Central Kitsap County	1	7			2				34	2.3%
North Kitsap County									11	0.7%
Rest of the Area		3							9	0.6%
Total	16	184	166	3	59	33	75	3	1474	100%
Percent of Total	1.1%	12.5%	11.3%	0.2%	4.0%	2.2%	5.1%	0.2%	100%	

Figure 8.39 Fauntleroy-Southworth Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



8.3.9 Weekday Westbound Origins and Destinations

Figure 8.40 for weekday westbound trips presents the travel patterns of riders taking the Fauntleroy-Southworth ferry. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 8.31. The destinations of these trips were predominantly South Kitsap County which represented 72 percent, with Mason County a distant second, representing 7 percent of destinations. The origins of these trips were mainly Seattle CBD which represented 22 percent of all origins, followed by West Seattle which represented 13 percent, and a variety of other districts.

For weekday westbound, the O-D patterns are a direct transpose of weekday eastbound patterns where the Other South Kitsap County and Seattle CBD are the primary destination and origin respectively in the 2006 and 1999 surveys.

The origins and destinations of survey respondents are presented in Figure 8.41 by boarding mode.

Figure 8.40 Fauntleroy-Southworth Weekday Westbound Origins and Destinations (2006)

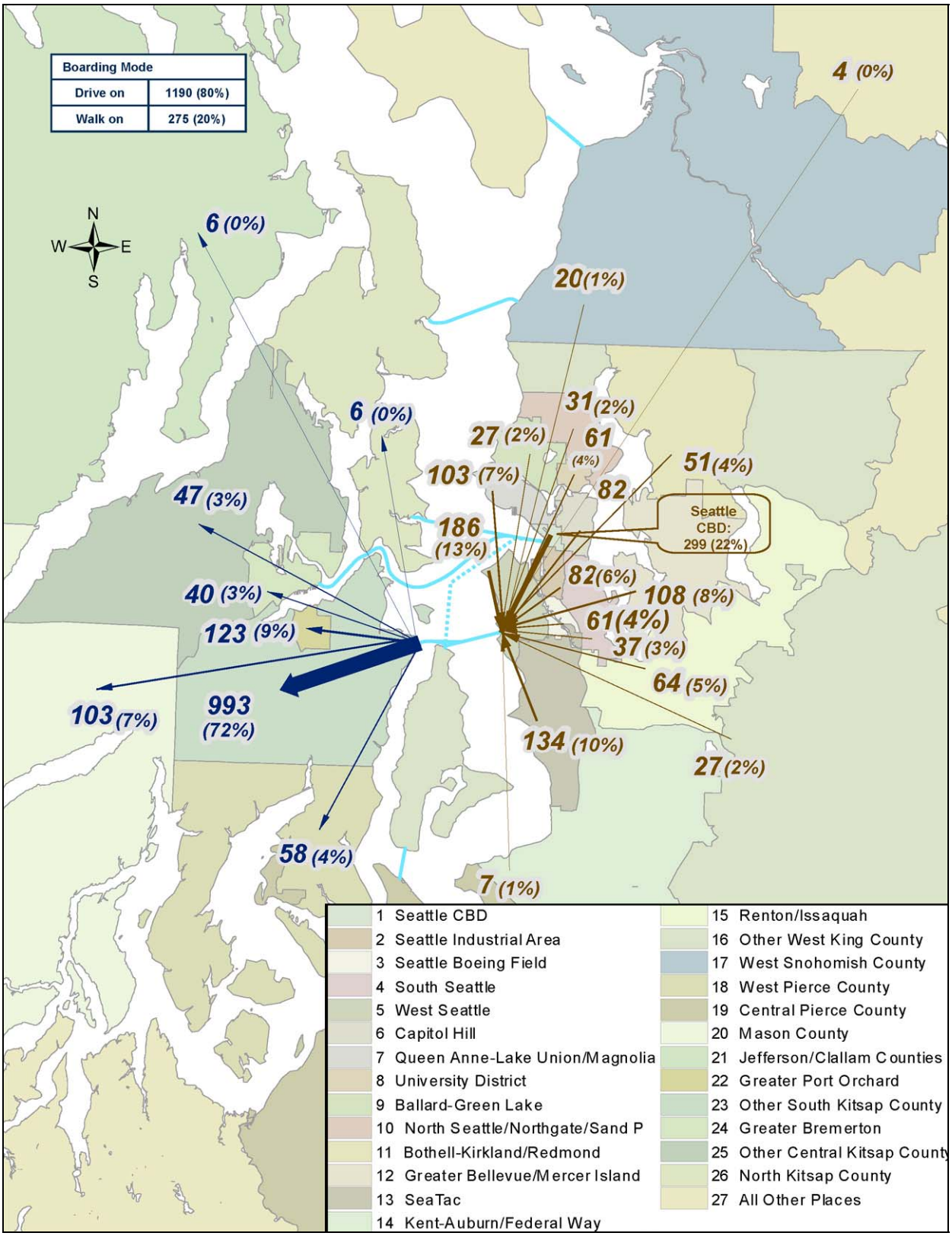
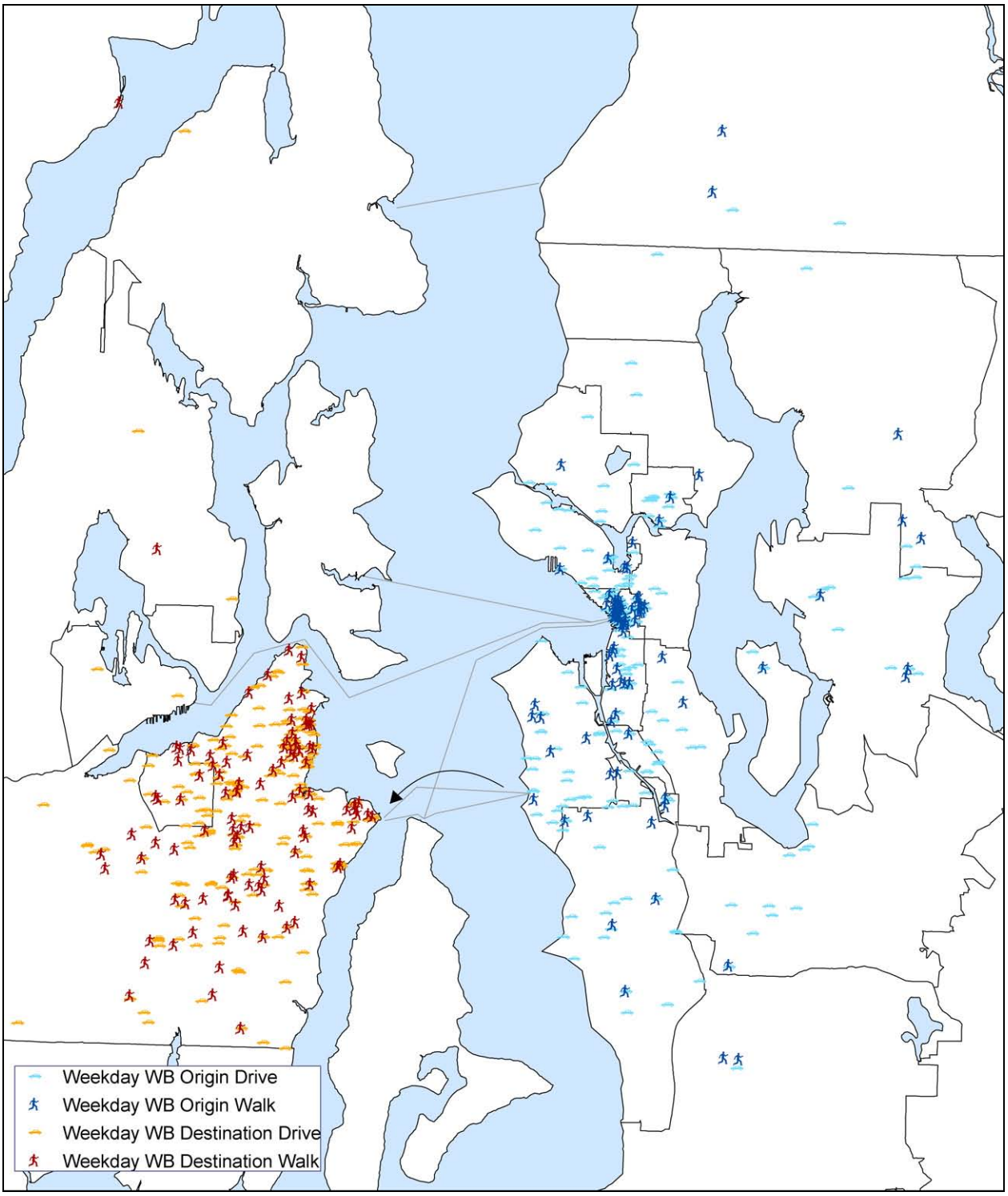


Table 8.31 Fauntleroy-Southworth Weekday Westbound Boardings by Origin and Destination District

	Destination District										
Origin District	West Pierce County	Mason County	Jefferson/Clallam Counties	Greater Port Orchard	Other South Kitsap County	Greater Bremerton	Other Central Kitsap County	North Kitsap County	Rest of the Area	Total	Percent of Total
Seattle CBD	10	8		31	244	6				299	21.6%
Seattle Industrial Area	2	8		6	66					82	5.9%
Seattle Boeing Field	2	2	2		55					61	4.4%
South Seattle		4		2	23	2	2		4	37	2.7%
West Seattle	13	16	4	36	87	14	14	2		186	13.4%
Capitol Hill	2	11		10	56		3			82	5.9%
Queen Anne-Lake Union/Magnolia	8	2		2	87			2	2	103	7.4%
University District	2	8		2	47	2				61	4.4%
Ballard-Green Lake		6			21					27	2.0%
North Seattle/Northgate/Sand Point	2	11		2	16					31	2.2%
Bothell-Kirkland/Redmond	4			6	23		18			51	3.7%
Greater Bellevue/Mercer Island	7	2		2	87		8		2	108	7.8%
SeaTac	2	12		9	103	8				134	9.7%
Kent-Auburn/Federal Way					7					7	0.5%
Renton/Issaquah		4		9	45	2	2	2		64	4.6%
Other West King County	2	9		2	8	6				27	2.0%
West Snohomish County	2			2	16					20	1.4%
Rest of the Area				2	2					4	0.3%
Total	58	103	6	123	993	40	47	6	8	1384	100%
Percent of Total	4.2%	7.4%	0.4%	8.9%	71.7%	2.9%	3.4%	0.4%	0.6%	100%	

Figure 8.41 Fauntleroy-Southworth Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



8.3.10 Weekend Eastbound Origins and Destinations

The eastbound weekend travel patterns to are similar to that of the weekday patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These are presented in Figure 8.42. These origins and destinations are detailed by district in Table 8.32. The destinations of these trips are mainly West Seattle which represents 26 percent, followed by Ballard-Green Lake with 11 percent and Seattle CBD with 8 percent. The origins are mainly South Kitsap County with 64 percent, with Mason County with 18 percent.

Very similar trends are observed during the weekend trips as well when compared to the weekday trips where the main origin and destination is Other South Kitsap County and West Seattle in both 1999 and 2006 surveys.

The origins and destinations of survey respondents are presented in Figure 8.43 by boarding mode.

Figure 8.42 Fauntleroy-Southworth Weekend Eastbound Origins and Destinations (2006)

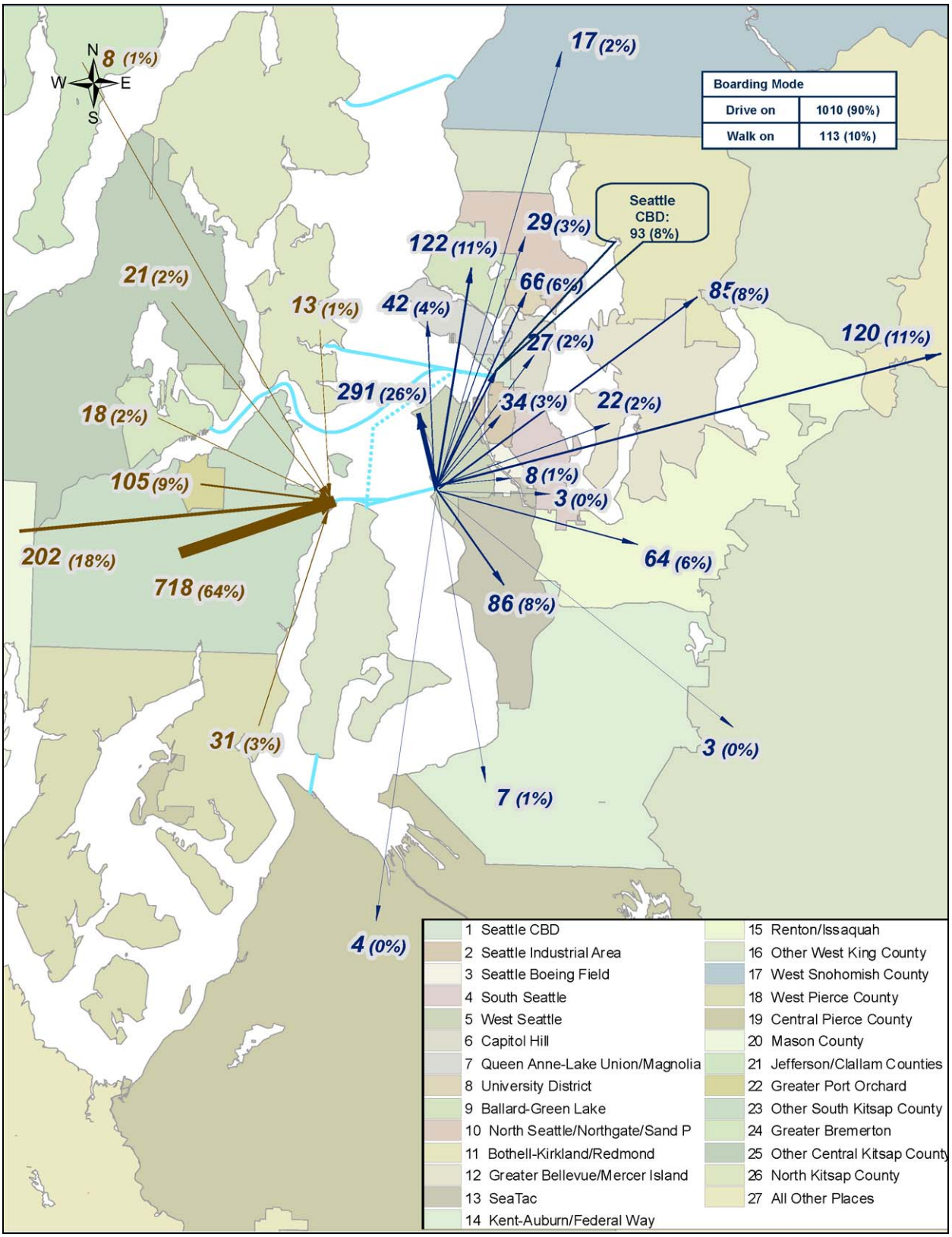
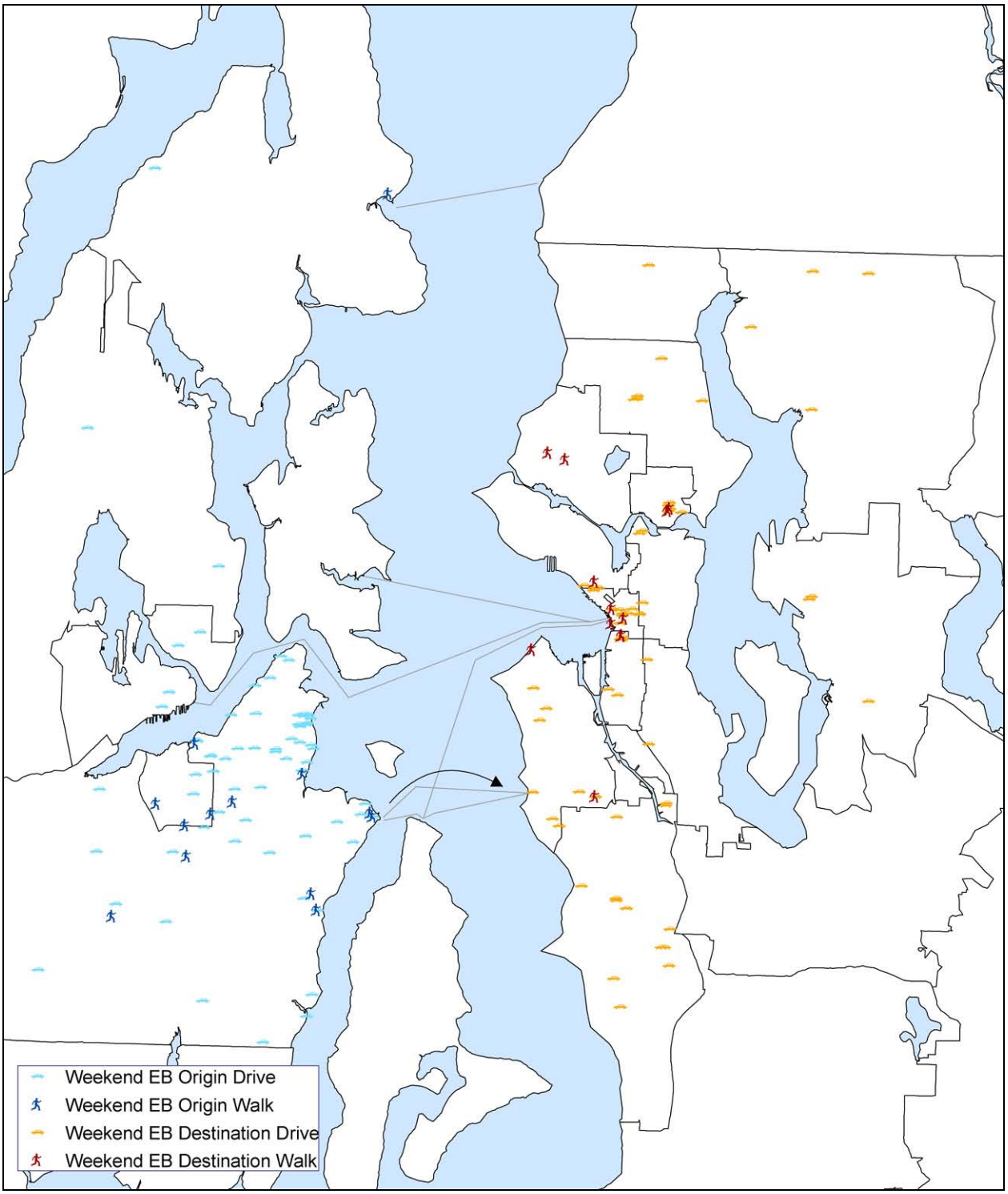


Table 8.32 Fauntleroy-Southworth Weekend Eastbound Boardings by Origin and Destination District

	Destination District										
Origin District	Seattle CBD	Seattle Industrial Area	Seattle Boeing Field	South Seattle	West Seattle	Capitol Hill	Queen Anne-Lake Union/ Magnolia	University District	Ballard-Green Lake	North Seattle/ Northgate/Sa nd Point	Bothell-Kirkland/ Redmond
West Pierce County	9	9	0	0	13	0	0	0	0	0	0
Mason County	0	0	0	0	103	12	9	9	0	0	60
Jefferson/Clallam Counties	0	0	0	0	4	0	0	0	0	4	0
Greater Port Orchard	17	2	0	0	11	4	3	0	0	0	4
Other South Kitsap County	67	23	8	0	123	11	30	41	122	25	21
Greater Bremerton	0	0	0	3	3	0	0	9	0	0	0
Other Central Kitsap County	0	0	0	0	14	0	0	7	0	0	0
North Kitsap County	0	0	0	0	13	0	0	0	0	0	0
Rest of the Area	0	0	0	0	7	0	0	0	0	0	0
Total	93	34	8	3	291	27	42	66	122	29	85
Percent of Total	8.3%	3.0%	0.7%	0.3%	25.9%	2.4%	3.7%	5.9%	10.9%	2.6%	7.6%

	Destination District (continued)									
	Greater Bellevue/Merce r Island	SeaTac	Kent-Auburn/ Federal Way	Renton/ Issaquah	Other West King County	West Snohomish County	Central Pierce County	Rest of the Area	Total	Percent of Total
West Pierce County	0	0	0	0	0	0	0	0	31	2.8%
Mason County	0	9	0	0	0	0	0	0	202	18.0%
Jefferson/Clallam Counties	0	0	0	0	0	0	0	0	8	0.7%
Greater Port Orchard	0	4	0	60	0	0	0	0	105	9.3%
Other South Kitsap County	22	70	7	4	3	17	4	120	718	63.9%
Greater Bremerton	0	3	0	0	0	0	0	0	18	1.6%
Other Central Kitsap County	0	0	0	0	0	0	0	0	21	1.9%
North Kitsap County	0	0	0	0	0	0	0	0	13	1.2%
Rest of the Area	0	0	0	0	0	0	0	0	7	0.6%
Total	22	86	7	64	3	17	4	120	1123	100%
Percent of Total	2.0%	7.7%	0.6%	5.7%	0.3%	1.5%	0.4%	10.7%	100%	

Figure 8.43 Fauntleroy-Southworth Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



8.3.11 Weekend Westbound Origins and Destinations

The weekend westbound trips (in Figure 8.44) also seem to be similar to the weekday westbound travel patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These origins and destinations are detailed by district in Table 8.33. The highest share of trips originate from West Seattle with 30 percent, followed by University District with 11 percent and Bothell-Kirkland/Redmond with 7 percent. The destinations are mainly South Kitsap County which represents 62 percent of all destinations, followed with Greater Port Orchard which represents 8 percent, and a variety of other districts.

The weekend westbound trips are a direct transpose of the weekend eastbound trips where the main origin and destination are West Seattle and Other South Kitsap County in both 1999 and 2006 surveys.

The origins and destinations of survey respondents are presented in Figure 8.45 by boarding mode.

Figure 8.44 Fauntleroy-Southworth Weekend Westbound Origins and Destinations (2006)

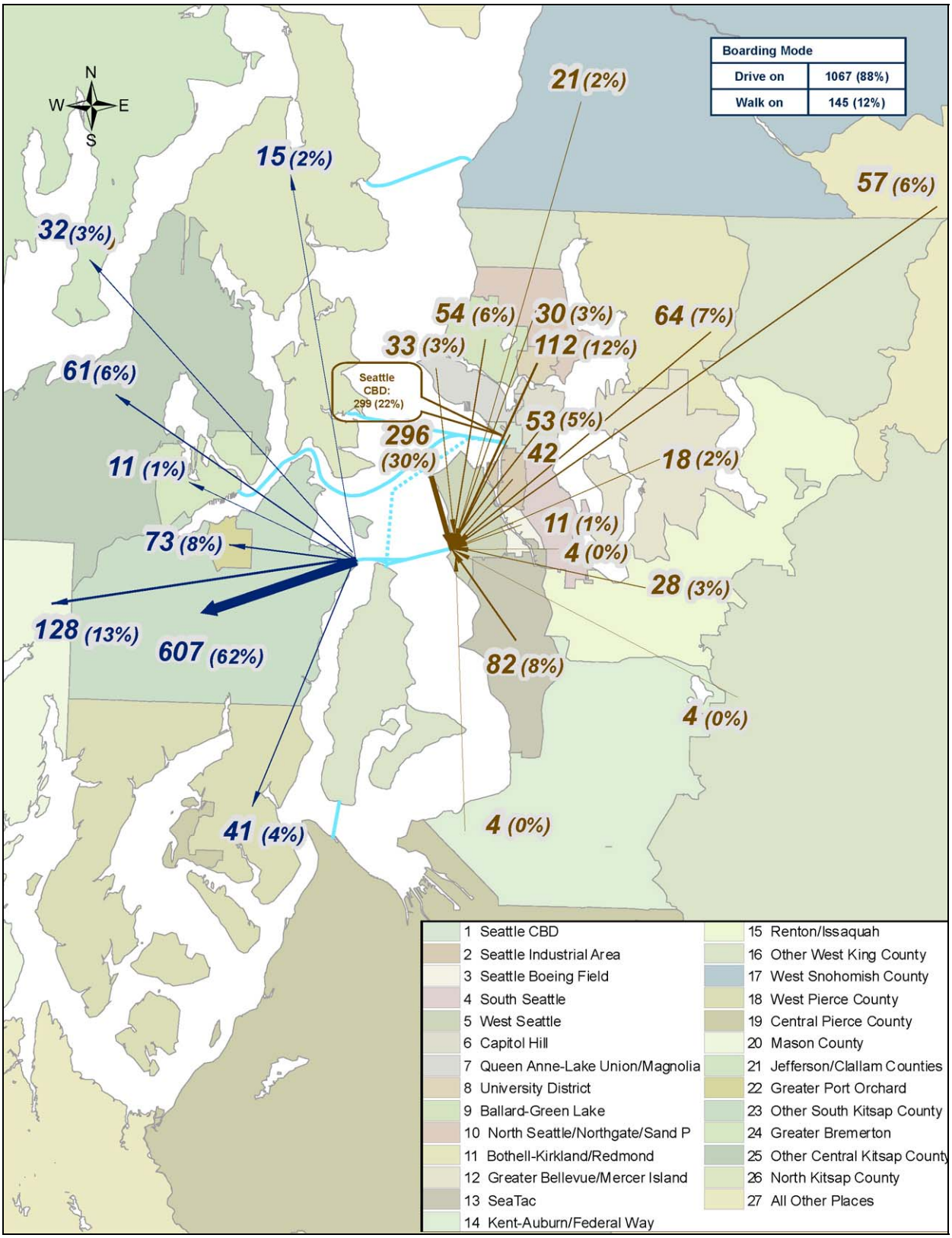
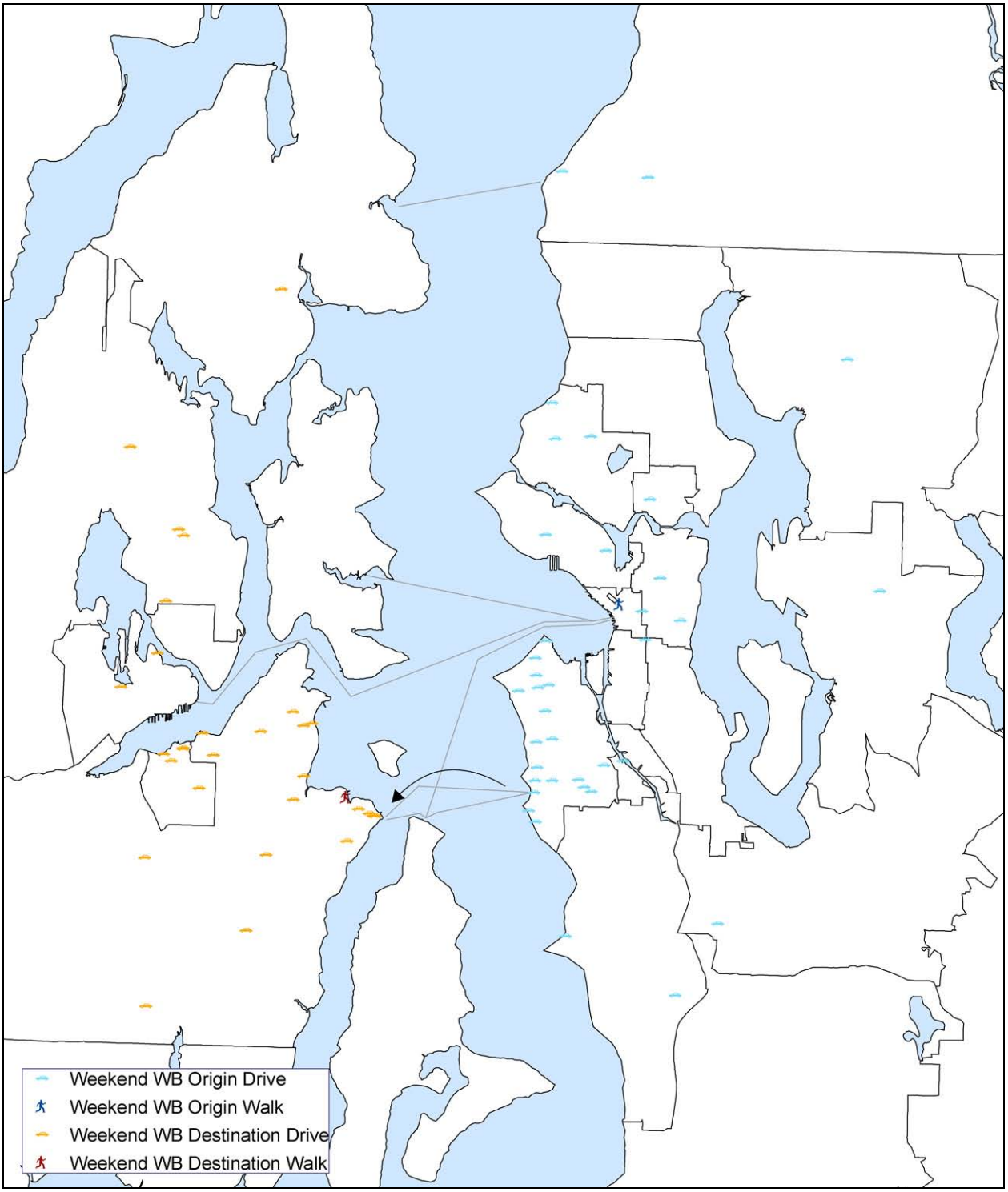


Table 8.33 Fauntleroy-Southworth Weekend Westbound Boardings by Origin and Destination District

	Destination District										
Origin District	West Pierce County	Mason County	Jefferson/Clallam Counties	Greater Port Orchard	Other South Kitsap County	Greater Bremerton	Other Central Kitsap County	North Kitsap County	Rest of the Area	Total	Percent of Total
Seattle CBD	15	0	0	11	36	0	0	0	0	62	6.4%
Seattle Industrial Area	7	0	0	5	30	0	0	0	0	42	4.3%
Seattle Boeing Field	0	0	0	0	11	0	0	0	0	11	1.1%
South Seattle	0	0	0	0	0	4	0	0	0	4	0.4%
West Seattle	19	68	28	7	88	7	57	15	7	296	30.4%
Capitol Hill	0	7	0	7	39	0	0	0	0	53	5.4%
Queen Anne-Lake Union/Magnolia	0	18	0	4	11	0	0	0	0	33	3.4%
University District	0	7	0	0	101	0	4	0	0	112	11.5%
Ballard-Green Lake	0	0	4	0	50	0	0	0	0	54	5.5%
North Seattle/Northgate/Sand Point	0	0	0	0	30	0	0	0	0	30	3.1%
Bothell-Kirkland/Redmond	0	21	0	7	36	0	0	0	0	64	6.6%
Greater Bellevue/Mercer Island	0	0	0	4	14	0	0	0	0	18	1.8%
SeaTac	0	7	0	7	68	0	0	0	0	82	8.4%
Kent-Auburn/Federal Way	0	0	0	0	4	0	0	0	0	4	0.4%
Renton/Issaquah	0	0	0	21	7	0	0	0	0	28	2.9%
Other West King County	0	0	0	0	4	0	0	0	0	4	0.4%
West Snohomish County	0	0	0	0	21	0	0	0	0	21	2.2%
Rest of the Area	0	0	0	0	57	0	0	0	0	57	5.8%
Total	41	128	32	73	607	11	61	15	7	975	100%
Percent of Total	4.2%	13.1%	3.3%	7.5%	62.3%	1.1%	6.3%	1.5%	0.7%	100%	

Figure 8.45 Fauntleroy-Southworth Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)



8.4 SOUTHWORTH-VASHON

8.4.1 Route Description

This ferry route connects Southworth and the northern tip of Vashon Island, located south of Seattle and crossing the Puget Sound just below Fauntleroy-Southworth ferry line. It takes just 10 minutes to ride this ferry route one-way. The crossing is approximately 1.6 nautical miles. It runs seven days a week. For 2006, the annual total ridership was about 70 thousand passengers plus 120 thousand vehicles and drivers for a total of 190 thousand people, or about 500 riders per day. This compares to 900 riders per day in 1999 and 700 riders per day in 1993. The 1999 year was a peak year for systemwide ridership and this route follows this trend. One reason for the drop in ridership is the fact that the K2 company moved their operation off Vashon Island between 1999 and 2006.

The Southworth-Vashon route has 22 weekday sailings per day each direction, down from 24 sailings per day in 1999. The vehicle capacity has remained unchanged over time at 59 vehicles per boat. The vessels used on this boat were Steel Electric class. The fare is $14.40 for vehicles and $4.20 for passengers in 2006. In 1999, vehicle fares on this route were $10.91 and passenger fares were $3.03 (in 2006 constant dollars) representing a 32 percent increase in vehicle fares and a 39 percent increase in passenger fares.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

8.4.2 Trips by Purpose

The trip purposes of ferry riders on the Southworth-Vashon route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 8.34 shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are eastbound and westbound as all of the ferry routes are considered as east-west routes.

There is a reasonably even split between eastbound and westbound travelers for all purposes in the 2006 study, but there are some differences by trip purpose worth mentioning. There slightly more eastbound work/school trips and medical/personal/business trips. Conversely, there are slightly more westbound shopping/recreation/leisure trips. Over the weekends for 2006, travel direction is less well balanced between eastbound and westbound.

Table 8.34 Southworth-Vashon Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
Eastbound	157	46	46	249	50.1%	11.8%	10.6%
Westbound	244	4	0	248	49.9%	88.2%	89.4%
Total	401	50	46	497	100%	100%	100%
Percent 2006	80.7%	10.1%	9.3%	100%			
Percent 1999	88.2%	5.9%	5.9%	100%			
Percent 1993	95.6%	1.1%	3.3%	100%			

Note: 1999 and 1993 survey records were not rebalanced by direction.

2006 Weekday Trips: 520 Missing: 0

2006 Weekend Trips: 552 Missing: 0

There has been a slight decrease in the share of weekday commuter trips on this route over the 1993 and 2006 period, and a relative increase in the share of both personal business and recreational trips. The rising costs of ferry travel have not resulted in a lager share of travel along this route for commuting purposes as observed on other routes.

The 1993 and 1999 survey trips vary by direction largely because of differences in expansion of the survey rather than any real differences in travel behavior. We calculated the p.m. period half-day percent westbound during the weekday at 51 percent. This represents a significant increase over the 1993 surveys in which only 29% were westbound and 1999 surveys in which 37 percent were westbound.

Table 8.35 shows the distribution of trips across different time periods and by direction of travel. The a.m. peak period defined as 5:00 a.m. to 9:00 a.m. has the highest share of weekday trips (38 percent) because of the morning commute, as well as non-work trip purposes such as personal business, shopping and recreation. The p.m. peak period defined as 3:00 p.m. to 7:00 p.m. has the second largest share of riders, representing 21 percent of weekday trips.

Table 8.35 Southworth-Vashon Trips by Time-of-Day and Direction [a]
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	A.M. Peak (5:00 a.m.-9:00 a.m.)	A.M. Off-Peak (9:00 a.m.-12:00 p.m.)	P.M. Off-Peak (12:00 p.m.-3:00 p.m.)	P.M. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Trips 2006	All Trips 1999	All Trips 1993
Weekday									
Eastbound	39	112	33	44	46	273	53%	63.0%	71.1%
Westbound	39	86	44	15	63	247	47%	37.0%	28.9%
Total	78	198	77	58	109	520	100%	100%	100%
Percent 2006	0.0%	8.4%	0.0%	0.0%	91.6%	100%			

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction. The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 520 Missing: 0

2006 Weekend Trips: 552 Missing: 0

8.4.3 Frequency of Travel

The total number of ferry rips and purpose in 2006 are shown in Table 8.36. For comparison, trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Table 8.36 Southworth-Vashon Trips by Purpose and Frequency[32]

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/School	Personal Business/ Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	1	0	0	1	0.2%	2.0%	0.9%	0.3%	1.4%
2	2	0	0	2	0.5%	4.5%	3.6%	0.6%	0.6%
3-4	6	1	46	53	11.9%	4.7%	5.0%	1.7%	1.4%
5-6	81	47	0	128	28.8%	9.2%	10.0%	23.3%	9.9%
7-8	19	0	0	19	4.3%	10.5%	7.2%	5.5%	10.4%
9-10	161	1	0	162	36.5%	34.7%	73.3%	46.3%	38.6%
11+	78	1	0	79	17.8%	34.4%		22.4%	37.7%
Total	348	50	46	444	100%	100%	100%	100%	100%
Percent 2006	78.4%	11.3%	10.4%	100%					
Percent 1999	88.2%	5.9%	5.9%	100%					
Percent 1993	95.6%	1.1%	3.3%	100%					

2006 Weekday Trips: 520 Missing: 47

2006 Weekend Trips: 552 Missing: 7

[32] The total percentage distribution across purposes is different in Table 8.6 than in Table 8.8 because of the many missing trips in Table 8.8 that did not have detailed trip frequency information.

It is evident that travelers used the ferry largely for school or work, which represent 81 percent of travel. The majority of commuting riders use this ferry on a regular basis, as revealed by the fact that 65 percent of these riders (251 out of 385) use the ferry 9 or more weekdays in a typical week. Trip frequencies for recreational purposes are lower for commuter trips, as expected. In fact none of the travelers who are using this ferry for personal business/other-related activities or for recreation/shopping/leisure use the ferry every day. In total, 53 percent of riders use the Southworth-Vashon ferry on a daily basis during a typical week and 18 percent make only one or two one way trips in a typical week.

Table 8.36 also compares trip frequencies for 1993 and 1999. In 1993, 45 percent of riders surveyed use this ferry nine or more times in a typical week. In 1999 this share was 56 percent, and in 2006 it was up to 53 percent.

Table 8.37 provides the time-of-day distribution of trips along this route by trip purpose. A majority of the trips occur during the AM peak period, that is, about 40 percent of trips, while about 22 percent of trips happen during the PM peak period. A vast majority of the work trips (42 percent) occur during the AM peak period while most of the personal business trips happen during the PM off-peak period (62 percent).

Table 8.37 Southworth-Vashon Trips by Purpose and Time-of-Day

Purpose: What is/are the reason(s) you are riding the ferry today?

Direction	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	Daily	Work/ School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	60	0	0	60	14.9%	0.0%	0.0%	12.1%
A.M. Peak (5 a.m.-9 a.m.)	169	6	23	198	41.8%	17.6%	39.0%	39.8%
A.M. Off-Peak (9 a.m.-12 p.m.)	56	0	17	73	13.9%	0.0%	28.8%	14.7%
P.M. Off-Peak (12 p.m.-3 p.m.)	30	21	7	58	7.4%	61.8%	11.9%	11.7%
P.M. Peak (3 p.m.-7 p.m.)	89	7	12	108	22.0%	20.6%	20.3%	21.7%
Total	404	34	59	497	100%	100%	100%	100%
Percent 2006	81.3%	6.8%	11.9%	100%				
Percent 1999	81.9%	7.3%	10.8%	100%				
Percent 1993	89.7%	5.1%	5.1%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

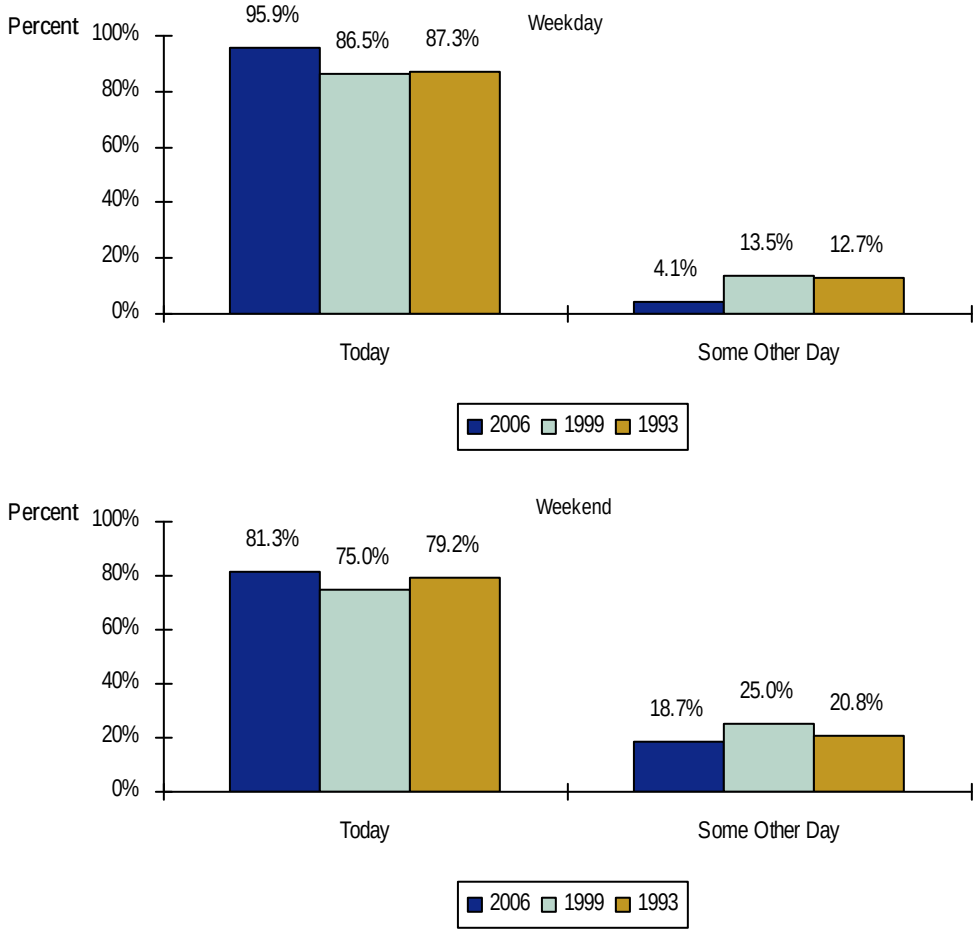
2006 Weekday Trips: 520Missing: 0

2006 Weekend Trips: 552 Missing: 0

8.4.4 Round-Trip Patterns

As the 2006 surveys were conducted only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 8.46 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled their onward and backward journeys on the same day, that is 96 percent of 520 passengers. On weekends a somewhat lower share—81 percent use this route on the same day for their round trips.

Figure 8.46 Southworth-Vashon Round Trip Patterns by Day
When was the first half of your trip or when will you return?



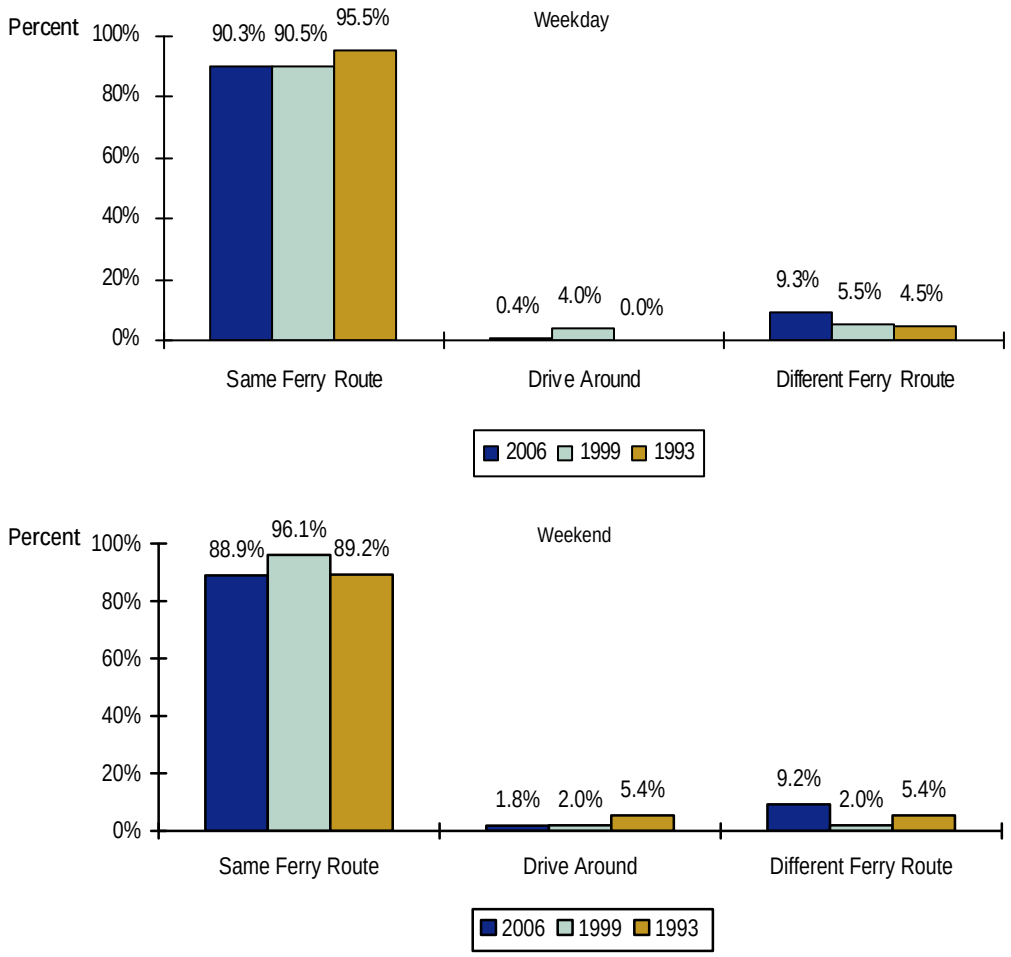
2006 Weekday Trips: 520 Missing: 6
2006 Weekend Trips: 552 Missing: 0

Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on the same day in 2006, 96 percent, is higher than the results in 1993 and 1999, both of which were 87 percent. During the weekends in 2006, 81 percent of trips are made on the same day, compared to 79 percent in 1993 and 75 percent in 1999.

For riders who made one-half of their trip on this route, Figure 8.47 shows the mode of travel for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. Most of the boardings are associated with trips in which the traveler will return to their home base on the same ferry. In 2006, 90 percent said they would return on the same ferry route. In 1993, 96 percent did so and in 1999 that share is 91 percent.

On the weekend, 89 percent of passengers in the 2006 study reported that they will return on the same ferry route, compared with 96 percent in 1993 and 89 percent in 1993. In 2006, the majority of passengers who did not return on the same ferry instead took a different ferry route for the rest of their journey.

Figure 8.47 Southworth-Vashon Round Trip Patterns by Route
How will you return or how did you travel on the first half of your trip?



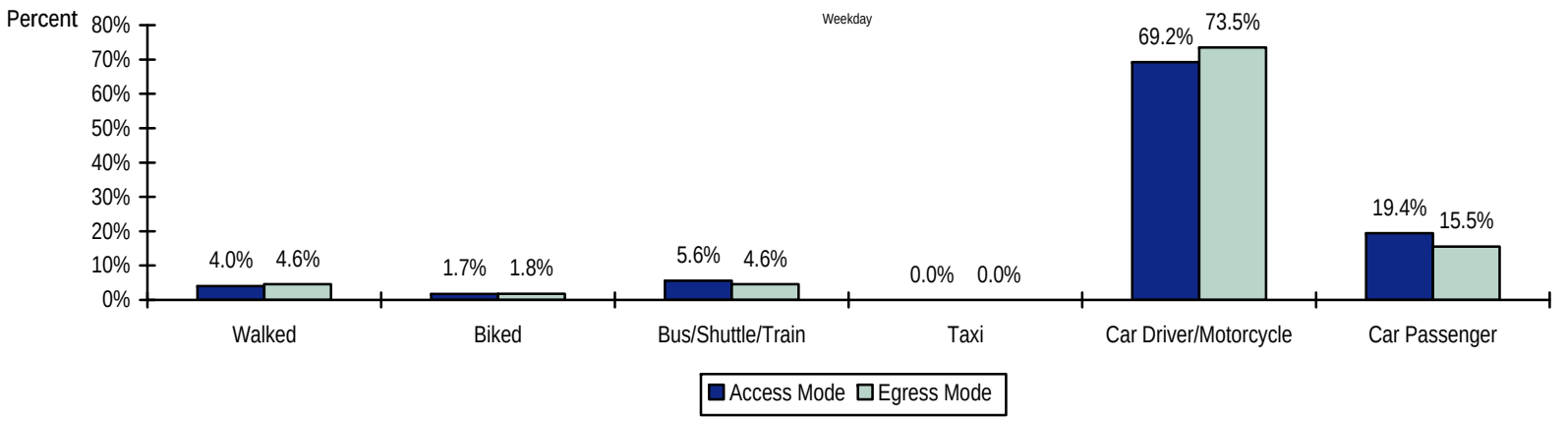
2006 Weekday Trips: 520 Missing: 5
2006 Weekend Trips: 552 Missing: 0

8.4.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 8.48 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Figure 8.48 Southworth-Vashon Trips by Access and Egress Mode

How did you travel from your origin location to this sailing? How did you travel to the destination you are going to now?



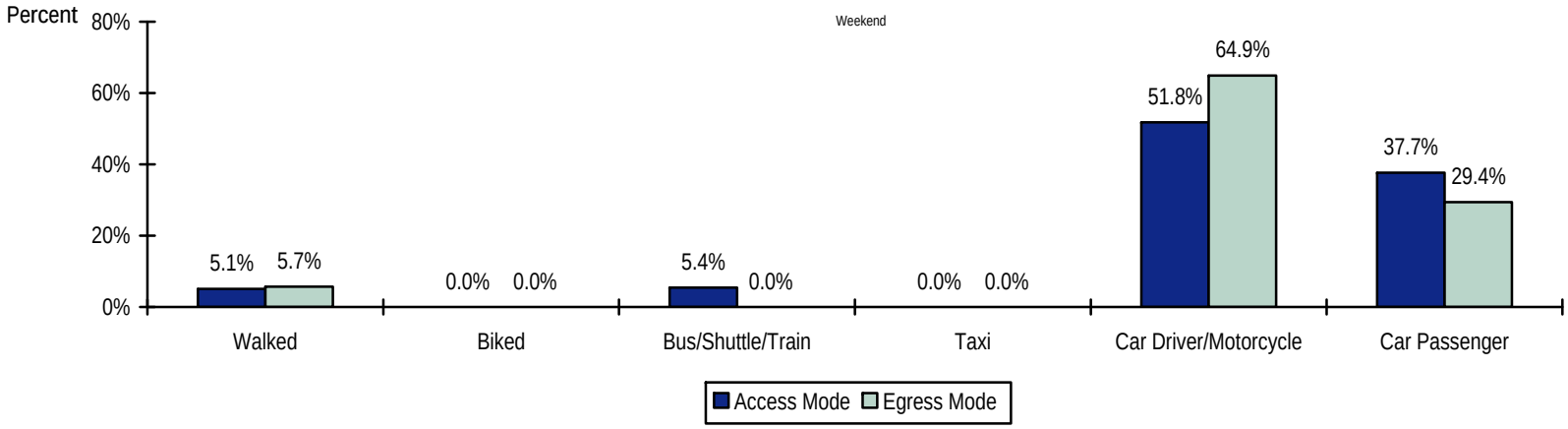


Table 8.38 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, 69 percent of the ferry passengers drove to the terminal and an additional 19 percent were driven. An additional 6 percent took public transit, 4 percent walked and 2 percent biked.

Table 8.38 Southworth-Vashon Trips by Access Mode and Boarding Method

How will/did you board this ferry?
How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	5	16	0	21	1.2%	15.0%	0.0%
Biked	0	0	9	9	0.0%	0.0%	100.0%
Bus/Shuttle/Train	0	29	0	29	0.0%	27.1%	0.0%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	329	31	0	360	81.4%	29.0%	0.0%
Car Passenger	70	31	0	101	17.3%	29.0%	0.0%
Total	404	107	9	520	100%	100%	100%
All Frequencies 2006	77.7%	20.6%	1.7%	100%			
All Frequencies 1999	67.7%	31.2%	1.2%	100%			
All Frequencies 1993	50.6%	48.2%	1.2%	100%			
Weekend							
Walked	0	28	0	28	0.0%	24.8%	0.0%
Biked	0	0	0	0	0.0%	0.0%	0.0%
Bus/Shuttle/Train	0	30	0	30	0.0%	26.5%	0.0%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	261	25	0	286	59.5%	22.1%	0.0%
Car Passenger	178	30	0	208	40.5%	26.5%	0.0%
Total	439	113	0	552	100%	100%	100%
All Frequencies 2006	79.5%	20.5%	0.0%	100%			
All Frequencies 1999	85.7%	13.1%	1.2%	100%			
All Frequencies 1993	95.8%	4.2%	0.0%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 520 Missing: 0

2006 Weekend Trips: 552 Missing: 0

The number of boardings by drive mode was 78 percent in 2006. This is somewhat higher than in 1999 when this share was 67 percent, and is above the 1993 estimate of 51 percent. The share of ferry passengers who walked on board was 21 percent in 2006, compared with 31 percent in 1999 and 48 percent in 1993. The number of riders who boarded with a bicycle has remained under 2 percent over the 1993 to 2006 period.

During 2006 weekends, the majority of passengers drove on board (80 percent), followed by 20 percent who walked, and none who boarded with a bicycle. In earlier years somewhat more of the ferry passengers boarded with their vehicle on weekends. In 1993, 96 percent boarded with their car; in 1996, 86 percent did so.

Table 8.39 shows the mode of travel on this route and the corresponding egress modes to the ferry terminal The egress boarding mode was similarly skewed toward ferry passengers who boarded with a vehicle. On weekdays, 78 percent of passengers boarded with their vehicle, followed by 20 percent who walked on board and 2 percent who boarded with a bicycle. The share boarding with their vehicle has increased from 51 percent in 1993, to 68 percent in 1999, and to 78 percent in 2006. The share walking on board has increased from 4 percent in 1993 to 13 percent in 1999, to 21 percent in 2006. The share boarding with a bicycle has remained at 1 percent or below.

The vast majority of weekday passengers either drove or were driven to their final destinations. In 2006, 73 percent drove and an additional 16 percent were driven to their final destination. In 1993, 84 percent either drove or were driven to their final destination and in 1999 this was 90 percent.

In 2006 weekends, the majority of ferry passengers either drive to their final destination (65 percent) or were driven (29 percent). In total 94 percent of passengers in 2006 used a vehicle to reach their final destination, and the remaining 6 percent walked. In the 1993 and 1996 surveys all of the passengers surveyed used a vehicle (either drove or were driven) to their final destinations.

Table 8.39 Southworth-Vashon Trips by Egress Mode and Boarding Method
How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	0	23	0	23	4.6%	2.2%	2.5%
Biked	0	0	9	9	1.8%	0.0%	1.2%
Bus/Shuttle/ Train	0	23	0	23	4.6%	8.1%	12.3%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	353	16	0	369	73.5%	54.9%	64.2%
Car Passenger	40	38	0	78	15.5%	34.8%	19.8%
Total	393	100	9	502	100%	100%	100%
Percent 2006	78.3%	19.9%	1.8%	100%			
Percent 1999	67.7%	31.2%	1.2%	100%			
Percent 1993	50.6%	48.2%	1.2%	100%			
Weekend							
Walked	0	30	0	30	5.7%	0.0%	0.0%
Biked	0	0	0	0	0.0%	0.0%	0.0%
Bus/Shuttle/ Train	0	0	0	0	0.0%	0.0%	0.0%
Taxi	0	0	0	0	0.0%	0%	0.0%
Car Driver/ Motorcycle	297	45	0	342	64.9%	85.5%	70.8%
Car Passenger	117	38	0	155	29.4%	14.5%	29.2%
Total	414	113	0	527	100%	100%	100%
Percent 2006	78.6%	21.4%	0.0%	100%			
Percent 1999	85.7%	13.1%	1.2%	100%			
Percent 1993	95.8%	4.2%	0.0%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 520 Missing: 18

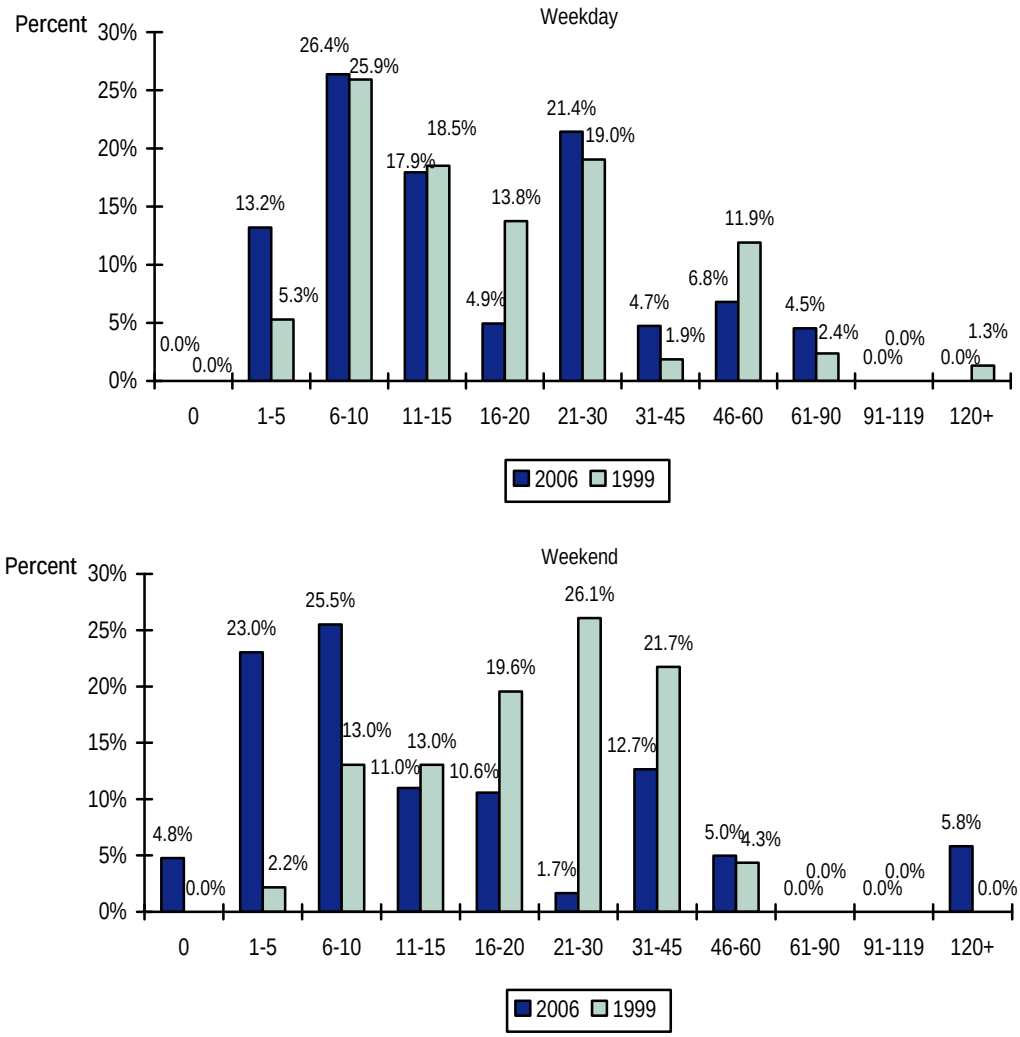
2006 Weekend Trips: 552 Missing: 25

8.4.6 Wait Time

The out of vehicle travel times were measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 8.49 shows the frequency distribution of perceived wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, 84 percent of

ferry passengers waited less than 30 minutes. This is similar to results in the 1999 survey in which 84 percent of passengers waited this amount of time. In 2006 weekends, 75 percent of the ferry passengers waited less than 30 minutes, compared with 48 percent in the 1999 survey who waited 30 minutes or less. Average perceived wait time was 24 minutes for weekday and 27 minutes for weekend riders.

Figure 8.49 Southworth-Vashon Trips by Wait Time
About how many minutes did you wait to board this ferry?

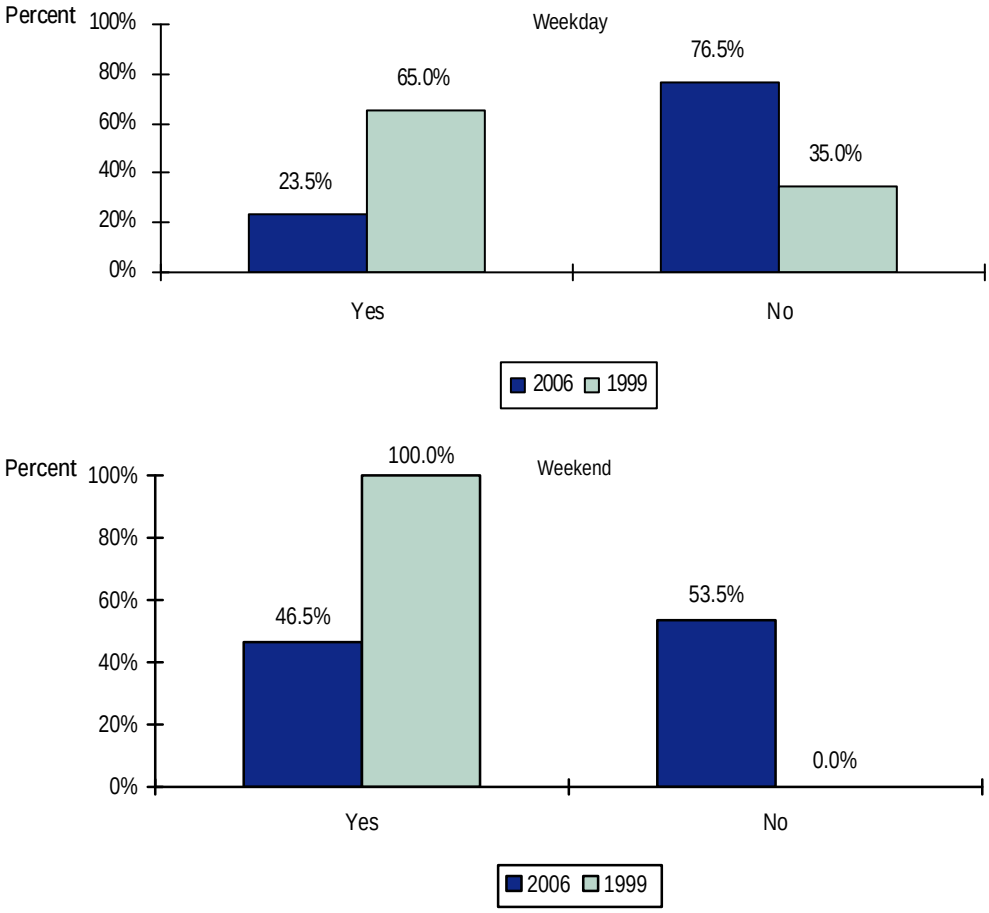


8.4.7 Parking

The parking statistics of walk-on passengers on this route were also examined. Primarily, these data summarize whether commuters parked their vehicles at the

ferry terminal and how much was paid for parking. Figure 8.50 presents the number of boardings by the response on parking from the respondent. In 1996, 24 percent of the weekday ferry passengers parked their vehicles. In the 1999 survey this share was considerably higher, with 65 percent of weekday ferry passengers who reported parking. On weekends in the 2006 survey, passengers were found to be considerably more likely to have parked. Indeed, 47 percent reported that they parked, compared with 100 percent of the ferry passengers in the 1999 survey who reported that they parked. These differences could be attributed to the lower traffic over weekends and different rates and availability of parking. The average parking cost was $6 per day on weekdays and $4 per day on weekends for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking).

Figure 8.50 Southworth-Vashon Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?



8.4.8 Weekday Eastbound Origins and Destinations

Figure 8.51 shows weekday eastbound trips and the origins and destinations of riders on this route between Southworth to Vashon in 2006. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 8.40. The major destinations are North Vashon Island which represent 51 percent of a destinations and South Vashon Island which represents 33 percent. The origins of these trips are predominantly South Kitsap County which represents 51 percent, Greater Bremerton which represents 16 percent, and Greater Port Orchard which also represents 15 percent of the origins.

The major origin in 2006 is Other South Kitsap County (51 percent) while it is North/Other Central Kitsap County in 1999 (30 percent). The major destinations are North and South Vashon Island (51 and 33 percent respectively) in 2006. In 1999, the major destinations are the same North and South Vashon Island but the percentages are different (78 and 23 percent respectively).

The origins and destinations of survey respondents are presented in Figure 8.52 by boarding mode.

Figure 8.51 Southworth-Vashon Weekday Eastbound Origins and Destinations (2006)

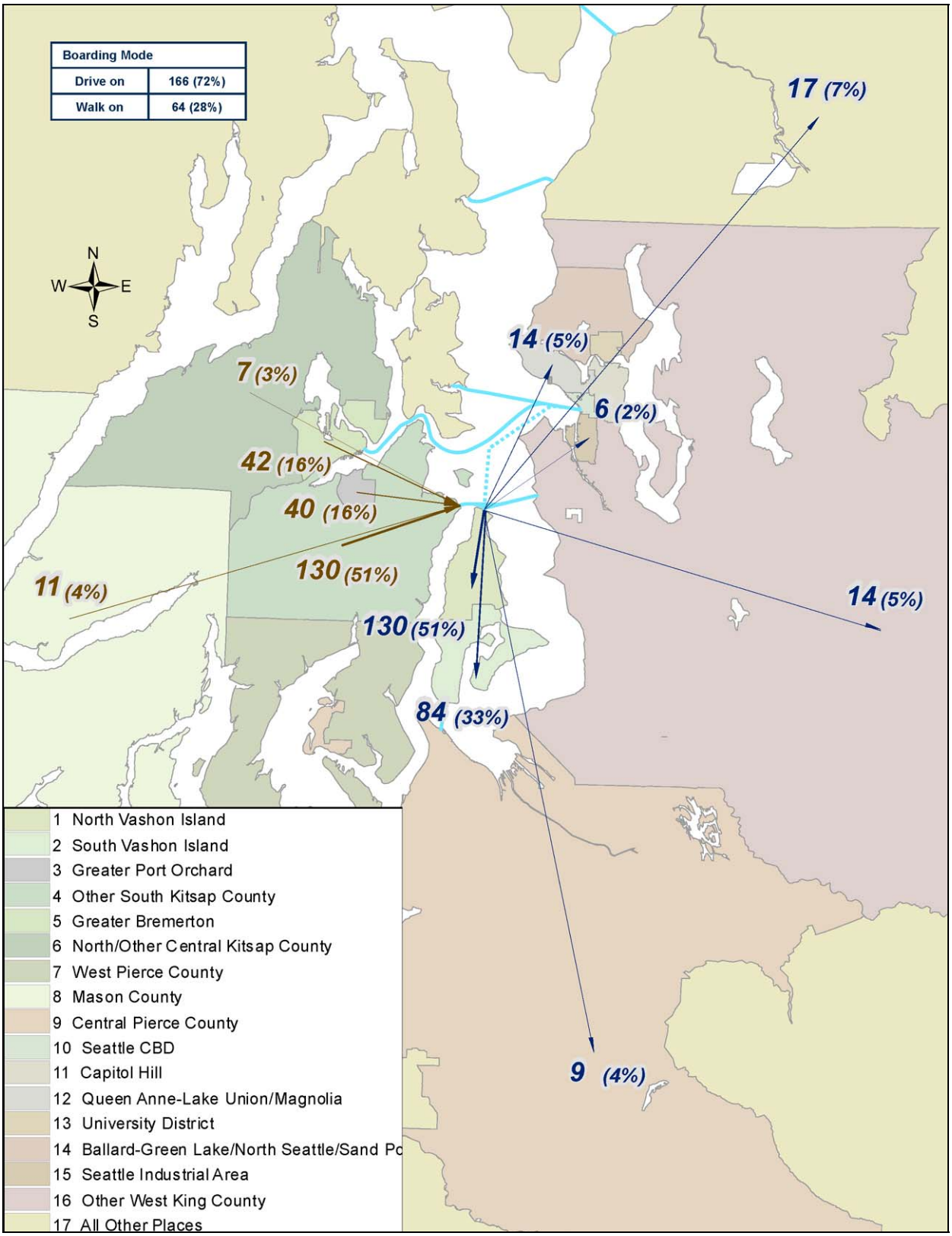
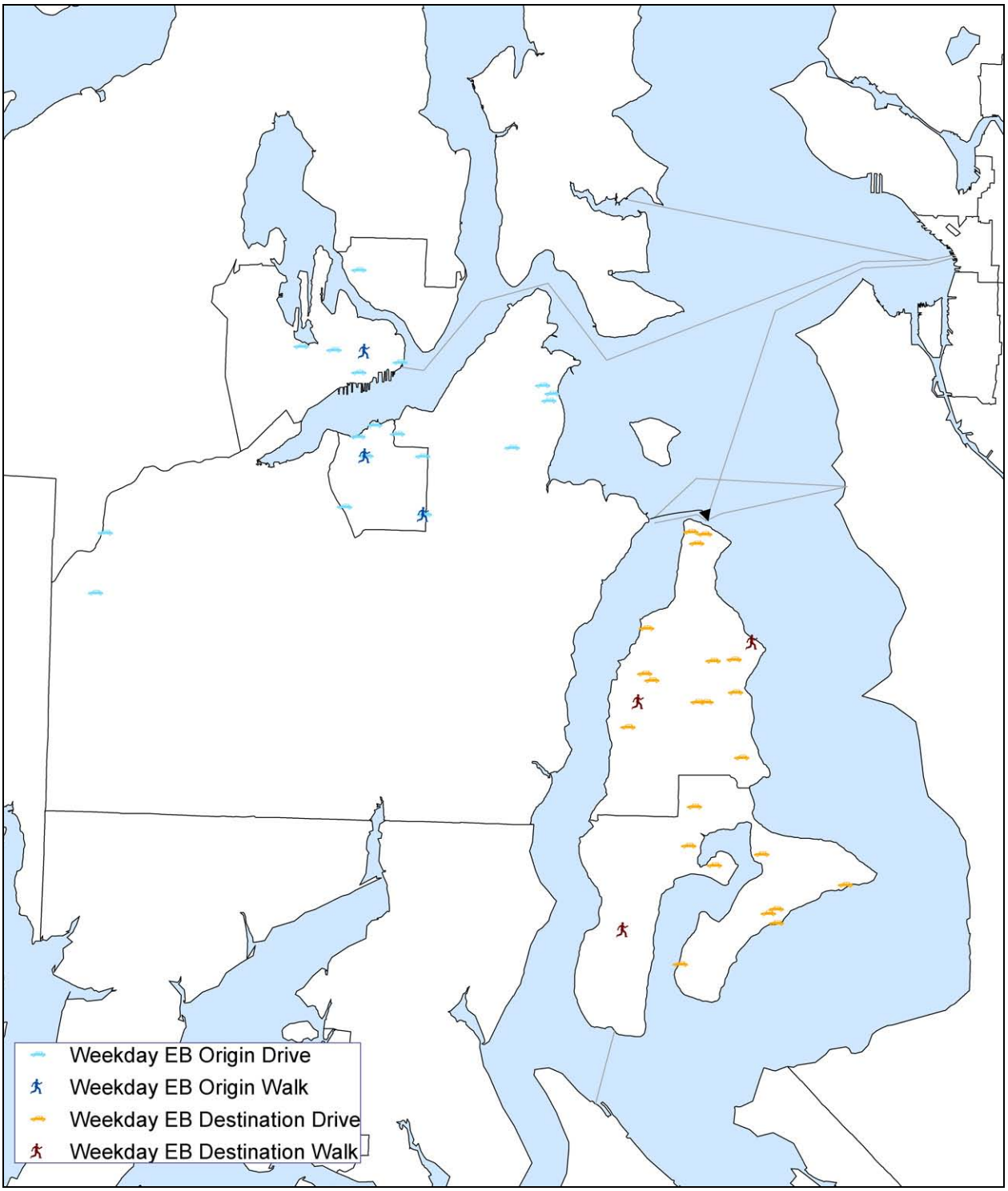


Table 8.40 Southworth-Vashon Weekday Eastbound Boardings by Origin and Destination District

	Destination District							
Origin District	North Vashon Island	South Vashon Island	Central Pierce County	Queen Anne-Lake Union/Magnolia	Seattle Industrial Area	Other West King County	Total	Percent of Total
North Vashon Island	0	0	9	1	0	0	10	3.9%
South Vashon Island	0	0	0	0	0	0	0	0.0%
Greater Port Orchard	32	8	0	0	0	0	40	15.6%
Other South Kitsap County	74	37	0	13	6	0	130	50.6%
Greater Bremerton	4	25	0	0	0	13	42	16.3%
North/Other Central Kitsap County	4	3	0	0	0	0	7	2.7%
Mason County	8	3	0	0	0	0	11	4.3%
Rest of the Area	8	8	0	0	0	1	17	6.6%
Total	130	84	9	14	6	14	257	100%
Percent of Total	50.6%	32.7%	3.5%	5.4%	2.3%	5.4%	100%	

Figure 8.52 Southworth-Vashon Weekday Eastbound Origins and Destination Locations by Boarding Mode (2006)



8.4.9 Weekday Westbound Origins and Destinations

Figure 8.53 for weekday westbound trips presents the travel patterns of riders taking the Southworth-Vashon ferry. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 8.41. The destinations of these trips were predominantly South Kitsap County which represented 40 percent, Greater Bremerton which represents 18 percent, and Greater Port Orchard which represents 15 percent of destinations. The origins of these trips were mainly North Vashon Island which represented 44 percent of all origins, followed by South Vashon Island which represented 24 percent, and a variety of other districts.

Similar O-D patterns are observed in both 1999 and 2006, that is the major origins and destinations are North Vashon Island and Other South Kitsap County respectively. However the relative differences are quite different where about 74 percent of trips are originating from North Vashon in 1999, only 44 percent are originating from here in 2006. Similarly there is a decline in the number of trips going to Other South Kitsap county from 47 percent in 1999 to about 40 percent in 2006.

The origins and destinations of survey respondents are presented in Figure 8.54 by boarding mode.

Figure 8.53 Southworth-Vashon Weekday Westbound Origins and Destinations (2006)

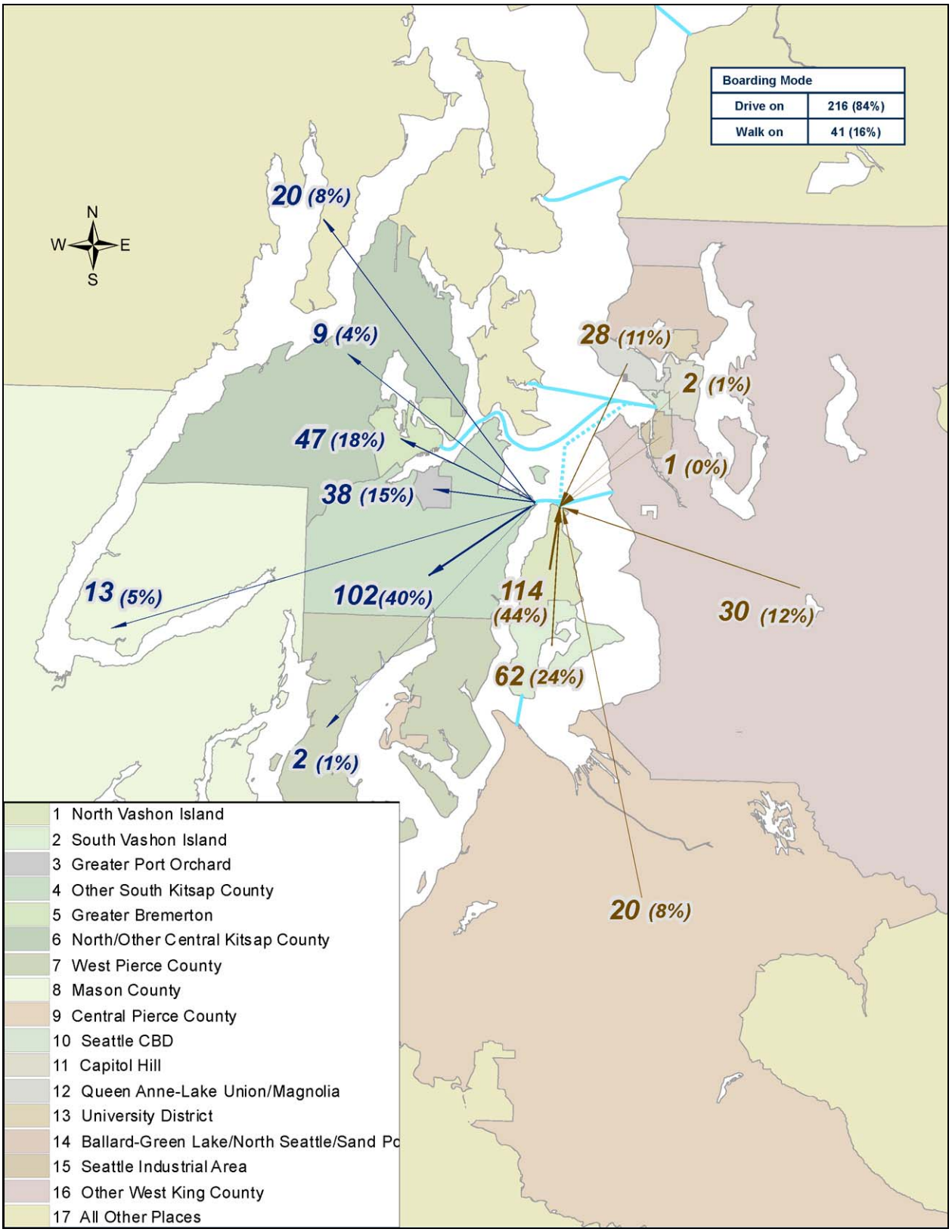
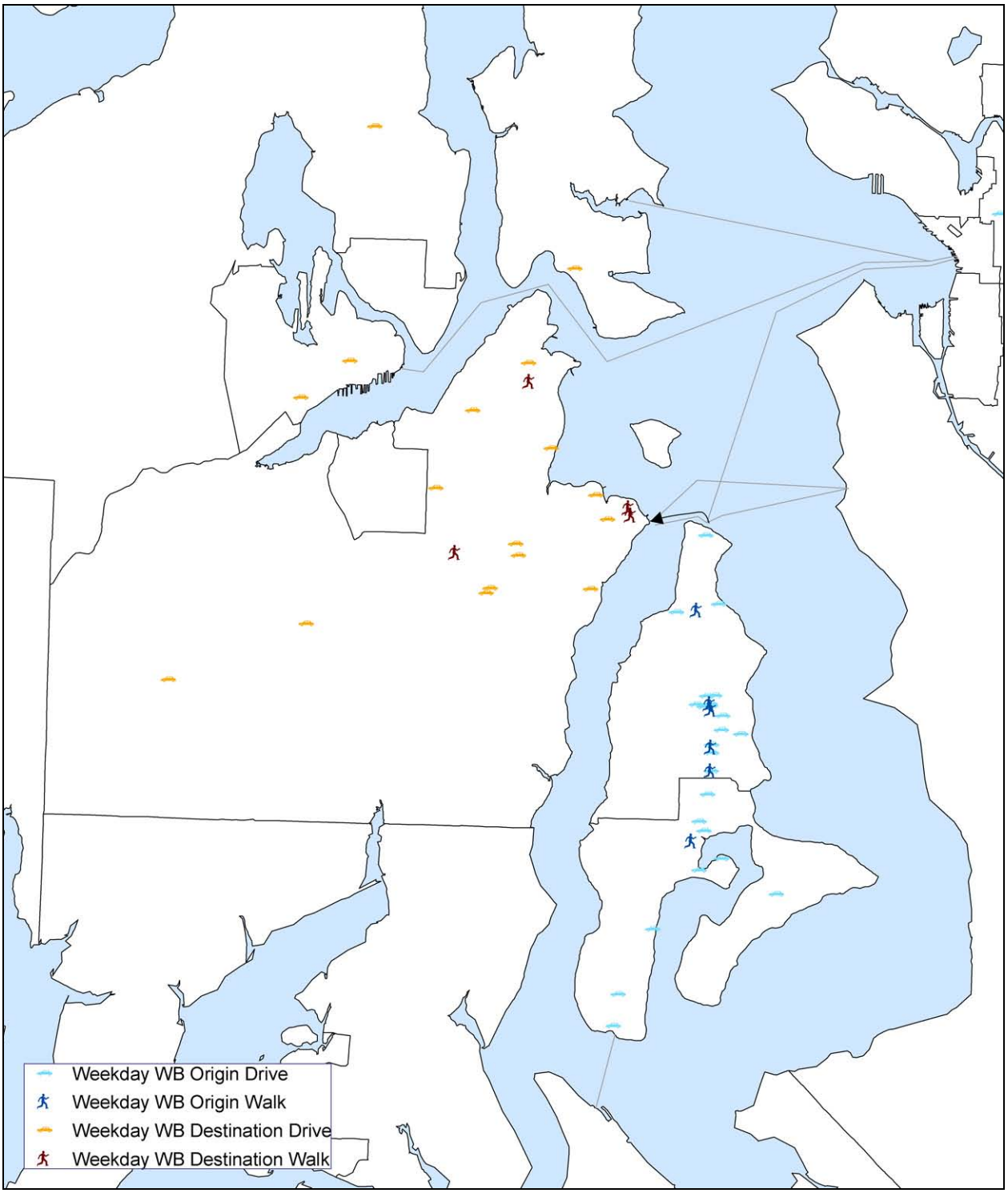


Table 8.41 Southworth-Vashon Weekday Westbound Boardings by Origin and Destination District

	Destination District										
Origin District	North Vashon Island	South Vashon Island	Greater Port Orchard	Other South Kitsap County	Greater Bremerton	North/Other Central Kitsap County	West Pierce County	Mason County	Rest of the Area	Total	Percent of Total
North Vashon Island	0	0	31	57	5	5	0	11	5	114	44.4%
South Vashon Island	0	0	7	22	20	2	2	2	7	62	24.1%
Central Pierce County	20	0	0	0	0	0	0	0	0	20	7.8%
Capitol Hill	0	0	0	0	0	2	0	0	0	2	0.8%
Queen Anne-Lake Union/Magnolia	6	0	0	22	0	0	0	0	0	28	10.9%
Seattle Industrial Area	0	0	0	1	0	0	0	0	0	1	0.4%
Other West King County	0	0	0	0	22	0	0	0	8	30	11.7%
Total	26	0	38	102	47	9	2	13	20	257	100%
Percent of Total	10.1%	0.0%	14.8%	39.7%	18.3%	3.5%	0.8%	5.1%	7.8%	100%	

Figure 8.54 Southworth-Vashon Weekday Westbound Origins and Destination Locations by Boarding Mode (2006)



8.4.10 Weekend Eastbound Origins and Destinations

The eastbound weekend travel patterns to are similar to that of the weekday patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These are presented in Figure 8.55. These origins and destinations are detailed by district in Table 8.42. The destinations of these trips are mainly North Vashon Island which represents 58 percent and South Vashon Island with 36 percent. The origins are mainly South Kitsap County with 32 percent and West Pierce County with 11 percent.

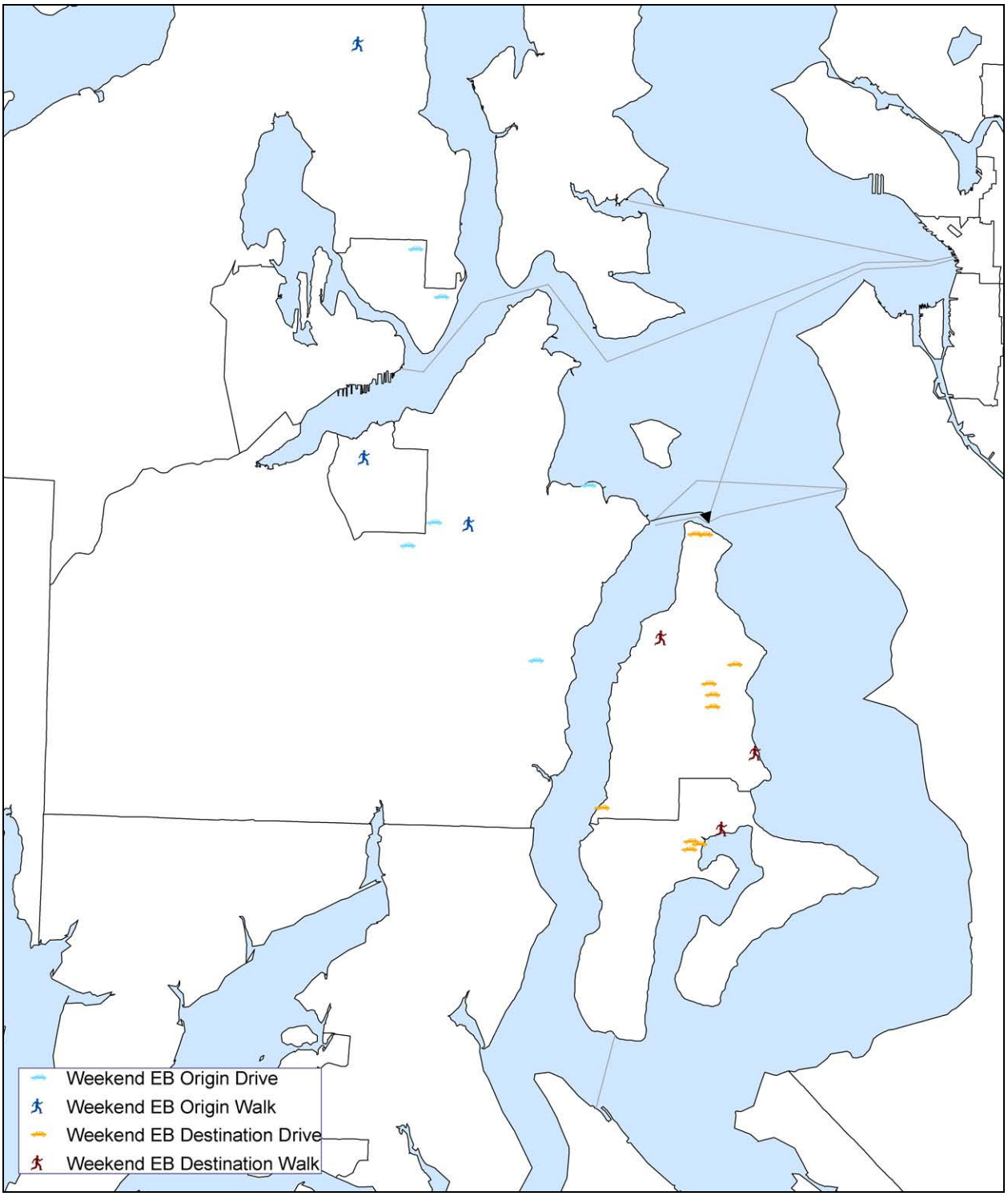
The origins and destinations of survey respondents are presented in Figure 8.56 by boarding mode.

Figure 8.55 Southworth-Vashon Weekend Eastbound Origins and Destinations (2006)

Table 8.42 Southworth-Vashon Weekend Eastbound Boardings by Origin and Destination District

	Destination District							
Origin District	North Vashon Island	South Vashon Island	Greater Port Orchard	Other South Kitsap County	Greater Bremerton	North/Other Central Kitsap County	Total	Percent of Total
North Vashon Island	8						8	3.3%
South Vashon Island	61			8	8		77	31.6%
Central Pierce County	16	8					24	9.8%
Capitol Hill		17					17	7.0%
Queen Anne-Lake Union/Magnolia	28						28	11.5%
Seattle Industrial Area		16					16	6.6%
Other West King County	28	46					74	30.3%
Total	141	87	0	8	8	0	244	100%
Percent of Total	57.8%	35.7%	0.0%	3.3%	3.3%	0.0%	100%	

Figure 8.56 Southworth-Vashon Weekend Eastbound Origins and Destination Locations by Boarding Mode (2006)



8.4.11 Weekend Westbound Origins and Destinations

The weekend westbound trips (in Figure 8.57) also seem to be similar to the weekday westbound travel patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These origins and destinations are detailed by district in Table 8.43. The majority of origins of these trips are North Vashon Island with 49 percent and South Vashon Island with 31 percent. The destinations are mainly South Kitsap County which represents 42 percent of all destinations, followed with Greater Bremerton which represents 16 percent, and a variety of other districts.

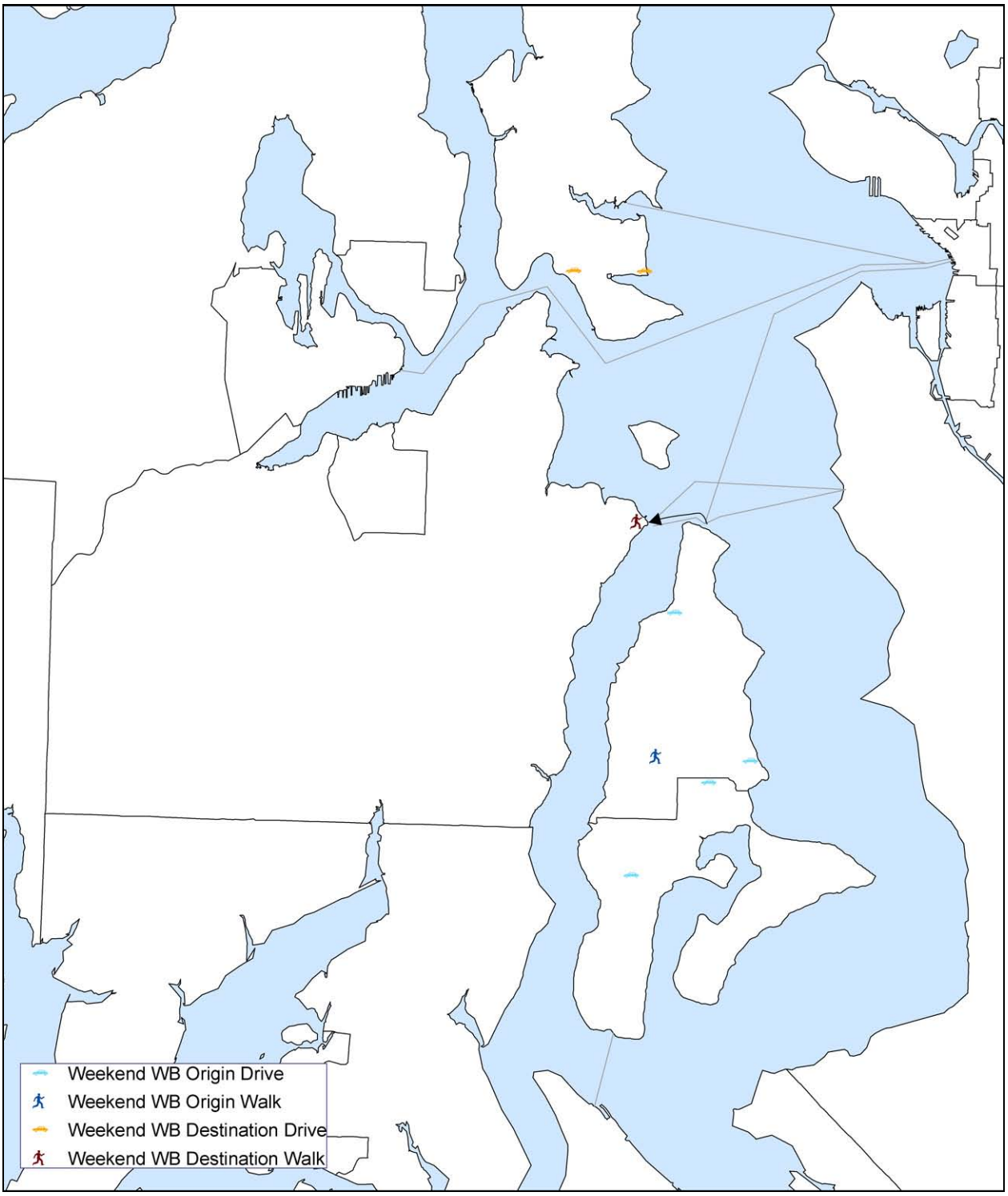
The origins and destinations of survey respondents are presented in Figure 8.58 by boarding mode.

Figure 8.57 Southworth-Vashon Weekend Westbound Origins and Destinations (2006)

Table 8.43 Southworth-Vashon Weekend Westbound Boardings by Origin and Destination District

	Destination District										
Origin District	North Vashon Island	South Vashon Island	Greater Port Orchard	Other South Kitsap County	Greater Bremerton	North/Other Central Kitsap County	West Pierce County	Mason County	Rest of the Area	Total	Percent of Total
North Vashon Island	0	0	0	82	33	0	0	0	37	152	49.2%
South Vashon Island	0	0	0	0	16	10	0	33	37	96	31.1%
Seattle CBD	0	0	0	22	0	0	0	0	0	22	7.1%
Capitol Hill	0	0	0	10	0	0	0	0	0	10	3.2%
Other West King County	0	13	0	16	0	0	0	0	0	29	9.4%
Total	0	13	0	130	49	10	0	33	74	309	100%
Percent of Total	0.0%	4.2%	0.0%	42.1%	15.9%	3.2%	0.0%	10.7%	23.9%	100%	

Figure 8.58 Southworth-Vashon Weekend Westbound Origins and Destination Locations by Boarding Mode (2006)



8.5 POINT DEFIANCE-TAHLEQUAH

8.5.1 Route Description

This ferry route connects Point Defiance and Tahlequah on the southern tip of Vashon Island well south of Seattle. It takes 15 minutes to ride this ferry route one-way. The crossing is approximately 1.5 nautical miles and is the shortest route in the WSF system. It runs seven days per week. For 2006, the annual total ridership was 300 thousand passengers plus 400 thousand vehicles and drivers for a total of 700 thousand people, or about 1,800 riders per day. This compares to 2,400 riders per day in 1999 and 2,000 riders per day in 1993. The 1999 year was a peak year for ridership and the trend for this route follows this pattern.

The Point Defiance-Tahlequah route has 17 weekday sailings per day each direction, down from 18 sailings per day in 1993. The passenger capacity is 546 passengers per boat and the vehicle capacity is 48 vehicles per vessels, and these have remained the same since 1993; the vessel used in the Rhododendron class. The fare is $14.40 for vehicles and $4.20 for passengers in 2006. In 1999, vehicle fares on this route were $10.91 and passenger fares were $3.03 (in 2006 constant dollars) representing a 32 percent increase in vehicle fares and a 39 percent increase in passenger fares.

This section provides some key trip making characteristics of ferry riders on this route. In addition, we have compared the 2006 survey results with key characteristics from the previous 1999 and 1993 survey data to identify trends in trip-making on this route.

8.5.2 Trips by Purpose

The trip purposes of ferry riders on the Point Defiance-Tahlequah route were cross-tabulated against the direction of the trip for weekday and weekend and for different years. Table 8.44 shows three trip purposes (work/school, personal business/other, and shopping/recreation) for 2006 weekday and weekend and for all purposes for 1993 and 1999. The two directions used are northbound and southbound (most of the other ferry routes are east-west routes).

The split between northbound and southbound travelers is 48 percent and 52 percent, respectively. There are some differences by trip purpose worth mentioning. There more northbound work/school trips, and more southbound trips for medical/personal/business purposes and shopping/recreation/leisure. Over the weekends for 2006, overall travel direction is similarly balanced with 48 percent northbound and 52 percent southbound, but some differences by trip purpose.

Table 8.44 Point Defiance-Tahlequah Trips by Purpose and Direction
What is/are the reason(s) you are riding this ferry today?

Direction	Work/ School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999[a]	All Purposes 1993[a]
Weekday							
Eastbound	549	126	158	833	47.8%	36.3%	31.9%
Westbound	492	150	267	909	52.2%	63.7%	68.1%
Total	1041	276	425	1742	100%	100%	100%
Percent 2006	59.8%	15.8%	24.4%	100%			
Percent 1999	54.2%	20.8%	25.0%	100%			
Percent 1993	63.5%	10.4%	26.0%	100%			
Weekend							
Eastbound	70	145	716	931	48.1%	44.3%	39.9%
Westbound	83	212	708	1003	51.9%	55.7%	60.1%
Total	153	357	1424	1934	100%	100%	100%
Percent 2006	7.9%	18.5%	73.6%	100%			
Percent 1999	8.6%	21.7%	69.6%	100%			
Percent 1993	11.3%	12.8%	75.9%	100%			

Note: 1999 and 1993 survey records were not rebalanced by direction.

2006 Weekday Trips: 1769 Missing: 27

2006 Weekend Trips: 1995 Missing: 61

There has been a slight increase in the share of weekday commuter trips on this route over the 1999 and 2006 period (54 percent to 60 percent), and an decrease in the share of personal business trips (21 percent to 16 percent). The rising costs of ferry travel may have contributed to fewer discretionary trips along this route since 1999.

The 1993 and 1999 survey trips vary by direction largely because of differences in expansion of the survey rather than any real differences in travel behavior. Table 8.45 shows the distribution of trips across different time periods and by direction of travel. These time intervals are defined to reflect the periods used in the assignment step of the travel demand model. The p.m. peak period defined as 3:00 p.m. to 7:00 p.m. has the highest share of weekday trips (41 percent) because of the evening commute, as well as non-work trip purposes such as personal business, shopping and recreation. The night time defined as 7:00 p.m. until 5:00 a.m. has the next largest share of ridership (19 percent), followed by the a.m. off-peak defined as 9:00 a.m. to noon (16 percent).

Weekend trips are concentrated during the p.m. off-peak, which has by far the

largest share at 61 percent, followed by the a.m. off-peak with 39 percent. There are no night trips reported on the weekend because the study did not collect any representative trip data then.

Table 8.45 Point Defiance-Tahlequah Trips by Time-of-Day and Direction [a]
What is the scheduled departure time of the ferry you are taking now?

Direction	Night (7:00 p.m.-5:00 a.m.)	A.M. Peak (5:00 a.m.-9:00 a.m.)	A.M. Off-Peak (9:00 a.m.-12:00 p.m.)	P.M. Off-Peak (12:00 p.m.-3:00 p.m.)	P.M. Peak (3:00 p.m.-7:00 p.m.)	Daily	All Trips 2006	All Trips 1999	All Trips 1993
Weekday									
Eastbound	207	90	66	159	448	971	55%	36.3%	31.9%
Westbound	127	161	211	27	272	797	45%	63.7%	68.1%
Total	334	251	277	186	720	1,768	100%	100%	100%
Percent 2006	18.9%	14.2%	15.7%	10.5%	40.7%	100%			

The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 1769 Missing: 1

2006 Weekend Trips: 1995 Missing: 4

[a] The expanded trips by direction and time period show little difference by direction since the counts used for expanded were available only in one direction (and doubled for expansion purposes). For the purposes of this table, raw percents of trips by direction and time period were used rather than expanded trips by direction. Hence, trips in this table may not match other tables by direction.

[b] Note that even thought there were no off-peak or night time trips that were surveyed, there are trips in this time period in the counts, but we were not able to use this for expansion, since we did not have any representative trips in this time period.

8.5.3 Frequency of Travel

The total number of ferry rips and purpose in 2006 are shown in Table 8.46. For comparison, trip purposes are aggregated into three groups – work/school, personal business/other, and shopping/recreation. The trip frequency or number of one-way trips in a typical week also is aggregated into seven groups and cross-tabulated against the trip purpose for 2006.

Many of the travelers use the ferry for school or work, which represented 59 percent of travel. Fifty percent of the commuting riders use this ferry on a regular basis, with 479 out of 950 who use the ferry 9 or more weekdays in a typical week. Trip frequencies for recreational purposes are lower for commuter trips, as expected. In fact, 23 percent of the travelers using the ferry for personal business/other-related activities and 12 percent of the ones using it for recreation/shopping/leisure use the ferry every day. In total, 37 percent of riders use the Point Defiance-Tahlequah ferry on a daily basis during a typical week and 16 percent make only one or two one way trips in a typical week.

Table 8.46 also compares trip frequencies for 1993 and 1999. In 1993, 33 percent

of riders surveyed use this ferry nine or more times in a typical week. In both 1999 and 2006 this share was 37 percent.

During weekends, as expected, there are far more riders on this route for shopping/recreation trip purposes, that is 74 percent compared to 25 percent on weekdays. An additional 19 percent of weekend trips are for personal business and 8 percent for commuting purposes. The share of weekend ferry trips for recreational purposes was relatively constant, with 76 percent in 1993, 70 percent in 1999 and 74 percent in 2006 respectively. Trips for personal business increased from 13 percent in 1993 to 22 percent in 1999 and dropped to 19 percent in 2006. Weekend commuting trips decreased from 11 percent in 1993 to 9 percent in 1999 and 8 percent in 2006..

Table 8.46 Point Defiance-Tahlequah Trips by Purpose and Frequency

What is/are the reason(s) you are riding this ferry today? How many one-way trips have you taken on a Washington State Ferry in the past seven days, including this ride?

Frequency	Work/School	Personal Business/Other	Recreation/ Shopping	Total	All Purposes 2006	All Purposes 1999	All Purposes 1993	Work/School 2006	Work/School 1999
Weekday									
1	0	44	71	115	7.2%	9.1%	17.9%	0.0%	3.6%
2	49	6	85	140	8.8%	12.5%	5.1%	5.2%	6.8%
3-4	134	111	75	320	20.0%	16.8%	14.7%	14.1%	7.7%
5-6	196	32	76	304	19.0%	15.1%	20.5%	20.6%	11.9%
7-8	92	0	41	133	8.3%	9.3%	8.3%	9.7%	11.3%
9-10	291	48	13	352	22.0%	22.1%	33.3%	30.6%	34.1%
11+	188	11	35	234	14.6%	15.2%		19.8%	24.6%
Total	950	252	396	1598	100%	100%	100%	100%	100%
Percent 2006	59.4%	15.8%	24.8%	100%					
Percent 1999	54.2%	20.8%	25.0%	100%					
Percent 1993	63.5%	10.4%	26.0%	100%					
Weekend									
1	6	53	232	291	15.9%	19.6%	36.1%		
2	23	30	305	358	19.5%	18.6%	17.2%		
3-4	17	81	360	458	25.0%	19.6%	13.1%		
5-6	17	19	205	241	13.1%	9.3%	8.2%		
7-8	12	68	46	126	6.9%	4.5%	9.0%		
9-10	23	18	47	88	4.8%	4.8%	16.4%		
11+	45	75	153	273	14.9%	23.7%			
Total	143	344	1348	1835	100%	100%	100%		
Percent 2006	7.8%	18.7%	73.5%	100%					
Percent 1999	8.6%	21.7%	69.6%	100%					
Percent 1993	11.3%	12.8%	75.9%	100%					

2006 Weekday Trips: 1769 Missing: 171

2006 Weekend Trips: 1995 Missing: 160

The total percentage distribution across purposes is different in Table 8.46 than in Table 8.46 because of the many missing trips in Table 8.44 that did not have detailed trip frequency information.

Table 8.47 Point Defiance-Tahlequah Trips by Purpose and Time-of-Day

Purpose: What is/are the reason(s) you are riding the ferry today?

Direction	Work/School	Personal/ Business/ Other	Recreation/ Shopping	Total	Work/School	Personal/ Business/ Other	Recreation/ Shopping	All Purposes 2006
Weekday								
Night (7 p.m.-5 a.m.)	157	76	101	334	511	1	15.1%	27.5%
A.M. Peak (5 a.m.-9 a.m.)	193	21	35	249	305	2	18.5%	7.6%
A.M. Off-Peak (9 a.m.-12 p.m.)	107	78	76	261	415	3	10.3%	28.3%
P.M. Off-Peak (12 p.m.-3 p.m.)	56	31	99	186	316	4	5.4%	11.2%
P.M. Peak (3 p.m.-7 p.m.)	528	70	115	713	898	5	50.7%	25.4%
Total	1041	276	426	1743	100%	100%	100%	100%
Percent 2006	59.7%	15.8%	24.4%	100%				
Percent 1999	54.2%	20.8%	25.0%	100%				
Percent 1993	63.5%	10.4%	26.0%	100%				

Note: The expansion factors for weekend travel were unreliable, and so the weekend summary is not included.

2006 Weekday Trips: 1769 Missing: 26

2006 Weekend Trips: 1995 Missing: 58

8.5.4 Round-Trip Patterns

As the 2006 surveys were conducted only for one-way ferry trip riders, questions on their round-trip patterns were asked which included the mode of travel and the day chosen to make the return trip, or in some cases, to make the outbound journey. Figure 8.56 shows the day chosen by travelers for their first or second half of the trip, that is, if they returned the same day or some other day. A majority of riders on this route traveled their onward and backward journeys on the same day, that is 84 percent of 1,762 passengers surveyed. On weekends a somewhat higher share—89 percent use this route on the same day for their round trips.

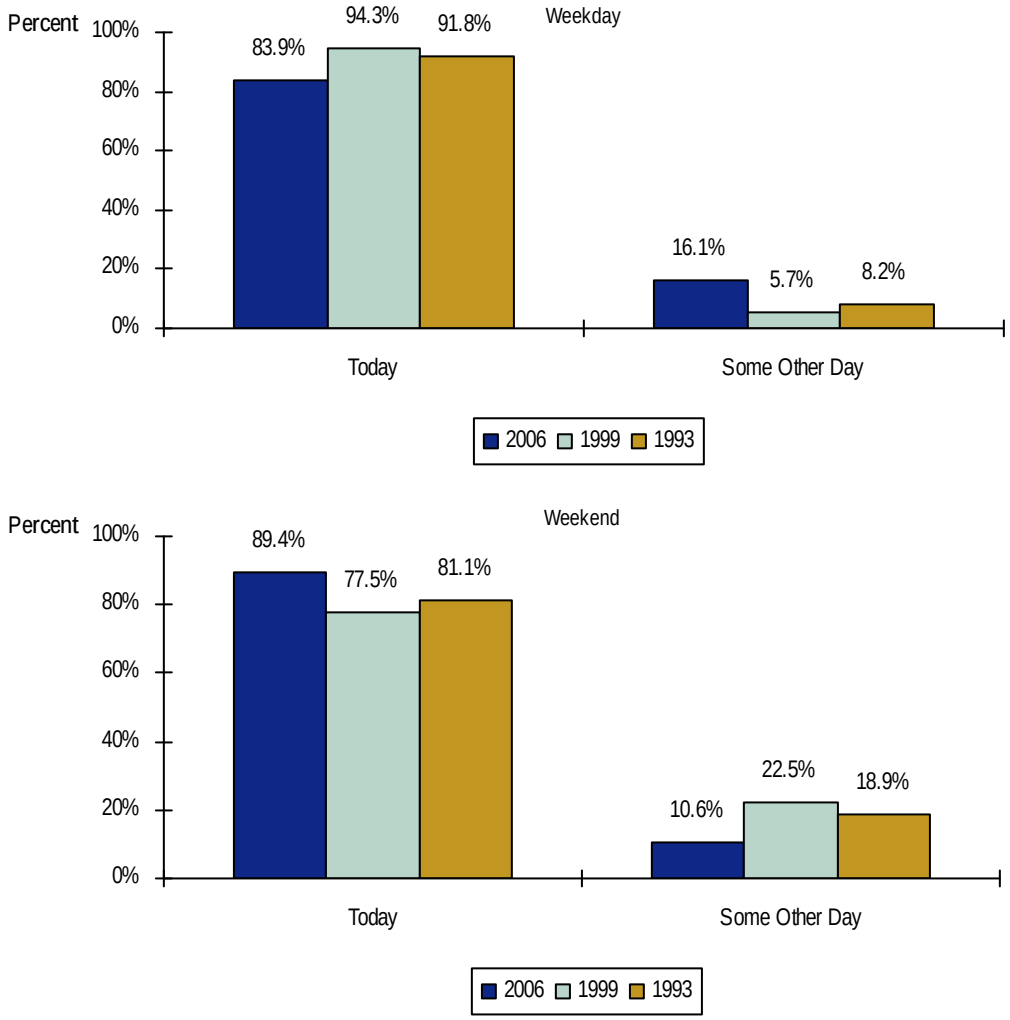
Comparing the 2006 weekday estimates against the 1993 and 1999 weekday estimates, it is observed that the number of riders returning on the same day in 2006, 84 percent, is somewhat lower than the results in 1993 and 1999, which were 92 percent and 94 percent respectively. During the weekends in 2006, 89 percent of trips are made on the same day, compared to 81 percent in 1993 and 78 percent in 1999.

For riders who made one-half of their trip on this route, Figure 8.57 shows the mode of travel chosen by them for their other half of the trip. The three modes chosen were using the same ferry route, drive around, and different ferry route. The vast majority of boardings are associated with trips in which the traveler will return to their home base on the same ferry. In 2006, 95 percent said they would return on the same ferry route. In both 1993 and 1996, 91 percent did so.

On the weekend, 93 percent of passengers in the 2006 study reported that they will return on the same ferry route, compared with 95 percent in 1993 and 87 percent in 1993. In 2006, the passengers who did not return on the same ferry all took a different ferry route for the rest of their journey instead of swimming back.

Figure 8.59 Point Defiance-Tahlequah Round Trip Patterns by Day

When was the first half of your trip or when will you return?

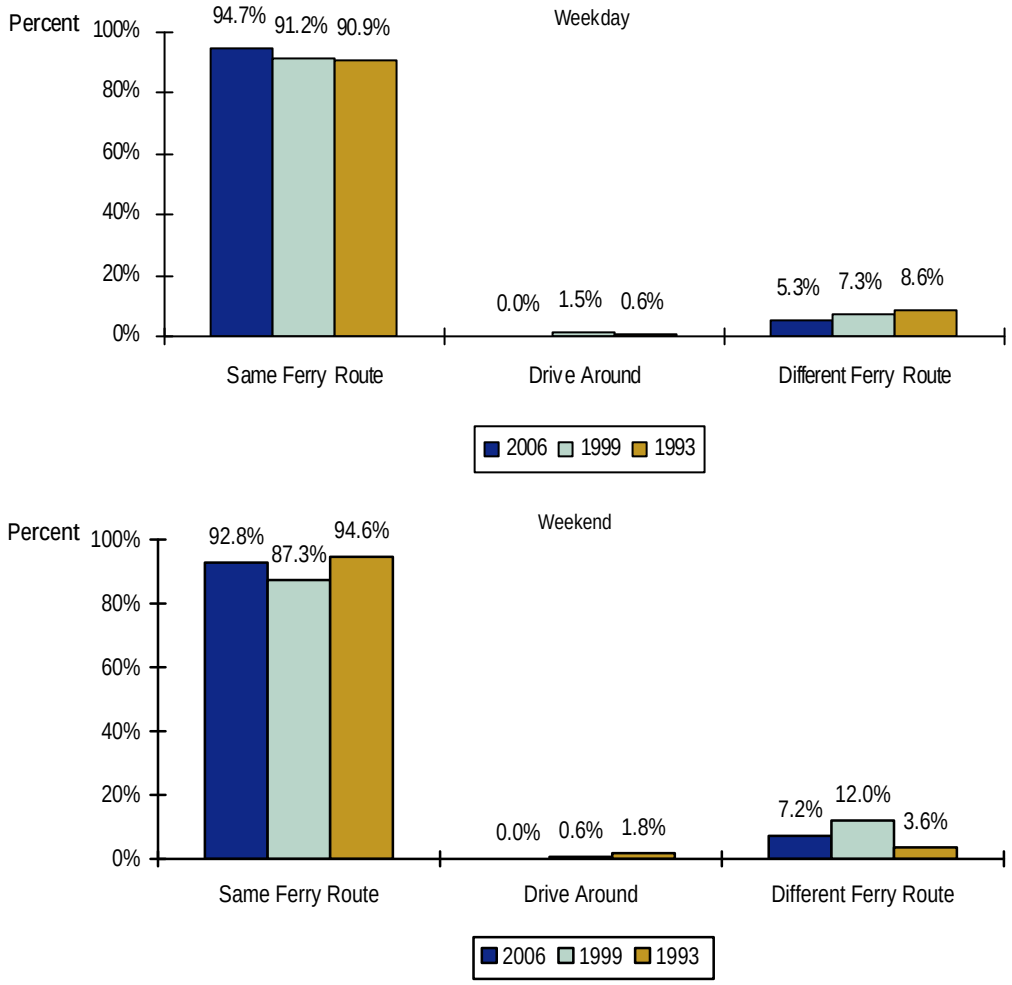


2006 Weekday Trips: 1769 Missing: 7

2006 Weekend Trips: 1995 Missing: 18

Figure 8.60 Point Defiance-Tahlequah Round Trip Patterns by Route

How will you return or how did you travel on the first half of your trip?



2006 Weekday Trips: 1769 Missing: 39

2006 Weekend Trips: 1995 Missing: 54

8.5.5 Access, Egress, and Boarding Modes

The mode of travel to, from, and on this route was cross-tabulated to analyze the current mode choice behavior of ferry riders and to study the changes over the years. Figure 8.58 shows the access and egress modes for weekday and weekend travel. Car driver and passenger are the dominate access and egress modes. These access and egress modes are described in more detail below.

Table 8.48 shows the mode of travel on this route and the corresponding access modes to the ferry terminal. During the 2006 average weekday, 70 percent of the ferry passengers drove to the terminal and an additional 26 percent were driven. An additional 3 percent took public transit and 1 percent walked.

The number of boardings by drive mode was 87 percent in 2006. This is somewhat higher than in 1993 when this share was 82 percent. The share of ferry passengers who walked on board was 12 percent in 2006, compared with 16 percent in 1993. The number who boarded with a bicycle has remained under 2 percent over the 1993 to 2006 period.

During 2006 weekends, the majority of passengers drove on board (90 percent), followed by 10 percent who walked, and none who boarded with a bicycle. In 1993, 82 percent of the ferry passengers boarded with their vehicle on weekends.

Table 8.49 shows the mode of travel on this route and the corresponding egress modes to the ferry terminal. The egress boarding mode was heavily skewed toward ferry passengers who boarded with a vehicle. On weekdays, 88 percent of passengers boarded with their vehicle, followed by 12 percent who walked on board and 1 percent who boarded with a bicycle. The share boarding with their vehicle has increased from 82 percent in 1993, to 88 percent in 1999 and in 2006. The share walking on board has decreased from 16 percent in 1993 to 12 percent in 2006. The share boarding with a bicycle has remained at 2 percent or below.

The vast majority of weekday passengers either drove or were driven to their final destinations. In 2006, 98 percent drove or were driven to their final destination. In 1993, 95 percent either drove or were driven to their final destination and in 1999 this was 97 percent.

In 2006 weekends, 95 percent of ferry passengers either drive to their final destination, and the remaining 4 percent walked and 1 percent took at taxi. In the 1993 and 1996 surveys, 94 percent and 98 percent respectively used a vehicle (either drove or were driven) to their final destinations.

Figure 8.61 Point Defiance-Tahlequah Trips by Access and Egress Mode

How did you travel from your origin location to this sailing? How did you travel to the destination you are going to now?

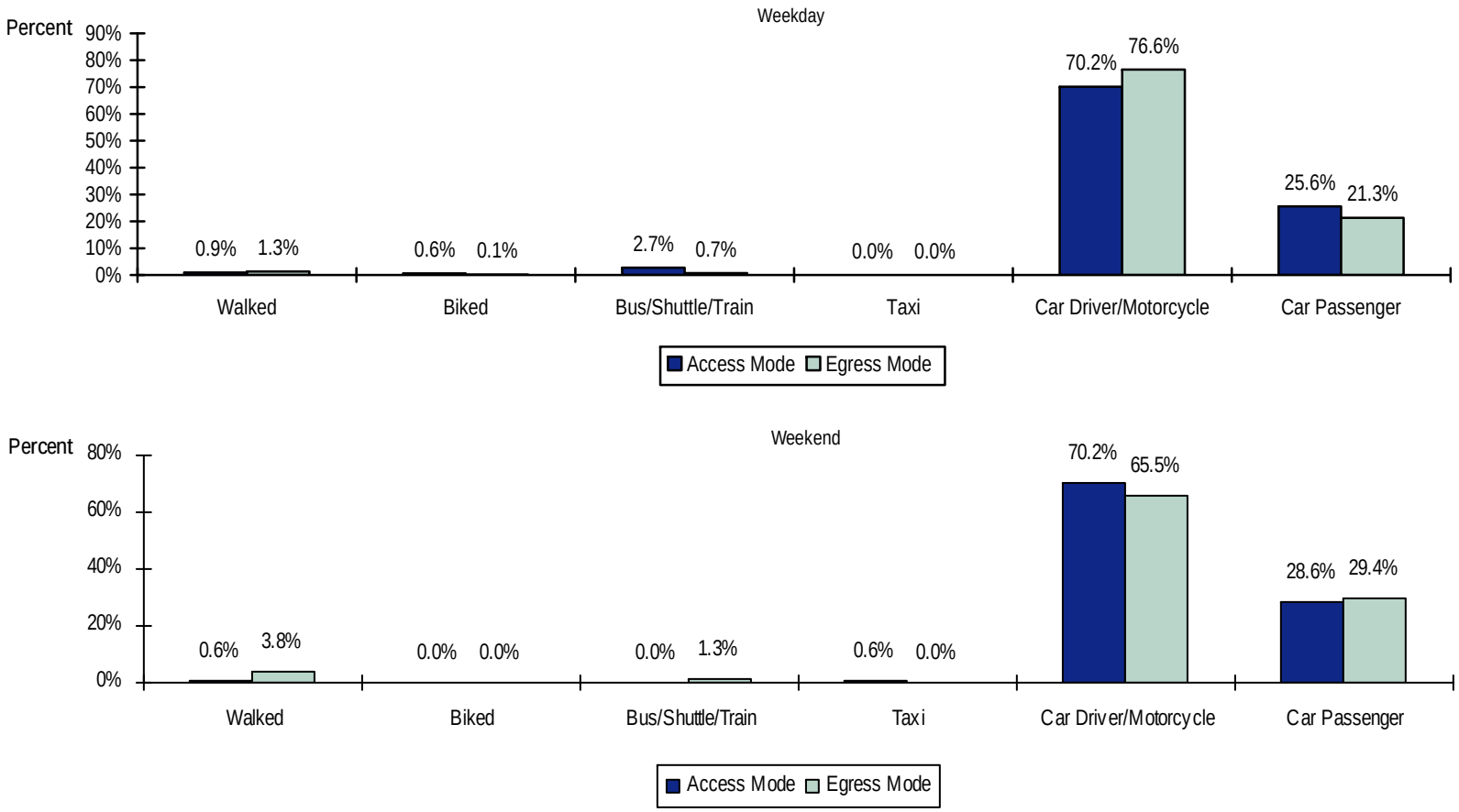


Table 8.48 Point Defiance-Tahlequah Trips by Access Mode and Boarding Method

How will/did you board this ferry?
How did you travel from your origin location to this sailing?

					All Boardings		
Access Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	0	16	0	16	0.9%	1.0%	0.0%
Biked	0	0	11	11	0.6%	0.0%	2.0%
Bus/Shuttle/Train	0	48	0	48	2.7%	3.3%	0.5%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	1120	100	14	1234	70.2%	73.4%	80.1%
Car Passenger	411	39	0	450	25.6%	22.3%	17.3%
Total	1531	203	25	1759	100%	100%	100%
All Frequencies 2006	87.0%	11.5%	1.4%	100%			
All Frequencies 1999	87.8%	12.0%	0.2%	100%			
All Frequencies 1993	81.9%	16.2%	2.0%	100%			
Weekend							
Walked	0	12	0	12	0.6%	0.0%	1.4%
Biked	0	0	0	0	0.0%	1.2%	4.1%
Bus/Shuttle/Train	0		0	0	0.0%	0.6%	0.7%
Taxi	0	12	0	12	0.6%	0.0%	0.0%
Car Driver/ Motorcycle	1262	139	0	1401	70.2%	69.0%	60.0%
Car Passenger	532	38	0	570	28.6%	29.2%	33.8%
Total	1794	201	0	1995	100%	100%	100%
All Frequencies 2006	89.9%	10.1%	0.0%	100%			
All Frequencies 1999	90.2%	8.6%	1.2%	100%			
All Frequencies 1993	81.8%	13.5%	4.7%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 1769 Missing: 10

2006 Weekend Trips: 1995 Missing: 0

Table 8.49 Point Defiance-Tahlequah Trips by Egress Mode and Boarding Method

How will/did you board this ferry? How did you travel to the destination you are going to now?

					All Boardings		
Egress Mode	Drive[a]	Walk	Bicycle	Total	2006	1999	1993
Weekday							
Walked	0	23	0	23	1.3%	1.8%	2.1%
Biked	0	0	2	2	0.1%	0.5%	1.6%
Bus/Shuttle/ Train	0	12	0	12	0.7%	1.0%	1.0%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	1229	89	14	1332	76.6%	74.6%	75.4%
Car Passenger	295	76	0	371	21.3%	22.1%	19.9%
Total	1524	200	16	1740	100%	100%	100%
Percent 2006	87.6%	11.5%	0.9%	100%			
Percent 1999	87.8%	12.0%	0.2%	100%			
Percent 1993	81.9%	16.2%	2.0%	100%			
Weekend							
Walked	0	74	0	74	3.8%	0.9%	3.5%
Biked	0	0	0	0	0.0%	1.2%	2.8%
Bus/Shuttle/ Train	0	25	0	25	1.3%	0.3%	0.0%
Taxi	0	0	0	0	0.0%	0.0%	0.0%
Car Driver/ Motorcycle	1255	25	0	1280	65.5%	69.3%	57.0%
Car Passenger	496	78	0	574	29.4%	28.3%	36.6%
Total	1751	202	0	1953	100%	100%	100%
Percent 2006	89.7%	10.3%	0.0%	100%			
Percent 1999	90.2%	8.6%	1.2%	100%			
Percent 1993	81.8%	13.5%	4.7%	100%			

[a] Drive mode includes vehicle driver and vehicle passengers and trucks and are reported as boardings i.e., all passengers in vehicles.

2006 Weekday Trips: 1769 Missing: 29

2006 Weekend Trips: 1995 Missing: 42

8.5.6 Wait Time

The out of vehicle travel times were measured by asking the respondents the amount of time they spent on waiting before boarding this ferry route. Figure 8.62 shows the frequency distribution of wait time (in minutes) for 1999 and 2006. This was not done by boarding method as the data was not available in great detail for this cross-tabulation. In 2006 weekday, 81 percent of ferry passengers waited less than 30 minutes. This is very similar to results in the 1999 survey in which 80 percent of passengers waited this amount of time.

In 2006 weekends, 87 percent of the ferry passengers waited less than 30 minutes, compared with 90 percent in the 1999 survey who waited 30 minutes or less.

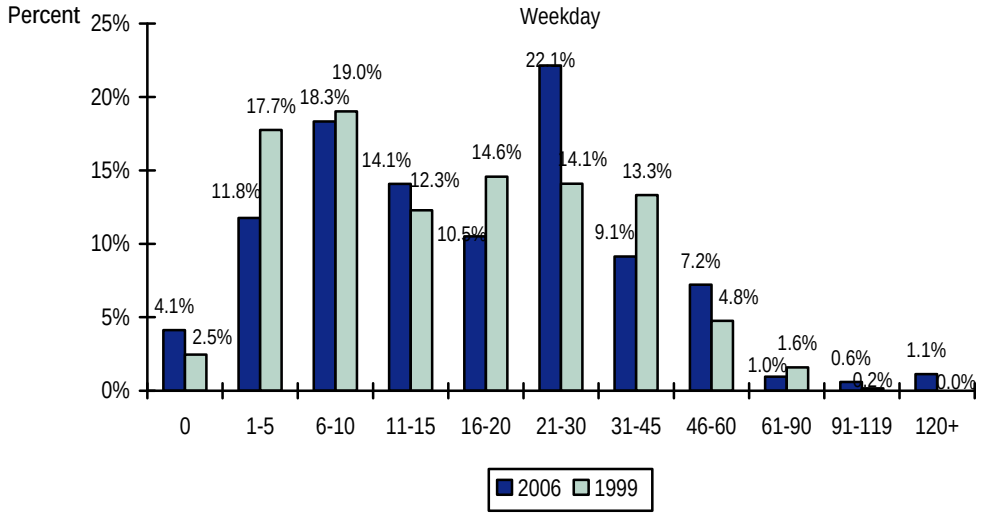
8.5.7 Parking

The parking statistics of walk-on passengers on this route were also examined. Primarily, these data summarize whether commuters parked their vehicles at the ferry terminal and how much was paid for parking. Figure 8.60 presents the number of boardings by the response on parking from the respondent. In 1996, 52 percent of the weekday ferry passengers parked their vehicles. In the 1999 survey this share was similar, with 54 percent of weekday ferry passengers who reported parking. Weekends in the 2006 survey showed similar results. Indeed, 51 percent reported that they parked, compared with 53 percent of the ferry passengers in the 1999 survey who reported that they parked.

These numbers are very stable over time and for weekday versus weekend. In other routes, there were differences attributed to lower traffic over weekends, different rates and/or availability of parking. The average parking cost was $5 per day on weekdays for ferry riders who paid for parking (i.e., not everyone who parked at the ferry terminal paid for parking). The parking at Tahlequah is free while riders have to pay at the Point Defiance side.

Figure 8.62 Point Defiance-Tahlequah Trips by Wait Time and Boarding Method

About how many minutes did you wait to board this ferry?



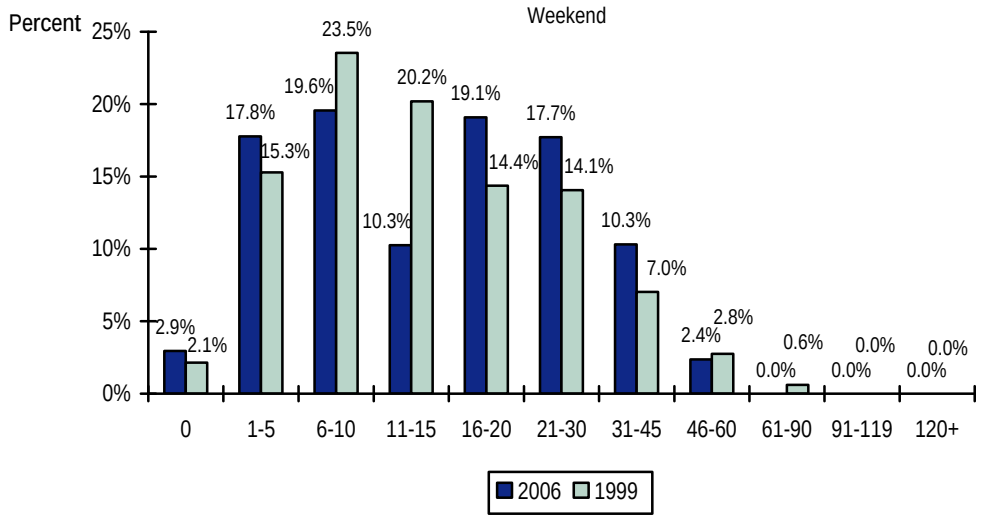
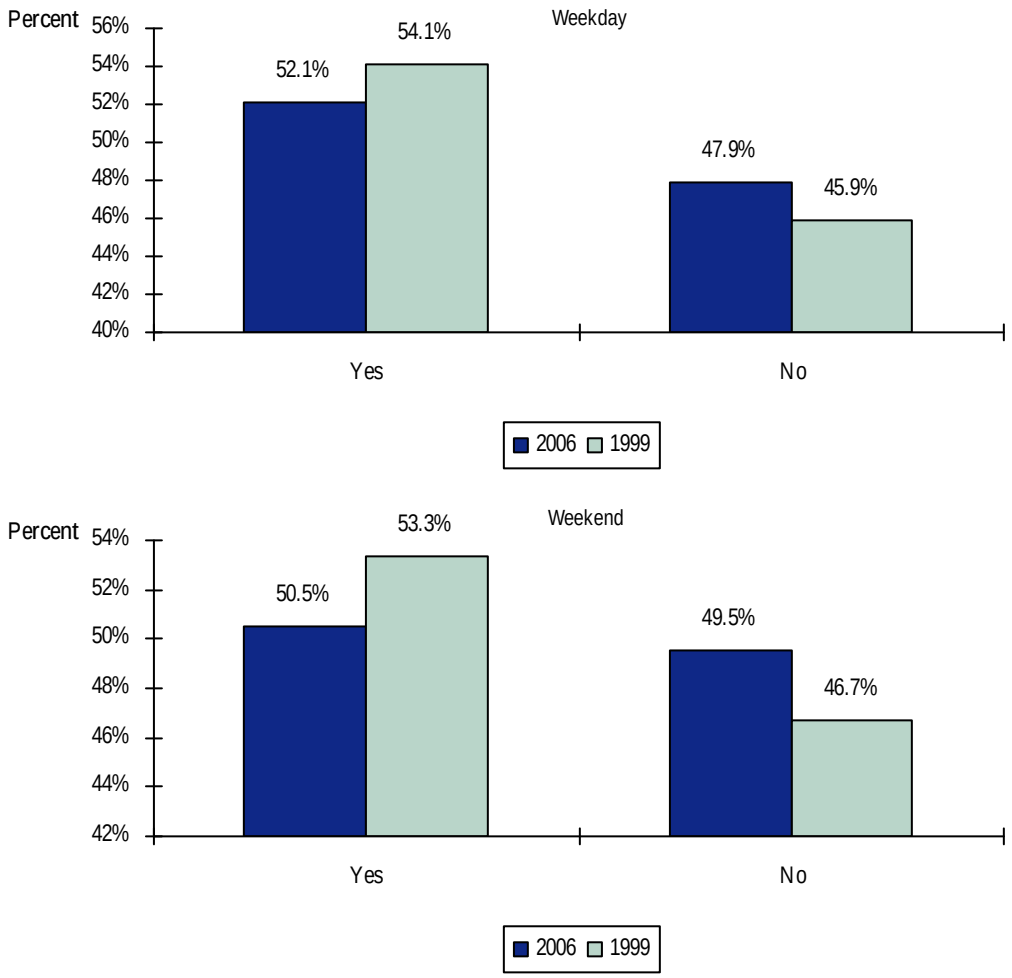


Figure 8.63 Point Defiance-Tahlequah Walk-On Passenger Parking Statistics
Did you park a vehicle to board this ferry?



8.5.8 Weekday Northbound Origins and Destinations

Figure 8.64 shows weekday northbound trips and the origins and destinations of riders on this route between Point Defiance and Tahlequah in 2006. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 8.50. The destinations are divided between South Vashon Island (56 percent) and South Vashon Island (43 percent). The origins of these trips are diverse, including North Tacoma (21 percent), South Tacoma (14 percent) and South Central Pierce County (10 percent). Figure 8.62 presents the individual locations of survey respondents' origins and destinations by boarding mode.

The primary origin in 2006 is North Tacoma (21 percent) and in 1999 it was South Tacoma (22 percent). These patterns are a direct transpose of the weekday eastbound O-D patterns. There were also a significant number of trips originating from Tacoma CBD in both the years (14 percent in 1999 and 12 percent in 2006). The two destinations are North and South Vashon Island but the relative differences are quite different in 1999 and 2006. It is 70-30 in 1999 and about 56-44 in 2006.

The origins and destinations of survey respondents are presented in Figure 8.65 by boarding mode.

Figure 8.64 Point Defiance-Tahlequah Weekday Northbound Origins and Destinations (2006)

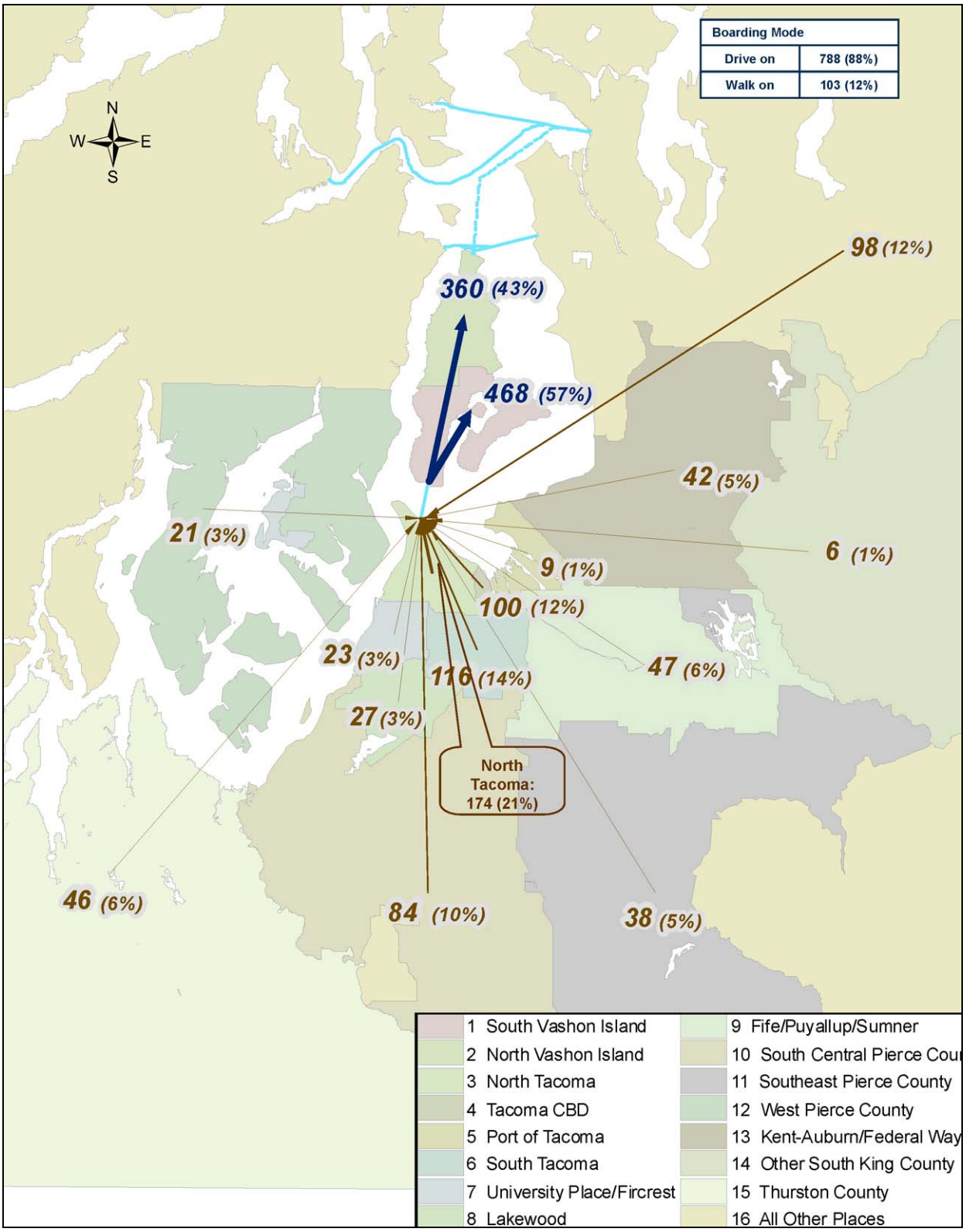
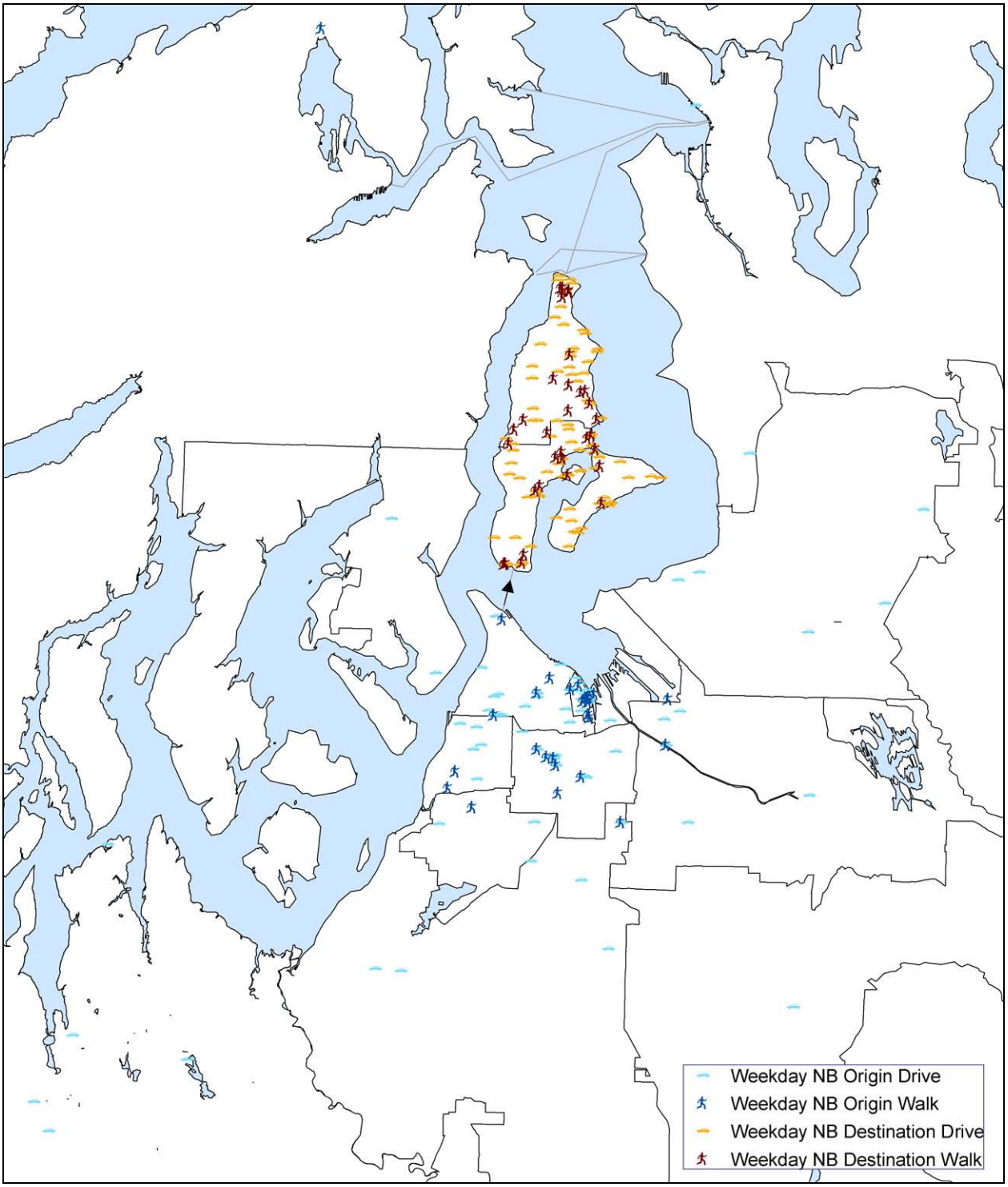


Table 8.50 Point Defiance-Tahlequah Weekday Northbound Boardings by Origin and Destination District

	Destination District				
Origin district	South Vashon Island	North Vashon Island	All Other Places	Total	Percent of Total
North Tacoma	80	94	0	174	20.9%
Tacoma CBD	78	22	0	100	12.0%
Port of Tacoma	2	7	0	9	1.1%
South Tacoma	82	34	0	116	14.0%
University Place/Fircrest	14	9	0	23	2.8%
Lakewood	9	18	0	27	3.2%
Fife/Puyallup/Sumner	31	13	3	47	5.7%
South Central Pierce County	54	30	0	84	10.1%
Southeast Pierce County	3	35	0	38	4.6%
West Pierce County	21	0	0	21	2.5%
Kent-Auburn/Federal Way	23	19	0	42	5.1%
Other South King County	3	3	0	6	0.7%
Thurston County	44	2	0	46	5.5%
All Other Places	24	74	0	98	11.8%
Total	468	360	3	831	100%
Percent of Total	56.3%	43.3%	0.4%	100%	

Figure 8.65 Point Defiance-Tahlequah Weekday Northbound Origins and Destination Locations by Boarding Mode (2006)



8.1.9 Weekday Southbound Origins and Destinations

Figure 8.66 for weekday southbound trips presents the travel patterns of riders taking the Point Defiance-Tahlequah ferry. The boardings are overwhelmingly by car. These origins and destinations are detailed by district in Table 8.51. The destinations of these trips were predominantly North Tacoma (23 percent), followed by South Central Pierce County (10 percent) and South Tacoma (10 percent). The origins of these trips were mainly North Vashon Island (52 percent) and North Vashon Island (45 percent). Figure 8.64 presents the individual locations of survey respondents' origins and destinations by boarding mode.

The two origins are North and South Vashon Island but the relative differences are quite different in 1999 and 2006. It is 70 percent and 28 percent respectively in 1999 and about evenly split in 2006. The primary destinations are North and South Tacoma (23 and 10 percent) and South Central Pierce County (10 percent) in 2006 while in 1999 it was North and South Tacoma (12 and 32 percent) and Kent-Auburn/Federal Way (10 percent).

The origins and destinations of survey respondents are presented in Figure 8.67 by boarding mode.

Figure 8.66 Point Defiance-Tahlequah Weekday Southbound Origins and Destinations (2006)

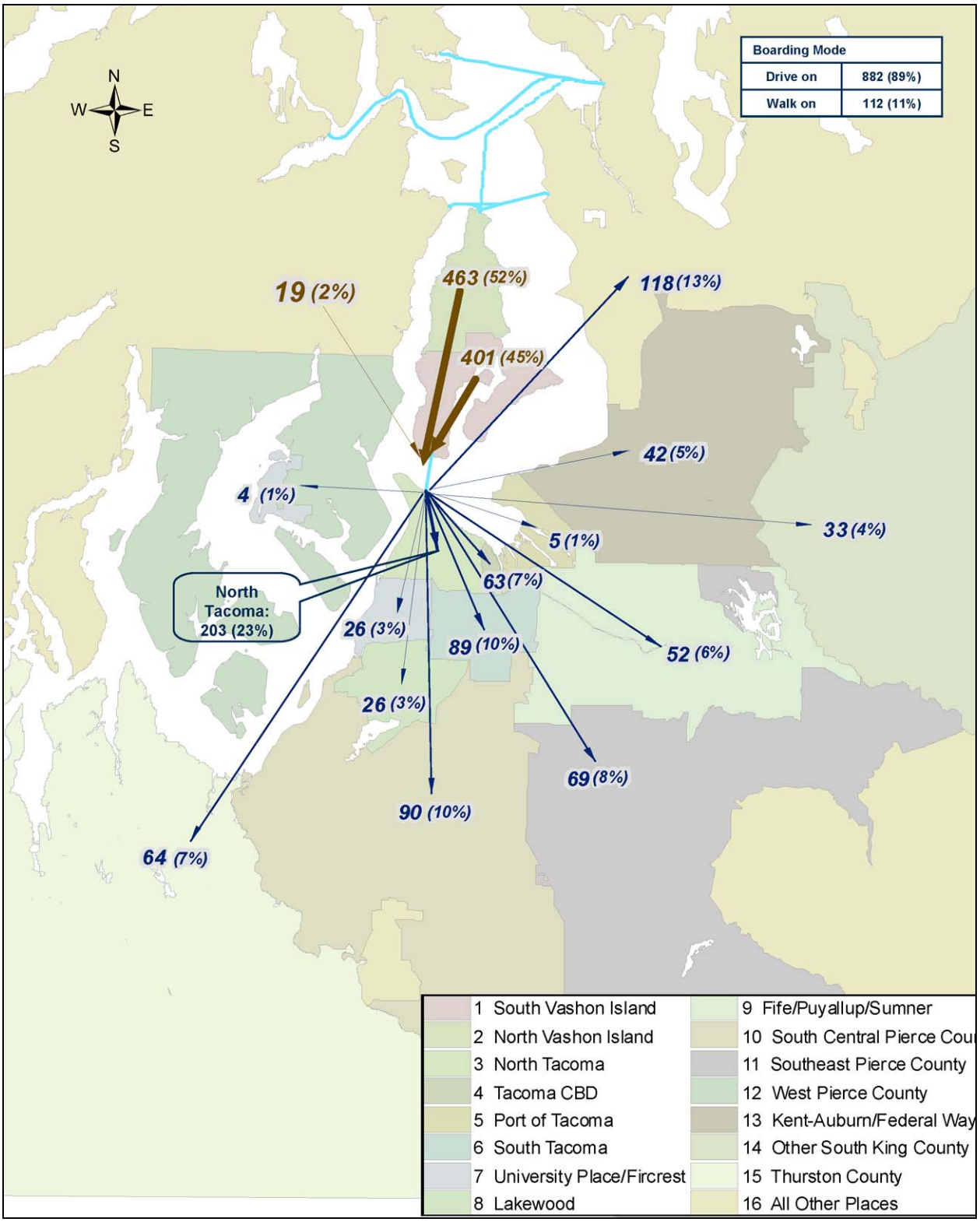
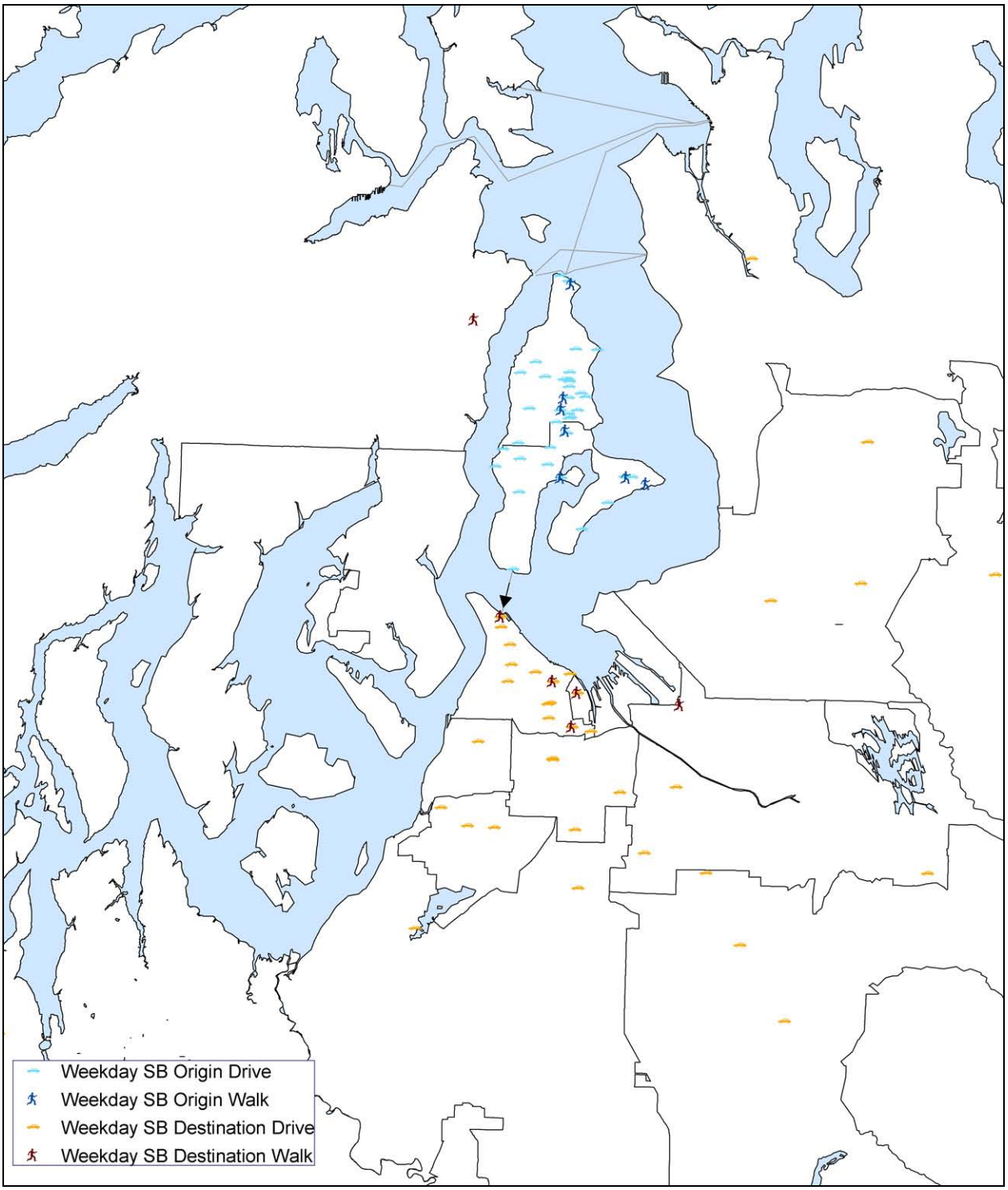


Table 8.51 Point Defiance-Tahlequah Weekday Southbound Boardings by Origin and Destination District

	Destination District							
Origin District	North Tacoma	Tacoma CBD	Port of Tacoma	South Tacoma	University Place/ Fircrest	Lake-wood	Fife/ Puyallup/Sumner	South Central Pierce County
South Vashon Island	72	33	0	51	14	9	23	46
North Vashon Island	118	30	5	38	12	17	22	44
All Other Places	12	0	0	0	0	0	7	0
Total	202	63	5	89	26	26	52	90
Percent of Total	22.9%	7.1%	0.6%	10.1%	2.9%	2.9%	5.9%	10.2%

	Destination District (continued)							
	Southeast Pierce County	West Pierce County	Kent-Auburn/ Federal Way	Other South King County	Thurston County	All Other Places	Total	Percent of Total
South Vashon Island	4	4	15	0	64	66	401	45.4%
North Vashon Island	65	0	27	33	0	52	463	52.4%
All Other Places	0	0	0	0	0	0	19	2.2%
Total	69	4	42	33	64	118	883	100.0%
Percent of Total	7.8%	0.5%	4.8%	3.7%	7.2%	13.4%	100.0%	

Figure 8.67 Point Defiance-Tahlequah Weekday Southbound Origins and Destination Locations by Boarding Mode (2006)



8.5.10 Weekend Northbound Origins and Destinations

The northbound weekend travel patterns to are similar to that of the weekday patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These are presented in Figure 8.68. These origins and destinations are detailed by district in Table 8.52. The destinations of these trips are divided between South Vashon Island (58 percent) and North Vashon Island (42 percent). The origins of these trips are North Tacoma (19 percent), followed closely by South Tacoma (19 percent), and University Place/Fircrest (10 percent). Figure 8.66 presents the individual locations of survey respondents' origins and destinations by boarding mode.

The origins and destinations of survey respondents are presented in Figure 8.69 by boarding mode.

Figure 8.68 Point Defiance-Tahlequah Weekend Northbound Origins and Destinations (2006)

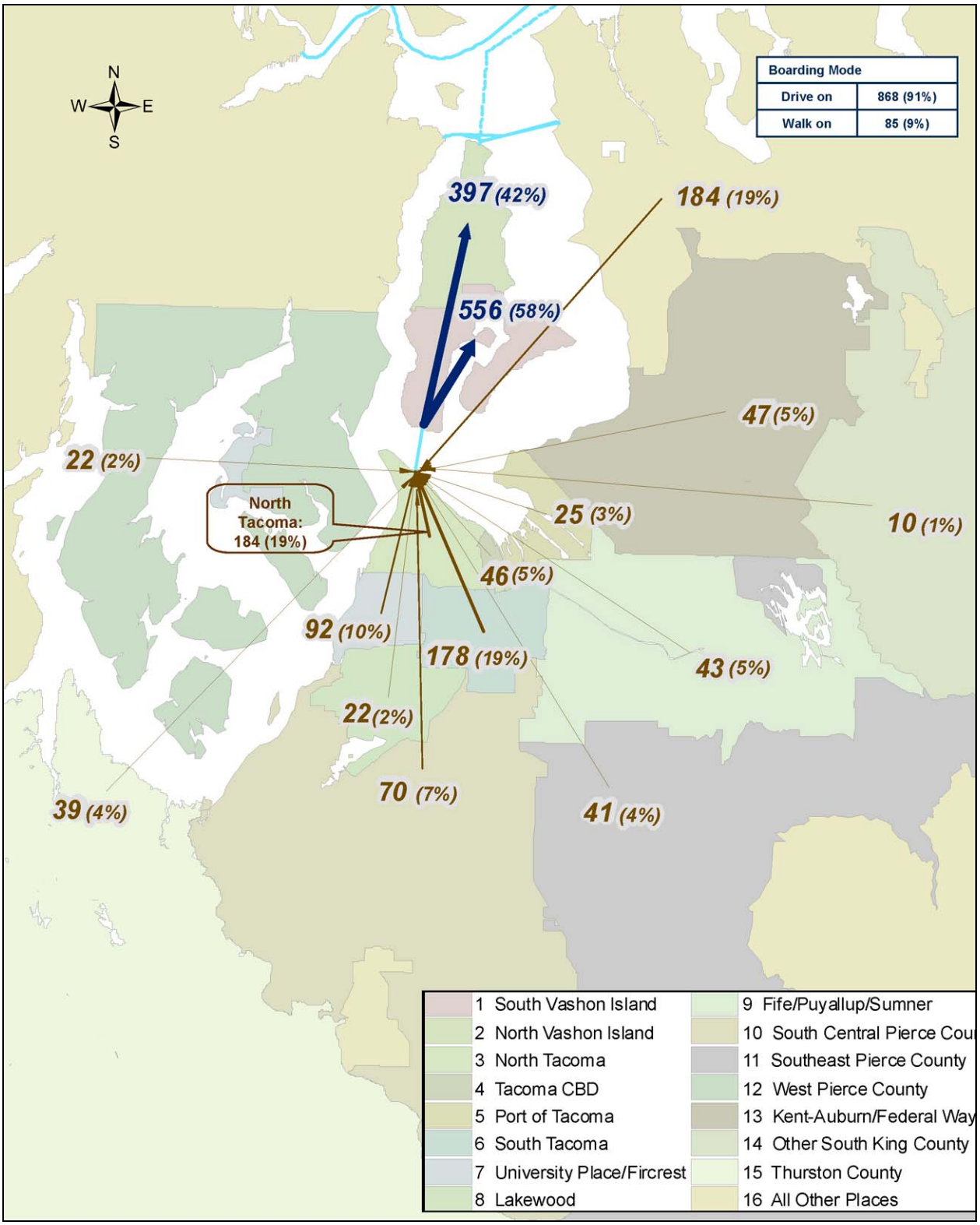


Table 8.52 Point Defiance-Tahlequah Weekend Northbound Boardings by Origin and Destination District

	Destination District			
Origin District	South Vashon Island	North Vashon Island	Total	Percent of Total
North Tacoma	102	82	184	19.3%
Tacoma CBD	21	25	46	4.8%
Port of Tacoma	4	21	25	2.6%
South Tacoma	114	64	178	18.7%
University Place/Fircrest	46	46	92	9.7%
Lakewood	18	4	22	2.3%
Fife/Puyallup/Sumner	39	4	43	4.5%
South Central Pierce County	52	18	70	7.3%
Southeast Pierce County	25	16	41	4.3%
West Pierce County	18	4	22	2.3%
Kent-Auburn/Federal Way	25	22	47	4.9%
Other South King County	10	0	10	1.0%
Thurston County	14	25	39	4.1%
All Other Places	68	66	134	14.1%
Total	556	397	953	100.0%
Percent of Total	58.3%	41.7%	100.0%	

Figure 8.69 Point Defiance-Tahlequah Weekend Northbound Origins and Destination Locations by Boarding Mode (2006)

8.5.11 Weekend Southbound Origins and Destinations

The weekend southbound trips (in Figure 8.70) also seem to be similar to the weekday southbound travel patterns in terms of the overwhelming majority of ferry passengers who board with their vehicles. These origins and destinations are detailed by district in Table 8.53. The origins of these trips are South Vashon Island (59 percent) and North Vashon Island (41 percent). The destinations are diverse and include North Tacoma (23 percent), followed by South Tacoma (18 percent) and University Place/Fircrest (13 percent). Figure 8.68 presents the individual locations of survey respondents' origins and destinations by boarding mode.

The origins and destinations of survey respondents are presented in Figure 8.71 by boarding mode.

Figure 8.70 Point Defiance-Tahlequah Weekend Southbound Origins and Destinations (2006)

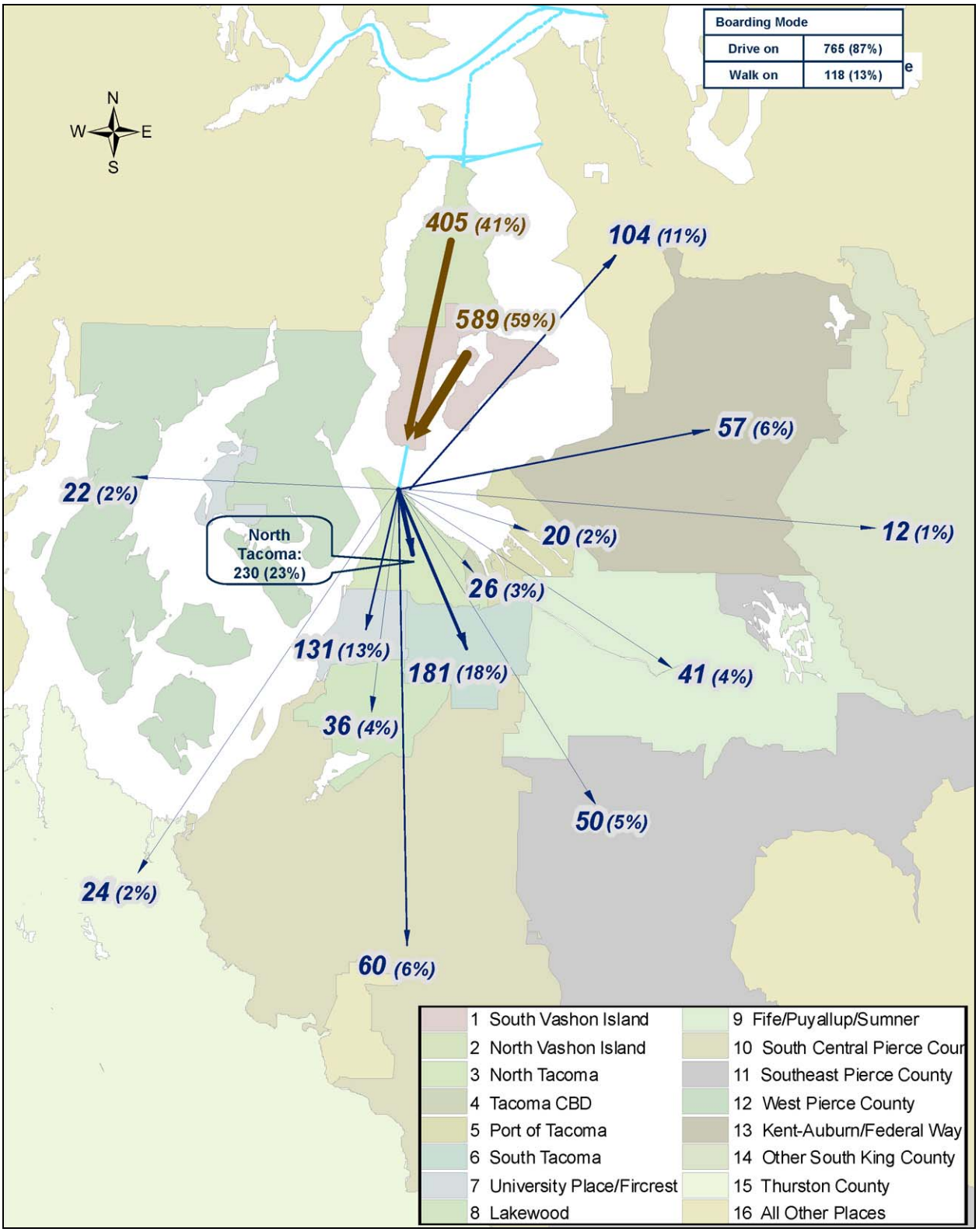
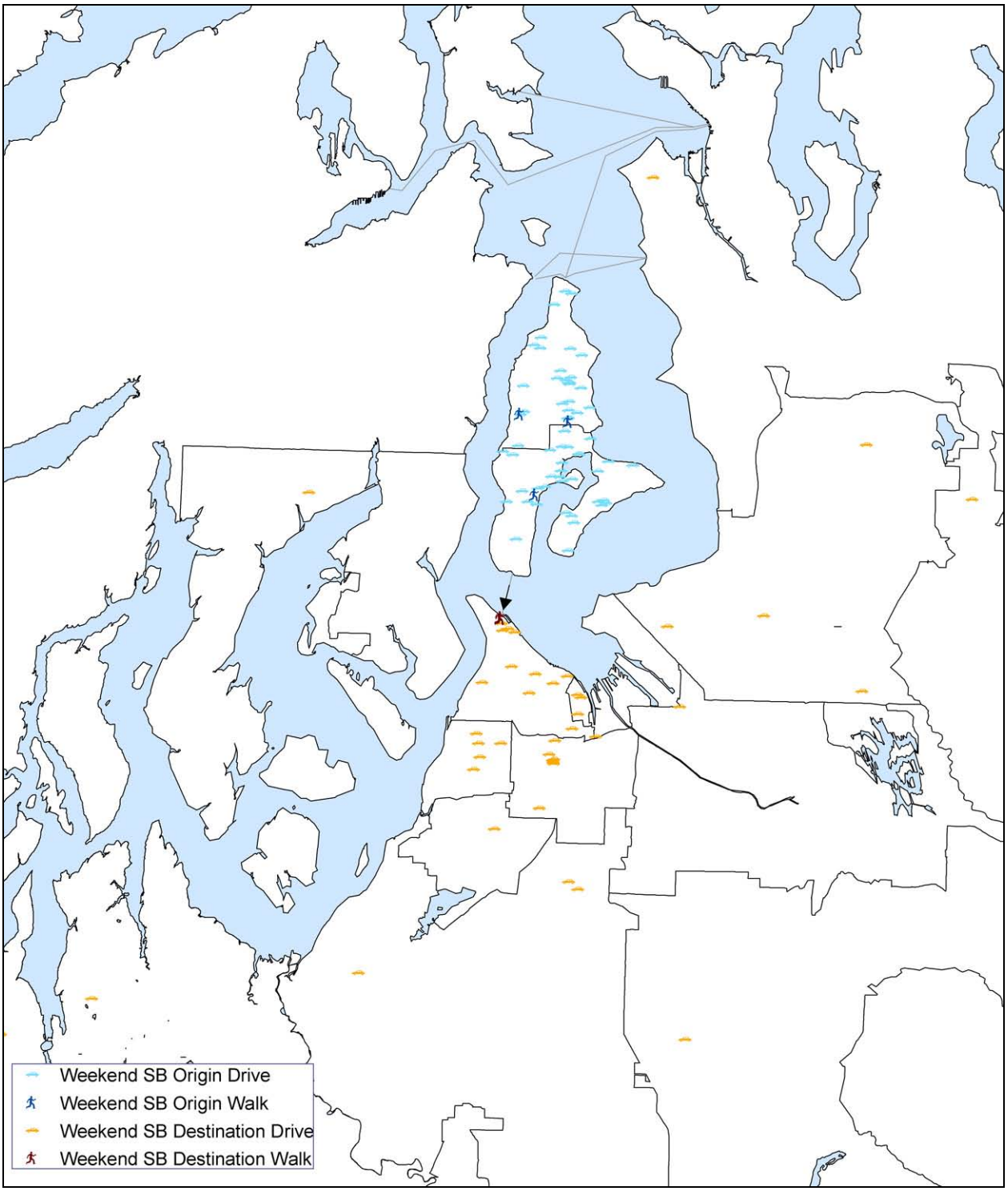


Table 8.53 Point Defiance-Tahlequah Weekend Southbound Boardings by Origin and Destination District

	Destination District							
Origin District	North Tacoma	Tacoma CBD	Port of Tacoma	South Tacoma	University Place/ Fircrest	Lake-wood	Fife/ Puyallup/Sumner	South Central Pierce County
South Vashon Island	139	6	8	100	99	28	41	39
North Vashon Island	91	20	12	81	32	8	0	21
Total	230	26	20	181	131	36	41	60
Percent of Total	23.1%	2.6%	2.0%	18.2%	13.2%	3.6%	4.1%	6.0%

	Destination District (continued)							
	Southeast Pierce County	West Pierce County	Kent-Auburn/ Federal Way	Other South King County	Thurston County	All Other Places	Total	Percent of Total
South Vashon Island	20	14	28	12	12	43	589	59.3%
North Vashon Island	30	8	29	0	12	61	405	40.7%
Total	50	22	57	12	24	104	994	100.0%
Percent of Total	5.0%	2.2%	5.7%	1.2%	2.4%	10.5%	100.0%	

Figure 8.71 Point Defiance-Tahlequah Weekend Southbound Origins and Destination Locations by Boarding Mode (2006)



9.0 Seattle Supplemental Surveys

The Seattle Ferry Terminal at Colman Dock is Washington State Ferries' busiest terminal and is used by over nine million riders per year. The terminal serves Bainbridge Island and Bremerton passenger-vehicle routes and the Vashon Island passenger-only ferry route. In coming years, the number of daily commuters and visitors is expected to grow. These ferries are a critical part of the state highway system and the terminals serve as the transportation hub between the east and west sides of Puget Sound.

The WSF is considering a variety of potential improvements at Colman Dock. As part of the Colman Dock project., additional questions were included in the origin-destination survey for routes that use Colman Dock or serve downtown Seattle (such as the Fauntleroy routes). These additional questions were included on all surveys conducted on the following routes:

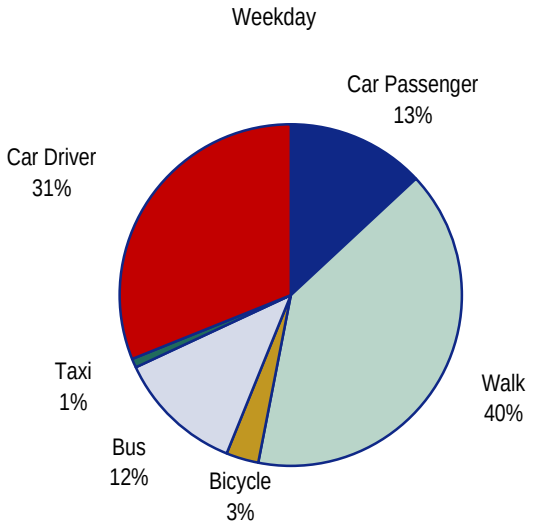
- Seattle-Bainbridge;
- Seattle-Bremerton;
- Fauntleroy-Vashon;
- Fauntleroy-Southworth; and
- Seattle-Vashon Passenger-Only.

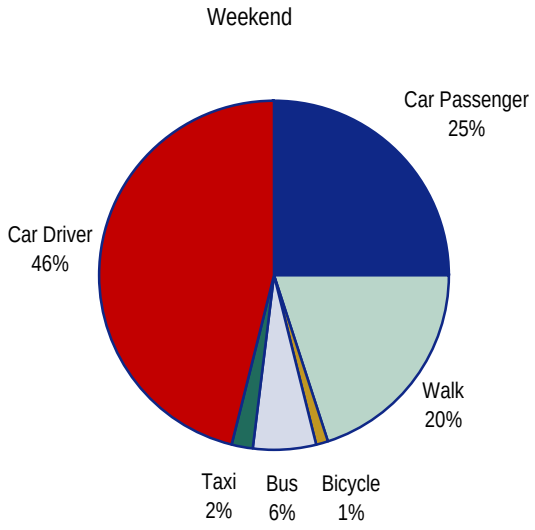
The focus of these additional questions were on obtaining additional details on access and egress modes at Colman Dock and on obtaining opinions about certain types of improvements. These surveys were not expanded like the systemwide surveys because they were not intended to represent the full system and therefore expansion was not necessary. The results of these surveys are provided in the following sections. There were 6,228 completed supplemental surveys for this analysis.

9.1 Access and Egress Modes

The trips to and from Seattle have a higher rate of walk access and egress (40 percent) than anywhere else in the system, as expected given the downtown characteristics of the Colman Dock terminal. There are 1,505 walk access and egress trips out of 3,808 total trips. Driving is the next most used access and egress mode, with 1,681 trips (44 percent for both drivers and passengers), and transit access and egress accounts for 473 trips (12 percent). Weekend trips have different modal characteristics than weekday, with driving as the most common mode (71 percent for both drivers and passengers). These are displayed in Figure 9.1.

Figure 9.1 Access and Egress Modes for Trips to/from Seattle





9.1.1 Walk

The surveys inquired about whether ferry riders walked any portion of their trip and on how many blocks walked. Of the total 6,228 people surveyed, 55 percent of the respondents said that they walked on some portion of the trip, with the majority walking from their origin or destination to or from the ferry terminal. Details about what portion of the trip was spent walking is provided in Table 9.1.

Table 9.1 Walk Access Trips to/from Seattle
Did you walk on any portion of your trip? (mark all that are appropriate and indicate the number of blocks walked)

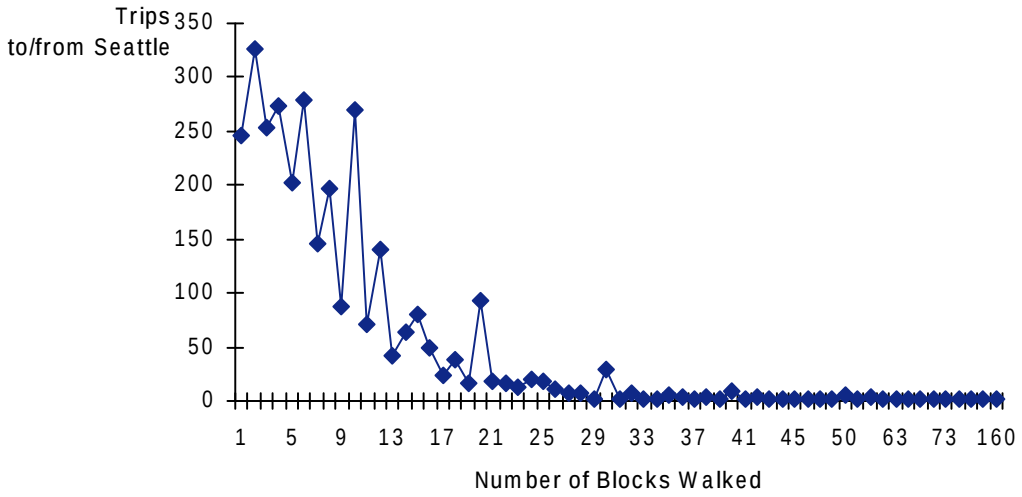
	Yes	Percent of Total
From origin to transit stop/station	877	26%
From origin location to ferry terminal	1,375	40%
From transit stop/station to ferry terminal	758	22%
From ferry terminal to destination location	1,107	33%
From ferry terminal to transit stop/station	478	14%
Walk on other portion of trip	711	11%
All Walk Access Trips	3,397	100%
Total Trips to/from Seattle	6,228	

Note: Multiple answers accepted.

The mean walk distance for those travelers who said they walked for some portion of their trip was 9 blocks and the median walk distance was six blocks. The walk distance ranged from 0 to 160 blocks. There were 16 travelers who said they walked more than 50 blocks, which is the reason that the mean distance is considerably higher than the median. While these are clearly outliers, the remainder of the walk distances is charted in Figure 9.2. The unevenness in this chart is common in travel surveys, because many people have a tendency to "round" their answers. In this case, they are rounding to either even numbers, or to the nearest 10, explaining the higher responses at 10 blocks, 20 blocks, etc. Most people clearly walk less than 20 blocks but seven percent of the population is walking more than 20 blocks (or one mile).

Figure 9.2 Walk Distance for Trips to/from Seattle

Did you walk on any portion of your trip? (mark all that are appropriate and indicate the number of blocks walked)



9.1.2 Drive

The routes used for drive access into and out of Seattle to the Colman Dock terminal were identified in order to better understand the travel patterns of these trips. There were four options provided to the respondent, as shown in Table 9.2. The highway route along First Avenue S or S Alaskan Way was the most popular route, with 38 percent. The North Waterfront was the second most popular, with 24 percent. These are likely to be the trips from outside Seattle driving in from either the South, East, or North parts of the region. The remaining trips that travel through the Central Business District or Pioneer Square are more likely downtown residents or employees traveling to downtown destinations. Given the short distances, the relatively expensive parking (for both residents and employees), and the congestion of downtown streets, the number of people using these highway routes is higher than expected.

Table 9.2 Drive Access Routes for Trips to/from Seattle
If you drove/will drive to or from the downtown Seattle ferry terminal (Colman Dock), which route did/will you take? (mark all that apply)

Drive Access Route	Trips	Percent
South Highways along First Avenue S or S Alaskan Way	843	38%
Through/from the Central Business District	455	21%
Through/from Pioneer Square	378	17%
Along North Waterfront	537	24%
Total	2,213	100%

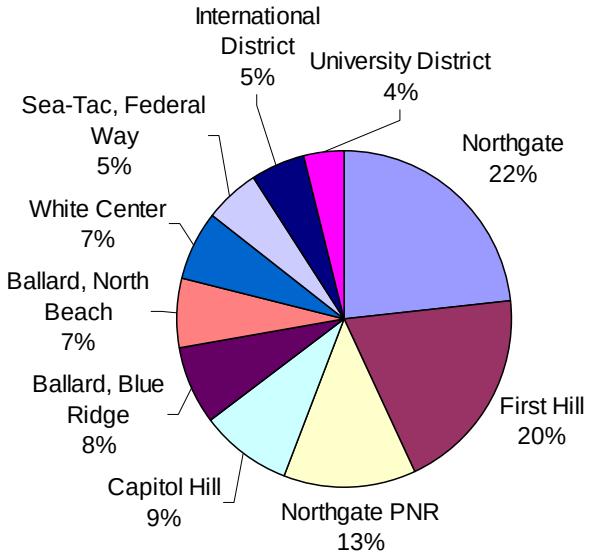
9.1.3 Transit

There are four primary transit operators serving the Colman Dock terminal. Of these four, the majority of travelers using transit to access the ferry use Metro, as shown in Table 9.3. Metro buses that have the highest ridership for access to ferry terminal are presented in Figure 9.3. The top 10 Metro Bus routes account for 58 percent of the total Metro bus ridership to ferries in Seattle. Of these riders, Northgate and First Hill account for more than half of the top 10 routes.

Table 9.3 Transit Access Operators to/from Seattle at Colman Dock
If you took/will take transit to or from the downtown Seattle ferry terminal (Colman Dock), what type of transit did/will you use?

Transit Operator	Trips	Percent
Metro bus	1,319	65%
Sound Transit bus	76	4%
Community Transit bus	49	2%
Sounder train	81	4%
Other	489	24%
Total	2,014	100%

Figure 9.3 Top 10 Metro Bus Routes Using Transit to Access Ferries at Colman Dock



There were 489 survey respondents who reported that they took "other" transit to access or egress from the Colman Dock terminal. These included a few other transit operators, such as Kitsap Transit, Amtrak, vanpools, employer shuttles, airport shuttles, and Greyhound, however the majority of the answers were for nontransit options, such as walk, bike, taxi, and drive. In addition, a significant portion of these "other" answers included additional bus route numbers, many of which are for one of the listed operators, such as Metro Bus. As a result, this "other" category is not a reliable indication of other transit alternatives, because it includes so many other nontransit alternatives.

In addition to which bus route, ferry riders were asked to provide the place where they got on or off the bus to get on the ferry at Colman Dock. These results are provided in Table 9.4. The two most highly used stops were on First Avenue and Third Avenue.

Table 9.4 Place to Get On/Off Transit to Access Ferry at Colman Dock
If you took/will take transit to or from the downtown Seattle ferry terminal (Colman Dock), where did you get on/off the bus or train?

	Frequency	Percent
Alaskan Way	269	23%
First Avenue	360	31%
Second Avenue	159	14%
Third Avenue	344	30%
King St Station	30	3%
Total	1,162	100%

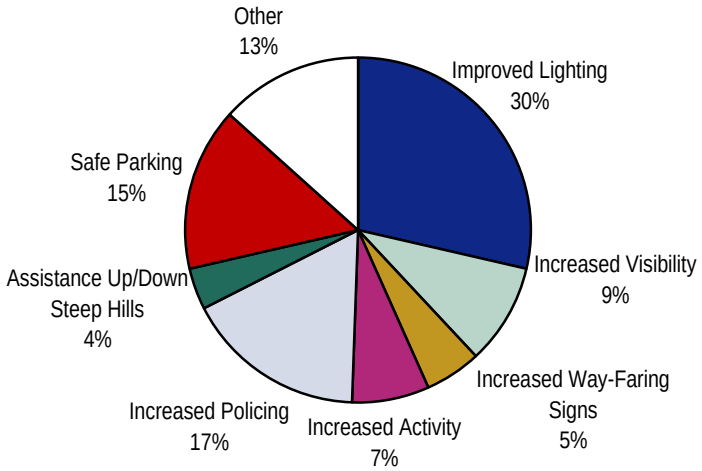
9.2 PERSONAL SAFETY

There were a number of personal safety improvements listed in the supplemental survey for respondents to identify which ones would improve their sense of personal safety when walking to the ferry terminal. Respondents were allowed to choose more than one improvement. Figure 9.4 shows the priorities of the responses to these personal safety improvements. Improved lighting was by far the most popular, with 30 percent of the total responses. Increased policing and safe parking were the next most popular responses, with 17 percent and 15 percent, respectively. The other responses included the following suggestions:

- Improved crosswalks, sidewalks, pedestrian overpasses, and overhead covers for walkways;
- Cheaper, closer, and more parking;
- Reducing the homeless population; and
- Better traffic controls.

There were hundreds of other suggestions, but these were the most often cited.

Figure 9.4 Personal Safety Improvements for Walking to/from the Ferry
What would improve your sense of personal safety when walking to/from the ferry terminal? (mark all that apply)

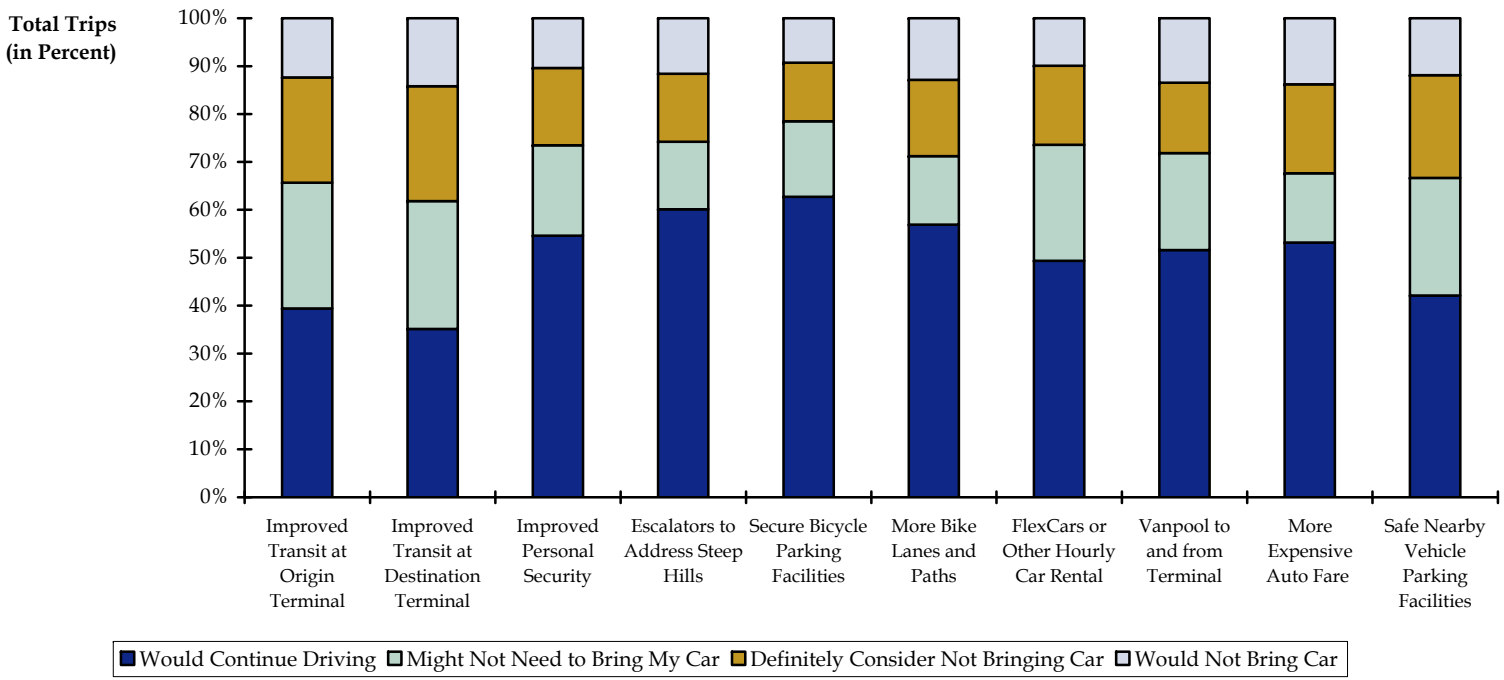


9.3 ALTERNATIVE MODES

In order to understand the dynamics of why travelers choose to bring a car on the ferry, a series of alternative mode improvements were listed and respondents were asked to identify those improvements that may have an impact on their decision to bring a car onto the ferry in the future. These are presented in Figure 9.5. The most popular options were improved transit at the origin and destination terminals. Safe nearby vehicle parking facilities was the third most popular option. The responses to this type of question are most useful to determine the priority of the responses, rather than the actual percent of people who would switch to walking onboard, given a specific improvement, because most survey respondents will over-estimate their willingness to change modes in a survey compared to reality. Further market surveys would be necessary to identify the specific tradeoff for any particular improvement and a traveler's actual mode shift from driving to alternative modes.

Figure 9.5 Alternative Mode Improvements to Driving Onboard the Ferry

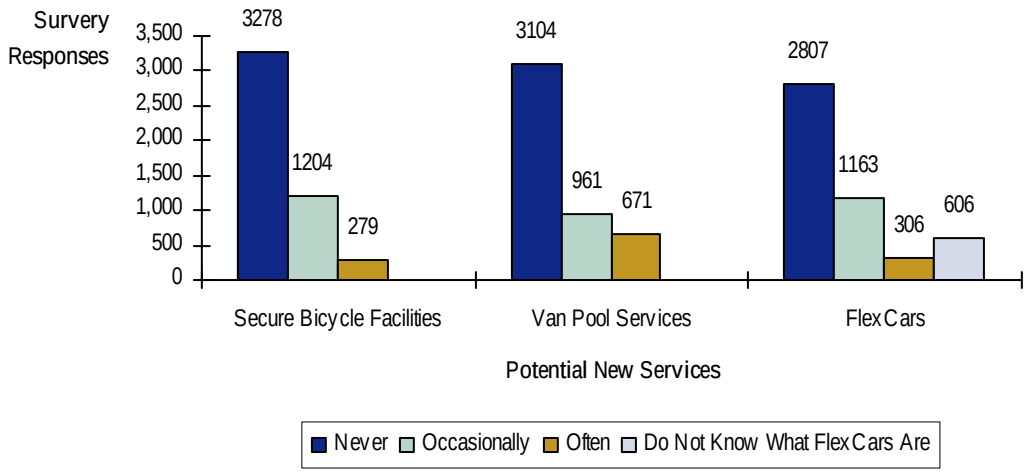
If you drove your car onboard the ferry today, how would the following improvements or policy changes affect your decision to bring a car in the future?



In addition, a question was included regarding the frequency of using potential new services for bike facilities, vanpool services, and FlexCars at the destination terminal. Figure 9.6 presents the results of this question. The most popular new service that people said they would use often was vanpool services at the destination terminal (14 percent). All three new services were considered for occasional use, with bicycle facilities the most (25 percent), FlexCars second most (24 percent) and vanpool services third (20 percent). There were some survey respondents (12 percent) who were not aware of what FlexCars were and therefore could not adequately consider this option.

Figure 9.6 Frequency of Use for Potential New Alternative Mode Services Offered

If the following services were available to you, how often would you use them?

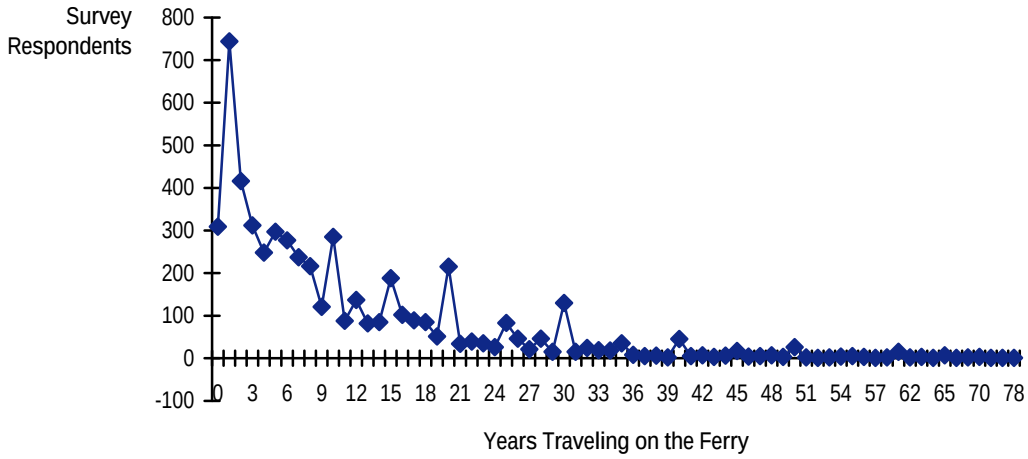


9.4 YEARS TRAVELING ON THE FERRY

In addition to the modal questions, the supplemental survey also included a question on how many years respondents had been commuting on the ferry. Of the total survey respondents, 852 travelers did not answer this question (14 percent) either because they did not use the ferry to commute or because they didn't want to answer the question. Of the remaining 86 percent, the average years commuting on the ferry was 10.7 years. The range is from 0 to 78 years. Clearly, some respondents interpreted this question as how many years spent "traveling" on the ferry rather than "commuting" on the ferry, because it's hard to imagine too many people commuting for 78 years. Nonetheless, the average years spent traveling on the ferry is still quite high.

Figure 9.7 Years Spent Traveling on the Ferry

How long have you been commuting on the ferry system?



Appendices

Appendix A. Survey Questionnaire

22 Are **YOU**... *(mark all that apply)*

○ Employed Full-Time ○ Student ○ Retired
○ Employed Part-Time ○ Military Personnel ○ Unemployed ○ Other (specify): _____

23 If employed, do you **TELECOMMUTE** from home part of the time?

○ Yes → What is the average number of **DAYS PER WEEK** you telecommute?
☐

○ No, I do not telecommute

24 What was your estimated household **INCOME** in 2005 before taxes?

○ Less than $5,000 ○ $15,000 - $24,999 ○ $35,000 - $44,999 ○ $75,000 - $99,999 ○ More than $150,000
○ $5,000 - $14,999 ○ $25,000 - $34,999 ○ $45,000 - $74,999 ○ $100,000 - $149,999

25 Would you be willing to **PARTICIPATE** in follow-up surveys?

○ Yes ○ No

26 Please provide any **COMMENTS** or **FEEDBACK** in the box below.

Thank you for your participation!

The information collected will be used to plan service that better meets your travel needs.
Return the completed survey to the surveyor (in the red hat) OR drop it in any mailbox *(no postage required)*.

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 5478 AUSTIN TX
POSTAGE WILL BE PAID BY ADDRESSEE

Washington State Ferries Travel Survey
3006 BEE CAVES RD STE A-300
AUSTIN TX 78746-9907

If returning by mail, please close with tape.

Washington State Department of Transportation
Washington State Ferries

2006 Washington State Ferries Travel Survey

Help Washington State Ferries better serve passengers' needs by filling out this survey.
Return the completed survey to the surveyor (in the red hat) OR drop it in any mailbox.

Please print letters/numbers clearly in upper case: A B C 1 2 3 Fill bubble with: ●

1 **ENTER TO WIN TWO FREE ROUND-TRIP AIRLINE TICKETS WHEN YOU ANSWER ALL QUESTIONS!**

Name ( ) Telephone -

Street Number Street Address (**NO P.O. BOXES PLEASE**) Zip

City Email

All personal information is confidential and WILL NOT be shared or sold.

2 What is the **SCHEDULED DEPARTURE TIME** of the ferry you are taking now?

Please specify time: : ○ AM ○ PM

3 Is this your **PREFERRED SAILING**?

○ Yes ○ No, I prefer a different departure time (specify time): : ○ AM ○ PM

○ No, I prefer a different route (specify route): _____

4 About how many **MINUTES** did you **WAIT** to board this ferry?

Minutes:

5 Where did you **WAIT**?

○ In passenger terminal ○ In vehicle holding area ○ On street ○ Other (specify): _____

6 **HOW MANY ONE-WAY TRIPS** have you taken on a Washington State Ferry in the past 7 days, including this ride?
(The sailing you are taking now is ONE one-way trip)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
# One-Way Trips	# ☐	# ☐	# ☐	# ☐	# ☐	# ☐	# ☐

7 Where are you **COMING FROM NOW**? (starting place of this one-way trip) *(mark one only)*

○ Work ○ School *(student only)* ○ Shopping ○ Someplace Else

○ Home → If you gave your Home address in Question 1 → **Go to Question 8**

A. What is the name of the **PLACE, BUSINESS OR BUILDING** you are **COMING FROM NOW**?

Place Name:

B. What is the **ADDRESS**?

Address:

Cross Street:

City: Zip:

C. What is the name of the **NEAREST SCHOOL, BUSINESS, OR OTHER LANDMARK**?

Nearest Landmark:

For office use only:

Continue inside

8 Is this ferry ride the **FIRST HALF** or **SECOND HALF** of a round trip?

○ First half only, **CONTINUE WITH A AND B↓**

A. When will you return?
○ Today ○ Some other day

B. How will you return?
○ Same ferry route
○ Drive around
○ Different ferry route (specify): _____
○ Other (specify): _____

○ Second half only, **CONTINUE WITH C AND D↓**

C. When was the first half of your trip?
○ Today ○ Some other day

D. How did you travel on the first half of your trip?
○ Same ferry route
○ Drive around
○ Different ferry route (specify): _____
○ Other (specify): _____

9 How **DID** you **TRAVEL** from your origin location (Q7) to this sailing? (Example: Took bus then walked from bus stop to ferry) *(mark all that apply)*

○ Walked two or more blocks to the ferry ○ Biked ○ Shuttle ○ Train ○ Auto, Pick-up, Van - passenger
○ Bus ○ Taxi ○ Auto, Pick-up, Van - driver ○ Other (specify): _____

10 Where are you **GOING TO NOW?** (ending place of this one-way trip) *(mark one only)*

○ Work ○ School *(student only)* ○ Shopping ○ Someplace Else
○ Home → If you gave your Home address in Question 1 → **Go to Question 11**

For office use only: ☐☐☐☐

A. What is the name of the **PLACE, BUSINESS OR BUILDING** you are **GOING TO NOW?**
Place Name: _____

B. What is the **ADDRESS?**
Address: _____
Cross Street: _____
City: _____ Zip: _____

C. What is the name of the **NEAREST SCHOOL, BUSINESS, OR OTHER LANDMARK?**
Nearest Landmark: _____

11 How will/did you **BOARD** this ferry?

○ Vehicle
CONTINUE WITH A AND B↓

A. What **TYPE OF VEHICLE?**
○ Auto ○ Motorcycle ○ Public transit bus
○ SUV ○ Camper ○ Carpool vehicle
○ Van ○ RV ○ Vanpool program vehicle
○ Pickup ○ School bus ○ Other (specify): _____
○ Commercial vehicle → Is this an oversized commercial vehicle? ○ Yes ○ No

B. Why did you **CHOOSE** to board in a vehicle instead of walk-on? *(mark all that apply)*
○ Need my vehicle at destination
○ Vehicle is necessary for business
○ Carrying baggage or a load to destination
○ Don't like to walk
○ Have mobility impairment
○ No safe nearby parking
○ Don't like to take transit
○ Transit does not go to desired destination
○ Traveling with young children/older persons
○ Other (specify): _____

If mobility impaired:
1. Are you impaired by steep topography when walking? ○ Yes ○ No
2. Does your impairment discourage you from taking transit? ○ Yes ○ No
3. What is the farthest distance you are willing to walk? Blocks: ☐☐

Continue with question 12

○ Walk ○ Bike
CONTINUE WITH C THROUGH H↓

C. Did you **PARK** a vehicle to board this ferry?
○ Yes ○ No

D. **WHERE** did you park?
○ On street ○ In nearby parking lot/garage
○ Other (specify): _____

E. How much did you **PAY** to park?
$☐☐ PER _____

F. Was the cost of parking **SUBSIDIZED** by your employer?
○ Yes ○ No

G. Do you **KEEP** either a **BIKE** or a **VEHICLE** at the destination **END** of this ferry trip?
○ Bike ○ Vehicle

H. If you ride transit (bus/train), what is the average **MONTHLY COST** that you pay for transit to/from work or school?
$☐☐☐.☐☐

Continue with question 12

12 How **WILL** you **TRAVEL** to the destination (Q10) you are going to now? (Example: Walk from ferry to bus stop then take bus) *(mark all that apply)*

○ Walk two or more blocks from the ferry ○ Bike ○ Shuttle ○ Train ○ Auto, Pick-up, Van - passenger
○ Bus ○ Taxi ○ Auto, Pick-up, Van - driver ○ Other (specify): _____

13 How many **PEOPLE** are traveling with you? (do not count yourself)

○ None
○ One or more → **HOW MANY** are: Under age 6: ☐☐ 6-17: ☐☐ 18-64: ☐☐ Over 65: ☐☐

14 What type of **FARE** was collected for this one-way trip?

○ Passenger frequent user coupon ○ Passenger youth fare ○ Auto/driver frequent user coupon
○ Washington State Ferry monthly pass ○ Passenger with bicycle ○ Auto/driver full fare
○ Passenger full fare ○ Motorcycle ○ Combined ferry/bus
○ Employer subsidized pass ○ Recreational vehicle ○ Truck longer than 20 feet
○ Free (no fare collected for trip/ fare collected in other direction) ○ Other (specify): _____

15 If there were **MORE PUBLIC TRANSIT OPTIONS** available to you, would you be more likely to use public transit to get to/from the ferry?

○ Yes ○ No

16 What is/are the **REASON(S)** you are riding this ferry today? *(mark all that apply)*

○ I am going to/from my regular workplace ○ Medical appointment ○ Shopping
○ Business-related activity ○ Sightseeing ○ Social or recreational activity
○ School ○ Special Event ○ Personal business/errands ○ Other (specify): _____

17 What is the **NAME** and **ADDRESS** of your **REGULAR WORKPLACE?**

○ If same as name and address information provided in Question 7 or 10 → **Go to Question 18**

For office use only: ☐☐☐☐

A. **NAME** of business or building:
Place Name: _____

B. What is the **ADDRESS?**
Address: _____
Cross Street: _____
City: _____ Zip: _____

C. What is the name of the **NEAREST SCHOOL, BUSINESS, OR OTHER LANDMARK?**
Nearest Landmark: _____

18 Including yourself, how many **PEOPLE** live in your household?

○ 1 ○ 2 ○ 3 ○ 4 or more

19 Including yourself, how many people in your household have a **JOB OUTSIDE** the home?

○ None ○ 1 ○ 2 ○ 3 ○ 4 or more

20 How many **CARS, TRUCKS,** or **MOTORCYCLES** does your household have?

○ None ○ 1 ○ 2 ○ 3 ○ 4 or more

21 In what year were you **BORN?**

Year Born: ☐☐☐☐

Continue on back

Appendix B. Seattle Supplement

Please answer the following questions to guide the design and development of ferry terminals in the future.
Please answer questions A - G in the context of the current one-way ferry trip you are on now.

A Did you **WALK** on any portion of your trip? *(mark all appropriate bubbles and indicate approximate number of blocks walked)*

	# Of Blocks		# Of Blocks
○ From origin to transit stop/station:	☐☐	○ From ferry terminal to destination location:	☐☐
○ From origin location to ferry terminal:	☐☐	○ From ferry terminal to transit stop/station:	☐☐
○ From transit stop/station to ferry terminal:	☐☐	○ Walk on other (not included above) portion of trip:	☐☐

B What would **IMPROVE** your sense of **PERSONAL SAFETY** when walking to/from the ferry terminal? *(mark all that apply)*

○ Improved lighting ○ Increased way-finding signs ○ Increased policing ○ Safe parking
○ Increased visibility ○ Increased activity ○ Assistance up/down steep hills ○ Other (specify): _____

C If the following services were available to you, **HOW OFTEN** would you use them?

	Never	Occasionally	Often	
1. Secure bicycle facilities at the ferry terminal	○	○	○	Do not know what FlexCars are
2. Vanpool services at your destination terminal	○	○	○	
3. FlexCars at your destination terminal	○	○	○	○

D If you **DROVE** your car onboard the ferry today, how would the following **IMPROVEMENTS** or policy changes affect your decision to bring a car in the future:

	Would continue driving	Might not need to bring my car	Definitely consider not bringing my car	Would not bring my car	Not applicable
1. Improved transit or shuttle connections at origin terminal	○	○	○	○	○
2. Improved transit or shuttle connections at destination terminal	○	○	○	○	○
3. Improved personal security while walking (better policing, lighting, etc)	○	○	○	○	○
4. Escalators or shuttles to address steep hills in Seattle	○	○	○	○	○
5. Secure bicycle parking facilities	○	○	○	○	○
6. More bike lanes and paths	○	○	○	○	○
7. FlexCars or other hourly car rental	○	○	○	○	○
8. Vanpool to and from terminal	○	○	○	○	○
9. More expensive auto fare relative to passenger walk-on fare	○	○	○	○	○
10. Safe nearby vehicle parking facilities	○	○	○	○	○

E **HOW LONG** have you been commuting on the ferry system?

Years: ☐☐

Please answer questions F and G only if you have used/will use the downtown Seattle ferry terminal (COLMAN DOCK) for any portion of THIS trip.

F If you took/will take transit to or from the downtown Seattle ferry terminal(Colman Dock), **WHAT TYPE** of transit did/will you use?
(mark all appropriate bubbles and answer follow-up questions)

○ Metro bus # ☐☐☐ ○ Community Transit bus # ☐☐☐ ○ Sound Transit bus # ☐☐☐
○ Sounder train ○ Other (specify): _____

WHERE did you get on/off the bus or train?

○ Alaskan Way ○ Second Avenue ○ King Street Station
○ First Avenue ○ Third Avenue ○ Other (specify): _____

G If you drove/will drive to or from the downtown Seattle ferry terminal(Colman Dock), **WHICH ROUTE** did/will you take? *(mark all that apply)*

○ South highways to/from ferry terminal along First Avenue S or S Alaskan Way ○ Through/from Pioneer Square
○ Through/from Central Business District ○ Along north waterfront

Thank you for your participation!

The information collected will be used to plan service that better meets your travel needs.
Return the completed insert and survey to the surveyor (in the red hat) OR drop them in any mailbox *(no postage required).*

If returning by mail, please include inside main questionnaire and close with tape.

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 5478 AUSTIN TX

POSTAGE WILL BE PAID BY ADDRESSEE

Washington State Ferries Travel Survey
3006 BEE CAVES RD STE A-300
AUSTIN TX 78746-9907