

CARBON FOOTPRINT: AIR TRAVEL AT THE UNIVERSITY OF WASHINGTON

Client: UW Sustainability Office

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PROJECT DESCRIPTION

- **Climate Action Plan (CAP):**
 - Carbon neutrality by 2050
 - Scope 1, 2, 3 emissions
 - Professional travel ~11% of total footprint
 - **Goals:**
 - Accurate accounting of UW air travel
 - Conduct and analyze surveys and interviews to uncover attitudes around flying
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PRESENTATION OUTLINE

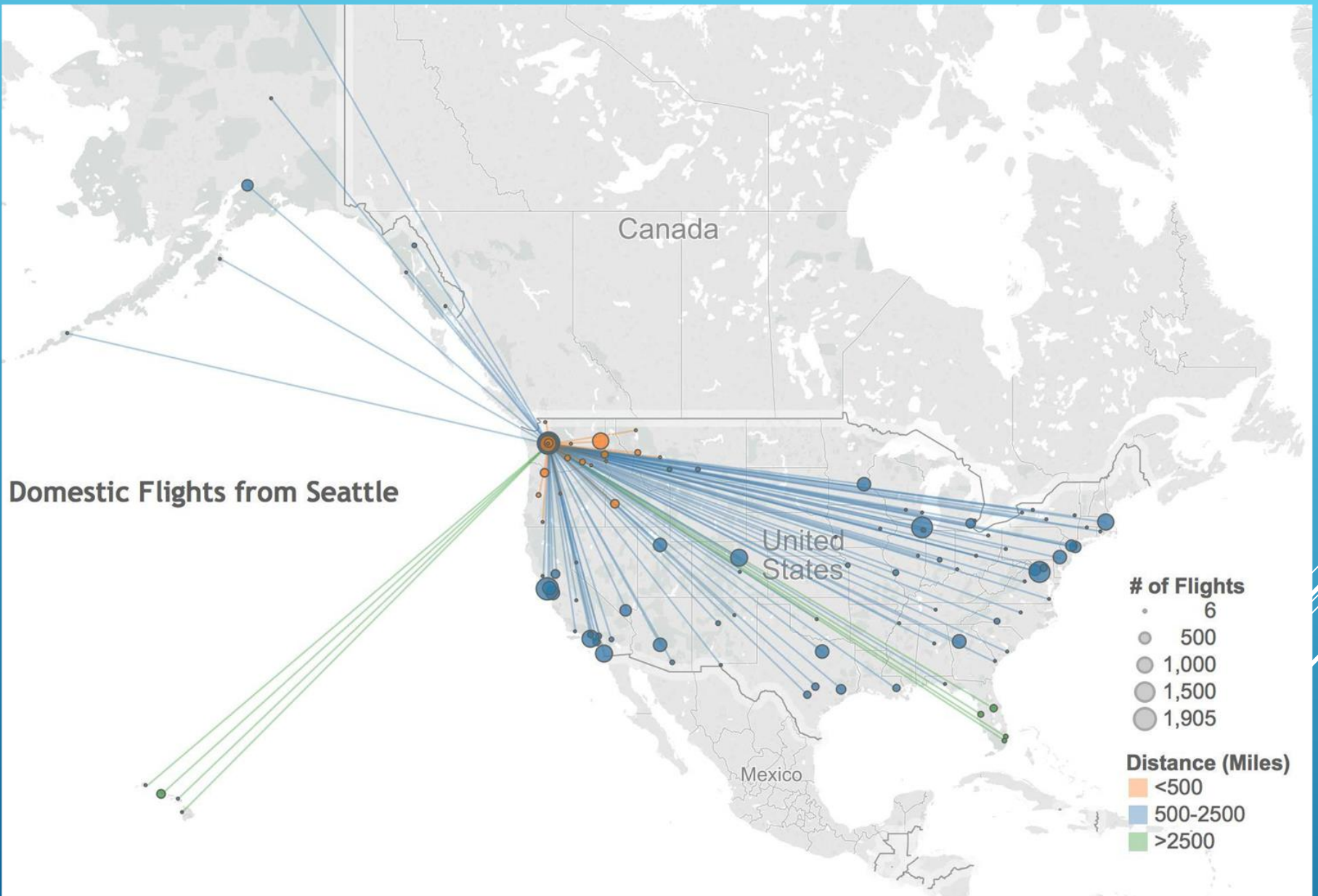
- Peer institution comparison
 - Analysis of current air travel data
 - Faculty and staff surveys
 - Faculty interviews
 - Recommendations
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PEER INSTITUTIONS

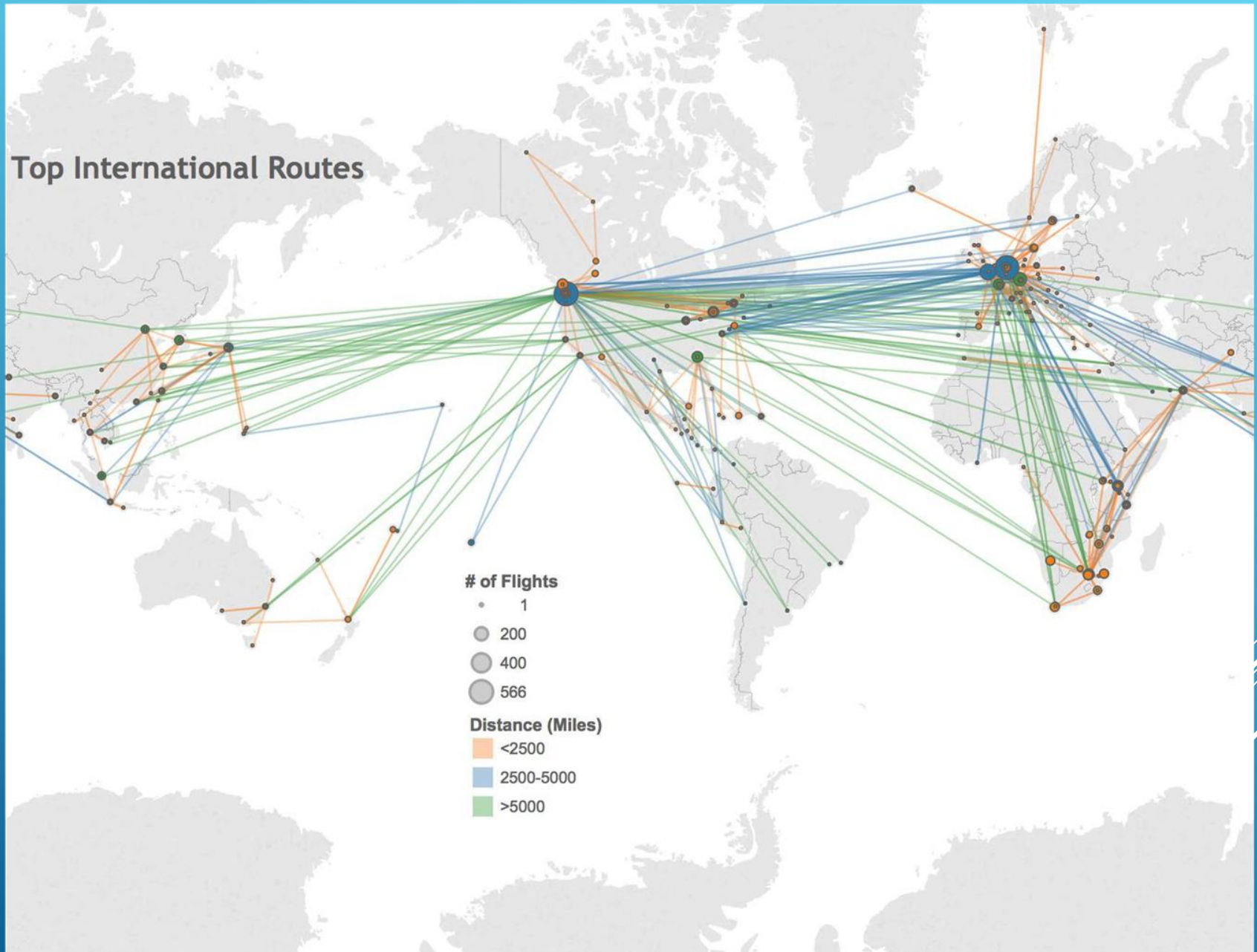
School	Population	Emissions Reductions	Year	Carbon Neutral	Carbon Emissions
UW	44,786	15% below 2005 levels	2020	2050	23,800 MTCDE (2014)
		30% below 2005 levels	2035		
UC-Davis	35,415	2000 levels	2014	As soon as feasible	16,516 MTCDE (2008)
		1990 levels	2020		
UC-Berkeley	37,581	1990 levels	2014	2025	20,998 MTCDE (2007)
Arizona State	83,301			2025	27,689 MTCDE
Oregon	24,181	10% below 1990 levels	2020	2050	21,544 MTCDE (2008)
Cornell	21,850			2035	59,000 MTCDE (includes commuting)

CURRENT DATA ANALYSIS

- Three data sources for 2014
 - Central Travel Account (CTA)
 - eTravel
 - Intercollegiate Athletics (ICA)
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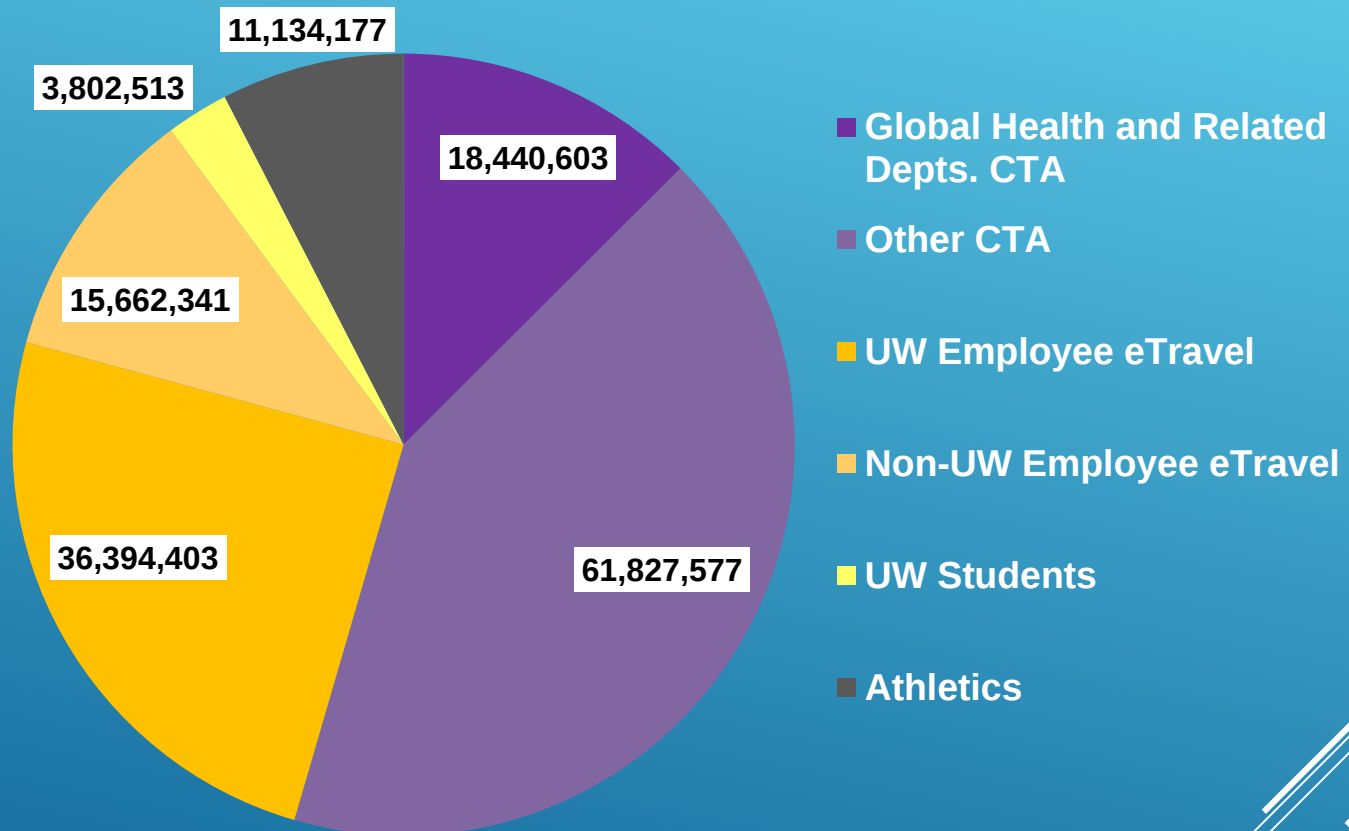


Top International Routes



Frequent Fliers

Distance Flown on Behalf of UW



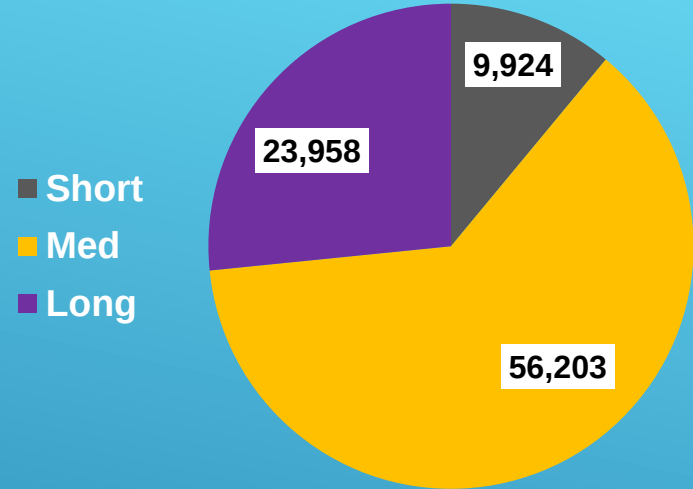
*in miles

ANNUAL TOTALS (2014)

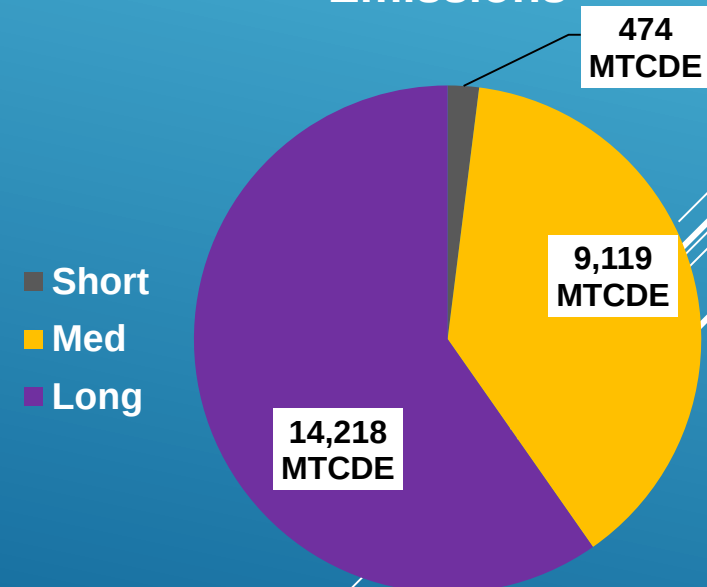
- Distance = 136 million miles
- Carbon Dioxide Equivalent = 23,800 MTCDE
 - 23% higher than 2015 UW GHG Report estimate
 - = annual emissions of 5k cars

Short-haul: <300 miles
Medium-haul: 300-2300 miles
Long-haul: >2300 miles

Number of Flights



Emissions



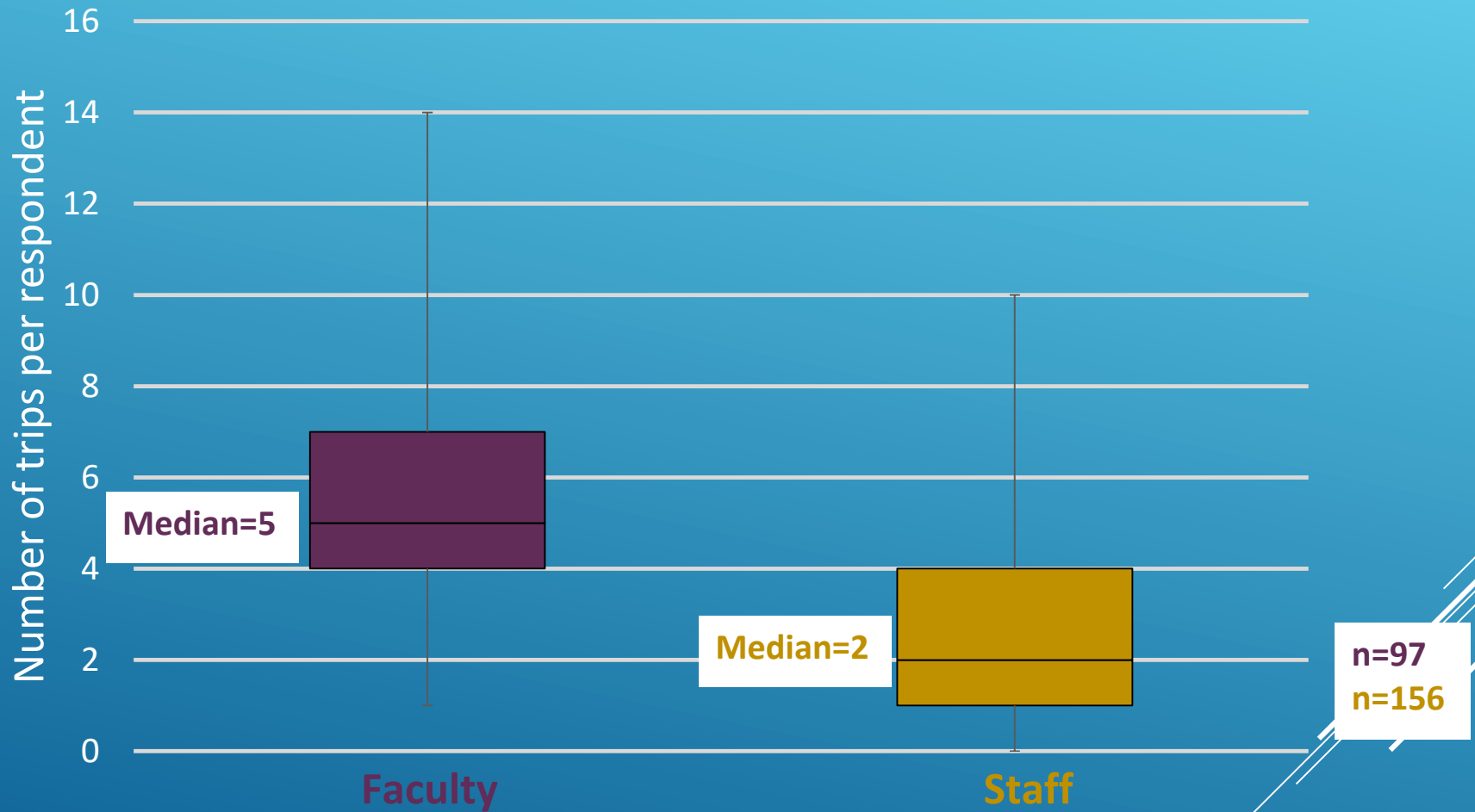
*All carbon emissions calculations based on EPA guidelines

FACULTY & STAFF SURVEY ANALYSIS

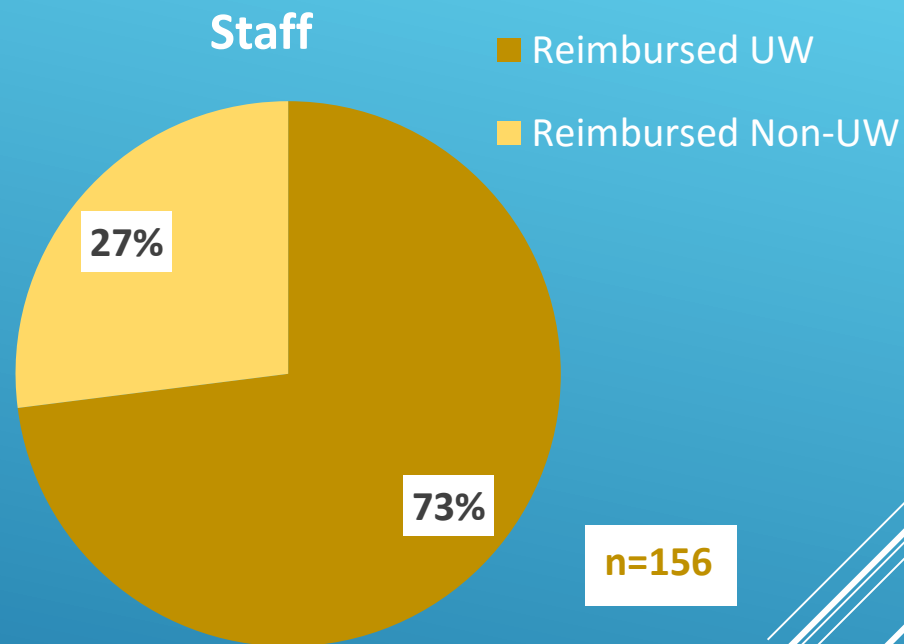
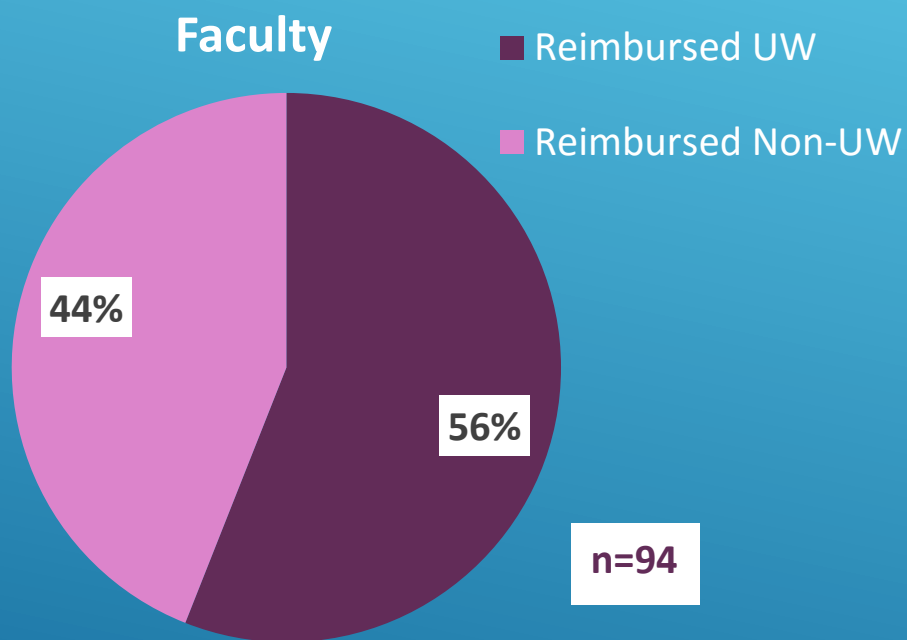
- Data Collection
 - Qualtrics
 - Targeted top flying departments
- Data Analysis
 - Descriptives and t-tests*
 - Responses from all ages, ~25 departments

*Small sample size affected statistical significance of most hypothesis tests

2015 TRIPS

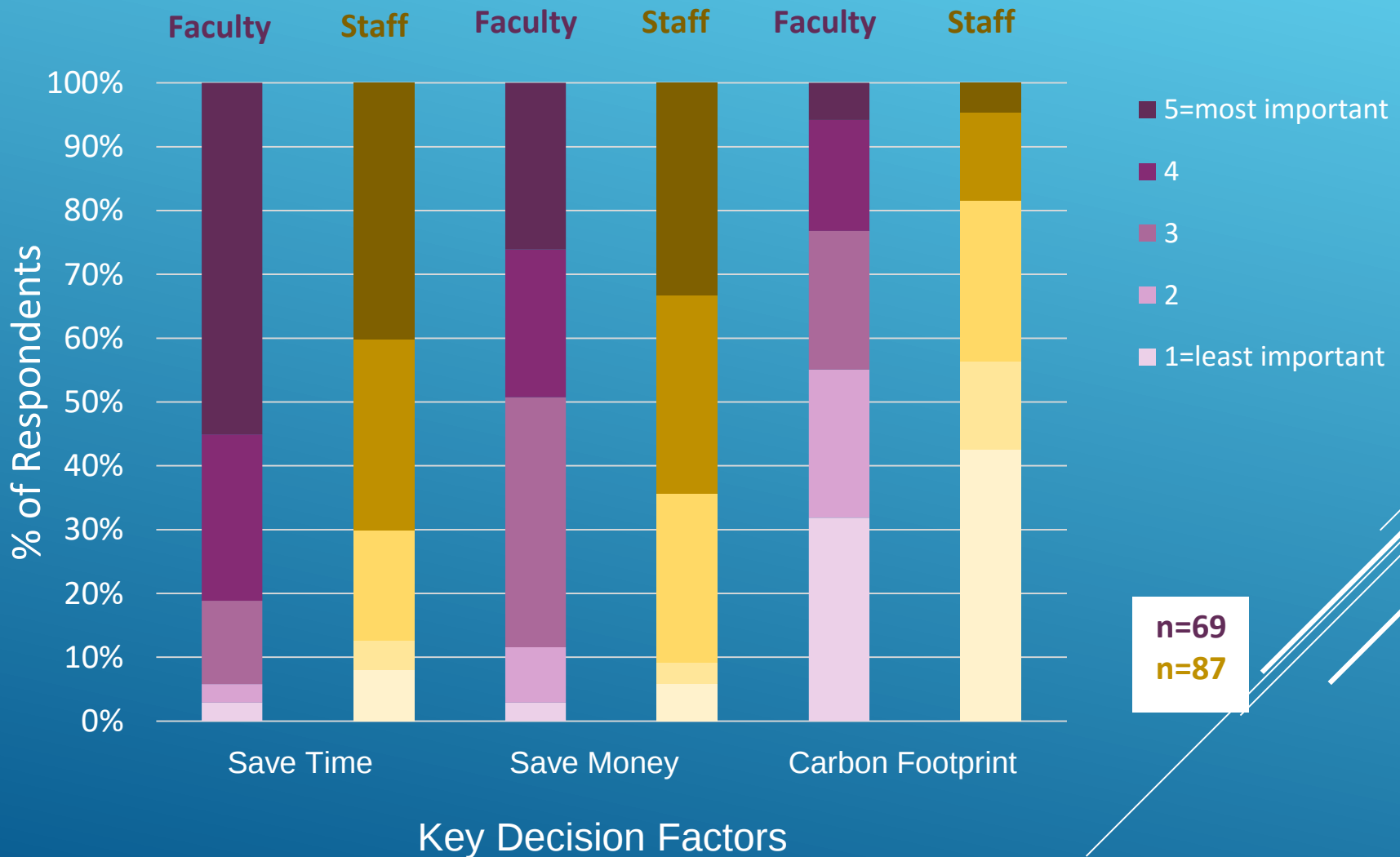


REIMBURSED UW VS NON-UW



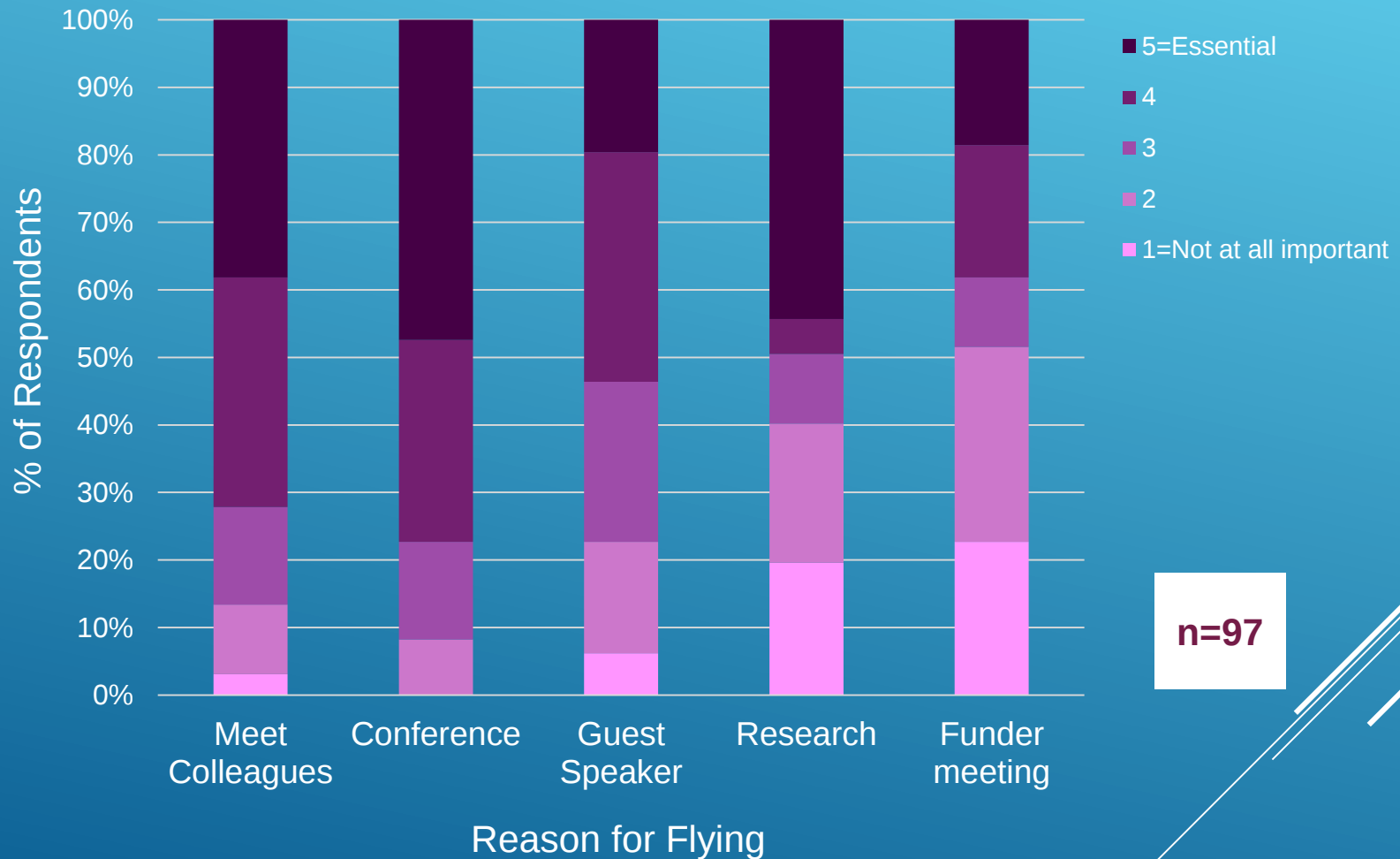
*UW potentially missing a sizable chunk of emissions from air travel

FACTORS FOR BOOKING AIR TRAVEL

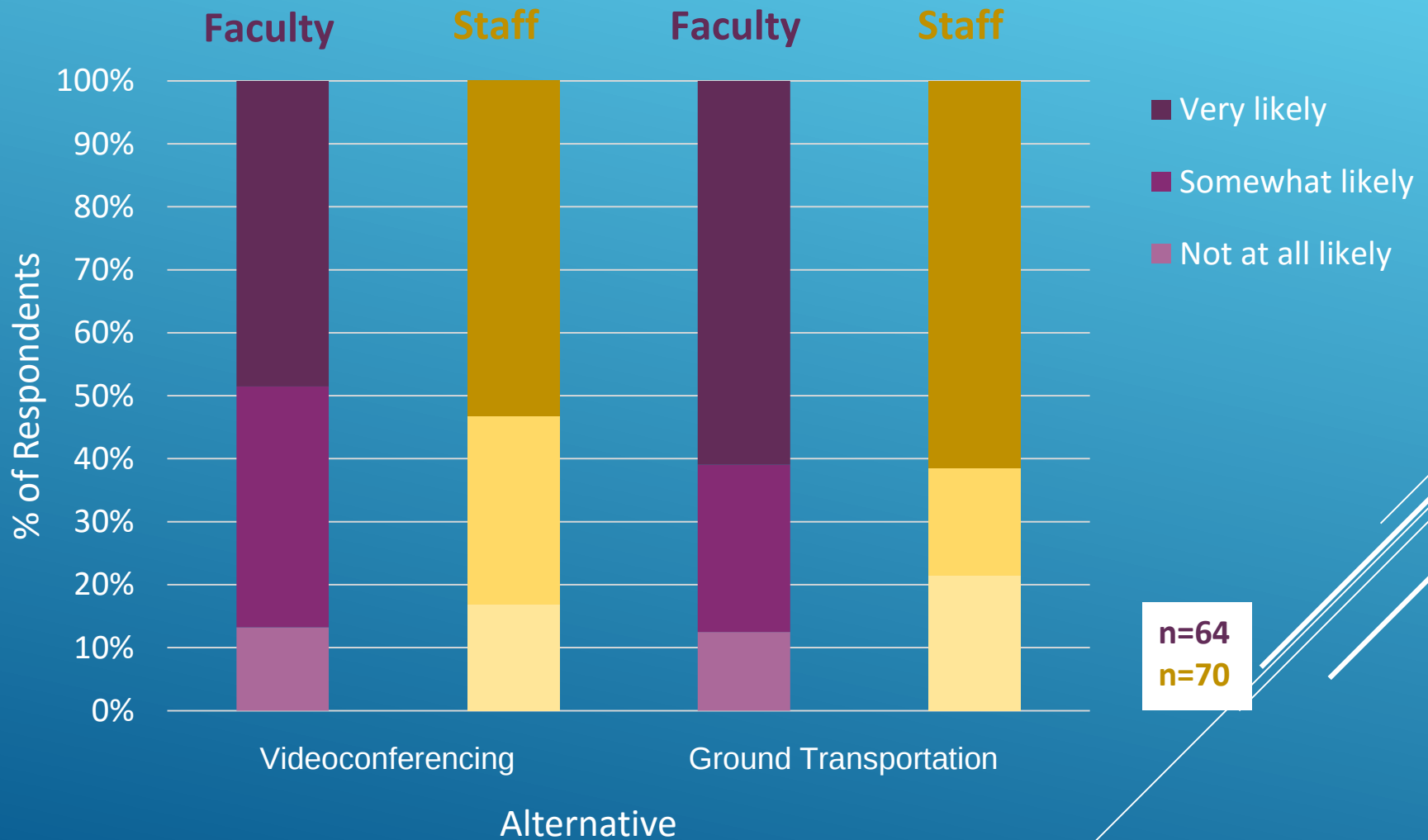


WHY FACULTY FLY

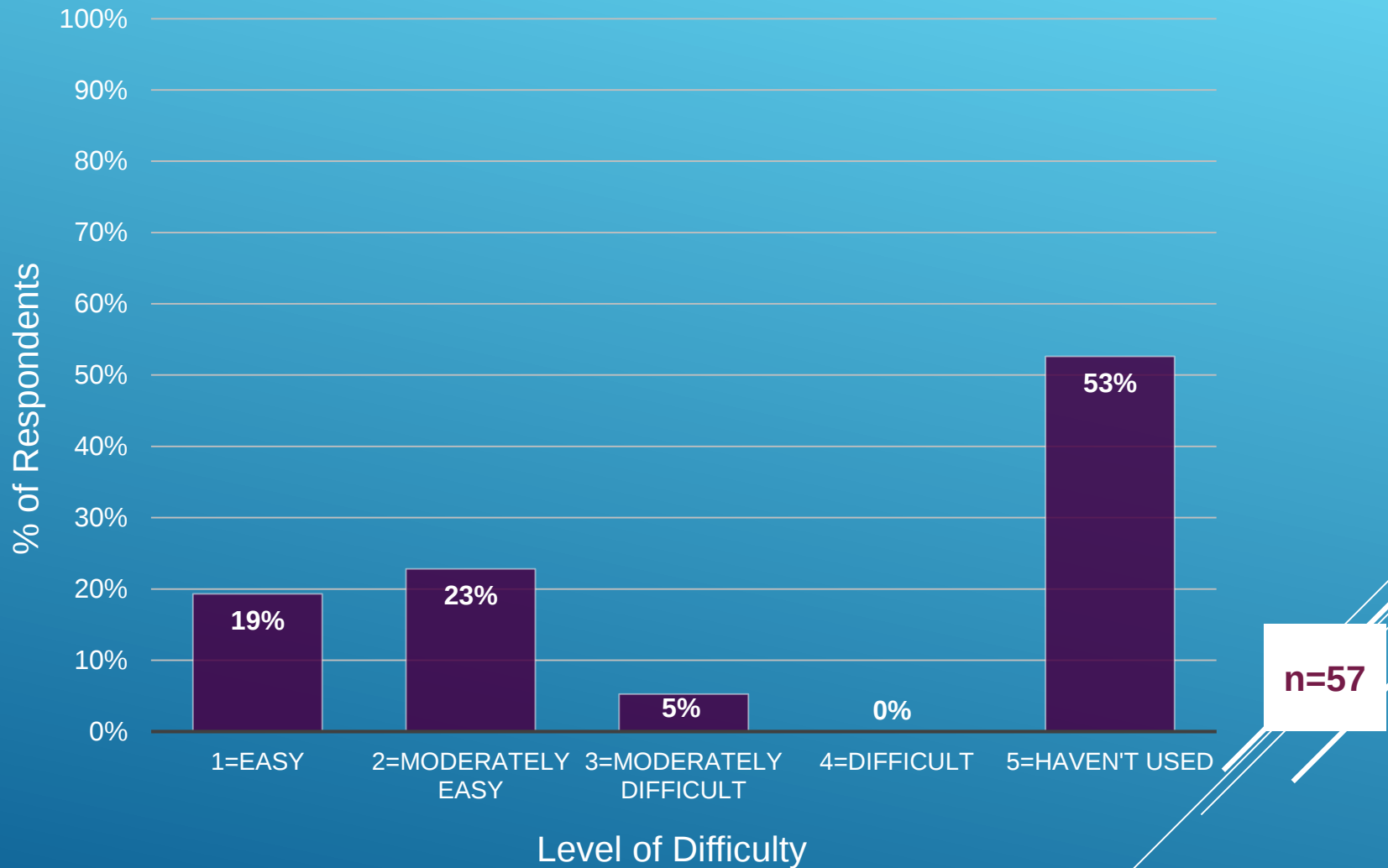
Stated Importance of Flying



ALTERNATIVES TO FLYING

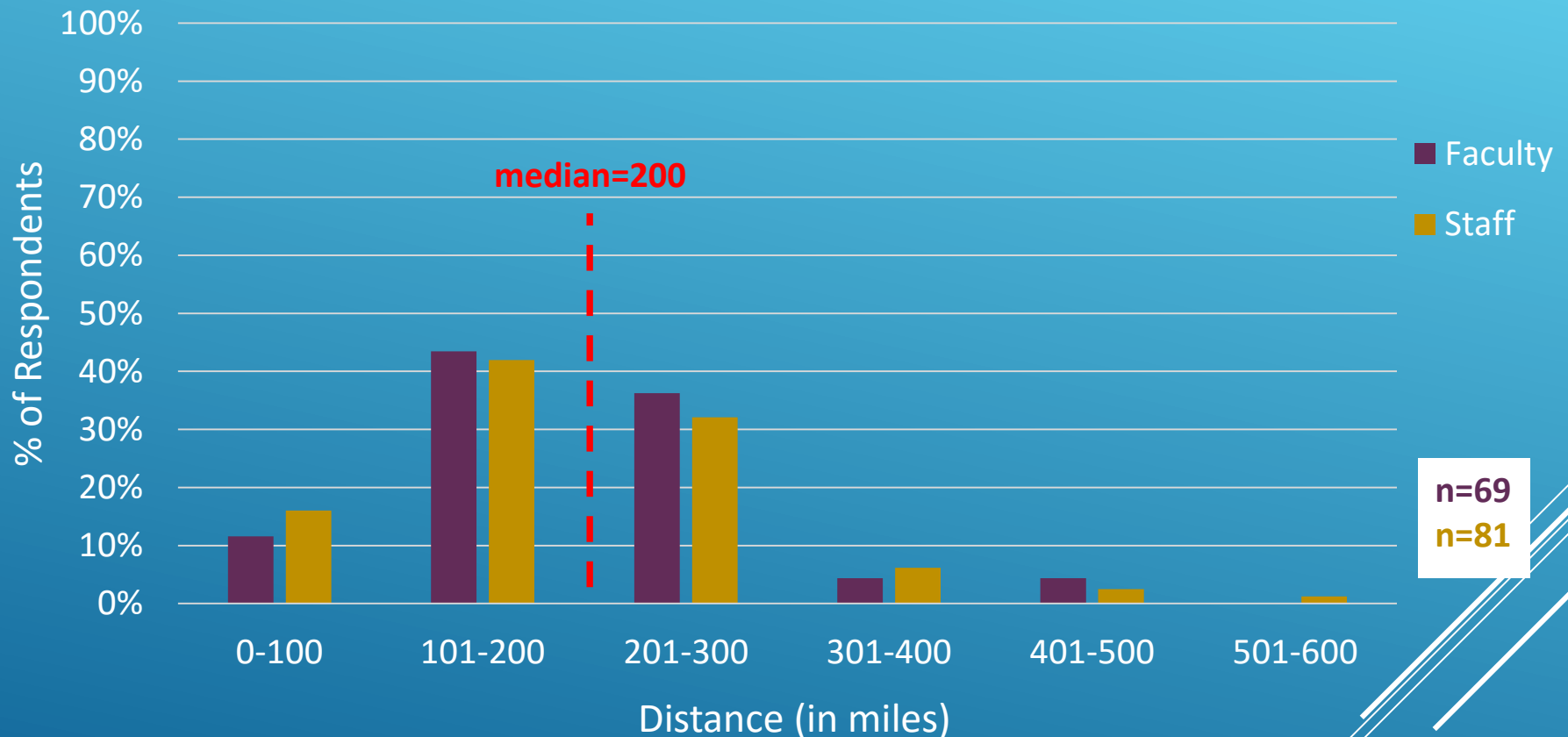


VIDEOCONFERENCING



*Faculty only

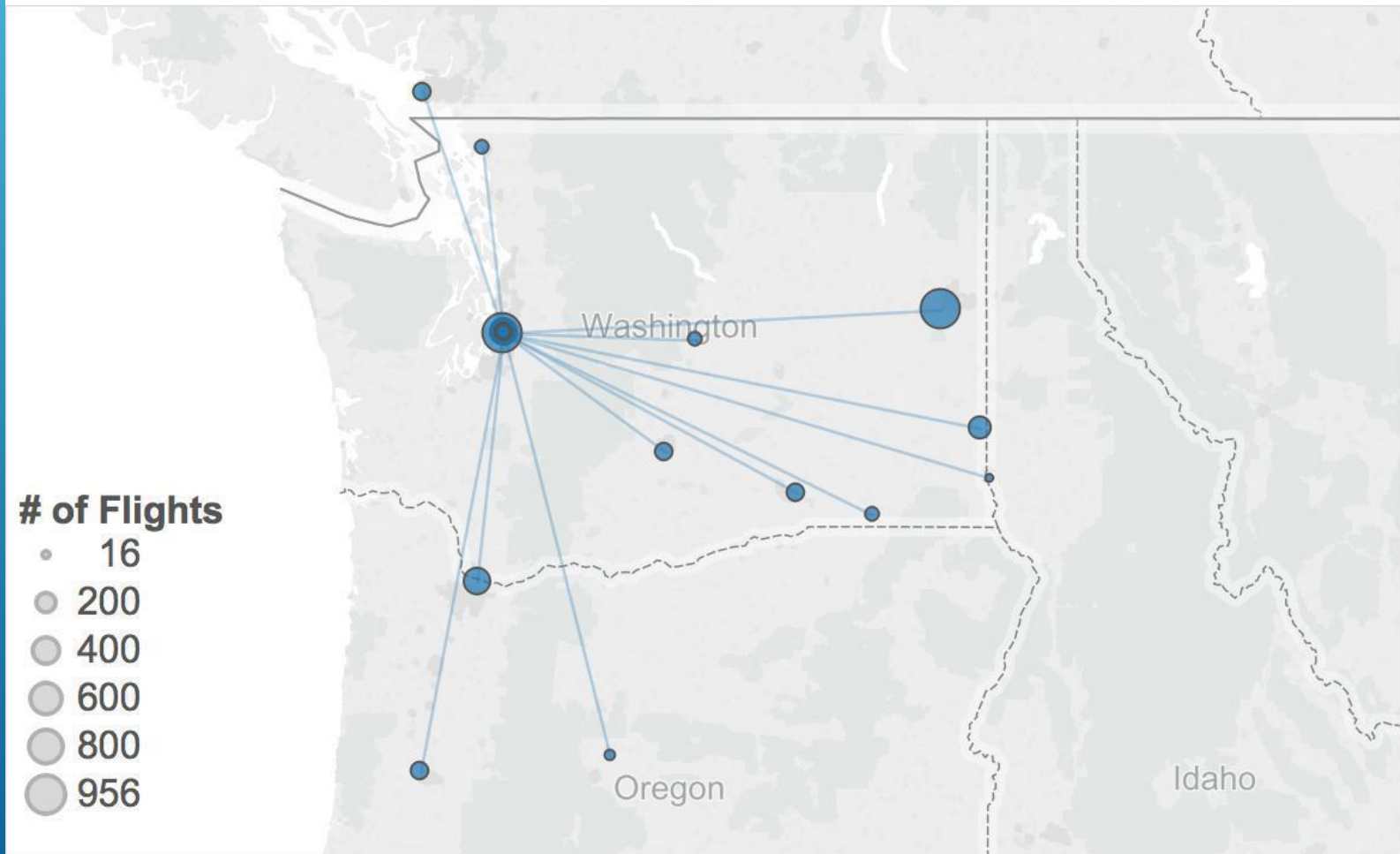
GROUND TRANSPORTATION



*61% of faculty/staff stated very likely to use ground transportation

REASONABLE DRIVING DISTANCE?

Regional Flights to/from SEA (<300 mi)



REASONABLE DRIVING DISTANCE?



- Seattle to Pullman = 285 miles
- Seattle to Spokane = 280 miles
- Seattle to Portland = 180 miles
- Seattle to Yakima = 140 miles

CARBON OFFSET WILLINGNESS TO PAY



n=46

*Faculty only

STATISTICAL SIGNIFICANCE

STAFF					FACULTY			
Research Question	Answer	p-val	n	means	Answer	p-val	n	means
Are younger faculty/staff more likely to be reimbursed by UW?	Yes	0.05	50+ = 47 <50 = 109	50+ = 63% <50 = 78%	No	-	-	-
Are older faculty/staff willing to drive longer distances?	No	-	-	-	Yes	0.05	50+ = 43 <50 = 26	50+ = 249 <50 = 202

COMPARING 'ENVIRONMENTAL' TO 'OTHER' DEPARTMENTS

STAFF				FACULTY		
Research Question	Answer	p-val	n	Answer	p-val	n
Have faculty/staff from environmental departments been offered carbon offsets more than others?	Yes	0.02	Env=30 Other=57	No	-	-

*In general, sample sizes were small and thus lacked statistical power

FACULTY INTERVIEWS



KEY THEMES

- High variability in booking method
 - Time of utmost importance
 - Many faculty wish they could travel less - *“we all hate to travel and do it as little as possible”*
 - Healthy skepticism of carbon offsets - *“offsets are unverifiable bulls***”*
 - Individual choices matter little
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RECOMMENDATIONS

- Detailed air travel accounting
 - Better promote videoconferencing facilities
 - Long way to go on carbon offsets
 - COMMUNICATE AND SHARE IDEAS
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ACKNOWLEDGEMENTS

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 - Zack Howard, UW Transportation Services
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 - The faculty who granted interviews and everyone who responded to our survey
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QUESTIONS

