



Vanpool Potential Between USM's Lewiston Campus, Portland Campus and Gorham Campus

In recent years, there has been a growing demand for a van or bus connection between USM's Lewiston campus and USM's other two campuses in Portland and Gorham. No feasibility study has been done before. This is an initial inquiry, based off survey responses from *USM's 2019 Transportation Survey*. 2019 headcount data, for both the student population and total population, was used to scale up the survey responses for the entire population. Total population headcount data includes students, faculty and staff. In the tables below, the **bold** numbers reflect calculated theoretical trips that occur between Lewiston and either Gorham or Portland on a weekly basis.

Portland-Lewiston			
	Motorcycle/Moped	Single Occupancy Vehicle (SOV)	Carpool
Weekly Trips from Survey	7	99	45
Weekly Trips Scaled up to Student Headcount: 8,140	57	806	366
Weekly Trips Scaled up to Total Pop: 9,123	64	903	410
Individual Riders from Survey	2	22	16
Riders Scaled up to Student Headcount: 8,140	16	179	130
Riders Scaled up to Total Pop: 9,123	18	201	146

Gorham-Lewiston			
	Motorcycle/Moped	Single Occupancy Vehicle (SOV)	Carpool
Weekly Trips from Survey	4	63	47
Weekly Trips Scaled up to Student Headcount: 8,140	33	513	383
Weekly Trips Scaled up to Total Pop: 9,123	37	575	429
Individual Riders from Survey	2	12	11
Riders Scaled up to Student Pop FTE: 8,140	16	98	90
Riders Scaled up to Total Pop: 9,123	18	109	101

USM Mode Proportionality (All 3 Campuses)

	Miles Traveled	Mode Proportion
Motorcycle	358,736	0.01
Personal Vehicle Miles	42,552,982	0.79
Bike/Walk	2,382,429	0.04
Bus Passenger Miles	8,351,881	0.16
Total	53,646,028	1

It is important to understand the mode choice proportionality at USM. Mileage data is derived from the *2019 Transportation Survey*, is calculated, and scaled up to the USM total population. Proportionality was then calculated. The data suggests that single occupancy vehicle use accounts for 79% of all trips taken to USM, while 16% of all miles traveled were from existing bus passengers.

Calculating Estimated Potential Daily Ridership between Lewiston to Portland and Gorham

It is possible to calculate a rough estimate of daily ridership on a proposed bus route with scaled-up weekly ridership and mode mileage. *One-way Weekly Trips* is the raw data from the *2019 Transportation Survey*, consisting of the total mileage of motorcycle/moped, single occupancy vehicle, and carpool. That data is then scaled up and divided by five to estimate a rough daily ridership count. Daily ridership between Lewiston and both Portland and Gorham is then multiplied by .16. This is the mode proportion of bus ridership based off scaled-up mileage.

	Portland-Lewiston	Gorham-Lewiston
One-Way Weekly Trips	151	114
One-Way Weekly (Scaled)	1377	1041
Estimated One-Way Daily (Scaled)	276	208
Estimated Potential Daily Bus/Van Riders (One Way)	44	33
Estimated Potential Daily Bus/Van Riders (Two-Way)	22	17

Portland to Lewiston and Gorham to Lewiston have similar estimated potential bus/van ridership. The Portland-Lewiston route has a slightly higher estimated demand.

Early Thoughts

Scaling up the *2019 Transportation Survey Data* with 2019 total population headcount data indicates that there are significant trips occurring between Lewiston and both Portland and Gorham. More motorcycle/moped and single occupancy vehicle trips are done between Portland and Lewiston. However, carpooling occurs at a slightly higher rate between Lewiston and Gorham.

A hypothetical 40-passenger bus traveling between both the Portland-Lewiston route and the Gorham-Lewiston route would likely *not* be filled even if a single two-way trip were taken once a day with all potential passengers on board. However, a 12-passenger van traveling between the Portland-Lewiston route and the Gorham-Lewiston route could possibly be nearly filled for two, two-way trips per day. This preliminary data exercise indicates that Lewiston is a demonstrated origin or destination vis-à-vis trips to both Portland and Gorham. **The perceived demand for a small, once or twice a day mass-transit option, such as a vanpool, is backed by data.**

There are other ideas to consider in this initial inquiry. Since most classes at USM are Monday-Thursday, then a service offered on just those days would possibly be better utilized than a 5-day service. If a service was offered between Lewiston and Westbrook (mid-point between Portland and Gorham), then it is possible that ridership demand would be higher than it would be for either of the independent trips. This would only be possible if there was good connectivity both Portland and Gorham via the Metro Husky Line.

Assumptions & Potential Sources of Error

-Using headcount data rather than full time equivalent (FTE) has the potential to over-estimate scaled up trips for the entire USM population. Originally, FTE data was used in calculations. However, the mileage for each mode was calculated based on total population numbers, so it made sense to match the population sources.

-In the *2019 Transportation Survey*, researchers suspect that numerous respondents answered the *number of weekly trips* question incorrectly. Traveling between Lewiston and another campus generates two trips. Many respondents answered this question as a single trip. If all respondents had answered the survey correctly, then it is possible that scaled up weekly trips would be calculated slightly higher.

-Calculating the *Estimated Potential Daily Ridership* between Lewiston to Portland and Gorham based off mode proportionality from mileage is an assumption. Most of the bus mileage is derived from the Portland Metro Husky Line between Portland and Gorham, with a smaller amount originating from Lewiston students taking the CityLink bus. Both Portland and Gorham are larger campuses that are near one another. Lewiston is a smaller campus that is more geographically isolated from the rest of USM. This indicates that the bus proportionality number (16%) is not a perfect match for estimated bus trip proportionality between Lewiston and Portland and Gorham, since such a bus route does not presently exist.

- One of the final questions of the *2019 Transportation Survey*, was open-ended, asking what improvements respondents wanted to see at USM. Approximately 25 respondents mentioned having either a bus or a vanpool between LAC and at least one of the other campuses as an improvement. Since the data was more qualitative, it was not presented here. However, it is still important to note as it supports the conclusions offered in this narrative.