



WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
FERRIES DIVISION

FINAL LONG-RANGE PLAN

APPENDIX G
ANNUALIZATION FACTORS FOR RIDERSHIP ANALYSIS

ANNUALIZATION FACTORS FOR RIDERSHIP ANALYSIS

The annual ridership projections used for long range planning purposes were developed using the methodology described below.

PROJECTION METHODOLOGY

Projecting PM Peak Ridership

PM Peak Ridership was projected using the WSF Travel Forecasting (Planning) EMME Model. For technical and methodology details about this model, please see Appendix D: Ridership Forecasting Technical Report.

The EMME Model projects total vehicle ridership and total ridership for the four-hour afternoon peak period during a typical Wednesday in the month of May, for the years 2020 and 2030. Given that the San Juan Islands routes don't experience an afternoon commute peak traffic pattern, it projects average daily ridership for these routes. These peak period and daily ridership numbers were forecasted separately for Eastbound and Westbound traffic and then combined to create a total peak period traffic count for each route.

Annualizing PM Peak Ridership

Since the EMME Model supplied PM Peak Ridership, it was necessary to scale this traffic count up into an annual ridership figure.

First, an "Annualization Factor" for each route was calculated that gives a ratio between actual annual Ridership in 2006, and the actual PM Peak Period Ridership for a typical weekday in May 2006. This factor was calculated as follows:

$$(2006 \text{ Total Ridership}) \div (2006 \text{ May PM Peak Ridership}) = \text{Annualization Factor}$$

This factor was then used to calculate annual ridership for 2020 and 2030 which corresponded with the EMME Model May PM Peak Ridership projections for those years. The PM peak vehicle ridership for each year was multiplied by the vehicle annualization factor, and the PM Peak total ridership was multiplied by the total ridership annualization factor. This resulted in annual vehicle and total ridership figures for 2020 and 2030. Annual passenger ridership was calculated as the difference between total and vehicle ridership.

Annual ridership for each individual year in the Plan was calculated using the assumption that ridership would grow at a linear rate between the estimated data points (2006, 2020, 2030). An annual average growth rate between the 2006 and 2020 annual ridership points was calculated, and applied to all years between 2006 and 2020. A separate annual average growth rate was calculated and applied to the years between 2020 and 2030.

Exhibit 1 below shows all of the calculated Annualization Factors by Route.

ANNUALIZATION FACTORS BY ROUTE

Exhibit 1 Annualization Factors by Route

Route	Vehicle Factor	Total Ridership Factor
Pt. Defiance-Tahlequah	1,363	1,510
Southworth-Vashon	1,168	1,427
Fauntleroy-Vashon	1,076	1,010
Fauntleroy-Southworth	1,066	1,033
Seattle-Bremerton	876	922
Seattle-Bainbridge Island	1,260	1,186
Edmonds-Kingston	1,225	1,362
Mukilteo-Clinton	1,359	1,471
Pt. Townsend-Keystone	1,118	1,087
Anacortes-San Juans	358	399
San Juans Inter-Island*	478	478
Sidney, B.C. Int'l Route Legs	590	572
Total Weighted Average	1,012	1,043

OTHER CONSIDERATIONS

The methodology described above overestimated 2008 annual ridership when compared to actual ridership for all routes but Sidney. This is likely because the methodology assumes a slow, steady increase between 2006 and 2020. 2008 annual ridership was below 2006 ridership levels and deviated from this trend. For this reason, Exhibits presented in the Final Long Range Plan that reference 2008 annual ridership use actual ridership in lieu of projected 2008 numbers.

In addition to assuming the May peak to annual ridership relationship will not change over the 22 year planning horizon, this methodology assumes that there is no seasonal fluctuation in the peak to annual ridership relationship throughout the year. For routes that have a high proportion of recreational riders may not hold true.

During development of the long range plan, ridership data for a week in January, May, and August 2006 was analyzed to help understand seasonal peak to daily ridership relationships and evaluate seasonal pricing strategies. Ultimately, the method described above (which does not include seasonal differentiation) was used for planning purposes. However, to the extent that WSF chooses to pursue more targeted demand management strategies focused on times of day or seasons, this annualization methodology may need to be refined.