# **M E M O R A N D U M**

To: Michael Tree

From: Thomas Wittmann, Linda Rhine, and Scott Chapman

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Subject: Questions Relating to Free Fares for Mountain Line

This memorandum presents a high level analysis for Mountain Line as the agency considers whether to further pursue transitioning from a paid-fare to a free-fare system. It addresses three key questions discussed below.

1. If fares were eliminated ridership gains have been estimated at 25% based on an elasticity value of -0.52 for passengers currently paying a fare. This elasticity factor is based on research on a number of fareless demonstration projects that demonstrate the effect of eliminating fares. [[1]](#footnote-1) Based on 2012 existing ridership of 924,469 (including transfers), an estimated 230,000 new riders are projected if fares were eliminated. This assumes no growth in UM ridership given the special pass arrangement currently in place.
2. Travel time impacts can be estimated based on a reduction in boarding time if passengers do not pay a fare. National research has been conducted on quantifying boarding delays when a fare payment is introduced and is measured on a per-boarding basis. This research can be applied when fare payment is eliminated. Based on existing research, all passenger boardings require 2.5 seconds per passenger, even when not paying a fare. [[2]](#footnote-2) If fares were eliminated, travel times on most routes would be improved. However, much of this travel time improvement would be offset by additional stops and additional boarding time caused by an increase in the number of passengers. Overall, the no changes in travel time are anticipated as a result of eliminating fares.

While the dwell time savings are not expected to be significant, it can have a positive impact on some of the busiest routes. For example, the routes that are the busiest and currently carry a high number of passengers such as Routes 1 and 2 will likely experience the most ridership gains. On these routes, there are a heavily pronounced peak trips such as those associated with University or school “bell times” which would experience travel time savings and help ensure schedule reliability. Although the recent improvements to the system addressed on-time performance problems, the travel time savings would further protect schedule adherence for the peak of the peak trips.

1. With a 25% gain in ridership growth, a question arises whether additional buses would be needed to increase capacity. Overall, it is anticipated that much of the growth in ridership will be in discretionary trips such as seniors and others taking more mid-day trips when school is in session, and high school students traveling after school and on weekends. For example, the ridership on trips to the University will not see large increases as most riders can currently ride for free. Because of the projected increase in discretionary trips at non peak times, and in lesser markets, there will not likely be a need for additional buses over long portions of the day.

Some individual trips are currently experiencing heavy loads and the increased ridership may require additional buses on just those trips. For example, Routes 1 and 6 have select trips with standing room only but may not exceed a 1.5 load factor on the average, suggesting additional passengers can be accommodated. However, there may be a need to consider an extra bus on some of the peak runs such as Route 1 Outbound at 9:45 AM and Route 6 Inbound at 7:15 AM. It would not be necessary to run an extra bus throughout the day, but rather to double head some peak trips and operate a “follower” that would lag behind by a few minutes to increase capacity.

From a costing perspective, Mountain Line should plan for the need for two additional peak buses to improve capacity. At least three hours of revenue times per bus should be accounted for, or approximately 1,500 annual revenue hours. This strategy, adding capacity only to those trips that need it, is consistent with Corvallis’s recent conversion to fare free (Corvallis added three peak hour buses).

1. Paratransit ridership tends to be more inelastic when responding to fare changes. This is because passengers are frail seniors and/or persons with disabilities who rely heavily on these services for non-discretionary trips. The transit industry has generally found that ADA ridership does not decline after a fare increase primarily because there is enough pent-up demand that any rider who does discontinue using the service is immediately replaced by another rider. If fares were eliminated, then some new ridership may be generated on the senior van or ADA Paratransit service. In addition, the Mountain Line ADA Paratransit service is relatively productive carrying 2.5 passengers per hour on the average.[[3]](#footnote-3) This suggests that the system can absorb marginal increases in ridership without necessitating significant fleet or operator expansion.

**Summary**

Eliminating fares is an enormous and complex issue that should be carefully considered in the context of the agency’s overall goals. If Mountain Line ultimately elects to go fareless, then it is important to recognize that this is a “game changer” and it would be very difficult to return to a fare-paid system in the future.

Cost saving factors to be considered are the existing operating costs to administer a fare structure including staff time for sales, distribution, marketing and public information, accounting, fare reconciliation and equipment maintenance. If fares are eliminated, then these ongoing operating costs would be eliminated. Capital costs would also be impacted because there would no longer be a need to purchase or upgrade farebox equipment, spare parts and specialized hardware. With a good understanding of the financial implications of a fareless system focusing on the potential ridership gain and loss in passenger fare revenue and estimated operating and capital costs savings, the policy board should consider the political will of the people of Missoula before making this important decision.

1. TCRP Report 95, Chapter 129. [↑](#footnote-ref-1)
2. Transit Cooperative Research Program (TCRP 100- Transit Capacity and Quality of Service Manual) [↑](#footnote-ref-2)
3. 2011 NTD Data [↑](#footnote-ref-3)