

Time Savings and ROI from B and D BRT Line Investments

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INTRODUCTION

Transit is critical to the Twin Cities region. It connects our residents to jobs, educational opportunities, daily needs, civic and cultural amenities, social opportunities, and more. Transit supports cleaner air and a stable climate. Transit provides a cost-effective and comprehensive alternative to car dependence.

Yet for too many of our community members, using transit is somewhere between a chore and an active barrier to more time working, learning, or being with their families. That is because many of our core transit routes—those that travel along key corridors in our center cities and dense suburbs—travel at excruciatingly slow speeds. Anecdotes of people walking faster than buses through downtown Minneapolis are common, and buses regularly travel at less than half the speed of a car.¹

This reality could change for nearly 18,000 daily riders if the Minnesota State Legislature votes to approve the Metropolitan Council’s request and dedicate \$55 million in state bonds to fully fund the B and D Bus Rapid Transit lines.

As this white paper reveals, **building the D and B lines will save existing riders nearly 1 million hours of currently wasted travel time each year.** Further, based on the value of this time saving alone, **the B and D lines will deliver a return on investment of \$15 million to \$20 million each year,** repaying the \$55 million in state investment in just 3 to 4 years.

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¹ Sam Rockwell, *Minneapolis Should Combat Climate Change and Inequality with Bus Lanes*, Minnpost (2018), <https://www.minnpost.com/community-voices/2018/05/minneapolis-should-combat-climate-change-and-inequality-bus-lanes/>.

I. BACKGROUND ON BUS RAPID TRANSIT AND THE B AND D LINE CORRIDORS

The Metropolitan Council has requested \$55 million to build the proposed B and D Bus Rapid Transit (“BRT”) routes. Metro Transit defines BRT as “package of transit enhancements that adds up to a faster trip and an improved experience.”²

The B Line, once built, would largely replace the #21 local bus route and connect from west of Uptown Minneapolis to Downtown St. Paul through dense and transit-dependent neighborhoods along Lake Street, Marshall Avenue, and Selby Avenue.³

The D Line, once built, would largely replace the #5 local bus route and connect the Mall of America in Bloomington to the Brooklyn Center Transit Center through dense Minneapolis neighborhoods, predominantly along Chicago Avenue and Fremont Avenue.⁴

The current #5 and #21 lines are the two highest-ridership bus lines in the state of Minnesota, with the #5 generating about 7% of the system’s total ridership and the #21 generating about 5.5% of the system’s total ridership, for a total of just under 18,000 rides each day on the two lines combined.⁵

Sixty-six percent of the #5’s ridership are non-white riders while 48% of the #21’s ridership are non-white riders.⁶ Thus, both of these lines serve greater percentages of Black, Indigenous, and people of color than the system as a whole, in which 44% of riders are Black, Indigenous, and people of color.

II. TIME SAVINGS ANALYSIS

The #21 bus currently serves 10,000 people per day on average, while the #21 serves 7,900 people each day on average. They both travel slowly: the #5 travels at 10.4 miles per hour and the #21 travels at 9.4 miles per hour according to timetables published by Metro Transit.⁷

² <https://www.metrotransit.org/brt> (a more detailed definition is available in the preceding link).

³ <https://www.metrotransit.org/b-line-project>.

⁴ <https://www.metrotransit.org/d-line-project>.

⁵ “Top 20 Busiest Routes as a Percent of Total Bus Ridership,” October 2019 (provided by Metro Transit). See also <https://metrocouncil.org/Council-Meetings/Committees/Transportation-Committee/2020/March-9,-2020/Info-1-2019-4th-Quarter-Ridership-Report-Final.aspx>.

⁶ Metro Transit On Board Survey data, 2016.

⁷ Times drawn from the May 21, 2020 published timetables for a #5 segment (38th and Chicago to 8th and Chicago) and a #21 segment (Lake and Lyndale to Lake and 36th), both around 7:30AM.

Existing non-highway BRT lines, in contrast, travel at an average of 19.9 miles per hour according to published Metro Transit timetables.⁸

Assuming the B and D lines will travel at speeds comparable to the existing A and C lines, the total time saved per rider on a three-mile journey comes to 8.3 minutes on the 5/D corridor and 10.1 minutes on the 21/B corridor.⁹

Multiplying the individual rider time savings by the total annual ridership of each line reveals a **combined total annual time saving for all riders across both lines of 983,225 hours, or 112 years worth of saved time each year** from the transition from regular-route local service to BRT.

III. RETURN ON INVESTMENT ANALYSIS

The most straightforward way to calculate the economic return on investment (“ROI”) from this time saving is to calculate the value of the time lost at an earnings rate. **At just \$15 per hour—the soon-to-be minimum wage in the cities of Minneapolis and St. Paul, where most of the lines are located—the time-value of the B and D line investments comes to \$14.7 million annually. At \$20 per hour, the time value of the B and D line investments comes to \$19.7 million.**¹⁰ This produces between a 2.8 and 3.7 year payback period on the state’s \$55 million investment.

While this study does not engage in analysis beyond this calculation, we recognize that merely assigning a wage rate to the value of transportation time savings significantly undercalculates the value of that saved time. For example, for every hour saved, some riders will be able to save on childcare costs; for every hour saved, some riders will be able to cook a meal at home rather than order delivery or pay for a meal out or to-go; for every hour saved, some riders will be able to spend time helping their children with homework, generating additional ROI’s from heightened academic achievement and opportunity; for every hour saved, some riders will experience reduced stress and will save on associated mental and physical healthcare costs and will increase productivity in other pursuits. The list of direct and indirect benefits is nearly endless.

⁸ Times drawn from the May 21, 2020 published timetables for an A line segment (Ford and Kenneth to Snelling and University) and C line segment (Penn and 43rd to Penn and Olson), both around 7:30AM.

⁹ Although the average trip distance on Metro Transit is 4.4 miles (Transit Insights, 2017), this study assumes a shorter trip due to the density of destinations and number of stops along the study corridors.

¹⁰ Metro Transit’s rider income data contain household income levels rather than hourly earning rates (see Metro Transit On Board Survey data, 2016). Metro Transit’s own analysis of this data show that 43% of Metro Transit riders have an annual household income below \$25,000 (<https://www.metrotransit.org/equity-stats>).

In addition, Metro Transit's data show that BRT improvements generate 30% ridership increases along improved corridors.¹¹ By allowing or incenting these additional riders to shift from driving a car to public transit, the Twin Cities community at large benefits from reduced air pollution and the associated increases in health; reduced climate pollution and the associated benefits of a more secure future; fewer cars on the road generating congestion, resulting in reduced travel time for drivers; and more. Each of these benefits associated with an increase in ridership carries its own ROI.

IV. WHAT WOULD YOU DO WITH 1 MILLION HOURS?

Investing in the B and D lines will save riders on those corridors close to 1 million hours a year in saved travel time. That's a lot of time. It's 112 years. In fact, it's so long it is hard to fathom. We have therefore attempted to put 1 million hours in context. 1 million hours (or, to be exact, the 983,225 hours that would be saved from the B and D investments) equals:

- 4,097 consecutive Minnesota State Fairs;
- 910 consecutive full production schedules for the filming and music recording for Purple Rain;
- 622,294 tater tot hot dishes assembled and baked consecutively, which, if placed end to end the long way (in a 9 X 13 casserole dish) would stretch for 128 miles, or about the distance from Minneapolis to Mason City, Iowa; or
- 13,656 sourdough loaves, with each three-day process scheduled consecutively.

Ultimately, of course, the most important value of time saved from BRT investments is time spent with family, time being able to earn a living, or time exploring new ideas. It's time that provides dignity, reflects our values, and delivers opportunity to our communities.

V. CONCLUSION

Investing in the B and D Bus Rapid Transit lines will save existing riders incredible amounts of time, eliminate core ways our transportation system disproportionately disadvantages Black and brown communities, and will pay for itself in just 3-5 years. The B and D lines would deliver substantial benefits to transit riders and the state of Minnesota. The B and D BRT lines merit investment.

¹¹ "Investments in BRT boost ridership," Metropolitan Council, 2020.