



BUSINESS CASE FOR ACCESSIBLE PUBLIC TRANSPORT IN JAIPUR

ABSTRACT

Public transport is often not friendly to disabled folk. This report makes a case to make public transportation friendly to disabled folks while maintain profitability.

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Information about data used

Data for years 2020-21 & 2021-22 is skewed due to lockdowns from the Covid pandemic, and data for 2022-23 is not yet available as the year ends in March.

The latest year for which there is unskewed data available for all cases is 2019-20. Hence, I have used this data at nearly all places in the report.

Modes of Transport in Jaipur

Jaipur has the following modes of transportations for intracity travel:

- 2/4 Wheelers: Private cabs (2/4 wheelers, including pre-paid cabs, Uber, Ola, Rapido etc.). rentals
- Auto Rickshaws (Segregated by the power source by commonfolk: Petrol, Diesel, CNG, Electric rickshaws or E-rickshaws)
- Low-floor buses operated by JCTSL (Jaipur City Transport Service Limited)
- Minibuses operated by private players
- Jaipur Metro operated by JMRC (Jaipur Metro Rail Corporation)

For this assignment, the prompt implies that the case to improve accessibility must be made to a government body, hence I am eliminating Cabs, Auto Rickshaws and Rentals out of the research process. Additionally, **I am assuming that the JCTSL buses and Jaipur metro are operated by one single hypothetical entity 'Jaipur Municipal Corporation'** to which the business case would be made.

Pitch to the Jaipur Municipal Corporation

If Jaipur's public transport becomes accessible, total **ridership would go up by about 33%**, i.e. by 57.16 lakhs per year and this would be accompanied by the total **revenue going up by about 33%** too, i.e. by INR 72.19 crores.

The cherry on top of this cake is that the investment required to make the public transport accessible is just about INR 1.5 crore and this **cost would be recovered in only 3 days of operation the public transport.**

This would also greatly improve the public perception of the current government as this project would be a boon for the city's disabled population of 2.4 lakh.

This will also increase the city's GDP by **empowering nearly 80 thousand disabled employed people** to go to work and support the education system by **enabling nearly 48 thousand disabled students to go to school**.

This step would propel Jaipur's name into the leading smart & conscious cities making it **one of the few cities in India with an accessible public transportation system**.

Detailed working behind the pitch can be found in the subsequent sections of the document.

Custom income statement to support above pitch

	Unit	Metro (FY 19-20)	Bus (FY 19-20)	Total (Metro + Bus)		
Revenue from operations	INR	18,30,49,000.00	70,13,11,545.24	88,43,60,545.24		
Total revenue (including revenue from other sources, including govt. grants)	INR	1,03,68,81,000.00	1,17,02,80,171.58	2,20,71,61,171.58		
Operating expenses	INR	55,23,95,000.00	32,51,65,217.00	87,75,60,217.00		
Total expenses (including depreciation, ammortization, financing etc)	INR	1,56,65,85,000.00	1,19,20,70,193.47	2,75,86,55,193.47		
Net Profit	INR	-52,97,04,000.00	-2,17,90,021.89	-55,14,94,021.89		
Total ridership	People	70,76,000	1,04,00,000	1,74,76,000		
Revenue per rider	INR	25.87	67.43	126.30		
Expense per rider	INR	78.07	31.27	157.85		
Net Profit per rider	INR	-52.20	36.17	-31.56		
Total ridership after accessibility measurers implemented	People			2,31,92,000	Percent increase =	32.71
Total revenue after accessibility measures implemented	INR			2,92,90,61,171.58	Percent increase =	32.71
One time expenses for accessibility	INR			1,48,00,000.00		
Number of rides required to recoup the one-time expense	Rides			1,17,184.37		
Number of days required to recoup the one-time expense	Days			2.45		

Expected Ridership if public transport becomes accessible

Population of Jaipur = 42,00,000 (estimated for 2023)

The data on income distribution by income bands is unavailable for Jaipur. However, Jaipur's per capita GDP (INR 152,000) is almost equal to India's per capita GDP (INR 150,000) for 2020. Hence, Income distribution in Jaipur can be assumed to be equivalent to that of India. This would imply that about 95% households (39.9 Lakh) in Jaipur have an annual income of less than 8 Lakhs per year. We can assume that people from these households could use public transports, and this income distribution would also apply to disabled people.

Disabled people that would use public transport

The data on the number of disabled people is unavailable for Jaipur. However, the percentage of disabled people in Rajasthan is 5.83%. We can assume this to be the case for Jaipur as well. This would mean that disabled people in Jaipur = 5.83% of the population = 2.44 Lakh. Out of these 95% would come from households making under 8 Lakhs per year. Hence, disabled people that could use public transport = 2.32 Lakh.

Actively working disabled people that would use public transport

Of the disabled population of Rajasthan, 34.65% are actively working. We can assume this to be the case for Jaipur as well. This would mean that disabled people working in Jaipur = 34.65% of the disabled population = 84 thousand. Out of these 95% would come from households making under 8 Lakhs per year. Hence, actively working disabled people that could use public transport = 79.8 thousand.

Of the working population in India, 20% use public transport to go to work. We can assume this to be the case for Jaipur as well. This would mean that actively working disabled people that are highly likely to use public transport = 15.96 thousand.

Disabled Children & elderly that would use public transport

The data on the age-wise grouping of disabled population is unavailable. However, it can be assumed to be similar to the general population. This would mean that out of all disabled people in Jaipur, 30% (73 thousand) are under the age of 18, and 6.8% (16.6 thousand) are over the age of 65.

It would be safe to assume that this elderly population (over the age of 65) will not be using public transport.

Of the disabled children (5 - 18 years old) of Rajasthan, 69% attend school. We can assume this to be the case for Jaipur as well. This would mean that the number of disabled children attending school in Jaipur = 69% of the disabled children's population = 50.37 thousand. Out of these 95% would come from households making under 8 Lakhs per year. Hence, school going disabled children that could use public transport = 47.85 thousand.

Of all school going children in India 9% use public transport. We can assume this to be the case for Jaipur's disabled children as well. This would mean that the number of disabled children that are highly likely to use public transport = 4.3 thousand.

Total increment in ridership

Increase in ridership via disabled students

Students go to educational institutions in Rajasthan 6 days a week, except holidays.

So, ridership increment = number of disabled students that are **highly likely** to use public transport x number of school days in a year x 2 (due to back & forth trip) = 4.3 thousand x 234 x 2 = 20.12 Lakh

Increase in ridership via employed disabled people

As a conservative estimate, we can assume that most people work 5 days a week. So, ridership increment = number of disabled working people that are **highly likely** to use public transport x number of work days in a year x 2 (due to back & forth trip) = 15.96 thousand x 234 x 2 = 21.5 Lakh

Increase in ridership via non-work & non-school related movement

Conservatively, we can safely assume that 2% of the disabled people would travel every day for non-work and non-school related purposes every day. So, ridership increment = number of disabled people that **could** use public transport x 2% x 365 = 2.32 Lakh x 0.02 x 365 = 15.54 lakh

Total increase in ridership

= 20.12 Lakh + 21.5 Lakh + 15.54 Lakh = 57.16 Lakh

Additional Revenue from disabled riders

We know that Jaipur Municipal Corporation generates an average revenue of INR 126.30 per rider, hence, revenue generated by additional ridership of 57.16 lakhs = INR 126.30 x 57.16 lakhs = INR 72.19 crore

Investment Required for to make public transport accessible

Buses

Each of the 300 buses would require collapsible ramps. each of the 154 bus stands would require slopes or conversion of the street shoulder (barrier between the street and the footpath) into a slope. Additionally, some seats might have to be reserved for the disabled passengers.

Cost of the above work = no. of buses x ramp cost + no. of bus stands x slope construction cost
= 300 x INR 20 thousand (From a retail website) + 154 x INR 50 thousand
= INR 1.37 crore – **this is a one-time cost**

Metro

Metro stations do not have at the entrance, but they do have lifts to reach higher floors. Hence, slope building would have to be done.

Cost of above work = number of metro stations x slope construction cost
= 11 x INR 1 lakh
= 11 lakhs – **this is a one-time cost**

Total

= 1.37 crore + 11 lakhs = INR 1.48 crore – **this is a one-time cost**

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