

Sustainable & Climate Resilient Gurgaon

Pre-feasibility Analysis For Shifting From Diesel To Electric Auto-rickshaws

A Study to Understand the Feasibility of Incorporating Better Fuel Alternatives For Public Transport and their Social Requirement



3rd

Highest Per Capita Income¹

68.82%

Population lives in Urban regions²

One of the Fastest Growing Cities in India

1- Department of Economic and Statistical Analysis, Haryana, 2010
2- Census 2011

Need for Sustainable Transport



1- Forest Department Haryana, 2013

2- Integrated Mobility Plan for Gurgaon Manesar Urban Complex, Department of Town and Country Planning, 2010

3- Ambient Air Quality Reports, Haryana State Pollution Control Board, 2016

4&5- Sustainable Transport Survey, Vasudha Foundation, 2016

6- Our City, We Care: Action for Cleaner Air (Right To Clean Air Campaign) Report, Centre of Science and Environment, 2014

Pre-feasibility

Analysis For Shifting From Diesel To Electric Auto-rickshaws

What We Did?

1



Stakeholder Engagement

Resident Welfare Associations

To gauge their interest in contributing to the areas of sustainable transport & renewable energy

Auto Union

To determine their interest & requirement for alternative fuel sourced vehicles

Original Equipment Manufacturers

To ascertain the economic feasibility of bringing about change in the current public transport with environment-friendly options

2

Planning Socio-economic Feasibility Study

Based on the stakeholder engagement the necessity of a socio-economic feasibility analysis was rationalized

3

Social Feasibility Study

A perception gauging survey was conducted on online & offline platforms to find out:

Passengers' current transport profile

Motivators for moving towards a more sustainable form of transport

Perception and acceptance of electric vehicles as a mode of last mile connectivity by the citizens

Needs and requirements of travelers frequently using public transport

4

Economic Feasibility Study

Detailed interviews and focus group discussions with auto-union members and auto drivers were done to know about the current capital investments and operational & maintenance costs. Discussions with Original Equipment Manufacturers were also done to find out about policy requirements and current capital investments.

What We Found?

61.3%

Travel Within Gurgaon

7.3%

Travel to Noida

65.3%

Travel to Delhi

3.3%

Travel to Faridabad

4.7%

Other

These percentages are not mutually exclusive.

Mode of Travelling

These percentages are not mutually exclusive.

63.3%
Private Car

9.3%
2-Wheeler

20%
Shared 4-Wheeler

8%
Bus

16.7%
Taxi

35.3%
Metro

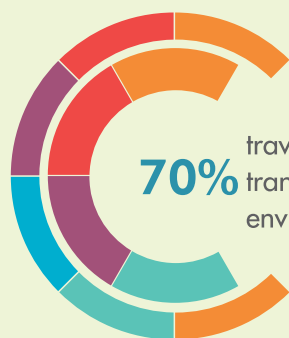
2%
E-Rickshaw

18.7%
Auto-Rickshaw

7.3%
Shared Auto

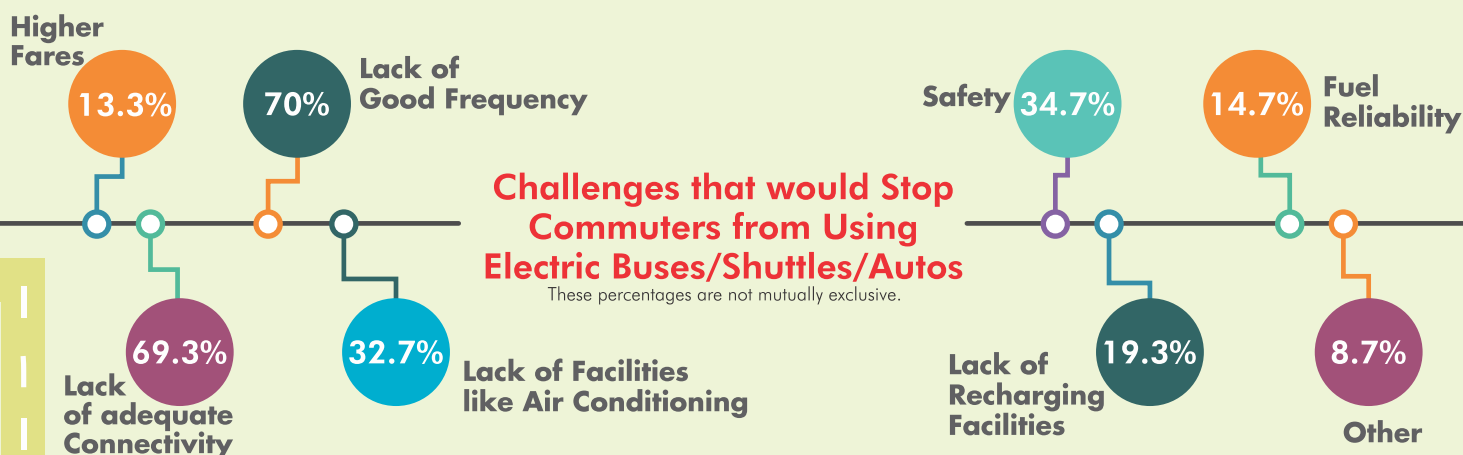
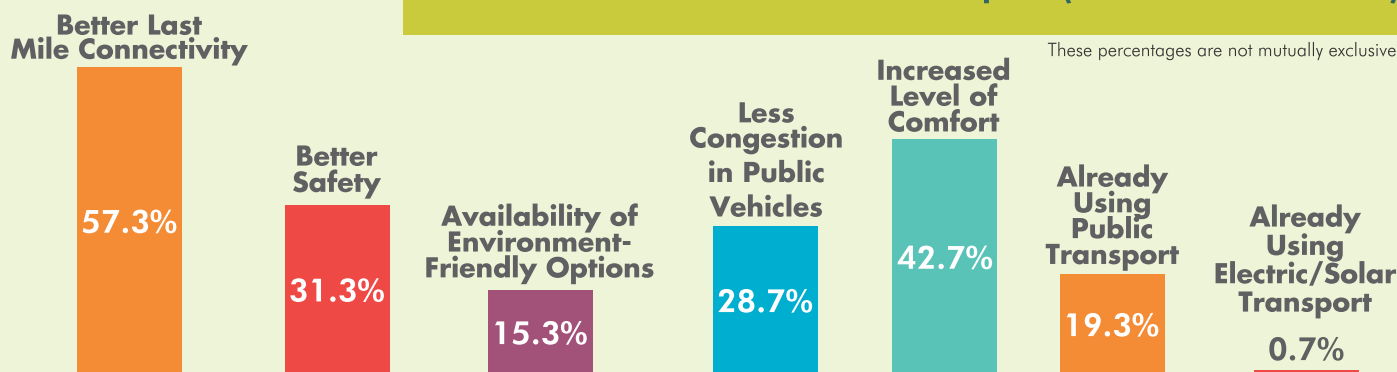
Pre-feasibility

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traveling by private transport would shift to public transport (metro/bus/shuttles) assuming it is environment-friendly (electric/solar)

Motivation to Shift to Public Transport (metro/bus/shuttles)



Economic Feasibility Study

(from service providers' perspective)

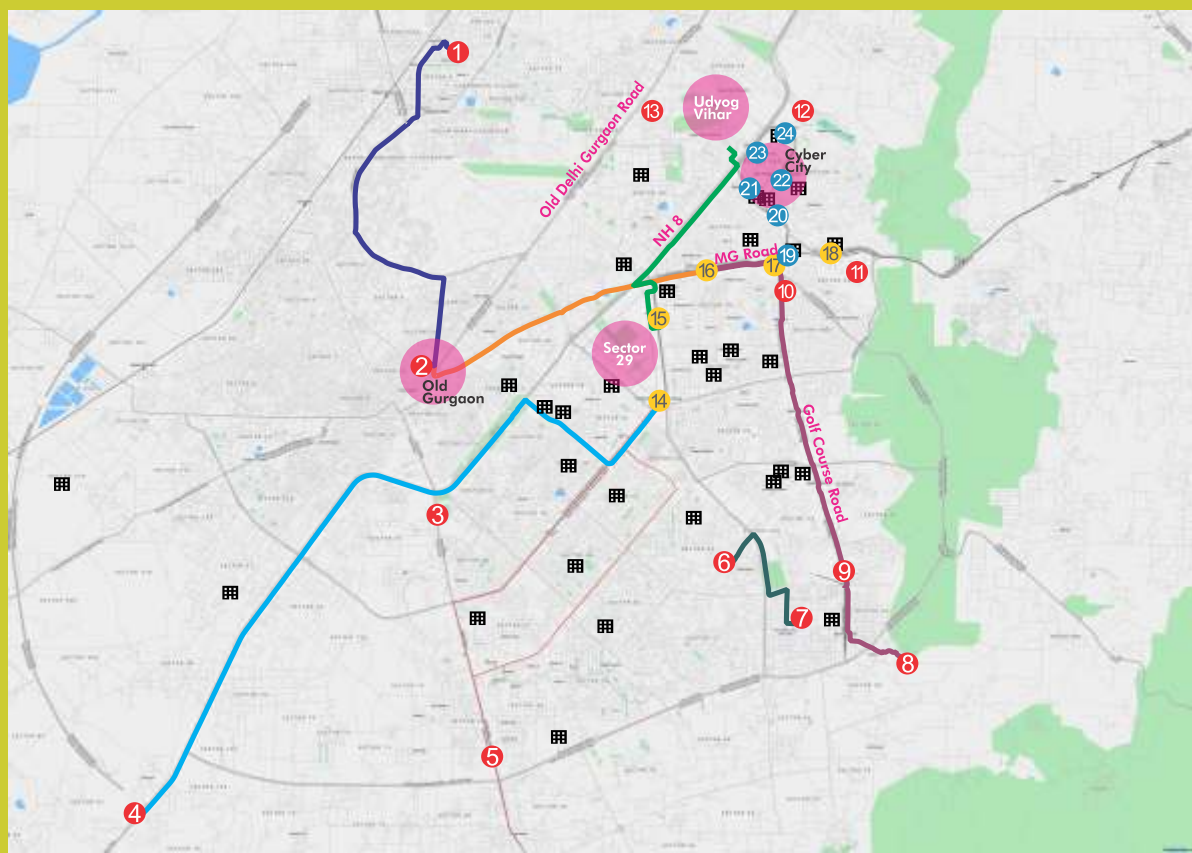
Vehicle Type	Diesel Shared Auto-rickshaw	CNG Auto-rickshaw	E-Rickshaw
Number of Passengers Carried	10-12 (Permit is only for 3)	3-4 (Permit is only for 3)	4-5 (Permit is only for 4)
Daily Expenditure on Fuel	Rs. 400	Rs. 200-250	Rs. 60
Earning Per Day	Rs. 700-1000	Rs. 500-700	Rs. 500-700
Monthly Expenditure on Maintenance	Rs. 1000-2000	Rs. 2000	Rs. 5000
One Ride Charge	Rs. 100 (Rs. 10 per passenger)	Rs. 40 (Minimum charge)+ per km charge	Rs. 40 (Rs. 10 per passenger)
Monthly Earning	Rs. 16000	Rs. 12010	Rs. 14200
Capital Investment	Rs. 2.25 Lakhs	Rs. 1.8-2.2 Lakhs	Rs. 96000-1.45 Lakhs

Pre-feasibility

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- Gurgaon Bus stand to Palam Vihar
- Gurgaon Bus stand to MG Road
- Manesar to Huda City Center
- IFFCO to Udyog Vihar
- Ghatta/Sector 55 & 56 to Sikanderpur
- Wazirabad to Sector 55 & 56

Possible Solutions



Major Shared Auto Routes in Gurgaon

- 1- Palam Vihar
- 2- Gurgaon Bus Stand
- 3- Rajiv Chowk
- 4- Manesar
- 5- Sohna Road
- 6- Wazirabad
- 7- Sector 55 & 56
- 8- Ghatta/Sector 55 & 56
- 9- ALT Chowk
- 10- Bristol Chowk
- 11- Sector 26
- 12- Ambience Mall
- 13- Krishna Chowk

NCR Metro Stations

- 14- Huda City Centre
- 15- IFFCO Chowk
- 16- MG Road
- 17- Sikanderpur
- 18- Guru Dronacharya

Rapid MetroRail Stations

- 19- Sikanderpur
- 20- DLF Phase 2
- 21- Belvedere Tower
- 22- DLF Phase 3
- 23- Cyber City
- 24- Mousari Avenue

■ Major Residential Complexes

Last Mile connectivity between residential and commercial areas to the metro

Reduce the number of diesel autos and bring in Electric public vehicles instead

To bring about change **without affecting** the current employment status of the auto-rickshaw drivers

Address the demand for **high quality transport** by bringing in financing options for investors

Consequently, decrease the congestion levels, increase mobility and **reduce air pollution** in Gurgaon

Financing Options

Money budgeted from national level programs

Since there would be return on investment, private funds would also be feasible

Viability gap funding for service providers- can it come from Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME)?

This transport analysis is a part of **Preparing Cities To Be Climate Resilient- Prioritizing Actions and Identifying Resources** project. The project assesses options for Climate Compatible Development (CCD) in second-tier cities in key developing economies such as India, Philippines and Indonesia. It also aims at understanding the financial needs for the implementation of relevant CCD options. In India, the focus cities are Gurgaon in Haryana and Puri in Odisha.

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