

Easy Access: Pune

Intro

There is growing consensus that public transit is an essential part of sustainable urban development. Public transport is far more efficient than private vehicles and can ease congestion and reduce emissions.

However, many developing countries face strong transportation challenges. The increase in personal income makes private vehicles more affordable. The city gets into a vicious cycle as poor public transport results in more private vehicles and therefore affects the quality of transportation further.

When do people turn to private vehicles? Firstly, when public transport is unavailable. They have to wait or walk too far to find it. Secondly, when public transport is inefficient. In some cases getting somewhere by foot is faster than taking public transport.

Identifying these pain points and fast problem-solving can boost public transit's reputation and improve the quality of life. Habidatum evaluates public transit's accessibility through 3 key statistics - total travel time, number of transfers and time of first-/ last-mile travelled on foot.

Methodology

This research is an origin-destination analysis based on various open data sources.

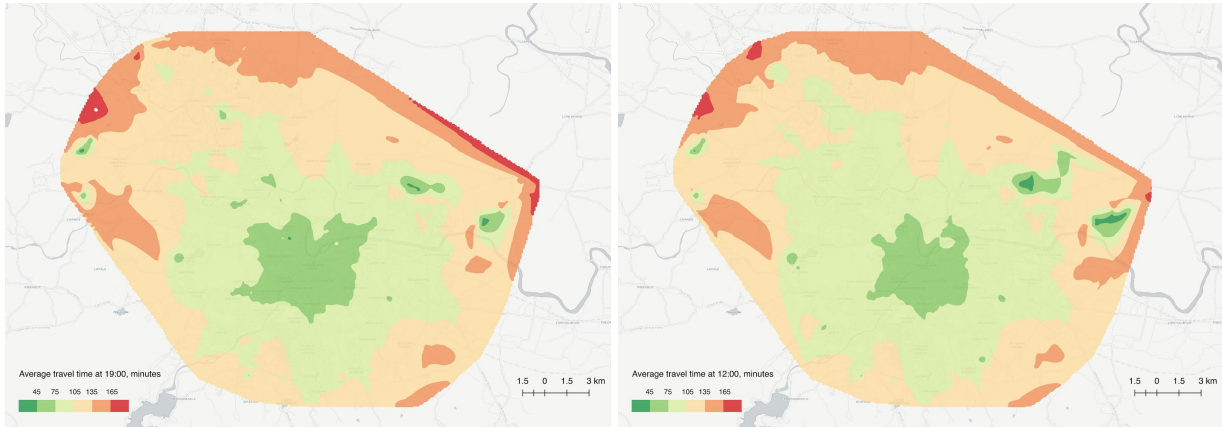
In the absence of digital zoning by-laws, we define the destinations through the main work, shopping and leisure activity areas.

For the purpose of this research 100 hotspots of activity were picked. They include major employers, educational centers, recreational areas, shopping and office buildings. Information technology and biotechnology segments are believed to be the new drivers of the Pune economy¹. Therefore the companies from these industries dominate the list of workplaces.

The next step was to identify origin points. As most of the areas in Pune have mixed-use development, all city neighborhoods were taken into consideration. Locations with "building" tags were exported from the open source map project OpenStreetMap.

Finally, public transport routes were calculated between these origins and destinations for 2 time periods during one weekday - 12:00 (off-peak time) and 19:00 (rush hour). Collected routes were further compared.

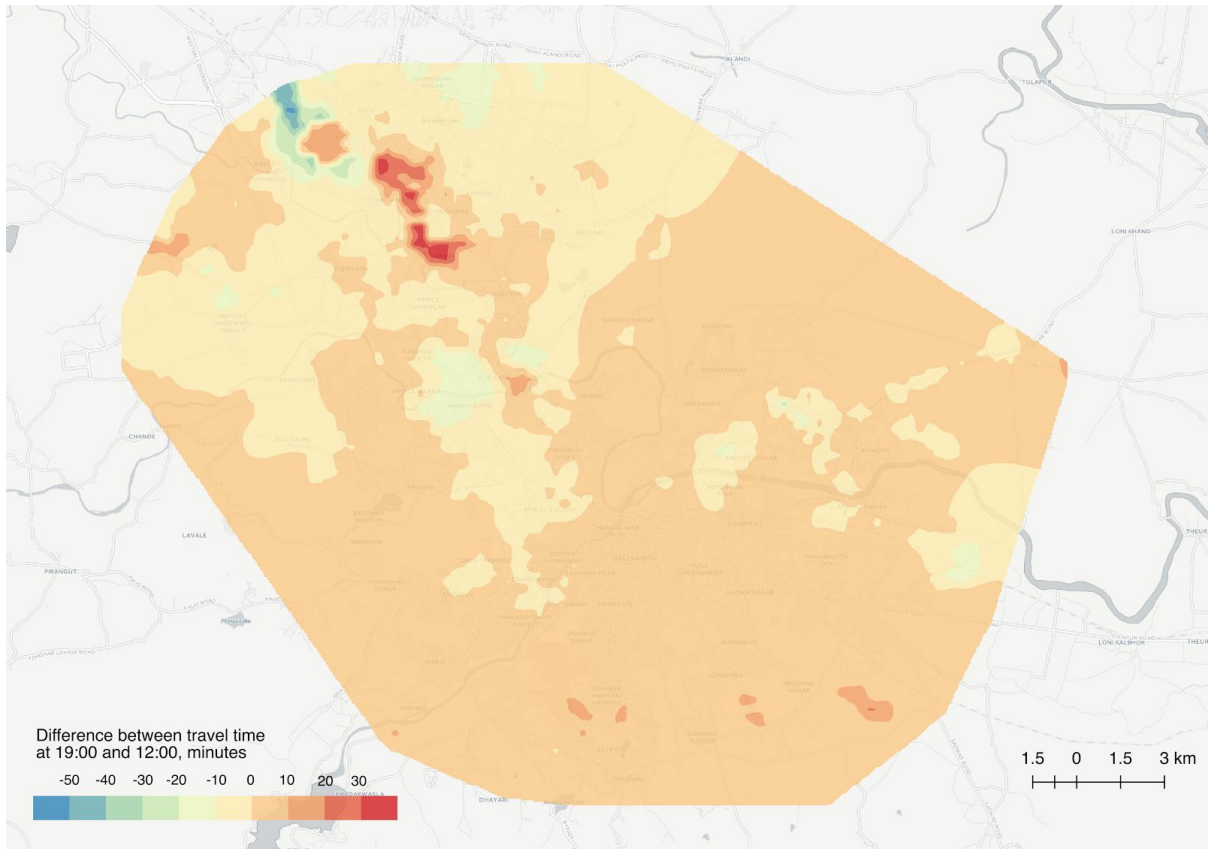
¹ Source: Housing study for Pune Municipal Corporation 2009 - 2010. Page 68.
<http://www.punecorporation.org/informpdf/City%20Engineer%20office/Housing%20Report%20Final.pdf>.



Several “islands” of accessibility showed up including Hinjawadi, Pimpri Chinchward, Viman Nagar, Fatima Nagar, Lulla Nagar, Bavdhan and the notorious Pune Airport.

It should be noted that walking to transit and the number of transfers are almost stable at various times, while travel time changes significantly. By comparing 12:00 and 19:00 we identified areas where travel time increases by 30 minutes or more including Pimpri Chinchward Mohammed Wadi and Shiv Nagar. During peak hours these areas are becoming disconnected due to congestion.

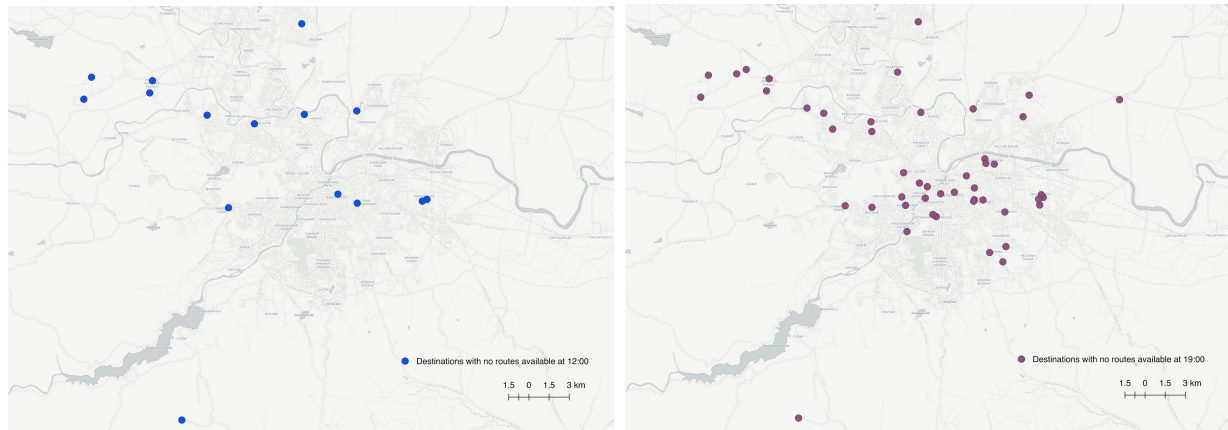
It should be noted that walking to transit and the number of transfers are almost stable at various times, while travel time changes significantly. By comparing 12:00 and 19:00 we identified areas where travel time increases by 30 minutes or more including Pimpri Chinchward Mohammed Wadi and Shiv Nagar. During peak hours these areas are becoming disconnected due to congestion.



While some areas are hard to leave, others are hard to reach. We discovered that there

While some areas are hard to leave, others are hard to reach. We discovered that there

were no routes to 15 of 100 hotspots of activity at midday. By 7 p.m. this number increased to 48. Most of these hotspots were in the city center which became 3 times less accessible by public transport during evening rush hour.



øä ~!^Á ÈÖ^•ã æñ }•Á ãÖ[Á[~ ¢•Áçãçã|ÁçÁGK€Áç)ãÁFJK€

Summary

Walking to transit, the number of transfers and the total travel time are believed to be some of the key factors in attracting people to public transport. Understanding these pain points, their reasons and possible solutions is key to efficient transport network optimisation.

Habidatum can measure accessibility with great accuracy. We work with different scales - from the entire city to a single neighborhood. By using the Habidatum platform we can explore dynamic changes in traffic situations for certain periods - from days to minutes - and identify over-crowded areas and periods of time.

Origin-destination analysis is part of Habidatum's transportation analytics. For more information visit habidatum.com