# Introduction

The Health Impact Assessment (HIA) refers to a process used to estimate the potential health effects of plans, projects and acts on a particular population, specifically those lying outside the health sector ([WHO], n.d.). In planning and analysis of projects, HIA helps a lot giving shape to the policies such that the well-being of the population is being taken care of. Of many health-impacting projects, one is the proposed train line expansion project aimed at improving public transport connections to Perth’s outer suburbs and this is to be discussed in the undergoing essay. This expansion is introduced to improve accessibility, reduce traffic tensions and enhance urban development. The key purpose of this essay is to assess the impacts of this project across different health determinants, pointing out both positive and negative effects of it.

# Overview of the Train Line Expansion Project

The train line expansion is an influential urban development project in Perth meant to harness public transport services in the fast-developing outer suburbs of Perth. The project has new train stations and new lines, and this constitutes new-rail transport development for areas that are currently not accessible through public transport facilities. It is estimated that the expansion is going to enhance accessibility, shorten travel time, and offer a less risky form of transport to thousands of inhabitants than car use (Transport, 2016). Subsequently, the health benefits that can potentially be derived from enhancing the accessibility of the public transport system are informed by research establishing the fact that enhanced accessibility leads to small but significant enhancements in personal physical activity and over time, decreases in body weight (Brown, 2019).

# Health Determinants and Their Impacts

## Identification of Health Determinants:

To evaluate proper health planning of a population under a given project, many social factors affecting public health, called determinants, need to be considered. Health determinants like physical activity, air quality, noise pollution and many others that are induced under any project affect the overall health of the population a lot. If these health determinants are ignored, then the implication of the project finds it harder to be socio friendly.

Public transport improvements have some notable effects on health determinants:

**Physical Activity**: Enhanced public transport access encourages walking or cycling to stations, which can increase daily physical activity and improve overall health outcomes. Studies show that individuals using public transport engage in more physical activity compared to those who drive.

**Air Quality**: An increase in public transport use can reduce the number of private vehicles on the road, leading to lower vehicular emissions and improved air quality. This pollution reduction can have direct health benefits, such as fewer respiratory and cardiovascular problems.

**Noise Pollution**: Public transport systems can both alleviate and contribute to noise pollution. While they reduce the noise from numerous private vehicles, they can introduce new sources of noise. Effective management and mitigation strategies are essential to address any potential increase in noise levels and their associated health impacts.

**Access to Healthcare**: By improving transportation options, individuals can more easily reach healthcare facilities, leading to better health management and reduced disparities. Enhanced access can also improve overall health outcomes by ensuring that medical care is more accessible to all segments of the population.

## Impacts of the Project on the Health Determinants:

The Perth Rail expansion project affects the health determinants in a lot of ways. Some of them are beneficial to public health while some are however a bit negative too. Both positive and negative impacts and their analysis are discussed as follows:

**Positive Impacts**: Due to the expansion of rail lines, Enhanced Public Transport will help more people to engage in physical activities since they will develop the habit of walking or cycling to the station, leading to enhanced social health. Improved connectivity will also effectively lessen long drives, making it easier to access various other services like health and education, which will effectively answer some of the problems faced by modern patterns of urban development (CHARELISHVILI, 2024). New train lines can also offer work and services in outer suburbs hence enhancing the growth of the local economy of the regions. Indirectly, this economic improvement may enhance health because it enhances the general quality of life and well-being due to the availability of resources for health promotion (Babb, 2016).

**Negative Impacts**: The rail expansion along with its benefits, also could have its drawbacks. Like, investing in transport infrastructure might cause noise pollution and might also affect and alter the existing ecosystems of a place as it can result in a somewhat more depressing environment. Also, increased accessibility may create more traffic and density in the city and infrastructures may become overburdened thus leading to environmental deterioration such as pollution of air and increased incidences of cases of flooding. (CHARELISHVILI, 2024). In addition, the expansion can cause consequential urbanization, which may also involve the resulting of people’s settlements and green areas. The reduction of green spaces can influence a decline in recreational livelihood and promote mental disorders. Lastly, there are issues of equity too. Undoubtedly, one of the anticipations is that an expansion will allow to provision of services for outer suburbs, however, the quality and the frequency of services may vary, making the gap between the health of people belonging to different socio-economic status even bigger (Babb, 2016).

# Two Significant Health Impacts

## Positive Impact: Improved Access to Public Transport and Physical Activity:

The development of new rail systems in Perth is aimed at increasing the accessibility of transport systems hence increasing physical activity to which the health benefits are various. Another feature here is increased walkability due to which people will cover distances on foot or by bike and can improve the look and feel of the society. To increase the use of public transportation, it proposes to put residential and commercial facilities near new transit stations.  
  
Several authors reported that greater availability of new Public Transport facilities enhances the level of physical activity. One of the key strategies of Metronet was the Transit-Oriented Development (TOD) which ensures that the new structure of society can easily walk to their daily tasks. Such enhanced walking ability is associated with several positive results on health, such as lower incidence of obesity, lower blood pressure, less chances of kidney failures and other chronic diseases. In addition, the accessibility of green spaces and parks within station precincts enhances mental health outcomes as they promote stressful environments for recovery. These elements of health included in the aspects of the Metronet project show the possibility of Perth’s transformation into a healthier and more sustainable cities for people (Hooper, 2022).

The Rail Expansions of Perth around suburbs have however resulted in some inequity and marked differences in the availability of basic amenities, which is characterized by long distances for people who live in remote areas and must travel lengthy kilo meters to access quality education and healthcare. Metronet project is aimed at promoting equity by improving accessibility through public transport development. These travel reduction measures are expected to ease health burdens due to long distances such as stress and mentally unhealthy behaviours arising from lack of time for physical activity. The enhanced availability will facilitate better access for all residents irrespective of where they are located towards the essential requirements which keep them healthy thus creating a stronger community bond, making minimal space for any disparity thereafter (CHARELISHVILI, 2024).

## Negative Impact: Noise Pollution and Mental Health:

The expansion of Perth's transportation infrastructure, particularly in terms of rail systems, has various consequences as noise pollution and reduced mental health. This is because as rail networks expand, they eventually transform residential areas with elevated noise levels. One long-term effect associated with chronic exposure to such sounds is that one may become stressed or even depressed because the person can’t help himself sleep well when there is a constant disturbance. Disregarding this may lead to a lifestyle with abnormal consistency where continuous sound becomes synonymous with permanent psychological pressure. Constant exposure to noise, especially from trains at night causes insomnia which in turn results in many types of mental disorders. Besides, if you live near a very loud railway line over time then you risk having poor living standards and suffering from psychological illnesses. These health concerns demand proper planning and execution of rail expansion along the lines of resting places as well as other alternatives such as building soundproof walls around train tracks that pass through habitable areas (Curtis, 2005).

The expansions in the Railway system to Perth’s suburbs and its one of the main negative causes of Noise pollution seems to be affecting some groups more harshly. Residents living close to the tracks may bear the greatest consequences of the rail expansion, which is the increased noise pollution and mental health issues including stress and anxiety. Exposure to the sources of noise for vulnerable groups like the elderly or those who have pre-existing health conditions coupled with their inability to protect themselves from these disturbances is likely to worsen the situation (Curtis, 2005) .

# Conclusion

The Health Impact Assessment of Rail Line Expansion Project, introduced to increase public transport connections to Perth’s outer suburbs, takes us to many conclusions. This project provides many markable developments in public health by promoting PT and decreasing the reliance on personal vehicles leading to more engagement in physical activity. However, there are some challenges which need to be taken care of, like the noise pollution and more dense structure of the city resulting in more mental health problems and a declining quality of life. The establishment of infrastructure ensuring transportation systems are accessible to all is very important, making no space for disparities. Implementing Noise reduction measures should also be taken care of, to improve societal health. By analysing and applying these measures, Train Line expansion or other transportation systems can foster smooth facilitation without much negative impact on Perth’s growing population.

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