

Health Impact Assessment of the North Houston Highway Improvement Project

Background and Context

Upon reviewing the Draft Environmental Impact Statement (DEIS) of the North Houston Highway Improvement Project (NHHIP), released by the Texas Department of Transportation (TxDOT) in April 2017, Air Alliance Houston determined that the air quality analyses provided in the DEIS were glaringly inadequate, which would limit informed decision making on the project to identify and implement mitigations to address community impacts.

From May 2018 to April 2019, Air Alliance Houston led a Health Impact Assessment (HIA) of the NHHIP to evaluate the potential health impacts of the I-45 expansion to communities, especially children and their families who live, work, and go to school nearby. Based on findings, the HIA proposes recommendations to mitigate the potential adverse health outcomes identified. A variety of data sources, including input from stakeholders and community members, were used by AAH to perform the HIA, identify concerns, and develop recommendations.

HIA Focus

The HIA looked at a range of impact categories but focused primarily on assessing the impacts from air quality, mobility, and flooding. Nine priority schools along the I-45 corridor were selected for the assessment: Bruce Elementary and Secondary DAEP (5th Ward); Houston Academy for International Studies and Young Women's College Preparatory Academy (3rd Ward); Jefferson Elementary and Roosevelt Elementary (Near Northside); and Aldine High School, Aldine 9th, Stovall Middle School (Aldine).¹

Key Findings

Current Health Conditions:

- The baseline health conditions analysis revealed that areas surrounding some of the campuses (Aldine, Bruce Elementary, Secondary DAEP) are communities that generally experience worse health outcomes than other areas of Houston, ranking in the highest quartile for six out of the seven selected health indicators. This makes these communities, many of which are low-income neighborhoods and/or communities of color, more vulnerable to potential adverse health impacts from the NHHIP.

Air Quality:

- Highway traffic next to the nine schools studied currently averages seven times higher Vehicle Miles Travelled within 150m of campus (70,198), compared with the HISD/AISD average of 10,124. The expansion design would widen the highway width by as much as 70% in some areas and add several more lanes, bringing at least 26 existing school and daycare campuses within 500 feet of the highway. The anticipated increase in traffic volume will introduce more air pollutants into the nearby communities. Due to their developing brain, lungs, heart, and circulatory systems, children are especially vulnerable to the negative health effects of air pollution.
- Benzene emission levels are projected to increase up to 175% in some locations at schools like Bruce Elementary.

¹ For criteria used to prioritize these campuses, please see the HIA report p. 12.

- Not only are asthma rates at many of the schools along the I-45 already higher than the HISD/AISD average of 3.3%, but some campuses, e.g. Bruce Elementary, also experience a high rate of asthma-related emergency service use. The projected increase in traffic will increase exposure to air pollution and may adversely impact the health of children and their families that live, work, learn, and play nearby.

Mobility:

- A large number of ped/bike crashes have occurred within ½ mile of schools along the I-45 since 2010 (e.g. YWCPA: 100; HAIS: 95; Aldine: 56). Many of these have occurred under/adjacent to the freeway or on preferred pedestrian routes to school. Furthermore, no school zone has been designated for any of the schools on the Aldine campus. The current NHHIP design will expand the freeway width and increase the speed of cars traveling down the access road, increasing safety concerns for pedestrians and cyclists, many of whom are school children.

Flooding/Urban Heat Island:

- Many of the schools along the I-45 are in areas ranked as most prone to flooding and/or dangerous urban heat island effects in Houston. For example, Jefferson Elementary is in the top 9% of areas most likely to suffer from urban heat island effects, while the Aldine campus sits in both the 100-year and 500-year FEMA floodplains. The expansion will construct more impermeable concrete surfaces, which could increase flood risk and the urban heat island effect.

Environmental Justice:

- The expansion would cause the removal or relocation of families in several public housing units, particularly Clayton Homes and Kelly Village in the 5th Ward. Over 100 single family residences will be displaced.

Key Recommendations

The HIA recommends the integration of a number of strategies to mitigate the air quality, mobility, flooding, environmental justice, and other harmful impacts.²

Air Quality:

- TxDOT should provide funding for the installation of air monitors at sensitive receptors like schools, parks, and playgrounds during and after project completion.
- TxDOT should provide funding for the ongoing installation of HEPA (high efficiency) filters within buildings with sensitive occupants located within 500 ft. of the highway.

Mobility and Flooding:

- TxDOT should provide funding for constructing all highway crossings in accordance with Complete Streets Principles to protect and promote pedestrians and cyclists.
- TxDOT should comply with the new Harris County and City of Houston Flood Control design standard of 500-year flood events, rather than 100-year flood events.

Environmental Justice:

- TxDOT should work with the City of Houston and community organizations to reduce the highway width and improve the amenities provided along the northern segments of the project to mirror the investment going into Downtown.

² A detailed summary of the proposed mitigation strategies and regional transportation recommendations can be found on pp. 33-36 of the HIA report.