



I-45 North Houston Highway Improvement Project

FREQUENTLY ASKED QUESTIONS



Project Information

What is the proposed project?

The Preferred Alternative for the North Houston Highway Improvement Project (NHHIP) is designed to enhance safety, create additional roadway capacity to manage congestion, incentivize transit and promote ridesharing, and improve mobility and operational efficiency on Interstate Highway 45 (I-45) from U.S. Highway 59 (US 59)/I-69 to Beltway 8 North, including improvements along US 59/I-69 between I-45 and Spur 527 in Harris County, Texas. The project is divided into three segments: Segment 1 is Beltway 8 North to I-610; Segment 2 is I-610 to I-10; and Segment 3 is the Downtown Loop System (I-45, I-10, and US 59/I-69). The NHHIP includes:

- Addition of four non-tolled managed lanes, two lanes in each direction, 24/7 operations (carpool + transit + future innovations) on I-45 from Beltway 8 North to Downtown Houston with improvements continuing south along US 59/I-69 to Spur 527.
- Reconstruction of main lanes and frontage roads.
- Rerouting of I-45 in the Downtown area to be parallel with I-10 on the north side of Downtown and parallel with US 59/I-69 on the east side of Downtown.
- Access to the west side of Downtown via “Downtown connectors” which would provide access to and from various Downtown streets.
- Both I-10 and US 59/I-69 within the proposed project area would be realigned to eliminate the current roadway curvature.
- Addition of four I-10 express lanes between I-45 and US 59/I-69.
- Reconstruct the interchange at I-45 and I-610 North to improve sight distances on direct connectors and replace outdated left lane exits where drivers expect right lane exits.
- Connect I-45 and I-610 frontage roads with new intersections in Segment 2 and add one frontage road lane in each direction in Segment 1.
- Add shoulders that are full width.
- Add bike/pedestrian features along frontage roads and affected cross streets.
- Add trails parallel to bayous within the right of way.



Artist rendering of deck/open space over I-45 and US 59/I-69 would require additional development and funding by entities other than TxDOT.

How was the proposed project selected?

Since 2011, the Texas Department of Transportation (TxDOT) has been looking at alternatives for providing additional highway capacity in the North-Hardy Corridor. This search built on previous studies that recommended adding four managed lanes to the I-45/Hardy Toll Road corridor from Downtown Houston to Beltway 8 North (North-Hardy Planning Studies, Highway Component, 2005). During the project development process for the recommended highway improvements, the team evaluated traffic projections, regional roadway planning, engineering factors, environmental constraints and potential project impacts. In addition, input from the public, agencies and other stakeholders was considered in the development and analysis of alternative solutions.

Mass transit is an important component when examining solutions to traffic congestion. As a part of the study with the Metropolitan Transit Authority of Harris County (METRO) called the North-Hardy Corridor Planning Study, TxDOT and METRO looked at options addressed by both the transit component as a complement to the highway component, and the highway component as a complement to the transit component. METRO moved upon the transit component agreed to by METRO and its stakeholders to create a transit component, the Red Line, parallel to the highway component. However, it does not address the HOV and bus transit needs that the NHHIP will.

Why is this project needed?

The proposed NHHIP is needed for several reasons. There is inadequate highway capacity for existing and future traffic demands on the highways in the North Houston corridor. Between the years 2015 and 2040, average daily traffic volumes are projected to increase by as much as 40% in the project corridor.

- Traffic congestion, which is measured by traffic volume and roadway capacity, will increase if no improvements are made.
- The current high occupancy vehicle (HOV) lane on I-45 serves traffic in only one direction during the peak traffic periods and is unused for large portions of the day. During peak hours, the HOV lane is congested.
- I-45 is a designated evacuation route for the region. At its present capacity, evacuation effectiveness would be limited in the event of a hurricane or other regional emergency.
- Portions of I-45 do not meet current roadway design standards, creating a traffic safety concern. Other roadway design deficiencies include inadequate storm water drainage in some locations. Intense rainfall causes high water levels at the I-45/I-10 underpass and on the outside lanes. I-45 would not operate effectively as an evacuation route with high water closures, especially during hurricane evacuations when high rainfall events are likely.
- Forecasts for commuter traffic indicate that even with parallel high capacity transit in the corridor, two-way managed lanes would be needed to support commuter traffic and express bus service.

Flooding Concerns

Was flooding considered during planning for NHHIP?

Yes. Drainage studies being performed for the project take into consideration the new National Oceanic and Atmospheric Administration (NOAA) Atlas 14 rainfall data, and the three most recent major flood events in Houston: Memorial Day (2015), Tax Day (2016), and Hurricane Harvey (2017). These major events were considered 500-year storms. The Harris County Flood Control District (HCFCD) recommends using the current 500-year storm event model for systems that are usually designed to the 100-year storm event (such as freeway main lanes and managed lanes). The main lanes and managed lanes on this project, including the depressed sections, are designed to accommodate the current 500-year storm event. The highways within this project are being designed to be passable in a rain event similar to these three recent major storms. For more information, please see the NHHIP paper on Addressing Flooding.

What flooding remedies are being considered for NHHIP?

TxDOT is committed to designing drainage structures that meet or exceed water volumes associated with Houston's recent flood events. Pump stations will be designed for a 500-year rainfall event. Backup pumps will be included in the system and will operate in case of primary pump failure. Berms/walls will be built around depressed roadway sections to prevent water sheet flow from overflowing into those areas.

Coordination with the HCFCD and the City of Houston to neutralize any flood elevation rise is ongoing. The crossings over Little White Oak Bayou will be wider to accommodate water flow as well as pedestrians and bicyclists.

Air Quality

Is TxDOT considering air quality impacts?

TxDOT conducted two air quality studies. Air quality was modeled at five locations to establish a baseline for conducting a carbon monoxide (CO) traffic air quality analysis. Modeling to project future CO concentrations through the year 2040 indicated that concentrations are not expected to exceed national standards at any time along any segment of the project. A mobile source air toxics analysis (MSAT) of nine compounds identified by the Environmental Protection Agency (EPA) as cancer risk drivers indicated that a 72% decrease in these compounds can be expected through the year 2040 as compared with 2018.

How will air quality be improved?

Air quality would be improved by the proposed project in part because of reduced congestion. NHHIP would help reduce congestion on 12 segments of the "Texas 100 Most Congested Roadways" as reported by the Texas A&M Transportation Institute (TTI). These 12 segments annually account for 39 million person hours of delay, \$788 million in congestion costs, and 11.9 million gallons of excess fuel used. The wasted fuel produces an estimated 120,209 tons of excess carbon dioxide. NHHIP provides options to reduce single occupant vehicle driving through four managed express lanes for use by transit vehicles, buses, car pools and future autonomous vehicles. Improved pedestrian and bicyclist facilities will also contribute to improved air quality. For more information, please see the NHHIP paper on *Air Quality is Improving*.

Bikes and Pedestrians

Does the proposed project include bicycle accommodations?

Yes. Expanding and improving bicycle and pedestrian infrastructure means ensuring that a network of infrastructure is in place to make bicycling or walking viable modes of travel. It also means ensuring that the infrastructure is safe and comfortable to use. This additional capacity promotes health by providing added opportunity for physical activity from transportation.

Through close coordination with local agencies and stakeholders, TxDOT is providing connections between existing and future trails, enhanced bridges across the freeway that support bicycle lanes and a pedestrian realm, and highway caps with potential for private investment. For more information, please see the NHHIP paper on *Pedestrian & Bicyclist Accommodations*.

TxDOT is working to improve bike and pedestrian elements through a number of initiatives:

- TxDOT integrated the City of Houston Bike Plan into NHHIP’s schematic design. TxDOT and the city agreed that all 44 street crossings in Segment 3 would have a pedestrian space. Ranging in size from 12 to 17 feet in width, this feature includes a wide sidewalk, bicycle lane and a buffer zone.
- To raise the freeway out of the 100-year flood elevations, the proposed I-45 freeway elevations over Little White Oak Bayou will be higher than the existing structure. This allows a future trail connection with a bridge to link Woodland and Moody Parks.
- Highway caps in three areas provide opportunities to create recreational areas built above roadways. They will be located in the Heights/Near Northside between North Main Street and Patton Street, the Midtown/Museum District and the George R. Brown Convention Center/EaDo area.
- TxDOT is currently consulting with the TTI about the best facility to replace the proposed 15-foot shared use lanes on Segment 1 frontage roads with a safer facility for bicycles.

Is TxDOT working with the city on impacts to the biking and pedestrian facilities?

In the instance of any modifications to existing or proposed hike and bike facilities, TxDOT will coordinate with the City of Houston and other agencies and organizations to provide the same level connectivity as the existing and future facilities provide. Temporary impacts during construction will be minimized as much as possible.



Artistic rendering depicts one-way elevated bike lane behind the curb with buffer between pedestrians and bikes to allow for tree plantings. Illustration not drawn to scale and is subject to change.



Artistic rendering as example of brick pavers and concrete path along an off street pedestrian and bike facility under the highway.

Displacement Concerns

How will the displacement of public housing at Clayton Homes and part of Kelly Village be coordinated?

The proposed project would displace the residents of Clayton Homes and from some of the buildings at Kelly Village, which are public housing properties administered by the Houston Housing Authority (HHA). TxDOT is coordinating with the HHA regarding potential impacts to these communities. The HHA plans to build new subsidized housing in the general area of the existing facilities and is beginning to identify potential properties so that residents can move before their homes are affected by project construction.

Would there be other types of displacements?

Yes. The proposed project would displace places of worship, schools, commercial billboards and medical care facilities.

What happens if my home, business or property is to be acquired?

TxDOT’s acquisition and relocation assistance program will provide assistance and counseling to residential property owners that would be required to relocate. TxDOT is already working to acquire some properties. TxDOT will implement a relocation specific program on the project to help property owners as well as tenants with funding and counseling.

It is important to note that residents will not be displaced from homes until adequate replacement housing has been identified. Residents in subsidized or non-subsidized housing will receive assistance in finding comparable housing. Comparable housing is decent, safe, sanitary, functionally equivalent to their present homes and accessible to employment, public and commercial facilities.

How would low income, minority or other sensitive populations be affected?

The proposed project would displace some residences and businesses in areas that have low income populations and social service organizations that serve low income populations. TxDOT is coordinating with community facilities/services, housing and businesses to discuss the proposed project, potential impacts and mitigation.

Collaboration/ Working with Partners

Is TxDOT working with other entities on the North Houston Highway Improvement resulting from the Planning Project?

Like with many of our projects, TxDOT works with the City of Houston, Harris County, Harris County Flood Control District and other agencies as projects move through the planning process. With the NHHIP, TxDOT also actively participates on the Houston-Galveston Area Council's Transportation Policy Council, which provides local input on the project and local match funding. By providing more mobility options such as managed lanes to relieve congestion, TxDOT encourages users to try new modes of transportation other than single vehicle occupancy lanes. These are wiser choices when trying to balance the mobility needs of a growing population, actual user travel mode preferences, the purpose of the roadway, and prevailing policies affecting funding.

Together, we work to find smart ways to manage growing congestion by increasing the efficiency of our existing roadways, looking for multimodal solutions and targeting improvements that hold the greatest potential for long term, system wide impacts. In jointly developing and implementing travel demand management solutions, TxDOT and its local partners can help reduce congestion.

How does TxDOT work with its partners?

TxDOT works with its community and transportation partners to ensure the voices of community are heard during the planning and execution of improvements on TxDOT roads. Further, through the Local Government Projects Program, TxDOT provides guidance and training for local governments, including municipalities, counties or regional mobility authorities in the development of transportation projects under TxDOT oversight. The program addresses both federal and state requirements.

Is the FEIS the final approval for the project and/or the last chance to influence the outcome of the project?

The design of the NHHIP remains open to future design changes and improvements after environmental clearance is achieved, also referred to as a Record of Decision (ROD).

The federal process to obtain environmental clearance is based on a schematic level design which accounts for the right of way footprint at a specific "snapshot in time" needed for completing impact analysis and identifying mitigation for adverse impacts that can't be avoided per the current level design.

Why not make changes to the project before a record of decision is issued?

Obtaining environmental clearance is a prerequisite of taking a project into a detailed design where additional refinements and design improvements can be made.

The NHHIP represents years of work by TxDOT to define the purpose and need for the project, and to develop and analyze alternatives to meet the projects goals while proactively seeking meaningful public involvement along the way. More specifically, TxDOT has spent the better course of the past four years evaluating the physical, cultural, and human environments affected by the proposed project, including a thorough examination of strategies to avoid adverse impacts and the identification of mitigation for those impacts that cannot be avoided. All of this is what is expected to be reflected in the Final Environmental Impact Statement (FEIS), due for release in summer 2020.

How will TxDOT handle/incorporate the requests from the City of Houston submitted by Mayor Turner resulting from the Planning Department's NHHIP Facilitation Process?

TxDOT values the collaborative spirit of our partners and the investment the city has contributed to exploring strategies to help make the NHHIP a positively transformative project for the State of Texas, the City of Houston, and the Houston-Galveston Metropolitan Area. While our immediate attention is focused on the essential step of getting environmental clearance on the current alignment, we will continue to work together to make I-45 even better.

More specifically, TxDOT's most immediate priority is closing out our efforts specific to the FEIS and obtaining a ROD on the project. Any forward momentum will be rooted in a ROD relative to the proposed project and footprint as documented. From there, we will have many options for how to refine the project and we are committed to judiciously evaluating the requests made on the behalf of the City of Houston and others and looking for "win/win" opportunities to make the project reflect our collective best efforts.

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TxDOT Houston District
7600 Washington Avenue
Houston, TX 77007

To learn more about NHHIP,
scan or click the QR code and
watch the Change for the Better
video.



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Also, find out more about TxDOT at www.txdot.gov, or contact us by email at: HOU-PIOWebmail@txdot.gov
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