



I-45 North Houston Highway Improvement Project

VISUAL & AESTHETIC TREATMENTS



What is TxDOT Doing to Address Visual Impacts?

The North Houston Highway Improvement Project (NHHIP) provides a once in a lifetime opportunity to increase connectivity between people, places, and things, enhance green space, and promote visual improvements at the local level to complement the appeal of our city.

The Texas Department of Transportation (TxDOT) has launched an effort to consider improvements that aim to provide a visually pleasing environment. Five areas of opportunity were identified to transform some of the concrete dominated landscapes and launch an NHHIP-wide corridor aesthetics and landscape effort: visual appeal, celebrate local identity, walkability and connectivity, landscape enhancements, and sound walls.

This overview examines general strategies within the five areas of opportunity being considered for the NHHIP. Each strategy will be developed and refined at the detail design stage to address site specific conditions and local community input. Real world examples of projects are provided to illustrate the potential implementation of the aesthetic strategies.

During detail design and construction, TxDOT will coordinate enhancement projects with interested local organizations, groups, and individuals to encourage public/private partnerships to ensure responsible use of taxpayer dollars. Partnerships may include the donation of services and activities such as landscape planting, establishment, or maintenance.

Visual Appeal

- Pedestrian friendly streets with pavement options and well lit areas.

In an effort to create a visually pleasing experience, decorative sidewalk pavers are potential aesthetic elements that add visual interest and create a more inviting environment for pedestrians. Although outside of the pedestrian access route, pavers along borders provide directionality, visual appeal, and create a more welcoming environment. Pavers are a physical feature that can improve the visual quality of walking across and under a highway. Brick or landscaping pavers at intersections and at underpasses are examples of this treatment.

There is one general design scheme established for continuity and consistency in the brick paver elements along borders and as decorative accents in the NHHIP project area. Detailed brick paver colors and color schemes will be developed in coordination with community partners.



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

- Accessibility for disabled pedestrians.

The United States Access Board states: “Some pedestrians using wheelchairs or other mobility aids experience pain or difficulty when rolling over rough or jointed surfaces, which may preclude their ability to use the public sidewalk.”¹

As a result, sidewalks will have a concrete treatment.

Crosswalks marked for contrast with retroreflective material will provide visibility with low light conditions and at night. High visibility crosswalk markings are more visible under all conditions. These highly visible crosswalk markings also inform drivers and pedestrians where it is safe to walk across the road and caution drivers to expect to see pedestrians.

Celebrate Local Community Identity

- Supports local murals, gateway projects and art that represents local community identities and shared histories.

Artwork on underpass columns contributes to a positive gateway experience and reflects the adjacent neighborhood identity. The unique structure of underpasses creates opportunities for aesthetic improvements, such as murals that can reflect both culture and history while contributing to a sense of local identity. Unifying themes can be developed through the use of art and neighborhood gateway markers to express the cultural uniqueness of neighborhoods adjacent to the NHHIP project.

Walkability & Connectivity

- Bike and pedestrian spaces

Through close coordination with local agencies and stakeholders, TxDOT is providing connections between existing and future trails, and enhanced bridges across the freeway that support bicycle lanes and pedestrian spaces. For more information on pedestrian and bicycle facilities, please see the NHHIP paper on *Pedestrian and Bicyclist Accommodations*.

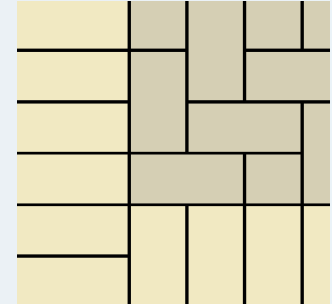
- Expand people’s opportunities for biking and walking to encourage healthier lifestyles.

In areas where TxDOT has available right of way along the NHHIP corridor, the space can be used to develop or enhance green space pockets. Green space pockets can promote meeting and resting places for the community.

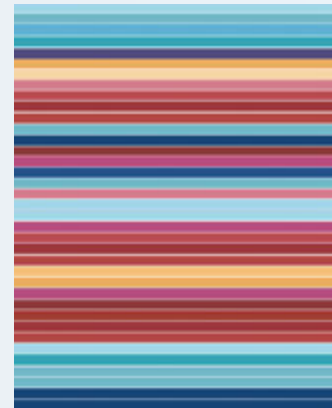
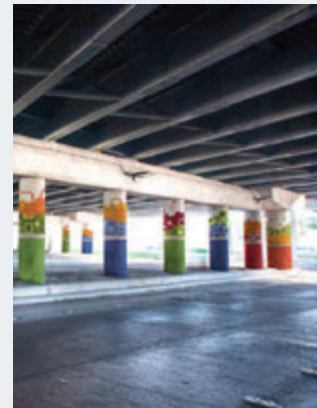
- Support the creation of trails utilizing open space and wide berm areas along detention ponds.

Detention ponds are utilized for flood control during large rainfall events and are specifically designed to temporarily hold water while slowly draining it to another location. For more information on detention ponds, please see the NHHIP paper on *Addressing Flooding*.

Wide berm areas that serve as the perimeter of detention ponds will be evaluated for potential trail locations. These concrete trails would serve as pedestrian and bike connections separated from the roadway. Trails along the berm area of detention ponds will need to be evaluated on a case-by-case basis.



Detail of brick paver layout called herringbone pattern where pavers are laid at 90° angles with an additional brick paver border along the edge, for contrast.



IH 45/Cullen Street Mural by students.

Elysian Viaduct - Local artist developed colors for columns.



Example of a trail along the berm of detention pond adjacent to US 290.

¹ United States Access Board, <https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/background/access-advisory-committee-final-report/x02-new-construction-minimum-requirements-x02-1-public-sidewalks>.

Landscape Enhancements

- Enhance green space by implementing key elements from the Green Ribbon program such as planting trees along the bike and pedestrian network.

The TxDOT Green Ribbon Program is designed to transform concrete dominated landscapes by planting trees and other plantings that are native to the area or adapted to the local climate. Additionally, Green Ribbon encourages reforestation and provides erosion control, helping to hold topsoil in place. Air quality also benefits from landscaping. Trees can reduce hourly ozone by up to 15 percent, sulfur dioxide by 14 percent, and particulate matter by 13 percent. According to the U.S. Forestry Service, a single large healthy tree can remove more than 300 pounds of carbon dioxide from the atmosphere every year.

Landscape enhancements provide opportunities for communities to partner with TxDOT in integrating tree and other plantings with roadway functionality. Some guidelines include:

- Near intersections or at median noses, landscaping enhancements will use low ground cover and other similar low plantings to avoid obstructing visibility and sight lines for pedestrian, cyclists, and motorists.
- Along sidewalks, landscaping enhancements avoid species known to produce surface roots, which may buckle sidewalks.
- Plants used for revegetation of rights of way should be native to the area or adapted to the local climate to foster good stewardship of water resources.



(1) Original area where right-of-way extends



(2) Current situation at existing green space pocket



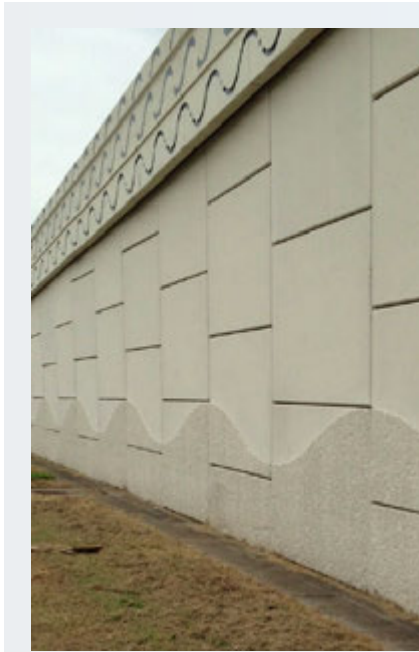
(3) Future planned scenario with tree plantings

Image (1) above shows the original area where there was available TxDOT right of way along the frontage road of Beltway 8 adjacent to a four-foot wide sidewalk. This available right of way became an opportunity for the community to partner with TxDOT to create a green space pocket. Image (2) shows the current situation with an eight foot wide sidewalk and a meandering concrete surface that was added to provide passing and resting opportunities for pedestrians and bicyclists. Image (3) shows future tree plantings that were planned in coordination with the local community.

Sound Walls

As part of the NHHIP project, a noise study was conducted to determine whether highway traffic sounds will have an impact on nearby areas frequently used by people. These areas include many types of land use including residential, commercial, churches, medical facilities, hotels, parks, and institutions. The study predicts whether noise levels are expected to increase or decrease compared to existing noise levels.

In areas where sound was predicted to increase, TxDOT evaluated the benefit of sound barriers to reduce noise. More than 75 sound barriers have been proposed as noise mitigation for the NHHIP project. For more information about the specific locations where noise barriers are being proposed for the NHHIP, refer to the *Traffic Noise Analysis Technical Report* available on the NHHIP website. The final decision to build individual barriers will be based on their constructability in the field and a majority vote by adjacent property owners.



Wave scheme on retaining wall I-45 South



Retaining wall with Texas Bluebonnet.

Sound Barriers: Can they look visually pleasing?

Sound barriers are solid wall like structures and are an important tool used to reduce the level of noise from highway traffic. One way the NHHIP improves the visual environment is through visually appealing sound and retaining walls that can provide an attractive appearance while also offering reduction in noise levels. There are general sound wall design schemes that can be selected to reflect the character of an area. For example, along SH 99 North, the vertical scheme applied to the northern corridor consists of predominantly vertical articulations and tree like forms that reflect the local pine forest landscape.



Vertical scheme sound wall on SH 99 reflects the area's pine forest landscape.

The detailed design treatment of sound and retaining walls can be developed in coordination with individuals, groups, and entities to provide a favorable image of the neighborhood and/or community where they are placed.



Noise barriers are wall-like structures. Image: FHWA Noise Barrier Design Handbook.

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To learn more about the NHHIP, scan the QR code and watch the *Changes for the Better* video.



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