Houston, we have a congestion problem
Houston commuters waste 75 hours a year in traffic, study finds

Dug Begley
Aug. 22, 2019 | Updated: Aug. 27, 2019 10:12 a.m.
**Houston**
- Leads the nation with **10 out of 100** bottleneck freeway areas nationwide.

**Project Area**
- Has **9 of the Top 40** most congested roadways in Texas.
Need for Proposed Project

- Manage congestion
- Enhance safety
- Provide expanded transit and carpool opportunities with 2-way, 24/7 operations
- Improve mobility and efficiency
North Houston Highway Improvement Project

Total Project Area

- **Segment 1:**
  I-45: Beltway 8 to I-610 (9 mi) / Not Yet Funded

- **Segment 2:**
  I-45: I-610 to I-10 (3 mi) / **Funded:** $1.1 Billion

- **Segment 3:**
  I-10, 1-45, I-69 (12.3 mi) / **Funded:** $3.7 Billion

**Total:** 24 miles
North Houston Highway Improvement Project
Segment 1

New Capacity

• Add four MaX lanes (HOV+Transit+Express) to allow 2-way, 24/7 operations- Accommodates METRONext Plan
• Add one frontage road lane in each direction
• Add full-width shoulders
• Add bike/pedestrian features along frontage roads
Reconstruct I-45/I-610 Interchange

• Shift left-side connections between interstates to right-side
• Lower mainlanes and MaX Lanes to improve sight distance

New Capacity (same as Segment 1)

• Add four MaX lanes (HOV+Transit+Express) to allow 2-way, 24/7 operations
• Add full-width shoulders
• Add bike/pedestrian features along frontage roads
ENHANCED MOBILITY

- Improve I-45/I-69 Interchange (bottleneck in Downtown Loop System)
- Separate through-traffic from Downtown-destined traffic
- Flatten curves at interchanges
- Improve weaving conditions
- Reconstruct all 44 cross streets over NHHIP to incorporate City of Houston Bike Plan elements
CONGESTION RELIEF

- Increase in free flow speed of 20 mph around Downtown (Year 2040 AM Peak)
- 50% reduction in delay during peak hour (Year 2040 AM Peak)
- Systemwide reduction in delay and increase to average speeds

SAFETY

- Reduced crash rates by 30% compared to No Build Year 2040
- Increased sight distance

North Houston Highway Improvement Project
Segment 3
North Houston Highway Improvement Project
Planning Concepts

SEGMENT 3 - EXISTING

SEGMENT 3 - PROPOSED

IH-45 (Pierce Elevated)

IH-10

Alternative 10
North Houston Highway Improvement Project
Planning Concepts

SEGMENT 3 - EXISTING
US-59

SEGMENT 3 - PROPOSED
US 59
IH 45-N

IH-10

IH-45 (Pierce Elevated)

Alternative 12
Alternative 11
North Houston Highway Improvement Project
Planning Concepts

Preferred Concept
NHHIP – Segment 3
Civic Opportunity Areas

01 Midtown / Museum District Caps
02 Midtown and Third Ward Bridges
03 EaDo Greenway
04 EaDo Caps
05 Buffalo Bayou Wetland Park
06 Warehouse District
07 UH Downtown Campus / White Oak Bayou Park
08 Post Office and City Campus
09 Buffalo Bayou Gateway
10 Fourth Ward Connection
11 Pierce Street Redevelopment / Linear Park
12 North Main Cap
13 Little White Oak Bayou
NHHIP – Segment 3
Civic Opportunity Visions

EADO CAP

BUFFALO BAYOU GATEWAY

PIERCE ST LINEAR PARK

NORTH MAIN CAP
FINDINGS | The civic opportunities can generate a total benefit on the order of $7.2B. The whole is greater than the sum of its parts.

<table>
<thead>
<tr>
<th>Benefit Type</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tr>
<td>Worker &amp; Resident Attraction</td>
<td>$3.3B</td>
<td>$4.4B</td>
<td>$5.5B</td>
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<tr>
<td>Visitor Spending</td>
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<td>$1.3B</td>
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<td>Real Estate</td>
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<td>$0.7B</td>
<td>$0.9B</td>
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<td><strong>$5.6B</strong></td>
<td><strong>$7.2B</strong></td>
<td><strong>$9.0B</strong></td>
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</tbody>
</table>
FINDINGS | Two component opportunities have outsized impact potential.
NHHIP- Segment 3
Stakeholder Input
PUBLIC OPEN HOUSES
Come discuss the
VISION & OPPORTUNITIES
for connecting neighborhoods and creating great spaces related to the
NORTH HOUSTON HIGHWAY IMPROVEMENT PROJECT

**EAST SIDE:** Wednesday, August 29, 2018, 5:30-7:00 PM
**NORTH SIDE:** Tuesday, September 4, 2018, 5:30-7:00 PM
**WEST SIDE:** Thursday, September 13, 2018, 5:30-7:00 PM

For more information, contact Peter.Ecles@HoustonTX.gov

**George R. Brown Convention Center, Room 360**
1001 Avenida De Las Americas, Houston, TX 77010
**UH Downtown, Welcome Center, Room GSB 302**
201 Girard St, Houston, TX 77007
**Houston Public Library, Fourth Floor Program Place**
500 McKinney St, Houston, TX 77002

EASTSIDE – 112 ATTENDEES
NORTHSIDE – 99 ATTENDEES
WESTSIDE – 84 ATTENDEES
MIDTOWN / THIRD WARD/
ALEMDA / OST at 1-69

NHHIP – Segment 3
35 Projects
Master Plan Goals

• Connect Neighborhoods Disconnected by Highways
• Create a Green Loop around the Central City
• Contribute to the Resiliency of the City
• Maximize Development Opportunities
Civic Opportunities

- Cap Parks
- Open Space
- Elevated Parks
- Garden Bridges
- Highway Aesthetics
- Detention
NHHIP – Civic Opportunities
Repurposing Infrastructure

Open Space
Elevated Parks
Cap Parks
NHHIP – Civic Opportunities

EaDo Cap Park
NHHIP – Civic Opportunities

EaDo Cap Park
NHHIP – Civic Opportunities
EaDo Cap Park
NHHIP – Civic Opportunities
Midtown Cap Parks

Fannin Cap Park
Wheeler Cap Park
Almeda St Expanded Bridge
NHHIP – Civic Opportunities
Westside Open Space
NHHIP – Civic Opportunities
Pierce Elevated Park
NHHIP – Civic Opportunities

Pierce Elevated Park
NHHIP – Civic Opportunities
Pierce Elevated Park
NHHIP – Civic Opportunities
Pierce Elevated Park
NHHIP – Civic Opportunities
Pierce Elevated Park
NHHIP – Civic Opportunities

Garden Bridges
NHHIP – Civic Opportunities

Garden Bridges
NHHIP – Civic Opportunities

Garden Bridges

Montrose Underpass - Before

Montrose Bridge - After
NHHIP – Civic Opportunities

Garden Bridges

Montrose Bridge

6’ Pedestrian Realm

Garden Bridge

12’-17’ Pedestrian and Bike Realm
NHHIP – Civic Opportunities

Garden Bridges

25 New Street Bridges

- Third Ward
- Midtown
- Fourth Ward
- Pierce Corridor
- Buffalo Bayou
- Northside
- Fifth Ward
North Houston Highway Improvement Project

Highway Aesthetics
North Houston Highway Improvement Project
Highway Aesthetics

- Vertical Scheme
- Central City Scheme
- Horizontal Scheme
- Wave Scheme
Trench Walls - Vertical Striations Design Theme

Retaining Wall Panel Design
North Houston Highway Improvement Project

Highway Aesthetics

Highway Structure – Clean Lines
North Houston Highway Improvement Project
Detention Locations
Key Features of NHHIP

- **Data from recent floods** - TxDOT work includes recorded rainfall and flood data from recent floods - Memorial Day (2015), Tax Day (2016) and Hurricane Harvey (2017).

- **Harris County Flood Control District** – TxDOT is working in partnership with Harris County Flood Control District to neutralize flood elevations.

- **Redundant Drainage Systems** - Pump stations will be designed to accommodate a minimum 250-year rainfall event and checked for a 500-year rainfall event. Redundant pumps will be included in the system in case a pump in the system fails.
Urban Drainage System

Detention Ponds
- Hold water temporarily
- Used for controlling flood water

Storage Tanks
- Similar to Detention Ponds, they collect and hold water temporarily
- Can be reduced in height by using submersible pumps
- Can be hidden with vegetation
Urban Drainage System

**Pump Stations**
- Mechanically lift storm water runoff from the roadway to a discharge place or outfall
- Can be designed to be unobtrusive, efficient, and reliable

**Wet Wells**
- Receive inflow of storm water prior to pumping and has a system for collecting trash and sediment

**Control Buildings**
- House the control and communication systems needed for the Pump Stations
Proposed Midtown Detention Facility
Proposed Midtown Detention Facility

NHHIP – Segment 3
Detention Facilities

DETENTION TANK

SH 288 BEYOND
Proposed Midtown Detention Facility - Enhanced
90 percent of the city of Rotterdam lies below sea level, leaving many residential areas vulnerable to a rising ocean.
NHHIP – Segment 3
Rotterdam Example
NHHIP – Segment 3
New York City Example
NHHIP – Segment 3
Buffalo Bayou Park Example
NHHIP – Segment 3
Fifth Ward Drainage

PROPOSED DETENTION

PROPOSED PUMP STATION

PEDESTRIAN BRIDGE

FUTURE DIRECT CONNECTORS BY OTHERS

UTILITY BRIDGE

PROPOSED DETENTION

PROPOSED PUMP STATION

POTENTIAL FUTURE BYPASS CHANNEL BY OTHERS
PROPOSED PUMP STATION

NHHIP – Segment 3
Fifth Ward Drainage
NHHIP – Segment 3
Northside Drainage

TxDOT – Concrete Bottom

Desired – Wet Bottom

Ultimate Desired – Enhanced with Public Amenities
North Houston Highway Improvement Project
NHHIP Construction Timeline

**Segment 3**
- **2019**
  - Design & Procure
- **2020 - 2021**
  - Final EIS
  - ROD
- **2022**
  - Build Freeway
- **2029**
  - COMPLETE

**Segment 2**
- **2019**
  - Vision, Design & Procure
- **2020 - 2021**
  - Final EIS
  - ROD
- **2024**
  - Build Freeway
- **2029**
  - COMPLETE

**Segment 1**
- **2019**
  - Vision, Design & Procure
- **2020 - 2021**
  - Final EIS
  - ROD
- **2022**
  - Build Freeway
- **2029**
  - COMPLETE

**Funded**

**Not Funded**
North Houston Highway Improvement Project
NHHIP Construction Sequence

I-69 from Hazard St to Montrose Blvd (Under Construction)

I-69 from Main St to Almeda Rd (Construction Phasing)
North Houston Highway Improvement Project
NHHIP Construction

I-45 NHHIP Traffic Management Steering Committee

• Supports traffic management initiatives
• Minimizes adverse impacts to businesses and communities
• Considers economic growth and community sustainability
• Promotes communication across various entities
NHHIP – Segment 3
Civic Opportunities Cost

Total = $250 - $500 Million
North Houston Highway Improvement Project
Civic Opportunities Potential Funding Sources

- TxDOT
- Tax Increment Reinvestment Zones
- Municipal Management Districts
- TxDOT- City land swaps- sale of excess R.O.W.
- Houston First Corporation
- Harris County Houston Sports Authority
- New Venue District

- Harris County Flood Control District
- H-GAC Transportation Improvement Program
- Public Private Partnerships (P3)
- Revenue from operations
- Corporate sponsorship
- Charitable contributions
North Houston Highway Improvement Project

Civic Opportunities Timeline

**Segment 3** (Funded)
- **2019**: Design & Procure
- **2020 - 2021**: Design & Procure
- **2022**: Build Freeway
- **2029**: COMPLETE

Alternative Funding Agreements in Place
Civic Opportunity Work Can Begin

**Segment 2** (Funded)
- **2019**: Design & Procure
- **2020 - 2021**: Design & Procure
- **2024**: Build Freeway
- **2037**: COMPLETE

Alternative Funding Agreements in Place
Civic Opportunity Work Can Begin
North Houston Highway Improvement Project
Press: June – September 2019

TRANSPORTATION

Debate Intensifies Over The I-45 North Widening Project

The City of Houston says it will hold public forums throughout the summer to gather input. But some residents say they still feel their voices aren’t being heard.

GAIL DELAUGHTER | JUNE 21, 2019, 8:36 AM

TRAFFIC

I-45 freeway expansion will force people out of homes, group says

LOCAL // TRANSPORTATION

Massive I-45 project will remake Houston freeway spine, but at what cost?

Dug Begley | JUNE 14, 2019 | UPDATED JUNE 14, 2019 9:20 PM

LOCAL // TRANSPORTATION

Houston commuters waste 75 hours a year in traffic, study finds

Dug Begley | Aug. 22, 2019 | Updated Aug. 27, 2019 10:22 a.m.

LOCAL // TRANSPORTATION

H-GAC committee offers support for I-45 rebuild, but not without concerns

By Oscar Slaterhow

The North Houston Highway Improvement Project will rebuild the downtown freeway system and Interstate 45 north to U.S. 290. As TxDOT nears the end of the 15-year process to develop plans for the project, it’s a good time to spotlight the huge benefits this planned project will provide to motorists, downtown and adjacent neighborhoods.

Byways to access jobs that require trips through downtown, and employers will have access to a larger pool of potential workers who will be able to travel through downtown.

The NHHP will be highly beneficial to Midtown by taking the existing I-45 elevated freeway into a trench, removing the elevated structure that has often been a location for homeless communities.

The new lanes included in this section will provide a ground level, providing the opportunity for new community spaces on platforms that can be built above the freeway, with the potential for a focal point similar to Dallas’s highly successful Klyde Warren Park.

The NHHP will substantially reduce the number of highway structures along the present I-45 on the west side of downtown in the area of Allen Parkway and Memorial, opening up more space for use as parks. On the north side of downtown, these streets. Safety improvements include full shoulders and better-designed merging areas.

The NHHP adds only limited new general purpose lanes to the freeway, mainly in bottleneck locations. New capacity is primarily managed lanes similar to the highly successful managed lanes on the Katy Freeway. Managed lanes are optimized for transit and carpool use, and the NHHP will provide valuable new options for pub-

LOCAL // TRANSPORTATION

Report lists I-45 rebuild project among nation’s biggest highway boondoggles

Dug Begley | June 13, 2019 | Updated June 15, 2019 2:54 p.m.

OPINION // OUTLOOK

Widening I-45 will be a disaster for Houston [Opinion]

By Jeff Speck | Sept. 6, 2019 | Updated: Sep. 9, 2019 11:43 a.m.
Leadership

• **Central Houston, Inc.** - led **Segment 3** in 2018

• **City of Houston Planning & Development** – leading **Segments 1 & 2** in 2019

• **Technical Advisor** provided through Houston Parks Board

• Guided by key stakeholder **Facilitation Group**

• **Goals:**
  1. Unify stakeholder comments to TxDOT
  2. Provide a forum for stakeholders along Segments 1 and 2 (similar to the process that occurred for Segment 3)
  3. Document citizen’s comments
  4. Help facilitate collaborative responses to issues
NHHIP – Segments 1 & 2
Public Engagement

Facilitation Group

- AARP
- Air Alliance Houston
- BikeHouston
- Central Houston, Inc.
- Greater Northside Management District
- North Houston (Management) District
- Harris County Engineering Department
- Harris County Flood Control District
- Harris County Precinct 1 – Rodney Ellis
- Harris County Precinct 2 – Adrian Garcia
- Harris County Judge – Lina Hidalgo

- Houston Parks Board
- H-GAC
- Independence Heights Redevelopment Council
- Kinder Institute for Urban Research
- LINK Houston
- METRO
- Scenic Houston
- Super Neighborhood Alliance
- TxDOT
- Dr. Carol Lewis
- Buffalo Bayou Partnership
June 2019 Public Meetings

- Co-hosted by the City and TxDOT on June 20 and June 26
- Over 500 total sign-ins, 80 comment cards received (many more marked up maps)
A: Segment 1-North
(Beltway-8 to N. Shepherd)
Consisting of:
-Greenspoint SN
-Hidden Valley SN

B: Segment 1-South
(N. Shepherd to I-610)
Consisting of:
-Northline SN
-Independence Heights SN
-Acres Homes SN

C: Segment 2
(I-610 to I-10)
Consisting of:
-Near Northside SN
-Greater Heights SN
-First Ward
Common Comments & Concerns

- Safety / Connectivity
- Displacements
- Flooding / Drainage
- Noise / Air Quality
- Visual Impacts
- Historic / Cultural
- Access/ Traffic/ Design
- Walk / Bike / Transit/ Parks

Data from a sample of 500 comments from 2017
COMMUNITY REQUESTS

1. Reconnect Andrews Street to Downtown
2. Create a Cap Park at Andrews Street
3. Allow Cleburne Street to extend over proposed I-59/I-69 depressed section to the Innovation District
4. Increase span between columns for elevated structures along White Oak Bayou to minimize negative visual impact
5. Create an eastbound I-10 access to and from Gregg Street
6. Create a westbound I-10 access to Jensen Drive
7. Extend Nance Street from Jensen Drive to Meadows Street
8. Create an underpass condition for UPRR at I-10 to provide unimpeded access from Jensen Drive
9. Create a I-59/I-69 northbound access to Clinton Drive
10. Create a I-59/I-69 southbound access to Lyons Avenue
11. Create an alternate access from St. Arnold’s Brewery to West Street
12. Extend San Jacinto to Connect to Rothwell Street to Providence Street
13. Create wider bridges to accommodate City of Houston Bike Plan and a wider Pedestrian Realm
14. Reduce flooding concerns by working with Harris County Flood Control District to create the North Canal
NHHIP – Segment 3
TxDOT Accommodations

**Midtown** – Cleburne St and Caps

**Northside** – San Jacinto St Extension

**Fourth Ward** – Andrews St Extension