

**HARRIS COUNTY**  
**OFFICE OF THE COUNTY ENGINEER**

1001 Preston, Suite 500  
Houston, Texas 77002  
(713) 755-5370

November 6, 2019

Honorable County Judge  
& Commissioners

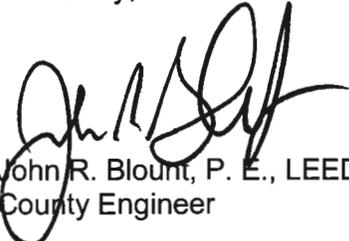
**SUBJECT: Transmittal of a Report Prepared by the Engineering Department and the Flood Control District Evaluating the North Houston Highway Improvement Project**

Dear Court Members:

Provided for your review are responses to the Commissioners Court assignment to conduct an evaluation of the North Houston Highway Improvement Project. Included are memorandums from the Flood Control District and the Engineering Department, along with a copy of the August 13, 2019, Commissioners Court resolutions for reference.

Please contact Russ Poppe or me, if you have questions or if we can provide additional information.

Sincerely,



John R. Blount, P. E., LEED AP  
County Engineer



Russell A. Poppe, P.E.  
Executive Director, Harris County Flood Control District

JRB/LS/vht  
Attachments

# HARRIS COUNTY

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1001 Preston, Suite 500  
Houston, Texas 77002  
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## MEMORANDUM

**DATE:** November 6, 2019

**TO:** John R. Blount, P.E.

**FROM:** Loyd Smith, P.E. 

**SUBJECT:** Evaluation of the North Houston Highway Improvement Project

On August 13, 2019 Commissioners Court adopted a resolution stating that the Harris County Commissioners Court believes all regionally significant transportation projects undertaken by local, state and federal entities in Harris County must achieve nine (9) benchmarks.

Two (2) of those benchmarks relate to drainage and floodplains within areas affected by TxDOT's North Houston Highway Improvement Project (NHHIP). These have been addressed in a separate memorandum prepared by the Harris County Flood Control District.

The remaining benchmarks were analyzed by the Engineering Department in the attached report. This report also analyzes additional NHHIP topics contained in a second resolution approved by the Commissioners Court on August 13, 2019.

In general, comparing TxDOT's NHHIP purpose and need statements to the Commissioners Court resolution suggests the Harris County Commissioners Court shares many of TxDOT's objectives (e.g. addressing congestion and enhancing multi-modal capacity). However, Commissioners Court selected benchmarks show additional attention is needed to ensure that those objectives are achieved with an optimal result.

Our comparison also shows there are important topics that should be more explicitly or completely addressed as TxDOT proceeds (e.g. safety, community impacts and environmental mitigation).

Please advise if further information is needed.

# MEMORANDUM



**DATE:** October 21, 2019

**TO:** Russ Poppe, PE  
Executive Director

9900 Northwest Freeway  
Houston, TX 77092  
713-684-4000

**FROM:** Dena Green, PE  
Burton Johnson, PE

**RE:** Response to August 13, 2019 Commissioner Court Resolution

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On August 13, 2019, Harris County Commissioners Court adopted a resolution related to the Texas Department of Transportation's (TxDOT) North Houston Highway Improvement Project (NHHIP). The resolution states that Harris County Commissioner's Court believes all regionally significant transportation projects undertaken by local, state, and federal entities in Harris County must, among other things:

- Reduce historic flooding patterns and aggressively mitigate new flooding impacts
- Meet the standards that Harris County Flood Control District has set forth and follow the requirements of Atlas 14 in order to build more resilient storm water infrastructure.

Additionally, the resolution directs the Harris County Flood Control District (HCFCD) to "ensure that TxDOT follows the development standards of Harris County Texas for Flood Plain Management as amended after Hurricane Harvey and effective as of January 1, 2018."

The proceeding information provides an overview of the coordination that has taken place, and will continue to occur, between the HCFCD and TxDOT related to the NHHIP.

Since April, HCFCD and TxDOT staff have been closely coordinating and collaborating regarding respective project initiatives proximate to each other: TxDOT's *North Houston Highway Improvement Project (NHHIP), Section 2* and the Flood Control District's *Little White Oak Bayou Flood Damage Reduction Feasibility Study*. Little White Oak Bayou is a major tributary of White Oak Bayou, and extends upstream to the north from its confluence with White Oak Bayou near downtown. The alignment of Little White Oak Bayou closely parallels NHHIP Segment 2 and parts of NHHIP Segment 1, and as such, the two projects share a portion of the same project study area. Items mentioned in the August 13 Resolution have been at the forefront in this coordination, as are efforts to identify project features of mutual benefit to each agency. Specifically:

- TxDOT has indicated they will evaluate project impacts on stormwater, and provide necessary mitigation, in consideration of current local criteria, including the updates to Harris County's Flood Plain Management Ordinance and Harris County Flood Control District's Policy, Criteria, and Procedure Manual (PCPM).
- TxDOT is contemplating features that will reduce existing flood risk along Little White Oak Bayou, such as removing and replacing undersized culverts at IH-610 and IH-45; as well as participating with the HCFCD and the City of Houston in the North Canal along Buffalo

To: Russ Poppe  
Date: October 21, 2019

Bayou. Their planning study is currently ongoing, but we believe that these features will be part of their recommended plan. Please note that the removal of flow restrictions often requires mitigation to ensure that flood risk is not increased in other locations along the channel. This could include channel conveyance improvements, detention, and/or other mitigating features.

- HCFCD and TxDOT are continuing to attempt to identify additional project features related to the NHHIP that could reduce flooding in the project area.
- TxDOT is considering sizing new cross structures, such as culverts crossing under the freeway, to accommodate higher flowrates from any identified future upstream improvements. If installed, the new cross structures will be restricted until the appropriate stormwater mitigation is installed to ensure that downstream flood risk is not increased.
- HCFCD is continuing to work with FEMA to identify updated regulatory floodplains as part of the MAAPNext project. That study is ongoing, and not all of the information is available to incorporate into the current TxDOT evaluation. However, in the meantime, TxDOT is utilizing a calibrated 0.2% (500-year) floodplain as their design event for their planning work in anticipation of higher regulatory flood levels in the MAAPNext project. TxDOT will be required, and has stated their intention to, update their analysis to reflect and utilize the MAAPNext models and data once that information becomes available.

The overall design of the NHHIP roadway project, and the drainage infrastructure that will serve it, follows an iterative process. At each step, TxDOT will prepare set of progressively more detailed drainage studies to support their overall project planning, until the final design recommendations are established and included in the Design Report. With a large roadway project, such as the NHHIP, it may take several years to complete the final design. When the various phases of the NHHIP are in design phase, HCFCD will review the final Design Report and construction plans to ensure the design recommendations adhere to our policy, and do not increase flood risks or flood hazards along HCFCD facilities. The following drainage studies and plans have been completed, are ongoing, or will be completed by TxDOT in connection with the NHHIP.

#### Completed Studies

- Preliminary Drainage Study (2016)– conceptual study prepared to provide a preliminary drainage study for planning purposes, specifically to support the identification of a recommended schematic alignment.

Segment 3 Drainage Studies (2018) – five different preliminary drainage studies were conducted for different portions of Segment 3 (downtown area) of the NHHIP. The purpose of these drainage studies is to provide a preliminary drainage design for respective portions of Segment 3 of the NHHIP and to support evaluation of alternatives and the determination of a final project alignment. The reports documents the preliminary results of the drainage analysis and design and will be used to assist TxDOT and a future design-build contraction in the design/construction phase of the project. Hurricane Harvey occurred during the preparation of these studies, and was considered in the studies. The new NOAA Atlas 14 rainfall had not been finalized at the time of these studies. However, in anticipation of higher rainfalls, TxDOT increased its design threshold on certain items. Final design will utilize Atlas 14 rainfall data.

To: Russ Poppe  
Date: October 21, 2019

The Preliminary Drainage Studies and Section 3 Drainage Studies are planning level evaluations that will not be used for construction, and as such, approval of the Harris County Flood Control District was not sought. The final studies have a "Preliminary" watermark that will not be removed. However, TxDOT coordinated with HCFCD throughout this process, and took our feedback into consideration.

#### Ongoing Study

- Segment 2 Drainage Study (2019) - a single preliminary drainage study for Segment 2 (generally between downtown and IH-610) that is similar in scope and purpose as the Segment 3 drainage studies.

This study is being closely coordinated between TxDOT and HCFCD, as described previously in this memorandum. The goal of this collaboration is to identify features in the mutual interest of both parties and to identify project elements that will result in reduced flood risk.

#### Future Studies and Construction Drawings

- Segment 1 Drainage Study – preliminary drainage study(s) for Segment 1 similar in scope and purpose as the drainage studies for Segments 2 and 3.
- Final Drainage Study (HCFCD formal review)
  - The final design recommendations will generally conform to the preliminary drainage studies developed for segments 1-3. However, final modifications that are needed will be determined. At this phase, a final drainage study will be submitted to the Flood Control District's Watershed Department for review and approval. This may be a single report or, more likely, separate final drainage reports for various segments.
  - This review will ensure that the NHHIP project meets the Harris County Floodplain Ordinance and the Harris County Flood Control District PCPM, including those elements enacted after Hurricane Harvey.
  - The review will ensure that the NHHIP drainage infrastructure and drainage impact analysis are based upon Atlas 14 rainfall as well as the computed water surface profiles from the MAAPNext project. If MAAPNext has not been completed, they will utilize the existing 0.2% (500-year) as per HCFCD criteria.
- Construction Plans – The actual project approval occurs when construction plans are reviewed by HCFCD's Watershed Management Department. As part of the review, the PCPM will ensure the proposed project meets the requirements of the PCPM, and also will ensure that the plans are consistent with the recommendations and parameters included in the Final Drainage Report.

**Response  
To The  
Commissioners Court Resolutions  
of August 13, 2019, Addressing the  
North Houston Highway Improvement Project**



**Prepared by the  
Harris County Engineering Department  
November 2019**

## The Assignment

Commissioners' Court adopted a resolution on August 13, 2019 that states that the Harris Commissioners' Court believes all regionally significant transportation projects undertaken by local, state and federal entities in Harris County must achieve nine benchmarks.

Two of those benchmarks relate to drainage and floodplains within areas affected by TxDOT's North Houston Highway Improvement Project (NHHIP). These have been addressed in a separate memorandum prepared by the Harris County Flood Control District.

The remaining seven benchmarks addressed in this report are:

(These are re-sorted from the resolution)

- Improve safety for people in vehicles, walking and biking, on the facility and on connecting streets
- Enhance walking and biking connections between and within existing communities
- Encourage an engineering design for an innovative multi-modal transportation system by incorporating local and regional transportation plans
- Prioritize use of existing right-of-way, mitigate displaced residents and business owners by compensating their properties at fair market value, and help renters with rental relocation assistance
- Preserve existing businesses and community resources while enhancing growth and economic development opportunities within neighborhoods adjacent to the project
- Protect and enhance parks, open spaces, and air quality as critical to physical and mental well-being of individuals, families and communities
- Mitigate the damage to our air quality and alleviate noise pollution as much as possible

The Engineering Department was directed to evaluate the NHHIP design and determine whether the proposed design will:

- Reduce the number of single occupancy vehicles on our roadways
- Enhance connectivity
- Improve safety and mobility in our region.

A second resolution on the same date directed HCFCD and the Engineering Department to include in our evaluation recommendations for TxDOT to address community concerns, mitigate adverse impacts, and provide benefits to the surrounding neighborhoods.

Findings and recommendations on topics and directives in both resolutions are included.

## Reference information and method of analysis

### NHHIP project purpose and need statements published by TxDOT

What are TxDOT's transportation objectives for the NHHIP?

As provided in TxDOT's Draft Environmental Impact Statement, they are:

"The proposed transportation improvements are needed to address the following transportation issues in the proposed NHHIP area:

- Inadequate capacity for existing and future traffic demands
- Average daily traffic volumes are projected to increase
- The current single lane, reversible high-occupancy vehicle (HOV) lane serves traffic in only one direction during peak periods
- Evacuation effectiveness on I-45 during a hurricane or other regional emergency would be limited at its present capacity
- Portions of I-45 do not meet current TxDOT design standards, creating a traffic safety concern
- Roadway design deficiencies include inadequate storm water drainage in some locations, potentially compromising the operational effectiveness of I-45 as an evacuation route because of high water lane closures
- Forecasts for commuter service indicate that managed lanes would be needed on I-45 to support commuter traffic and express bus service

The purpose of the proposed NHHIP is to implement an integrated system of transportation improvements with the goal of providing a facility with additional capacity in the I-45/Hardy Toll Road corridor to accommodate projected travel demand by incorporating transit opportunities, travel demand and management strategies, and flexible operations. Such a facility would help manage congestion, improve mobility, enhance safety, and provide travelers with options to reach their destinations."

In presentations, TxDOT has summarized these as follows:

Need for Proposed Project:

- Population and employment increases
- Existing and future I-45 traffic
- Current design standards and improved safety
- Efficient traffic movement, including during evacuation events

Purpose of Proposed Project

- Manage congestion
- Enhance safety
- Improve mobility and operational efficiency

### Method of Analysis

This report is a qualitative review of the NHHIP project. We did not perform independent calculations or engineering checks. Instead, we provide an engineer's perspective on various policy and project benchmarks the Court has established. Our analysis is informed by both TxDOT's published documents

and our interaction with TxDOT, other agencies and the public over the past several years of project development.

The evaluations directed by the Court have been addressed in an order that places similar items in topic groups. Each of the topic groups compares and contrasts the relevant TxDOT project objectives and their preliminary design against the benchmarks established in the Courts' resolutions. The analysis of each topic is followed by conclusions and our recommendations for addressing that topic.

In general, comparing the TxDOT purpose and need statements to the Courts' resolution suggests the Harris County Commissioners' Court shares many of TxDOT's objectives (e.g. addressing congestion and enhancing multi-modal capacity). However, Courts' selected benchmarks show additional attention is needed to ensure that those objectives are achieved with an optimal result. The comparison also shows there are important topics that should be more explicitly or completely addressed as TxDOT proceeds (e.g. safety, community impacts and environmental mitigation).

## Safety, including pedestrian and bicyclist safety

### TxDOT Need Statement:

*Portions of I-45 do not meet current TxDOT design standards, creating a traffic safety concern*

### TxDOT Purpose / Goals statement:

*Enhance safety*

### Commissioners' Court benchmarks:

*Improve safety for people in vehicles, walking and biking, on the facility and on connecting streets*

*Enhance walking and biking connections between and within existing communities*

### Requested Engineering Department evaluations:

*Will the NHHIP improve safety... in our region?*

*Will the NHHIP enhance connectivity?*

### Analysis:

TxDOT's statements in the public documents include limited analyses that specifically predict the safety benefits of the project. Instead, TxDOT states enhanced safety will be achieved by designing the facility to current design standards.

This is a reasonable and accurate position, so far as it goes.

Many features of the existing freeway and frontage road system were designed several decades ago. Modern design criteria are certainly more stringent and have been developed with much greater attention to safety impacts. Moreover, TxDOT has included many freeway design features that will positively address safety. For example, sight distances will be improved. Weaving (lane-changing) movements will be reduced. Additional transition lengths are provided to accommodate merging movements. These are all key elements of the project design that will positively impact traveler safety.

However, we believe the approach of relying solely on modern design criteria as the path to the objective of enhanced safety should be reconsidered. We believe a more specific evaluation of opportunities for safety enhancements is both appropriate and worthwhile.

TxDOT's current approach to safety can be broadened in three significant ways.

First, as implied in the Court's benchmark, the proposed design and its safety benefits would be enhanced by more specifically addressing walking and biking safety throughout the project.

Because pedestrians and bicyclists will be using surface streets, this leads directly to a second point.

Safety evaluations for the frontage roads and connecting streets should be given specific attention. The methods of analyzing crash potential are quite different for freeway and surface street operations.

Finally, safety for pedestrian and bicycle users is not limited to crash mitigation. Personal safety is directly affected by whether the pedestrian and biking environment is well utilized.

To achieve higher utilization rates, the proposed pedestrian and bicycle routes must be perceived as a “walkable place”: convenient, safe, aesthetically pleasant and well-lit. The application of appropriate pedestrian and bicycle design criteria across the project is integral to this objective, but attention to site-specific design details is equally important.

Conclusion:

We believe the NHHIP will improve safety, but more can be done to ensure that those improvements are quantified and equally distributed to all roadway users.

Recommendation:

**The overall safety impact of the project could be measured and addressed in greater detail. In particular, we believe a safety analysis of proposed the frontage roads, the connecting streets and the associated pedestrian and bicycle facilities should be explicitly included as part of the TxDOT design process. The analysis should include site-specific safety reviews of the project’s frontage road and surface street improvements, giving consideration to both crash mitigation and personal safety.**

## Mobility and Congestion

### TxDOT Need Statements:

*Inadequate capacity for existing and future traffic demands*

*Average daily traffic volumes are projected to increase*

*Evacuation effectiveness on I-45 during a hurricane or other regional emergency would be limited at its present capacity*

### TxDOT Purpose / Goals statements:

...additional capacity in the I-45/Hardy Toll Road corridor to accommodate projected travel demand

...manage congestion, improve mobility...

### Commissioners' Court benchmarks:

*None stated*

### Requested Engineering Department evaluations:

*Will the NHHIP reduce the number of single occupancy vehicles on our roadway?*

*Will the NHHIP improve...mobility in our region?*

### Analysis:

The congestion levels throughout the corridor are significant and undisputed. All segments of the project are included in the top 30 of the Top 100 Most Congested Roadway Segments in Texas, as measured by vehicular delay.

TxDOT's projections of increasing traffic demands and increasing congestion are also credible. The Houston region's population and economic growth rates have exceeded national trends for many years. Long-range forecasts from multiple sources predict more growth in the future, which has a relatively direct effect on travel demand.

Although some recent data shows a flattening of the growth curve for per-capita vehicle miles traveled in the state, the overall vehicle miles traveled in Harris County and the region continues to increase in close correlation to population growth and the regional economic health. Numerically, travel demand is overwhelming influenced by factors such as a healthy regional economy, new residents arriving with cars and residents choosing to live far from their jobs. Those factors greatly outnumber the mitigating factors of foregone, shared, shortened or alternative mode trips residents of a corridor or the region may choose.

Also, as heavily-traveled as the NHHIP freeways are, we note that they carry a small proportion of the total vehicle miles traveled in Harris County or the region.

Recent data shows about 29% of the vehicle miles traveled in Harris County occurs across all of the 179 centerline miles of interstate highways within Harris County. The NHHIP roads and the connecting sections of other freeways impacted by this project are a small percentage of the interstate highways in Harris County, and an even smaller share within the region.

Mobility, often measured in terms of trip delay, is a different question. The history of road improvements in any growing region shows that short-range projections of improved travel times following capacity improvements are often accurate, but they become less certain as time goes on. More cars are added to the improved road as the population grows and as land development and travel patterns shift.

The TxDOT project needs list states additional capacity on I-45 will be beneficial during an evacuation. We agree.

We do note that TxDOT's project objectives do not explicitly address mobility impacts during construction.

The County building complex in downtown generates a measurable share of NHHIP freeway trips serving both employee and constituent needs. We need to remain alert to ensure our County-specific mobility needs in the downtown area are given appropriate attention as the project moves into design and construction.

Conclusion:

The NHHIP project will not reduce vehicle miles traveled in our region.

The NHHIP will increase mobility in our region, including during evacuations. The duration of the positive effects will not be permanent.

Recommendation:

**Harris County Engineering should remain involved and vigilant during the design phase to ensure that construction traffic control plans adequately maintain mobility for vehicle and transit trips to County destinations in downtown. As construction proceeds, communication channels to County employees and customers should be established.**

## Multimodal / Transit

### TxDOT Need Statements:

*The current single lane, reversible high-occupancy vehicle (HOV) lane serves traffic in only one direction during peak periods*

*Forecasts for commuter service indicate that managed lanes would be needed on I-45 to support commuter traffic and express bus service*

### TxDOT Purpose / Goals statements:

*[Provide] a facility...incorporating transit opportunities, travel demand and management strategies, and flexible operations.*

*...Provide travelers with options to reach their destinations.*

### Commissioners' Court benchmarks:

*Encourage an engineering design for an innovative multi-modal transportation system by incorporating local and regional transportation plans*

### Requested Engineering Department evaluations:

*Will the NHHIP reduce the number of single occupancy vehicles on our roadways?*

*Will the NHHIP enhance connectivity?*

*Will the NHHIP improve...mobility in our region?*

### Analysis:

Within the I-45 North corridor, the TxDOT design provides two-lanes-in-each-direction managed lanes. This will significantly increase the multi-modal capacity over the existing one-way, reversible HOV lane. This is a very positive factor for the generation of carpooling and transit alternatives in the northern part of our region because increasing the capacity of the HOV and transit lanes in the corridor provides new or enhanced opportunities for the reduction of individual and per-capita vehicle miles traveled.

TxDOT should be given due credit for addressing the transit and carpooling modes in their design.

However, even if the development of additional carpool and transit use in the I-45 managed lanes is a wild success, the cumulative impact of the individual users' reductions in automobile use would remain numerically overwhelmed by the opposing factor of more trips overall resulting from economic and population growth in the region. Increasing the number of alternative-mode trips from a very small percentage to a merely small percentage is a minor factor compared to an overall environment where economic and the population growth tend to directly increase both the total number of trips taken and the total vehicle miles traveled.

Despite those limitations, managed lane projects increase the use of alternative modes, which is important for a variety of reasons. This is recognized by the public and our sister agencies, and has resulted in a keen interest in how the NHHIP will affect the further development of future transit projects and services. Several critiques of the TxDOT managed lane concept have resulted.

First, the configuration of the managed lanes as proposed favors long-distance trips. This is consistent with TxDOT's stated purpose *"to support commuter traffic and express bus service"*.

At the neighborhood level, the impact of this philosophy is evident in the loss of existing ramps providing direct access between the HOV lane and local streets Quitman Street and Airline Drive. Instead, all access to the I-45 managed lanes outside of downtown is via freeway lanes or frontage roads. As a result, some residents along the corridor infer little personal or neighborhood benefit to the managed lanes. They just see four added lanes carrying cars and coach-style buses traveling through their community.

A second, more complicated point of contention has emerged regarding provisions for future passenger rail transit or bus rapid transit in the immediate vicinity of I-45.

Currently the METRO Red Line light rail route ends on Fulton Street near Crosstimbers Road, about ¼ mile east of I-45. Over the past two years, Houston METRO has developed the METRONext long-range plan for their service area. It includes an extension of the Red Line to the North Shepard Park and Ride lot along surface streets, crossing I-45 perpendicularly.

The METRONext plan also shows a bus rapid transit route traveling to Bush Intercontinental Airport on the I-45 corridor the between downtown and Greens Road. Whether the bus rapid transit vehicles on the "Intercontinental Line" would travel on TxDOT's managed lanes is not explicitly stated in the METRONext documents. (This is understandable. Any future investment in the "Intercontinental Line" using federal funds will require a significant Alternatives Analysis study to be completed.)

In parallel with development of the METRONext plan, the Regional Transportation Council established a High Capacity Transit Task Force that recommended planning considerations and generalized routes for high-capacity transit services on corridors throughout our eight-county region. Their "Priority Corridor 2045" map is generally consistent with the METRONext maps, labeling both the Red Line extension on surface streets and the "Intercontinental Line" via I-45 as "All-day High Capacity Transit service".

County Engineering staff is aware there is not a firm consensus among TxDOT, METRO and community leaders on how additional transit capacity within the I-45 right of way should be configured. Nor is there definite agreement on whether transit vehicles on the "Intercontinental Line" will travel exclusively on the managed lanes or via a dedicated transit guideway.

The rub is whether the room needed for an exclusive, elevated guideway will be provided within TxDOT's I-45 / NHHIP project footprint. Who might pay for that additional right-of way is also a question, as TxDOT funds are effectively limited to highway and street improvement.

Given the advanced phase of TxDOT's planning for the I-45 freeway and managed lane improvements, this uncertainty creates a multi-dimensional question impacting scope, schedule, cost and environmental impact stretching over several miles of the proposed improvements. Adding the physical room for an exclusive guideway will either require additional ROW (with more neighborhood and commercial property impacts) or a roadway scope reduction that reduces the width, capacity and benefits of TxDOT's planned improvements in the corridor.

Conclusion:

TxDOT's design of the NHHIP includes two-way managed lanes providing preferential service to bus transit and HOV uses, resulting in a significant increase in the capacity and service flexibility for carpools and express buses serving commuter travel in the I-45 corridor. Two significant transit and connectivity issues remain, however.

Identification of strategies and physical improvements to provide greater access to the managed lanes from neighborhoods affected by the project is needed.

Resolving the open questions related to the footprint of the "Intercontinental Line" within the I-45 right-of-way should also be addressed. Crafting a forward-looking and coordinated interagency plan for a full range of multi-modal alternatives to be developed in the I-45 corridor is an issue of regional importance and should be addressed without delay.

Recommendation:

**Houston METRO and TxDOT are the lead agencies for coordinating and resolving the open issues related to transit services and transit connectivity within the wider NHHIP corridor. The City of Houston, the Houston-Galveston Area Council and Harris County are all stakeholders and should continue to monitor and support those efforts. Court members, representatives from their staffs and the Engineering Department should encourage TxDOT and METRO to commit to a coordinated project solution accommodating long-range transit and HOV solutions along I-45 that will provide multi-modal transportation options to residents living both in the NHHIP corridor and throughout the region.**

## Right-of-way and property acquisition

### TxDOT Need Statements:

*Not applicable. Property acquisition is a consequence of the project, not a transportation need.*

### TxDOT Purpose / Goals statements:

*Not applicable. Property acquisition is a consequence of the project, not a transportation purpose.*

### Commissioners' Court benchmarks:

(for clarity, this benchmark is separated into two parts and reordered)

*Mitigate displaced residents and business owners by compensating their properties at fair market value, and help renters with rental relocation assistance*

*Prioritize use of existing right-of-way*

### Requested Engineering Department evaluations:

*The second Court resolution requested "recommendations for TxDOT to ...mitigate adverse impacts..."*

### Analysis:

TxDOT has shown the appropriate commitment to adhering to the tightly-defined requirements of both state and federal law as they relate to property acquisition and relocations. We have no comments or critiques related to what we know of TxDOT's plan for addressing fair compensation or relocations expenses where property acquisition will be needed.

Two extra efforts by TxDOT are praiseworthy. In public meetings, they have gone beyond minimum requirements by providing separate tables where affected property owners can learn about the procedures for calculating the fair compensation and relocation assistance that are dictated by state laws, TxDOT regulations and the Federal Relocation Act. We are also aware TxDOT is in pursuit of "early authority" approvals to accelerate addressing the needs of vulnerable renter populations living in Houston public housing facilities affected by the project.

The second element of this charge essentially asks whether the proposed design has given priority to minimize the number and size of proposed property acquisitions. Our answer is a qualified "yes".

TxDOT has advanced their preliminary design through several iterations over the past several years of project development. In some cases, design revisions have reduced project right-of-way acquisitions. In other cases, addressing a functional need or a public request will lead to additional right-of-way being acquired. Also, the preliminary design plans represent a hybrid approach in some cases. Locations where storm water detention is required are being designed to be located within roadway-required right-of-

way to the greatest practical extent, minimizing the need for nearby detention-specific property acquisitions. Finally, in some cases right-of-way acquisitions may increase due to design criteria changes, such as adjustments to earlier designs to accommodate the greater rainfall rates and detention needs associated with the publication of Atlas 14 rainfall data.

The detailed design reviews and the trade-off analyses needed to find that the “right” balance of property acquisitions across the entire project is beyond the scope of our analysis. Instead, we can only observe that TxDOT and their design team are obviously aware of the impacts created by property acquisitions and are proceeding through the design and environmental review applying the appropriate standards of engineering design and procedure.

We do note, however, that the iterative process of minimizing property impacts should not end with the issuance of an environmental finding or the beginning of a formal design phase. The complexity and magnitude of this project - illustrated by the study of transit and safety impacts recommended in previous sections - directly suggests that TxDOT should not proceed immediately to right-of-way acquisition in certain areas.

TxDOT has pledged to continue a high-level of interagency and public coordination through the design and construction phases, where further design refinements could positively affect property acquisitions. TxDOT fulfilling their pledge to “get the design right” is a necessary prerequisite to achieving the Courts’ benchmark of a minimizing the amount of newly acquired right-of-way.

One final note: We are aware that TxDOT plans to acquire a small part of a parcel of county-owned land on Nance Street, near the southwest corner of the I-69 / I-10 interchange. The site is currently in use (and is under further development) as a surface parking lot. We believe that significant impacts to the County’s ongoing and future use of the property will be avoided.

Conclusion:

We believe TxDOT is using the appropriate procedures with respect to minimizing right-of-way acquisitions, mitigating the associated property use impacts to adjacent properties and providing fair compensation for property acquisition and owner / tenant relocation.

Recommendation:

**In coordination with HCFCD, Harris County Engineering should remain involved with TxDOT and their consultants through the design phases. We will use available opportunities to cooperatively identify design changes or other opportunities to reduce property acquisition impacts.**

## **Mitigating Impacts and Creating Opportunity for Adjacent Neighborhoods and Residents**

### TxDOT Need Statements:

*Not directly applicable. However, mitigating selected impacts is addressed extensively in the project environmental documents.*

### TxDOT Purpose / Goals statements:

*Not directly applicable. However, mitigating selected impacts is addressed extensively in the project environmental documents.*

### Commissioners' Court benchmarks:

*Preserve existing businesses and community resources while enhancing growth and economic development opportunities within neighborhoods adjacent to the project*

*Protect and enhance parks, open spaces, and air quality as critical to physical and mental well-being of individuals, families and communities.*

*Mitigate the damage to our air quality and alleviate noise pollution as much as possible.*

### Requested Engineering Department evaluations:

The second Court resolution asked the Engineering Department to include in our evaluation recommendations for TxDOT to address community concerns, mitigate adverse impacts, and provide benefits to the surrounding neighborhoods.

### Analysis:

TxDOT's Environmental Impact Statement documents appear to address the full range of topics required by the National Environmental Policy Act, state laws and TxDOT procedure manuals.

Those required environmental measures include cataloguing and estimating impacts related to historical structures, noise, air quality and cultural resources. Although our review of the individual topic documents has been limited, we believe TxDOT has substantially completed the required impact studies needed to maintain procedural compliance with the applicable state and federal environment review requirements.

Regardless, the environmental impacts of the project remain a notable and persistent community concern. The environmental benchmarks established by Court are consistent with those public concerns.

Without judgment, we observe that TxDOT and the public-at-large look at environment matters through different lenses.

TxDOT is focused on moving forward a project that meets the stated purpose and need objectives while maintaining environment compliance and providing mitigation as measured by law, science and engineering methods. By definition, this requires a technical approach.

Because relatively few members of the public are familiar with the specific measurement methods or the regulatory definitions of mitigation, the technical details are often challenging for engineers to communicate in layman's language. (In fairness, this is challenging for nearly all engineers, not just TxDOT engineers.)

From the other direction, the public - particularly those who are directly impacted by the project - can be suspicious of "the technical mumbo jumbo". Impacted individuals and communities often become frustrated with how their concerns and questions are received and answered.

To their credit, TxDOT has undertaken an unprecedented effort to bridge the communication gaps inherent to a project of this magnitude. The frequency of community and stakeholder meetings held or attended by TxDOT has been extraordinary. As the project has progressed, project information has been delivered more clearly and much more widely. TxDOT is listening, too, not just presenting.

Moving to the specifics of environment mitigation, it is notable that the Court's benchmarks would require that TxDOT exceed their usual and customary project mitigation objectives, methods and budgets. The Court has set a high bar.

The concept of "enhancing" parks or air quality is more far-reaching and complicated than merely mitigating impacts using numerical measures. Similarly, enhancing economic development in adjacent neighborhoods is not only challenging to measure, it also requires actions not typically associated with designing and building roadways. Alleviating noise impacts "to the greatest extent possible" is very different from modeling incremental noise generation and applying a defined decibel scale. Extending sidewalks on a connecting city street to reach the nearest bus stop would require TxDOT to adopt a more flexible definition of "project limits".

Fortunately, the communications links established thus far will greatly assist in bridging such gaps. These include more than TxDOT's own public involvement or interagency coordination efforts. In-progress community communications efforts by the Houston Planning & Development Department have been underway for several months. An emerging effort by the Houston-Galveston Area Council will also provide forums to identify and advance common objectives.

The Engineering Department and representatives of the Court Members' staffs have been attendees throughout the previous meeting cycles. This involvement should continue.

Also, budget flexibility has been created that may allow certain community transportation objectives to be met in concert with TxDOT's project even if they exceed TxDOT's legal authorities or their NHHIP project-specific resources. Earlier this year the Transportation Policy Council created a capital fund explicitly dedicated to addressing ancillary transportation needs and impact mitigations in areas near NHHIP Segment 2.

Specific expenditure candidates using the funds allocated budget will be identified in 2021. We can only speculate at this time, but the Engineering Department might be a candidate to manage recommended projects on County roads or (possibly) on city streets.

A few final notes will complete the analysis of environmental mitigation.

The County itself is an “affected resident” in several respects. In addition to the parking facility mentioned in a previous section, the NHHIP project is directly connected to several Precinct Four-maintained roads in Segment One and is adjacent to two Precinct Two parks in Segment Three. HCTRA’s Hardy Toll Road Downtown Connector will connect at the I-69 / I-10 interchange.

Harris County Engineering also will have a limited regulatory role as TxDOT proceeds through final design in Segment One, granting approvals for ancillary construction on connecting County-maintained roads.

Conclusion:

TxDOT appears to be in compliance with all required regulatory procedures related to environmental impacts. However, gaps remain between the proposed mitigation measures and public expectations. Communications channels have improved and expanded as the project has proceeded, providing a foundation for the work necessary to bridge the remaining gaps.

Recommendations:

**The County’s presence and participation in the ongoing community outreach efforts led by TxDOT, City of Houston and H-GAC should continue. Engineering Department and Court member staff participation is important, not only to speak on behalf of constituents but also to communicate the Courts’ benchmarks for environmental mitigation.**

**The Engineering Department will also continue to be diligent addressing relatively limited but important matters pertaining to both adjacent county-owned facilities and our regulatory role.**

19. c. l. c



**ADRIAN GARCIA**  
PRECINCT 2 COMMISSIONER

August 7, 2019

Vote of the Court:

**AGENDA ITEM**

Commissioners Court  
1001 Preston, 9th Floor  
Houston, Texas 77002

	Yes	No	Abstain
Judge Hidalgo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Ellis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. A. Garcia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Radack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Cagle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

HARRIS COUNTY  
SUDJET MANAGEMENT  
19 AUG - 7 PM 4:40

Dear Court Members:

Please consider the following item for the August 13, 2019 Commissioners Court agenda.

Harris County Precinct Two requests approval of a Resolution relating to the realignment of Interstate 45 and Interstate 69.

Your consideration and approval of this request is appreciated.

Sincerely,

Adrian Garcia  
Commissioner

Enclosure

Presented to Commissioners Court

AUG 13 2019

\* APPROVE see Attachments  
Recorded Vol \_\_\_\_\_ Page \_\_\_\_\_



# Resolution

*Whereas: The Texas Department of Transportation (TxDOT) builds most of our highways, and*

*Whereas: Highway accidents cause numerous fatalities and serious injuries of people driving, biking, and walking every year, and*

*Whereas: TxDOT's proposed North Houston Highway Improvement Project (NHHIP) represents a once-in-generations opportunity to improve the region's image and mobility, while mitigating past impacts, and*

*Whereas: Transportation infrastructure influences access to economic opportunity and quality of life, including health and wellness in Harris County, and*

*Whereas: Every major infrastructure project using taxpayer dollars should be seen as an opportunity to improve the quality of life in the surrounding neighborhoods, rather than simply mitigating negative impacts: now, therefore*

*Be it resolved that Harris County Commissioner's Court believes that all regionally significant transportation projects undertaken by local, state, and federal entities in Harris County must meet the following benchmarks:*

- Enhance walking and biking connections between and within existing communities.
- Improve safety for people in vehicles, walking, and biking, on the facility and on connecting streets.
- Reduce historic flooding patterns and aggressively mitigate new flooding impacts.
- Prioritize use of existing right-of-way, mitigate displacing residents and business owners by compensating their properties at fair market value, and help renters with rental relocation assistance.
- Preserve existing businesses and community resources while enhancing growth and economic development opportunities within neighborhoods adjacent to the project.
- Protect and enhance parks, open spaces, and air quality as critical to physical and mental well-being of individuals, families, and communities.
- Meet the standards that Harris County Flood Control District has set forth and follow the requirements of ATLAS 14 in order to build more resilient storm water infrastructure.
- Encourage an engineering design for an innovative multi-modal transportation system by incorporating local and regional transportation plans
- Mitigate the damage to our air quality and alleviate noise pollution as much as possible.

*Be it further resolved that Harris County Commissioner's Court instructs all branches of Harris County Government to work tirelessly to ensure that all of the foregoing benchmarks are realized in the NHHIP.*

Vote of the Court:

	Yes	No	Abstain
Judge Hidalgo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Ellis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. A. Garcia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Radack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Cagle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Presented to Commissioners Court

AUG 13 2019

APPROVE G/E  
Recorded Vol \_\_\_\_\_ Page \_\_\_\_\_

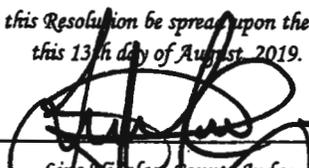
Be it further resolved that Harris County Commissioner's Court instructs Harris County Flood Control to ensure that TxDOT follows the development standards of Harris County Texas for Flood Plain Management as amended after Hurricane Harvey and effective as of January 1, 2018.

Be it further resolved that Harris County Engineering Department evaluate the NHHIP design and determine whether the proposed design will reduce the number of single occupancy vehicles on our roadways, enhance connectivity, improve safety, traffic and mobility in our region.

Be it further resolved that Harris County Commissioner's Court instructs Harris County Toll Road Authority to host a public meeting in conjunction with TxDOT to answer questions and update the community on the Hardy Toll Road Expansion Project and the NHHIP.

Finally, Harris County Commissioners Court instructs Flood Control and the Engineering Department to report back to Commissioners Court with preliminary findings on the aforementioned items in three months' time from approval of this resolution.

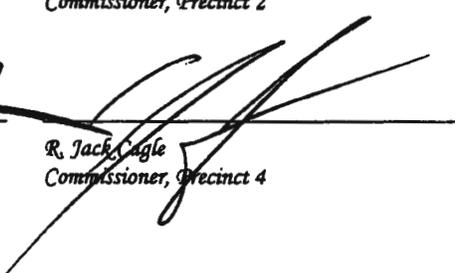
It is hereby ~~ORDERED~~ that this Resolution be spread upon the minutes of Commissioners Court this 13th day of August, 2019.

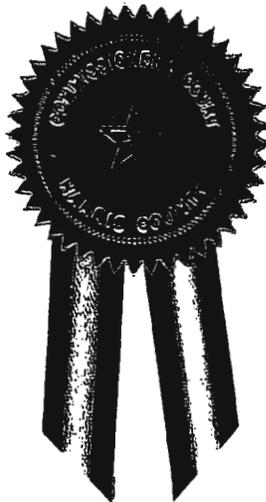
  
Lina Hidalgo, County Judge

  
Rodney Ellis  
Commissioner, Precinct 1

  
Adrian Garcia  
Commissioner, Precinct 2

  
Steve Radack  
Commissioner, Precinct 3

  
R. Jack Cagle  
Commissioner, Precinct 4



ATTEST  
  
Diane Trautman, County Clerk  
Harris County, TEXAS

On this the 13<sup>th</sup> day of August, 2019, the Commissioners Court of Harris County, Texas, sitting as the governing body of Harris County, at a regular meeting of the Court, upon motion of Commissioner Ellis, seconded by Commissioner A. Garcia, duly put and carried:

IT IS ORDERED to direct the County Engineering Department and Flood Control to include in their North Houston Highway Improvement Project evaluation recommendations for TxDOT to address community concerns, mitigate adverse impacts, and provide benefits to the surrounding neighborhoods.

The vote of the Court on the above motion was as follows:

AYES: Five (Judge Hidalgo, Commissioners Ellis, A. Garcia, Radack, and Cagle)  
NOES: None  
ABSTENTIONS: None

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Presented to Commissioners Court

AUG 13 2019

APPROVE E/G  
Recorded Vol      Page