

# EXHIBIT C

**Coalition to Make I-45 Better**  
**North Houston Highway Improvement Project**  
**Impacts and Solutions Action Plan**  
**4/13/2018**

**Project Administration:**

**I. Process**

- a. TxDOT to complete outstanding baseline EIS studies
  - a. Visual Impact
  - b. Noise
    1. Acknowledge noise impacts on parks as part of the 4F analysis
    2. Pat Henry committed to groove and grind at the Parks Issues Meeting – 12.13.18 email (but not overpasses?)
    3. Reserve further comments until release of the noise impact study.
  - c. Air Quality
  - d. Other significant alternatives that TxDOT is considering post publication of the DEIS such as the White Oak diversion channel downtown. (LAN Study)
    1. Note that concepts such as the diversion channel could be worthy enhancements to the project but also represent significant design modifications that would typically trigger a Supplemental DEIS.
  - e. Others studies that had been pending?
- b. TxDOT to hold the DEIS open to allow public comment once the studies are published.
  - a. Pat Henry committed to soliciting comment on the studies prior to issuing the FEIS during the 1/16/2018 Connectivity 2 meeting.
- c. TxDOT to accept comments developed during the issues based meetings and incorporate them in the DEIS record.
- d. TxDOT to utilize the issues based meetings and DEIS process to revise the I-45 design to comprehensively address (alternatives and mitigation) community wide concerns.
- e. TxDOT to commit to the design based solutions as part of the FEIS.
- f. TxDOT to provide a timeline going forward.

**Issues Based Discussions:**

**II. Parks and Open Space**

- a. TxDOT to recognize White Oak Bayou Greenway as Public Park and open space for 4F purposes.
- b. Coalition has requested COH not to sign de minimis impact letter regarding parks.
- c. TxDOT to follow the strict requirements of 4F in addressing park impacts.
- d. TxDOT to provide more detailed analysis of the physical, noise and environmental park impacts, including Freed Art and Nature Park, Woodland Park and White Oak Bayou Greenway.
- e. Provide additional park land for Sam Houston Park (Pat Henry email 12.13.18).

- f. Develop design alternatives from ramp alignment to column spacing to further mitigate specific impacts to parks and open space.
  - a. Reroute ramp at Freed Art and Nature Park
  - b. Reduce impact to south bank of White Oak Bayou
  - c. Reduce column spacing across White Oak Bayou
- g. Create Little White Oak Bayou (LWOB) Greenway from Acres Home to Freed Art and Nature Park and White Oak Bayou Greenway as an opportunity to mitigate multiple impacts posed by I-45.
  - a. Fully daylight and restore LWOB at all highway overpasses and provide benching for a greenway trail. Provide drainage analysis required as part of EIS process.
    - 1. Between Woodland and Moody Parks (bridge provided in plan but bayou sections are not clear.
    - 2. At Patton Street (coordinate with HCFCD per Pat Henry email 12.13.18)
    - 3. At I-610 (coordinate with HCFCD per Pat Henry email 12.13.18)
  - b. Restore and expand the existing LWOB pedestrian-bicycle system throughout the greenway as part of an integrated LWOB people-powered transportation system.
  - c. Shape detention and provide landscaping within an integrated park design (agreed at Patton St., I-69 south of I-10, Pat Henry email 12.13.18, work with HCFCD, COH to maintain as part of greenway system)
  - d. Acquire additional land for flood protection / greenway, especially within the floodway.
  - e. Develop landscape with mounding and planting to enhance the greenway park experience while blocking noise and visual impact from I-45 (Limited agreement south of Patton St per Pat Henry email 12.13.18).
  - f. Provide appropriate greenway at grade connections to existing streets and new, safe, pedestrian-bicycle connections across the highway.
- h. Fully fund any suggested “deck parks,” especially at N. Main where alternative funding sources do not exist.
  - a. Note that, given multiple park needs throughout city, local governmental or philanthropic funds should not be relied on to mitigate I-45 park and open space impacts.
  - b. See connectivity issues related to unsafe access to deck parks due to feeder roads. TxDOT has committed to reducing feeder road to 2 lanes through N. Main area (Pat Henry at 1/16/2018 Connectivity 2 meeting).

### **III. Visual Impacts**

- a. Visual Impact – undertake a deeper evaluation of visual impact including:
  - a. Provide renderings of the project showing what it will look like during the day and at night.
  - b. Provide detailed information in writing that includes information about:
    - 1. Design Plan – landscaping, surface / finishing materials, special place making elements, vandal resistance.

2. Lighting Plan – height and design of lights, technology, focused vs ambient lighting.
  3. Maintenance plan – cleaning, mowing, power washing, graffiti mitigation, trash pick-up.
- b. Green Ribbon Plan - Provide a detailed Green Ribbon Plan with a written commitment to utilize all NHHIP Green Ribbon allocation within project boundaries, including design plan and implementation schedule
  - c. Billboards – Provide a commitment that NHHIP project budget will cover all billboard removal costs

#### **IV. Connectivity**

- a. Construct all bridges and streets that are part of NHHIP to the COH standards for pedestrian-bicycle construction and consistent with the City's complete streets policy.
- b. Improve access for pedestrians, bicyclists and transit riders crossing the NHHIP.
- c. Construct the elements of every bicycle project in the City of Houston Bike Plan that fall in TxDOT right-of-way to the standards described in the Bike Plan. (TxDOT agreed at 3/27 Environmental Justice Impacts meeting).
- d. Provide safe pedestrian-bicycle connections at key streets and intersections including:
  - a. Span across I-45 north of Airline Drive.
  - b. Across Airline and I-45 at Crosstimbers Street to connect to Northline Commons Stores.
  - c. Provide a grade-separated pedestrian facility under I-45 and the elevated feeder roads at CenterPoint easement near Stokes Street to connect Theodore Roosevelt Elementary. (TxDOT agreed at 3/27 Environmental Justice Impacts meeting)
  - d. Across I-45 at Calvalcade.
  - e. Across I-45 at North Main Street.
  - f. Provide shared-use path along the west side of Bagby-Hiner Street between Pierce and Allen Parkway to connect Midtown and Fourth Ward to Buffalo Bayou.
  - g. Montrose Bridge – Ensure that the design allows for a shared-use path along the south side I-69/US 59 that would connect both to Montrose Bridge, and under Montrose Bridge to extend east to Main Street.
  - h. Include a shared-use path along the south side of I-69/US 59 between Montrose and Main Street
  - i. Mitigate for loss of Polk Street pedestrian-bike, transit and vehicular connectivity by shifting pedestrian-bike lanes to Walker Street.
  - j. Provide alternate pedestrian-bike connectivity for the removal of North Street Bridge.
  - k. Design Cottage Street crossing for safe pedestrian-bicycle access connecting the neighborhoods. Remove U-Turns.

- e. “Deck Park” Connectivity
  - a. Provide intersection design improvements for safe access across busy feeder roads to proposed deck parks. Reduce feeder to two lanes.
  - b. Design North Main exit ramp to slow vehicles to a design speed of 30mph before reaching cap park area.
  - c. Evaluate additional cap opportunities and coordinate with COH and other stakeholders, including:
    - 1. Deck Park at McKee and Hardy connection to downtown.
    - 2. Deck Park between North Main Street and Cottage Street Bridges.
- f. Minimize ROW impacts at I-45 / I-610 interchange by selecting lower design speeds, tighter radius.
- g. Frontage Roads
  - a. Multi-Lane frontage road design with wide 14’ outer lane is a safety concern for residents – reduce width of 14’ outer lane along the frontage road, and consider shared-use sidewalk.
  - b. Design frontage roads in all of segment 2 as city streets using COH Infrastructure Design Manual (two lane frontage roads in segment 2).
- h. Preserve connectivity and open Little White Oak Bayou across I-45 (see Parks and Open Space item f).
- i. Improve connectivity to downtown
  - a. Conduct feasibility analysis and build the San Jacinto / Fulton underpass, alternatively build the Chapman overpass.
  - b. Resolve pedestrian and transit access and circulation issues at UH Downtown.
  - c. Incorporate comments provided along 4<sup>th</sup> Ward to improve pedestrian-bicycle connectivity to downtown along Andrew Street.
  - d. Coordinate Navigation / Commerce connection to downtown with the COH.
  - e. Consider alternate connections to replace Runnels Street closure.
  - f. University of Houston Downtown Hernandez Tunnel impacts to be resolved.
  - g. Provide Hardy/McKee Street pedestrian-bicycle connections across I-10.
  - h. Provide pedestrian-bicycle connection across I-10 between Maury and Semmes Street at Saint Arnolds Brewery.

**V. Flooding and Water Quality**

- a. DEIS to recognize existing flooding impact of I-610 culvert on Independence Heights.
  - a. Address existing flooding issues before proceeding with new construction.
- b. DEIS to quantify cumulative flooding impact of I-45 paving and provide full mitigation.
  - a. Recognize that I-45 is not adding new lanes but is rather a complete rebuild of the highway system. Therefore, it should be brought up to current standards.
  - b. Recognize that the COH code is being updated post-Harvey to remove the clause that grandfathers existing pavement from mitigation requirement. It will now require mitigation for the entire project, not just the net pavement being added. TxDOT should build to these new COH code requirements. TxDOT had advised at Water Quality / Flooding Meeting that it would follow COH Task Force lead on detention requirements.

- c. Later, per Pat Henry email dated 4/3/2018, TxDOT plans to mitigate for more impervious surface than required, but will not mitigate for all existing pavement.
- c. Conduct Hydraulic and Hydrology analysis of impacts to White Oak Bayou Greenway and Little White Oak Bayou prior to issuing the FEIS.
- d. Integrate evaluation of the White Oak diversion channel or other design modifications as it affects the overall function of I-45 and the H&H impact on upstream communities along White Oak and Little White Oak.
- e. Work with HCFCD to design full mitigation of I-45 within the District's planning for LWOB.
- f. Design outfalls to capture both storm and debris runoff. TxDOT agreed to include structures to trap trash and other debris per Pat Henry email dated 4/3/2018.
- g. Utilize Little White Oak Bayou Greenway implementation to acquire land and design detention / water quality control within an integrated park / people-powered transportation environment.
- h. DEIS to recognize potential interception of shallow groundwater by submerged stretches of highway and the necessity to pump undefined volumes of groundwater seepage as well as storm water accumulation from these areas into White Oak and/or Buffalo Bayous, thereby potentially exacerbating flooding and water quality.
- i. DEIS to recognize potential water quality impacts to White Oak and Buffalo (including but not necessarily limited to increases in thermal impacts, heavy metals, oil & grease, polycyclic aromatic hydrocarbons) from road surfaces at grade, below grade and above grade. Consider initiating water quality monitoring to establish baseline conditions upstream and downstream and additional monitoring to assess impacts during and after construction. Per Pat Henry email dated 4/3/2018, TxDOT does not plan to model pollutants flowing off of the roadways.
- j. DEIS to recognize impacts to riparian habitat in area near confluence of White Oak and Buffalo Bayous and provide for mitigation.
- k. Provide maintenance plan to ensure continuing function of stormwater and drainage systems.
- l. Work with HCFCD to coordinate and facilitate future concrete removal and channel restoration of downstream-most reach of White Oak Bayou as identified in HCFCD's recent study (Freese and Nichols, October 2017; copy previously provided to TxDOT). In particular,
  - a. Ensure maximum spacing and optimal placement of piers for bridges crossing bayou to not impede future channel restoration;
  - b. Facilitate access to I-10 corridor R.O.W. in south bank of White Oak Bayou in this area and permit excavation of soil as needed to widen high-water channel and floodplain;
  - c. Agree to beneficially reuse excavated soils from this area to the extent feasible for ramp construction or projects, thereby eliminating the need for HCFCD to incur costs to transport and dispose.

## VI. Air Quality

- a. Work in partnership with organizations to conduct a health impact assessment (HIA) to evaluate the potential public health impacts including, but not limited to, impacts on: physical activity, pedestrian safety, mental health, parks and green space, and mobility. Based on the results of the HIA, include proposed mitigations for addressing adverse public health outcomes. Below is a list of a few health indicators that reflect the greatest challenges to the health of our region (identified by the Houston/Harris County State of Health Committee in its 2015-2016 report).
  - 34% of high school students are overweight or obese
  - Harris County only has 14 acres of parks/green space per 100 residents, below the national standard of 20 acres
  - Motor vehicle accidents (MVA) were the leading cause of all accidental deaths in Harris County (2012)
  - 65.8% of surveyed adults are overweight (BMI of 25.0-29.9) or obese (BMI of 30.0 or above) compared to 64.3% nationally
  - 10.8% of Houston-area adults have been diagnosed with diabetes
  - 5.5% of Houston-area adults have been diagnosed with some form of heart disease
  - 32.8% of Houston-area adults have been diagnosed with high blood pressure
  - 91,000 children and 209,000 adults in Harris County have been diagnosed with asthma

The list below highlights some of the potential health outcomes that research has associated with the various social, environmental, and economic concerns outlined in our original letter.

1. Disproportionate impact to low-income communities
  - a. Mental health concerns
  - b. Health deterioration and premature mortality associated with loss of community-based social resources when low income communities are fragmented
2. Impact to economic development opportunities
  - a. Mental health concerns
  - b. Obesity/diabetes, due to poorer eating habits
3. Impact to parks and recreation areas
  - a. Mental health concerns
  - b. Increase exposure to air pollution if located near a freeway
4. Poorly conceived highway/urban interfaces
  - a. Increase in motor vehicle and pedestrian/bicycle injuries and deaths
  - b. Obesity due barriers to walking
5. Noise impacts
  - a. Mental health concerns (particularly stress)
  - b. Cardiovascular disease
  - c. Hypertension
  - d. Children: cognitive impairment, hyperactivity

- 6. Air quality impacts
    - a. Respiratory disease (COPD, asthma, allergies, etc.)
    - b. Cardiovascular disease
    - c. Cognitive function (i.e., neurodevelopmental and neurodegenerative diseases)
    - d. Childhood obesity
  - 7. Visual impacts
    - a. Views of nature have been correlated with longer life span and better quality of life
    - b. Perceived safety
  - 8. Impacts on walkability and cycling
    - a. Mental health concerns
    - b. Obesity, diabetes
  - 9. Water quality and flooding impacts
    - a. Injury and death
    - b. Gastrointestinal disease
    - c. Exposure to environmental toxins
    - d. Respiratory disease after flooding event ends
    - e. Mosquito-borne disease after flooding event ends
- b. A revised DEIS should include health impact forecasts from fine particulate matter (PM<sub>2.5</sub>) and mobile source air toxics (MSAT) considering all 9 priority MSATs which include:
- 1. Benzene
  - 2. 1,3 butadiene
  - 3. Acetaldehyde
  - 4. Acrolein
  - 5. Formaldehyde
  - 6. Napthalene
  - 7. Polycyclic organic matter
  - 8. Ethylbenzene
  - 9. Diesel particulate matter
- c. Establish ongoing exposure assessment plans (indoor and outdoor) at schools and other sensitive sites along the project segment.
- d. Conduct mobile air monitoring in partnership with the Texas Commission for Environmental Quality (TCEQ) to evaluate baseline air quality in neighborhoods along the project expansion to be used to support the evaluation of the highway expansion.
- e. Examine data from the existing air monitor(s) in the project vicinity (North Loop monitoring site) to review historical AQ trends. Compare the mobile air monitoring data with data from the existing air monitor to evaluate differences in AQ data measurements.
- f. Include proposed mitigations for affected homes, group homes, schools, and businesses in the traffic-related air pollution (TRAP) zone. Provide options including, but not limited to roadside vegetative barriers and HEPA filters in schools, hospitals, and other high-risk sites.



- g. TXDOT should work in partnership with TEA and TCEQ to develop recommendations for the state legislature to establish buffer zones for schools away from high traffic roadways.

**VII. Environmental Justice**

- a. Mitigate displacement – modify project design to minimize impacts to affordable housing units to prevent displacement of residents in affordable homes and rental units. When necessary provide compensation for home owner buy outs and renter relocations commensurate with real market rates for comparable residences in the same neighborhood (i.e., the true cost to relocate to a comparable residence within the same community).
- b. Mitigate noise effects – complete a holistic baseline study of noise impacts and revise the DEIS to include identification of mitigations for residents, such as sound barrier walls, berms, or other devices. - see part 1 Process, item a. outstanding baseline studies, ii. Noise
- c. Mitigate impacts to cultural resources, specifically places of worship and education/training facilities – these serve as community hubs, childcare centers, and afford local, prestigious educational resources. Modify project design to remove necessity to buy out culturally significant resources, or provide compensation commensurate with real market rates for comparable land and comparable new structure construction in the same community.
  - 1. DEIS to reflect that Centro Cristiano Alfa Y El Omega Church (5261 North Freeway, Houston TX 77076) is also childcare facility for children age 6+ months.
  - 2. DEIS to reflect that Culinary Institute LeNôrte is both a public restaurant and a prestigious educational facility with a high rate of student placement post-graduation.
- d. Ensure safe access across/under/over highway by designing pedestrian and bicycle facilities to exceed desirable standards – wide and setback sidewalks, pedestrian level lighting, highly visible and textured crosswalks with adequate crossing signal timing – to ensure safe pedestrian and bicycle infrastructure connects communities on all sides of project to grocery stores, employment areas, and especially to K-12 schools. - see part IV Connectivity