

July 27, 2017

VIA EMAIL and USPS
Mr. Quincy Allen, P.E.
Texas Department of Transportation, Houston District
P.O. Box 1386
Houston, Texas 77251

Re: North Houston Highway Improvement Project – DEIS Review

Dear Mr. Allen,

We have reviewed the comment letter submitted to the Texas Department of Transportation (TxDOT) by a coalition of Houston nonprofits and neighborhood groups (the “Coalition Letter”)¹ regarding the Draft Environmental Impact Statement (DEIS) for the North Houston Highway Improvement Project. We are submitting our comments in support of that Coalition Letter in the following areas:

<ul style="list-style-type: none">• Procedural/General Issues• Section 4(f)• Noise Impacts	<ul style="list-style-type: none">• Visual Impacts• Community Resources and Environmental Justice• Air Quality	<ul style="list-style-type: none">• Water Resources• Stormwater and Floodplain Issues• Climate Change
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COMMENTS

The I-45 corridor is a central transportation artery for the Houston area, used by residents and seen by visitors, often in their first trip to the downtown area from the airport. The North Houston Highway Improvement Project offers an opportunity to solidify values that are

¹ The Coalition Letter includes participation by: Air Alliance Houston, Avenue CDC, Bayou City Waterkeeper, BikeHouston, Buffalo Bayou Partnership, Eastwood Civic Association, Freedmen’s Town Preservation Committee, Friends of Woodland Park, Galveston Bay Foundation, Germantown Historic District, Greater Heights Super Neighborhood 15, Heritage Society, Hermann Park Conservancy, Houston Parks Board, I-45 Coalition, LINK Houston, Montie Beach Civic Club, Museum Super Neighborhood 66, Scenic Houston, Trees for Houston, Washington Avenue Coalition/Memorial Park Super Neighborhood 22, White Oak Bayou Association, and Woodland Heights Civil Association.

important to Houstonians and to Texans: the aesthetic values of Texas highways; careful integration of transportation corridors with communities; sensitivity to environmental resources; management of flood plains; and preservation and enhancement of park space used by all.

A project of the magnitude of the North Houston Highway Improvement Project, which is expected to shape the transportation landscape of North Houston and the downtown area for decades, must be designed for the 21st century, mindful that it will have an impact on Houston for generations. Mitigation for unavoidable impacts will be critical to the project's success. Community engagement—direct dialogue between TxDOT and community members—will help ensure that impacts are avoided where possible, and that all appropriate and practicable mitigation is implemented for unavoidable impacts.

A. PROCEDURAL OR GENERAL ISSUES

1. Because the DEIS has failed to provide sufficient analysis on a number of key issues, additional NEPA documentation—such as another DEIS or supplemental EIS—is necessary before the Final EIS is developed and published.

There are a number of substantive deficiencies in the DEIS that need to be addressed before the FEIS is generated. There must be adequate opportunity for public review and comment in these areas. The DEIS makes clear that TxDOT is deferring various substantive aspects until the FEIS. Even if further public comment is allowed after the FEIS is issued, those comments would have much less impact on the agency decision and selection of project configuration.

For those reasons, the public must have further opportunity to participate on important substantive issues before the FEIS is generated and published. These important issues include:

- Parks (TxDOT has overlooked a variety of public resources and not addressed mitigation for key Houston parks and recreational areas);
- Noise (only a qualitative analysis has been conducted; and only barriers have been discussed as mitigation);
- Visual (the DEIS greatly understates impacts, calling visual sensitivity in all segments “low”; and relegates the mitigation phase of the visual impact assessment to five bullet points);
- Community and EJ issues (EJ analysis is inadequate and mitigation must be developed and publicly vetted);
- Air quality (the quantitative analysis has been postponed to the FEIS);
- Drainage (how bayou impacts will be addressed has not yet been disclosed).

“The broad dissemination of information mandated by NEPA permits the public and other government agencies to react to the effects of a proposed action at a meaningful time.” *Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 371 (1989). We are concerned that if the substantive deficiencies related to various aspects of the project are not corrected until, and released with, the FEIS, then the public will have insufficient time and opportunity to provide meaningful feedback to TxDOT. For this reason, TxDOT needs to release supplementary information on key aspects of the project (listed above and throughout this letter) **before** issuing the FEIS.

- 2. We strongly recommend that TxDOT meet with key stakeholders over the coming months to receive feedback directly from community groups with specific concerns about the project.**

The impacts of the proposed project will be extremely disruptive to various residential areas, commercial corridors and districts, park users, and the general travelling public. TxDOT has already been in discussion with some stakeholders. We strongly suggest and recommend that TxDOT engage in dialogue with a wide variety of stakeholders. As is evident in the Coalition Letter, community groups are coming together to understand collective concerns about the project and to discuss ideas for improvement.

We believe that stakeholders are willing to and interested in meeting with TxDOT representatives in order to give constructive feedback on project concerns. If TxDOT so elected, we believe that community groups would be willing to form one or more “ad-hoc committees” to organize the various voices on different issues and project areas. Most importantly, TxDOT needs to engage in **direct** community dialogue to understand community concerns and to ensure project success.

- 3. NEPA policy counsels for a “systematic interdisciplinary approach” for the development of a proposed action; TxDOT should not view the North Houston Highway Improvement Project as a single purpose project only to ameliorate transportation deficiencies.**

The Federal Highway Administration has promulgated regulations implementing NEPA policy and procedure. Among them, the regulations provide that “[p]ublic involvement and *a systematic interdisciplinary approach* be essential parts of the development process for proposed actions.” 23 C.F.R. § 771.105. Similarly, the “alternative courses of action [should] be evaluated and decisions be made in the best overall public interest based upon *a balanced consideration* of the need for safe and efficient transportation; of the social, economic, and environmental impacts of the proposed transportation improvement; and of national, State, and local environmental protection goals.” 23 C.F.R. § 771.105.

The regulations are particularly relevant to the proposed TxDOT project. At this stage, because of TxDOT’s failure to include detailed information on mitigation measures for noise impacts, visual impacts, socio-economic impacts, park impacts, and other issues—the project does not currently appear to demonstrate a “balanced consideration” of the variety of social and environmental concerns at play. We hope this can be rectified in advance of the FEIS.

We believe that avoiding impacts where possible, and appropriate and practicable mitigation, is a key to ensuring that this project reflects a “systematic interdisciplinary approach.” As TxDOT continues its review, we urge you to consider the issues raised in this letter, as well as in **Attachment A-1**, which specifies impacts and recommendations for mitigation by Segment.

B. SECTION 4(F)

1. TxDOT must follow Section 4(f)'s requirements.

TxDOT has assumed the Secretary of Transportation's responsibilities to protect parks and other special land uses under Section 4(f). *See* Memorandum of Understanding Between the Federal Highway Administration and TxDOT, § 3.2.1 (Dec. 16, 2014) (assuming responsibilities for compliance with Section 4(f)). Chapter 26 of the Texas Parks and Wildlife Code imposes similar but independent duties on TxDOT to protect parks and recreational lands. *See* Tex. Parks & Wildlife Code § 26.001.

Under Section 4(f), TXDOT may not spend federal funds on highway projects that will use property occupied by public parks or recreational areas, except in limited circumstances and only after meeting specific criteria. *See Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 411 (1971) (Section 4(f) is “a plain and explicit bar to the use of federal funds for construction of highways through parks—only the most unusual situations are exempted.”).

Specifically, unless TxDOT, with the agreement of local officials, determines the use of a Section 4(f)-protected property will have only a “de minimis” impact, TxDOT first must determine that no feasible and prudent avoidance alternative exists. 23 U.S.C. § 138(a); 49 U.S.C. § 303(c); 23 C.F.R. § 774.3(a)(1); *see also* Tex. Parks & Wildlife Code § 26.001(a)(1). If no feasible and prudent alternative exists, Section 4(f) requires TxDOT to select the alternative that will cause “the least overall harm,” 23 C.F.R. § 774.3(c)(1), and engage in “all possible planning” to minimize harm to the park or recreation area resulting from the proposed use. 23 C.F.R. § 774.3(a)(2).

In the DEIS, TxDOT does not comply with Section 4(f)'s strict requirements. We urge TxDOT to engage in further review and correct these deficiencies, which are outlined in greater detail below. At a minimum, TxDOT then should issue a supplemental DEIS and/or Section 4(f) evaluation and allow the public the opportunity for further comment.

2. The DEIS improperly engages in “preliminary” analyses and leaves for later resolution important aspects of impacts on 4(f) resources.

Federal regulations make clear that the alternatives analysis under Section 4(f) “is the heart of the environmental impact statement,” 40 C.F.R. § 1502.14, and TxDOT's own guidance materials recognize that Section 4(f) “requir[es] substantial planning and coordination efforts” before the NEPA process begins:

Poor planning and a lack of collaboration among subject matter experts, design engineers, [officials with jurisdiction], and regulatory authorities often can cause a delay in the environmental review process. Before the National Environmental Policy Act (NEPA) process even begins, there are steps that can be taken to begin identifying and considering potential Section 4(f) issues. **These early steps can reduce the risk of Section 4(f) related delays that commonly occur later during project development.**

TxDOT Environmental Handbook, U.S Department of Transportation Act: Section 4(f), § 4.0 (May 2015) (“TxDOT 4(f) Handbook”) (emphasis added). “Determinations and findings regarding the outcome of Section 4(f) compliance efforts are typically included in the NEPA document...” *Id.* § 14.2.

Despite TxDOT’s appreciating Section 4(f)’s mandatory nature, importance, and complexity, TxDOT’s DEIS reflects only a preliminary and cursory effort to comply with Section 4(f)’s processes. For example, TXDOT’s guidance materials identify “four paths to compliance” with Section 4(f), as well as ten steps TxDOT must follow. TxDOT 4(f) Handbook §§ 2.2, 3.0. From the face of the DEIS, however, it appears that TXDOT has not yet selected any of four paths and has followed only two of the ten steps.

As further illustration, FHWA’s Policy Paper instructs that with respect to Section 4(f) properties, the overseeing agency has three options: (1) prepare a de minimis impact determination; (2) apply a programmatic Section 4(f) evaluation; or (3) prepare an individual Section 4(f) evaluation. U.S. Department of Transportation, Federal Highway Administration, Office of Planning, Environment, and Realty Project Development and Environmental Review, Section 4(f) Policy Paper, § at 3.3 (July 20, 2012) (“Policy Paper”). TxDOT has not selected any one of these options.

Further, the DEIS repeatedly defers key decisions relating to the Section 4(f) process to the Final EIS. For example, in § 3.18.2.1, the DEIS defers making any determinations of even de minimis impacts on Section 4(f) resources and includes an undefined “some day” commitment to follow through on this aspect of its duties:

TxDOT will inform the official(s) with jurisdiction over the property of the intent to make a de minimis impact determination and then provide an opportunity for public review and comment. A final de minimis impact determination will be made after consideration of public comments and written concurrence from the official with jurisdiction that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. For historic resources, consultation regarding Section 4(f) use will be completed with SHPO.

TxDOT cannot comply with Section 4(f) by deferring its review to very late in the environmental review process. To correct its deficiencies and avoid violating Section 4(f), TxDOT must complete its analysis under Section 4(f), issue a supplemental DEIS or Section 4(f) evaluation, and allow the public the opportunity to comment.

3. Under Section 4(f), TxDOT must account for impacts to bayou greenways and bike trails.

Section 4(f) imposes clear duties on TxDOT not to use federal funds to construct highways that affect parks except in the “most unusual situations.” *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402 (1971). The Federal Highway Administration has made clear that the term

“public park” encompasses a broad range of parks and recreational areas and may include private land used for public purposes. *See* Policy Paper, at § 3.1, 24-25.

Specifically, the FHWA has advised that for each candidate property, overseeing authorities like TxDOT must “determine on a case-by-case basis whether the particular property should be considered publicly owned and, thus, if Section 4(f) applies.” Policy Paper, at § 3.1. More specifically, the FHWA expressly recognized that private property may deserve Section 4(f) protection if, for example, “a governmental body has a permanent proprietary interest in the land (such as a permanent easement, or in some circumstances, a long-term lease).” *Id.*

This inquiry turns on the specific facts of each park. To illustrate, in evaluating whether private property subject to an easement deserves Section 4(f) protection, the FHWA has instructed that the overseeing agency must consider factors, such as:

- the views of the official(s) with jurisdiction
- the purpose of the easement, the term of the easement
- the degree of public access to the property
- how the property is to be managed and by whom
- what parties obtained the easement (public agency or non-public group), termination clauses, and what restrictions the easement places on the property owner’s use of the easement area.

Id. at 24 (Answer to Question 1(B)). Similarly, the FHWA instructs with respect to private land leased by a governmental body:

Generally, under a long term lease to a governmental body, such land may be considered to be “publicly owned” land and if the property is being managed by the governmental body as a significant public park, recreation area, or wildlife and waterfowl refuge then a use of the property will be subject to the requirements of Section 4(f). Such lease agreements should be examined on a case-by-case basis with consideration of such factors as the term of the lease, the understanding of the parties to the lease, the existence of a cancellation clause, and how long the lease has been in place.

Id. at 25 (Answer to Question 1(C)).

The DEIS § 3.1.1.1 recognizes potential impacts to parks that are alongside White Oak and Little White Oak greenways, but does not include the greenways themselves in its analysis. Importantly, they function as public parks and recreation areas, and TxDOT must evaluate and mitigate their impacts under Section 4(f).

a. Contrary to the DEIS’s suggestion, White Oak Bayou Greenway falls within Section 4(f)’s scope.

The White Oak Bayou Greenway is part of Bayou Greenways 2020, a \$220 million public/private investment by the City of Houston to provide continuous linear parks and

recreation areas, with hike/bike trails, along 150 miles of Houston's major waterways. It is decidedly public in nature and demands consideration under Section 4(f).²

Several documents confirm the public, recreational nature of the White Oak Bayou Greenway. Most straightforward, the Houston Parks and Recreation Department's publicly available inventory of parks and recreation areas lists the White Oak Bayou Greenway as one of the parks under its jurisdiction. Attachment B-1 (Houston Parks and Recreation Department's Inventory).

Further, on November 6, 2012 by a 68% majority, Houston voters passed a \$166 million bond referendum to fund city parks. Of those funds, \$100 million were earmarked for Bayou Greenways 2020 to create 150 miles of linear parks with hike-and-bike trails along Houston's major waterways. The \$100 million in public bond funding is being matched with \$120 million in both federally-funded transportation grants and private funding, all with the aim of maintaining the greenways as public recreational spaces. Local TIRZ and management districts also have contributed city funds.

As even more evidence of the public nature of the bayou greenways, the agreements passed pursuant to the November 2012 bond all are premised on the greenways' public, recreational nature. For instance, on July 3, 2013, the City of Houston and the Houston Parks Board LGC, Inc. codified the implementation of Bayou Greenways 2020 in the Interlocal Agreement for Bayou Greenways 2020. *See* Attachment B-2 (Interlocal Agreement for Bayou Greenways 2020 (July 3, 2013)). Under the "Findings" in Section 1.1, the Interlocal Agreement contemplates transforming the bayou greenways, including White Oak Bayou Greenway, into an extensive network of "parkland, trails and natural areas along the major bayous" for the "health and welfare of the citizens of Houston," 1.3 million of whom "live within 1.5 miles of one or more of the nine (9) major bayous within the City limits." *Id.* § 1.1. The Findings make clear that upon their completion, "all Bayou Greenways within the City limits **will be open to the public**" for a range of recreational activities. *Id.* (emphasis added). In the Interlocal Agreement, the City specifically acknowledged these facts to be "true and correct for all purposes." *Id.* § 1.2.

Other aspects of the Interlocal Agreement confirm the public and recreational nature of the greenways. For example, under the agreement, the Director of the City of Houston's Parks and Recreation Department retains approval authority over all designs for Bayou Greenways 2020, and additional lands acquired under Bayou Greenways 2020 must comply with the City of Houston Parks and Recreation Department's standards for parkland acquisition. *See, e.g., id.* § 2.4(A)(i), (ii) (conceptual development of park is "subject to the approval" of the Department and giving Department discretion to determine parcels are "essential" to the greenways' purpose); *id.* § 3.2 (requiring Department right to review financial commitments).

² Over its 150 miles, Bayou Greenways 2020 covers lands under multiple ownerships including those of the Harris County Flood Control District, City of Houston Right of Way, UPRR, BSNFRR, CenterPoint and TxDOT itself in addition to City of Houston parks and land acquired under Bayou Greenways 2020, which are being added to the City's inventory of parks. Through some of the federal transportation grants obtained as part of the City bond match, TxDOT itself is implementing segments of Bayou Greenways 2020 along Hunting Bayou and within Herman, McGregor, and Mason Parks. These multiple ownerships do not undermine the conclusion that the Bayou Greenways are public parks deserving Section 4(f) protection in light of the significant other facts showing the greenways' public nature.

Similarly, on October 24, 2013, the City of Houston executed a “Bayou Greenways 2020 Economic Development Agreement” with the Houston Parks Board, Inc. The Economic Development Agreement comprehensively outlines the management of the Bayou Greenways 2020 and confirms the public nature of the parks and recreational areas that comprise the Bayou Greenways. *See* Attachment B-3 (Bayou Greenways 2020 Economic Development Agreement (Oct. 24, 2013)). The Recitals in the Economic Development Agreement confirm the public, recreational nature of Bayou Greenways. For example, the Recitals acknowledge:

- The Greenways are a "public/private project with the purpose of creating an integrated system of connected linear parks with walking, running and bicycle trails along the nine (9) major bayous within the City limits"
- The Greenways are specifically intended to "promote the health and welfare of the citizens of Houston and its surrounding areas by linking the City's existing stretches of linear parks, trails and larger traditional parks with new greenways"
- The City's contribution of funds toward the project acknowledging the "public purposes" that would be served by developing the bayou greenways

Other aspects of the Economic Development Agreement confirm the public, recreational nature of the greenways. For instance, in Article IV, Section G of the Economic Development Agreement, the City retains a management role over key aspects of the park by retaining “the exclusive right to conduct, or to book or permit charity walks, foot races, bicycle tours, or other public and private events in the Greenway segments.”

The Bayou Greenways are operated, funded, and fully intended to function as public parks and recreational areas. It cannot be disputed that the Bayou Greenways, including White Oak Bayou Greenway, require consideration under Section 4(f).

b. TxDOT must account for impacts to White Oak Bayou Greenway

The North Houston Highway Improvement Project directly impacts and conflicts with the City of Houston’s comprehensive parks initiative under Bayou Greenways 2020.

For example, the exhibits attached to the Interlocal Agreement contemplate a continuous Greenway along White Oak Bayou from the City limits to White Oak’s confluence at Buffalo Bayou in the heart of downtown. Existing segments of the Greenway included a long stretch along TC Jester Parkway and the stretch closer to downtown where the North Houston Highway Improvement Project proposes some seven new overpasses crossing the Greenway. **The impacts to the White Oak Bayou Greenway are illustrated in maps contained on pages 1-9 and 11 of Attachment B-4.**

New projects along White Oak Bayou executed under Bayou Greenways 2020 include the federally-funded TIGER 3 segment that links the existing Greenway upstream of downtown to Buffalo Bayou Park together with other community links along that existing stretch at UH Downtown’s campus on the north side of White Oak Bayou and the Leonel Castillo Community Center. As it nears completion, the White Oak Bayou Greenway will extend over 15 miles from

the City limits to Buffalo Bayou Park as part of the City’s integrated park system—but the North Houston Highway Improvement Project may affect these goals. For instance, the segment directly impacted by the North Houston Highway Improvement Project is fully integral to that system.

Currently, the 1,100 feet of White Oak Bayou Greenway from the current I-45 overpass at UH Downtown west to Hogg Park are completely open to the sky and the bayou except for small under crossings at the railroad bridge and Hogan Street. The linear park features wildflowers and a hike-and-bike trail maintained by the Houston Parks Board. It offers amazing views of downtown for most of its length. Yet the DEIS does not account for **any** impacts to this visual resource or to the greenway itself. The North Houston Highway Improvement Project undoubtedly will significantly alter the current sense of open space on the White Oak Bayou Greenway because the project will extend seven new highway over-passes above the Greenway’s widest stretch. The new overpasses not only would create an overwhelming new visual intrusion onto the landscape, it also will cause significant noise impacts. Moreover, additional lanes parallel to the bayou encroach further into the south side of the Greenway to the point where they impose on the bayou itself.

The DEIS appears to suggest that if the project maintains just the existing hike-and-bike trail, no impact results. That ignores the impact to the Greenway and open space itself of which the hike-and-bike trail is just a component. The project eliminates that open space. While some freeway will be removed by the project, Houston Parks Board estimates a net decrease of 18 acres of open space in the area of the project between UH Downtown and Hogg Park. That open space will be lost forever. Because the DEIS fails to identify the impact, it fails to offer alternatives or mitigation to minimize that impact as required.

These impacts are illustrative. By failing to assess impacts to the White Oak Bayou Greenway, TxDOT has shirked its duties under Section 4(f). TxDOT must consider these impacts and, at a minimum, prepare a supplemental DEIS or Section 4(f) evaluation with the input from stakeholders, including the undersigned, and allow the opportunity for further public comment.

c. TxDOT must account for impacts to Little White Oak Bayou Greenway

The DEIS recognizes that “The city’s long-term bikeway vision plan includes future bike paths along Halls Bayou and Little White Oak Bayou (City of Houston 2016a). Long-term vision bikeway projects support the city’s goal of providing citywide access; however, these projects do not have dedicated funding or an established implementation schedule.” DEIS § 3.2.1.4.

This statement improperly construes the nature of and minimizes impacts to Little White Oak Bayou, which is in the process of being developed as a public park resource. Local organizations and government already have invested significant funds and time into Little White Oak Bayou for this purpose. For instance, the Houston Endowment has given an \$800,000 grant to explore open space opportunities and connectivity for the Bayou Greenways, referred to as *Beyond the Bayous*. That exploration has identified Little White Oak Bayou as an important regional connector. More fundamentally, work on *Beyond the Bayous* showed that freeways, major

arterials, and rail roads pose serious barriers to successfully establishing connectivity between parks and communities.

Little White Oak Bayou also sits between Acres Homes and the Near Northside, two neighborhoods targeted by Mayor Turner as part of his Complete Communities revitalization initiative. Both currently are isolated by I-45. A further grant from Houston Endowment will allow the Houston Parks Board to supplement the Mayor's and City Planning's work by focusing on open space and connectivity opportunities within those particular communities. Planning I-45 to recognize and accommodate Little White Bayou as a valued open space system is key to realizing those opportunities and preventing further isolation of communities.

The I-45 expansion project will remove and/or impair greenspace that now de facto serves the community as a place of respite and even as an active park with informal trails. Houston has active plans to take that acreage and make it a greenway park. Because the DEIS neglects to include Little White Oak Bayou Greenway in its Section 4(f) analysis, the DEIS does not discuss this impact. The final EIS, if not a supplemental DEIS or Section 4(f) analysis, should address acreage of open land lost on Little White Oak, both to be covered and impaired.

Little White Oak Bayou represents a prime opportunity to extend open space connectivity north from White Oak Bayou Greenway to Woodland and Moody Parks and beyond up to Halls Bayou and ultimately Acres Homes. This connection between Acres Homes and downtown would benefit many of the underserved communities directly affected by the North Houston Highway Improvement Project. Through most of Segment 2 the project follows the course of the Little White Oak Bayou. The 20 lanes of the new I-45 will eliminate 10 acres of open space along Little White Oak Bayou. It is imperative that the project fully embrace the ecological values and open space potential offered by Little White Oak Bayou. The DEIS must be supplemented with specific design features to preserve this potential.

The DEIS suggests that lack of immediate funding for some of these related projects relieves the North Houston project from addressing or mitigating impacts it creates. That is not consistent with the spirit or the letter of the law. TxDOT must engage in "all possible planning" to minimize harm to the park. 23 C.F.R. § 774.3(a)(2). Moreover, the project has an obligation to fit within larger identified Houston land use initiatives, not become another single purpose barrier to larger land use schemes. This is consistent with NEPA's directive for a "systematic interdisciplinary approach."

The impacts to the Little White Oak Bayou Greenway are illustrated in maps contained on pages 12-14 of Attachment B-4.

d. The DEIS improperly excludes bike paths and trails in Segment 3 from Section 4(f) consideration.

Section 4(f) applies to bike paths and trails that function primarily for recreation. *See* Policy Paper at 48 (Answer to Question 15A) ("Section 4(f) would apply to a publicly owned, shared use path or similar facility (or portion thereof) designated or functioning primarily for recreation..."). This is true even if the paths and trails are on privately owned land "if an existing

public easement permits public access for recreational purposes.” Policy Paper at 49-50 (Answer to Question 15D). TxDOT should make “every reasonable effort . . . to maintain the continuity of existing and designated trails.” *Id.*

Rather than examine the use to which affected bike paths and trails are put, the DEIS quickly and incorrectly disposes of Section 4(f) consideration for bikeways and trails which are used as important recreational resources. DEIS § 3.18.1.1 (“Bikeways and trails within the project area function primarily for transportation purposes, and therefore, are not subject to Section 4(f).”).

Publicly available information contradicts this conclusion. For instance, the Houston Bikeway Program’s website shows the recreational nature of bikeways and trails along the Bayou Greenways and does not characterize these paths as serving exclusive transportation purposes. *See, e.g.,* City of Houston Bikeway Program, Current Projects, <https://www.houstonbikeways.org/current-projects> (last visited July 26, 2017). Further, the Houston Bike Plan, which was approved by the City Council on March 22, 2017, and which is acknowledged in passing references in the DEIS also acknowledges the multifaceted role bikeways in Houston play.

TxDOT cannot shirk its duties under Section 4(f) by ignoring the clear recreational purpose of many bikeways and trails within the project area. TxDOT must account for impacts to the bikeways and trails used for recreational or mixed-use purposes in a Supplemental DEIS or Section 4(f) evaluation.

4. The DEIS acknowledges that some parks fall within Section 4(f)’s scope but does not account for their impacts.

In some cases, the DEIS properly categorizes parks as falling within Section 4(f)’s scope but underestimates the impact of the North Houston Highway Improvement Project on those parks. In light of this oversight, TxDOT should reevaluate the impact of the project on the following parks and prepare a supplemental DEIS or 4(f) evaluation.

The DEIS identifies less than an acre of impacts to City of Houston parks. It dismisses that impact as related to marginal greenspace rather than the “use of facilities.” By contrast, the total loss of open space in city parks may in fact approximate 3.27 acres. In a letter to the City of Houston’s Parks and Recreation Department dated February 24, 2017, TxDOT is seeking a “de minimis” certification from the City of Houston for these impacts. The City of Houston, to date, has not concurred with this conclusion. The coalition, which this comment letter backs, would not support such a conclusion. As with the Bayou Greenways, the DEIS dismisses the impact to green space and open space as non-existent if the project does not impact other features of the park.

The DEIS also ignores the noise and visual impact to all of these parks. *See* DEIS § 3.6 (failing to account for noise impacts to parks); DEIS, App’x L, at § 4.3.2 (claiming, without support, the project will improve views for “the majority of viewer groups.”).

Woodland Park

Although currently below grade at Woodland Park, I-45's constant din of freeway noise is already part of the fabric of a Woodland Park visit. With an added upper deck, above grade, the noise will be even more oppressive and incessant.

Sabine Promenade/Buffalo Bayou Park

In recent years, the Sabine Promenade/Buffalo Bayou Park area has undergone a nearly \$90 million enhancement. TxDOT's plan for this area is not appropriate since it encourages faster turn movements in a location where people should be driving slowly to be aware of people walking and biking. In addition, given the visibility of downtown from Buffalo Bayou, standard TxDOT freeway standards are not appropriate. **The impacts to the Buffalo Bayou Greenway and related parks are illustrated in a map contained on page 10 of Attachment B-4.**

Sam Houston Park

Sam Houston Park is one of Houston's most important historical destinations, featuring the oldest building on its original construction site in Houston and the oldest surviving building in Harris County. Sam Houston Park is also a State Archaeological Landmark and contains four buildings designated as Registered Texas Historic Landmarks. One of these buildings is also registered under the NRHP. The DEIS fails to mention the visual and noise impact to this showcase of Houston's heritage. The DEIS fails to disclose whether or not these properties are registered under the NRHP, and whether the Texas SHPO has or has not concurred with the effects of the project.

Other Parks

In the DEIS, TxDOT contemplates acquiring land from Freed Art and Nature Park, Linear Park, and trails along White Oak and Buffalo Bayous, yet contends that there will be no impact on the park facilities. Apart from offering no explanation for this statement, the DEIS does not account for the loss of that park land.

To comply with Section 4(f), TxDOT must, at a minimum, fully evaluate impacts to these Section 4(f) resources and allow public comment on a Supplemental DEIS or Section 4(f) evaluation.

- 5. We strongly dispute TxDOT's characterization that Segments 2 and 3 will impact less than 1 acre of parkland and believe the true impact is closer to 27 acres. The DEIS must account for the full scope of impacts on Section 4(f) resources.**

The DEIS estimates that the preferred alternatives for Segments 2 and 3 collectively will affect only 0.82 acres of park land. DEIS, App'x F, at Table 5-6. This is a gross underestimate.

Using TxDOT’s May 2017 Schematic to estimate bayou greenway and parks impacts, Houston will lose approximately 27 acres of current open space. As noted above, these impacts are not disclosed or contemplated in the DEIS. The following tables estimate the park and recreation area impacts of the proposed project.

	Freeway to be Added	Freeway to be Removed	Net Total
White Oak Bayou Greenway / Freed Park	22 ac	4 ac	18 ac
Little White Oak Bayou Greenway	13 ac	3 ac	10 ac
Buffalo Bayou Greenway / Downtown Parks	4 ac	5 ac	-1 ac
Net Loss of Greenway			27 ac

Detailed Breakdown of Park Impact (acreages are included in the above Greenway calculations)

	Freeway to be Added	Freeway to be Removed	Net Total
Freed Park	0.17 ac	-	0.17 ac
Linear Park	2.35 ac	0.01 ac	2.34 ac
Sam Houston Park	0.63 ac	-	0.63 ac
Sesquicentennial Park	0.13 ac	-	0.13 ac
‘Current’ Parkland Impacted			3.27 ac

Existing Trails (By Others) Lost by Freeway Expansion

	Trail Removed
Little White Oak Bayou Greenway	0.2 mi

TxDOT should prepare a supplemental DEIS or Section 4(f) evaluation to properly account for and then mitigate for all impacts to these Section 4(f) resources.

6. The DEIS favors options with maximum impact on parks without engaging in “all possible planning” to mitigate harm.

Federal regulations require TxDOT to choose the alternative that “[c]auses the least overall harm in light of the statute’s preservation purpose” by balancing several factors:

- The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- The relative significance of each Section 4(f) property;
- The views of the official(s) with jurisdiction over each Section 4(f) property;
- The degree to which each alternative meets the purpose and need for the project;
- After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- Substantial differences in costs among the alternatives.

23 C.F.R. § 774.3(c)(1)(i)-(vii).

An alternative selected as a result of this analysis “must include **all possible planning**, as defined in §774.17, to minimize harm to Section 4(f) property.” 23 C.F.R. § 774.3(c)(2). “All possible planning” means identifying, as part of a Section 4(f) evaluation, “all reasonable measures . . . to minimize harm or mitigate for adverse impacts and effects.”

Mitigation efforts generally may include:

- Avoiding an impact altogether;
- Minimizing the impact by limiting the degree or magnitude of the action;
- Minimizing the impact by modifying the design or design goals;
- Rectifying the impact by repairing, rehabilitating, or restoring the resource;
- Reducing or eliminating the impact over time by preservation and maintenance activities;
- Replacing land or facilities of comparable value and function; or
- Monetary compensation to enhance the remaining property or to mitigate the adverse impacts of the project in other ways.

40 CFR § 1508.20; TxDOT 4(f) Handbook, § 10.3.

In evaluating the reasonableness of a mitigation measure, TxDOT must “consider the preservation purpose of the statute,” along with the following factors:

- (i) The views of the official(s) with jurisdiction over the Section 4(f) property;
- (ii) Whether the cost of the measures is a reasonable public expenditure in light of the adverse impacts of the project on the Section 4(f) property and the benefits of the measure to the property, in accordance with §771.105(d) of this chapter; and
- (iii) Any impacts or benefits of the measures to communities or environmental resources outside of the Section 4(f) property....

Id.

In the DEIS, TxDOT has not made any effort to address the factors above or to mitigate for lost park space. To illustrate, in the Community Impact Assessment Technical Report, attached as Appendix F to the DEIS, there is no mention of mitigation for the portions of parks and recreational areas lands that will be taken. *See* DEIS, App'x F, at § 7.

It cannot be disputed that the proposed project will have a significant impact on parks, open space, and recreation areas. To account for these impacts, TxDOT should adopt the following mitigation measures in a supplemental DEIS or Section 4(f) evaluation(s):³

Segment 1

- Coordinate with the City of Houston and Houston Parks Board for ways to develop opportunities for parks and open space along Little White Oak Bayou between I-610 and East Parker Road and Shepherd. Develop the detention basin between I-610 and Crosstimbers as a wet bottom basin and publicly-accessible green space tied the bikeway along the bayou. Install a trash mitigation system that will collect both heavy debris and floating debris.
- Coordinate with City of Houston and Houston Parks Board for ways to develop opportunities for parks and open space along Halls Bayou along I-45.

Segment 2

- Little White Oak Bayou: This bayou section is an important piece of the expanding high-comfort bicycle network that provides connectivity from outside the N Loop 610, under I-45 away from traffic, and into downtown making further east and west connections through Buffalo Bayou. Acknowledgement of this bayou as a necessary connector for bicyclists, pedestrians, and naturalists is unaddressed in this design and the crossings (Hogan/Crockett, Houston, Quitman/White Oak Dr., Main St, Patton, Cottage etc.). Allowing full access to Little White Oak Bayou requires the space to be maintained and carefully designed with high comfort bicycle and pedestrian crossings. Surrounding neighborhoods are historically under-served and connections via bicycle and on foot are measurably significant. The project should replace the existing culvert north of Patton Street with a bridge span designed to allow trails on both sides of the bayou. At I-610, a safe route along the bayou should be included (could suggest replacing this culvert, also or high comfort bike lane at signalized frontage road intersections). The new trail should connect to the existing bike trail along Little White Oak Bayou between Enid and Cavalcade, on the west side of I-45 and to a new park at the retention pond areas on the east side of I-45 (where Love's Truck stop is currently), and on to Moody Park/Woodland Park/White Oak Bayou trail. Mitigate for loss of green space along the bayou in this area and replace the existing trail with an equivalent trail.
- Improve greenspace and pedestrian accessibility to Woodland Park along Little White Oak Bayou east of I-45.

³ Attachment A-1 contains a full list of segment-by-segment impacts and recommendations for mitigation.

- In 1914 Woodland Park was a 26 acre park in a neighborhood which included the two communities of Woodland Heights and Near Northside. In 1959, TXDOT acquired one third of the park (8.5 acres) to construct I-45 just to the north of downtown. The remaining 17.5 acres of I-45 Woodland Park is now situated entirely to the west of I-45 within the Woodland Heights. Because of I-45, Near Northside residents no longer have access to this park except via the North Street Bridge. TxDOT should improve greenspace along Little White Oak Bayou east of I-45, with hike and bike trails connecting to Moody Park. This will provide Near Northside residents with access to greenspace and Little White Oak Bayou.
- Provide for noise mitigation along the eastern border of Woodland Park. There already is a constant din of freeway noise at the park, and adding an upper deck above grade, the noise will become even more oppressive and incessant. TxDOT should provide state-of-the-art sound mitigation, as described elsewhere in these comments, with an additional shielding of tall trees and vegetation.
- Improve connectivity from Woodland Park to the Little White Oak Bayou east of I-45. This could be through an improved channel conduit under I-45 that would provide a safe walking and biking path along the bayou connecting Woodland Park on the west of I-45 to the hike and bike path along Little White Oak Bayou on the east side of I-45.
- Improve connectivity of public parks, the Houston Parks and Recreation Department's "String of Pearls", which can be achieved by connecting Woodland Park to Moody Park along Little White Oak Bayou. Coordinate with City of Houston and Houston Parks Board for opportunities to develop opportunities for parks and open space along Little White Oak.

Segment 3

- The White Oak Bayou Greenway is part of Bayou Greenways 2020, a \$220 million public/ private investment by the City of Houston to provide continuous linear parks and recreation areas, with hike/bike trails, along 150 miles of Houston's major waterways. The White Oak Bayou Greenway extends over 15 miles from the city limits to UH Downtown where a federally funded TIGER project, currently under construction, is connecting White Oak Bayou Greenway to Buffalo Bayou Park. The DEIS does not reflect the impact on White Oak Bayou greenway which clearly serves an open space and recreation area with the project. TxDOT should address this issue and work with the stakeholders to mitigate the impact on the White Oak Bayou Greenway.
- Sam Houston Park is one of Houston's most important historical destinations, featuring some of the oldest structures in the city. The proposed one-way connection from Walker/McKinney loop street should be removed since it separates Sam Houston Park from Buffalo Bayou. This roadway cuts through the original Sam Houston Park, which originally extended to Buffalo Bayou. This is also the primary biking and jogging route from downtown to the bayou and creates a very dangerous crossing point on a heavily-used route.
- Sabine Promenade/Buffalo Bayou Park area has undergone a nearly \$90 million enhancement. TxDOT's should design roadways in a context sensitive manner to ensure accessibility and safety of people walking and biking.

7. Without funding or any clear plans, the proposed deck parks are an inappropriate mitigation measure.

The DEIS repeatedly refers to two potential deck parks but leaves the responsibility for funding these parks to unnamed third parties. While it is possible the deck parks could be a valuable addition to Houston's green space, without full funding, the deck park proposal has no mitigation value because it is speculative and would improperly shift the cost from the proponent of the project to the affected community.

As a general matter, it will be difficult to raise private and public money for deck parks if TxDOT is permitted to destroy the open spaces unlocked by the Bayou Greenways Initiative. Further, the deck parks discussed in the DEIS only may be designed if the capping greenspace is designed to account for the weight of the parks. These designs must be created and paid for as part of the highway project, or TxDOT's suggestion of decking is meaningless.

With respect to the deck park proposed for downtown, the costs will be significant. The size of this park currently is projected to cover 30 acres. By comparison, Klyde Warren Park in Dallas covers only five acres yet cost over \$100,000,000. Projecting similar costs for Houston, the downtown deck park could cost more than \$500 million. To reduce this cost and incorporate it into its project, TxDOT should reduce the size of the proposed park by several blocks (from 10+ blocks to 7) to a more manageable size.

With respect to the proposed deck park over I-45 near North Main, funding also is imperative. The original I-45 construction bisected one community into two. This has become a permanent separation resulting in different community cultures on either side of the freeway. There are constant efforts to reunite the communities but the swath of freeway that separates them remains a physical barrier. TxDOT should commit to funding and building this deck park. In addition, its function as a park and community connection is seriously compromised by a design using three lanes of feeder road separating the proposed park from the communities on each side. The proposed deck must be redesigned and fully funded to make it a physical reattachment point, reuniting the divided communities.

TxDOT should evaluate proper mitigation measures, incorporate these measures into supplemental NEPA documentation, and allow the public another opportunity to comment.

C. NOISE IMPACTS

We retained an acoustic engineer to aid in our noise comments; accordingly, where noted below, some of these comments reflect input from a sound expert. *See* Attachment C-1 (CSTI Acoustics, Memorandum No. M-1029-0 (July 21, 2017)).

1. Under clear law, the FHWA will not provide funding for a project unless “feasible and reasonable noise abatement measures are incorporated into the plans.” In the DEIS, TxDOT has not yet achieved this fundamental requirement.

The Federal-Aid Highway Act of 1970 addresses the abatement of highway traffic noise. This Act mandates FHWA to develop highway traffic noise standards, 23 U.S.C. § 109, which the agency has done at 23 C.F.R. Part 772. The law provides that FHWA not approve the plans for a Federal-aid highway project unless the project includes adequate highway traffic noise abatement measures to implement the appropriate noise level standards. Specifically, “FHWA will not approve project plans and specifications unless feasible and reasonable noise abatement measures are incorporated into the plans and specifications to reduce the noise impact on existing activities, developed lands, or undeveloped lands for which development is permitted.” 23 C.F.R. § 772.13.

Under 23 C.F.R. Part 772, the regulations contain a number of requirements for TxDOT during its planning stages: (1) identification of highway traffic noise impacts; (2) examination of potential abatement measures; (3) the incorporation of reasonable and feasible highway traffic noise abatement measures into the highway project; (4) coordination with local officials to provide helpful information on compatible land use planning and control; and (5) identification and incorporation of necessary measures to abate construction noise. *See* Federal Highway Administration, *Highway Traffic Noise: Analysis and Abatement Guide*, FHWA-HEP-10-025 (2011) (“FHWA Highway Traffic Noise Guide”).⁴

Here, TxDOT has determined that the project will create noise impacts to a variety of receptors, such as residential areas, parks, churches and schools. DEIS at 3-43, 3-44. When the state agency determines that a project will create noise impacts, “noise abatement shall be considered and evaluated for feasibility and reasonableness.” *Crabb v. U.S. Fed. Highway Admin.*, 2015 WL 1033235, at *7 (S.D. Tex. Mar. 9, 2015) (citing 23 C.F.R. 772.13(a)). The abatement measures listed in § 772.13 are to be considered. *Sierra Club v. Fed. Highway Admin.*, 715 F. Supp. 2d 721, 741 (S.D. Tex. 2010).

The Federal Highway Administration has provided detailed guidelines for what constitutes feasible and reasonable noise abatement. Feasibility is determined by, among other factors: topography; access requirements for driveways, ramps, etc.; the presence of local cross streets; drainage; utilities; maintenance; and noise reduction (acoustic feasibility). *See* FHWA Highway Traffic Noise Guide at 38. Reasonableness is evaluated by, among other factors: the viewpoints of the impacted residents and property owners in determining the reasonableness of abatement, and available technologies, “but the primary consideration is to provide abatement for impacted noise sensitive land uses.” *Id.* None of these factors for feasibility and reasonableness appears in the DEIS.

Instead, TxDOT has only conducted a “qualitative” evaluation. Further, this qualitative evaluation is only for a single type of noise abatement measure, namely, noise barriers. With

⁴ Available at

https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf.

language that highlights the lack of analysis, the DEIS calls them “*potential* feasible and reasonable traffic noise barriers.” See DEIS, App’x I (“Traffic Noise Technical Report”), at Tables 10–12 (emphasis added).

The criteria for a noise barrier being feasible and reasonable can be determined only as part of a quantitative analysis. See Attachment C-1 at 1. Further, it is important to note that there is no analysis of other potential mitigation measures at all—which also must be reviewed for reasonableness and feasibility. This is a fundamental requirement of a noise analysis under federal law, and the agency has not undertaken it or given the public the opportunity to review it. See *Crabb v. U.S. Fed. Highway Admin.*, 2015 WL 1033235, at *7 (stating that, “as the regulations make clear, if the state agency determines at the first stage of a § 772 analysis that noise impacts will occur, then the agency must consider abatement measures”).

2. The DEIS’ conclusion that “all alternatives would result in traffic noise impacts [and] noise barriers could reduce noise in many locations” provides insufficient detail for public review. We disagree with TxDOT’s proposal to wait until the FEIS to disclose its recommended solutions. Supplemental NEPA documentation is warranted to give the public an opportunity to comment.

For each segment of the project, the DEIS concludes that “all alternatives would result in traffic noise impacts [and] noise barriers could reduce noise in many locations.” DEIS, at ES-15, 18, 21. Specifically, the DEIS states that “[r]esidential noise receivers located throughout the study area are anticipated to experience noise impacts under the absolute criterion . . . for all of the proposed build alternatives.” DEIS at 3-43; App’x I at 41. And “traffic noise impacts [will result] at other land use areas including parks, churches, and schools.” *Id.*

As stated, the DEIS concedes that it has only conducted a “qualitative” evaluation of the “potential for feasible and reasonable traffic noise barriers.” DEIS at 3-44. It states further that a “quantitative examination of the potential mitigation measures and specific proposed mitigation details (*i.e.*, noise barrier dimensions, cost, etc.) would be determined and proposed for the preferred alternative during preparation of the Final EIS.” *Id.* at 3-45; App’x I at 42. This approach is problematic.

First, a qualitative evaluation provides insufficient information to the public on the agency’s review. As stated, the criteria for a barrier being feasible and reasonable can be determined only as part of a quantitative analysis. See Attachment C-1 at 1. We hired an acoustic engineer to review the noise technical report provided in the DEIS, and his review was necessarily limited by the lack of quantitative information. If the quantitative analysis is first provided in the Final EIS, as TxDOT proposes, then there will be little or no opportunity for TxDOT to make revisions based on community feedback. *Id.* This could be alleviated with a supplement to the Traffic Noise Technical Report issued prior to the FEIS. See *id.* Second, the noise analysis thus far is only for noise barriers – which may not be feasible in certain locations where necessary breaks in the barriers would reduce their effectiveness. Other noise mitigation techniques must be investigated, and the public must have an opportunity to comment on proposed mitigation.

3. There are other mitigation techniques that TxDOT has not considered among “reasonable and feasible” abatement measures.

TxDOT has only discussed noise barriers in the DEIS. While noise barriers may be an effective noise mitigation measure, they are not the only technique available. It is important that other techniques exist, because these other techniques may be more feasible and reasonable to implement in certain areas of the proposed project or may supplement a barrier in a particularly noisy area.

There are at least two key alternatives to constructing typical noise barriers. First is that transparent noise barriers can be used, when there are concerns that a noise barrier would block view of commercial properties. *See* Attachment C-1 at 2.

A second alternative is implementing quiet pavement. *Id.* The DEIS has not considered quiet pavement, for which there are a number of options such as longitudinal tining and porous asphalt. *Id.* Various techniques have been studied by a variety of different agencies. *See, e.g.,* Attachments C-2 and C-3 (studies on “Grooving and Grinding” and “Next Generation Concrete Surface”).

Given a recent TxDOT project utilizing noise reducing pavement (<http://www.my290.com/85-construction/385>), which was favorably received by residents and commuters, TxDOT should consider using quiet pavement for this project. Next Generation Concrete Surface (NGCS), the material used in the U.S. 290 project, used ‘longitudinal grooving’ to both reduce tire/pavement noise and increase friction. This alternative is not only noise-reducing, but also safer. NCGS’s success along Loop 610 encouraged TxDOT to begin a similar project on the I-10 Katy Freeway.

The current recommended route for the NHHIP, particularly along Segment 1 and 2, runs adjacent—or close to—many parks, schools and residential areas. Noise barriers are most effective when placed directly in front of potentially affected locations. Noise reducing pavement, on the other hand, reduces sound at the source. Due to the high number of schools and parks that are within a couple blocks of the new proposed ROW, quiet pavements would be the best abatement measure to keep noise impacts low for these locations. In short, TxDOT needs to consider quiet pavement techniques – of which there are a variety – in addition to noise barriers.

4. The Technical Report does not provide any discussion of barriers between the mainlanes and feeder roads, or on elevated MaX lanes.

Our expert has identified that the Technical Report does not discuss barriers in certain possible project locations, which could have a positive benefit on noise mitigation, depending upon what alternative is selected. *See* Attachment C-1 at 2. As context, Section 5.0 of the Traffic Noise Technical Report states:

- Traffic noise barriers would be located along the outside of the frontage road/ROW where barriers could be continuous, without gaps for driveways or streets.
- Traffic noise barriers could also be located in between mainlanes and frontage roads.

However, as discussed by our expert, the Traffic Noise Technical Report does not provide any discussion of barriers between the mainlanes and feeder roads. *See* Attachment C-1 at 2. Although such barriers are not always as effective as barriers at the edge of the ROW, barriers at this location can still be very effective, blocking noise from 14 of the 16 total lanes of traffic in Segment 2, where there are only two lanes of frontage road. *Id.*

Additionally, our expert notes that, in instances where the MaX lanes are elevated, those lanes could also be treated with a moderate-height barrier at the edge of the elevated structure. *Id.* This possible location of a barrier should specifically be considered since noise from elevated roads without barriers can penetrate further into nearby neighborhoods as it readily propagates over first-row buildings. As the road structure must be designed to support the barrier load, this type of treatment is very difficult to retrofit later.

In areas where the mainlanes are depressed, a moderate-height barrier along the edge of the depressed lanes may be especially effective and will not affect visibility of commercial uses, which is already partially or totally eliminated due to the depression.

The issue of access is being used to prevent consideration of noise barriers in areas with mixed commercial and residential uses. A barrier on elevated MaX lanes and between the frontage road and mainlanes would provide noise reduction while still allowing access along the frontage road.

5. With regard to residential neighborhoods, the DEIS has given no consideration of noise barriers for mixed adjacent blocks, which is particularly problematic in the low-income communities.

In his review of the Technical Report, our noise expert identified that the DEIS has eliminated the possibility of noise barriers for certain areas even before the quantitative analysis has been initiated. Specifically, Section 5.0 of the Technical Report states that for adjacent blocks that are less than 50% residential, “abatement was not considered feasible and reasonable.” Commercial property adjacent to frontage roads with access from other roads seems to be considered just like commercial property with direct access from the frontage road. *See* Attachment C-1 at 1. This elimination from consideration occurs even before the quantitative noise analysis. *Id.*

Also, when TxDOT evaluated land use, it considered the “potential for commercial development,” such that noise barriers were not considered for certain residential areas based on vacant land adjacent to the residences. *See id.* This method of eliminating residences from consideration for noise barriers is not discussed in TxDOT’s Guidelines for Analysis and Abatement of Roadway Traffic Noise. *Id.*

Often deed restriction are used in wealthier neighborhoods to homogenize land use, while poorer areas often have mixed uses and more vacant lots. Thus, TxDOT’s method of eliminating the consideration of barriers for these mixed areas results in less consideration of noise reduction for poorer neighborhoods. *Id.*

6. Park land is afforded strong protection under federal law, and also “exterior areas where frequent human use occurs” are entitled to “primary consideration” by the agency. TxDOT must consider effective noise mitigation measures in these park and public areas.

Park land was discussed above in the prior section. Under federal law, a highway project can constructively use park land if the project produces severe noise impacts within the park. *Ware v. U.S. Fed. Highway Admin.*, 2016 WL 1244978, *4 (S.D. Tex. 2016) (citing 23 C.F.R. § 774.15(e)(1)). It is not clear from the DEIS how TxDOT is satisfying the protections in 23 C.F.R. § 774 for park land. Even if certain public areas are not classified as 4(f) park land: “In abating traffic noise impacts, a highway agency shall give primary consideration to exterior areas where frequent human use occurs.” 23 C.F.R. § 772.13(b).

When TxDOT evaluates mitigation measures, our expert recommends that the entire impacted area of the park should be considered when evaluating reasonableness and cost effectiveness. *See* Attachment C-1 at 3. While there is a methodology for the reasonableness review for residential areas due to the existence of “first row” or “second row” housing, with a park there is no similar physical infrastructure so the entire park parcel must be considered. *Id.*

Additionally, our expert recommends that quiet pavement techniques should be used by TxDOT in the vicinity of park properties. *Id.* For example, large parks adjacent to the highway corridor typically extend from impacted to non-impacted areas. *Id.* But the so-called ‘non impacted’ parks or portions of large parks could still have sound levels that many would consider high, even if they do not exceed the TxDOT criteria. *Id.* Noise barriers provide the most benefit to the area of land behind the barriers. (*Id.*) Quiet pavement has a beneficial effect over a greater area, and will provide better benefits for parks that are both directly adjacent to and also those nearby the highway corridor. *Id.*

Further, TxDOT has paid insufficient attention to Houston’s bike paths, which qualify as either a park or “exterior areas where frequent human use occurs.” 23 C.F.R. § 772.13(b). The Houston Bike Plan was adopted by City Council on March 22, 2017. It includes a bike path along Little White Oak Bayou extending from just north of I-10 to north of 610. The route is immediately adjacent to I-45 for much of the route, primarily on the west side of I-45. The bike path currently exists along segments of this route. As an example of TxDOT’s insufficient attention to these critical park and bike areas is Site S1-R164, Little White Oak Trail. *See* Attachment C-1 at 3. It may represent the partially existing bikeway. However, the specific site selected for evaluation is set much further back from I-45 than most of the proposed path and has therefore been assessed as having no noise impact. *Id.* TxDOT must evaluate representative locations for park areas.

Our expert observed that TxDOT has made assumptions about the future use of certain land, in order to minimize the amount of mitigation required. In some instances, for example, TxDOT assumed that the future use of vacant lots would become commercial (minimizing the amount of required noise mitigation), and then also TxDOT was unwilling to make assumptions about expected use of future bike paths, which would require TxDOT noise mitigation. The Bike Lane map was approved by Houston City Council, and is not speculative, so these land uses must be taken into account in TxDOT noise analysis.

7. We do not believe TxDOT has complied with 23 C.F.R. § 772.9 requiring the use of traffic characteristics that yield worst case assumptions.

Specifically, 23 C.F.R. § 772.9 states: “In predicting noise levels and assessing noise impacts, traffic characteristics that would yield the worst traffic noise impact for the design year shall be used.” As a result, as our expert points out, it is important to select representative sites that are truly representative or are conservative (*i.e.*, have slightly higher levels than typical). *See* Attachment C-1 at 4. For example:

- Site S1-R164, Little White Oak Trail, is located far back from I-45 behind commercial buildings and has no noise impact. However, this trail is actually much **closer** to I-45 and would have a noise impact just a few hundred yards further south.

Our expert points out that TxDOT has not used worst case assumptions for speed. *Id.* For example:

- In the modeling, a speed of 60 mph was used for the mainlanes. Based on current patterns, sound levels currently exceed this speed, and higher actual speeds are also expected in the future.

Further, our expert points out that TxDOT has likely not used worst case assumptions for traffic capacity. Although TxDOT should not be expected to accurately predict the future, some adjusted (increased) noise assumptions on traffic speed and volume would be prudent. *See id.* For example:

- Traffic capacity was based on current driving technology, but rapid advances in self-driving automobiles may bring substantial changes to traffic even before the planned highway is completed. One advantage of self-driving cars is the ability to reduce the spacing between vehicles, resulting in more vehicles per hour on each lane. This could result in increased noise.
- Modified traffic patterns with more truck traffic at night could also result in greater noise impacts.

We request that TxDOT re-visit its analysis with these considerations identified.

8. While the Technical Report identifies some “potentially benefitted” sites in terms of noise impact, this characterization may be misleading.

The Traffic Noise Technical Report identifies locations where the proposed highway project will result in noise reduction, either due to roadway alignment or depression of the roadway. We appreciate that it may be useful to understand that there may be some noise benefits of the project; however, properties with noise levels that will exceed the noise criteria still must be considered for noise treatments when their existing sound levels are even higher above the noise criteria. *See* Attachment C-1 at 3-4. The figures in Appendix D of the Traffic Noise Technical Report show impacted sites in red but “potentially benefitted” sites in green, which fails to

convey that many of these sites are in fact still impacted by noise over the criteria standard. *Id.* If they are above the noise standard, then mitigation is appropriate.

9. Portions of Section 3.6 are excerpted verbatim from TxDOT’s document “Examples of Recommended Text for Documenting Traffic Noise Analysis”, calling into question whether TxDOT has fulfilled its NEPA obligations to undertake a “hard look” at important aspects of its noise analysis.

It is apparent that TxDOT has cut and paste portions of Section 3.6 Noise from the TxDOT publication “Examples of Recommended Text for Documenting Traffic Noise Analysis.”⁵ That is, several portions within Section 3.6 are nothing more than form language, pre-drafted as “recommended text” for a noise analysis. It appears that TxDOT has pulled some of the form language from the publication’s “Example 3: Typical Analysis - Impact with No Feasible and Reasonable Abatement” and/or “Example 4: Typical Analysis - Impact with Feasible and Reasonable Abatement” as well as from the example for undeveloped land.

Among the form language that was excerpted is the section on “noise abatement measures [that] were considered” including “traffic management, alternation of horizontal and/or vertical alignments, acquisitions of undeveloped property to act as a buffer zone, and the construction of noise walls.” *See* DEIS at 3-44. This suggests that TxDOT did not undertake consideration of a range of sound mitigation techniques or best management practices available to address and reduce noise impacts for the specific I-45 project, beyond those excerpted from its form. TxDOT appears to have relied uncritically on a predetermined menu of considerations.

To provide another example of form language that has been cut and pasted into the DEIS: “Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns” (DEIS 3-46). Thus, for construction noise impacts, again TxDOT has not undertaken a “hard look” at these impacts.

NEPA requires agencies to take a “hard look at environmental consequences” when making a decision. *Sabine River Auth. v. U.S. Dept. of Interior*, 951 F.2d 669, 676 (5th Cir. 1992) (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989)). Using form language from pre-drafted text raises the question of whether the requisite “hard look” has been done. While it may be appropriate to use form language as a starting point for an analysis, it cannot be used to limit a review of options available to an agency, particularly on key items like mitigation and abatement measures.

⁵ Available at <http://ftp.dot.state.tx.us/pub/txdot-info/env/toolkit/730-01-ds.pdf>.

D. VISUAL IMPACTS

1. Federal law requires that “aesthetic values” are considered for a project’s development, but TxDOT’s visual impact analysis provides little substance on how the aesthetic values will ultimately be achieved.

NEPA was established, in part, to assure “safe, healthful, productive, and aesthetically and culturally pleasing surroundings.” 42 U.S.C. § 4331. Under federal law, final decisions on highway project development must be made in the overall public interest, taking into consideration a number of socio-economic, engineering, and environmental factors including aesthetic values. 23 U.S.C. § 109(h); *see also* 23 C.F.R. § 771.105. Federal guidelines recognize that “[c]ommunity acceptance of a proposed transportation project is frequently influenced by the extent of its visual impacts.” *See* Federal Highway Administration, “Guidelines for the Visual Impact Assessment of Highway Project,” FHWA-HEP-15-029 (January 2015) (“FHWA Visual Impact Guidelines”) at 1-1.⁶ And further, research shows that “the view from the road is the basis for much of what we know about our everyday environment and for our mental image of our surroundings.” *Id.* “Roads move more than people, goods, and services—they are extensions of a community’s values and aesthetic preferences.” *Id.* While there are many important aspects of highway design, the ultimate visual experience cannot be overstated.

The DEIS discusses potential visual changes in the built environment based on the various project alternatives. The DEIS discusses existing conditions, viewer sensitivity, and impacts of the alternatives. But the DEIS discusses the “mitigation [for] visual and aesthetic qualities” in a mere handful of bullet points on one page, in the final section of the Visual Impact Assessment Technical Report. DEIS, App’x L, at 5-1. According to TxDOT, “[w]here practicable, mitigation to improve the visual and aesthetic qualities of the project area would include” features such as landscape plantings per TxDOT’s Green Ribbon Landscape Improvement Program; promoting roadside native wildflower planting programs; noise barriers; providing adequate signage and access to roadway facilities; and treatment of the side surfaces and columns of the project. This is the sum total of the DEIS discussion on achieving aesthetic values, and it contains a qualifier that TxDOT will only work towards mitigation for aesthetic values “where practicable.”

The Mitigation phase of a visual impact assessment is among the most critical parts. According to the federal guidelines, the “purpose of the mitigation phase is to define the mitigation and enhancement efforts to be included in project design. This final phase of the VIA process is typically completed after a preferred alternative has been selected.” *See* FHWA Visual Impact Guidelines, at 3-2. Here, TxDOT has identified the preferred alternative for each project segment. It is unclear why more has not been done on discussing the mitigation phase.

Thus one of the most pivotal aspects of a Visual Impact Assessment has been reduced to five bullet points. NEPA demands more. The public cannot give meaningful feedback on visual impact mitigation for a highway project of such vast scope as the I-45 expansion, if the visual mitigation is nothing more than a handful of bullets. In advance of TxDOT’s FEIS, the agency

⁶Available at www.environment.fhwa.dot.gov/guidebook/documents/VIA_Guidelines_for_Highway_Projects.asp

should provide a more detailed plan on how it plans to mitigate the visual impacts; what techniques will be used; and where mitigation will be implemented. We request an opportunity to view the proposed visual mitigation and an opportunity to comment on it, before the Final EIS.

2. There is a variety of best management practices available to TxDOT related to mitigation measures for visual impacts.

The FHWA's *Guidelines for the Visual Impact Assessment of Highway Project* recognizes best practices on the topic. According to the Guidelines, the "goal of the VIA guidelines is to maintain or enhance existing visual quality. To achieve this, mitigation can act on the visual resources of the natural, cultural, or project environments or on the experience of viewers. Section 7.4 provides examples of mitigation, types of mitigation, and recommendations for developing effective mitigation." FHWA Visual Impact Guidelines at 7-1.

Also, the National Cooperative Highway Research Program's framework for conducting VIAs would also be a useful tool for TxDOT to incorporate in a revised VIA. The report provides case studies on visual impacts analysis and is attached here. *See* Attachment D-1.

Studies exist for achieving the integration of a noise barrier into the visual landscape.⁷ Since noise barriers will be necessary in certain locations, it will be important to integrate those barriers into the environment.

3. We question, and request the reevaluation of, TxDOT's conclusion that "viewer sensitivity" in all three segment areas is "typically low."

The DEIS concludes that viewer sensitivity is "typically low" for all three segments. DEIS at 3-108; *see also* App'x L. As described in the VIA, "viewer sensitivity is the degree to which viewers are sensitive to changes in the visual character of visual resources." App'x L at 2-2. The Federal guidance document further explains: "The population affected by the proposed project is referred to as viewers . . . viewers are defined by their relationship to the proposed highway project and their visual preferences." FHWA Visual Impact Guidelines at 5-6.

There are several portions of Segment 1 and 2 where the proposed alternative will impact residential neighborhoods, schools, churches, cemeteries and other land uses that are not easily relocated. As the federal guidance document explains for residential neighbors, their "visual preferences tend toward a desire to maintain the existing landscape as it is—they settled where they are for a reason, including how their neighborhood looks." In light of this guidance, TxDOT has not adequately considered that for these land uses, their visual sensitivity to a massive new highway project can hardly be considered "low." Whether the preferred alternative is selected requiring the expansion of the highway to the west, or whether another alternative is selected requiring the expansion of the highway to the east, the expanded highway system will encroach on land that has never before been a neighbor to an interstate freeway. The loss of commercial frontage road means that some residential and community areas will be immediate adjacent neighbors to I-45.

⁷ See, e.g., <http://www.schiu.com/sectores/artigos/2010-Art006-implantationofNoiseBarriersinPortugueseLandscape.pdf>

TxDOT acknowledges that “those closest to I-45 will have more exposure” (App’x L at 3-4, 3-5), but seems to forget that once land is condemned and commercial frontage development is lost, those closest to I-45 will have real visual impacts.

To this end, we point TxDOT to the following viewers in Segment 1, and challenge the conclusion that these viewers would have “low” sensitivity to a massive highway project:

- Hidden Valley and Northline Terrace, which are residential communities in close proximity to I-45, and north & south of 249 / West Mount Houston Road (in the vicinity of, and south of, Halls Bayou), and south of West Gulf Bank Road. Hidden Valley and Northline Terrace are approximately 90% minority communities, between 55-70% low income.⁸
- Northern Independence Heights, which is west of I-45, east of Yale St, north of E Tidwell Rd; 87% minority and 57% low income.
- Independence Heights, including Ventanas Garden and La Vista Villa Apartments, which are west of I-45, northeast of Little White Oak Bayou; 96% minority and 53% low income.
- Unnamed Neighborhood that is east of I-45, south of Crosstimbers Rd, west of Fulton St. It is 95% minority; 64% low income.
- Aldine 9th Grade School, Aldine Senior High School and Stovall Middle School, directly east and adjacent to I-45 with cross streets West Rd and Airline Dr.
- Berean Baptist Church, east of I-45 and south of west road.
- Adath Israel Cemetery, east of I-45.

Depending upon whether the highway is expanded eastward or westward, the highway expansion will encroach on these communities. And with the loss of commercial property on what is now the frontage road, many residential communities will lose their visual barrier. By and large, these communities qualify as environmental justice communities, triggering additional obligations for TxDOT’s review and consideration.

Similarly, we point TxDOT to the following viewers in Segment 2, and challenge the conclusion that these viewers would have “low” sensitivity to a massive highway project:

- Southern Independence Heights neighborhood, which is west of I-45, north of 610, south of HB&T Railroad, east of N Main St. It is 99% minority; 58% low-income.
- Unnamed Neighborhood, which is East of I-45, north of 610, south of HB&T Railroad, west of Irvington Blvd. It is 96% minority; 56% low-income.
- Neighborhoods adjacent I-45, East of Little White Oak Bayou, west of Fulton St, north of Cavalcade St. It is 90% minority, 50% low-income.
- Northern Woodland Heights, West of I-45, east of Airline Dr, north of W Patton St, south of Cavalcade St) It is 82% minority; 43% low-income

⁸ The data here was obtained from the EPA’s Environmental Justice Screening and Mapping Tool (EJSCREEN), available at <https://www.epa.gov/ejscreen>.

- Germantown Historic District, West of I-45, east of Houston Ave, north of Parkview St.
- Independence Heights Park and Burrus Elementary School, west of I-45
- Roosevelt Elementary School, West of I-45
- Adath Emeth Cemetary, West of I-45
- Montie Beach Park, West of I-45
- Jefferson Elementary School, east of I-45
- Hollywood Cemetery, Holy Cross Cemetery and Moody Park East of I-45, adjacent to Little White Oak Bayou
- Woodland Park, West of I-45 with cross streets Houston Ave and Parkview St

Again, depending upon whether the highway is expanded eastward or westward, the highway expansion will encroach on these communities, and with the loss of commercial property on what is now the frontage road, the residential communities will lose their visual barrier.

In Segment 3, there are both residential communities and extensive park systems, all users of land that typically would not have a “low” visual sensitivity; among them:

- Residential areas, encompassed between Houston Ave, I-45. and 10
- Other residential areas, such as Clayton Homes, Kelsey Village Housing, and neighborhood surrounding Swiney Park
- Parks alongside White Oak Bayou near the junction of I-45 and 10
- Freed Art & Nature Park
- Hogg Park
- Allen’s Landing Memorial Park
- Sam Houston Park
- Tranquility Park
- Sesquicentennial Park

The federal guidelines counsel that any visual analysis should “highlight[] especially those areas where the proposed project will alter the harmony of the natural environment.” *See* FHWA Visual Impact Guidelines at 6-8. Certainly changes in the vicinity of these park lands will change the harmony of the natural environment, and TxDOT has not adequately recognized this.

Accordingly, for all of these identified viewers in Segment 1, 2, and 3—residential neighborhoods, schools, park users, et al.—we believe their sensitivity would be more accurately characterized as “moderately high to high” and not “low.”

4. We question, and request the reevaluation of, TxDOT’s conclusion that only “neutral visual impacts” in Segments 1 and 2 will result, and that the design alternatives do “not degrade the visual quality of the area” for those Segments.

The DEIS concludes that there will be “neutral visual impacts” for Segment 1 and 2, and that the design alternatives do “not degrade the visual quality of the area.” DEIS at 3-109, ES-16 & ES-

19. No similar conclusion is given with respect to the preferred alternative for Segment 3, except that it would “provide the most beneficial visual impacts.” DEIS at 3-110.

While it is possible that the vantage of a driver on I-45 may experience “neutral” visual impacts along the stretch of the highway from the Beltway to Loop 610, it is impossible to make the same conclusion from the vantage of the residents, businesses, schoolchildren, or users of land that suddenly find themselves neighbors to such a significant highway system. These are very different viewer groups. As stated above, whether the preferred alternative is selected requiring the expansion of the highway to the west, or whether another alternative is selected requiring the expansion of the highway to the east, the expanded highway system will encroach on land that has never before been a neighbor to an interstate freeway. The loss of commercial frontage road means that some residential and community areas will be directly adjacent neighbors to I-45.

Examples of such land users was given above. TxDOT needs to take into consideration the visual impacts of an encroaching highway on residential and community areas such as schools, cemeteries or churches, and parks. Simply because a vehicle driver may or may not appreciate a new vista from a highway, does not mean the same is true for the members of the adjoining communities. We dispute, and request the reconsideration of, TxDOT’s conclusion that only “neutral visual impacts” for Segment 1 and 2 will result.

5. TxDOT must ensure it has meaningful input from viewers and specifically on their visual preferences. To this end, community engagement, and additional photo simulations for the community, would better enable the public to provide feedback, particularly in areas of visual sensitivity.

Among the purposes of a VIA is to understand visual preferences of the community. The federal guidance document on Visual Impact Assessments makes clear that the “VIA is developed with input from the NEPA public involvement process to *directly and accurately ascertain viewer preferences.*” FHWA Visual Impact Guidelines at D-2 (emphasis added). And, “since people are a key component of the [VIA] model, it is critical to know what the public actually values about their visual environment.” *Id.* at 3-4. Thus one key purpose of a visual impact assessment is to create a dialogue with the public. Presumably, an outcome of the public’s opportunity to comment on the DEIS is to provide initial feedback to TxDOT on some visual preferences, in terms of the alternatives that have been studied, and within the limits of information that has been provided.

However, we believe that direct community dialogue would greatly assist TxDOT in understanding the community’s concerns with visual impacts. As stated above in Section A-2, we believe that stakeholders are willing and interested in meeting with TxDOT representatives in order to give constructive feedback on the proposed project design.

Further, while we appreciate the visual representations that have been provided thus far (such as found in Appendix L), the visuals and diagrams on pages 4-3 to 4-19 of Appendix L (Visual Impact Assessment Technical Report) offer only limited insight into how the expanded highway system will impact areas of viewer sensitivity such as residential communities, parks, schools, and the like. TxDOT has not offered meaningful analysis of mitigating for visual impacts—whether vegetative buffers or noise barriers will be used in particular locations. As a result, it is

difficult for the public to give meaningful input on preferences in these sensitive areas—other than to imagine what TxDOT “might” do.

We believe that additional visual representations would enable the public to understand the visual impact on the built environment and for the public to provide meaningful input and feedback. Specifically, visual representations of static viewsheds in areas of viewer sensitivity would be useful, and with visualizations of mitigation measures.⁹ When TxDOT begins to meet with community groups, providing additional visual representations would enhance the dialogue. With additional visual information from TxDOT on how sensitive viewer areas (residential neighborhoods, parks, and schools) will be impacted by the expanded highway, then the public can give feedback on visual preferences.

TxDOT notes its reliance on a National Cooperative Highway Research Program report entitled *Evaluation of Methodologies for Visual Impact Assessment*. There is another report by the same research program on *Visualization for Project Development*.¹⁰ See Attachment D-2 (“Visualization Overview” chapter excerpt). The report discusses that, in the transportation community, “visualization is becoming . . . more a core requirement within the highway project development process.” *Id.* at 38. Visualization “technology can be used throughout the life cycle of a project plan—from the process flow of value engineering, to the project development and environment study phase.” *Id.* at 5. Specifically, critical issues such as roadway aesthetics, vertical and horizontal alignment fit, traffic flow, and line of sight can be identified. The general public can also obtain a greater understanding of the project by viewing the proposed changes from a potentially unlimited number of viewpoints.” *Id.*

As stated, the large scale changes proposed to I-45 and the transportation corridors around downtown could present an opportunity to improve the visual character of these corridors. According to research, in “addition to mitigation, the opportunity for enhancing visual quality should also be considered when evaluating the impacts a proposed project has. A VIA process that identifies such opportunities enables NEPA’s aesthetic mandate to be met through a simple program of effective location, design, and mitigation decisions.” NCHRP, *Evaluation of Methodologies for Visual Impact Assessments* at 143.

In short, we believe that community dialogue and additional visualization tools would enable the public to provide constructive feedback on viewer preferences, and ultimately enhance the overall visual character of the project. As with other aspects of the DEIS, it would be beneficial for the public to give such feedback before an FEIS is prepared and published.

6. Parks are among the areas requiring visual analysis, but the DEIS and VIA include little visual analysis of park impacts.

Federal guidance counsels that, as part of the VIA, “practitioners should identify and analyze visual impacts on Section 4(f) properties in coordination with the analysis of Section 4(f) properties.” FHWA Visual Impact Guidelines at 2-4. As noted above in Section B on parks and

⁹ Note, the federal guidance defines “static viewsheds” as “what neighbors of the road see from a stationary location.” FHWA Visual Impact Guidelines at 4-6.

¹⁰ Available at <https://www.nap.edu/download/13986>.

4(f) issues, too much of the park analysis has been deferred for later resolution. The public must see these analyses before the final EIS.

7. TxDOT must budget for complete removal of billboards that will be “displaced” by the project.

The DEIS contemplates the “displacement” of billboards along the footprint of the I-45 project. For instance, the DEIS notes that the preferred alternatives for Segment 1 will displace 24 billboards, Segment 2 will displace 11 billboards, and Segment 3 will displace 9 billboards. *See* DEIS, App’x F, at §§ 5.5.1, 5.5.2, 5.5.3. But the DEIS makes no effort to explain what will happen to billboards once “displaced.”

Under the City of Houston’s Sign Code, TxDOT cannot commit to building new billboards to replace those which must be removed. Since 1980, the City of Houston has prohibited the construction of new billboards. City of Houston Sign Code § 4612(b)(1) (“From and after the effective date, no new construction permits shall be issued for off-premise signs...”). Since then, local billboard inventory has dropped by almost 90%.

Within that context, TxDOT must not undertake a major highway project through the heart of sensitive areas—which include, for example, scenic districts, residential areas, the central business district, tourist-magnet parks, bayous, a convention center, sports and theater areas—without total removal of the signs that currently exist within the footprint of the I-45 project. Relocation cannot be an option. To move billboards to other areas would degrade other vistas. Billboards should not be treated differently than any other commercial structure in the path of a transportation project—any of which would be permanently removed and not replaced.

Sensitivity to the local Sign Code, to citizen preference, and the development evolution of the community must be a factor in TxDOT’s project plan. Development evolution means that sensitivity to community character and sense of place makes oversized, commercial signage inconsistent with the built and natural environment in many areas that the project touches. Complete removal of these billboards by TxDOT will be met with a very positive response across the city.

Finally, the Texas Supreme Court’s recent decision in *State v. Clear Channel Outdoor, Inc.*, clarified that “a billboard may be a fixture to be valued with the land, and that while the advertising business income generated by a billboard should be reflected in the valuation of the land at its highest and best use, ***the loss of the business is not compensable and cannot be used to determine the value of the billboard structure.***” *State v. Clear Channel Outdoor, Inc.*, 463 S.W.3d 488, 490 (Tex. 2015) (emphasis added). This opinion strongly suggests that the cost of removing a billboard without replacing it elsewhere will be affordable for TxDOT.

In the Final EIS, we urge TxDOT to budget for the cost to completely remove all displaced billboards.

E. COMMUNITY RESOURCES AND ENVIRONMENTAL JUSTICE

1. TxDOT is required to consider environmental justice principles in all TxDOT programs, and ensure that projects do not have a disproportionately high and adverse effect on protected populations.

Executive Order 12898 requires each Federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations[.]” Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (Feb. 11, 1994).

In 2012, the Office of the Secretary of Transportation issued Updated Environmental Justice Order 5610.2(a) (“USDOT EJ Order”). This Order sets forth the DOT’s policy to consider environmental justice principles in all DOT programs, policies, and activities; it describes how the objectives of environmental justice will be integrated into planning and programming; and it sets forth policies to prevent disproportionately high and adverse effects to minority or low-income populations. The USDOT EJ Order highlights the importance of avoiding disproportionately high and adverse effects in programs, policies, and activities, and includes as its aim the identification of potential effects, alternatives, and mitigation measures. DOT Order 5610.2(a) at 6. The Order adopts a goal to “avoid[], minimize[] or mitigate[]” disproportionate effects. *Id.* at 7.

In implementing its requirements under NEPA, Title VI, URA, SAFETEA-LU and other statutes involving human health or environmental matters, the USDOT EJ Order states that the following information should be obtained where relevant, appropriate, and practical:

- Population served and/or affected by race, color, or national origin, and income level;
- Proposed steps to guard against disproportionately high and adverse effects on persons on the basis of race, color, national origin, and income level.

The Order also provides that DOT operations will be administered so as to identify and avoid discrimination and avoid disproportionately high and adverse effects on minority populations and low-income populations by:

- Identifying and evaluating environmental, public health, and interrelated social and economic effects of DOT programs and activities;
- Proposing measures to avoid, minimize and/or mitigate disproportionately high and adverse environmental and public health effects, and providing offsetting benefits and opportunities to enhance communities, neighborhoods, and individuals affected by DOT programs, policies, and activities;
- Considering alternatives to proposed activities where such alternatives would result in avoiding and/or minimizing disproportionately high and adverse human health or environmental impacts; and

- Eliciting public involvement opportunities and considering the results thereof.

Id. at 9-10.

DOT officials must ensure that any of their programs, policies, or activities that will have a high and adverse effect on minority populations or low-income populations “will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable.” *Id.* at 11. Activities that will have a high and adverse effect on populations protected by Title VI will only be carried out if (1) a substantial need for the program, policy, or activity exists; and (2) alternatives that would have less adverse effects on protected populations, either (a) would have other adverse social, economic, environmental or human health impacts that are severe or (b) would involve increased costs of extraordinary magnitude. *Id.* at 11-12.

FHWA Order 6640.23A, “FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” (“FHWA EJ Order”) adopts similar policies concerning environmental justice. The Order adopts the USDOT EJ Order’s four methods of identifying and avoiding discrimination and disproportionately high and adverse effects on protected populations.

The FHWA EJ Order requires FHWA staff to ensure that programs, policies, and activities “do not have a disproportionately high and adverse effect” on protected populations,” and defines when activities that have a disproportionately high and adverse effect can be carried out. FHWA Order 6640.23A at ¶8.¹¹

2. The DEIS concludes that minority and low-income communities will be adversely affected. But the DEIS fails to adequately consider methods to and alternatives that would “avoid or reduce” the disproportionately high and adverse impacts on minority and low-income populations.

The DEIS concludes that “[w]hile minority and low-income individuals and community facilities in the project area would be adversely impacted by the proposed project, no reasonable alternatives would avoid adverse impacts or have substantially less overall adverse impacts than other alternatives.” DEIS at ES-4; *see also* 3-17, 3-23.

It further concludes that each alternative would “displace single-family residences and/or multi-family units in areas with high minority populations (i.e., over 50 percent) and some low-income areas” and “places of worship, schools, and other facilities used by minority and low-income populations would be displaced.” *Id.* at 3-17. Other adverse impacts include increased noise and traffic congestion during construction, increased noise and air emissions near environmental justice communities, and disruption to neighborhood and community cohesion. *Id.* at 3-17; 3-21. Additional details regarding these impacts were provided in Appendix F (“Community Impact Assessment Technical Report”).

¹¹ The language in this Order tracks that found in DOT Order 5610.2.

Under NEPA, the applicable regulations, and FHWA's EJ Order 6640.23A, a DEIS must assess whether environmental justice impacts are possible; conduct an environmental justice analysis; evaluate whether each alternative will have a disproportionately high and adverse impact on protected populations; and avoid or minimize any disproportionately high and adverse impacts to protected populations or, if impacts cannot be avoided, work with the affected community to develop mitigation measures to offset the impacts.

The requirements to comply with Title VI of the Civil Rights Act are similar (though not identical), to those under NEPA.

The current DEIS does not meet the legal standard. Instead, the DEIS concludes that minority and low-income individuals and community facilities would be adversely impacted by the proposed project, but simply states that no reasonable alternatives would avoid these adverse impacts or have "substantially less overall adverse impacts" than other alternatives. *See, e.g.*, DEIS, App'x F, at 5-56-5-60. In its mitigation section, the DEIS states that additional stakeholder outreach for facilities specifically serving environmental justice and other sensitive communities is ongoing, and potential mitigation measures for these impacts will be determined in the future. App'x at 7-3.

While we appreciate that TxDOT has met with interested stakeholders for facilities that serve environmental justice communities, and hope that these future meetings are productive, this approach does not satisfy its obligations under NEPA.

The conclusion that all alternatives will have a disproportionately high and adverse impact on protected populations should not end a NEPA analysis of these impacts or foreclose the possibility of further reducing these impacts. The environmental justice section of the DEIS must further analyze mitigation for all adverse effects, should make clear which alternative has the least adverse effects on protected populations, and should specify why this alternative is not being selected.

FHWA's Environmental Justice Reference Guide outlines the analysis process under NEPA. This guidance, which tracks the legal requirements under NEPA and Title VI, states that if there are disproportionately high and adverse effects on a protected population, then the agency should consider mitigation for all adverse effects, focusing on the protocol of avoidance, then minimization, and then measures to offset or remedy the adverse effects. Federal Highway Administration Environmental Justice Reference Guide (April 1, 2015), at Fig. 8. If there are disproportionately high and adverse effects after the mitigation, then the agency must consider whether there are further practicable mitigation measures or alternatives that would avoid or reduce these effects. If so, then the project proponents must apply those measures. If not, and the affected population is protected under Title VI, then there must be a substantial need for the project and the alternative with the least adverse effects must be selected unless that alternative has much more severe social, economic, environmental, or human health impacts, or that alternative would involve increased costs of an extraordinary magnitude. *See id.*

In its current form, the DEIS does not provide enough information to satisfy this analysis.

First, the DEIS states that potential mitigation measures for impacts to EJ communities will be determined in the future. App'x F at 7-3. But without understanding what mitigation is being proposed for all adverse effects, including effects on EJ communities, the public cannot understand the actual extent of these impacts or make comments on further practicable mitigation measures or alternatives that would further reduce these impacts. The EJ analysis under NEPA is intended to be an iterative process. While we recognize that TxDOT has met with interested stakeholders and is working on some mitigation measures for EJ communities, without publishing this information in the DEIS, we cannot properly evaluate the adequacy of the proposed mitigation.

Consequently, we request that TxDOT publish a supplemental DEIS with specific mitigation measures on which the public can comment. For the I-70 East Project, discussed in greater detail below, a Supplemental DEIS and Section 4(f) Evaluation was published following the first DEIS, and this Supplemental DEIS contained more detailed mitigation for each alternative.

We also ask that TxDOT set aside a portion of the budget for eligible small-scale community-drive projects and draft community benefit agreements, and make these commitments public before publishing a Final EIS and Record of Decision.

Second, the DEIS concludes that impacts will be disproportionately high and adverse for protected populations if any of the alternatives are selected. That may very well be true. However, the information in the DEIS indicates that alternatives that are not recommended may reduce the disproportionately high and adverse effects of the proposed project. For example, for Segment 1, (Proposed Recommended) Alternative 4 will displace 218 total housing units, compared to 169 for Alternative 5 and 63 for Alternative 7. DEIS at Table 5-8. In Segment 2, (Proposed Recommended) Alternative 10 will displace 101 housing units, compared to 44 for both Alternative 11 and Alternative 12. *Id.* at Table 5-1.¹² Similarly, the Proposed Recommended alternative for Segment 3 will displace 916 housing units, and other alternatives may have a far less impact from an EJ perspective. *See id.* at Table 5-16. Many, if not most, of these displacements occur in protected communities.

While we recognize that EJ impacts encompass much more than displacements of housing units, much of the EJ analysis in the DEIS focuses on displacements, and the information provided suggests that the proposed recommended alternatives likely do not have the least adverse effects on protected populations. Under Title VI caselaw and FHWA's environmental justice guidance, the alternative with the least adverse effects on protected populations must be approved unless specific circumstances exist (*e.g.*, under FHWA's EJ guidance: the alternative would have adverse social, economic, environmental, or human health impacts that are more severe, or the alternative would involve increased costs of an extraordinary magnitude). There is insufficient information in the DEIS to make this determination.

Given the magnitude of the proposed project's effects, and the fact that a significant portion of the adverse effects will be borne disproportionately by minority or low-income communities,

¹² The Proposed Recommended alternative will also displace the most number of businesses.

TxDOT must ensure that all practicable mitigation measures that would reduce these effects are considered, publicly vetted, and implemented.

3. The EJ analysis must make clear that nearly all project impacts disproportionately affect EJ communities; this fact must be made explicit and should inform proposed mitigation.

As mentioned, the EJ analysis in the DEIS focuses somewhat narrowly on the displacement of residential units and displacement of community resources that serve low-income and minority populations. *See, e.g.*, Tables 3-2, 3-3, and 3-4; Section 3.2.4. However, the provided Census data is clear that impacts to non-displaced residents within the project's footprint and in surrounding communities will also be borne disproportionately by low-income and minority communities. For example, approximately 92 percent of the Segment 1 Census block area is a minority population; approximately 85 percent of the Segment 2 Census block area is a minority population; and approximately 67 percent of the Segment 3 Census block area is a minority population.

Given this information, the DEIS implies, but does not explicitly state, that many, if not all, of the social, environmental, and public health impacts for this project are also environmental justice impacts. This includes noise, air quality, and water resource impacts, as well as disruptions to community cohesion and access to public resources.

This fact should be made explicit in any supplemental or amended DEIS or the FEIS. Additionally, any proposed mitigation for these impacts is subject to the EJ analysis outlined above, and all practicable mitigation measures that would reduce these impacts must be considered, publicly vetted, and incorporated into the final project.

4. TxDOT should evaluate impacts, concerns, and potential mitigation on a neighborhood-level scale, and should use block meetings and establish working groups to carry out this evaluation.

In the context of transportation, "effective and equitable decisionmaking depends on understanding and properly addressing the unique needs of different socio-economic groups." FHWA Environmental Justice Reference Guide (2015), at 2. According to the DEIS, the environmental justice data was gathered from Census block data, with field investigations to confirm community buildings, neighborhood facilities, and other land uses. TxDOT has also held a couple of rounds of public meetings and has held meetings with stakeholders during the project development process. TxDOT has committed to coordinating with interested stakeholders, including the Houston Housing Authority, to discuss potential project impacts on sensitive communities in the future.

However, the environmental justice analysis in the DEIS is relatively coarse-grained: it analyzes whether particular Census blocks are disproportionately low-income or minority, highlighting displacements to residential units and neighborhood facilities. Appendix F discusses neighborhoods and community cohesion, but the community profile is provided on a segment

basis,¹³ and the subsequent discussion of superneighborhoods again focuses on displacements, with little data on disruptions to neighborhood connectivity or neighborhood-specific concerns about the project's impacts. *See* App'x F, at §§ 4, 5. From an environmental justice standpoint, this information is not specific enough to understand and properly address the unique needs of different socio-economic and community-based groups.

To use a different project as an example, during the I-70 East environmental study in the Denver area, the Colorado Department of Transportation (CDOT) used specific outreach programs designed to reach Hispanic/Latino and African American populations and neighborhoods, including door-to-door outreach, block meetings, neighborhood meetings, and establishing working groups to address specific issues. Attachment E-1 (FHWA Case Study, "Building a Foundation for Meaningful and Active Participation: I-70 East Project, Denver Area, Colorado"). This process helped CDOT understand specific neighborhood features, properties of interest, information on the social organization of the community, and perceptions of existing neighborhood transportation problems, and minimizing adverse effects on protected communities became an explicit project goal in the NEPA analysis. *Id.* During the final design stages, urban-design workshops were held and local residents and businesses were encouraged to provide input and advice. *Id.* Ultimately, CDOT made 149 separate mitigation commitments, including many aimed at reducing the adverse effects on environmental justice communities. Attachment E-2 (Final EIS, "I-70 East Final Environmental Impact Statement and Section 4(f) Evaluation," Appendix 9 (Jan 2016)). Among other things, and as a point of interest for this project, CDOT committed to lowering the highway and covering portions of it to include space for community and neighborhood activities. *See id.*¹⁴

In another transportation case for the Newtown Pike Extension Project in Lexington, Kentucky, the project coordinator developed a community impact assessment that included a household survey determining length of residency, whether family lives in the neighborhood, likes and dislikes about the neighborhood, important community resources, mode of transportation to work, and familiarity with the project. Attachment E-3 at 12 (FHWA Case Study, "Preserving Community Cohesion through Southend Park Neighborhood Redevelopment," Newtown Pike Extension Project, Lexington, Kentucky). Later, an additional survey was conducted to understand the met and unmet needs of a particular community's residents. The team used an urban anthropologist to provide an oral history of the area, allowing team members to really understand the affected individuals, their community, and their needs. A business survey was

¹³ *See* App'x F, at 4-1ff.

¹⁴ CDOT also committed to providing residents close to the highway with storm windows, furnace filters, attic insulation and two free portable or window-mounted air conditioning units; providing \$100,000 to facilitate access to fresh food; providing an HVAC system and new doors and windows for an affected elementary school, plus two new classrooms; providing \$2 million in funding to support affordable housing in the Elyria and Swansea Neighborhood; and providing eligible residents of some affected neighborhoods with free transponders, pre-loading of tolls, and other means to reduce barriers to using the Express Lanes after the project is completed. *Id.* These mitigation commitments were all included for a project with much less impact and much less total cost than the proposed North Houston Highway Improvement Project.

also conducted to better understand impacts. *Id.* A community liaison was established to facilitate ongoing interaction and incentivize community participation. *Id.* at 13.

We respectfully request that TxDOT review the other FHWA Environmental Justice case studies available online to help determine best management practices moving forward.¹⁵

Recognizing that it may be too late in the process to undertake some of these specific methods employed during the scoping phase, it is not too late to increase community outreach and create working groups that can analyze impacts, concerns, and preferred mitigation on a neighborhood- or superneighborhood-level, especially for communities that are particularly impacted and/or are predominantly low-income or minority. Proposed mitigation for environmental justice impacts must address the particular needs of the affected groups. It is difficult to know where TxDOT is in this process given the lack of information provided in the DEIS, but we request that a more fine-grained, community-based approach be undertaken as mitigation is developed for the proposed project's impacts.

5. Some examples of particular EJ concerns for this project are included here.

In addition to the recommendations included above, we note the following concerns that affect EJ communities:

- If the preferred alternative for Segment 3 does move forward in substantially its current form, we recommend that TxDOT consider committing, as CDOT did for the I-70 East project, to funding and/or ensuring funding for the proposed cap. We also recommend that an ad hoc committee is formed in the near future to help obtain commitments related to this cap and associated public space. This committee should include individuals from the east end of downtown Houston, including EJ communities, to help ensure that there is sufficient connectivity over the highway and public access to downtown from these communities. It is clearly important that TxDOT's infrastructure be able to support any future above-highway park space.
- We are concerned with the elimination of the Polk Street connection to downtown, which currently acts as an east-west connector.
- Census data shows that the largest share of people who use public transportation and bike are in lower-income brackets. Given the fact that the preferred alternative will affect individuals who commute downtown, it is important to ensure that current east-west connectors are maintained to the greatest extent possible and that any potential impacts to these modes of transportation are coordinated with appropriate local agencies, nonprofits, and affected communities. With respect to the existing purple and green rail lines that serve communities in the east and southeast, TxDOT must coordinate with METRO and others to minimize impacts to ridership. It takes time to adapt to changing

¹⁵ Available at https://www.fhwa.dot.gov/environment/environmental_justice/resources/ej_and_nepa/case_studies/case00.cfm.

modes of transportation, and minimizing impacts during the construction phase will require early coordination. With respect to bicycle infrastructure, TxDOT must continue coordinating with interested parties to minimize impacts and ensure continued and improved connectivity between communities outside the highway infrastructure and downtown Houston.

F. AIR QUALITY

- 1. TxDOT's air quality analysis recognizes that information is incomplete or unavailable to predict project-specific air impacts, but regulations still require TxDOT to conduct an analysis based on theoretical approaches or other research methods.**

Section 4.1.5 of the DEIS states that information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions. CEQ regulation 40 C.F.R. § 1502.22 requires that when information is incomplete or unavailable, the agency shall include an evaluation of such impacts based upon theoretical approaches or research methods generally accepted by the scientific community. Thus, when information is incomplete or unavailable, the agency cannot avoid analyzing the issue altogether; TxDOT must conduct the analysis using theoretical approaches or other research methods. TxDOT has not done this.

- 2. The DEIS fails to provide sufficient information regarding the current non-conformity with Texas' State Implementation Plan.**

The DEIS states "The proposed project is not consistent with the State Implementation Plan (SIP) because it was not included in the 2040 Regional Transportation Plan (RTP) or the 2017-2020 Transportation Improvement program (TIP)." ES-4, DEIS 3-39, App'x C at 1. The DEIS further states that "The proposed project will be added to the RTP and TIP prior to the environmental decision." DEIS 3-39. However, the DEIS does nothing to explain the process or the timing of it. Thus, as a public disclosure document, the DEIS falls short. For example, the public should have been told that the Houston-Galveston Area Council (H-GAC) performs the conformity determination, and that two state agencies (TCEQ & TXDOT) and two federal agencies (FHWA & EPA) must review and concur. The most recent conformity determination was in July 2016. *See* http://www.h-gac.com/taq/airquality_model/conformity/2016.aspx.

- 3. The DEIS and the most recent conformity determination rely upon unrealistic or inaccurate post-project traffic speed predictions which may lead to underestimates of air quality impacts.**

In July 2016, the TCEQ stated the following in its concurrence letter for the July 2016 conformity determination:

The H-GAC used a methodology for its regional emissions analysis that deviates from the methodology used to calculate MVEB for the applicable SIP revision. While both methodologies employed the Motor Vehicle Emission Simulator (MOVES) model to estimate on-road emissions, the MVEB was calculated with

utilities developed by the Texas A&M University Transportation Institute that utilizes MOVES in a mode that categorizes emission rates based on 1 mile-per-hour (mph) vehicle speed increments. For its regional emissions analysis, the H-GAC relied on the Spatial Emission Estimator (SEE) modeling framework, which utilizes MOVES in a mode that categorizes emission rates based on 5 mph vehicle speed increments. The SEE tool can be programmed to bin speeds at the 1 mph level, but the TCEQ determined that to be unnecessary for this conformity analysis because the regional emission estimates were sufficiently below the applicable MVEB.¹⁶

We are concerned that TXDOT's reliance on emissions calculations that depend in part upon predicted post-project speed improvements is misplaced. For example, during the I-10 expansion project, TXDOT similarly relied upon predicted increases in vehicle speeds for its emissions calculations. However, seven years after the I-10 project was completed, average rush-hour vehicle speeds hover between 10 mph and 30 mph in many sections of I-10. *See* Attachment F-1 (Transtar speed charts). One study of the Transtar travel time data showed that in 2014, during peak rush hour, it took 70 minutes, 27 seconds to travel from Downtown, past Beltway 8, all the way to Pin Oak, just past the Katy Mills Mall. Compare this with 2011, when this same trip took 46 minutes, 53 seconds. *See* <http://www.houstontomorrow.org/livability/story/it-took-51-more-time-to-drive-out-katy-freeway-in-2014-than-2011/>. In short, expanding I-10 from eight lanes to 23 may have only provided short-term speed increases, but over the long term the expanded freeway in fact attracts and encourages more vehicles (in part due to induced growth and increased numbers of commuters), so the speed increases are lost over time.

Here, the DEIS Air Quality Technical Report relied on projected speeds of 60 mph for the main lanes and HOV of segments 1 & 2, and 50 mph for Segment 3. We recommend that TXDOT justify these projected speeds by comparing post-project measured speeds after other highway expansions projects, including I-10. We further recommend that TXDOT evaluate and explain the sensitivity of the MOVES and SEE models to determine whether more realistic lower post-project speeds have a significant impact on air emissions. We also request that TXDOT provide this information to H-GAC for use in its conformity determination with a recommendation that they use 1 mph speed increments.

4. The DEIS fails to analyze Mobile Source Air Toxics and other pollutants on a localized and quantitative basis.

The DEIS states that that localized MSAT concentrations “could be higher under certain Build Alternatives than the No Build Alternative.” DEIS at 3-22. However, the DEIS makes no attempt to evaluate project specific MSAT health impacts, and only undertakes the bare minimum of qualitative MSAT analysis. DEIS at 3-40, App’x C 19–24. The DEIS states that a “quantitative MSAT analysis would be conducted during preparation of the Final EIS to calculate total MSATs of the affected network links as a result of the proposed project.” DEIS at 3-40. Therefore there is nothing in the DEIS that allows the public to understand where these localized

¹⁶ http://www.h-gac.com/taq/airquality_model/conformity/2016/docs/TCEQ-Concurrence-HGB070816.pdf.

increases in MSAT emissions would be, or by how much MSATs will increase. It is also impossible to determine whether these increased MSAT emissions will be predominantly borne by minority and low-income populations. FHWA Order 6640.23A states that when an adverse effect is predominantly borne by a minority or low-income population, the impact is disproportionately high and adverse. As such, all practicable mitigation of near-road air impacts to this population should be considered.

With the exception of carbon monoxide, it appears that TXDOT will rely primarily on analyzing air impacts at the regional level (*e.g.*, through the conformity determination), and we are concerned that EIS will not give adequate consideration of near-road air emission impacts, especially to minority and low-income populations. CEQ's *Environmental Justice Guidance under the National Environmental Policy Act* states that "Agency consideration of impacts on low-income or minority populations . . . may lead to the identification of disproportionately high and adverse . . . effects that are significant and that otherwise would be overlooked. Council on Environmental Quality, "Environmental Justice: Guidance Under the National Environmental Policy Act" (Dec. 10, 1997) at 10. No analysis of localized impacts from MSAT emissions is presented in the DEIS.

Additionally, CEQ's *Environmental Justice Guidance under the National Environmental Policy Act* states that "Agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts." *Id.* at 9. The analysis in the EIS does not appear to have given consideration to any factors that may amplify the near-road air emissions (*e.g.* community asthma rates). While near-road air emissions may be minor for the general population, the impact may be amplified for minority and low-income populations along the proposed project.

5. The DEIS relies upon EPA vehicle engine and fuel regulations that the Trump administration has criticized as too strict and ordered EPA to reconsider.

Further, the DEIS indicates that near-road air impacts will be sufficiently mitigated by implementation of EPA's vehicle engine and fuel regulations. DEIS 3-40. The DEIS claims that even with a predicted 100 percent increase in vehicle miles travelled (VMT) total emissions of MSATs will be "reduced by over 80 percent." DEIS at 3-40. While it may be true that EPA's national vehicle and fuel regulations will result in lower levels of ambient air pollution over time regardless of project alternative, nevertheless the preferred alternative will presumably result in near-roadway populations facing additional exposure to air pollutants than they would otherwise in the absence of the alternative.

However, on March 15, 2017, President Trump instructed EPA to re-evaluate these very regulations. NBC News, Trump Rolls Back Obama-Era Fuel Economy Standards, (Mar 16, 2017), at <http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256>.

Trump said he was ordering the EPA to reopen a mid-term review of Corporate Average Fuel Economy, or CAFE, standards that would require the industry to deliver a fleet average of at least 54.5 mpg by 2025.

“My administration will work tirelessly to eliminate the industry-killing regulations,” Trump said, his new EPA chief Pruitt adding his assertion that “these standards are costly for automakers and the American people.”

The re-evaluation may be completed before the FEIS is issued, and if so, TXDOT must update its air quality analysis to reflect any new EPA vehicle engine or fuel standards in place at the time. We recommend that TXDOT closely monitor the ongoing EPA re-evaluation of the 2016 regulations.

6. The DEIS fails to implement EO 13043 because it mostly ignores the impacts on children.

The DEIS contains a brief discussion of the impacts of the proposed project on children, but only with respect to displacement of community resources used by children, such as schools, child care facilities, parks, housing, and other places where children live, learn, and play. DEIS at 3-6, 3-23. However, there is no reference to Executive Order 13045 *Protection of Children from Environmental Health Risks and Safety Risks* in the DEIS. Pursuant to this EO, the DEIS must include discussions regarding the identification of impacts on children, including pollution and sources of concern; exposure assessment and baseline health conditions including poverty rates, respiratory impacts, traffic noise, impacts from air pollutant emissions and chemical exposures; and impacts that could potentially affect obesity.

7. TxDOT should review and incorporate the findings of additional relevant studies.

Motor vehicles are a major source of air pollution in Houston. Exposure to traffic-related air pollution is linked to a range of adverse health outcomes. Reducing exposure to traffic-related air pollution will provide public health benefits, including improved cardiovascular and respiratory health and reduced rates of cancer. There are many traffic-related air quality and air pollution studies that TxDOT must fully evaluate, consider and discuss in any amended or supplemental DEIS or the FEIS, including, but not limited to the following:

- Health Effects Institute Panel on the Health Effects of Traffic-Related Air Pollution, (2010) *Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects*.
- Loomis D, et al. (2013). *The carcinogenicity of outdoor air pollution*. *Lancet Oncology*, 14 (13): 1262–1263.
- Benbrahim-Tallaa L, et al. (2012). *Carcinogenicity of diesel-engine and gasoline-engine exhausts and some nitroarenes*. *Lancet Oncology*, 13 (7): 663–664.
- Crouse DL, et al (2012) *Risk of nonaccidental and cardiovascular mortality in relation to long-term exposure to low concentrations of ne particulate matter: a Canadian national-level cohort study*. *Environmental Health Perspectives* 120 (5), 708

- Zhang, K., & Batterman, S. (2013). Air pollution and health risks due to vehicle traffic. *The Science of the Total Environment*, 0, 307–316. <http://doi.org/10.1016/j.scitotenv.2013.01.074>

G. WATER RESOURCES

1. The DEIS must consider the full impacts to important waterways.

All alternatives cross important waterways, most notably Buffalo and White Oak Bayous. All alternatives also cross other smaller bayous, including Halls and Little Oak Bayous. Each of these waterways are impaired waters as identified on TCEQ's Section 303(d) list, for variously bacteria and depressed oxygen demand, but TCEQ does not assess waterway impairment for litter, floating garbage, or gross solids. In the DEIS, TxDOT discloses the impacts for the proposed project on water resources, DEIS at 3-48, *et seq.* The DEIS recognizes TxDOT's *Storm Water Management Guidelines for Construction Activities*, stating that they provide discussions of storm water controls to be implemented during construction (TxDOT 2002). DEIS at 4-39.

The DEIS fails to adequately discuss the many ways that roadway and highway construction negatively impact water quality and does not adequately describe or quantify those negative impacts and potential mitigation for those impacts. As Houston continues to grow, it is widely accepted that careful stewardship of our water supply and of the quality of that water is increasingly important. TxDOT will need to take every effort to halt the continued degradation of water quality caused by road construction and work toward improving the quality of the stormwater discharged from their new roadways. The I-45 proposed project presents TxDOT with an ideal opportunity to incorporate the best design and implement the best management practices for stormwater and rainwater runoff.

Stormwater leaving a roadway or highway surface carries with it oil, grease, and other petroleum-based fluids, tire particles, vehicle litter, and various toxic and non-toxic materials that are spilled onto the roadway surfaces. Water temperatures of this runoff is typically very high when leaving pavement surfaces, resulting in very low oxygen levels, and low oxygen levels result in anaerobic conditions and fish kills. In addition, current construction practices allow heavy quantities of fine suspended solids to enter streams and bayous during construction and repair of roads and these fine particles provide a refuge for stream bacteria, especially fecal coliform, which are already a problem in urban waterways. Indeed, the current portions of highways (I-45, I59, and I 10) that cross the bayous were designed to allow runoff from the road way directly into the bayous without any pollutant control. Where they cross the bayous, the existing highways appear to lack any functional stormwater collection system, and instead have drainage holes on the sidewalls to allow runoff to flow directly into the bayous below. *See* Attachment G-1 (photos). While such a design may have been acceptable decades ago, it is no longer acceptable today, because all the runoff carries pollutants directly into the bayous.

2. The DEIS must contemplate appropriate mitigation measures for impacts to water resources.

Water quality features need to be built into the stormwater system in such a way as to remove and confine petroleum based liquids, solids and litter from the stormwater discharge stream. Detention basins may need to be designed and constructed to thoroughly treat the first flush of rainfall (typically the first inch), and to meet, or be less than, the natural runoff rates. Basins should be designed to receive 100% of the first flush flows, and wherever possible, basins should be designed with wet bottoms to maximize the containment time-frame and to maximize water quality improvements. It is our understanding that current TxDOT policy discourages the use of wet bottom detention and design their basins to only take peak flows. Specific and measurable water quality goals should be established to monitor roadway runoff to ascertain whether the management practices are achieving their objectives.

Water quality controls must be designed and built into the stormwater system to remove and confine petroleum based liquids, solids and litter from the stormwater discharge stream. Detention basins should be designed and constructed to thoroughly treat the first flush of rainfall (typically the first inch), and to meet the expected runoff rates. Detention basins should be designed to receive all of these first flush flows, and wherever possible, basins should be designed with wet bottoms to maximize the containment time-frame and to maximize water quality improvements. It is our understanding that current TxDOT policy discourages the use of wet bottoms and designs their basins to only take peak flows, however we urge TxDOT to re-evaluate this policy. Specific and measurable water quality goals must be established to monitor roadway runoff to ascertain whether the management practices are achieving their objectives.

There are many transportation departments in the US and elsewhere that have developed better designs, techniques and policies concerning stormwater runoff. We encourage TxDOT to review the progress and up-to-date designs, techniques and policies. Some of these are listed below:

- California: <http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/index.htm#litter> (Attachment G-2 (listing many studies, assessments, designs, and reports of pollution control from stormwater))
- North Carolina (Attachment G-3)
- Hawaii (Attachment G-4)

Many other examples likely exist; therefore, we encourage TxDOT to research best management practices outside of Texas with the objective of improving designs, techniques and policies for reducing pollutant runoff from new roadways in the Houston region. Best management practices have progressed beyond those identified in the 2002 TxDOT guidance paper.

We retained a professional engineer, a hydrologist, to assist in some of the comments in the following three sections. Attachment G-5 (Report of Lawrence G. Dunbar, P.E. (July 21, 2017)). In assessing impacts on the bayous, our expert recommends that TxDOT evaluate the impact of pollutants, sediment and trash expected to be generated from the proposed project on the adjacent bayous. As stated in his letter report, the hydrologist states that an evaluation of the impact of pollutants, sediment and trash expected to be generated from the proposed project on

the adjacent bayous should be conducted, and appropriate mitigation measures incorporated into the designs of the various alternatives for comparison purposes. Attachment G-5 at 3.

The preferred alternatives and the other alternatives all increase the area of highway and the number of crossings of Houston's bayous. Many of the proposed highways also cross Houston's important Greenway Bayou trail system. We therefore request that TxDOT exceed its current 2002 policies, and design and construct this I-45 project to best protect the water resources and quality of Houston's bayous and parks.

H. STORMWATER AND FLOODPLAINS

1. As with other aspects of the DEIS, here too with drainage TxDOT has improperly delayed analysis until the FEIS.

The DEIS states that "a detailed hydrologic and hydraulic study would be performed for the proposed project during the design phase to determine the appropriate locations and size of bridges, culverts, or other drainage structures that would be required." DEIS at 3-62. However, this deferral does not allow the public an opportunity to review or comment on these structures nor on the study itself. Furthermore, without such a study being done as part of the DEIS, a fair comparison of the various alternative and their costs cannot be made.

2. In rebuilding I-45, TxDOT should mitigate for the stormwater impacts of the entire project, as Greens, Halls, Little White Oak, White Oak, and Buffalo Bayous do not have extra capacity for increased runoff, and the original footprint of I-45 was not mitigated for stormwater impacts.

The Bayou Preservation Association (BPA) has submitted important comments to TxDOT on this issue and we wish to reiterate them here. Attachment H-1 (BPA Comments on NHHIP (Dec. 1, 2011)).

As described in the BPA letter, TxDOT has adopted a practice of only mitigating for increases in impervious surfaces, effectively grandfathering any changes to existing surfaces. This practice ignores the cumulative impact of highway projects from decades past that did not take into account stormwater impacts, and impacts to floodplains. We wish to reiterate BPA's comment that TxDOT, as an agency charged with public safety, should design and construct stormwater facilities that take into account the entire project area when undertaking a significant highway reconstruction project. This is within TxDOT's engineering capabilities and is the right thing to do for the Houston community.

3. The DEIS needs to integrate Executive Orders 13690 and 11988 related to floodplains into the drainage analysis.

As explained by Executive Order 13690, Executive Order 11988 of May 24, 1977 (Floodplain Management), requires "executive departments and agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a

practicable alternative.” See Attachment G-5 at 3. Executive Order 13690 expanded upon this directive.

As raised by our hydrologist, the projected increase in rainfall rates for a 100-year storm event due to climate change should be incorporated into the hydrologic analyses presented in the TxDOT drainage study. The projected increase in rainfall rates should be incorporated into the design analyses of detention ponds needed for this project. Further, TxDOT needs to consider how the executive orders impact the level to be set for the mainlanes to be protected against flooding from the various bayou floodplains. See Attachment G-5 at 3.

4. With regard to bayou floodplain, HCFCD’s “No Adverse Impact” policy was ignored.

In Section C.7.2 “Preliminary Conveyance Impact Analysis”, the assessment of potential impacts was done only “in locations where future improvements impinge on the regulatory floodway.” DEIS at § C.7.2. However, as our hydrologist observed, the regulatory floodway incorporates an assumed condition of some filling/obstruction within the floodplain that may not currently exist. See Attachment G-5 at 3. This conveyance analysis therefore does not reflect any impacts that would occur outside of the regulatory floodway but within the flow effective boundaries of the bayou’s floodplain. *Id.* This would be contrary to HCFCD’s No Adverse Impact policy. *Id.*

5. Project impacts should be evaluated for expected floodplain conditions due to the expected increase in heavy rainfall rates due to climate change; extreme events studied by TxDOT should include the 500 year event (at a minimum).

The DEIS states “the [drainage] study would also confirm that the project would not adversely impact existing floodplain conditions within the vicinity of the project for extreme events (i.e. storm events in excess of a 100-year storm event).” DEIS at 3-62. According to our expert, however, project impacts should be evaluated for not only existing floodplain conditions but also future expected floodplain conditions due to the expected increase in heavy rainfall rates due to climate change, as discussed below in Section I. Attachment G-5 at 3.

TxDOT does not make clear how large of an event in excess of a 100-year storm event will be evaluated as an “extreme event” (e.g. 101-year event, 200-year, 500-year, or 1,000-year). Consulting with our expert, we recommend that the extreme event should at least include the 500-year event, in part because FEMA floodplain maps include the 500-year floodplain. *Id.*

I. CLIMATE CHANGE

- 1. While the DEIS discusses hurricanes as a byproduct of climate change, the DEIS omits and generally ignores extreme rainfall, which Houston already is experiencing, and climate change is expected to worsen these effects. TxDOT should ensure that the project design considers increased intensity and frequency of rainfall and must appropriately develop infrastructure and drainage management.**

The DEIS states the following: “Climate change is expected to alter future weather patterns, including precipitation. Extreme weather events (hurricanes, tropical storms) are generally expected to increase in intensity with a warming climate.” DEIS at 4-6. Specifically, it is mentioned that “one consistent indication from climate change models is an increase in hurricane rainfall rates predicted with increasing average temperatures.” *Id.* at 4-7. The DEIS further states that “The changes to precipitation currently predicted can be used to describe climate change’s impact on flood risk to the alternatives...” *Id.* at 4-6.

Many in the scientific community adhere to the proposition that among the effects of climate change is the increase of extreme weather events—such as more intense and more frequent extreme precipitation events. *See* Attachment I-1 (National Academies of Sciences, *Attribution of Extreme Weather Events in the Context of Climate Change* (2016)).¹⁷ We appreciate that TxDOT includes a section on climate change, DEIS 4-1 *et seq.* But TxDOT has not adequately incorporated the implication that for the Houston area, there will be more intense and more frequent extreme precipitation events—not just during hurricanes—which will effect floodplain and drainage management and related highway design.

As our expert observed, the DEIS does not mention that extreme precipitation events, not necessarily associated with hurricanes, will have increased intensities with a warming climate and that such would be expected to result in increased stormwater runoff and increased flooding/floodplains. Attachment G-5 at 1. All this needs to be disclosed and addressed in the DEIS.

Instead the DEIS focuses on changes in “annual heavy precipitation days” and “the average number of days per year receiving more than 1 inch of precipitation. DEIS at 4-6. As such, the DEIS concludes in its summary table 4-1 that “No impact expected due to non-tropical storm rainfall given predicted small increase in annual heavy precipitation days.” *Id.* at 4-13. However, it should be acknowledged in the DEIS that impacts are expected due to non-tropical storm rainfall given the expected increase in precipitation intensities in the future due to climate change.

The DEIS table goes on to state “Potential impact from hurricane rains that **could** be more intense when making landfall”; however, this is inconsistent with the above referenced statement from the DEIS that hurricane rains are predicted to be more intense. Thus, according to our expert, the DEIS should state that this impact from hurricane rains “**would** be expected to be” more intense when making landfall. Attachment G-5 at 2.

¹⁷ The report is available online, <https://www.nap.edu/catalog/21852/attribution-of-extreme-weather-events-in-the-context-of-climate-change>.

Of note, the DEIS states that “one purpose of the project is to eliminate areas of flooding in the I-45 mainlanes.” DEIS at 4-7. Thus, as our expert explains, it is imperative that the flood analyses incorporate the expected increase in flooding in and around I-45 due to the expected increase in extreme rainfall rates/intensity due to climate change. *See* Attachment G-5 at 2. It is disingenuous to acknowledge that “greater rainfall is predicted in individual storms” without also acknowledging that this would also be expected to cause increased flooding, rather than always stating that it “could” cause increased flooding. *Id.* at 2.

For all these reasons, we take issue with this statement: “The projected indicators of future heavy precipitation, along with the proposed design of the Build Alternatives, **does not indicate that climate change would significantly impact current/future flooding risk associated** with the existing roadway (No Build) or proposed Built Alternatives.” DEIS at 4-8 (emphasis added). To the contrary, climate change in the form of increased intensity and frequency of precipitation will absolutely impact the No Build and Build Alternatives.

2. Given climate change, TxDOT needs to be thinking in terms of transportation resiliency.


There are many studies emerging now on preparing transportation and transportation projects for the future in light of climate change and extreme weather events. For example, the National Cooperative Highway Research Program has published a report on *Response to Extreme Weather Impacts on Transportation Systems* (2014).¹⁸ *See* excerpts in Attachment I-2. The report includes several case studies from different states on extreme precipitation (including ones on flooding, and a case study from Texas on drought), with lessons learned from each. Attachment I-3.

Another study on *Transportation System Resilience, Extreme Weather and Climate Change* counsels very specifically: “The long-term solution to transportation system resiliency is not just about cleaning up after events and repairing the infrastructure, but **planning for and designing infrastructure with the current and future climate in mind.**” *See* Attachment I-4.

It is absolutely essential that extreme precipitation is a part of the analysis of a large-scale transportation project in the Houston area. Any rebuilding of I-45 presents a unique opportunity to plan for the future, and to build a project that will be resilient to the future conditions. We strongly recommend that this analysis become a part of the North Houston Highway Improvement Project.

Sincerely,

Irvine & Conner, PLLC

by 

Charles W. Irvine

¹⁸ This report is available online at <https://www.nap.edu/read/22376/chapter/1>.