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**Mission  
Statement**

*"Provide safe, clean, reliable, accessible and friendly public transportation services to our region."*

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Thomas C.  
Lambert



December 8, 2020

Ms. Eliza Paul, P.E.  
District Engineer  
Texas Department of Transportation  
Houston District  
P.O. Box 1386  
Houston, Texas 77251-1386

RE: North Houston Highway Improvement Project (NHHIP)  
Final Environmental Impact Statement (FEIS) Review

Dear Ms. Paul:

The Metropolitan Transit Authority of Harris County (METRO), as a Cooperating Agency in the environmental process, appreciates the opportunity to review the *North Houston Highway Improvement Project (NHHIP) Final Environmental Impact Statement (FEIS)*. This is a generational undertaking that will alter mobility and transportation in the Houston region for the foreseeable future. Therefore, METRO believes it is imperative that this project improve current and future transit operations within the Houston region. It is also imperative that this project integrate the voter approved METRONext Plan. The project itself should use transit as mitigation to address the long construction phases that have been proposed and position transit as a long-term capacity solution.

In reviewing the FEIS, METRO finds that most of its comments have not been adequately addressed and that the FEIS is deficient in specific design changes and mitigation commitments requested by METRO. This is particularly troubling in light of the fact that METRO has the special standing of a Cooperating Agency in this environmental process, and under normal practices, TxDOT as the lead agency, should be particularly diligent in assuring that the comments and concerns of the Cooperating Agency are fully addressed.

The project as proposed will severely impact METRO's facilities, operations, our riders and travel times for many others. Keep in mind, about one-third of downtown Houston employees rely on METRO to get to and from work. Whether they use local or commuter buses, transit services for these employees and others would be diminished, yet our operating costs would go up.

It's not just downtown employees who will have their service and travel times impacted. METRO carries over one-quarter of the employees into the

Texas Medical Center, so NHHIP project impacts at the Wheeler Transit Center would diminish service along the METRORail Redline.

METRO expects and insists that its services and facilities are kept whole or improved as part of this project. We do acknowledge TxDOT's commitment to continued coordination that will occur throughout the project, especially regarding METRORail impacts and bus service adjustments. We also acknowledge there may be benefits to our Regional Express on IH-45 North, but this does not outweigh the seriousness of the impacts that will result.

After a thorough review of the FEIS and the responses to our comments, we have identified the following overarching concerns. METRO asks that the following issues be addressed in both design and mitigation commitments in the Record of Decision, as well as including a summary of how all of the comments received on the FEIS are addressed.

#### Operating Costs

- Based on information included in the FEIS, METRO will incur significant increased operating costs annually during construction of this project, as well as in the long-term. METRO identified these impacts in response to the DEIS. TxDOT must commit to managing these impacts through design changes, improved construction methods, or negotiating a cost reimbursement with METRO.

#### Downtown Access

- METRO extensively uses access ramps into Downtown to provide efficient service; Polk Street on the east end, Pierce/St. Joseph Parkway ramps on the southwest, and the Louisiana Street northbound access to the IH-45 HOV lane. These connections have been eliminated in the NHHIP design. TxDOT has declined to modify the existing plans to preserve these access points per our request stating design constraints. The FEIS must include commitments to mitigate the service impacts METRO will incur from route deviations caused by the changes. The FEIS does not address this issue.
- The Louisiana Street access to the IH-45 HOV lane is a Federal Transit Administration (FTA) funded project (transit streets and ramps). As proposed, this facility is removed, and transit will be consolidated on Travis/Milam. We are concerned about the operational impacts that are not disclosed in the document and METRO will need to be made whole to meet the terms of the FTA funded ramp connection, as well as implement the voter approved METRONext projects.

#### MaX Lane Access and Operation

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- The FEIS does not define how the proposed Managed Lanes on IH-45 will operate. The FEIS states that managing the operations will be determined during final design and coordinated with METRO. Since the MaX lanes will not be tolled, the FEIS should identify a range of methods to manage the capacity and operating speed of the MaX lanes and commit to minimum acceptable thresholds for traffic and transit speeds.
- METRO recommends that TxDOT commit to dedicated transit operations within the Max Lanes or another traffic management solution. This would assure reliable travel times for METRO's Regional Express Bus service in the absence of tolling or other mechanisms for managing MaX lane operations. Dedicated lanes would support voter approved METRONext projects, such as Bus Rapid Transit (BRT) to Bush Intercontinental Airport (IAH) and improved Regional Express service.
- METRONext proposes using the proposed MaX lanes for the IH-45 BRT to IAH. METRO asks that TxDOT work with METRO to include accommodations for the design and construction of a future BRT stop inside IH-610, as well as potential modifications at other key points in the corridor, such as North Shepherd Drive, SH-249 and Greenspoint.
- A re-evaluation of portions of the project are being proposed by numerous stakeholders, including the City of Houston and Harris County. METRO should be included in all aspects of any change to the proposed concept. TxDOT should work with all parties in the development of a cross section that could include a high-capacity transit envelope and infrastructure that will accommodate a range of options from Regional Express Bus to BRT to future autonomous/connected vehicle technologies. This is especially important with tolling being removed from the project.

#### Katy CBD Ramp

- The removal of the Katy-CBD bus ramp impacts METRO operations by forcing commuter buses into mixed traffic to enter Downtown. In response to this concern, TxDOT states that a dedicated bus/HOV lane has been added to the IH-10 Express Lanes with direct access to Smith and Louisiana Streets to replace the existing connector. More clarification is needed regarding the design of the IH-10 Express Lanes (Managed Lanes) and how they will interface with the pending Inner Katy HOV/BRT lanes.
- Removal of the Katy CBD ramp severely impacts METRO's ability to construct and operate the Inner Katy BRT project as approved by voters in METRONext and in the grant approved by the Transportation Policy Council at the Houston-Galveston Area Council. This impact must be acknowledged and resolved by TxDOT.

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The removal will add significant capital costs to the Inner Katy BRT Project.

- The Katy CBD ramp is a federally funded facility and its demolition may require repayment of funds to FTA. TxDOT needs to acknowledge this and commit to addressing this issue.
- The MaX lane operations on the proposed Katy Express Lanes need to be defined prior to letting the Design-Build contract. Supplementing access and mobility during construction will be undefined and potentially unreliable without a clear expectation of the function and connectivity of these facilities.
- Historically, when TxDOT project design issues have affected another agency's service operations like METRO, TxDOT commits to resolving those design issues to their mutual benefit. METRO has worked with TxDOT in several aspects of this project and can be a valuable resource to help mitigate the construction impacts by providing mass transit during peak periods.
- Should removal of the Katy-CBD ramp go forward, TxDOT must commit to keeping the ramp in service during construction until an interim ramp or lane with similar or better operations is provided or until the connection to the IH-10 Express Lanes is completed.

#### Wheeler Station/Transit Center Impacts

- The FEIS acknowledges that, "A portion of the Wheeler Transit Center property is located within the proposed right-of-way of the Preferred Alternative. However, access to the transit center and rail services provided at the transit center would not be permanently impacted, as US 59/I-69 would be depressed in that area, and the rail lines would be located above the freeway at ground level. (pg. 3-25, lines 22-25)". While METRO has been coordinating with TxDOT on the design and construction phasing of the Red Line and the Wheeler Station, there is no acknowledgment of the magnitude of impact to the transit center. The entire transit center, including rail platforms, tracks and systems, and bus bays will need to be redesigned and reconstructed. The FEIS must include a commitment to accommodating, funding, and resolving these impacts both during construction and the final condition.
- The FEIS does not address operating impacts to the Red Line and bus routes at the Wheeler Transit Center during construction of the underpass. Design and construction phasing coordination with METRO needs to continue, in order to limit the need for expensive bus bridges at this location, thereby reducing additional construction impacts. The Red Line ridership and the transfers that occur at this location are some of the highest in the system. The impacts to the travel times of these passengers are not addressed.

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- A Traffic Impact Analysis (TIA) has been requested to determine the implications of closing Wheeler Transit Center driveway and Blodgett Street. TxDOT's response was that METRO has contracted a TIA. METRO has not contracted a TIA and reiterates that TxDOT conduct one to assess the impacts to the transit center.
- METRO has been working with TxDOT's designers in the design and construction phasing to minimize the interruption of METRORail operations on the Red and Green/Purple Lines. Similar to impacts described for the Redline above, the FEIS does not commit TxDOT to restoring METRO's services and facilities or reimbursing METRO the additional operating costs incurred when the affected METRORail lines are out of commission. Both the Red and Purple lines are Federally funded. Nor does the FEIS identify how the reconstruction of these facilities will be funded. These commitments should be defined prior to letting any Design-Bid-Build or Design-Build contracts.

A detailed assessment of each of the responses to METRO's DEIS comments is included in the attached matrices: one for the FEIS Volume I and one for the schematic drawings. METRO also noticed that the schematic drawings were dated December 2019 and needs to be kept apprised as the drawings are updated.

Our continued collaboration on the NHHIP is necessary to achieve a satisfactory resolution to the outstanding issues identified. Our partnership is vital to ensure that the project provides a variety of safe and reliable travel options for the greater Houston region. Feel free to contact me at 713-615-6409 with any questions you may have.

Sincerely,



Thomas C. Lambert  
President & Chief Executive Officer

Attachments:

- METRO Comments to the FEIS Volume 1
- METRO Comments to the FEIS Drawings

cc: METRO Board of Directors

METRO DEIS Comment	TxDOT FEIS Response	Remarks Assessment
<p><i>Letter Comment 1</i> The short-term impacts of the construction on transit operations, as well as the long-term impacts of the proposed project need to be addressed more fully in the FEIS. The effects of the NHHIP project on bus stops, bus routes, deadhead trips, layover space, and MaX lane access, as well as HOV/HOT lane access to other corridors should be specified and proposed mitigation measures identified, as appropriate. Operational costs to the agency have not been documented.</p>	<p><b>Short- and Long-Term Impacts:</b> From our ongoing coordination over the years, we understand NHHIP offers many benefits to your overall system. As with any project of this magnitude, there will be short- and long-term impacts that we need to work through together. Based on our meetings in 2019, we understand that you have consultants studying and documenting these connectivity and operational impacts. We will continue to work closely with you and your consultants to incorporate adjustments to the schematic needed to maintain operations during construction of both the Design-Build (DB) and Design-Bid-Build (DBB) sections of Segment 3.</p>	<p>Could not identify additional details regarding short- and long-term impacts that were not already mentioned in the DEIS.</p> <p><b>Action</b> METRO expects the project to lower METRO's operating costs TxDOT needs to commit to working with METRO to mitigate overall operating impacts for all segments through design changes or cost reimbursement</p>
<p><i>Letter Comment 2</i> The proposed improvements alter access into and out of Downtown for autos, buses, and pedestrians. Changes to downtown access and its effects on METRO operations and access to our facilities should be more fully detailed. METRO has numerous local and commuter routes that are directly and indirectly affected by changes in access.</p> <p>METRO encourages as much connectivity as possible across the reconfigured IH 45 and IH 69/US 59 facility, especially along Polk Street, which is currently the only through street under IH 45 between Rusk Street to the north and the Leeland/Bell Street pair to the south. Deviation impacts created by these changes are not documented.</p> <p>The elimination of the Pierce Street and St. Joseph Parkway connections to/from IH 45 will make access to the Downtown Transit Center more complex and increase operating costs. METRO would like for TxDOT to further explore connections to Pierce/St. Joseph operating pairs and a new connection at Memorial/Rusk/Capitol for future Bus Rapid Transit connections to our Green and Purple lines.</p>	<p><b>Access to/from Downtown:</b> Improving access to/from Downtown was one of the alternatives screening criteria. We appreciate the coordination with you, the City of Houston, and other local entities to optimize the local street network connectivity in Segment 3, including the cross streets between Downtown and points to the east. One of the most beneficial improvements included in the project is the restoration of a continuous southbound street parallel to the highway between Commerce and Leeland Street. This restored street (noted as Hamilton in the schematic) would reestablish connectivity of four (4) east/west streets that were severed when the GRB Convention Center was constructed (Dallas, Lamar, McKinney, and Walker) and improve access between Downtown and areas to the east (East End and Third Ward). It would also support local street capacity during sporting or convention center events.</p> <p><b>Polk Street:</b> We understand that Polk Street is an important access point between Downtown and points east and thus carefully studied how to maintain a direct crossing over the new I-45/I-69 NHHIP improvements. Through a series of workshops (charettes) in 2015, the participants jointly developed and agreed on options to maintain/improve access across NHHIP while maintaining the congestion and safety improvements of the improvements. What was agreed was that Polk Street could not be maintained across NHHIP due to vertical separation requirements between I-45/I-69 and Polk Street. With the proposed NHHIP, drivers using Polk from East Downtown will be routed to the Lamar Street crossing which will be improved to provide a seamless connection to the restored Hamilton Street which in turn connects to Polk Street. We also coordinated with the City of Houston to reroute the Polk Street dedicated bike lane to be parallel to the restored Hamilton Street and would connect to the Columbia Tap Rail-Trail via Walker Street.</p> <p><b>Pierce/St. Joseph and Memorial/Rusk/Capitol:</b> As discussed in our ongoing coordination meetings, the connections to/from Pierce and St. Joseph and I-45 could not be maintained in their current configurations. We will continue to work with you, your consultant and the City of Houston to refine the connections between the proposed Downtown Connectors and Pierce/St. Joseph. The proposed Downtown Connectors will pass over Memorial/Rusk/Capitol as the Pierce Elevated does today. We are not able to add new ramp connections to these streets from the Downtown Connectors due to vertical separation and so we can maintain the existing ramp connections to Walker/McKinney and the improved connections to/from Allen Parkway.</p>	<p>TxDOT has noted in the FEIS that coordination will continue regarding all segments (1-3) of the Preferred Alternative through design and construction.</p> <p>TxDOT has responded in detail to METRO's concerns regarding connectivity/access along Polk St. and access to/from downtown, and the elimination of the Pierce Street and St. Joseph Parkway connections to IH 45 stating the design constraint prohibit including these connections and have offered a continuous SB street between Commerce &amp; Leeland to assist with circulation.</p> <p><b>Action</b> Downtown access is vital for efficient operations, especially for HOV lanes. The proposed changes add time, restrict alternatives, and contributes to congestion on Downtown streets.</p> <p>TxDOT has not satisfied METRO's downtown access needs, each of these access changes adds operating costs. TxDOT needs to commit to mitigating the increased operating impacts.</p> <p>The redesign of the Pierce/St. Joseph access also impacts Heiner Street where METRO stages it's PM P&amp;R buses. TxDOT must also commit to providing a replacement for the Heiner layover space in the same location.</p> <p>TxDOT is prepared to let the DB contract as soon as the ROD is achieved. TxDOT needs to commit to resolving current and future HOV and BRT access to Downtown in concept design, prior to letting the DB contracts.</p>
<p><i>Letter Comment 3</i> During construction, the proposed improvements may alter access for the Green and Purple light rail lines traveling eastbound along Texas Avenue and the Red line traveling northbound along North Main Street. Though METRO and TxDOT are coordinating heavily on the Red line at Wheeler, very little documentation is available for the Green and Purple operational impacts in both the short and long-term.</p>	<p><b>Operational Impacts to Green and Purple Lines:</b> We have been coordinating with your staff regarding maintaining uninterrupted operations for your Green and Purple Line across I-45/I-69 during construction. We are coordinating closely with your staff to evaluate alternatives to minimize service impacts to all three light rail lines and to incorporate these commitments into the Design-Build procurement documents.</p>	<p>Short-term impacts and mitigation measures have been addressed in the FEIS regarding LRT service interruptions. See specific responses below for guidance to pages and line features where discussion is included.</p> <p>D-B contract terms</p>
<p><i>Letter Comment 4</i> The access into and out of the Wheeler Station Transit Center needs to be preserved and enhanced, as appropriate, with the proposed improvements. Depressing IH 69/US 59 adjacent to the facility eliminates the bus lane exit onto Fannin Street and truncates Blodgett Street, which will have a significant effect on METRO's ability to optimize the use of the transit center and could limit future high capacity transit opportunities.</p>	<p><b>Wheeler Transit Center:</b> The NHHIP project provides a unique opportunity for you to expand and enhance the Wheeler Transit Center. We have been coordinating with your staff on how to best integrate the expansion and local bus circulation. We explored options to reconnect Blodgett Street over the reconstructed freeway, but were not able to do so due to limitations on the length of cap we can have due to fire, life, and safety codes. We will continue to work with you, your consultant and the City of Houston on how to best circulate your buses and the planned University Line BRT.</p>	<p>No implementation of Fannin connection or Blodgett St reconnect proposed by TxDOT due to design limitations. Effects of this not clearly addressed in FEIS. Transit center access and circulation still unresolved.</p> <p><b>Action</b> TxDOT must appropriately acknowledge the extent of impact on the Wheeler Transit Center in the FEIS. The entire transit center (including rail platforms, tracks, rail systems and bus bays) will need to be redesigned and reconstructed. Circulation in</p>

METRO DEIS Comment	TxDOT FEIS Response	Remarks Assessment
		and around the facility will also be eliminated. TxDOT must commit to funding the redesign and reconstruction of the Transit Center to mitigate these impacts.
<p><i>Comment 4 [CONT]</i> METRO is working with the City of Houston, TxDOT and others to examine opportunities that include traffic and bus operation options at the Wheeler Transit Center. METRO looks forward to further coordination with TxDOT at this location via the joint study being led by the City of Houston. METRO agrees that TxDOT should incorporate recommendations to improve overall traffic operations at Main and Wheeler as part of this project.</p>	<p>TxDOT has coordinated with METRO throughout this planning process and will continue to do so as the detailed design phase progresses. TxDOT will accommodate future plans by METRO, where feasible. TxDOT is working with METRO and the COH to coordinate Wheeler Transit Center operations.</p>	<p>General comment. TXDOT has agreed to work with METRO and COH to implement/accommodate future plans as they are able to. No specific mention of this other than TXDOT's plan for continued coordination is provided in the FEIS. Operational and facility Impacts to Wheeler Transit Center not addressed.</p>
<p><i>Letter Comment 5</i> METRO will continue to work with TxDOT and the City of Houston to explore the potential for inclusion of high capacity transit operating the NHHIP footprint. As agreed, METRO is preparing conceptual engineering to support decision making in the segment between Downtown and Beltway8.</p>	<p><b>High Capacity Transit in NHHIP Footprint:</b> The high-capacity transit per coordination with you and your consultant over the past year, we developed conceptual cost estimates for including a new light rail line (LRT) in the NHHIP footprint. As we have discussed in the 2019 meetings, including LRT in the footprint would require additional right-of-way in Segment 2 to accommodate a new elevated structure between the MaX lanes as well as reconfiguring the I-45/I-610 interchange.</p> <p>However, the 2-way, 2-lanes each direction, 24/7 service MaX lanes will serve as high capacity transit lanes and are included in your METRONext plan. We are excited that the MaX Lanes will compliment your existing Red Line and provide the opportunity for expansion of transit as a modal choice for the region. We will continue to coordinate with you on this during design and construction.</p>	<p>Continued coordination is necessary to make sure METRO's future plans are implemented wherever feasible and that the NHHIP incorporates such plans into their design as best as possible. However, will not design to accommodate LRT in the future stating the MaX lanes are consistent with METRONext plans.</p> <p><b>Action</b> TxDOT must clarify how the MaxLanes will be Operated In lieu of specifics on MaX lane management, METRO proposes TxDOT commit to dedicated transit operations within the Max Lanes or another traffic management solution. TxDOT must commit to designing and potentially constructing accommodations for the IH-45 BRT (including stations) as part of NHHIP. This includes ramp accommodations identified in METRONext: Cavalcade, SH 249, and Greenspoint.</p>
<p><i>Letter Comment 6</i> The NHHIP has the potential to affect METRO's transit operations and we want to work closely with TxDOT staff to minimize disruptions to our operations, both during and after construction, and to accommodate any future high- capacity transit in the corridor.</p> <p>METRO appreciates the opportunity it has been afforded as a Cooperating Agency to provide comments on the schematic drawings in early project development. We look forward to continuing our partnership in developing the NHHIP project and ask that we be included in the 30 percent, 60 percent, and 90 percent design reviews to ensure that both agencies are fully informed of the project refinements and impacts as the project progresses. In addition, METRO would also like to participate in the development of construction staging plans to better ensure minimized disruption of light rail, bus and HOV service as construction advances.</p>	<p><b>Coordination during Design and Construction:</b> As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p>No remarks or actions determined for this comment.</p>
<p>ADDITIONAL COMMENTS PROVIDED AS ATTACHMENT TO LETTER</p>	<p>Responses to your comments in the Attachment to your letter are below. Please note that many of your specific comments cannot be answered with details at this time. We will continue to work with you and your consultant(s) as you assess the operational modifications needed as we develop the FEIS, the Design-Build procurement documents, and during construction.</p>	<p>Commitment to continued coordination.</p>

METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
<p><u>Page:</u> General <u>Text:</u> References regarding impacts to bus routes and facilities</p> <p><u>METRO comment:</u> DEIS should describe short-term construction and long-term impacts to affected routes and stops in greater detail.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer’s plans and activities.</p>	<p><u>Page:</u> 3-24 <u>Line/Feature:</u> 29 through 36</p> <p><u>Remarks:</u> While TXDOT’s revisions do not constitute a direct response to METRO’s comments regarding a need to state short and long-term construction impacts, METRO’s recommended mitigation measures such as coordination has been included (see Table ES-2, page ES-20 and page 3-25/3-26 starting at line 28).</p>
<p><u>Page:</u> ES 15 <u>Line/Feature:</u> Table ES 1 <u>Text:</u> Transportation Facilities: Displacement of bus stops but no permanent effect to routes.</p> <p><u>METRO comment:</u> Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer’s plans and activities.</p>	<p><u>Page:</u> ES 12 <u>Line/Feature:</u> Table ES 2</p> <p><u>Remarks:</u> While TXDOT’s revisions do not constitute a direct response to METRO’s comments regarding a need to state short and long-term construction impacts in more detail, METRO’s recommended mitigation measures such as coordination has been included (see Table ES-2, page ES-20 and page 3-25/3-26 starting at line 28).</p> <p><b>Action</b> Revise to state that short-term construction impacts are anticipated and that displacement of bus stop could affect transit dependent populations.</p>
<p><u>Page:</u> ES 15 <u>Line/Feature:</u> Table ES 2 <u>Text:</u> Transportation Facilities: Displacement of bus stops but no permanent effect to routes.</p> <p><u>METRO comment:</u> Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer’s plans and activities.</p>	<p><u>Page:</u> ES 20 <u>Line/Feature:</u> Table ES 2</p> <p><u>Remarks:</u> While TXDOT’s revisions do not constitute a direct response to METRO’s comments regarding a need to state short and long-term construction impacts in more detail, METRO’s recommended mitigation measures such as coordination has been included (see page 3-25/3-26 starting at line 28).</p> <p><b>Action</b> Revise to state that short-term construction impacts are anticipated and that displacement of bus stop could affect transit dependent populations.</p>
<p><u>Page:</u> ES 15 <u>Line/Feature:</u> Table ES 3 <u>Text:</u> Transportation Facilities: Displacement of bus stops but no permanent effect to routes. Portion of Wheeler Transit Center in proposed ROW - access not impacted.</p> <p><u>METRO comment:</u> Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS.</p> <p>Reconstruction of IH 69/US 59 is anticipated to adversely impact METRO services at the Wheeler Transit Center. Design shown no egress from Wheeler Transit Center onto Fannin Street as currently exists. Frequent coordination with METRO is required throughout the final design process.</p> <p>A joint examination of the Wheeler Transit Center is underway by the City of Houston, TxDOT, and METRO. Detailed comments will be forthcoming regarding the permanent impacts to the Wheeler Transit Center.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p> <p>To offset temporary construction impacts associated with the Wheeler TC, transit operations must remain open and operational along Main Street, Blodgett Street, Fannin Street, and Wheeler Avenue. The Wheeler TC exit at Fannin Street must remain open and operational during construction.</p>	<p>TxDOT has been and will continue to coordinate with METRO during design and construction to minimize impacts to existing transit operations.</p> <p>The NHHIP project provides a unique opportunity for you to expand and enhance the Wheeler Transit Center. We have been coordinating with your staff on how to best integrate the expansion and local bus circulation. We explored options to reconnect Blodgett Street over the reconstructed freeway, but were not able to do so due to limitations on the length of cap we can have due to fire, life, and safety codes. We will continue to work with you, your consultant and the City of Houston on how to best circulate your buses and the planned University Line BRT.</p>	<p><u>Page:</u> ES 12 <u>Line/Feature:</u> Table ES 2</p> <p><u>Remarks:</u> While TXDOT’s revisions do not constitute a direct response to METRO’s comments regarding a need to state short and long-term construction impacts in more detail, METRO’s recommended mitigation measures such as coordination has been included (see Table ES-2, page ES-20 and page 3-25/3-26 starting at line 28). Wheeler Transit Center “No Impacts” has been removed and replaced with “Wheeler Transit Center access is being coordinated with TXDOT.”</p> <p>No mention of transit operations remaining open and operational along Main Street, Blodgett Street, Fannin Street, and Wheeler Avenue; or the Wheeler TC exit at Fannin Street.</p> <p><b>Action</b> TxDOT must appropriately acknowledge the extent of impact on the Wheeler Transit Center in the FEIS. The entire transit center (including rail platforms, tracks, rail systems and bus bays) will need to be redesigned and reconstructed. TxDOT must commit to funding the redesign and reconstruction of the Transit Center to mitigate these impacts.</p>



METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
<p>Provide Traffic Impact Analysis (TIA) to address modified circulation at Main and Wheeler and bus access around the Transit Center.</p>	<p>Based on our meetings with METRO, we understand you have a consultant preparing a TIA. TxDOT is awaiting the results of your TIA from your consultant to better understand operational impacts.</p>	<p>No discussion of TIA to address modified circulation at Main and Wheeler and bus access around the Transit Center.</p> <p><b>Correction required – METRO has not contracted for a TIA at Wheeler Station. This study must be funded by TxDOT.</b></p>
<p><u>Page:</u> 2-13 <u>Text:</u> Potential to be a "Signature Project"</p> <p><u>METRO comment:</u> METRO requests additional information. What distinguishes a Signature Project between alternatives? Define "signature project."</p> <p><u>Possible mitigation measures:</u></p>	<p>In the evaluation of alternatives, TxDOT considered the opportunity to implement "signature" bridges to signify and distinguish various neighborhoods and districts within the study corridor, while improving the visual qualities of the project. This explanation has been added to the Final EIS.</p>	<p><u>Page:</u> 2-19 <u>Line/Feature:</u> 9 through 11</p> <p><u>Remarks:</u> TXDOT expands on "Signature Project" criteria by noting that "[t]here is an opportunity to implement "signature" bridges to signify and distinguish various neighborhoods and districts within the study corridor, while improving the visual qualities of the project." Understood to represent the idea that the preferred alternative can potentially have "signature" components.</p>
<p><u>Page:</u> 2-13 <u>Line/Feature:</u> 8 <u>Text:</u> Managed lane utilization</p> <p><u>METRO comment:</u> METRO requests clarification. What affects utilization? Access? Number of lanes? Not clear in description.</p> <p><u>Possible mitigation measures:</u> Clarify term.</p>	<p>Utilization of managed lanes can be influenced by access points, origin/destination of user, and demand on general purpose lanes. Analysis was based on H-GAC's 2040 regional travel demand model.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> TXDOT provided clarification in comment response but did not incorporate this clarification in to the FEIS language.</p> <p><b>Action</b> TxDOT must clarify how the MaxLanes will be Operated In lieu of specifics on MaX lane management TxDOT must commit to dedicated transit operations within the Max Lanes or another traffic management solution to allow implementation of IH-45 to IAH BRT</p>
<p><u>Page:</u> 3-6 <u>Line/Feature:</u> 10 <u>Text:</u> Use of 2009-2013 ACS data</p> <p><u>METRO comment:</u> Older data may be obsolete.</p> <p><u>Possible mitigation measures:</u> FEIS should be revised to use the Census Bureau's 2011 - 2015 American Community Survey (ACS) data. Use the latest available version of the ACS data at the time of FEIS publication. For example, use the 2012- 2016 ACS data if it is available at publication.</p>	<p>More recent ACS data is used in the Final EIS.</p>	<p><u>Page:</u> 3-6 <u>Line/Feature:</u> 11 through 14</p> <p><u>Remarks:</u> TXDOT comment response does not reflect data used in FEIS. 2009-2013 ACS data used in FEIS without indications if 2012-2016 ACS data was available or not.</p>
<p><u>Page:</u> 3-11 <u>Line/Feature:</u> Table 3-2 <u>Text:</u> Displacement of bus stops but no permanent effect to routes.</p> <p><u>METRO comment:</u> Revise to state short-term permanent effect to routes. construction and long-term impacts are anticipated and that minimization and mitigation for the construction impacts will be committed to in the FEIS.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-12 <u>Line/Feature:</u> Table 3-1</p> <p><u>Remarks:</u> TXDOT does not revise text to reflect METRO comments. In see Table ES-2, page ES-20, TXDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 28).</p> <p><b>Action</b> Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS as requested in DEIS Comments</p>
<p><u>Page:</u> 3-13 <u>Line/Feature:</u> Table 3-3 <u>Text:</u> Displacement of bus stops but no permanent effect to routes.</p> <p><u>METRO comment:</u> Revise to state short-term permanent effect to routes. construction and long-term impacts are anticipated and that minimization and mitigation for the construction impacts will be committed to in the FEIS.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-12 <u>Line/Feature:</u> Table 3-1</p> <p><u>Remarks:</u> TXDOT does not revise text to reflect METRO comments. In see Table ES-2, page ES-20, TXDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 28).</p> <p><b>Action:</b> Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS as requested in DEIS Comments</p>

METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
<p><u>Page:</u> 3-14 <u>Line/Feature:</u> Table 3-4 <u>Text:</u> Displacement of bus stops but no permanent effect to routes.</p> <p><u>METRO comment:</u> Revise to state short-term permanent effect to routes. construction and long-term impacts are anticipated and that minimization and mitigation for the construction impacts will be committed to in the FEIS.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-12 <u>Line/Feature:</u> Table 3-1</p> <p><u>Remarks:</u> TxDOT does not revise text to reflect METRO comments. In see Table ES-2, page ES-20, TxDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 28).</p> <p><b>Action</b> Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS as requested in DEIS Comments</p>
<p><u>Page:</u> 3-26 <u>Line/Feature:</u> 1 <u>Text:</u> Video enforcement</p> <p><u>METRO comment:</u> MaX lanes should to maintain a minimum of 45 mph during peak hours. How will the MaX lanes be operated to manage lane volume and speed?</p> <p>What will be the tolling methodology? What enforcement standard will be provided? Will there be locations in the MaX lanes with space for MPD to monitor HOV traffic?</p> <p><u>Possible mitigation measures:</u> Clarify method of traffic management, monitoring and enforcement.</p>	<p>MaX lane operations, including methods to control minimum speeds, will be determined during detailed design and will be coordinated with METRO.</p> <p>After the publication of the Draft EIS and the Public Hearing process, the decision was made not to toll the MaX Lanes.</p> <p>There will a full width shoulder adjacent to the Max lanes throughout the project area to allow for incident management and enforcement.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> TxDOT does not revise text to reflect METRO comments or mitigation measures. TxDOT does note addition of full-width shoulders (Page 1-19, line 5 and 12) but does not specify that these were included for incident management and enforcement. TxDOT does mention the desire to continue design coordination.</p> <p><b>Action</b> TxDOT must clarify how the MaxLanes will be Operated TxDOT must commit to reliable travel speeds within the MaxLanes and clarify this intent by specifying a minimum travel speed for peak hours to which the MaxLanes will be designed and managed. In lieu of specifics on MaX lane management TxDOT must commit to dedicated transit operations within the Max Lanes or another traffic management solution to allow implementation of IH-45 to IAH BRT</p>
<p><u>Page:</u> 3-26 <u>Line/Feature:</u> 24 <u>Text:</u> Text should read - "during designated peak travel periods"</p> <p><u>METRO comment:</u> What will be the tolling methodology? What enforcement standard will be provided? Will there be locations in the MaX lanes with space for MPD to monitor HOV traffic?</p> <p><u>Possible mitigation measures:</u> Revise text</p>	<p>Comment noted.</p> <p>After the publication of the Draft EIS and the Public Hearing process, the decision was made not to toll the MaX Lanes.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> Language removed from FEIS</p>
<p><u>Page:</u> 3-36 <u>Line/Feature:</u> 34/35 <u>Text:</u> 73 miles of LRT by 2015</p> <p><u>METRO comment:</u> May want to eliminate this statement altogether.</p> <p><u>Possible mitigation measures:</u> Remove text</p>	<p>This statement has been removed in the Final EIS.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> removal from FEIS confirmed</p>
<p><u>Page:</u> 3-37 - 3-38 <u>Line/Feature:</u> Sec. 3.4.2 <u>Text:</u> Impacts of the Build Alternatives</p> <p><u>METRO comment:</u> Describe proposed modifications to transit access and operations on the Max lanes and differences between the existing HOV/HOT network.</p> <p>See comments on schematic drawings included in the DEIS. BNSF was inadvertently omitted from the DEIS.</p> <p><u>Possible mitigation measures:</u> Specify which access points are anticipated to be removed and both the new and revised access points.</p>	<p>TxDOT has tried to design the proposed MaX lanes with the same access as the existing HOV/HOT lanes; however, there are three locations where access was revised:</p> <ol style="list-style-type: none"> <li>1. Airline/Crosstimbers T-ramp- TxDOT notes METRO's support for a wishbone ramp design at Crosstimbers Street. TxDOT evaluated whether the existing T-ramp could be maintained in conjunction with the wishbone design, but found that the T- ramp could not be accommodated.</li> <li>2. Downtown connector to Heiner (from I-10)- As noted in our response to your comment letter (dated June 2, 2015) about removing the Downtown HOV Connector, a dedicated bus/HOV lane has been added to the I-10 express lanes with direct access to Smith St. and Louisiana St. to replace the existing connector.</li> <li>3. Louisiana - The existing HOV/HOT access points from Louisiana and Travis St. have been combined into a two-lane access point from Travis St. The reconfiguration of I-10 would not allow for the existing HOV ramp off of Louisiana St. to be maintained.</li> </ol> <p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate</p>	<p><u>Page:</u> 3-26 <u>Line/Feature:</u> 18 through 20</p> <p><u>Remarks:</u></p> <ul style="list-style-type: none"> <li>• Revised access #1, or consultation with METRO on proposed revised access, is not discussed in FEIS.</li> <li>• Revised access #2 is included in the FEIS (page 3-26, lines 18-20)</li> <li>• Revised access #3 is included in the FEIS (page 3-26, lines 18-20)</li> </ul> <p>TxDOT includes METRO's recommended mitigation measures such as coordination (see page 3-25/3-26 starting at line 28).</p> <p><b>Action</b> METRO has two points of access to the FTA-funded I-45 HOV lane: Smith/Louisiana and Milam/Travis Streets. Reducing HOV access to just Milam and Travis forces all HOV traffic from Smith and Louisiana to Milam and Travis increasing congestion on Milam and Travis. Also, two points of access into downtown enhances safety in the event of incidents</p>

METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
	<p>final configuration.</p> <p>BNSF was added to list of railroads</p>	<p>blocking access.</p> <p>Need clarification on how I-10 Express lanes will connect to Inner Katy. Potential westbound bottleneck as three lanes reduce to one. MaX lane and Managed lane access and connectivity are crucial to the METRONext BRT network, such as linking Inner Katy to the Uptown BRT and future High-Speed Rail.</p> <p>TxDOT must also commit to providing a replacement for the Heiner layover space in the same location.</p> <p>METRO needs TxDOT to restore or preserve the FTA-funded HOV and bus access to downtown equal to what we have today. Reduction in access increases operating costs and traffic impacts.</p>
<p><u>Page:</u> 3-37 <u>Line/Feature:</u> 17 <u>Text:</u> Two METRO express bus routes connect Bush IAH...</p> <p><u>METRO comment:</u> BNSF was inadvertently omitted from the DEIS. The 102 is the only express route to Bush IAH.</p> <p><u>Possible mitigation measures:</u> Revise text</p>	<p>This was corrected in the Final EIS.</p>	<p><u>Page:</u> 3-24 <u>Line/Feature:</u> 18</p> <p><u>Remarks:</u> Change confirmed in FEIS</p>
<p><u>Page:</u> 3-37 <u>Line/Feature:</u> 22 <u>Text:</u> Segment 1 Thirteen bus routes cross or parallel IH 45 within one mile</p> <p><u>METRO comment:</u> Based on METRO's New Bus Network (NBN), at least 37 bus routes that cross or parallel IH 45 in Segment 1 are anticipated to be directly impacted by the proposed project in the downtown area. The bus routes include 5, 25, 40, 41, 65, 102, 108, 152, 153, 160, 161, 162, 202, 204, 209, 212, 214, 216, 217, 219, 221, 222, 228, 229, 236, 244, 246, 247, 249, 255, 256, 257, 259, 283, 292, 297, and 700. These routes serve mostly low income/minority neighborhoods.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-24 <u>Line/Feature:</u> 29</p> <p><u>Remarks:</u> FEIS revised language to note 37 bus routes crossing or within on mile of Segment 1: I-45 from BW-8 to I-610. The FEIS states that 27 stops will be displaced. TXDOT includes METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 28).</p>
<p><u>Page:</u> 3-37 <u>Line/Feature:</u> 23-27 <u>Text:</u> Bus stops in ROW would be displaced and may affect populations without automobiles or are dependent on public transportation. TxDOT will work with METRO to relocate stops, temporary and permanent.</p> <p><u>METRO comment:</u> Short- and long-term impacts to operating costs should be included in analysis. Displacement and relocation of bus stops could increase walk distances and discourage ridership.</p> <p>METRO has an agreement with the City of Houston that defines on which streets METRO buses can operate. That agreement may be impacted by TxDOT's plan.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO should occur throughout design process to ensure impacts are minimized or mitigated.</p> <p>Provide Traffic Impact Analysis (TIA) to address bus circulation and travel time impacts from proposed improvements.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-25/3-26 <u>Line/Feature:</u> starting at line 28</p> <p><u>Remarks:</u> TXDOT does not revise text to reflect METRO comments. In Table ES-2, page ES-20, TXDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 28).</p> <p><b>Action</b> TxDOT must include a TIA to address bus circulation and travel time impacts from proposed improvements.</p> <p>Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS as requested in DEIS Comments</p> <p>TxDOT must commit to customer convenience (accessibility) when relocating bus stops. Meet COH and METRO design standards for stop relocation. D-B specifications address bus stop replacement criteria.</p>

METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
<p><u>Page:</u> 3-37 <u>Line/Feature:</u> 32 <u>Text:</u> Segment 2 Eleven bus routes cross or parallel IH 45 within one mile</p> <p><u>METRO comment:</u> Based on METRO's NBN, at least 37 bus routes that cross or parallel IH 45 are anticipated to be directly impacted by the proposed project in Segment 2. The bus routes include 5, 25, 40, 41, 65, 102, 108, 152, 153, 160, 161, 162, 202, 204, 209, 212, 214, 216, 217, 219, 221, 222, 228, 229, 236, 244, 246, 247, 249, 255, 256, 257, 259, 283, 292, 297, and 700.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-25 <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> FEIS revised language notes that Segment 2 will not affect existing public bus routes except one bus stop at Quitman that could be relocated. The FEIS reflects METRO's comment that 37 bus routes cross or are within one mile of IH 45 and could be impacted.</p>
<p><u>Page:</u> 3-37 <u>Line/Feature:</u> 33-36 <u>Text:</u> Bus stops in ROW would be displaced and may affect populations without automobiles or are dependent on public transportation. TxDOT will work with METRO to relocate stops, temporary and permanent.</p> <p><u>METRO comment:</u> Short- and long-term impacts to operating costs should be included in analysis. Displacement and relocation of bus stops could increase walk distances and discourage ridership.</p> <p>METRO has an agreement with the City of Houston that defines on which streets METRO buses can operate. That agreement may be impacted by TxDOT's plan.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO is requested throughout design and construction process. How and when METRO will be included should be a mitigation commitment in the FEIS/ROD.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-25/3-26 <u>Line/Feature:</u> starting at line 28</p> <p><u>Remarks:</u> TXDOT does not revise text to reflect METRO comments. In Table ES 2, TXDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 28).</p> <p>No discussion of TIA to address bus circulation and travel time impacts from proposed improvements.</p> <p><b>Action</b> TxDOT must include a TIA to address bus circulation and travel time impacts from proposed improvements.</p> <p>Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS as requested in DEIS Comments</p> <p>TxDOT must commit to customer convenience (accessibility) when relocating bus stops. Meet COH and METRO design standards for stop relocation. D-B specifications address bus stop replacement criteria.</p>
<p><u>Page:</u> 3-38 <u>Line/Feature:</u> 32 <u>Text:</u> Segment 3 Eighty-five bus route...cross or parallel IH 45 within one mile</p> <p><u>METRO comment:</u> Based on METRO's NBN there are 60 bus routes and three light rail lines within a mile buffer of IH 45 Segment 3. The routes within this area include 3, 6, 9, 11, 20, 30, 32, 40, 41, 44, 48, 51, 52, 54, 56, 66, 79, 82, 85, 99, 102, 108, 137, 151, 152, 153, 160, 161, 162, 202, 204, 209, 212, 214, 216, 217, 219, 221, 222, 228, 229, 236, 244, 46, 247, 248, 249,255, 256, 257, 259, 261, 262, 265, 269, 283, 297, 298, 412, 413, METRORail Red Line, METRORail Green Line, and the METRORail Purple Line.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between TxDOT and METRO to advertise route detours in- advance of construction and provide signage for the public.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-25 <u>Line/Feature:</u> 17 through 19</p> <p><u>Remarks:</u> FEIS revised language notes that Segment 2 will cross or parallel 60 bus routes and three LRT lines; however, none would be permanently affected. And estimated 33 stops would be relocated. No discussion of short-term impacts.</p> <p>In Table ES 2, TXDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 28).</p>
<p><u>Page:</u> 3-38 <u>Line/Feature:</u> 11,12 <u>Text:</u> Bus stops in ROW would be displaced and may affect populations without automobiles or are dependent on public transportation. TxDOT will work with METRO to relocate stops, temporary and permanent.</p> <p><u>METRO comment:</u> Short- and long-term impacts to operating costs should be included in analysis.</p> <p>Displacement and relocation of bus stops could increase walk distances and discourage ridership. METRO has an agreement with the City of Houston that defines on which streets METRO buses can operate. That agreement may be impacted by TxDOT's plan.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-25 <u>Line/Feature:</u> 17 through 22</p> <p><u>Remarks:</u> FIES does not directly discuss analysis of impacts to METRO's operation costs as it relates to displacement and relocation of bus stops.</p> <p>In Table ES 2, TXDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 25).</p> <p><b>Action</b> TxDOT must include a TIA to address bus circulation and travel time impacts for bus routes serving downtown caused by proposed improvements.</p>

METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
<p><u>Possible mitigation measures:</u> Frequent coordination between METRO and TxDOT during the design process is imperative to avoid, minimize, or mitigate impacts. How and when METRO will be included should be a mitigation commitment in the FEIS/ROD.</p>		<p>Revise to state short-term construction and long-term impacts are anticipated and that minimization and mitigation for construction impacts will be committed to in the FEIS as requested in DEIS Comments</p> <p>TxDOT must commit to customer convenience (accessibility) when relocating bus stops. Meet COH and METRO design standards for stop relocation. D-B specifications address bus stop replacement criteria.</p> <p>TxDOT must acknowledge impacts to METRO's Operating costs and commit to mitigating them through design changes or cost reimbursement agreement.</p>
<p><u>Page:</u> 3-38 <u>Line/Feature:</u> 12-17 <u>Text:</u> Wheeler TC in ROW of all 3 alternatives. No impacts to operations and access</p> <p><u>METRO comment:</u> IH 69/US 59 will be depressed and transit operations will be at-grade. Five routes are directly affected:</p> <ul style="list-style-type: none"> <li>• 5 Southmore</li> <li>• 25 Richmond</li> <li>• 65 Bissonnet</li> <li>• 152 Harwin Express</li> <li>• 153 Harwin Express</li> </ul> <p>Main, Fannin, Blodgett, and Wheeler Streets need to be preserved and kept open for the Wheeler Transit Center to function.</p> <p>METRO, the City of Houston, and TxDOT are jointly evaluating options for the design of IH 69/US 59 in the vicinity of the Red Line and the Wheeler Transit Center.</p> <p><u>Possible mitigation measures:</u> Light Rail Transit (LRT) must be operational throughout construction. Frequent coordination with METRO must occur during the design process to ensure METRO operations are not adversely impacted. Details discussing how LRT operations are to be maintained during construction should be discussed in the EIS and a mitigation commitment in the FEIS/ROD. Traffic and transit impact analysis around Wheeler Transit Center should be conducted. Incorporate the design concepts that are proposed by the joint Wheeler Transit Center design exercise.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-25 and 3-26 <u>Line/Feature:</u> 17 through 22; 13 and 14</p> <p><u>Remarks:</u> TXDOT discusses continued coordination with METRO regarding segment 3/ Wheeler TC. Maintaining LRT operations discussed by utilizing shoofly and temp track alignments with very limited outages for connections and cut-overs (page 3-26, lines 13 and 14). No discussion on TIA or Transit Impact Analysis for Wheeler TC. No discussion on design concepts proposed v joint Wheeler TC design exercise.</p> <p><b>Action</b> TxDOT must appropriately acknowledge the extent of impact on the Wheeler Transit Center in the FEIS. The entire transit center (including rail platforms, tracks, rail systems and bus bays) will need to be redesigned and reconstructed. TxDOT must commit to funding the redesign and reconstruction of the Transit Center to mitigate these impacts.</p> <p>Additionally, Light Rail Transit (LRT) must be operational throughout construction. Frequent coordination with METRO must occur during the design process to ensure METRO operations are not adversely impacted. Details discussing how LRT operations are to be maintained during construction should be discussed in the EIS and a mitigation commitment in the FEIS/ROD. Traffic and transit impact analysis around Wheeler Transit Center should be conducted. Incorporate the design concepts that are proposed by the joint Wheeler Transit Center design exercise.</p> <p>TxDOT must acknowledge impacts to METRO's Operating costs and commit to mitigating them through design changes or cost reimbursement agreement.</p>
<p><u>Page:</u> 3-37 <u>Line/Feature:</u> 3-13 <u>Text:</u> Discussion on railroads</p> <p><u>METRO comment:</u> Update the narrative with the correct railroad company names (see TxDOT Rail Map for details). Southern Pacific RR and Chicago Rock Island, do not exist anymore. BNSF was inadvertently omitted from the DEIS.</p> <p><u>Possible mitigation measures:</u> Revise text</p>	<p>The railroad company names are updated in the Final EIS.</p>	<p><u>Page:</u> 3-37 <u>Line/Feature:</u> 6 through 14</p> <p><u>Remarks:</u> Railroad company names have been removed from FEIS text.</p>
<p><u>Page:</u> 3-38 <u>Line/Feature:</u> 30-36 <u>Text:</u> Impacts to transportation facilities are not anticipated .... Multi-modal connection is a focus ... alteration effects could be beneficial ...</p> <p><u>METRO comment:</u> METRO's estimated long-term impacts to operations are anticipated to exceed \$24 million annually based on route deviations, anticipated delays local and commuter buses, as well as the impact to Wheeler Transit Center operations. Provide substantive details that showcase how the proposed alterations could be beneficial to transit as stated in the DEIS. Based upon the information provided in the DEIS, there are no travel savings expected from the IH 45 project for transit.</p>	<p>As discussed in our ongoing coordination meetings, the connections to/from Pierce and St. Joseph and I-45 could not be maintained in their current configurations. We will continue to work with you, your consultant and the City of Houston to refine the connections between the proposed Downtown Connectors and Pierce/St. Joseph. The proposed Downtown Connectors will pass over Memorial/Rusk/Capital as the Pierce Elevated does today. We are not able to add new ramp connections to these streets from the Downtown Connectors due to vertical separation and so we can maintain the existing ramp connections to Walker/McKinney and the improved connections to/from Allen Parkway.</p> <p>Since these comments were provided, TxDOT has coordinated with METRO regarding the access into south Downtown and the Downtown Transit Center.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> TXDOT has noted in the FEIS that coordination will continue regarding all segments (1-3) of the Preferred Alternative through design and construction (see Table ES-2, page ES-20 and page 3-25/3-26 starting at line 25); however, does not discuss METRO's concerns directly.</p> <p><b>Action</b> Please note in the response that there has not been a resolution regarding access into south Downtown and the Downtown Transit Center. TxDOT must provide Traffic</p>

METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
<p>Based on METRO's NBN there are 60 bus routes and three light rail lines within a mile buffer of IH 45 Segment 3. The routes within this area include: 3, 6, 9, 11, 20, 30, 32, 40, 41, 44, 48, 51, 52, 54, 56, 66, 79, 82, 85, 99, 102, 108, 137, 151, 152, 153, 160, 161, 162, 202, 204, 209, 212, 214, 216, 217, 219, 221, 222, 228, 229, 236, 244, 246, 247, 248, 249, 255, 256, 257, 259, 261, 262, 265, 269, 283, 297, 298, 412, 413, METRORail Red Line, METRORail Green Line, and the METRORail Purple Line</p> <p><u>Possible mitigation measures:</u> METRO is concerned with focusing all the IH 10 MaX lane traffic on Smith/Louisiana will increase congestion or increase operating cost from route deviations, especially with the removal of the Katy Fwy- Downtown HOV Connector. Likewise, focusing all the IH 45 MaX lane traffic on Milam/Travis will increase congestion or increase operating cost from route deviations. The elimination of the St. Joseph Parkway and Pierce Street connections to IH 45 isolates the Downtown Transit Center and increases operating costs. TxDOT should re-examine access into south Downtown and the Downtown Transit Center. Similarly, the IH 45 connection to Memorial Drive and Capitol/Rusk streets needs to be maintained. A part of the proposed reconstruction will remove major METRO staging locations on Heiner and Jefferson.</p> <p>It's important that TxDOT identify / establish suitable staging / layover locations for METRO vehicles in downtown. Provide Traffic Impact Analysis (TIA) to address bus circulation and travel time impacts from proposed improvements.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><b>Impact Analysis (TIA) to address bus circulation and travel time impacts from proposed improvements.</b></p> <p><b>TxDOT must restore layover parking at Heiner Street</b></p> <p><b>TxDOT must acknowledge operating impacts to METRO due to the design and commit to mitigate it by design or cost reimbursement, especially for FTA-funded projects, such as the IH-45 HOV connections and the Katy-CBD ramp.</b></p>
<p><u>Page:</u> 3-62 <u>Line/Feature:</u> 5-16 <u>Text:</u> Impacts of the Build Alternatives on Floodplains</p> <p><u>METRO comment:</u> Carry the commitments made in the narrative over to the commitment section of the FEIS/ROD.</p>	<p>The commitments regarding floodplains are included in the Final EIS and will be included in the ROD.</p>	<p><u>Page:</u> ES-7 /ES-8; 7-6 <u>Line/Feature:</u> 37-39, 1, 2; 9-21</p> <p><u>Remarks:</u> Commitments including required analyses have been included in the FEIS.</p>
<p><u>Page:</u> 3-94 <u>Line/Feature:</u> Table 3-18 <u>Text:</u> States de minimis impacts likely.</p> <p><u>METRO comment:</u> The "de minimis" note should not have been added to this table or have a better description of the context of the anticipated "de minimis" since the determination of adverse effects on historic resources has not been made.</p> <p><u>Possible mitigation measures:</u> Identify potential 4(f) implications and determinations and that a "de minimis" impact is anticipated.</p>	<p>The final determination of adverse effects of the Preferred Alternative was made during preparation of the Final EIS. The analysis conducted for the Draft EIS allowed for comparison of the potential impacts of the three reasonable Build alternatives per study segment. Final determinations of impacts to historic resources and mitigation for adverse impacts are reported in the Final EIS and individual Section 4(f) Evaluation.</p>	<p><u>Page:</u> 3-104/3-105 <u>Line/Feature:</u> 18-38; 1-</p> <p><u>Remarks:</u> Direct effects including those "de minimis" impacts discussed in FEIS.</p>
<p><u>Page:</u> 3-118 <u>Line/Feature:</u> 8, -17, 24, Table 3-34 <u>Text:</u> States de minimis impacts likely.</p> <p><u>METRO comment:</u> The "de-minimis" note should not have been in the narrative and table since the determination of adverse effects on historic resources has not been made. Another option is to discuss the context that a "de minimis" determination is anticipated.</p> <p><u>Possible mitigation measures:</u> Identify and discuss potential 4(f) implications, determinations, and why a "de minimis" impact is anticipated.</p>	<p>The final determination of adverse effects of the Preferred Alternative was made during preparation of the Final EIS. The analysis conducted for the Draft EIS allowed for comparison of the potential impacts of the three reasonable Build alternatives per study segment. Final determinations of impacts to historic resources and mitigation for adverse impacts are reported in the Final EIS and individual Section 4(f) Evaluation.</p>	<p><u>Page:</u> 3-104; 3-105; 3-106 <u>Line/Feature:</u> 18-38; 1-39; 1-30</p> <p><u>Remarks:</u> Direct effects including those "de minimis" impacts discussed in FEIS.</p>
<p><u>Page:</u> 6-8 <u>Line/Feature:</u> Table 6-1 <u>Text:</u> Indirect Impacts: Transportation Facilities Impacts to transportation facilities are not anticipated .... Multi-modal connection is a focus.... alteration effects could be beneficial ...</p> <p><u>METRO comment:</u> Indirect effects may include increased operating costs from deviations due to loss of existing layover and staging areas in downtown. METRO's estimated impacts to operations are anticipated to exceed \$24 million annually (attached).</p> <p>Relocated stops as a result of route adjustments to modify access to the IH 10 and IH 45 MaX lanes could increase walk distances and discourage riders.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO is required during the design phase to</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> 3-104; 3-105; 3-106 <u>Line/Feature:</u> 18-38; 1-39; 1-30</p> <p><u>Remarks:</u> Direct effects including those "de minimis" impacts discussed in FEIS.</p> <p>In Table ES 2, TXDOT does include METRO's recommended mitigation measures such as coordination has been included (see also page 3-25/3-26 starting at line 25).</p> <p>Beneficial impacts to transit due to proposed alterations discussed on page 3-22 (lines 22-24), and page 3-29 (lines 1-3).</p>

METRO DEIS Comment	TxDOT FEIS Response	Remark Assessment
<p>ensure adverse impacts are minimized or mitigated.</p> <p>Provide substantive details that showcase how the proposed alterations could be beneficial to transit as stated in the DEIS.</p>		
<p><u>Page:</u> 6-8 <u>Line/Feature:</u> Table 6-1 <u>Text:</u> Cumulative Impacts: H-GAC's RTP multi-modal transportation facilities. This resource will not be examined in detailed cumulative impact analysis.</p> <p><u>METRO comment:</u> Proposed improvements may have cumulative impacts to long- term METRO services. Clarify the processes referenced in this section and why the Regional Transportation Planning process will be excluded from the cumulative impact analysis.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO to discuss, minimize, and mitigate adversetransit impacts need to occur throughout the design process. The cumulative impact analysis must include transit and multimodal related impacts in order to capture the range of both adverse and beneficial impacts.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> TXDOT has noted in the FEIS that coordination will continue regarding all segments (1-3) of the Preferred Alternative through design and construction (see Table ES-2, page ES-20, page 3-25/3-26 starting at line 25, and page 7-2, lines 35/36, and page 7-3, lines 1-6); however, does not discuss METRO's concerns with regards to the inclusion of transit and multimodal related impacts in the CIA directly.</p> <p><b>Action</b> TxDOT's cumulative impact analysis must include transit and related multimodal impacts in order to capture the range of both adverse and beneficial impacts.</p>
<p><u>Page:</u> 7-6 <u>Line/Feature:</u> 14 <u>Text:</u> TxDOT will coordinate with METRO on bus stop relocation</p> <p><u>METRO comment:</u> Frequent coordination and collaboration with METRO as a cooperating agency must occur throughout the design process to ensure impacts are minimized or mitigated prior to the design being approved.</p> <p><u>Possible mitigation measures:</u> Describe how and when METRO will be included in the process. Carry this commitment over to the mitigation section of the FEIS/ROD.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> TXDOT has noted in the FEIS that coordination will continue regarding all segments (1-3) of the Preferred Alternative through design and construction.</p> <p><b>Action</b> TxDOT must commit to customer convenience (accessibility) when relocating bus stops. Meet COH and METRO design standards for stop relocation. D-B specifications address bus stop replacement criteria.</p>
<p><u>Page:</u> 7-9 <u>Line/Feature:</u> 6-18 <u>Text:</u> Permits and issues in Floodplains</p> <p><u>METRO comment:</u> What about Executive Order (EO) 13690 establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input?</p> <p><u>Possible mitigation measures:</u> Update narrative as necessary to include EO 13690.</p>	<p>Executive Order (EO) 13690, which established the Federal Flood Risk Management Standard, was revoked on August 15, 2017 by Section 6 of EO 13807, Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure. EO 13807 did not revoke or otherwise alter EO 11988.</p>	<p><u>Page:</u> 3-62 / 3-63 <u>Line/Feature:</u> 26-33 / 14-24</p> <p><u>Remarks:</u> TXDOT addresses compliance with appropriate Floodplains Executive Order (EO) 11988 in Section 3.8 of the FEIS.</p>

METRO DEIS Comment	TxDOT FEIS Response	Response Assessment
<p><u>Drawings. Operational impacts:</u> Segment 1 T-Ramp at N. Shepherd P&amp;R</p> <p><u>Proposed design:</u> A T-Ramp direct connection between the North Shepherd Park and Ride and North Fwy HOV lane is proposed.</p> <p><u>METRO comment:</u> Only one route, 212 Seton Lake, would use this ramp. Access to MaX lanes are restricted to a T-ramp in N. Shepherd P&amp;R, which creates a circuitous route for autos and conflicts with bus traffic in the platform area.</p> <p>Bus maneuverability in P&amp;R to access ramp could be a problem</p> <p><u>Possible mitigation measures:</u> TxDOT and METRO to coordinate in the design of the T-ramp for safety and efficiency.</p>	<p>TxDOT will coordinate with METRO during detailed design regarding the design of the N. Shepherd T-ramp.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> TXDOT has noted in the FEIS that coordination will continue regarding all segments (1-3) of the Preferred Alternative through design and construction.</p> <p><u>Design Review</u> T-Ramp at N. Shepherd P&amp;R is included in the Design Schematic for Segment 1 (Tidwell Road to Shepherd Drive) near Station 1618+00 with direct connectors to the NB &amp; SB Managed lanes of I-45 North MAX lanes. Also, need to verify the slopes for the METRO Direct Connectors to the MaX lanes. The profiles show a 16.5' clearance over the MaX lanes, but clearance over the I-45 Mainlanes will have to be 18.5' since I-45 is part of the Freight Highway Network</p> <p>METRO requests ramp connection to SH 249 be incorporated into MaX lane design</p>
<p><u>Drawings. Operational impacts:</u> Segment 1 T-Ramp at Crosstimbers</p> <p><u>Proposed design:</u> TxDOT has requested that METRO consider eliminating this ramp.</p> <p><u>METRO comment:</u> Access should be preserved to accommodate the anticipated growth at the Northline Transit Center.</p> <p><u>Possible mitigation measures:</u> METRO satisfied with wishbone ramp added to MaX lanes at Crosstimbers for access to IH 610.</p>	<p>Based on coordination with METRO, TxDOT removed the Crosstimbers T-ramp and added slip ramps north of Crosstimbers to allow access to and from I-610.</p>	<p><u>Remarks:</u> TXDOT has coordinated with METRO and addressed METRO's concerns and mitigation measures with the addition of slip ramps at Crosstimbers.</p> <p><u>Design Review</u> Direct connectors to and from 610 North Loop are provided near Station 1400+00 along the I-45 North MAX lanes in Segment 1 (I-610 to Tidwell Road) to replace the Crosstimbers T-Ramp. What design accommodations for DCs from IH 45 MaX lanes to Katy Exp. lanes will be included in project?</p>
<p><u>Drawings. Operational impacts:</u> General Downtown</p> <p><u>Proposed design:</u> Ramp modifications and street closures</p> <p><u>METRO comment:</u> METRO has numerous local and commuter routes that are directly and indirectly affected by the access changes into and out of Downtown. METRO encourages as much connectivity as possible especially along Polk Street, which is currently the only through street under IH 45 between Rusk Street to the north and the Leeland/Bell Street pair to the south.</p> <p>Also, the elimination of the Pierce Street and St. Joseph Parkway connections to IH 45 isolate the Downtown Transit Center and create route deviations and delays driving up operating costs. METRO would like to see these connections preserved, as well.</p> <p><u>Possible mitigation measures:</u> Frequent coordination between METRO and TxDOT during the design process is imperative to avoid, minimize, or mitigate impacts.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p> <p><b>Access to/from Downtown:</b> Improving access to/from Downtown was one of the alternatives screening criteria. We appreciate the coordination with you, the City of Houston, and other local entities to optimize the local street network connectivity in Segment 3, including the cross streets between Downtown and points to the east. One of the most beneficial improvements included in the project is the restoration of a continuous southbound street parallel to the highway between Commerce and Leeland Street. This restored street (noted as Hamilton in the schematic) would reestablish connectivity of four (4) east/west streets that were severed when the GRB Convention Center was constructed (Dallas, Lamar, McKinney, and Walker) and improve access between Downtown and areas to the east (East End and Third Ward). It would also support local street capacity during sporting or convention center events.</p> <p><b>Polk Street:</b> We understand that Polk Street is an important access point between Downtown and points east and thus carefully studied how to maintain a direct crossing over the new I-45/I-69 NHHIP improvements. Through a series of workshops (charettes) in 2015, the</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> TXDOT has noted in the FEIS that coordination will continue regarding all segments (1-3) of the Preferred Alternative through design and construction.</p> <p>TXDOT has responded in detail to METRO's concerns regarding connectivity/access along Polk St. and access to/from downtown (continuous SB street between Commerce &amp; Leeland), but are not able to meet METRO's concerns regarding the elimination of the Pierce Street and St. Joseph Parkway connections to IH 45.</p> <p><u>Design Review</u> Polk Street Comments TxDOT has indicated that due to issues with vertical clearance, Polk Street cannot continue on the east side across the new I-45N &amp; I-69N freeway. For westbound Polk Street traffic, TxDOT has provided a U-turn at Lamar Street to come back and go westbound on Polk Street, but the eastbound traffic will have to go to Leeland Street and go through signals there to come back and go east on Polk Street. Why is there no U-turn at Leeland Street? If METRO elects to continue to use Polk Street as a bus route (40 &amp; 41), METRO will need to perform an operational analysis to determine the impact to the route using the U-Turn. Based on the design, TXDOT should analyze the traffic along St Emanuel St and Hamilton St. TXDOT shows a 2-lane exit from I69 Northbound onto St Emanuel, merging close Polk St. Weaving in this area will be an issue for buses using the proposed U-turn Design St Emanuel as a city street not a frontage road to reduce speed and make transition easier.</p>



METRO DEIS Comment	TxDOT FEIS Response	Response Assessment
	<p>participants jointly developed and agreed on options to maintain/improve access across NHHIP while maintaining the congestion and safety improvements of the improvements. What was agreed was that Polk Street could not be maintained across NHHIP due to vertical separation requirements between I-45/I-69 and Polk Street. With the proposed NHHIP, drivers using Polk from East Downtown will be routed to the Lamar Street crossing which will be improved to provide a seamless connection to the restored Hamilton Street which in turn connects to Polk Street. We also coordinated with the City of Houston to reroute the Polk Street dedicated bike lane to be parallel to the restored Hamilton Street and would connect to the Columbia Tap Rail-Trail via Walker Street.</p> <p><b>Pierce/St. Joseph and Memorial/Rusk/Capital:</b> As discussed in our ongoing coordination meetings, the connections to/from Pierce and St. Joseph and I- 45 could not be maintained in their current configurations. We will continue to work with you, your consultant and the City of Houston to refine the connections between the proposed Downtown Connectors and Pierce/St. Joseph. The proposed Downtown Connectors will pass over Memorial/Rusk/Capital as the Pierce Elevated does today. We are not able to add new ramp connections to these streets from the Downtown Connectors due to vertical separation and so we can maintain the existing ramp connections to Walker/McKinney and the improved connections to/from Allen Parkway.</p>	<p><u>Pierce/ St. Joseph comments</u> On the east side, Pierce connection elimination will also create additional backups at the Scott Street rail crossing. Five Park and Rides will be in that congestion. Entrance and Access Ramps for I-45 south of St. Joseph and Pierce are shown in the current schematic layouts. Additional detail will need to be provided showing the connection to Hamilton St and St Emanuel St.</p> <p>West side I-45 access via Pierce/ St Joseph eliminated and moved to Pease/Jefferson. Creates delays for P&amp;R deadhead trips and buses traveling to and from Downtown TC.</p> <p><b>TxDOT needs to preserve existing access or contribute to additional operating costs caused by modifications.</b></p>
<p><u>Drawings. Operational impacts:</u> Inner Katy - Downtown HOV connector</p> <p><u>Proposed design:</u> The Inner Katy-Downtown HOV connector is to be removed.</p> <p><u>METRO comment:</u> METRO currently has direct HOV access from the Katy Freeway to Downtown via the HOV ramp. Elimination of the Inner Katy-Downtown HOV connector will result in more mixed flow operation increased operating time.</p> <p>METRO estimates the operational impacts could result in \$2.5 million/year attributable to the loss of the connector ramp. No comparable replacement for the loss of the connector ramp is included in the improvements and could result in the depreciated cost of FTA funded ramp repaid to FTA</p> <p><u>Possible mitigation measures:</u> At a minimum, improvements should provide a dedicated bus lane connection to Memorial Drive and Capitol and Rusk Streets. TxDOT must demonstrate the benefits of the connector removal or advance a more suitable alternative to the current design.</p> <p>Frequent coordination with METRO must be performed throughout the design process in order to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>Since these comments were provided, TxDOT has coordinated with METRO regarding the access into south Downtown and the Downtown Transit Center.</p> <p>TxDOT will continue to coordinate with METRO during design and construction to minimize impacts to existing transit operations.</p> <p>As noted in our response to your comment letter (dated June 2, 2015) about removing the Downtown HOV Connector, a dedicated bus/HOV lane has been added to the I-10 express lanes with direct access to Smith St. and Louisiana St. to replace the existing connector.</p>	<p><u>Page:</u> 3-26 <u>Line/Feature:</u> 18-20</p> <p><u>Remarks:</u> While TXDOT does not address METRO’s operational cost concerns directly in the FEIS, they do note that continued coordination to mitigate METRO’s concerns (see references to such language in previous remarks) will occur.</p> <p>Regarding direct HOV access from the FTA-funded Katy Freeway to Downtown via the HOV ramp and its potential elimination: TXDOT has responded that a dedicated bus/HOV lane has been added to the I-10 express lanes with direct access to Smith St. and Louisiana St. to replace the existing connector. Suitability of this response for proposed alternative by TXDOT is at the discretion of METRO. However, METRO’s concerns to increased operating time and costs have not been addressed either in TXDOTs response or in the FEIS.</p> <p><u>Design Review</u> TXDOT needs to clarify how, Katy/CBD ramp has been replaced by a dedicated bus/HOV lane. Is this a temporary allowance? Replacing the FTA-funded ramps is necessary or FTA may need to be reimbursed for their share of the ramp.</p> <p>How the Katy Express Lanes connect to the remnant of the Katy-CBD ramp needs to be clarified. EB express lane traffic goes from 3 lanes to 1 forming a possible bottleneck. This design issue needs to be resolved prior to D-B contract</p> <p>The introduction of the Inner Katy BRT design further complicates this discussion. Whether this carries P&amp;R traffic during and after NHHIP is up for discussion also. If so, what happens to P&amp;R traffic prior to completion of Inner Katy BRT? TxDOT should indicate work to be performed by others or under different contracts to indicate how the connection to I-10 will work as well as the standalone BRT that replaces the CBD Connector.</p> <p><b>Need clarification on how Express lanes will function and connect to Inner Katy. Traffic study/model data needed.</b></p>

METRO DEIS Comment	TxDOT FEIS Response	Response Assessment
<p><u>Drawings. Operational impacts:</u> Segment 3 IH 10 west of IH 45</p> <p><u>Proposed design:</u> WB IH-10 "MAX Lane" reduces to 1 lane from 2 at the connection to IH 10.</p> <p><u>METRO comment:</u> This reduction in lanes could be congestion point. METRO requests an opportunity to review the traffic study.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>The western project limit on I-10 is Taylor Street. The I-10 express lanes are designed to transition back to the existing I-10, which only accommodates one lane from the I-10 express lanes.</p> <p>TxDOT will coordinate with METRO regarding any future plans to extend the express lanes to the west along I-10.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> While TXDOT does not address METRO's congestion point concerns directly in the FEIS, they do provide a direct response to limitations with the preferred alternative design and that continued coordination to mitigate METRO's concerns (see references to such language in previous remarks) will occur. It would not appear that an updated traffic study was performed. Request for METRO to review traffic study is an open concern if METRO has not been given the ability to review.</p> <p><u>Design Review</u> TxDOT's comments need revision as they are actively looking at additional express lanes between 610 and downtown. A traffic Study has not been provided for METRO's review; therefore, the comment is not fully addressed.</p> <p>It should be noted that the current schematic shows inside lanes of I-10 to be Express Lanes. Access is shown from the Express Lane to Louisiana St and Smith St. Plus access from the general purpose mainlanes to Louisiana St and Smith St is also shown. Since the I-10 Express Lanes do not connect to I-45 Max Lanes, this will force I-45 Bus and BRT routes to use Milam St and Travis Access. TxDOT should consider merging the I-10 Express Lanes and the I-45 MaX lanes in the middle. This would allow METRO to maintain similar operations. Additionally, access from Louisiana St to the I-45 N HOV lane is part of an FTA-funded project and need to be maintained or a potential reimbursement of the FTA contribution may be required.</p> <p><b>Potential westbound Express lane bottleneck. Need clarification on how Express lanes will function and connect to Inner Katy. Traffic study/model data needed.</b></p>
<p><u>Drawings. Operational impacts:</u> Segment 3 Access to IH 45 N MaX lanes</p> <p><u>Proposed design:</u> The Louisiana and Smith Street access to the IH 45 N HOV/HOT lanes will be eliminated. All access to the proposed I H 45 N MaX lanes will be limited to Milam and Travis Streets.</p> <p><u>METRO comment:</u> Route deviations for commuter buses currently using the Smith and Louisiana access points to the IH 45 N HOV/HOT lanes will increase operating costs by approximately \$250,000/year.</p> <p>The alternative to route deviations is relocating the stops for the affected routes, incurring capital costs and contributing to peak period congestion by concentrating routes on already congested streets.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design processto avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>The existing HOV/HOT access points from Louisiana and Travis St. have been combined into a two-lane access point from Travis St. (outbound) and Milam St. (inbound)</p> <p>The reconfiguration of I-10 would not allow for the existing HOV ramp off of Louisiana St. to be maintained. TxDOT will coordinate with METRO regarding the I-45 MaX lane operation.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> While TXDOT does not address METRO's congestion point concerns directly in the FEIS, they do provide a direct response to limitations with the preferred alternative design and that continued coordination to mitigate METRO's concerns (see references to such language in previous remarks) will occur.</p> <p><u>Design Review</u> This will impact the operation of HOV/HOT lane and bus operation significantly by detouring them through downtown to &amp; from Milam/Travis Streets. Need traffic modeling data to understand impacts</p> <p>It is noted that TXDOT has not defined how the MaX lanes will work or operate. The current schematic shows inside lanes of IH-10 to be Express Lanes versus managed lanes. Access is shown from the Express Lane to Louisiana St and Smith St. Plus access from the general purpose mainlanes to Louisiana St and Smith St is also shown. Since the IH-10 Express Lanes do not connect to IH-45 Max Lanes, this will force I-45 Bus and BRT routes to use Milam St and Travis Access. This would change IH-45 Bus Route operations, in addition to possible reimbursement to FTA for the Louisiana St HOV ramp connection.</p> <p><b>TxDOT needs to preserve access from Louisiana St. to I-45 MaX lanes to maintain current METRO operations and to provide alternate access</b></p>

METRO DEIS Comment	TxDOT FEIS Response	Response Assessment
<p><u>Drawings. Operational impacts:</u> Removal of Pierce Elevated</p> <p><u>Proposed design:</u> TxDOT states that although the travel distance is greater without the northbound exits from IH 45 to Allen Pkwy and Memorial Drive the travel time will be reduced due to systemwide flow improvements. Alterations to St. Joseph Pkwy, Pierce, Jefferson, and Heiner Streets</p> <p><u>METRO comment:</u> METRO requests an opportunity to review the traffic study. Based upon the information provided in the DEIS, there are no travel savings expected from the IH 45 project for transit. Increased operating costs for route modifications are approximately \$2 million/year and can be found on the attached estimate.</p> <p>METRO currently uses space under the Pierce elevated at Pierce and Main for a traction power substation (TPSS) and signal house.</p> <p><u>Possible mitigation measures:</u> As part of the proposed reconstruction will remove major METRO staging locations on Heiner and Jefferson. TxDOT should identify / establish suitable staging / layover locations for METRO vehicles in downtown.</p> <p>Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts and find space for the TPSS and signal house.</p>	<p>Since these comments were provided, TxDOT has coordinated with METRO regarding the access into south Downtown and the Downtown Transit Center. TxDOT will continue to coordinate with METRO during design and construction to minimize impacts to existing transit operations.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> TXDOT will continue to coordinate with METRO and has appeared to have done so after METRO's comments were provided.</p> <p><u>Design Review</u> TXDOT has not provided a study or report showing estimated reduced travel times to Pease St and Jefferson St. In theory, the traffic volumes of the I-45 connector will be less than the original I-45 traffic. Therefore, travel times might be reduced.</p> <p>Coordination with METRO on Bus Layover locations is now included in DB Contractor procurement documents. Heiner and Jefferson bus layover locations are specifically identified as impacts.</p> <p><b>TxDOT should provide layover alternatives for 24-25 buses in lieu of Heiner Street.</b></p>
<p><u>Drawings. Operational impacts:</u> Wheeler TC</p> <p><u>Proposed design:</u> Depressing IH 69/US 59 from Spur 527 to SH 288 and extending the street network over the depressed section.</p> <p><u>METRO comment:</u> Wheeler TC currently extends beneath IH 69/US 59. Buses exit onto Fannin St. and use Blodgett St. to circulate around Wheeler Transit Center to resume their routes. The current design eliminates the exit onto Fannin St. and closes Blodgett short of Main Street preventing that movement.</p> <p>METRO, the City of Houston, and TxDOT are jointly evaluating options for the design of IH 69/US 59 in the vicinity of the Red Line and the Wheeler Transit Center.</p> <p><u>Possible mitigation measures:</u> Incorporate the design concepts that are proposed by the joint Wheeler Transit Center design exercise.</p>	<p>Comment noted.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> No implementation of design concepts are noted in FEIS. Effects due to redesign at this location not clearly addressed in FEIS.</p> <p><u>Design Review</u> MT: Comment noted by TXDOT. Coordination between TXDOT on Wheeler TC and proposed I-69 HOV improvements have been on going.</p> <p><b>TxDOT needs to acknowledge the impacts to the TC and provide traffic analysis to determine impacts to the surrounding area. Wheeler TC needs to made whole to continue current level of service.</b></p>
<p><u>Drawings. Operational impacts:</u> SH 288 access</p> <p><u>Proposed design:</u> Access to SH 288 changed in Midtown</p> <p><u>METRO comment:</u> Deadhead trips could be altered by modified access to SH 288</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>Based on public input, the ramp to Chenevert St. has been removed; the proposed SH 288 managed lane ramps will terminate into the SH 288 general purpose lanes and would not directly connect to Chenevert St.</p> <p>TxDOT will continue to coordinate with METRO during design and construction regarding access to/from SH 288.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> While TXDOT does not address METRO's 288 change concerns directly in the FEIS, they do provide a direct response to limitations with the preferred alternative design and that continued coordination to mitigate METRO's concerns (see references to such language in previous remarks) will occur.</p> <p><u>Design Review</u> Convenient access into Downtown from the SH 288 managed lanes is necessary. At completion, access to SH288 should be similar to existing. DB Contractor Procurement documents address impacts to bus routes during construction.</p> <p><b>TxDOT will need to coordinate access from the SH288 Managed Lanes to maintain access.</b></p>

METRO DEIS Comment	TxDOT FEIS Response	Response Assessment
<p><u>Design constraints:</u> All segments General</p> <p><u>Proposed design:</u> Proposed new construction overpasses at IH 610, IH 10, IH 45/US 59 east of Downtown, and US 59 at Wheeler TC cross light rail lines.</p> <p><u>METRO comment:</u> Need to describe temporary construction impacts, including demolition, where proposed improvements cross Light Rail Transit (LRT) lines and what permanent features will be built.</p> <p>LRT lines need to stay operational during construction of overpasses at these locations. Sufficient clearance for Overhead Catenary System needs to be maintained. Design should not preclude future extension of Green/Purple line on west side of downtown (Inner Katy connection)</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts. METRO is currently working on potential short and long-term design requirements with both TxDOT and City of Houston at this location.</p>	<p>TxDOT has and will continue to coordinate with METRO and their consultants and the COH to facilitate timely planning for operations prior to and during construction, and to accommodate final configuration. TxDOT will coordinate with the COH to coordinate traffic signal operations to try and minimize impacts to bus routes.</p> <p>As we have discussed in our ongoing coordination meetings during the DEIS and FEIS, we will continue to coordinate with METRO during the detailed design and construction phase. We will also have a dedicated space in the design/construction project office for a METRO representative once established. You will have a dedicated position within this team to conduct design reviews as requested as well as participate in developing preliminary staging plans and reviewing/monitoring the selected Developer's plans and activities.</p> <p>Operational Impacts to Green and Purple Lines: We have been coordinating with your staff regarding maintaining uninterrupted operations for your Green and Purple Line across I-45/I-69 during construction. We are coordinating closely with your staff to evaluate alternatives to minimize service impacts to all three light rail lines and to incorporate these commitments into the Design-Build procurement documents.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> While TXDOT does not address METRO's concerns regarding temporary construction impacts, including demolition, where proposed improvements cross Light LRT lines and what permanent features will be built directly in the FEIS, they do provide a direct response that continued coordination to mitigate METRO's concerns (see references to such language in previous remarks) will occur.</p> <p><u>Design Review</u> Comment Addressed. Maintaining LRT operations and design the METRO LRT design guidelines is part of the DB Contractor Procurement documents. The DB Contractor is required to have LRT design and construction experience.</p>
<p><u>Design constraints:</u> Segment 1 Aldine-Bender HOV wishbone ramp</p> <p><u>Proposed design:</u> The wishbone ramp at Aldine Bender provides two lanes in each direction from downtown to the wishbone ramp and one lane in each direction from there to Beltway 8.</p> <p><u>METRO comment:</u> Does the anticipated use/volume of the Max lanes support a reduction in capacity?</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>The northern project limit on I-45 is BW 8. The I-45 MaX lanes are designed to transition to future diamond lane projects to the north of BW 8. The wishbone ramps at Aldine-Bender are the last access points to/from the MaX lanes within the project limits and are the logical locations to add/drop the second MaX lane. The MaX lanes north of the Aldine-Bender wishbone are designed for the ultimate two-way 24/7 configuration, but striped as one lane each direction to allow for transition to the existing one-way, reversible HOV to the north of the project limits.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> TXDOT answers METRO's comments indirectly in their response by re-addressing the design concept and why the alternative was chosen. They do not answer METRO's question regarding the anticipated use/volume of the Max lanes and its ability to support a reduction in capacity. TXDOT has noted in the FEIS that they continue coordination with METRO to mitigate concerns.</p> <p><u>Design Review</u> The inbound direction will benefit by this transition from one to two lanes, but the outbound direction will see congestion occurring from Aldine Bender Wishbone ramp to BW8 due to the reduction from two to one lane. A traffic study would estimate the LOS change when reducing from 2-lanes to 1-lane. What's the potential timing of 2-way diamond lanes north of Beltway 8?</p> <p><b>Potential outbound bottleneck. Need traffic data to determine impacts.</b></p>
<p><u>Design constraints:</u> Segment 1 Beltway 8</p> <p><u>Proposed design:</u> There is a note to connect to the "future managed lanes".</p> <p><u>METRO comment:</u> TxDOT's plan does not show the transition from bi-directional managed lanes to reversible barrier separated HOV/HOT lanes.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>The northern project limit on I-45 is BW 8. The I-45 MaX lanes are designed to transition to future diamond lane projects to the north of BW 8.</p> <p>The transition shown in the proposed project design can be modified if plans north of the project area change. There is a separate TxDOT I-45 North PEL study to evaluate the ultimate configuration of the lanes north of BW 8.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> Design decisions at this location are on-going. Continued coordination with METRO should occur.</p> <p><u>Design Review</u> The inbound transition from one to two lanes under the current plan will benefit the traffic operation, but the outbound transition under the current plan (reduction from two to one lane) will see congestion occurring from Aldine Bender Wishbone ramp to BW8.</p>

METRO DEIS Comment	TxDOT FEIS Response	Response Assessment
<p><u>Design constraints:</u> Segments 1 &amp; 2 North of Downtown</p> <p><u>Proposed design:</u> Plan shows a "MAX lane" connection to NB IH 45</p> <p><u>METRO comment:</u> Provide vertical clearances that will allow for a future LRT in the center of IH 45</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>High Capacity Transit in NHHIP Footprint: The high-capacity transit per coordination with you and your consultant over the past year, we developed conceptual cost estimates for including a new light rail line (LRT) in the NHHIP footprint. As we have discussed in the 2019 meetings, including LRT in the footprint would require additional right-of-way in Segment 2 to accommodate a new elevated structure between the MaX lanes as well as reconfiguring the I-45/I-610 interchange.</p> <p>However, the 2-way, 2-lanes each direction, 24/7 service MaX lanes will serve as high capacity transit lanes and are included in your METRONext plan. We are excited that the MaX Lanes will compliment your existing Red Line and provide the opportunity for expansion of transit as a modal choice for the region. We will continue to coordinate with you on this during design and construction.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> TXDOT notes that new LRT in NHHIP footprint would require additional design and costs. METRO's comment has been addressed in the response; however, TXDOT has no initiative to meet the request of METRO, but believes that high capacity transit lanes serve as an adequate alternative.</p> <p><u>Design Review</u> The option to construct LRT in the center of I-45 is no longer being considered by METRO. METRO proposes to operate BRT in the MaX lanes. How will MaX lanes be managed?</p> <p><b>In lieu of specifics on MaX lane management METRO proposes exclusive barrier-separated transit lanes. Design BRT station accommodations at Cavalcade, SH 249, and Greenspoint.</b></p>
<p><u>Design constraints:</u> Segment 3 General</p> <p><u>Proposed design:</u> Depressed freeway sections</p> <p><u>METRO comment:</u> Connection is difficult to see where it diverges from the entrance lane at Louisiana.</p> <p><u>Possible mitigation measures:</u> Provide a better quality of graphic and narrative description.</p>	<p>Since these comments were provided, TxDOT has met with METRO to review and discuss the design at this location.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> No remarks. Based on response by TXDOT, they have discussed with METRO &amp; the preferred design at this location. METRO should follow up with TXDOT to confirm their concerns have been addressed at this location.</p> <p><u>Design Review</u> Comment not fully addressed. The design of the ramp from I-10 to Louisiana St is still not well defined. Need clarification on Gulf Freeway HOV connection into Downtown.</p> <p><b>TXDOT and METRO have continuing coordination on the Downtown access and impacts due to construction. These access issues must be resolved prior to issuing any design build contracts.</b></p>
<p><u>Design constraints:</u> Segment 3 Polk St. at IH 69/US 59 east of Downtown</p> <p><u>Proposed design:</u> Closure of Polk St at IH 69/US 59</p> <p><u>METRO comment:</u> Polk Street is a continuous east-west between Downtown and East End / EaDO. This closure will eliminate east to west connections from Leeland to Rusk St. reducing connections to East End.</p> <p>Two bus routes are affected by the closure of Polk Street: 40 Telephone/Heights 41 Kirby/Polk</p> <p><u>Possible mitigation measures:</u> Modify the IH 45 S general purpose lane structures to descend to below grade farther north, maintaining Polk Street and eliminating the discontinuous Lamar, McKinney, and Walker Streets.</p>	<p>TxDOT closely coordinated with the City of Houston to optimize the local street network connectivity in Segment 3, including the cross streets between Downtown and the east side of downtown. One of the key benefits of the project is that we can restore a continuous southbound street parallel to the highway between Commerce and Leeland Street. This restored street (noted as Hamilton in the schematic) would reestablish connectivity of four east/west streets that were severed when the GRB Convention Center was constructed (Dallas, Lamar, McKinney, and Walker) and improve access between Downtown and areas to the east (East End and Third Ward). It would also support local street capacity during sporting or convention center events.</p> <p>We devoted considerable efforts to maintain Polk Street across I-45/I-69, however we found that we could not get enough vertical separation between I-45 and Polk Street. To continue on Polk Street from the east side, drivers will be routed to the Lamar Street crossing which will be improved to provide a seamless connection to the restored Hamilton Street which connects back to Polk Street. Based on direct coordination with the COH, the Polk St. dedicated bike lane would be rerouted to follow the proposed Hamilton St. and connect to the Columbia Tap Rail-Trail via Walker St.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> TXDOT has responded in detail to METRO's concerns regarding maintaining Polk St., but are not able to meet METRO's concerns regarding the elimination of it's continuation. TXDOT believes that its new Hamilton connection would provide the same connectivity/access as Polk did prior to re-design. No commitment to operating costs</p> <p><u>Design Review</u> If METRO elects to continue to use Polk Street as a bus route (40 &amp; 41), METRO will need to perform an operational analysis to determine the impact to the route using the U-Turn. Based on the design, TXDOT should analyze the traffic along St Emanuel St and Hamilton St. TXDOT shows a 2-lane exit from I69 Northbound onto St Emanuel, merging close Polk St. Weaving in this area will be an issue for buses using the proposed U-turn.</p> <p><b>TxDOT needs to contribute to increased operating cost incurred by METRO due to the closure of Polk Street over depressed US 59/I-45.</b></p>

METRO DEIS Comment	TxDOT FEIS Response	Response Assessment
<p><u>Design constraints:</u> Segment 3 Removal of Pierce Elevated</p> <p><u>Proposed design:</u> The Pierce elevated (IH 45) will be removed and IH 45 will pass downtown on the east and north sides.</p> <p><u>METRO comment:</u> Both St. Joseph Pkwy and Pierce St. are access points to I-45 and they pass on either side of the Downtown Transit Center. The removal of the Pierce elevated on the west side changes access into Downtown. Eliminating the Pierce Street and Saint Joseph Parkway access points to IH 45 N and replacing them with Jefferson and Pease Streets creates a two-block diversion for bus routes traveling between the Downtown Transit Center at the Saint Joseph Parkway and Pierce Street access on the west side of Downtown</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts. Provide a dedicated bus lane connection to Pierce Street and St Joseph Parkway.</p>	<p>Since these comments were provided, TxDOT has coordinated with METRO regarding the access into south Downtown and the Downtown Transit Center.</p> <p>TxDOT will continue to coordinate with METRO during design and construction to minimize impacts to existing transit operations.</p> <p>Pierce/St. Joseph and Memorial/Rusk/Capital: As discussed in our ongoing coordination meetings, the connections to/from Pierce and St. Joseph and I-45 could not be maintained in their current configurations. We will continue to work with you, your consultant and the City of Houston to refine the connections between the proposed Downtown Connectors and Pierce/St. Joseph. The proposed Downtown Connectors will pass over Memorial/Rusk/Capital as the Pierce Elevated does today. We are not able to add new ramp connections to these streets from the Downtown Connectors due to vertical separation and so we can maintain the existing ramp connections to Walker/McKinney and the improved connections to/from Allen Parkway.</p>	<p><u>Page:</u> N/A <u>Line/Feature:</u> N/A</p> <p><u>Remarks:</u> While TXDOT does not address METRO's comments regarding the University LRT elevated design directly in the FEIS. They note that continued coordination to mitigate METRO's concerns/requests will occur. They have stated that they are not able to meet METRO's concerns regarding the elimination of the Pierce Street and St. Joseph Parkway connections to IH 45. No commitment to covering increased operating costs is made</p> <p><u>Design Review</u> TXDOT has not provided a study or report showing estimated reduced travel times to Pease St and Jefferson St. In theory, the traffic volumes of the I-45 connector will be less than the original I-45 traffic. Therefore, travel times might be reduced.</p> <p>Coordination with METRO on Bus Layover locations is now included in DB Contractor procurement documents. Heiner and Jefferson bus layover locations are specifically identified as impacts.</p> <p><b>TxDOT needs to contribute to increased operating cost incurred by METRO due to the closure of Pierce and St Joseph ramps. TxDOT also needs to provide layover alternatives for 24-25 buses in lieu of Heiner Street</b></p>
<p><u>Design constraints:</u> Segment 3 Main at Wheeler</p> <p><u>Proposed design:</u> The proposed improvements show IH 69/US 59 depressed from Spur 527 to SH 288</p> <p><u>METRO comment:</u> Consider providing an option for METRO to construct the University LRT on an elevated structure within the median of US 59/69 from Caroline St. to Alabama St. The LRT would need access through La Branch St. and Alameda Rd. We have not seen sufficient design to further explore this option. Bridge requirements may hinder this option.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>TxDOT will continue to coordinate with METRO during detailed design and construction. Additional information from METRO regarding future plans for the University LRT would be needed to evaluate whether this proposal could be accommodated.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> While TXDOT does not address METRO's comments regarding the University LRT elevated design directly in the FEIS. They note that continued coordination to mitigate METRO's concerns/requests will occur.</p> <p><u>Design Review</u> TXDOT and METRO have been having periodic meetings to coordinate design to address each entity's concerns. BRT is currently proposed for the University corridor, but the alignment is not established. The connection to Wheeler TC, TSU and UH are not defined. METRO and TXDOT are having on-going discussions regarding Wheeler TC, Spur 527, and HOV lanes.</p> <p><b>Wheeler TC needs to be made whole to enable rail, bus, and University BRT to operate.</b></p>
<p><u>Design constraints:</u> Segment 3 Alabama St.</p> <p><u>Proposed design:</u> Alabama St. crosses over depressed section of IH 69/US 59</p> <p><u>METRO comment:</u> Alabama St. is the alignment of the proposed University LRT line between Wheeler Station and TSU/UH. Structure should be wide enough and strong enough to support LRT.</p> <p><u>Possible mitigation measures:</u> Frequent coordination with METRO must be performed throughout the design process to avoid, minimize, and/or mitigate anticipated impacts.</p>	<p>TxDOT will continue to coordinate with METRO during detailed design and construction. Additional information from METRO regarding future plans for the University LRT would be needed to evaluate whether this proposal could be accommodated.</p>	<p><u>Page:</u> ES-2 / 3-25-26 / 7-2 / 7-3 <u>Line/Feature:</u> Table ES-2 / starting at line 25 / 35-26 / 1-6</p> <p><u>Remarks:</u> While TXDOT does not address METRO's concerns regarding Alabama St. width directly in the FEIS. They note that continued coordination to mitigate METRO's concerns/requests will occur.</p> <p><u>Design Review</u> METRO needs sufficient BRT envelope on Alabama Street over I-69/US 59</p>