



RE-EVALUATION OF DART ORANGE LINE DFW AIRPORT EXTENSION IRVING-3 ENVIRONMENTAL ASSESSMENT

FINAL • APRIL 2012





U.S. Department
of Transportation
**Federal Transit
Administration**

REGION VI
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New Mexico, Oklahoma,
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April 9, 2012

Mr. Gary Thomas
President/Executive Director
Dallas Area Rapid Transit
1401 Pacific Avenue
P. O. Box 660163
Dallas, Texas 75266-7201

RE: Environmental Re-Evaluation of Irving -3 DFW Extension Project: Environmental
Assessment

Dear Mr. Thomas:

The Federal Transit Administration (FTA) has completed its review of the Environmental Re-Evaluation and related supporting documentation submitted to us for the referenced project. Based on our review of the material submitted in accordance with 23 CFR §771.129 and in accordance with the requirements of 23 CFR §771.130, it is our determination that there are no significant changes and no significant new circumstances or information relevant to the environmentally cleared action associated with the construction and operation of the project. Therefore, the original Administration Action of a Finding of No Significant Impact (FONSI) that was issued on October 11, 2011 remains valid.

This letter of approval and the Irving-3 DFW Extension Project FONSI are good for a period of three years from the date of October 11, 2011. Should construction not begin by that time or any changes to the selected alternative or affected environment occur, FTA may require supplemental EA documentation.

Thank you and your staff for your cooperation in meeting the requirements of the National Environmental Policy Act (NEPA). If you need further assistance, please contact Ms. Lynn Hayes, Community Planner at (817) 978-0565.

Sincerely,

Robert C. Patrick
Regional Administrator

Cc: Steve Salin – DART
John Hoppie-DART
Paul Blackford-FAA



U.S. Department
of Transportation
**Federal Aviation
Administration**

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2601 Meacham Boulevard
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April 5, 2012

Ms. Lynn Hayes
Federal Transit Administration
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Fort Worth, Texas 76102

VIA EMAIL

RE: Re-Evaluation of DART Orange Line DFW Airport Extension Irving-3 Environmental Assessment

Dear Ms. Hayes:

The Dallas/Fort Worth International Airport (DFW) and the Dallas Area Rapid Transit (DART) have submitted a *Re-Evaluation of DART Orange Line DFW Airport Extension Irving-3 Environmental Assessment* to the Federal Aviation Administration for review. This document, dated April, 2012, addresses the environmental impacts of proposed revisions to the Project since the issuance of the Finding of No Significant Impact on October 11, 2011.

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, provides for the preparation of a written reevaluation if the:

- (1) Proposed action conforms to plans or projects for which a prior FONSI has been issued;
- (2) Data and analyses contained in the previous EA and FONSI are still substantially valid; and
- (3) Pertinent conditions and requirements (all) of the prior approval have, or will be, met in the current action.

This written reevaluation provides the responsible FAA official the information necessary to determine whether the consideration of alternatives, impacts, existing environment, and mitigation measures as set forth in the original EA remain applicable, accurate, and valid.

I have reviewed the DFW/DART document and conclude the contents of the previously prepared Environmental Assessment and FONSI remain valid, and no further action is necessary. The preparation of a new FONSI is not required.

If you should have any questions, need additional information, or would like to discuss please do not hesitate to contact me at (817) 222-5607 or by email at paul.blackford@faa.gov.

Sincerely,



Paul Blackford
Environmental Protection Specialist,
Texas Airports Development Office

Cc: John Hoppie, DART
Sandra Lancaster, DFW International Airport

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SECTION 1. INTRODUCTION

Dallas Area Rapid Transit (DART), in cooperation with the Federal Aviation Administration (FAA) and under the authority of the Federal Transit Administration (FTA), prepared an Environmental Assessment (EA) for the Orange Line Light Rail Transit from Belt Line Station to the Dallas/Fort Worth International Airport (DFW Airport), henceforth the DFW Airport Extension. The purpose of this document was to evaluate the proposed project's environmental impacts in accordance with the *National Environmental Policy Act (NEPA) of 1969*. Both FAA and FTA issued a Finding of No Significant Impact (FONSI) on October 11, 2011. See Appendix A for all FONSI documentation.

1.1 Reason for Environmental Re-Evaluation of DFW Airport Extension EA

Since each FONSI was issued, DART has entered into a design/build contract. As part of the design/build process, modifications to the proposed project (as defined in the EA) have been recommended to reduce overall capital, operation and maintenance costs, and improve the project. FTA is the lead agency; however, FAA as Cooperating Agency has determined these design modifications may result in environmental impacts previously not documented in the DART Orange Line DFW Airport Extension Irving-3 EA. FAA has requested an Environmental Re-Evaluation of the EA be prepared. The purpose of the Environmental Re-Evaluation is to determine whether design modifications have resulted in adverse environmental impacts or substantially changed the proposed mitigation, which would warrant supplemental environmental documentation. If the Environmental Re-Evaluation determines there are no adverse impacts or substantial changes to proposed mitigation, the previous EA and FONSI remain valid.

The proposed design modifications as described below include changes that may result in impacts not originally documented in the EA. In order to determine and document impacts associated with proposed action; analyses have been conducted consistent with *FAA Order 1050.1E, Appendix A – Policies and Procedures for Considering Environmental impacts*, and *FAA Environmental Desk Reference for Airport Actions*. This Environmental Re-Evaluation has also been prepared to comply with appropriate federal regulations for NEPA documentation for both FAA and FTA. Moreover, the document complies with *FAA 1050.1E.410* and *FTA 23 Code of Federal Regulations 771.129 and 130*.

Due to the number of modifications in design occurring throughout the 5.17-mile Light Rail Transit (LRT) alignment a separate document has been prepared to provide a comprehensive evaluation and discussion of potential impacts. This separate document is an Environmental Re-Evaluation to the DFW Airport Extension Irving-3 EA and details the resource categories not impacted by proposed action, resource categories potentially impacted by proposed action, and agency coordination that has occurred. The discussion of resource categories potentially impacted by proposed action follow the original format of the EA and thus focuses on airport factors, affected environmental impacts, and construction related impacts.

1.2 Description of Proposed Design Modifications

The subject of this Environmental Re-Evaluation is to document the modifications developed during the 30% and 60% design processes. **Figures 1-1** and **1-2** illustrate the differences between the alignment proposed at the 10% design phase and the modified design, henceforth the proposed action. These design modifications include:

- alignment shift between Civil Station 630+00 and Civil Station 700+00
- proposed use of box culverts instead of clear spans at some water crossings

- relocation of a portion of North Airfield Drive
- relocation and reduction in number of TPSS
- rail line/TPSS access roads
- modified access to RTR 4E
- reconfiguration of Crossunder #2
- modification to staging area locations
- addition of temporary construction road

The reasons to shift the alignment include:

- avoid the relocation of the FAA infrastructure: High-Mast Pole hosting Low Level Windshear Alert System # 4 (LLWAS NE #4) and Airport Surface Detection Equipment Remote Unit (ASDE-X RU #2) as shown in **Figure 1-3**
- eliminate bridge structures over Freeport Parkway and North Airfield Drive to minimize the impact to pilot “human factor” concern
- eliminate a “pinch point” issue between the future perimeter taxiways, DART’s alignment, and the future TxDOT State Highway 114 widening
- eliminate the at-grade crossing at Plaza Drive and improve pedestrian safety
- improve LRT operations and efficiency

DFW Station at Terminal A

As stated in the original EA, DFW Airport is leading the design efforts for the DFW LRT Station. DFW Airport has completed the design of the station. Included in this design are pedestrian connections to terminals A and B and the future TEX Rail Platform. A passenger drop-off “Kiss and Ride Area” would be provided that would be accessible from DFW’s Crossunder #2. The proposed plan for the DFW Terminal A Station would also require a traffic shift at Crossunder #2 and a slight modification of roadways as depicted in **Figure 1-4**, and **Figure 1-5**. This design does not represent a substantial change from the original EA and does not introduce any new or modified environmental impacts.

Impact assessment categories analyzed in the Environmental Re-Evaluation due to these project modifications include:

- zoning and land use
- industrial and commercial activity
- visual and aesthetic resources
- noise and vibration
- pedestrian movements
- traffic flow
- parking
- public services, safety, and security
- vegetation
- wildlife and threatened or endangered species
- water resources
- air quality
- cultural resources
- hazardous materials

Additionally, this Environmental Re-Evaluation analyzed changes to airport factors, construction impacts, and cumulative and indirect impacts. The assessment included the proposed modifications of the rail alignment and the connected action of relocating a portion of North Airfield Drive.

Figure 1-1. DART I-3 Route Comparison Overview

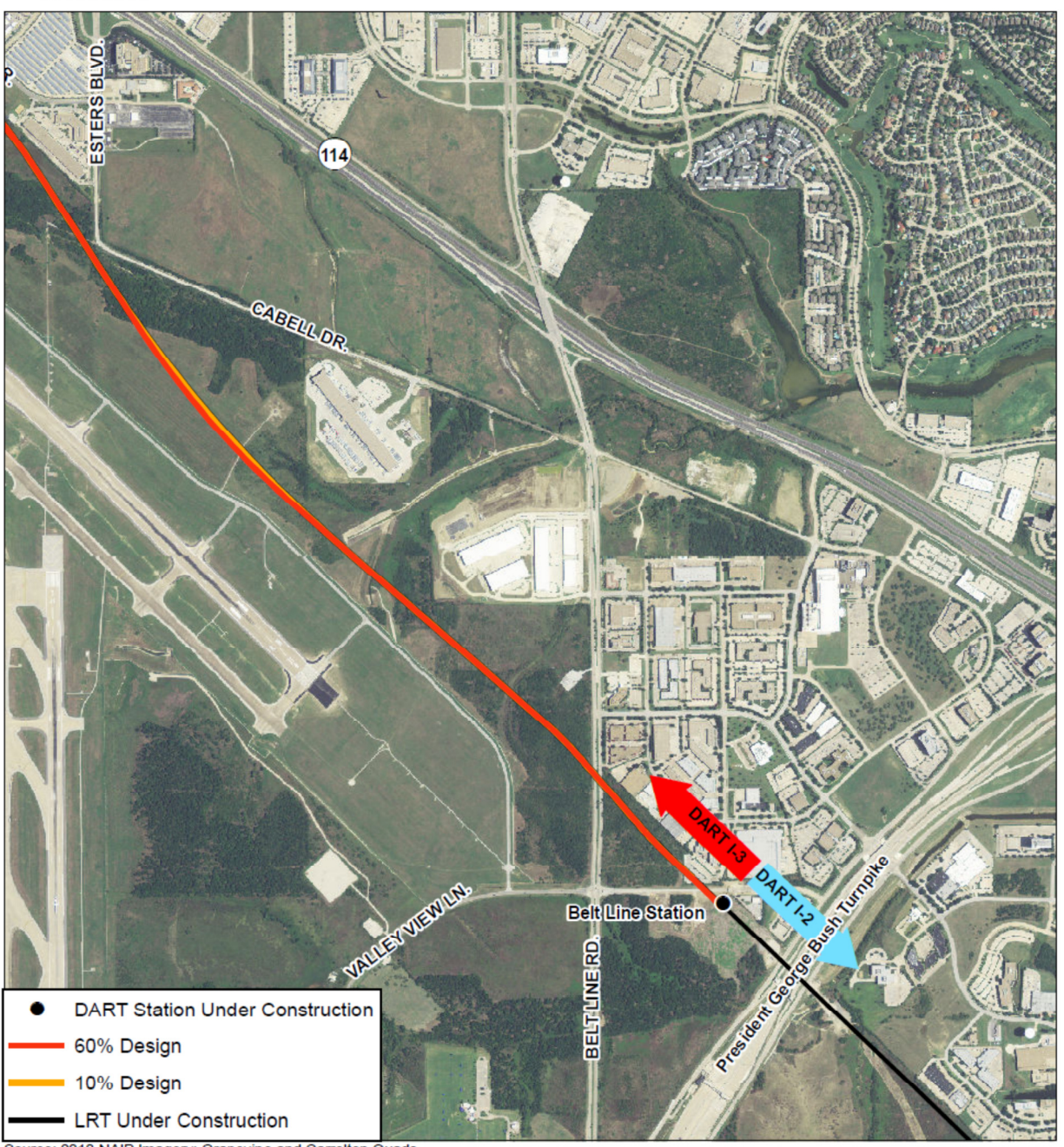
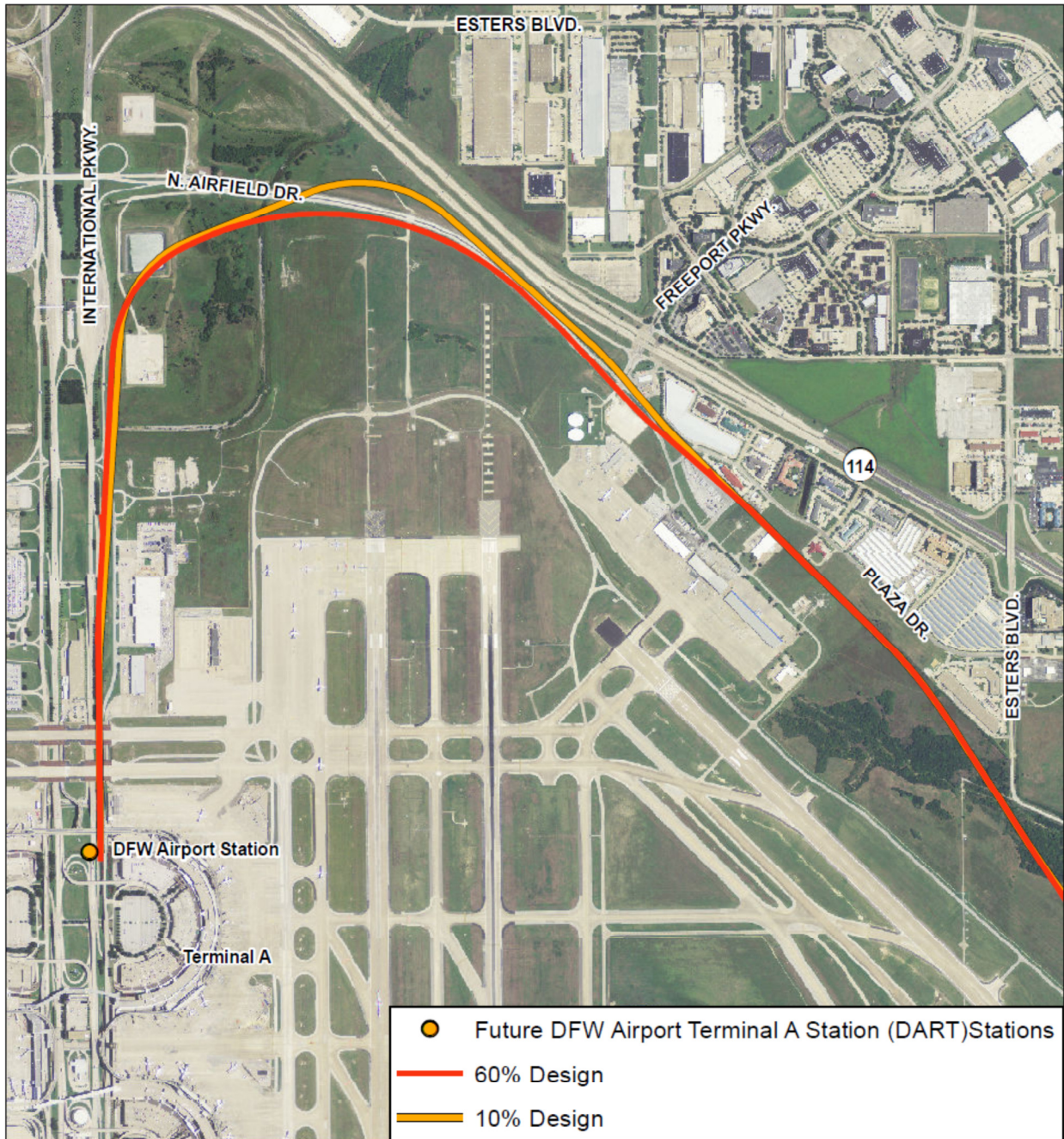


Figure 1-1



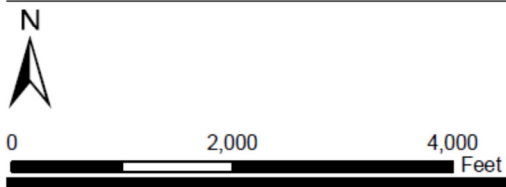
DART I-3 ROUTE COMPARISON OVERVIEW
DART Irving-3 Supplemental Environmental Assessment

Figure 1-2. DART I-E Route Comparison Overview



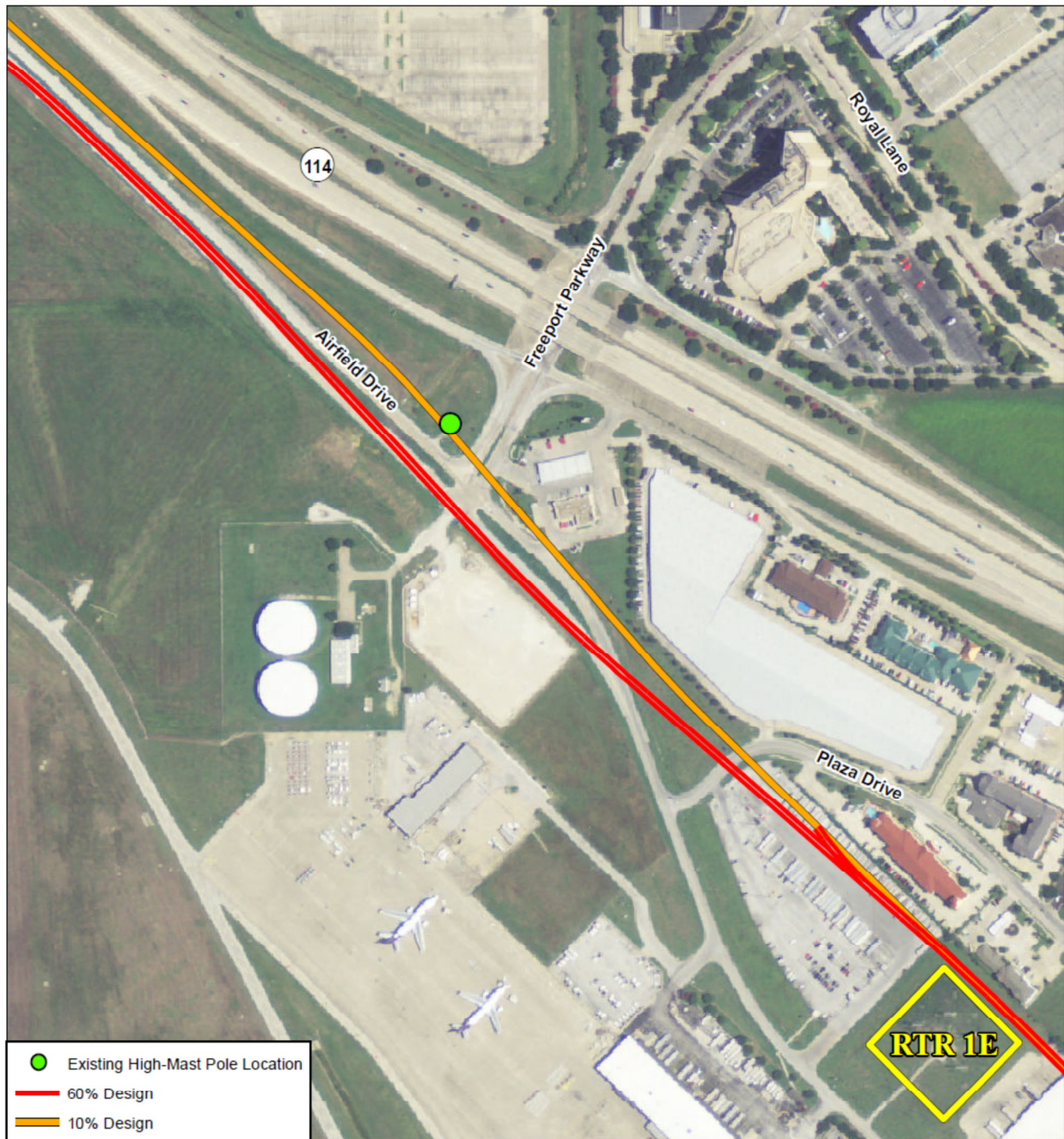
Source: 2010 NAIP Imagery; Grapevine and Carrollton Quads

Figure 1-2



DART I-3 ROUTE COMPARISON OVERVIEW
DART Irving-3 Supplemental Environmental Assessment

Figure 1-3. Relocation of High-Mast Pole No Longer Required



Source: NCTCOG 2008, GeoSearch 2009 and 2012, and URS study team, 2009 and 2012.

FIGURE 1-3



0 250 500 750 1,000 Feet

RELOCATION OF HIGH-MAST POLE NO LONGER REQUIRED

DART Irving-3 Supplemental Environmental Assessment

Figure 1-4. DFW Airport Terminal A LRT Station



Figure 1-5. DFW Airport Terminal A LRT Station Bus/Kiss and Ride Area



1.3 Resource Areas Not Impacted by Proposed Action

Several resource areas would not be impacted by the proposed modifications to the DFW Airport Extension. Analyses on these resource areas conducted under the initial EA noted no adverse impacts. Given that the project lies entirely on DFW Airport property, the following resource areas would not be impacted and are excluded from further analysis:

- residential and community resources
- demographic characteristics
- political jurisdictions
- electrical and magnetic fields
- parklands
- physiography, geology, and soils
- environmental justice

SECTION 2. AIRPORT FACTORS

2.1 Aeronautical Assessment for Rail Access on to DFW Airport

DART’s initial aeronautical assessment for the project EA identified 18 areas of concern that required additional coordination as design for the proposed action advanced. As a result of the alignment modifications reflected in the 60% design, there is no change to three of the 18 areas of concern. These are listed in **Table 2-1**.

Table 2-1. EA Aeronautical Assessment Areas of Concern (No Change)	
5. Communication shadowing on the planned North East End Around Taxiway system	Area of Concern: Although the DART proposed LRT alignment is not expected to induce an additional shadowing onto the operational areas of the airport or approach/departure corridors (EA Appendix L, page 32), existing communication shadows will require future FAA assessment and mitigation to optimize communication coverage for the proposed North East End-Around Taxiway (Northeast Perimeter Taxiway) system.
	DART Action: No DART action is required.
	Action Update: No change anticipated.
6. Site drainage at Remote Transmitter Receiver (RTR) facilities 1E and 2E	Area of Concern: FAA Remote Transmitter Receiver facilities RTR-1E and RTR-2E would be adjacent to the proposed LRT alignment. Poor drainage conditions currently exist at each site, resulting in up to two inches of standing water for several days after a rain storm (EA Appendix L, page 35).
	DART Action: Constructed within the DART ROW, a drainage ditch between the tracks and the two FAA facilities would adequately convey storm water away from the proposed LRT alignment. Construction of the DART rail line would not worsen the existing FAA facility drainage problem. It is likely that FAA facility drainage would improve as a result of the DART project.
	Action Update: No change anticipated.
7. Continuous access to sites and equipment during LRT construction required	Area of Concern: FAA requires continuous access (24 hours per day, 7 days per week) to FAA facilities to perform safety critical functions.
	DART Action: DART would ensure that all five FAA facilities identified would have continuous access during and after construction. Maintaining this access has been identified as a mitigation item and is discussed in sections 4.9 and 5.1 of the original EA.
	Action Update: No change anticipated.

Table 2-2 identifies 15 areas of concern that had been previously documented. These have been updated and include elements that no longer require action and elements that require additional action throughout the course of the project.

Table 2-2. EA Aeronautical Assessment Areas of Concern (Updated)	
1. Airspace Feasibility Study	<p>Area of Concern: An Airspace Feasibility Study would be required to allow the FAA to assess and provide conditional comments on the proposed project during the preliminary engineering level of design.</p> <hr/> <p>DART Action: DART has completed and submitted an Airspace Feasibility Study to FAA.</p> <hr/> <p>DART Action Update: The DART I-3 Feasibility Study studied the entire alignment based on the EA 10% design. The alignment was divided into five separate airspace zones consistent with logical FAA aeronautical assessment areas, such as Terminal Instrument Procedures (TERPS) clearance surfaces. The FAA did not object to the proposed permanent features (tops of catenary poles) from an aeronautical and airports design standards perspective.</p> <p>The proposed project does differ slightly from the EA 10% design. The horizontal and vertical alignment in Zones 1, 2, 4 and 5 are effectively the same and would not induce a change in the FAA’s feasibility determination. Within Zone 3 (located under Runway 17C and 17R approaches), the vertical alignment has changed substantially by lowering the elevated sections to an at-grade configuration. The horizontal alignment in this section is near the future Northeast Perimeter Taxiway, however, this alignment meets all FAA airport design standards.</p> <p>The construction phase of the project would temporarily impact some of the FAA clearance surfaces, which would be studied separately based on the design plans. This routine process would be coordinated and scheduled to minimize the impact on DFW Airport operations.</p>
2. Runway 17C and 17L runway protection zones	<p>Area of Concern: The proposed LRT alignment would cross through the runway protection zone (RPZ) for runways 17C and 17L (EA Appendix L, page 8). Due to the limited and infrequent activity of DART and presence of other transportation infrastructure (SH 114) within the same RPZs, the intrusion is considered an acceptable level of risk (EA Appendix L, page 9).</p> <hr/> <p>DART Action: DART would obtain FAA concurrence that the LRT alignment intrusion would be considered an acceptable level of risk for the Runway 17C and 17L RPZs. DART submitted an Airspace Feasibility Study to FAA for review and comment. The FAA provided favorable comments (October 2010) on the proposed project noting that they, “do not object with conditions to the construction described in this proposal,” provided several conditions are met. These conditions would be mitigated through the completion and submission of final design plans and specifications, final airspace studies on actual design plans, and the associated construction equipment and associated work areas for the project and FAA analysis and determinations.</p> <hr/> <p>DART Action Update: The DART I-3 revised alignment would remove the rail alignment from the Runway 17L RPZ. The revised route is still within the Runway 17C RPZ. The FAA will fully assess and determine any potential impacts during actual design plan airspace reviews.</p>
3. Terminal Instrument Procedures: Localizer	<p>Area of Concern: The Localizer Final Trapezoid related to runway 17C would need to be re-evaluated in a formal airspace review of the 100% design. This review</p>

<p>Final Trapezoid</p>	<p>would include an assessment of associated heights to determine if related minimums would require increase. If any small increases would be required to runways 17R, 17C and 17L straight-in procedures minimums (LOC only), the increase would constitute a minimal operational impact (EA Appendix L, page 22). FAA has requested airspace studies be submitted for all planned features and temporary construction equipment associated with the design modification in order to assess their potential effects on FAA systems, services, and instrument procedures.</p>
	<p>DART Action: DART has completed a feasibility airspace study, based on preliminary designs, and no aeronautical impacts were found by the FAA. Once final design plans have been completed, a final airspace study would be accomplished to confirm any changes in design, impacts found, and any mitigation required.</p>
	<p>DART Action Update: The proposed design modification would have less impact on Runways 17C and 17R due to the elimination of the elevated tracks over North Airfield Drive. DART will develop and submit airspace studies for the proposed design modification. As a part of the airspace study process FAA will assess all planned features and temporary construction equipment for potential impacts to existing FAA instrument procedures, airport and Federal Aviation Regulations (FAR) Part 77 imaginary surfaces, FAA navigational system and services. FAA Airspace Determinations provide the results of the assessments and document required conditions of the air space studies.</p>
<p>4. Runway 31R Localizer: Flight Inspection Error Tolerance</p>	<p>Area of Concern: The results of the math modeling scenario of the existing FAA Localizer system for runway 31R showed an approximate error to the propagated signal in the amount of 30% of allowable flight inspection tolerances (EA Appendix L, page 30). This error assumed a 'worst case scenario' where the DART light rail vehicles would be present along the entire length of the track, creating a continuous modeling wall 14 feet higher than the elevation of the rail. This modeling wall provided a flat reflective surface and created an error of 30%. At any given time, a light rail vehicle would be present on only 2-4% of the proposed LRT alignment, which would substantially decrease the actual reflective surfaces, and therefore, the error. The FAA currently has scheduled an upgrade to the system to be completed by the summer of 2011. With the completion of the planned upgrade, the math model showed that the 'worst case scenario' would result in an error of only 3.3%.</p>
	<p>DART Action: DART would continue discussions with FAA regarding the assumptions made during the modeling efforts and proposed real-time operations of the proposed LRT line. Coordination would confirm that the 'worst case scenario' would not be an operational issue, until the FAA completes the Localizer upgrade (scheduled for the summer of 2011). Revenue service operation of proposed LRT alignment is currently scheduled for 2014. In the event that the FAA does not meet the expected timeline for the upgrade, DART and DFW Airport would coordinate with the FAA to develop a mitigation strategy. Testing or operation of DART LRVs on the guideway would be prohibited until the Runway 31R ILS system has been mitigated and approved by the FAA.</p>
	<p>DART Action Update: The FAA has accelerated their navigational system upgrade for the Runway 31R Instrument Landing System to the summer of 2012. This two</p>

	<p>week process would most likely restrict some construction activities on the I-3 line in the areas parallel to Runway 31R. FAA would coordinate with DFW Airport and DART’s design-build contractor.</p>
<p>8. Relocation of LLWAS NE #4 and ASDE-X RU #2</p>	<p>Area of Concern: The EA 10% LRT alignment would require the relocation of the high-mast pole hosting the LLWAS-NE #4 (EA Appendix L, page 37) and the ASDE-X RU #2 (EA Appendix L, page 40).</p> <p>Operation of associated FAA systems and other associated systems must be maintained during the relocation process (EA Appendix L, page 38) as best as possible and as approved by the FAA.</p> <p>DART Action: The relocation of a high-mast pole and operational acceptance of the systems and services must be accomplished prior to the removal of the existing high-mast pole and associated services. The relocation of the mast pole is considered to be a connected action that is required to be discussed in the environmental documentation. The existing high-mast pole would be relocated approximately 2,000 feet east southeast of the existing location on North Airfield Drive. The proposed relocation site would be collocated at an existing FAA communications facility (RTR 1E) as shown in figure 1-3 of the EA. The proposed location for the high-mast pole has been selected by the FAA and will meet FAA's siting requirements for wind coverage and detection of wind shears. The DART contractor would establish the new high-mast pole infrastructure and have the FAA install and integrate their associated electronic equipment, required software updates, testing and certifications. Because the FAA's sensor would have to be relocated as a result of the DART/FTA project, all of the associated costs incurred as a result of the relocation, including costs associated with mitigating impacts to other airport facilities, systems, equipment and/or their infrastructures, must be paid by DART as part of their mitigation commitments under this EA. Both sites are along the northeastern boundary of the airport with access off of North Airfield Drive. In order to minimize the wind shear detection capability down-time, a “hot cut-over” integration of the new sensor is recommended. A new high-mast pole would be constructed and the FAA systems would be operational prior to the removal of the existing high-mast pole (Jacobs 38). Potential visual impacts of this connected action are discussed in Section 4.6 of the EA. The current location is leased to the FAA by DFW Airport. As a result of this connected action, it is required that FAA conduct an Environmental Due Diligence Audit (EDDA) in accordance with FAA Order 1050.19B. This order addresses the acquiring or disposing of real property. Displacement of the high-mast pole hosting the LLWAS and ASDE-X RU #2 would result in a lease termination between DFW Airport and FAA and site control being transferred to DFW Airport. Because the property was a lease, the requirement for an EDDA may be waived, if deemed appropriate.</p> <p>DART Action Update: The proposed LRT alignment has been shifted approximately 100 feet south of the LLWAS-NE #4 and ASDE-X RU #2 high-mast pole. Additionally, the vertical alignment has been lowered approximately 30 feet. The modified alignment would eliminate the direct physical impact to the FAA LLWAS-NE #4 and ASDE-X RU #2 systems.</p> <p>The access driveway to the site would not be impacted and ingress/egress for FAA personnel would be maintained.</p>

<p>9. Software Adaptation</p>	<p>Area of Concern: An additional connected action to the relocation of the high-mast pole currently hosting the LLWAS NE #4 and ASDE-X RU #2, a software adaptation to the Integrated Terminal Weather Information System and Terminal Doppler Weather Radar System, would also be required (EA Appendix L, page 39). This action is required to maintain all affected systems</p> <p>DART Action: DART would coordinate with the FAA early in final design to develop a plan to allow the time required for software development, testing, and integration prior to relocation of the high-mast pole.</p> <p>DART Action Update: On March 20, 2012 FAA confirmed the LLWAS-NE #4 and ASDE-X RU #2 high-mast pole would not have to be relocated. During construction DART would coordinate with SSC for risk management purposes and possible equipment outages.</p>
<p>10. DFW Airport West Surveillance Radar</p>	<p>Area of Concern: The proposed LRT alignment would be located 1,700 feet away from the West Airport Surveillance Radar and would not be located within the 1,500 foot buffer prescribed by the FAA siting guidance for Advisory Circular 150-5300-13 Chapter 6, Airport Surveillance Radar. Additionally, the proposed DART LRT planned elevation (at 2,500 feet from the radar) would be more than 50 feet below the radar antenna. Radar system coverage and operation should be monitored by FAA to maintain optimal system performance (EA Appendix L, page 41).</p> <p>DART Action: No DART action would be required, but DART would coordinate with the FAA as construction activities begin within 2,500 feet of the FAA's Northwest Airport Surveillance Radar (ASR) System. Also, DART would request the FAA to monitor their radar system to ensure no construction impacts would be introduced.</p> <p>DART Action Update: After an additional review of the proposed LRT alignment, it now appears to be located just over 1,500 feet from the ASR system, in accordance with FAA siting criteria. DART will coordinate with the FAA as construction activities within 2,500 feet of the FAA's Northwest Airport Surveillance Radar (ASR) system begin so that the FAA can monitor the radar system to ensure no construction impacts are being introduced by the project. In the event that an anomaly is detected, the FAA will first determine the source of the anomaly and then determine the appropriate mitigation. This FAA system will usually require some software adjustments to eliminate the anomaly.</p>
<p>11. DFW Airport East ASDE-X RU #3 Potential Multi-path Signal Reflections</p>	<p>Area of Concern: The proposed LRT alignment could induce a reflection into the movement area for the ASDE-X RU #3 located on the East Air Traffic Control Tower. A coordinated project review with the FAA's Radar Surface Systems Engineering Group (AJW-1482/ATO-W) of the proposed DART LRT alignment and associated elevations has determined that there may be the potential of multi-path reflections into the ASDE-X system from aircraft or vehicles on the Northeast Hold Pad, specifically Taxiways EF, EG and EH (EA Appendix L, pages 43- 44).</p> <p>DART Action: DART would coordinate with the FAA when the construction phase begins west of Freeport Parkway or west of the extended centerline of Runway</p>

	<p>17C. This coordination, at the recommendation of FAA, AJW-1482/ATO-W organization, would allow the FAA to start monitoring the ASDE-X system for any potential multi-path issues common for projects similar to the proposed project. In the event that multi-path signal reflections would be identified, DART would work with the FAA to mitigate those multi-path issues associated with the proposed LRT alignment. If ASDE-X system optimization would be necessary, such action would be covered under a reimbursable agreement between DART, DFW Airport, and FAA.</p>
	<p>DART Action Update: The proposed design modifications would result in the LRT alignment being lower in height compared to the 10% design in two substantial areas north of Runways 17C and 17R. Lowering the guideway to at-grade would reduce the number of multi-path potential sources and associated operational impacts. Preliminary assessment completed by FAA for the proposed design modifications did not reveal obvious potential impacts to the ASDE-X system. During construction of the LRT alignment FAA will monitor the ASDE-X system to determine if system anomalies occur. Anomalies attributed to the LRT alignment must be mitigated by DART as soon as possible through coordination with FAA.</p>
<p>12. Northeast Perimeter Taxiway traffic control visibility</p>	<p>Area of Concern: Once the Northeast Perimeter Taxiway is in operation, air traffic controllers would view taxiing traffic proximate to the proposed LRT alignment and existing roadways. Air traffic controllers’ ability to quickly acquire and discriminate activity on the Northeast Perimeter Taxiway could be compromised by high point light sources originating from the transportation infrastructure (EA Appendix L, page 47).</p>
	<p>DART Action: DART would coordinate with FAA early in final design to include light sources that do not contribute to an adverse visual scene for either air traffic controllers or pilots. Using fixtures with hoods, directing light aim and using particular colors of light would help minimize negative effects (EA Appendix L, page 47).</p>
	<p>DART Action Update: The 10% design identifies two levels (at-grade and elevated guideway) of light sources from the LRVs. The proposed alignment modification would place the LRVs at-grade (the same level as the motor vehicles operating on North Airfield Drive and SH114). This alignment would place all potential light sources at a single level. DART is developing panoramic visual graphics to assist Air Traffic understanding of the proposed visual scene and visual screen at the pinch-point location. DART will continue coordination with the FAA and DFW Airport on implementing effective mitigation, as required.</p>
<p>13. Chesapeake Pad Site AC</p>	<p>Area of Concern: The elevated guideway near Chesapeake Energy’s Pad Site “AC” would block the line-of-sight path of the supervisory control and data acquisition (SCADA) communication link system (EA Appendix L, page 44).</p>
	<p>DART Action: Analysis shows there would be an 8-foot penetration of the Chesapeake SCADA path at the peak of the bridge by the DART rail vehicle. This would be mitigated by increasing the antenna tower height. This impact and mitigation is discussed in Section 4.2 of the EA as an impact to Industrial and Commercial Activity.</p>
	<p>DART Action Update: The modified alignment would no longer impact the</p>

	<p>communication path of the Chesapeake SCADA system. Shifting to an at-grade alignment would position the LRVs at the same elevation as trucks currently traveling on North Airfield Drive. DART has confirmed with Chesapeake that their proposed design would not impact the SCADA operational performance.</p>
<p>14. Northeast Perimeter Taxiway taxiing operation safety – daytime visual screening</p>	<p>Area of Concern: A human factors analysis identified that the presence of DART rail in proximity to the Northeast Perimeter Taxiway could create a daytime level distraction for taxiing pilots. This could render end-around taxi operations unsafe (EA Appendix L, page 47).</p> <p>DART Action: DART would coordinate with the FAA early in final design to develop acceptable visual screening to assist pilots’ ability to discriminate the presence of the LRT system near the planned Northeast Perimeter Taxiway system. Visual screening (a fence with red vinyl slats) would be placed between the proposed LRT alignment and the airport operations area to provide a visual cue to pilots that LRVs are not in the same operational space as the taxiway (EA Appendix L, page 49). Visual screening would be proposed along the alignment approximately from Civil Station 648+00 through 695+00, as shown in EA figures 3-1 and 3-3.</p> <p>DART Action Update: The proposed alignment would be at-grade (approximately 30 feet lower than the 10% design) throughout the pinch-point section. The proposed alignment would be located slightly closer to the proposed Northeast Perimeter Taxiway by approximately 50 feet. The proposed alignment, with effective visual screening and obstruction lighting, should provide positive daytime visual cues and discrimination for pilots taxiing on the Northeast Perimeter Taxiway. This is reflected in Figures 2-2 and 2-3.</p>
<p>15. Northeast Perimeter Taxiway operation safety – nighttime visual screening</p>	<p>Area of Concern: A human factors analysis identified that the presence of DART in proximity to the Northeast Perimeter Taxiway could create a nighttime level of distraction for taxiing pilots, rendering end-around taxi operations unsafe (EA Appendix L, page 47). During nighttime operations any potential similarity between rail headlights and generic aircraft nose/wheel lights could present confusion. The light of an oncoming train could incorrectly signal the approach of an on-coming taxiing aircraft (EA Appendix L, page 49).</p> <p>DART Action: DART would coordinate with the FAA early in final design phase to develop acceptable methods to visually screen portions of the LRT system to minimize potential distractions to pilots' taxiing operations on the Northeast Perimeter Taxiway.</p> <p>In addition, DART would add red obstruction lights at the tops of selected catenary poles to provide additional visual cues to pilots, improving safety conditions during nighttime operations. Standard FAA approved red obstruction lights would be placed along the alignment approximately from Civil Station 648+00 through 695+00 and from Civil Station 575+00 to 610+00, as shown in EA figures 3-2 and 3-3.</p> <p>DART Action Update: The proposed alignment would be at-grade (approximately 30 feet lower than the 10% design) throughout the pinch-point section. The proposed alignment would be located slightly closer to the proposed Northeast Perimeter Taxiway by approximately 50 feet. The proposed alignment, with effective visual screening and obstruction lighting, should provide positive</p>

	<p>nighttime visual cues and discrimination for pilots taxiing on the Northeast Perimeter Taxiway. This is reflected in Figures 2-2 and 2-3.</p>
<p>16. FAA Safety Risk Management Decision</p>	<p>Area of Concern: The FAA is in the process of implementing a Safety Risk Management & Safety Management System that would apply to airport projects such as the proposed action. Such projects would require proactive coordination with the FAA and DFW Airport Staff on the location of the proposed LRT alternative and activities during construction and operational phases. The FAA will evaluate the proposed project information and develop a Safety Risk Decision (EA Appendix L, pages 53-54).</p> <p>DART Action: DART would work with the various FAA offices, such as the Airports Division and the Air Traffic Organization, early in the final design phase of the project to provide overview briefings, construction and operational processes, detailed project information, facilitation of meetings, and assist in the development of mitigation strategies toward the timely completion of an approved Safety Risk Decision for the proposed project.</p> <p>DART Action Update: The FAA has been provided 60% design plans for the project. Upon completion of their review, and if necessary, the FAA will host a Safety Risk Management Panel with representatives within the FAA, DFW Airport and DART to identify potential hazards, their risk severity and frequency, and mitigation to an acceptable level of safety for the project and the national airspace system. DART would coordinate with the FAA and DFW Airport in developing and implementing recommended mitigation.</p>
<p>17. Formal Airspace Processing and Approvals</p>	<p>Area of Concern: In compliance with FAA Regulation Part 77, any construction occurring on an airport requires an airspace study (EA Appendix L, page 14).</p> <p>DART Action: DART has successfully completed a feasibility airspace study based on preliminary (10%) design plans for the entire alignment. The FAA determination did not object to the proposed plan, but provided a list of conditions that must be met for formal approval. To fulfill these conditions, additional airspace studies, based on the final design, would be required. Copies of the letters of determination resulting from the feasibility airspace study are available upon request. DART would include planning and coordination for formal airspace processing and approvals into the Design-Build and Construction Phases of the project prior to the start of any construction work for any temporary or permanent features.</p> <p>DART Action Update: DFW Airport and the FAA have received 60 % design plans for their review. The FAA will assess the proposed design and provide comments in the form of an airspace determination. DART would review the FAA determination and coordinate with the FAA and DFW Airport on any mitigation required. To date, ten of twelve air space studies have been reviewed and approved by FAA.</p>
<p>18. FAA Microwave Path line-of-sight from 4E RTR to Center ATCT</p>	<p>Area of Concern: The results of the line-of-sight evaluation indicate that the LRVs could penetrate the outer limits of the 4E RTR to Central ATCT Microwave Path, Fresnel Zone clearance (EA Appendix L, page 35). Preliminary evaluation results show that 60% of the Fresnel Zone would not be penetrated. The level of penetration could impact the operational integrity of the link.</p>

	<p>DART Action: Once final design plans have been developed, a path analysis would be coordinated with the FAA using an obstruction that is a close representative of an LRV. If the results reveal an impact, a mitigation plan would be developed in coordination with the FAA.</p>
	<p>DART Action Update: FAA recommends raising the existing antenna and adjusting associated infrastructure on a new 40-foot monopole tower at the existing location. This action would be addressed through an MOA and reimbursable agreement with DART, DFW Airport, and FAA.</p>

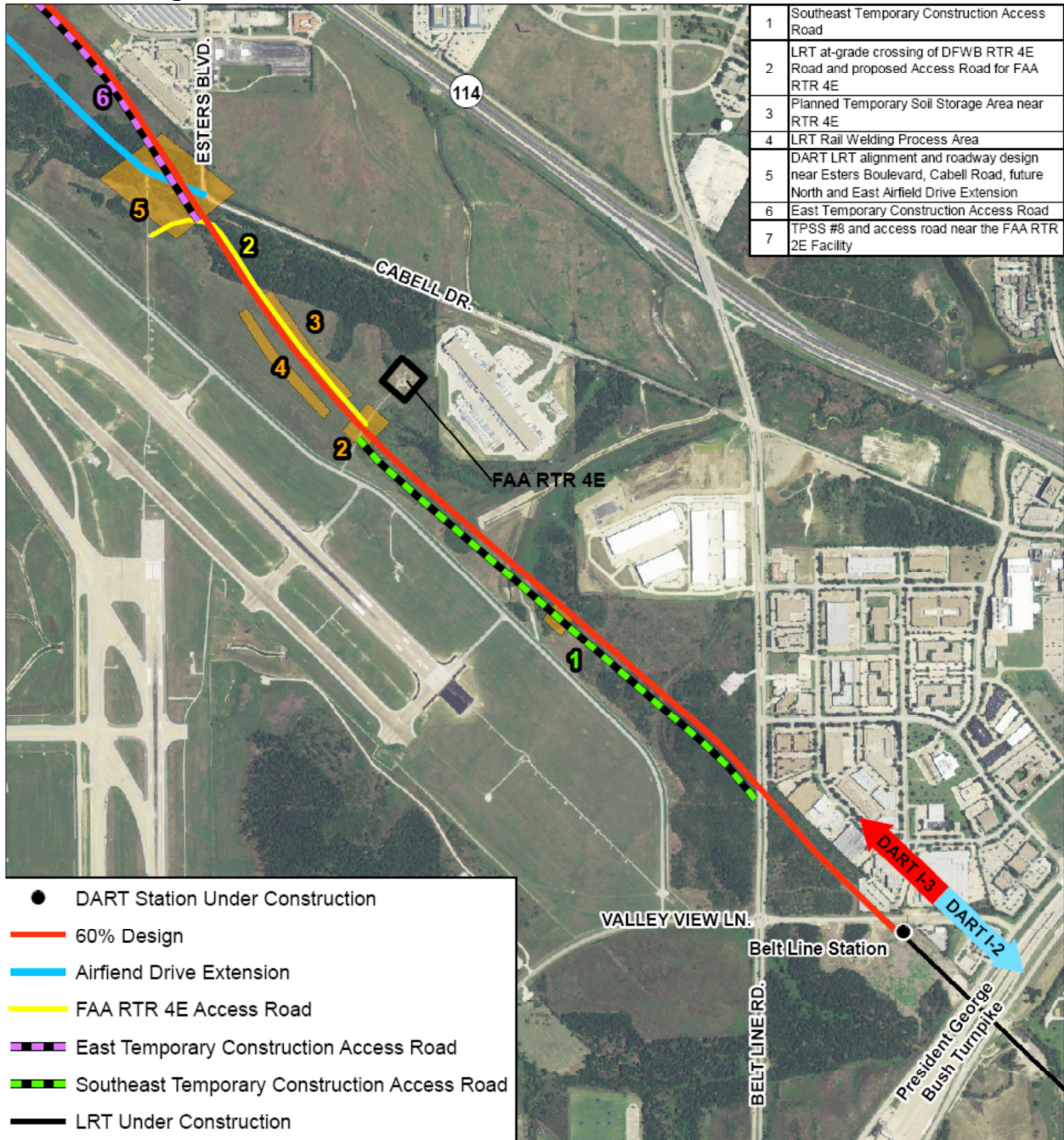
Table 2-3 documents 15 additional areas of concern that have been identified under the 60% design. DART and DFW Airport have collaborated on a solution that would minimize potential environmental effects (very similar to the 10% design) and would provide an unimpeded route for the future extension of North Airfield Drive to the east, which would not affect DART I-3 operations. The additional areas of concern are also depicted in **Figures 2-1** and **2-2** with the respective table numbering corresponding to the relevant area on the referenced Figures.

Table 2-3. EA Aeronautical Assessment Areas of Concern (New)	
1. Southeast Construction Access Road	<p>Area of Concern: The proposed temporary construction road parallels the LRT alignment from Belt Line Road to FAA DFWB RTR 4E Access Road. Should be capable of accommodating DFW Emergency Vehicle access.</p>
	<p>DART Action: The southeast temporary construction access road would continue to be coordinated with DFW Airport, but is only intended to be temporary in nature. The area would be restored to pre-existing conditions upon completion of the project. DART has coordinated with DFW Airport and the final design will accommodate DFW Airport’s large vehicles.</p>
2. FAA DFWB RTR 4E Access Road	<p>Area of Concern: FAA is concerned about the type of gates and safety of FAA vehicles on the FAA DFWB RTR 4E access road.</p>
	<p>DART Action: DART is providing alternative access to the facility. See Section 3.7.</p>
3. Planned Temporary Soil Storage Area near RTR 4E	<p>Area of Concern: The FAA identified that the proposed Soil Storage Area could impact the operational performance of the FAA microwave link from the FAA RTR 4E to FAA Central ATCT path.</p>
	<p>DART Action: DART would work with the FAA to develop a test plan and assess potential impact. Mitigation would be proposed, if required.</p>
4. LRT Rail Welding Process Area	<p>Area of Concern: The FAA and DFW Airport requested confirmation that the LRT rail welding process would not interfere with FAA systems (radio communication equipment). Additionally, the FAA asked if the welding process would generate visual flashes that could affect air traffic controllers and/or pilots.</p>
	<p>DART Action: DART would develop information on the welding process and, if necessary, complete a demonstration for FAA personnel. Screening measures will be implemented during construction to shield any visual flashes from the view of air traffic controllers and/or pilots.</p>
5. DART LRT alignment and roadway design near Esters Boulevard, Cabell Road,	<p>Area of Concern: DART proposed to replace the originally designed aerial structure with an at-grade alignment. DFW Airport expressed a concern that the proposed design could constrain DFW Airport’s ability to construct future</p>

<p>future North and East Airfield Drive Extensions</p>	<p>roadway infrastructure. DART Action: DART has collaborated with DFW Airport to develop a shortened version of the original aerial structure concept that allows for construction of future roadway infrastructure including the new RTR 4E Access Road.</p>
<p>6. East Temporary Construction Access Road</p>	<p>Area of Concern: The proposed construction road parallel to the proposed LRT alignment from the proposed RTR DFWB 4E Access Road to North Airfield Drive should be suitable for DFW Airport Emergency Vehicles. DART Action: The temporary construction access road would continue to be coordinated with DFW Airport, but is only intended to be temporary in nature. The area would be restored to pre-existing conditions upon completion of the LRT alignment.</p>
<p>7. TPSS #8 near the FAA RTR 2E Communication Facility</p>	<p>Area of Concern: Previous DART studies for potential spectrum interference, due to the DART Rail infrastructure, did not consider the placement of a TPSS facility. DART Action: DART would work with FAA’s Spectrum Management organization on the development of a test plan to determine if the TPSS would introduce any adverse emissions.</p>
<p>8. Retaining wall near Hawthorn Suites</p>	<p>Area of Concern: FAA wants to confirm that the track profile and wall, including the noise wall, would not interfere with the FAA tower. DART Action: The DFW West ASR to RTR 1E MTI Reflector path, RTR 2E complex, DFW West ASR to RTR 4E MTI Reflector path and DFW West ASR to RTR 4E CPME Beacon would not be affected by the proposed DART I-3 LRT alignment. DART coordinated with DFW Airport Survey Department to determine if communication paths would be impacted by the proposed action. Communication path number nine crosses over the proposed project and would have minor impact; however, this would not affect the operational capability.</p>
<p>9. Emergency Vehicle Access to Chesapeake Pad Site AC</p>	<p>Area of Concern: DFW Airport requested confirmation that their large Aircraft Rescue and Fire Fighting (ARFF) vehicles could access the Chesapeake Pad AC site. DART Action: DART has coordinated with DFW Airport, Federal Express and Chesapeake on the overall design of the access road. The final design will accommodate DFW Airport’s large ARFF vehicles as well as Chesapeake’s largest vehicles, and has been accepted by DFW Airport, Federal Express, and Chesapeake.</p>
<p>10. ONCOR Dual Power Feed to Water Pump Station – Northeast (NE) Tanks</p>	<p>Area of Concern: DFW Airport requested information on how the ONCOR power feed to the airport water pumps near Freeport Parkway would be protected. The loss of one of the sources would critically impact DFW Airport operations. DART Action: Water Pump Station-NE Tanks, has two power feeds, one from the east side and the other one from the west side. The feed on the east side would not be disrupted by the project. The existing ONCOR switch gear on the west side would be relocated. It would be a one-day event to splice the cable. During the splicing, there would be one power feed available for the water pump. The power to the water pump would not be disrupted by the project and it would remain fully operational during the required work. Coordination with ONCOR and DFW Airport will be ongoing during construction in order to timely schedule this activity.</p>
<p>11. DART LRT vehicle visual screening</p>	<p>Area of Concern: FAA has requested exhibits for the planned DART Visual Screening in the Northeast Perimeter Taxiway area DART Action: DART would develop exhibits and coordinate with the FAA and</p>

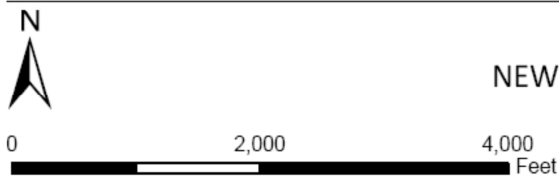
	DFW Airport on any proposed mitigation, see Figures 2-1, 2-2, 2-3, 2-4, and 2-5.
12. North Airfield Drive expansion to six lanes	Area of Concern: DFW Airport has requested an exhibit that illustrates how the planned North Airfield Drive expansion to six lanes would be accommodated with the planned LRT alignment.
	DART Action: DART has provided exhibits illustrating how the proposed expansion could be accommodated by DFW Airport in the future. DFW Airport has approved the plan for future six-lane accommodation.
13. Aircraft line-of-sight to FAA Approach Lighting Systems IAW FAA Standards	Area of Concern: FAA Engineering requested confirmation that the light plane of the Approach Lighting Systems would be not be penetrated by DART infrastructure
	DART Action: DART would develop plan and profile view exhibits for FAA review.
14. Proposed closure of DFW Construction Access Road and proposed Gate 210 Temporary Construction Access Road	Area of Concern: DFW Airport and the FAA requested information on the planned closure for the DFW Airport construction access road at North Airfield Drive.
	DART Action: DFW Airport and the FAA have approved the closure of the Runway 17R/35L Access Road from North Airfield Drive located near Station 674+00. A temporary construction road would be built off of the access road to the Water Pump Station – NE Tanks. The road would extend along the southern boundary of the DART ROW and North Airfield Drive and connect to the existing construction access road for Gate 210. Upon completion of the project, the road would remain for DFW Airport use.
15. Perform Runway 17C and 17L Baseline Modeling and Runway Protection Flight Inspection	Area of Concern: Development and analysis of an ILS Math Model and a flight inspection of Runway 17L and 17C Category I/II/III ILS systems to establish baseline performance conditions of the ILS propagated signals. This will occur prior to the start of construction of the LRT alignment.
	DART Action: DART will develop the ILS Math Modeling analysis package for Runway 17C and 17L, which will be process through FAA Technical Center. Once complete the analysis will be provided to FAA pertinent departments.

Figure 2-1. New Aeronautical Assessment Areas of Concern



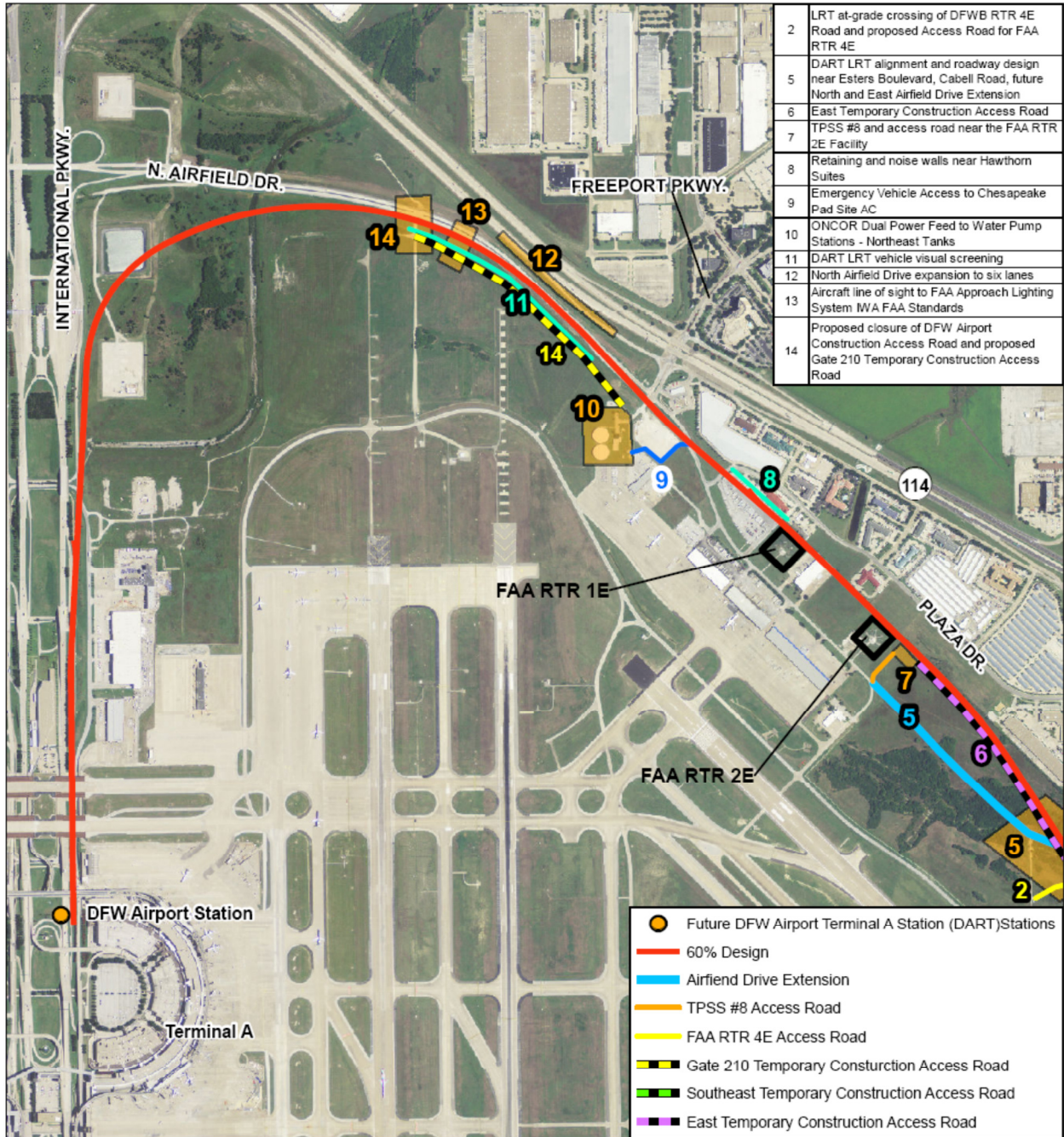
Source: 2010 NAIP Imagery: Grapevine and Carrollton Quads.

Figure 2-1



NEW AERONAUTICAL ASSESSMENT AREAS OF CONCERN
DART Irving-3 Supplemental Environmental Assessment

Figure 2-2 New Aeronautical Assessment Areas of Concern



Source: 2010 NAIP Imagery: Grapevine and Carrollton Quads.

Figure 2-2



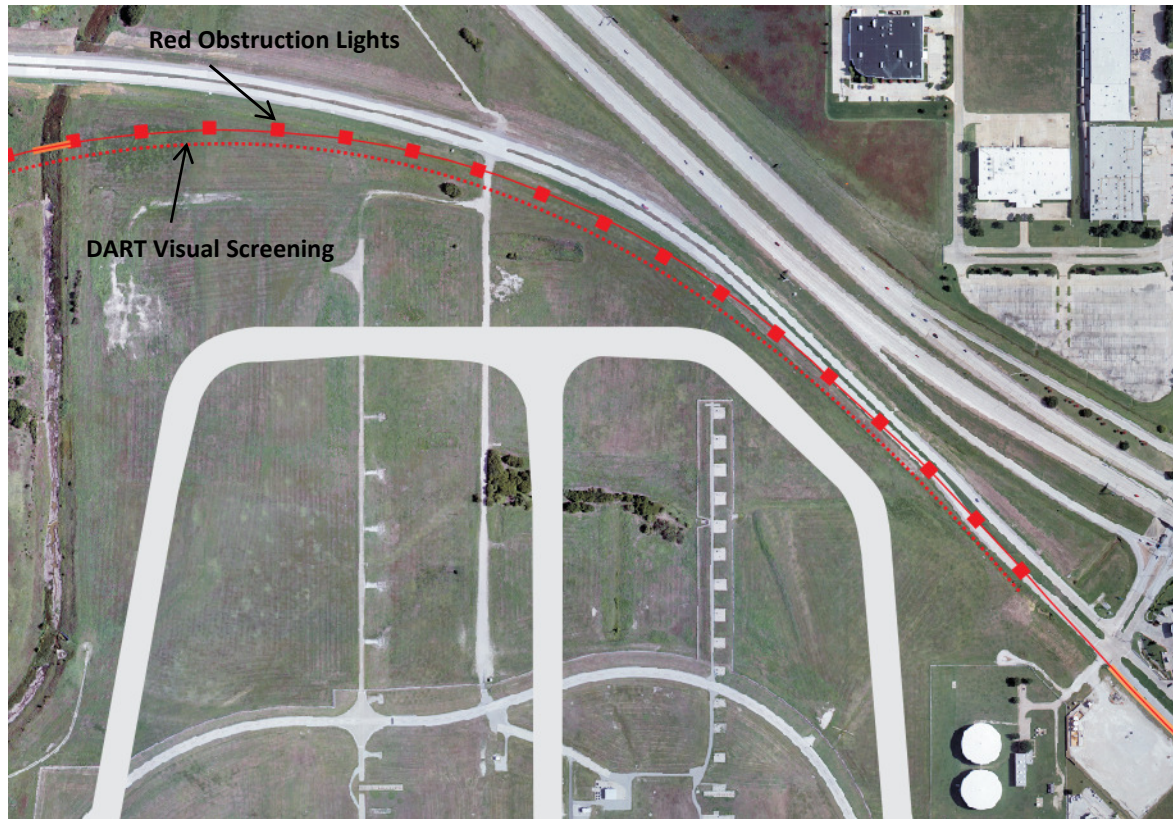
NEW AERONAUTICAL ASSESSMENT AREAS OF CONCERN
DART Irving-3 Supplemental Environmental Assessment

2.1.1 Proposed Mitigation Measures

Both the Airspace Feasibility Study and aeronautical assessment discussed above have been submitted to FAA for review. This review will address issues identified in the report and initiate early and ongoing FAA coordination. Additionally, FAA coordination during construction has been discussed in section 5.1 of the EA.

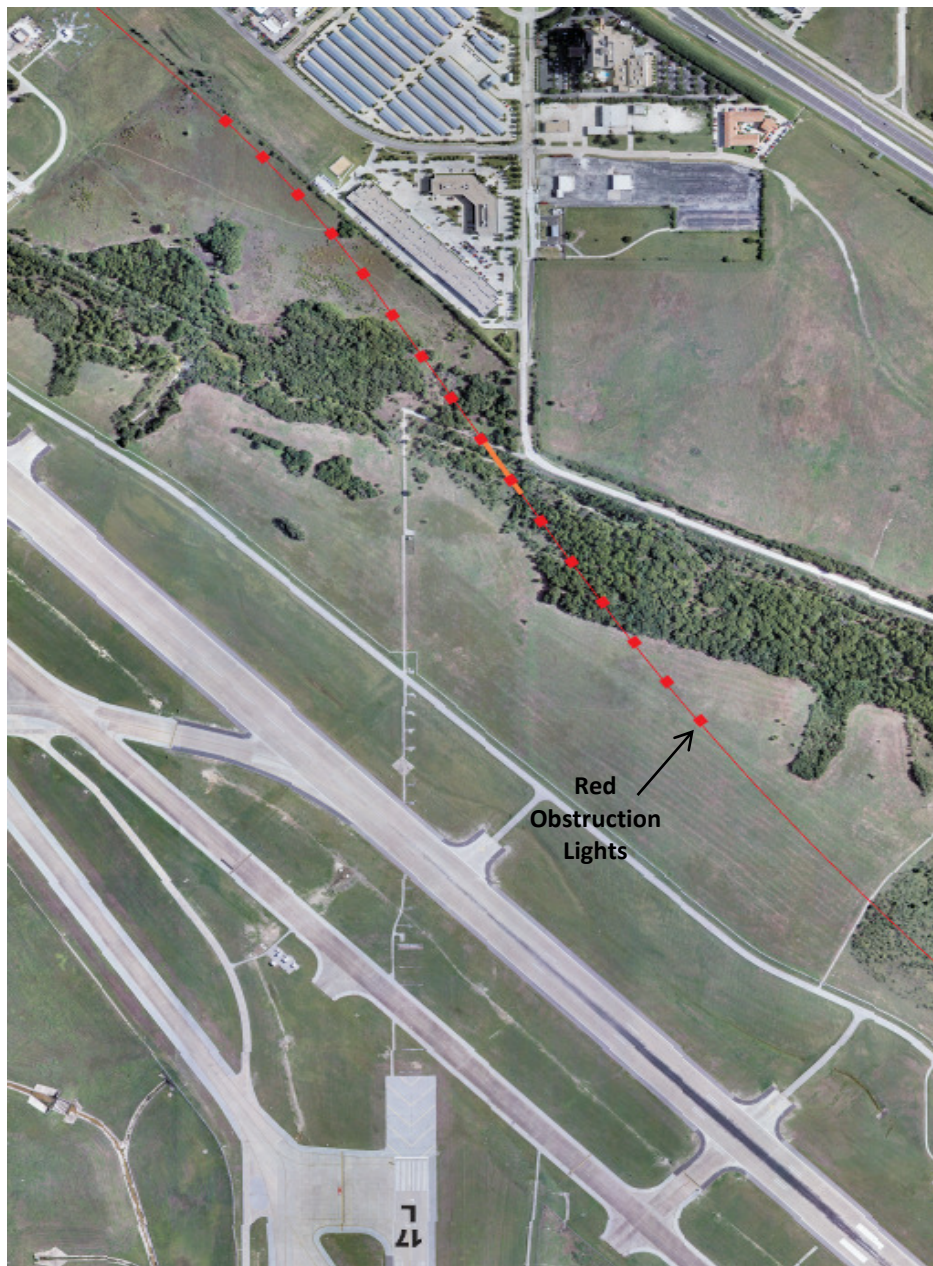
The proposed action would require extensive coordination with FAA and DFW Airport during final design and construction; however, the proposed mitigation, as described in the tables above, would minimize impacts to airport or aircraft operations created by the construction and operation of the proposed LRT alignment. The identified impacts and connected actions have been addressed in the EA.

Figure 2-3 (Update of EA Figure 3-1): Human Factors Mitigation Location 1



Source: Additions to Assessment and Analysis of Potential Operational Impacts from the Proposed Dallas Area Rapid Transit (DART) Light Rail Access, I-3 Route, onto the Dallas/Fort Worth International Airport Technical Memorandum, Jacobs Engineering, December 2010.

Figure 2-4 (Update of EA Figure 3-2): Human Factors Mitigation Location 2



Source: Assessment and Analysis of Potential Operational Impacts from the Proposed Dallas Area Rapid Transit (DART) Light Rail Access, I-3 Route, onto the Dallas/Fort Worth International Airport, Jacobs Engineering, June 2010.

Figure 2-5 (Update of EA Figure 3-3): Human Factors Mitigation Simulation



Source: *Assessment and Analysis of Potential Operational Impacts from the Proposed Dallas Area Rapid Transit (DART) Light Rail Access, I-3 Route, onto the Dallas/Fort Worth International Airport*, Jacobs Engineering, June 2010.

FIGURE 3-3

2.2 Environmental Summary

All environmental resource categories examined in the EA, per FAA environmental impact assessment guidance, have been considered and thoroughly assessed for potential adverse impacts due to the proposed action.

The type of project modifications made at the 60% design do not result in additional impacts or proposed mitigation to certain resource categories from detailed consideration beyond the original EA. The categories include the following:

- Coastal Barriers
- Coastal Zones
- Compatible Land Use
- Section 4(f)
- Farmlands
- Floodplains
- Light Emissions and Visual Effects
- Natural Resources and Energy Supply
- Secondary (induced) Impacts
- Socioeconomic, Environmental Justice, and Children’s Health and Safety Risks
- Wild and Scenic Rivers

From an airport factors perspective, the following sections summarize the proposed action's anticipated impacts as they relate to FAA environmental impact assessment guidance.

Air Quality

The analysis results indicate the proposed action would not cause or contribute to any new localized air quality violations or increase the frequency or severity of existing violations in the nine-county ozone nonattainment area. Therefore, the proposed action conforms to the goals set forth in the Clean Air Act Amendments of 1990 and is in conformity with the State Implementation Plan.

Construction Impacts

Construction activities would conform to all local, state, and federal ordinances and regulations. Construction permitting related to Section 404 waters of the U.S. are expected to be authorized by the U.S. Army Corps of Engineers (USACE) under Nationwide Permit (NWP) 14 for Linear Transportation Projects. Air quality impacts due to construction activities would not exceed National Ambient Air Quality Standards (NAAQS) and would conform to the Statewide Implementation Plan (SIP) as determined by conformity analysis conducted by North Central Texas Council of Governments during analysis of the regional Transportation Improvement Program TIP. More information regarding emissions and air quality control during construction can be found in Section 3. Construction impacts would be temporary and limited in duration. DART would institute best management practices in its construction activities to minimize any undesirable effects. The impact of the individual resources would not meet the significance threshold established by *FAA Order 5050.4B*.

Fish, Wildlife, and Plants

In a letter dated September 11, 2009, Texas Parks and Wildlife Department (TPWD) emphasized the need to minimize the amount vegetation disturbed by the project. The construction of box culverts instead of bridges does not represent a significant difference in the impact to riparian areas presented in the original EA. As indicated in this letter, there are only small amounts of riparian woodlands associated with the crossings of Mud Springs Creek and Hackberry Creek Tributary #3. The crossing of Grapevine

Creek (Referred to as Cottonwood Branch in letter) is now perpendicular to the stream and located directly adjacent to North Airfield Drive in a previously disturbed area. The disturbed riparian area west and south of the crossing is similar to the area identified in the original EA. The bridge span at Hackberry Creek will allow for local terrestrial wildlife to cross under.

To preserve the natural environment, TPWD recommends that channel reconstruction adjacent to the culverts consist of natural materials. Channel protection is required to mitigate higher water velocities at the outfall of the culverts; therefore, the total amount of erosion protection would be minimized. Boulder type riprap, in lieu of concrete lining, will provide a more natural appearance. Over time, the vegetation will envelop the boulder riprap and should encourage wooded growth and riparian development. Consistent with TPWD recommendations, the planting scheme would consist of native vegetation.

In a follow up letter dated March 28, 2012, TPWD indicated that that they have no objections or concerns with the modifications to the design of the proposed project and that TPWD does not anticipate significant adverse impacts to wildlife resources.

In addition, a revised assessment of potential impacts to threatened and endangered species has been conducted to reflect the current federally-listed and State threatened and rare species that occur or potentially occur in the subject counties, though no such species were observed in the project area. The proposed action would not jeopardize the continued existence of such species and would not result in the destruction or substantial modification of critical habitat for these species. This habitat would not be disturbed in quantities that would impact population dynamics or sustainability of population. No unique habitat would be disturbed.

Hazardous Materials

The 60% design plans reflect a shift in the alignment that no longer requires the relocation of the high-mast pole hosting the LLWAS NE #4 and ASDE-X RU #2. Because the termination of the lease between FAA and DFW Airport is no longer required, property ownership would not be transferred and an Environmental Due Diligence Audit would not be performed.

The alignment modification, however, places 200 feet of track and the proposed new Federal Express parking facility within the Voluntary Cleanup Program (VCP) area located south of North Airfield Drive near Freeport Parkway.

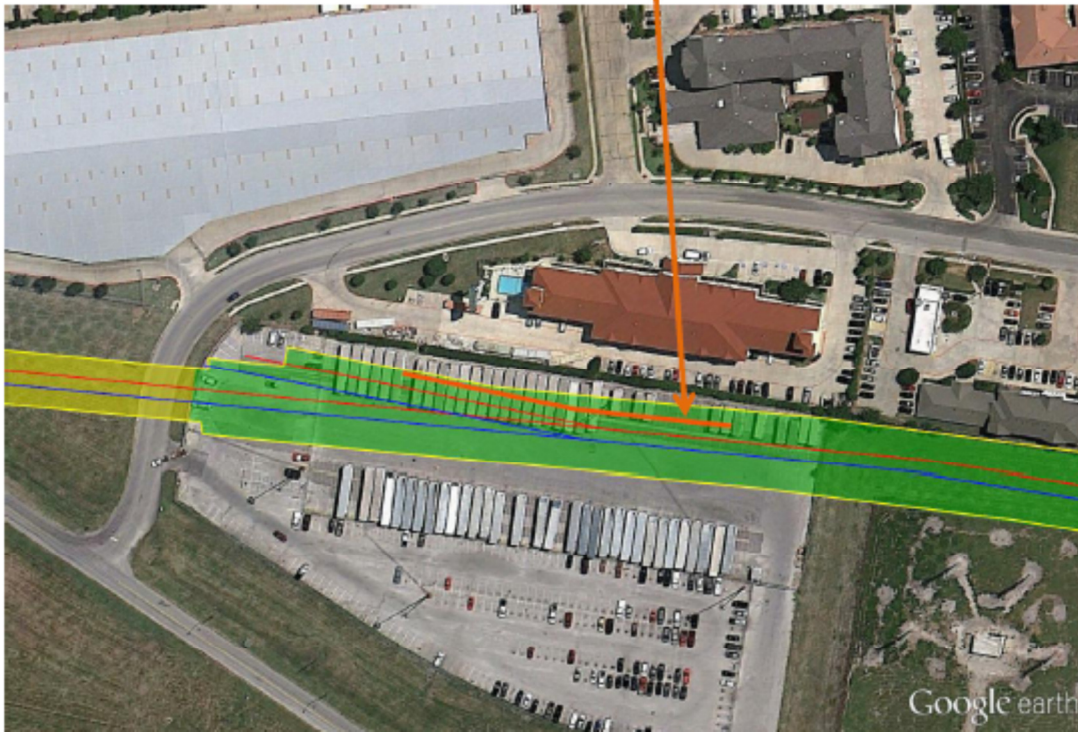
Historical, Architectural, Archaeological, and Cultural

To address the proposed alignment modifications, additional coordination with the Texas Historical Commission was initiated to ensure that no further investigations of historical, architectural, archaeological and cultural resources would be required. THC concurred with these findings in February 2012.

Noise

The 60% design modification adds a nine-foot noise wall near the Hawthorn Suites. The sound wall at its highest elevation would be approximately 24 feet above ground level. The wall would present a similar surface to the ASDE-X RU #2 as the south face of the cargo facilities, parked cargo aircraft or other hotels in the same area. No adverse reflections would be anticipated. **Figure 2-6** illustrates the location of the noise wall.

Figure 2-6. Additional Noise Wall



Visual and Aesthetic Mitigation

The 60% design modification reduces the number of TPSS sites, relocates TPSS sites, identifies additional LRT System elements, and reduces aerial structure lengths by 4,800 feet. Similar mitigation as proposed in the EA would be applied. Additionally, due to the avoidance of the LLWAS #4 and ASDE-X RU #2, no additional mitigation is required.

Water Quality

The 60% design modification reflects additional impacts to Section 404 waters of the U.S. Construction activities, including use of temporary construction roads and implementation of permanent water conveyance features, would directly impact these water bodies. As reflected in the EA, the design-build contractor would be responsible for preparation of a baseline Storm Water Pollution Prevention Plan in accordance with DART and DFW Airport Design Standards and applicable federal and state storm water construction regulations. All temporary and permanent erosion controls shall comply with the latest revision of Storm Water Quality Best Management Practices Manual for Construction, prepared by North Central Texas Council of Governments.

Wetlands

Due to the at-grade crossing of several water bodies within the project area, impacts to Section 404 waters of the U.S. would occur. In-stream (wetland) vegetation at the Grapevine Creek crossing location would be impacted by the project. As referenced in Table 3-7, 0.63 acre of temporary and 0.22 acre of permanent impacts would result from the proposed action.

SECTION 3. ENVIRONMENTAL FACTORS

All environmental resource categories examined in the EA, per FTA environmental impact assessment guidance, have been considered and thoroughly assessed for potential adverse impacts due to the proposed action. The assessment included the proposed modifications of the rail alignment and the connected action of relocating a portion of North Airfield Drive.

As indicated at the end of Section 1, several resource areas are not impacted by the proposed modifications to the DFW Airport Extension. Analyses on these resource areas conducted under the initial EA noted no adverse impacts. The following resource areas merited additional consideration due to revised conditions.

3.1 Zoning and Land Use

Previous Conditions

Section 4.1 of the EA reflected no anticipated future land use impacts due to the LRT alignment located primarily on DFW Airport property, and all planned development in the vicinity is industrial in nature. The 10% design anticipated a ROW of 80 feet. The use of airport land needed to construct and operate the project in dedicated right-of-way would be obtained through a lease or license agreement between DART and DFW Airport.

Revised Conditions

The 60% design indicates that the ROW would vary from 80 feet to more than 200 feet to accommodate earthen embankments for bridge structures. This additional land would be acquired from DFW Airport property through the previously referenced lease or license agreement. **Table 3-1** outlines changes to the ROW and the additional property required.

Mitigation

The areas listed in **Table 3-1** are not currently developed, nor would they impact DFW Airport's future development plans. Therefore, the increased ROW needs do not result in a significant impact and no mitigation is required.

Table 3-1. ROW Alignment Changes			
Section	Landmarks	Range of ROW	Reason
Section One (Station 495+00 to 548+00)	Belt Line Road Hackberry Creek Tributary #3 Crossing Mud Springs Creek Crossing	80 feet - 284 feet	<ul style="list-style-type: none"> • Earthen embankment with 4:1 slopes at Belt Line Road crossing • Earthen embankment to compensate for topography • Culvert at Hackberry Creek Tributary #3 • Culvert at Mud Springs Creek
Section Two (Station 548+00 to 620+00)	Hackberry Creek Crossing	80 feet - 248 feet	Bridge crossing over Hackberry Creek with MSC walls and embankments
Section Three (Station 620+00 to 692+00)	Freeport Parkway/North Airfield Drive Federal Express facility	80 feet - 100 feet	<ul style="list-style-type: none"> • Location shift in crossover trackwork for the future phase two connection • Bridge over Plaza Drive and N. Airfield Drive with MSC walls and abutments
Section Four (Station 692+00 to 753+25)	Grapevine Creek Crossing Chesapeake Frac Pond Bridge structure over Crossunder #1 Storage Yard Terminal A Station	80 feet - 164 feet	<ul style="list-style-type: none"> • 11-span box culvert in Grapevine Creek • Bridge structure over Crossunder #1 with MSC walls • Crossover track for future phase two tie-in • Storage yard/crew room/communication house

3.2 Industrial and Commercial Activity

Previous Conditions

Section 4.2 of the EA noted that the alignment would result in a few property impacts. A portion of two of these properties is needed to provide adequate ROW for LRT operations. The two properties are a Federal Express facility and a warehouse building located at 3010 North Airfield Drive. A third site disturbed was a Chesapeake Energy drilling and operations pad site. The Supervisory Control and Data Acquisition (SCADA) Communication link line-of-sight would be blocked by the peak of the LRT bridge. Additionally, a Chesapeake frac pond located at pad site AD was scheduled to be closed prior to implementation of the LRT line.

A mitigation plan was developed to alleviate impacts to business operations at the Federal Express facility. Additionally, a reconfiguration of the remaining parking area was completed to accommodate trailer storage needs. DART continued their coordination with DFW Airport regarding the affected warehouse building. Mitigation was proposed to increase the antenna tower height to a height that would be over the DART Rail Infrastructure. Under agreements with DFW Airport, Chesapeake is responsible for removing or relocating the frac pond and its infrastructure.

Revised Conditions

Under the 60% design, the track turnout for a potential future extension that was originally located at Civil Station 642+00 is now located at Civil Station 631+00. Impacts to the Federal Express facility due to this alignment shift are similar to impacts identified in the original EA and the proposed mitigation remains the same. Coordination between DART, DFW Airport and Federal Express is ongoing to finalize the parking lot configuration.

The warehouse facility at 3010 North Airfield Drive has been repurposed as an upscale pet boarding facility. The front portion of the structure has been subleased to “Paradise 4 Paws.” The tenant leased this portion of the building knowing that modifications to the structure would be required to accommodate the LRT project.

The proposed project modifications at Freeport Parkway have eliminated the impacts to the SCADA tower which originally required an extension of the tower height. The proposed grade separation over North Airfield Drive and Plaza Drive requires the relocation of an access road serving the Chesapeake Pad “AC” site and the Water Pump Station Northeast.

The revised alignment only partially impacts the frac pond, which now will be reconfigured by Chesapeake, but remain in place.

Mitigation

No change in the modification of 3010 North Airfield Drive is required as a result of the 60% design. Coordination between DART, DFW Airport and Aeroterm (the primary lessee) would occur throughout the remaining design and construction.

As a result of the 60% design changes, there are no adverse impacts to the SCADA tower and mitigation is no longer required. The relocated access road, designed adjacent to the reconfigured Federal Express parking lot, has been coordinated with Chesapeake and DFW Airport. These project alignment modifications would provide improved access to the facilities.

Under agreements with DFW Airport, Chesapeake is responsible for all actions and documentation associated with the reconfiguration of the frac pond.

3.3 Visual and Aesthetic Resources

Previous Conditions

Section 4.6 of the EA identified adverse impacts to six visually distinct units and connected actions related to the relocation of the LLWAS #4 and ASDE-X RU #2. The recommended mitigation in the EA included the addition of red warning lights to catenary poles and addition of PVC fencing slats in selected areas.

Revised Conditions

Visual and aesthetic resources are affected by the following changes in the 60% design:

- Reduction in the number of and refinement in the location of TPSS sites
- Addition of LRT System elements (signal and communications houses)
- No relocation required for LLWAS #4 and ASDE-X RU #2
- Reduction of aerial structure lengths by 4,800 linear feet

These refinements affect Visual Inventory Units #1, #3, and #5. There are no changes to Visual Inventory Units #2, #4, and #6. **Table 3-2** summarizes the modified visual impacts.

Table 3-2. Visual and Aesthetic Impacts					
<i>Inventory Unit</i>	<i>Track Alignment</i>	<i>Bridges and Elevated Structures</i>	<i>Other (storage track /station/ TPSS)</i>	<i>Duration of exposure/Speed of Viewer</i>	<i>Impact</i>
Unit 1	not significant	potentially significant	not significant	moderate duration	potential impact
Unit 3	not significant	potentially significant	Moderate	some viewers have potentially long duration/moderate speeds	potential impact - replace screening vegetation, consider TPSS screening
Unit 5	not significant	not significant	potentially significant	high speeds	potential impact – mitigation should be considered

Source: URS Corporation, 2009; revised 2012.

Mitigation

As stated in the EA, DFW Airport staff has indicated a desire to soften the views of the TPSS facilities located within high-visibility areas. This desire should be extended to the TPSS located in Unit #3, as well as structures such as the signal house located in Unit #1 and the crew house located in Unit #5. Visual softening would be accomplished by installing chain link fencing with PVC slats or planting screening vegetation. If existing screening vegetation is disturbed by construction, it would be replaced with similar vegetation that, once mature, would soften the visual character of the units.

Because LLWAS #4 and ASDE-X RU #2 will not be relocated, no mitigation is required.

The original EA noted that the bridge structures did not block or open views, conflict with existing visual elements, or adversely affect community activities. The reduction on bridge length does not result in adverse impacts to the visual setting and no mitigation is required.

3.4 Noise

Previous Conditions

As discussed in Section 4.7 of the EA, the General Noise Assessment identified a moderate impact to both the Sleep Inn DFW and Hawthorn Suites hotel. As shown in **Figures 3-1 and 3-2**, these facilities are adjacent to a major airport and within 1,000 feet of a major highway. Additionally, the Hawthorn Suites adjoins a Federal Express 24-hour logistics facility. Trucks are parked adjacent to the hotel property and much of the trucking activity takes place at night. Given the minimal increase in noise, the ambient conditions, the location and function of the property, and the rail operating plan, no mitigation was proposed.

Revised Conditions

The refined alignment runs parallel to the original alignment, but is shifted approximately 45 feet to the south. Additionally, the 60% design shifts two sections of special trackwork: the track turnout for a potential future extension and a crossover. As a result of these changes, a new noise and vibration assessment was performed. The results of this reassessment are shown in **Table 3-3**.

There are no additional impacts to the Sleep Inn DFW. The track alignment is now twice as far from the hotel and, while crossover tracks have been shifted closer to the hotel, they remain more than 700 feet away.

As a result in the redesign of the structure at Plaza Drive, the Phase Two turnout (originally located at station 642+00) is now located directly adjacent to the Hawthorn Suites (Station 631+00). While the shift in the overall alignment to the south and elimination of the grade crossing at Plaza Drive results in a small reduction of noise levels, the location of the special trackwork increases noise levels at this location above the FTA severe impact criteria.

Table 3-3. Summary of Revised Noise Levels at Sensitive Receptors

#	Receptor	FTA Noise Category	Existing Noise Level*	Project Noise Level*	Cumulative Impact	Impact Criteria*		Impact
						Impact	Severe Impact	
N1	Sleep Inn DFW	2	71	61	71 dBA	66-70	>70	No Impact
N2	Hawthorn Suites	2	71	71	74 dBA	66-70	>70	Severe Impact

*Ldn measured in dBA

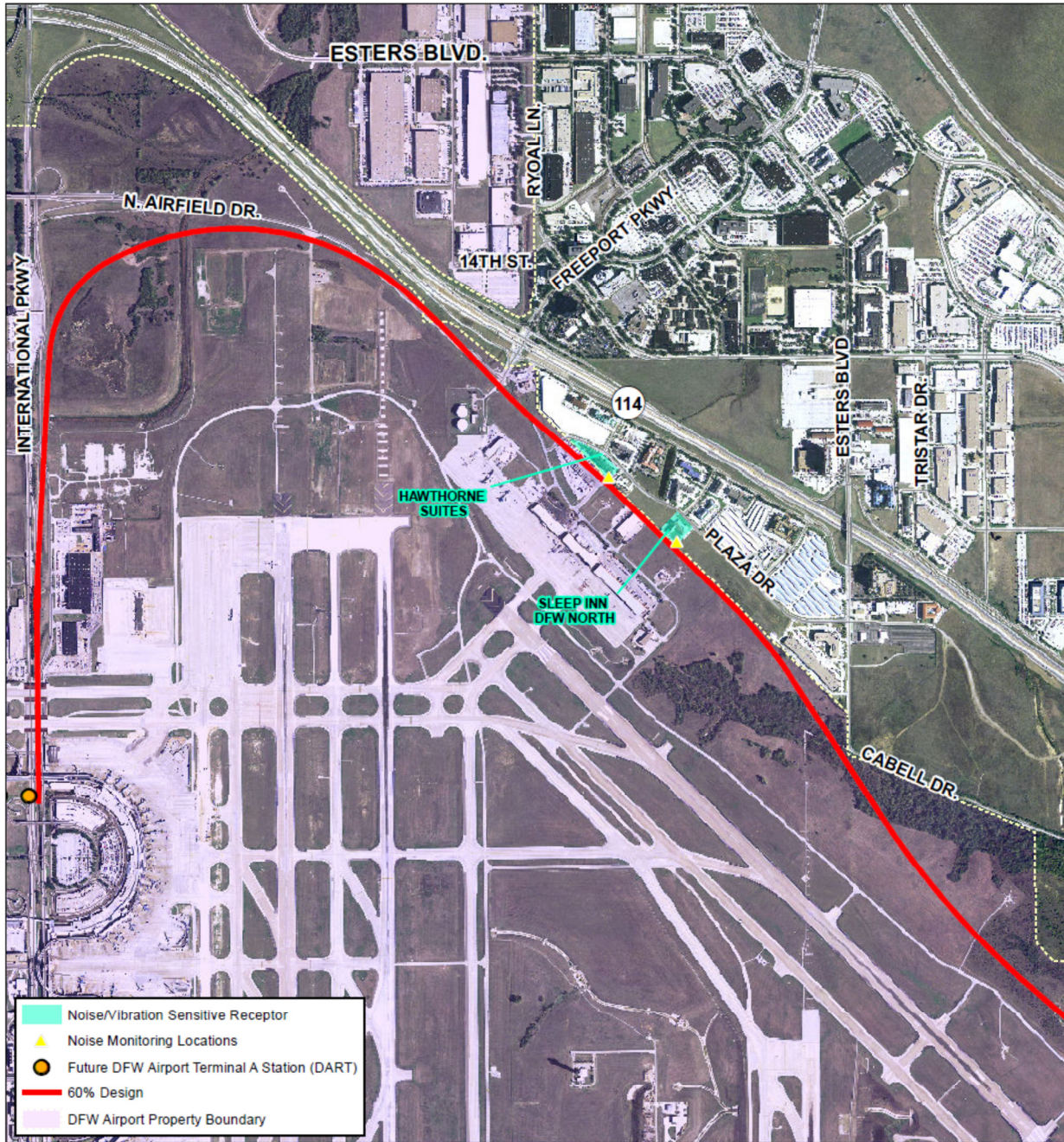
Mitigation

The FTA requires transit agencies to consider mitigation for moderate noise impacts within the impact criteria, and requires implementation of mitigation for severe noise impacts.

Noise barrier construction, the most common sound path noise control treatment, can be very effective at reducing noise levels. Source noise control options include special hardware at turnout locations (i.e. spring-rail or moveable-point frogs in place of standard rigid frogs), relocating special trackwork away from sensitive areas, and using continuous welded rail. Noise control mitigation at the receiver includes sound insulation treatments.

Using FTA guideline methodologies, a nine-foot tall noise barrier would be required to provide at least eight dBA of noise reduction for all floors of rooms at the Hawthorn Suites hotel facing the rail line. This assumes that the barrier is ten feet from the crossover track section and is at least 360 feet in length. The barrier would be effective for all floors of the hotel because the noise source is so close to ground level. **Figure 3-2a** illustrates the approximate location of the proposed noise barrier.

Figure 3-1. Noise and Vibration Sensitive Receptors and Noise Monitoring Locations



Source: NCTCOG 2008, URS 2009

FIGURE 3-1

NOISE AND VIBRATION SENSITIVE RECEPTORS
AND NOISE MONITORING LOCATIONS

DART Irving-3 Supplemental Environmental Assessment

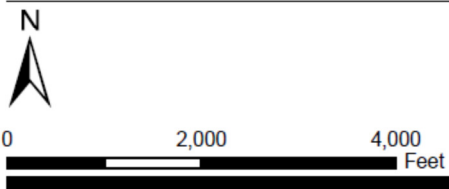
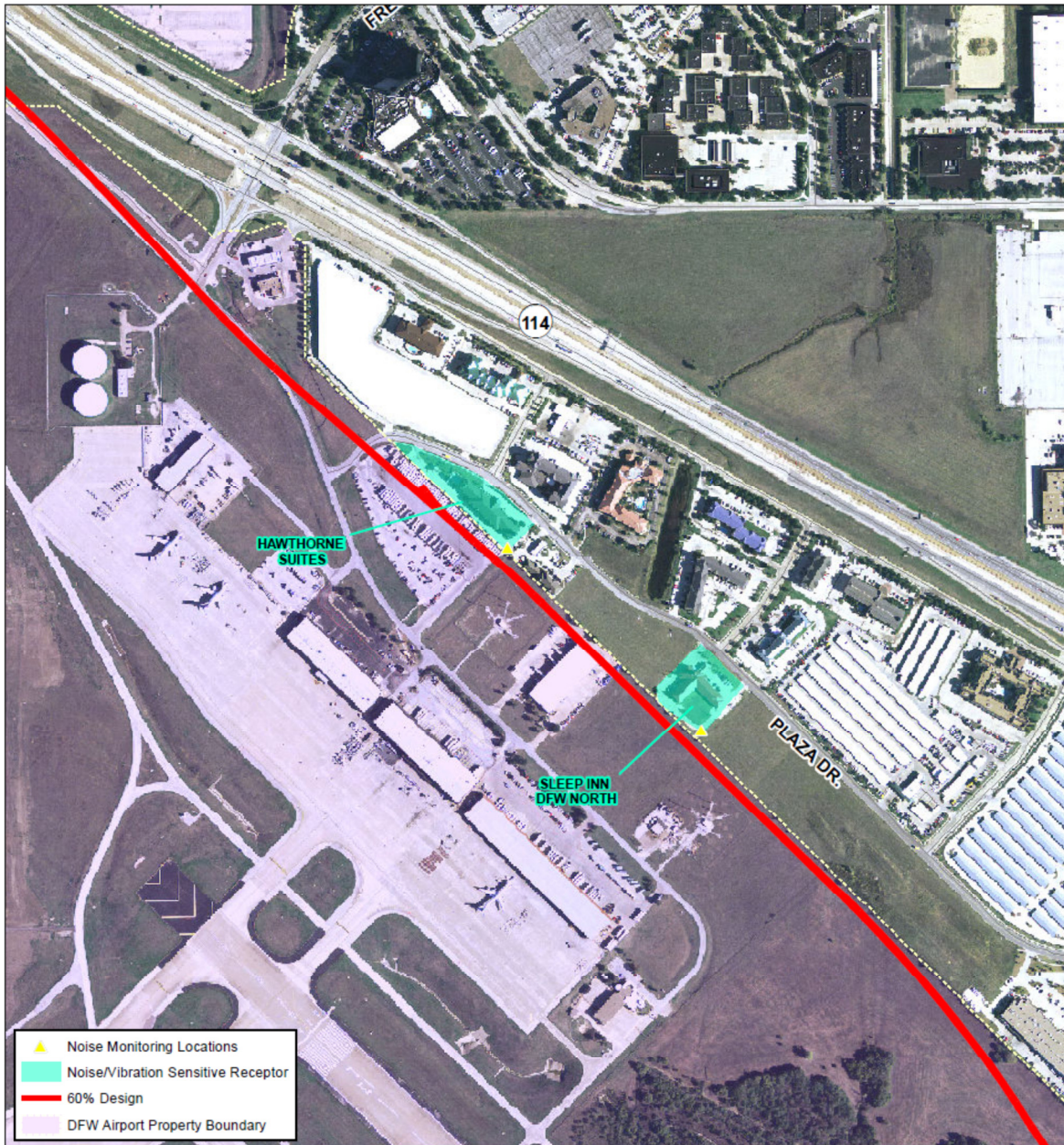


Figure 3-2. Noise and Vibration Sensitive Receptors and Noise Monitoring Locations



Source: NCTCOG 2008, URS 2009

FIGURE 3-2

**NOISE AND VIBRATION SENSITIVE RECEPTORS
AND NOISE MONITORING LOCATIONS**

DART Irving-3 Supplemental Environmental Assessment

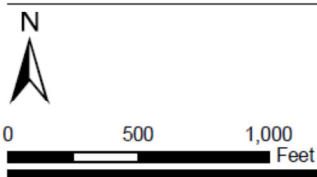
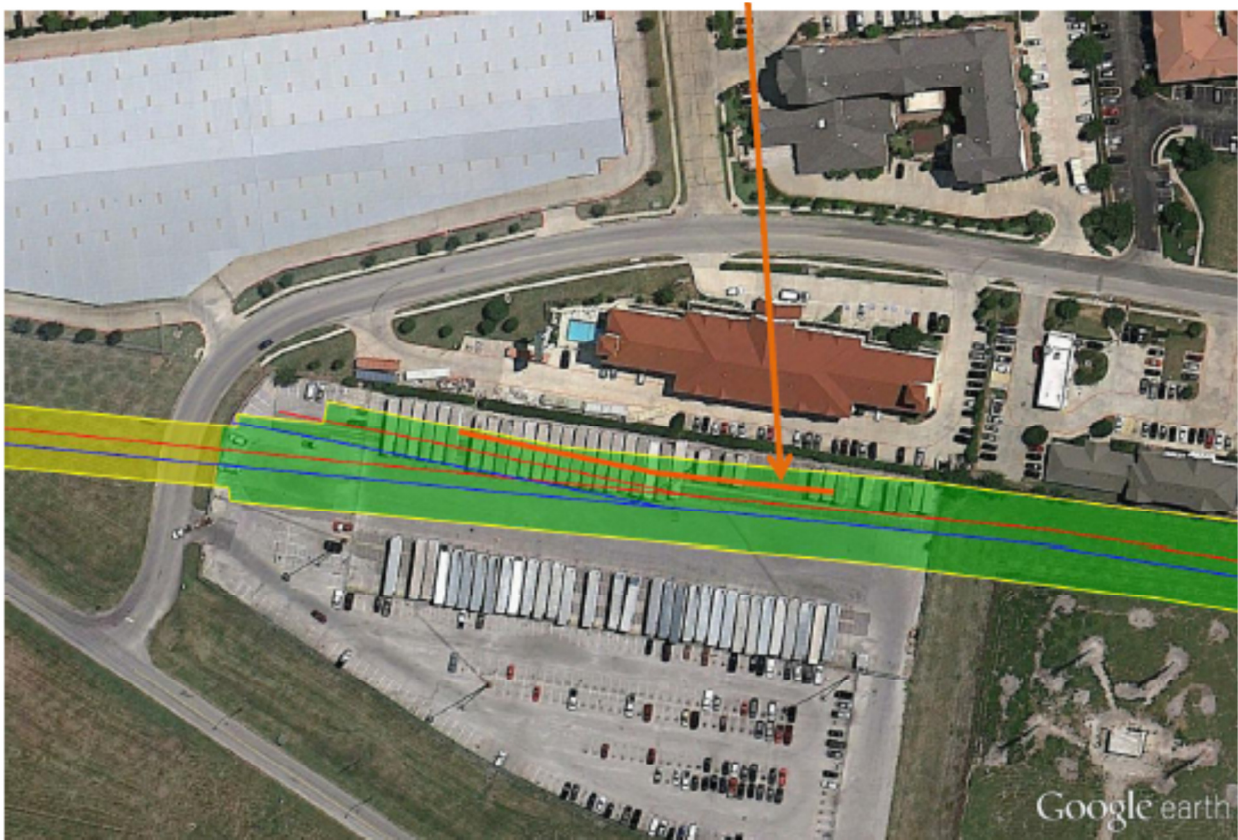


Figure 3-2a. Location of Noise Wall



3.5 Vibration

Previous Conditions

As discussed in Section 4.7 of the EA, the General Vibration Assessment identified no impacts to either the Sleep Inn DFW or Hawthorn Suites hotel.

Revised Conditions

A revised General Vibration Assessment was completed for both receptors. The results are shown in Table 3-4.

Table 3-4. Comparison of General Vibration Assessment

Rec. No.	Receptor Name	Base Curve (VdB)	Adjustments (VdB)	Final VdB		Impact Criteria	Refined Impact
				Original	Refined		
Ground-Borne Vibration							
N1	Sleep Inn -1 st FL	68	+3.3	81	71.3	72	No
	Sleep Inn -2 nd FL	68	+1.3	81	69.3	72	No
N2	Hawthorn-1 st FL	68	+0.3	76	68.3	72	No
	Hawthorn-2 nd FL	68	-1.7	76	66.3	72	No
	Hawthorn-3rd FL	68	-3.7	76	64.3	72	No

Vibration levels for each receptor would be reduced under the refined alignment as a result of moving the track farther from the receptors.

Mitigation

No mitigation would be required.

3.6 Pedestrian Movements

Previous Conditions

Section 4.8 of the EA identified 12 roadway crossings associated with the project. Eight of the crossings were grade-separated and four were proposed at-grade. No adverse pedestrian impacts were identified.

Revised Conditions

Under the proposed modifications, the alignment has been relocated and the aerial structure across North Airfield Drive has been shortened.

Mitigation

The project modifications would result in improved access between the Federal Express parking and logistic facilities, as well as safer pedestrian movement along Plaza Drive. Given these changes, there are no adverse impacts to pedestrian movements. No mitigation would be required.

3.7 Traffic Flow

Previous Conditions

Section 4.9 of the EA presented traffic impacts as a result of the project's implementation. The initial evaluation identified four at-grade roadway crossings (an airport maintenance road, Plaza Drive, a Chesapeake Energy access road and Crossunder #2). As a result of the project, only minimal impacts to queuing and level of service would occur. All crossings would be protected by gates and flashing lights in accordance with DART Standards.

Access to area businesses and airport facilities would not be affected, the alignment itself would not permanently block property access, and there would be no excessive delay to traffic on adjacent streets caused by operations of the LRT alignment.

Mitigation was proposed on the service road at Crossunder #2 due to some restriction of traffic flow during the LRT operations. In order to enhance safety, DART proposed signalization be implemented to stop all traffic on the north service road for lanes south of Crossunder #2 during Light Rail Vehicle (LRV) crossing.

Revised Conditions and Mitigation

The 60% design reflects a notable change in the LRT alignment and corresponding roadway network near Freeport Parkway and Airfield Drive. As noted in **Figure 3-4**, North Airfield Drive between FAA 2E RTR site and Freeport Parkway would be shifted to the north to accommodate the revised LRT alignment. Additional minor modifications would occur at other crossings. The following is a brief description of the proposed modifications.

Access to FAA RTR 4E

The existing Navaid Road, known as FAA DFWB RTR 4E Access Road, provides access from the Aircraft Operations Area (AOA) to the FAA RTR 4E facility. DART would construct a permanent access road from FAA RTR 4E facility to the Navaid Road, known as 17L FMM Road, at Runway 13L/31R. The roadway would begin at the FAA RTR 4E facility and extend along the north boundary of the LRT ROW until Hackberry Creek where the roadway would turn south under the LRT elevated structure crossing

Hackberry Creek (sufficient clearance between roadway and structure would be provided for emergency vehicles). Once under the LRT elevated structure the roadway would extend in a southwesterly direction until connecting to 17L FMM Road. Please see **Figure 3-3**. Additionally, DART would provide crossing panels at the DFWB RTR 4E Access Road to allow larger vehicles access to the FAA facility. This road would be gated and prior coordination with DART will be required to allow for crossing of the rail line at this location. DART will coordinate with FAA to develop appropriate protocols for access.

Plaza Drive

The EA reflected an at-grade crossing at Plaza Drive. This at-grade crossing has been eliminated and replaced by a shortened bridge structure over Plaza and North Airfield drives. The grade separation at Plaza Drive would remove the interface of automobiles and LRVs, alleviating the need for crossing gates and signals.

North Airfield Drive

As a connected action to the proposed design modification of the LRT alignment, North Airfield Drive would be relocated and shifted north as shown in **Figure 3-4**. The LLWAS #4 and ASDE-X RU#2 access drive would not be impacted by the roadway relocation and the portion of site containing FAA equipment would not be impacted. Level of Service and property access would be maintained. The relocation and reconfiguration of North Airfield Drive is being coordinated with DFW Airport, FAA, the City of Irving and all affected parties. This coordination would provide appropriate sequencing to ensure continual access during construction.

Chesapeake Pad Site AC Access Road

As originally proposed, the access road to Chesapeake Pad Site AC and Water Pump Station – NE was not impacted by the LRT infrastructure. With the relocation of North Airfield Drive, the existing access road would be closed, and a new access road would be constructed off of Airfield Drive between the Federal Express employee parking and the Chesapeake Pad AC site. The design-builder has coordinated with DFW Airport, Federal Express, and Chesapeake on the design criteria and overall design of the access road. The final design will accommodate DFW Airport's large ARFF vehicles as well as Chesapeake's largest vehicles, and has been accepted by DFW Airport, FedEx, and Chesapeake. Correspondence reflecting acceptance is contained within Appendix B.

Construction Gate 210 Access Road

DFW Airport has approved the closure of the Runway 17R/35L Access Road from North Airfield Drive located near Station 674+00. During construction of the proposed action a temporary construction access road would be constructed from the Water Pump Station – NE to closed Runway 17R/35L Access Road, known as Gate 210 Construction Access Road. This roadway would have a width of 22 feet and be comprised of crushed concrete. Following the completion of the project, the roadway would remain for DFW Airport use. The final road may be revised during development/construction of the Northeast Perimeter Taxiway (a separate and independent DFW Airport project).

Figure 3-3 FAA RTR 4E Access Road

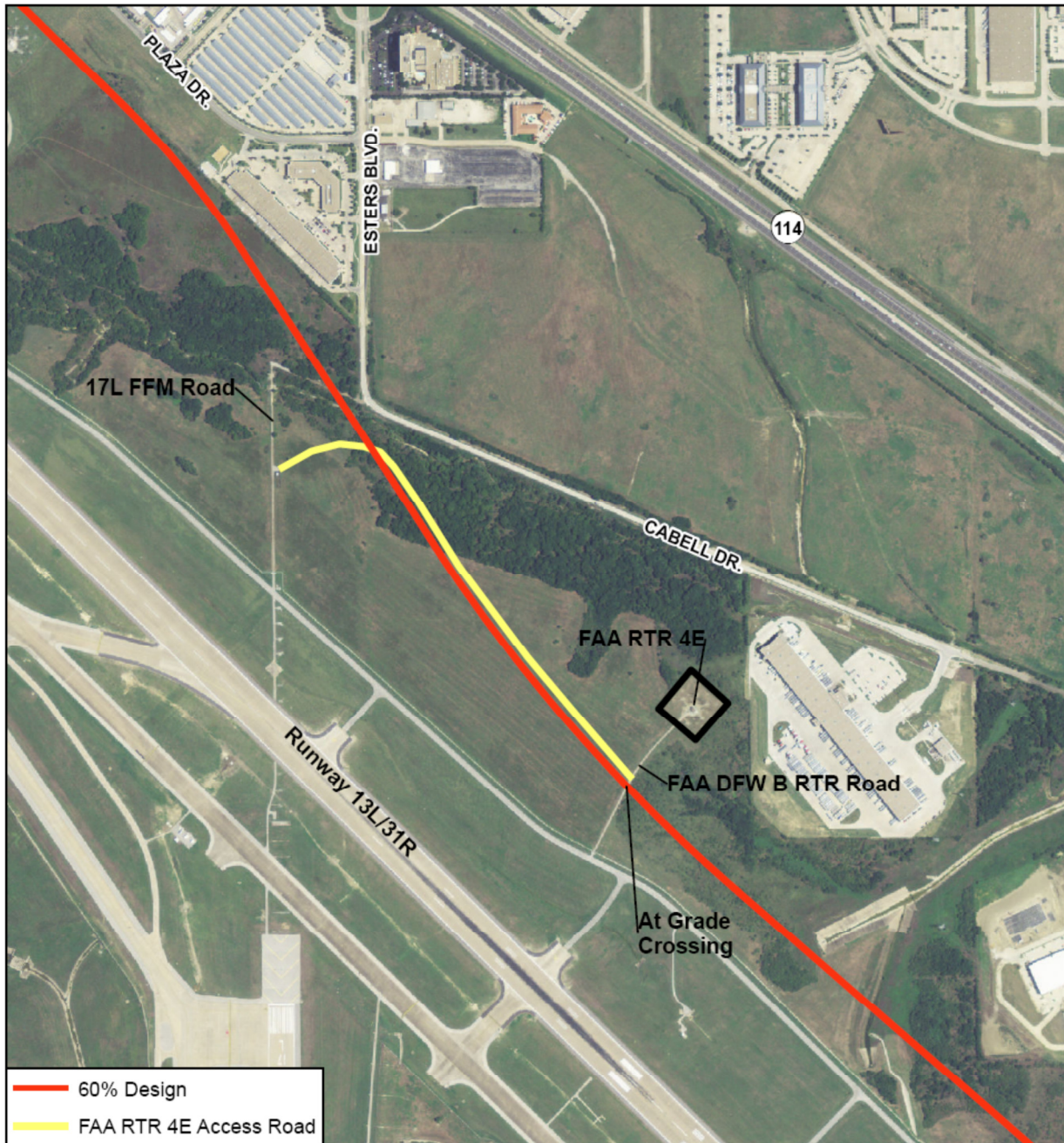
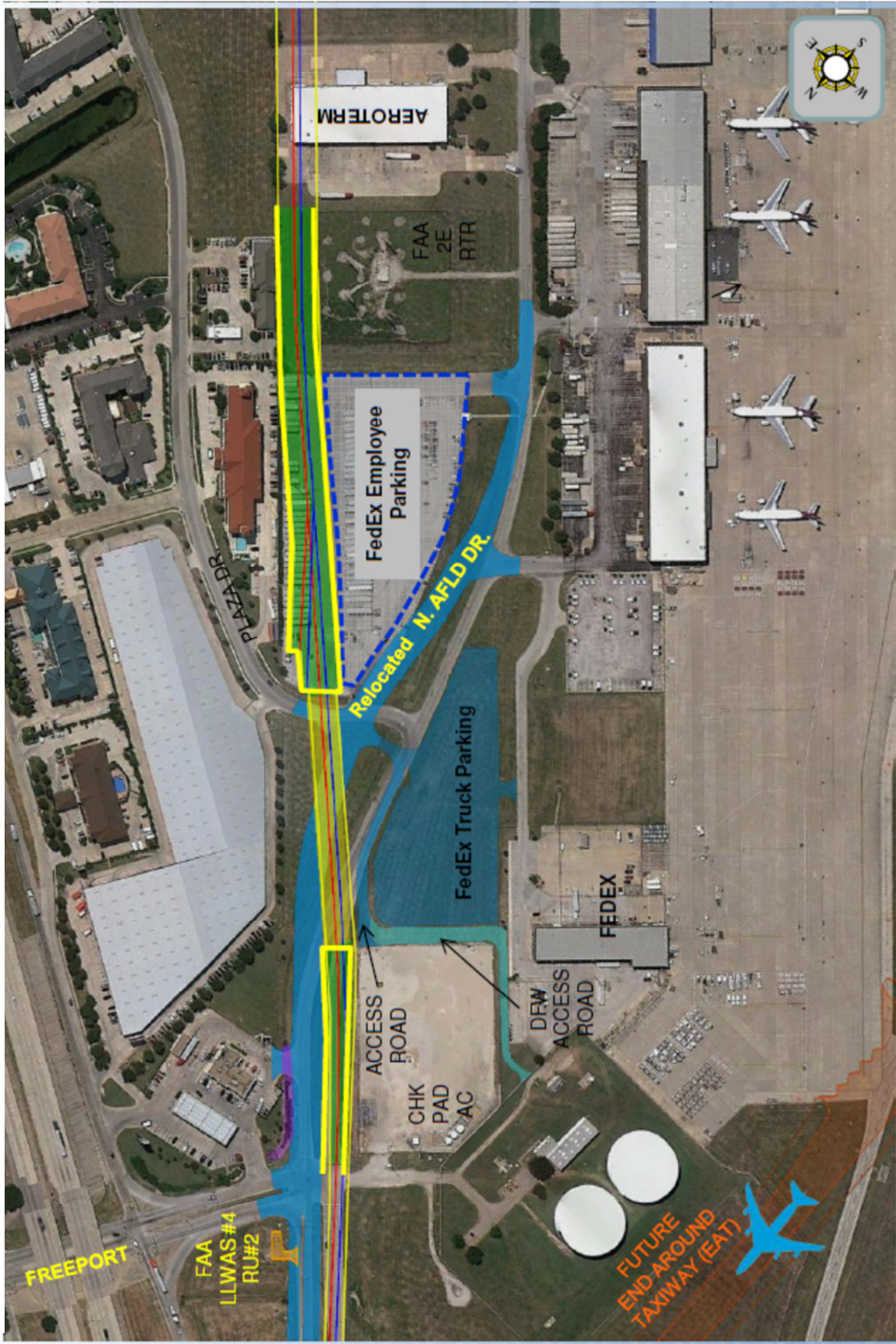


Figure 3-3



Figure 3-4. Reconfiguration of Federal Express Parking Lots and Relocation of North Airfield Drive



Rail Alignment/TPSS Access Roads

As a connected action to the proposed design modifications, two asphalt roads that provide emergency access to the rail line would be constructed. The first road would be limited access connection from the AOA to rail alignment at approximately 531+00. This road would be a 22-foot wide 400-foot long road ending in a hammerhead. The second road would connect North Airfield Drive to rail alignment and TPSS #8 at approximately 609+00. This road would be a 24-foot wide 500-foot long road ending in a hammerhead. This action is being coordinated with DFW Airport.

Crossunder #2 Reconfiguration

Crossunder #2 is located just north of the DFW Airport Terminal A and serves as a connection between the northbound and southbound lanes of the service roads that run below and parallel to International Parkway within DFW Airport. The EA reflected maintaining the existing contra flow configuration with signaling improvements. DFW Airport has determined that converting the road to a conventional flow configuration would improve traffic conditions. As discussed in the EA, DART proposes that signaling be implemented to stop all traffic on the north service road for both lanes upstream (south) of Crossunder #2 during LRV crossing events.

3.8 Parking

Previous Conditions

Section 4.10 of the EA identified that the project would displace 30 automobile stalls and 50 tractor trailer stalls at the Federal Express Facility. Mitigation included a reconfiguration of the remaining parking area and a new parking lot south of North Airfield Drive.

Revised Conditions and Mitigation

With the proposed design modifications, the parking mitigation plan has been further refined as reflected in **Figure 3-4**. Eighty-four tractor trailer stalls would be relocated to a new parking surface south of the realigned North Airfield Drive and the existing parking surface would be restriped to accommodate 310 automobile stalls.

3.9 Public Services, Safety, and Security

Previous Condition

Section 4.11 of the EA identified no adverse impacts to public services, safety and security. All grade crossings would be signalized intersections controlled by the DART system.

Revised Condition and Mitigation

The 60% design plans provided alternative access to FAA DFWB RTR 4E. The existing access road to FAA RTR 4E would be gated. DART would provide crossing panels at the DFWB RTR 4E Access Road to allow larger vehicles access to the FAA facility. DART will coordinate with FAA to develop appropriate protocols for access.

All DART crossings and access roads would be designed to accommodate DFW Airport's large ARFF vehicles

The 60% design plans propose significant modifications to North Airfield Drive near Freeport Parkway. This traffic management during construction would be coordinated with DFW Airport Department of Public Safety.

The elimination of the grade crossing at Plaza Drive would improve pedestrian and vehicular safety.

Figure 3-5. TPSS Access Roads

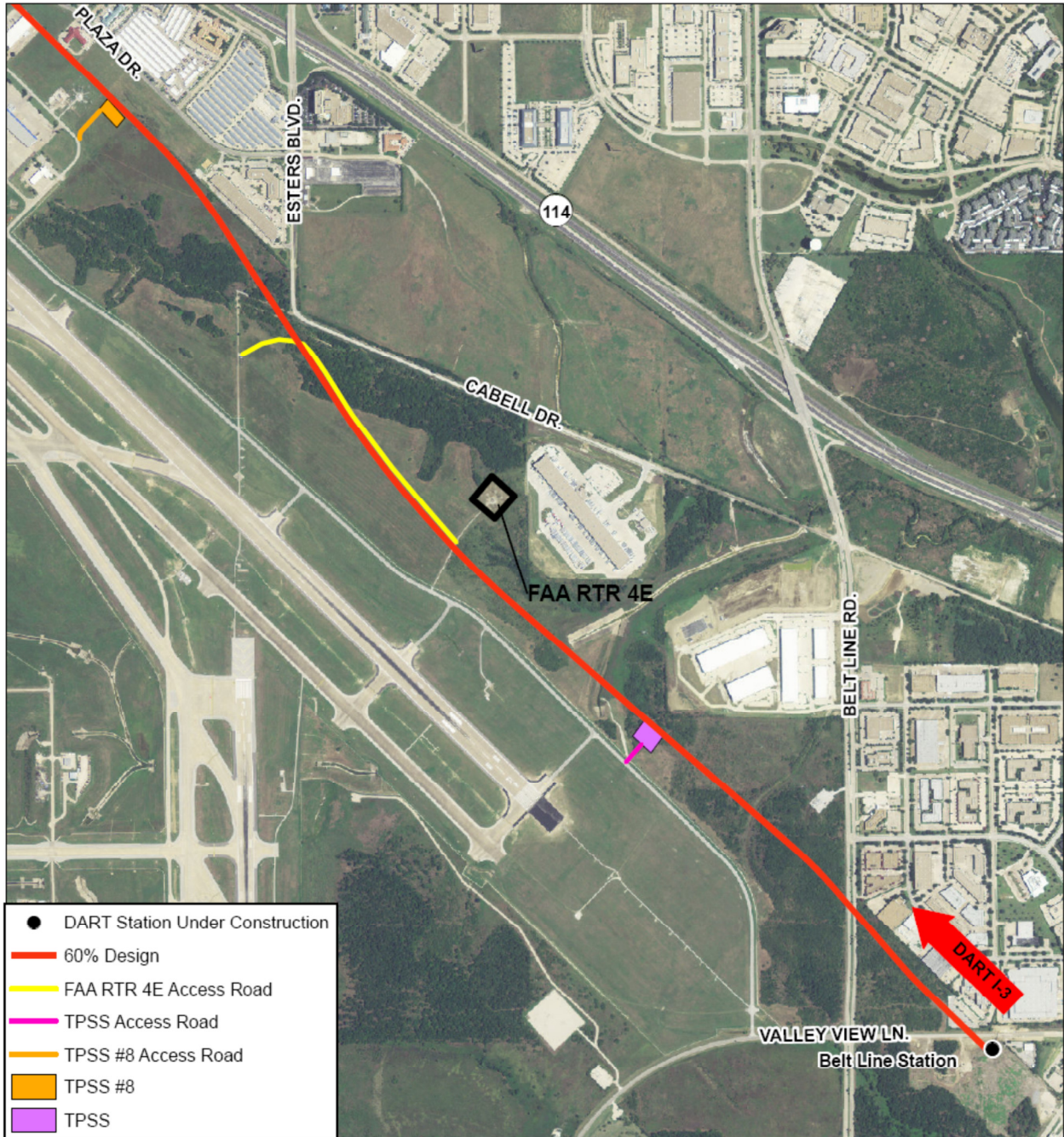
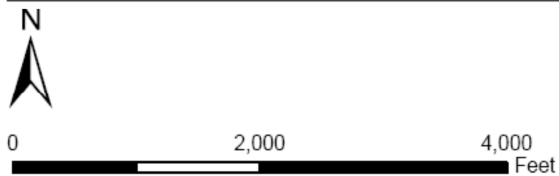


Figure 3-5



DART I-3 TPSS ACCESS ROADS
 DART Irving-3 Supplemental Environmental Assessment

3.10 Vegetation

Previous Conditions

Section 4.14 of the EA documented short-term and long-term loss of vegetation. These impacts were limited to the proposed 80-foot ROW. Mitigation measures included re-vegetation of all disturbed areas.

Revised Conditions and Mitigation

In a letter dated September 11, 2009, TPWD emphasized the need to minimize the amount vegetation disturbed by the project. The construction of box culverts instead of bridges does not represent a significant difference in the impact to riparian areas presented in the original EA. As indicated in this letter, there are only small amounts of riparian woodlands associated with the crossings of Mud Springs Creek and Hackberry Creek Tributary #3. The crossing of Grapevine Creek (Referred to as Cottonwood Branch in letter) is now perpendicular to the stream and located directly adjacent to North Airfield Drive in a previously disturbed area. The disturbed riparian area west and south of the crossing is similar to the area identified in the original EA. In a follow up letter dated March 28, 2012, TPWD indicated that they have no objections or concerns with the modifications to the design of the proposed project.

The LRT alignment shift, the connected action of relocating a portion of North Airfield Drive, the new RTR DFWB 4E Access Road, temporary construction roads, and added ROW needs would impact additional vegetation. Previous mitigation measures documented in the EA would be used. At the request of TPWD, site planning should be designed to preserve existing native mature trees and shrubs, where possible.

3.11 Wildlife and Threatened or Endangered Species

Previous Conditions

Section 4.15 of the EA noted that airport activity limited the amount of wildlife in this area. All wildlife present within the proposed LRT alignment are subject to an environment that is regularly disturbed. No mitigation would be required.

Revised Conditions and Mitigation

With the installation of box culverts at Hackberry Creek Tributary #3, Mud Springs Creek, and Grapevine Creek, there is a potential to displace wildlife; however, compatible habitat is adjacent to these areas and could accommodate these species, if present. In a letter dated March 28, 2012, TPWD indicated they do not anticipate significant adverse impacts to rare, threatened, and endangered species, or other fish and wildlife resources due to the modifications to the design of the proposed project.

Tables 3-5 and 3-6 identify the updated threatened and endangered species known to occur in Dallas and Tarrant counties. The presence of these species was not observed during field investigations. No mitigation would be required.

Table 3-5. USFWS Endangered Species List for Dallas and Tarrant Counties

Common Name	Scientific Name	County Found	Status	Updated Status	Suitable Habitat	Habitat Found
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Dallas/ Tarrant	DM	T	Near rivers and large lakes where fish are abundant and trees are at least 60 feet in height	No
Piping Plover	<i>Charadrius melodus</i>	Dallas	E,T	T	Sparsely vegetated shores and islands of shallow lakes, ponds, rivers, or impoundments	No

Source: USFWS Endangered Species List for Dallas & Tarrant Counties, accessed August 2009; updated February 2012
 NOTES: DM - delisted taxon, recovered, being monitoring first five years; E - federally endangered; T - federally threatened

Table 3-6. TPWD Annotated County List of Rare Species for Dallas and Tarrant Counties

Common Name	Scientific Name	County Found	Status	Updated Status	Habitat Required	Habitat Found
Peregrine Falcon	<i>Falco peregrinus</i>	Dallas/ Tarrant	DM, ST	DL, T	Occupies wide range of habitats during migration, including urban areas (this includes the American and Arctic Peregrin Falcon)	Yes
Western Burrowing Owl	<i>Athene cunicularia hypugaea</i>	Dallas/ Tarrant	R		Open grasslands, including prairie, plains, savanna, and open areas such as vacant lots near airports	Yes
Black Lordithon Rove Beetle	<i>Lordithon niger</i>	Dallas	R		Only historically known to exist in Texas. Defined habitat requirements unknown.	Unknown
Plains Spotted Skunk	<i>Spilogale putoius interrupta</i>	Dallas/ Tarrant	R		Found in open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands. Prefers wooded brushy areas and tallgrass prairie.	Yes
Texas Garter Snake	<i>Thamnophis sirtalis annectens</i>	Dallas/ Tarrant	R		Prefer wet or moist microhabitats, but is not restricted to them. Hibernates underground.	Yes
Timber/ Canebrake Rattlesnake	<i>Crotalus horridus</i>	Dallas/ Tarrant	ST	T	Found in swamps, floodplains, upland pine and deciduous woodlands, riparian zones, and abandoned farmland.	Yes

Source: TWPD Annotated County List of Rare Species for Dallas and Tarrant Counties, Texas, July 16, 2009; Updated February 8, 2012

NOTES: DM – delisted taxon, recovered, being monitoring first five years; E – federally endangered; T – federally threatened; ST – state threatened; SE – state endangered; R – rare species only

3.12 Water Resources

Previous Conditions on Water Resources

The original project design proposed that all streams, wetlands and floodplains would be spanned, minimizing direct impacts to water resources and limiting floodplain encroachment. The only Water of the U.S. directly impacted by the project was Ephemeral Drainage-1 (ED-1), a concrete lined channel. Approximately 2,632 square feet of water (0.06 acres) would be impacted due to the placement of support columns.

Revised Conditions on Water Resources

The proposed project modifications would have minimal impacts on four water resources. A summary of project water crossing related changes that could potentially impact water resources is shown below:

- The design-build contractor has proposed using box culverts instead of spanning three water crossings (Hackberry Creek Tributary #3, Mud Springs Creek and Grapevine Creek)
- The bridge over Hackberry Creek has been shortened and the pier locations have been modified; however, the pier locations would not impact the water or encroach on the floodplain
- Floodplain impacts at Hackberry Creek are still limited to minor amounts of fill associated with retaining walls and structures
- There is no new encroachment on FEMA-delineated floodplains, as identified on the FIRM maps
- The tailwater velocity at Mud Springs Creek would slightly increase over existing conditions
- ED-1 would no longer be directly impacted by the rail alignment, however, it would be impacted by the relocation of North Airfield Drive
- Construction access roads would result in a stream crossing with temporary impacts to waters of the U.S.

Table 3-7 details the proposed construction temporary and permanent impacts to jurisdictional waters of the U.S. These waters are shown in **Figures 3-5** and **3-6**.

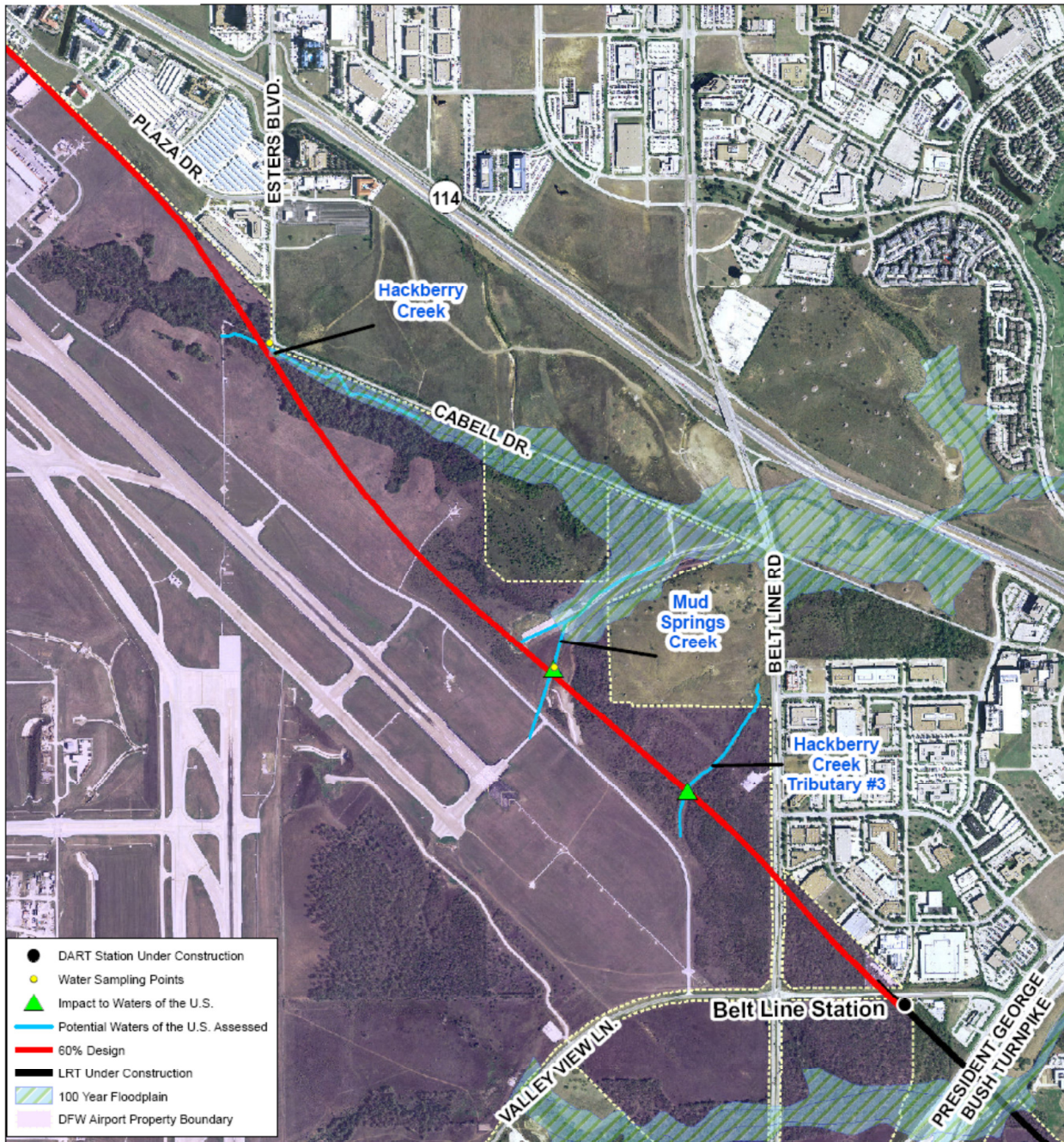
Table 3-7. Impacts to Jurisdictional Waters of the U.S.							
Stream Name	Wetland Classification	Crossing Type	Civil Station No.	Crossing Width (ft.)	Crossing Length (ft.)*	Permanent Impacts (acre)	Temporary Impacts**
Tributary to Hackberry Creek	NA	Box Culvert	520+00	12	72	0.02	0.04
Mud Springs	NA	Box Culvert	539+00	20	78	0.04	0.07
Hackberry Creek	NA	Clear Span	585+00 to 586+00	40	0	0	0.14
ED-1	NA	Concrete Lined Channel	644+00	NA	NA	0.07	0
Grapevine Creek	R4SBCx	Box Culvert	689+00	110	37	0.09	0.38

NA - Not Applicable

*Reflects in-stream length of permanent structure

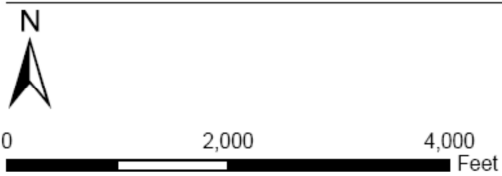
**Assumes impacts to entire 100-foot ROW width plus 50-foot width for temporary construction road

Figure 3-6. Water Resources



Source: NCTCOG 2008 and URS Field Survey 2009

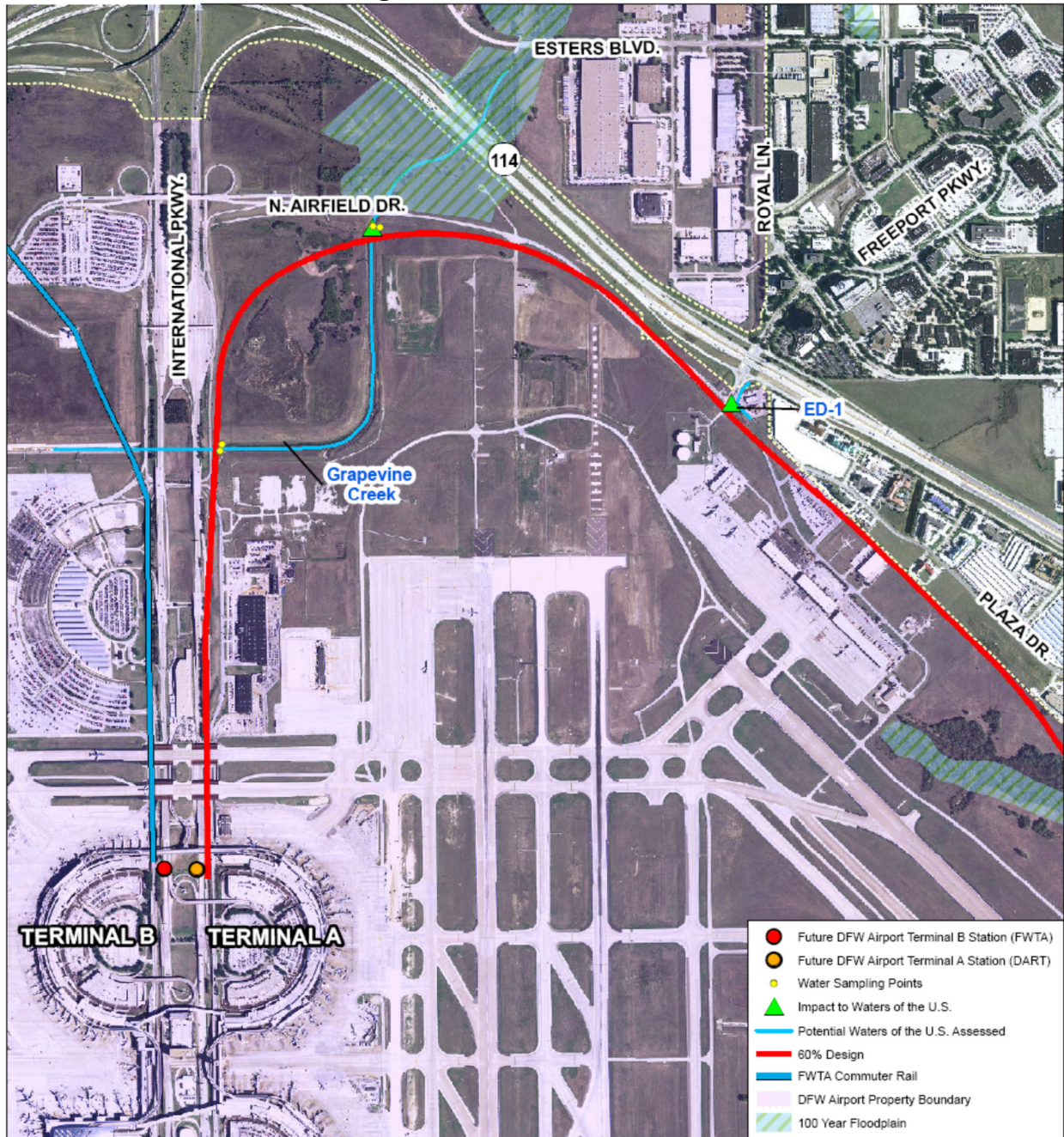
FIGURE 3-6



WATER RESOURCES

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Figure 3-7. Water Resources

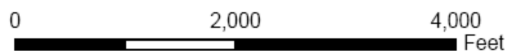


Source: NCTCOG 2008 and URS Field Survey 2009

FIGURE 3-7

WATER RESOURCES

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A review of potential impacts to floodplains was coordinated with the DFW Airport Environmental Affairs Department and the Floodplain Coordinators for the cities of Irving and Grapevine. Correspondence from these coordinators is provided in Appendix B.

Mitigation for Water Resources

Permanent impacts to the waters of the U.S. would be approximately 0.22 acres, including 0.09 acres of wetlands. Following the guidelines of NWP 14 for Linear Transportation Projects, if more than a 1/10 acre of waters of the U.S. are going to be impacted, or there is a discharge in a special aquatic site, including wetlands, a pre-construction notification (PCN) must be submitted to the USACE Fort Worth District prior to commencement of construction activities with in waters of the U.S. These impacts would be covered under USACE NWP 14.

The USACE PCN requirements indicate that if a proposed activity would result in the loss of greater than 1/10 of an acre of wetlands, then mitigation for the impacts must be addressed. Because less than 1/10 of an acre of permanent impacts to wetlands is expected to occur as a result of the project, DART will not propose wetland mitigation for the project impacts. However, the USACE has the authority to determine if compensatory mitigation is required for proposed impacts under Section 404 of the Clean Water Act. Compensatory mitigation is determined on a case-by-case scenario by the District and could require wetland/stream restoration as mitigation (USACE NWP 14, 2007). As stated in the EA, DART's preferred method of wetland replacement is wetland banking, should compensatory mitigation be required.

As shown in Appendix C, the construction of box culverts at three water crossings (Hackberry Creek Tributary #3, Mud Springs Creek, and Grapevine Creek) will have minimal impact. Based on the hydraulic modeling there would be a slight increase in tailwater velocity at Mud Springs Creek. The resulting velocity would be 3.16 foot/second, an increase of 1.9 foot/second. DFW Airport has reviewed the hydrology reports and determined that the results of the upstream and downstream flood levels and velocities modeled for a 100-year storm event for the three creek crossings to be acceptable. However, DFW Airport has requested that the higher velocities that could be experienced in the immediate vicinity of the outfalls be mitigated with channel protection at the outfall.

To preserve the natural environment, TPWD recommends that channel reconstruction adjacent to the culverts consist of natural materials, where possible. In order to both comply with TPWD recommendations and mitigate higher velocities, the total amount of erosion protection has been minimized. Boulder type riprap, in lieu of concrete lining, will provide a more natural appearance. Over time, the vegetation will envelop the rock riprap and should encourage wooded growth and riparian development. Consistent with TPWD recommendations, the planting scheme would consist of native vegetation. The scheme would be consistent with DFW Airport policy, which suggests vegetation be limited to species that are not conducive for bird habitat.

DART will follow the guidelines of the USACE NWP for restoring the 0.63 acres of temporary impacts to their original state. Construction activities have the potential to produce short-term, localized water quality impacts. Potential impacts include increased sediment runoff near construction activities and temporary impacts due to widening stream channels. Mitigation measures to alleviate temporary impacts from construction activities are described in Section 4.

3.13 Water Resource Avoidance Alternatives

As outlined in federal regulations, impacts to water resources must be avoided, minimized, or mitigated. This includes direct impacts to streams, wetlands or floodplain. As previously described, there would be direct impacts to four waters of the U.S.

The proposed general alignment best satisfies the need for and purpose of transportation improvements in the corridor. The original EA demonstrated that there was no practical and feasible linear alternative to the original alignment. As discussed in EA Section 2.2, several alternative LRT concepts linking the Belt Line Station to the central terminal area (CTA) were considered. Working with DFW Airport, DART identified a ROW-constrained corridor that allowed implementation of LRT on DFW Airport property. This corridor minimizes environmental impacts without impacting airport operations.

The No-Build Alternative would avoid all water resource impacts; however, it would not meet the purpose and need of the project.

The original design represents a possible alternative to the proposed design modification; however, when compared to the proposed alignment it would not be considered feasible and prudent. Factors that influence this consideration include: compatibility, impacts to FAA infrastructure, costs, magnitude of impact, impacted parties, setting, LRT operations, and impact minimization.

Compatibility: The use of culverts at the three stream crossings would be part of a larger design option that would relocate North Airfield Drive, eliminating both aerial and at-grade roadway crossings and significantly reducing the overall profile of the project. The 60% design would be significantly simplified relative to the 10% design. The proposed modifications would eliminate nearly one mile of aerial structure. The braiding of the LRT alignment and North Airfield Drive would also be eliminated. Although the original alignment did not penetrate air space, the lower profile associated with the modified alignment would be preferred in this airport setting. As detailed in Section 2, the modified alignment would also be preferred from a human factor perspective. The modified alignment would be closer to the proposed Northeast Perimeter Taxiway. The combined lower profile would improve nighttime visual cues and better discrimination for taxiing pilots, and would be more compatible with airport operations.

Impacts to FAA Infrastructure: As discussed in Section 2, the 10% design required the relocation of a high-mast pole hosting the LLWAS-NE #4 and the ASDE-X RU #2. The modified alignment would avoid the relocation of this FAA equipment. Ultimately, this avoidance action would simplify project coordination and construction scheduling.

In a changed condition from the original EA, FAA recommends raising the existing antenna for Central ATCT Microwave and adjusting associated infrastructure on a new 40-foot monopole tower at the existing location. This action would be addressed through an MOA and reimbursable agreement with DART, DFW Airport, and FAA.

Cost: The proposed design modifications would represent a significant cost savings for the rail project. The capital cost savings associated with modifying the alignment and converting the spans over the three creeks to culverts would be approximately \$9.75 million. Additionally, the proposed modifications would avoid the relocation costs associated with FAA infrastructure. DART would also reduce operating and maintenance costs resulting from the lower profiles and improved alignment.

Magnitude of Impact: As described above, the water resource impacts would be negligible. The results of the project would not exceed the USACE threshold of impacts under the NWP 14. There would be a slight increase in tailwater velocity at Mud Springs Creek; however, this increase would not exceed the 5.0 feet/second threshold.

Affected Parties: All of the impacts to water resources would be located on DFW Airport property. The proposed project modifications have been coordinated with the DFW Airport Environmental Affairs Department and the Floodplain Coordinators for the cities of Irving and Grapevine. DFW Airport supports the design modifications and neither floodplain coordinator has raised concerns over the design modifications.

Setting: None of the water resources being crossed have an exceptional natural, cultural or recreational value in a free-flowing condition. Each of the three streams have been channeled through culverts either upstream or downstream of the rail crossing by DFW Airport, TxDOT, the City of Grapevine or the City of Irving.

LRT Operations: The simplified, lower profile rail alignment would improve line-of-sight operations and overall safety. The 60% design could increase travel time and reduce maintenance requirements.

Minimization of Impacts: DART has minimized direct impacts to water resources. Direct impacts would be limited to the proposed crossings. The aerial structure over Hackberry Creek, the most significant stream and floodplain crossed by the alignment, would be maintained. Any mitigation required by the USACE, DFW Airport and the cities of Irving and Grapevine would also lessen the severity of impacts.

Based on the factors listed above, the 60% design would be a feasible and prudent alternative to the original alignment.

3.14 Air Quality

Previous Conditions

Section 4.17 of the EA identified no adverse impacts to air quality as a result of the implementation of the project. Therefore, no mitigation was required.

Revised Conditions

A review of the Air Quality assessment is required based on recent changes to the project, as well as updated air quality requirements for Dallas-Fort Worth. A summary of regulatory and project related changes is shown below:

- The Environmental Protection Agency (EPA) has revised National Ambient Air Quality Standards (NAAQS) for most criteria pollutants including ozone (O₃), particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀), particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM_{2.5}), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb).
- The air quality attainment status for the Dallas-Fort Worth metropolitan area has changed from moderate to serious.
- The North Central Texas Council of Governments (NCTCOG) has updated the regional Metropolitan Transportation Plan (MTP) and Transportation Improvement Program (TIP) for North Central Texas.

- The design-build contractor has identified locations for equipment and track laydown yards, and topsoil storage locations adjacent to the proposed LRT ROW.
- The design-build contractor has prepared an Airport Construction Emissions Quantification Worksheet as an appendix to FAA Form 7460-1, Notice of Proposed Construction or Alternation. The information is provided in Appendix D.

For the proposed project, compliance with Clean Air Act legislation requires FAA Form 7460-1, Notice of Proposed Construction or Alternation, and an accompanying Airport Construction Emissions Inventory. The emissions inventory shows total ozone precursor hydrocarbon (VOC) and NO_x emissions for non-road construction equipment and vehicles and on-road trucks for the project area. Total VOC emissions during the construction period for the project would be approximately 1.4 tons and total NO_x emissions would be approximately 12.7 tons. These emissions are less than the 50 tons per year VOC *de minimis* level and are also less than the 50 tons per year NO_x *de minimis* level. Therefore, a formal conformity determination is not necessary for this project.

Construction Staging Areas

Based on the latest design schematics, the design-build contractor has proposed two material laydown yards, two soil storage areas and one track laydown yard adjacent to the proposed LRT ROW. **Table 3-8** provides a description of the proposed location of each material/equipment laydown yard, track laydown yard and soil storage area.

Table 3-8. Location of Construction Staging Areas				
<i>Equipment Laydown Yard</i>				
<i>Station</i>	<i>N/S of ROW</i>	<i>Width (ft)</i>	<i>Length (ft)</i>	<i>Location</i>
598+00+00 – 612+00	South	250	1,400	East of Plaza Drive
602+00 – 612+00	North	250	1,000	East of Plaza Drive (non-Airport private property)
<i>Track Laydown Yard</i>				
<i>Station</i>	<i>N/S of ROW</i>	<i>Width (ft)</i>	<i>Length (ft)</i>	<i>Location</i>
558+00 – 575+00	South	50	800	West of Hackberry Creek
<i>Topsoil Storage Areas</i>				
<i>Station</i>	<i>N/S of ROW</i>	<i>Width (ft)</i>	<i>Length (ft)</i>	<i>Location</i>
521+00 – 529+00	North	50	800	NW of Belt Line Road
559+00 – 574+00	North	50	1,500	West of Navaid Road

Source: KSWRP, 2012

Mitigation

The project would not cause or exacerbate a violation of any NAAQS, and with respect to emissions and conformity, has been found to conform to the SIP. There would be no adverse air quality impacts

associated with the implementation of the proposed project. Therefore, no mitigation measures are proposed.

3.15 Cultural Resources

Previous Conditions

Section 4.19 of the EA identified no historic resources within the project Area of Potential Effects (APE).

Revised Conditions

With the proposed project design modifications occurring mostly in the original APE for historic resources and with no historic resources identified in the previous reconnaissance survey, it has been recommended no additional work be conducted. THC concurred with this finding in February 2012.

The archaeology resource study identified an APE for the area and it was determined there are no known archaeological resources that would be impacted by the proposed DART LRT alignment.

Mitigation

Much of the proposed project modifications are within the original APE for archaeological resources. Areas outside of the APE have been previously disturbed. Additionally, DFW Airport conducted an archaeology study in 2007 to locate and evaluate cultural resources on 1,210 acres of DFW Airport property. This study concluded, with THC concurrence that within the zone of the proposed project there is a low potential for containing undisturbed historic and prehistoric sites. If any archaeological deposits are discovered during construction of the DART LRT infrastructure, work will be halted and THC will be consulted to determine the appropriate course of action.

3.16 Hazardous Materials

Previous Conditions

An initial database search was conducted and noted 27 potential hazardous materials source sites and 24 of the sites presented a low risk of potential hazardous materials contamination. Two of the three remaining sites presented a low to moderate risk of potential hazardous materials contamination.

Within the confines of the remaining site, three more precisely identified potential hazardous material sources were determined to present a moderate or higher risk of potential hazardous materials contamination.

Revised Conditions

After carefully evaluating each finding within an updated 2012 environmental database search report, four new findings identified within the report have been determined to be of low risk to the proposed project. These sites (MAP ID 2, 19, NEW1 and NEW2) are mapped in **Figures 3-7** and **3-8**. No new moderate or high risk sites were identified during the January 2012 investigation.

The proposed modified LRT alignment would run along/outside the northeastern side of the VCP area for approximately 3,344 linear feet, while an additional 345-linear foot section of the modified alignment would now traverse through the northern tip of the VCP area. Additionally, relocation and construction of a new parking lot within the Northeast Cargo Area VCP (as shown in **Figure 3-4**) is proposed to mitigate parking- and acquisition-related impacts to Federal Express. The VCP area's general gradient, its position beneath the proposed parking lot and a 345-foot segment of the proposed modified LRT alignment, and the area's chemicals of concern combine to generate the determination

that the site is now elevated to a status that represents a moderate to high risk of potential (present or future) hazardous materials encounter to the proposed alignment.

The revised alignment no longer requires the closing of the frac pond at Chesapeake Pad Site AD. The frac pond would be reconfigured by Chesapeake, but remain in place.

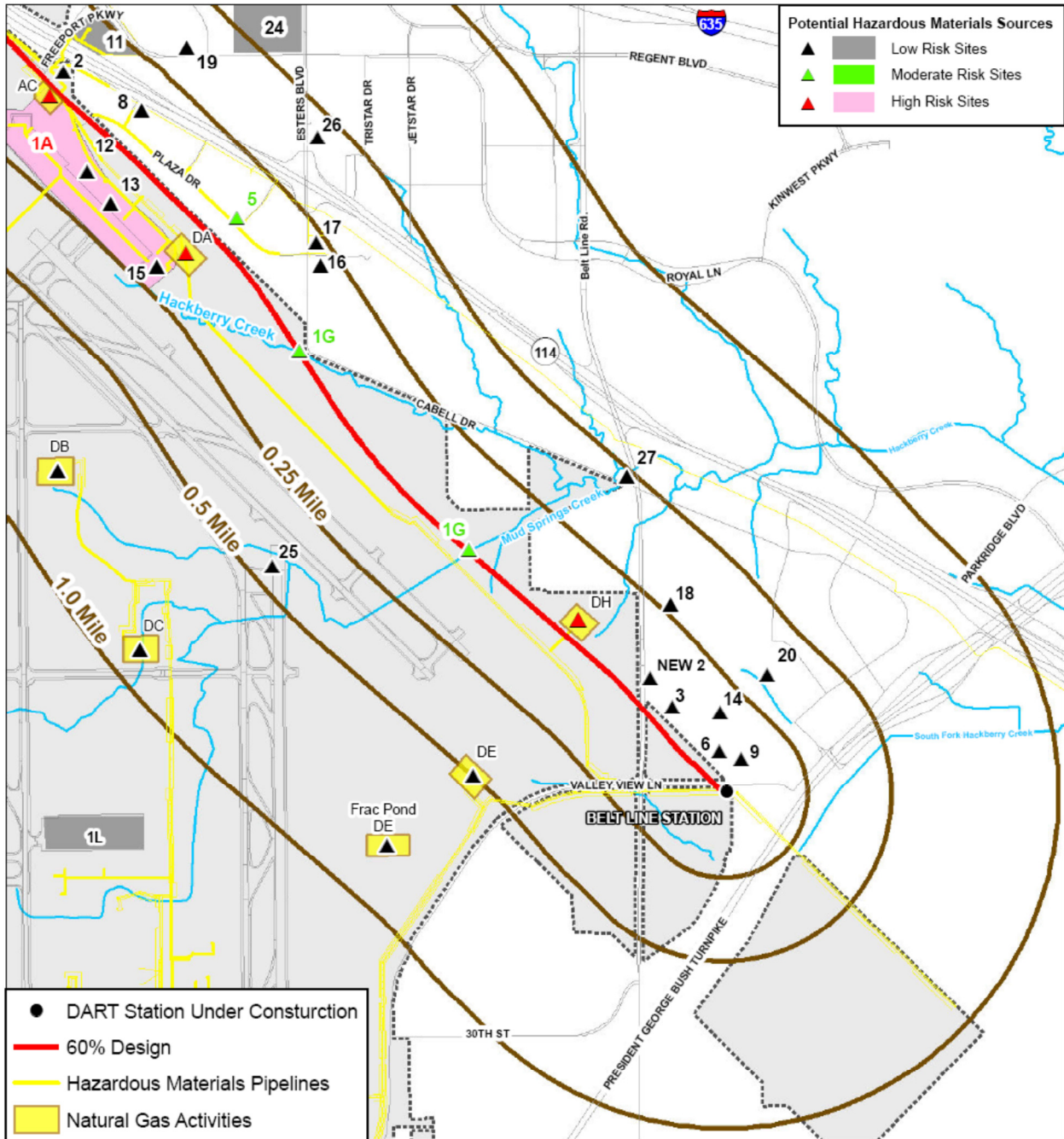
Mitigation

Although a given site may be known as contaminated or suspected to be such, implementation of the proposed modified alignment does not necessarily mean that the site would be adversely affected by the project, or vice versa. All other previously identified preventative mitigation measures continue to be available to address present or future liabilities associated with hazardous materials sites.

During construction, it is anticipated that the contractor will over excavate up to eight feet to accommodate MSC wall construction. The design-build contractor will adhere to DFW Airport's Soil Management Protocol. All activities which involve disturbing or excavating soil will be performed in accordance with Storm Water Pollution Prevention Plan, Erosion Control Plan, State/Federal directives submitted/approved project specific Soil Management Plan and all other DFW Airport codes, permitting and operational requirements.

Under agreements with DFW Airport, Chesapeake's is responsible for all actions and documentation associated with the reconfiguration of the frac pond at Chesapeake Pad Site AD.

Figure 3-8. Potential Hazardous Materials Sources



Source: NCTCOG 2008, GeoSearch 2009 and 2012, and URS study team, 2009 and 2012.

FIGURE 3-8

POTENTIAL HAZARDOUS MATERIALS SOURCES
 DART Irving-3 Supplemental Environmental Assessment

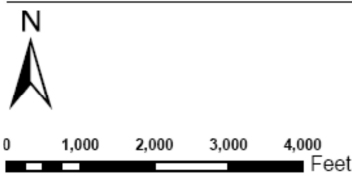
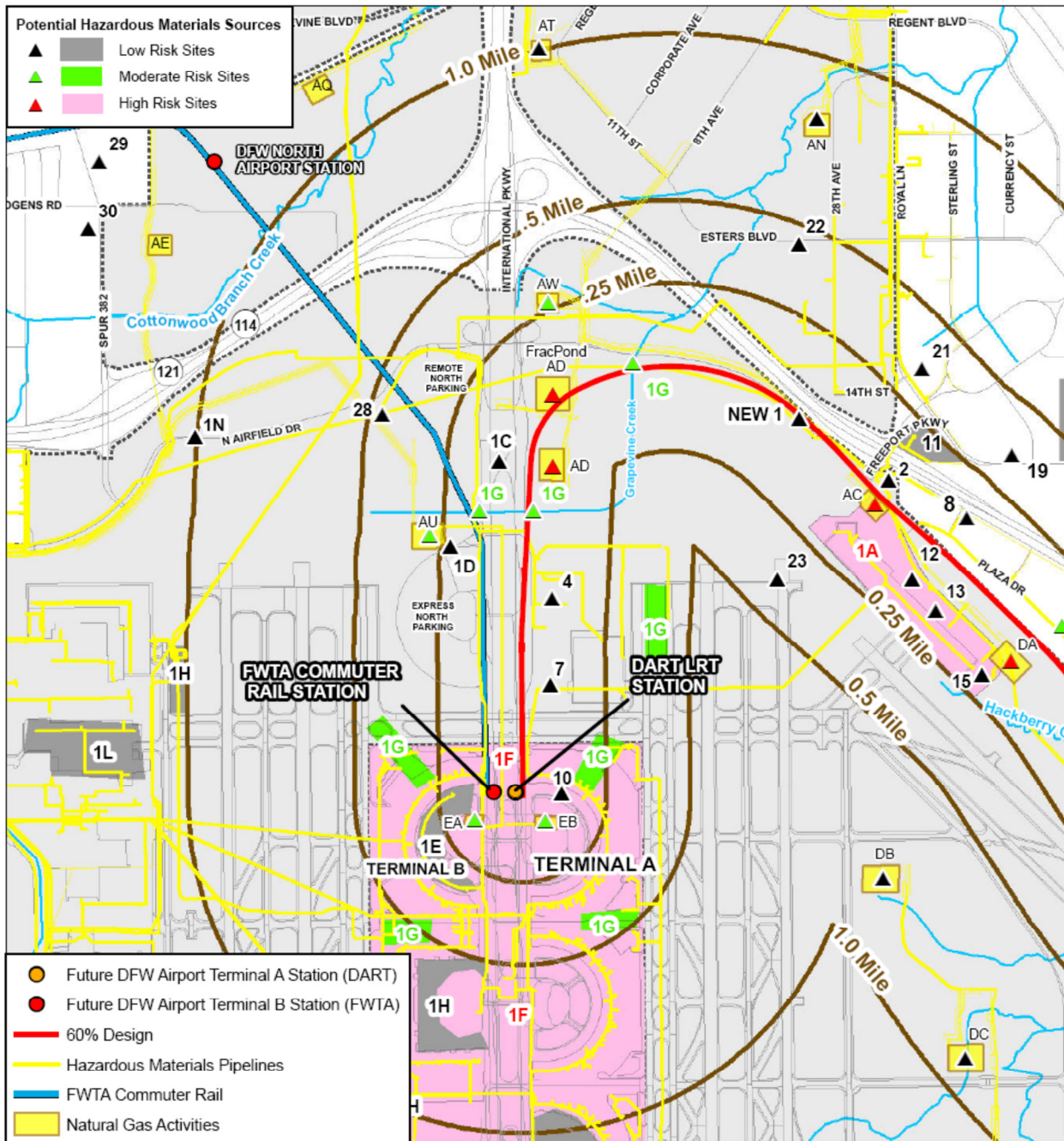


Figure 3-9. Potential Hazardous Materials Sources



Source: NCTCOG 2008, GeoSearch 2009, and URS study team, 2009.

FIGURE 3-9

POTENTIAL HAZARDOUS MATERIALS SOURCES
DART Irving-3 Supplemental Environmental Assessment



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Feet

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SECTION 4. CONSTRUCTION AND CUMULATIVE IMPACTS

4.1 Construction Impacts

Since the development of the 60% design, additional information has been generated that documents probable construction methods and location of construction staging areas.

4.1.1 Construction Scenario

DART has awarded a design-build construction contract. The contractor has identified several design modifications that improves the overall project alignment. As a result, the LLWAS #4 and ASDE-X RU #2 would not be relocated and there would not be the need for extensive coordination with FAA and DFW Airport for the relocation of associated facilities.

Through the design process, the contractor has also identified the need for a temporary construction road and the locations of staging areas, as identified in **Figure 4-1 and Figure 4-2**.

Southeast Temporary Construction Access Road

A temporary construction access road would extend from Belt Line Road to the FAA DFWB RTR 4E access road. This facility would have a width of 25 feet and be comprised of crushed concrete. In addition, the installation and use of the facility would temporarily impact vegetation and stream crossings. Upon completion of construction of the LRT alignment the contractor will restore vegetation and stream crossings to their original conditions.

East Temporary Construction Access Road

A temporary construction access road would extend from the new proposed RTR 4E access road to North Airfield Drive. This facility would have a width of 25 feet and be comprised of crushed concrete. In addition, the installation and use of the facility would temporarily impact vegetation and result in a temporary stream crossing of Hackberry Creek. Upon completion of construction the contractor will restore vegetation and the stream crossing to their original conditions.

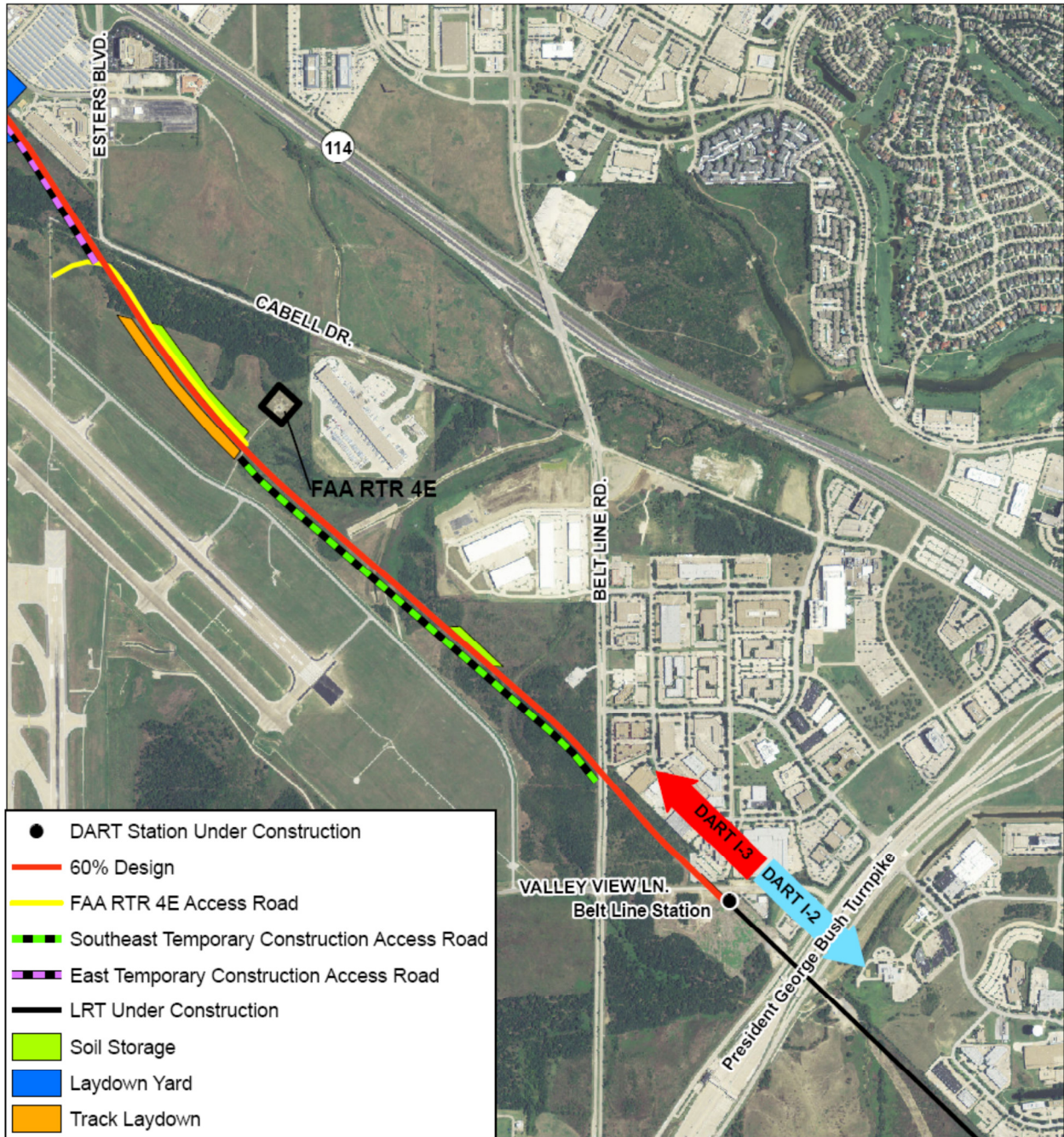
Gate 210 Temporary Construction Access Road

A temporary construction road would be built off of the access road to the Water Pump Station – NE Tanks. The crushed concrete road would have a width of 25 feet and extend along the southern boundary of the DART ROW and North Airfield Drive, ultimately connecting to the existing construction access road for AOA Gate 210. Upon completion of the project, the road would remain and be used by DFW Airport.

Staging Areas

As shown in **Table 3-8**, the contractor has identified several staging areas for soil storage and lay down yards for construction materials storage, vehicle storage and construction activities (such as butt welding). Construction staging area mitigation would conform to the specifications identified in the EA.

Figure 4-1. DART I-3 TEMPORARY IMPACTS



Source: 2010 NAIP Imagery: Grapevine and Carrollton Quads.

Figure 4-1

DART I-3 TEMPORARY IMPACTS
DART Irving-3 Supplemental Environmental Assessment

Figure 4-2. DART I-3 Temporary Impacts

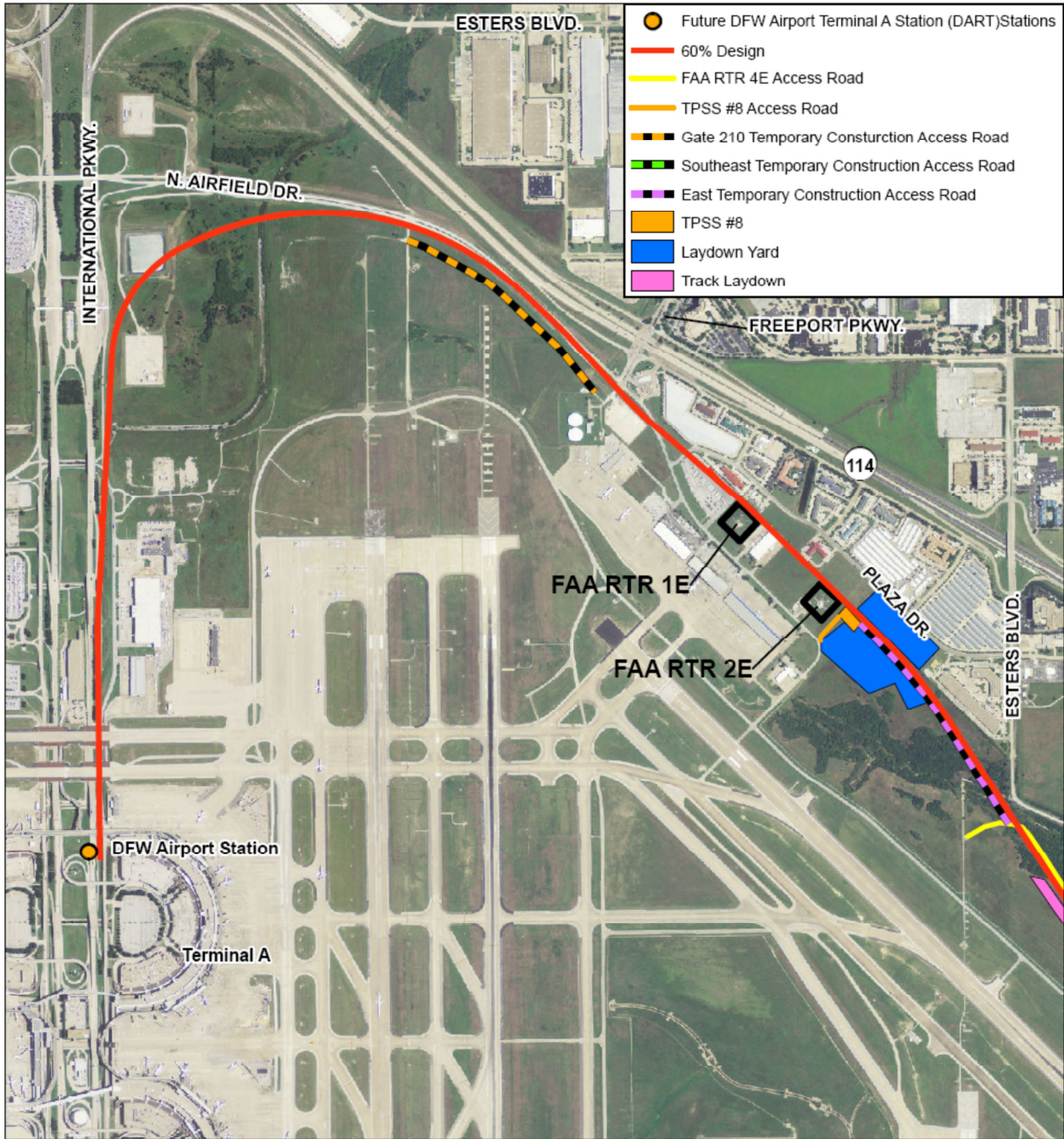
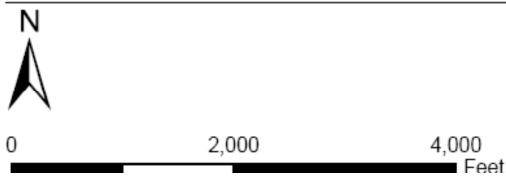


Figure 4-2



DART I-3 TEMPORARY IMPACTS
DART Irving-3 Supplemental Environmental Assessment

4.1.2 Impact Categories

The proposed modifications would not change the impacts already identified in the EA for the following categories:

- Construction Noise
- Construction Vibration
- Traffic Flow
- Wildlife and Threatened or Endangered Species
- Soils

The 60% design modifications would create some change in the construction impacts for the following categories:

Water Resources

As discussed in Section 3, the design modifications will incorporate box culverts in the stream crossings. Work within water bodies would require earth moving equipment to be located near or in the creeks. The contractor would be expected to adhere to Best Management Practices to minimize sediment loading associated with storm water runoff. The contractor would be expected to re-vegetate disturbed areas as quickly as possible to reduce erosion potential.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 prohibits harm to all migratory birds, their nests, eggs, and nestlings. The Bald and Golden Eagle Protection Act further provides protection for Bald Eagles and Golden Eagles. In August 2011 biologist conducted field investigations of an area within one-quarter mile of the proposed LRT alignment, this included a survey of migratory birds. No Bald or Golden Eagles have been observed within the project study area; however, the following migratory birds have been observed:

- *Cyanocitta cristata* (blue jay)
- *Spizella pusilla* (field sparrow)
- *Zenaida macroura* (mourning dove)
- *Tyrannus forficatus* (scissor-tailed flycatcher)
- *Hirundo rustica* (barn swallow)
- *Egretta caerulea* (little blue heron)

No other evidence of migratory bird nesting has been observed in the project study area. No migratory birds, their nests, eggs, or young would be harmed by construction activities of the project.

Should an active nest of the previous referenced migratory birds, or any other migratory bird, be identified during construction of the LRT alignment outside of the central terminal area, all construction activities in the vicinity would cease. Construction would resume once the migratory bird nest has been removed in accordance with the provisions of the Migratory Bird Treaty Act, 16 United States Code (USC) 703-712, and its implementing regulations by U.S. Fish and Wildlife Services per CFR Part 21.

Air Quality

The design-build contractor has submitted FAA Form 7460-1, Notice of Proposed Construction or Alternation. The contractor has also submitted an Airport Construction Emissions Inventory located in Appendix D.

Public Services, Safety, and Security

The revised alignment, the reconstruction of North Airfield Drive, and the construction of the access road have a greater potential to disrupt access to the Department of Public (DPS) Fire Station #3 during construction. DART is committed to ongoing coordination with DFW DPS during construction and would stage construction so that traffic on North Airfield Drive or access to DPS Fire Station #3 is not disrupted.

In addition, the existing fire dry stand pipe located on the west side of Chesapeake Pad AC would be relocated to the east side to comply with Section 912 of 2009 International Fire Code.

Roadway Construction

Roadway construction will be coordinated with DFW Airport for North Airfield Drive and Northbound Service Road. Detours or other continuous flow mechanisms will be provided during construction. Also North Airfield is an alternate route for access during TxDOT Connector construction.

4.2 Disruption of Utilities

A discussion of potential utility disruption is located in Section 5.2 of the EA. The 60% design modifications would not significantly alter these impacts. However, the relocation of North Airfield Drive would potentially impact utilities not previously identified. **Table 4-1** identifies the utilities impacted by the relocation of North Airfield Drive. Mitigation for the possible disruption of these utilities is outlined in Section 5.2 of the EA.

Table 4-1. Anticipated Construction Action for Impacted Utilities Near Freeport Parkway and North Airfield Drive		
<i>Owner</i>	<i>Station Location</i>	<i>Action</i>
Verizon Line	640+00 to 645+50	Relocation
DFW 8-inch Wastewater Line	644+14	Steel Encase
DFW 30-inch RCCP Water	644+60	Concrete Cap
DWU 30-inch RCCP Water	646+00	Concrete Cap
FAA Electric	646+62	Concrete Encase
Verizon Line	648+40	Concrete Encase
Joint Trench Qwest and Time Warner	646+25 to 671+00	Relocation

The proposed action has the potential to impact power feeds to the Water Pump Station – NE (Tanks) located at North Airfield Drive and Freeport Parkway. The station has two power feeds, one from the east side and the other one from the west side. The feed on the east side will not be disrupted by the project. The existing ONCOR switch gear on the west side will be relocated. It will be a one-day event to splice the cable. During the splicing, there will be one power feed available for the water pump station. The power to the water pump station will not be disrupted by the project and it will remain fully operational during the required work. Coordination with ONCOR will be ongoing during construction in order to timely schedule this activity.

A Chesapeake pipeline is located within the vicinity of the proposed alignment and a portion of the relocated North Airfield Drive would extend over the pipeline. As confirmed by Chesapeake the pipeline does not require relocation; therefore, no impact to the pipeline is anticipated (see Appendix B). The current pipeline license agreement executed between Chesapeake and DFW Airport permits the construction of the roadway.

4.3 Cumulative and Indirect Impacts

The original EA addressed cumulative effects which are the combined impacts of independent projects and the DFW Airport Extension on the environment. This section has been updated based on the proposed project modifications and additional information about present and reasonably foreseeable actions within the project area.

4.3.1 Inventory of Related Projects

The inventory of relevant projects presented in the original EA has not changed. **Table 4-2** lists these projects and has been updated to reflect more current information.

Table 4-2. Past, Present and Reasonably Foreseeable Future Actions			
<i>Project Name</i>	<i>Description</i>	<i>Timeframe</i>	<i>Implementing Agency</i>
Irving-2 LRT	The Orange Line LRT diverging from the Green Line and connecting to downtown Dallas. Belt Line Station is on airport property and within the project area.	Currently under construction. Scheduled to open in December 2012.	DART
Irving-3 LRT Phase II	LRT line diverging from the proposed LRT alignment at Freeport Parkway to serve the proposed DFW Airport North Station along the Cotton Belt rail corridor	TBD – This project may be implemented in conjunction with Cotton Belt Express Rail service	DART/public-private partnership
Cotton Belt Express Rail	Passenger rail service along the existing Cotton Belt rail corridor from the DFW Airport North to the DART's Red Line	2030 or earlier, dependent on funding through an innovative financing initiative	DART/public/private partnership
TEX Rail	Commuter rail service from Sycamore School Road in SW Fort Worth through downtown Fort Worth then terminating at DFW Airport Terminal B	2016	The T
DFW Connector Project	14.4-mile project to rebuild SH 114 and SH 121 corridor through Southlake, Grapevine, and the north edge of DFW Airport. At its widest point on SH 114, the DFW Connector will have up to 24 lanes, including 14 main lanes, four toll-managed lanes, and six frontage road lanes.	Construction underway, anticipated completion in 2014	TxDOT/public/private partnership
Modification of the North and South Parking Control Plazas	Minor relocation of both Parking Control Plazas is planned. This relocation would also include updating electronic infrastructure for both	2013	DFW Airport

Table 4-2. Past, Present and Reasonably Foreseeable Future Actions			
<i>Project Name</i>	<i>Description</i>	<i>Timeframe</i>	<i>Implementing Agency</i>
	plazas.)		
Northeast Perimeter Taxiway Extension	An end-around taxiway will be created and existing taxiways J, M & N will be extended to connection the perimeter taxiway. This project would allow access between the terminals and the runways without crossing arrival and departure traffic.	Dependent on funding	DFW Airport
East Airfield Drive/ North Airfield Drive Extension	This project would expand existing East Airfield Drive to four lanes and extend the road to the north under the east diagonal runway. This would complete the Airfield Drive loop around the airport and increase the development potential on the east side of the airport. The project would begin on existing Airfield Drive north of the American Airlines hangar. Two north bound lanes would be constructed to the end of the existing Airfield Drive and from that point four lanes of construction would continue under the diagonal runway toward the intersection of Cabell Road and Esters Blvd.	Planning currently underway. No timeframe set for construction or completion. This project has been coordinated with the LRT Project and the LRT project has been revised to better accommodate the Roadway	DFW Airport
Terminal Link Route Revisions	Construct seven bridges between revenue and non-revenue areas to reduce counter clockwise terminal link route by 43%.	Dependent on funding	DFW Airport
DFW Airport Commercial Land Use Plan	DFW Airport has developed a Commercial Land Use Plan for several areas on its property. The development of these parcels is based on need.	Ongoing	DFW Airport/ Private Developers
Gas Well Exploration, Drilling, and Operations activities	Remaining Gas Pads are located on the east side and south of the central terminal area. Existing operation sites are located on the north and west sides of the central terminal area.	Construction of new wells will resume when gas prices allow for additional production.	Chesapeake Energy
Cottonbelt Trail Expansion	Eastward continuation of the existing trail along the Cotton Belt railroad ROW.	Unknown	City of Grapevine
Natural Gas Pipeline Construction	Construction of a new transmission line to connect the existing and proposed gas pad sites to the compression station and to create a loop for redundancy. The majority of the remaining pipeline is on the east and northeast side of the airport. Small segments of the pipeline remain south of the central terminal area.	Dependent on construction of new wells	Chesapeake Energy

Source: Gregory Royster, DFW Airport; <http://txdot.gov/>; <http://www.sw2nerail.com/>; and John Hoppie, DART Cotton Belt Project Manager

4.3.2 Impact Areas

This section highlights the impact areas that may have changed as a result of the proposed project modifications.

Airport Impacts

There would be no change to airport impacts as a result of the project modifications.

Zoning and Land Use

There would be no changes to zoning and land use as a result of the project modifications.

Acquisitions and Displacements

There would be no changes to acquisitions and displacements as a result of the project modifications.

Industrial and Commercial Activity

There would be no changes to commercial activity use as a result of the project modifications.

Residential Areas and Community Resources

There would be no changes to residential areas and community resources as a result of the project modifications.

Political Jurisdictions

There would be no changes to zoning and land use as a result of the project modifications.

Visual and Aesthetic Resources

Although the profile of the rail alignment has changed, there would be no cumulative impact resulting from the proposed project modifications.

Noise and Vibration

Although there would be a change in noise impact resulting from the proposed project modifications, this impact would be mitigated and cumulative impacts remain unchanged.

Pedestrian Movement

There would be no changes to pedestrian movements as a result of the project modifications.

Traffic Flow

The proposed modifications should improve traffic flow so there would be no additional cumulative traffic impacts as a result of the project modifications

Parking

There would be no changes to parking as a result of the project modifications.

Public Services, Safety, and Security

There would be no changes to public service, safety and security as a result of the project modifications.

Electrical and Magnetic Fields

There would be no changes to electrical and magnetic field as a result of the project modifications.

Parklands

There would be no changes to parklands as a result of the project modifications.

Vegetation, Wildlife, and Threatened or Endangered Species

There would be no changes to vegetation, wildlife, and threatened or endangered species as a result of the project modifications.

Water Resources

The original design spanned all water crossings and did not affect local water resources. The 60% design implements box culverts at three LRT stream crossings. The addition of these structures would not have a cumulative effect on the overall watershed, as there are similar structures both upstream and downstream of the proposed LRT crossings.

The Northeast Perimeter Taxiway project would be located in the vicinity of the Grapevine Creek floodplain. DART has coordinated the proposed changes in this floodplain with DFW Airport. The future Northeast Perimeter Taxiway project would need to consider additional floodplain impacts.

Air Quality

There would be no changes to air quality as a result of the project modifications.

Physiography, Geology, and Soils

There would be no changes to physiography, geology and soils as a result of the project modifications.

Cultural Resources

There would no changes to cultural resources as a result of the project modifications.

Hazardous Materials

The 60% design modifications would result in an additional 345-linear foot section of the alignment traversing the northern tip of the Northeast Cargo Area VCP. Additionally, relocation and construction of a new Federal Express parking lot within the Northeast Cargo Area VCP is proposed to mitigate parking- and acquisition-related impacts. The proposed parking lot and a 345-foot segment of the modified LRT alignment along with the area's chemicals of concern result in the site now elevated to a status that represents a moderate to high risk of potential (present or future) to encounter hazardous materials. This would be mitigated by adherence to the Storm Water Pollution Prevention Plan, Erosion Control Plan, State/Federal directives submitted/approved project specific Soil Management Plan and all other DFW Airport codes, permitting and operational requirements. No other changes to hazardous materials would occur as a result of the project modifications.

Summary

The incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions would not meet the threshold of significant. In general, the implementation of a light rail transit system tends to have a very positive impact on existing and proposed projects, thus offsetting many impacts. Some of the direct benefits of transit include improved access and reduced traffic congestion. This results in positive impacts on air quality and water quality. Light rail construction has also been demonstrated to have a very positive impact on land use and land value. Environmental impacts would be minimal and could be mitigated. DART reduced the potential for incremental impact to other past, present, and reasonably foreseeable future actions by working closely with DFW Airport, TxDOT, and the T to develop a transit line that fits within the existing and future environment.

Additionally, the proposed action utilizes 2030 traffic projections and demographic forecasts, accounting for much of the foreseeable development and associated impacts. Any future DART projects, such as Phase II of the DFW Airport Extension, would require additional environmental documentation.

SECTION 5.0 RE-EVALUATION CONCLUSIONS

Based on the environmental considerations documented in the Environmental Re-evaluation for the DART Orange Line DFW Airport Extension Irving-3 EA, the proposed action (previous detailed design modifications) would not result in significant adverse impacts. This document satisfies the NEPA requirements as outlined in *FAA 1050.1E.410* and *FTA 23 CFR 771.129 and 130*; therefore, no further environmental analysis is necessary for the proposed action.

Environmental Impact Summary

This EA Re-Evaluation identified the potential environmental consequences of the proposed project modifications. **Table 5-1** contains a summary of these potential impacts and mitigation measures combined with the potential impacts identified in the original EA that have not changed as a result of project modifications.

Revisions to Airport Layout Plan (ALP)

The modified alignment, rail infrastructure, and connected actions that were evaluated in the EA and in this re-evaluation are being reviewed for ALP approval. The consolidated list of items being reviewed for ALP approval follows:

Rail Alignment, Station and Infrastructure

- LRT track, right-of-way fencing, catenary poles
- Rail Station
- Station pedestrian connections
- Station Bus/Kiss & Ride area
- Rail Yard
- TPSSs, signal houses, crew room, communication houses

Connected Actions:

- Relocated North Airfield Drive
- Modified access to Chesapeake Pad AC Site/Water pump Station NE Tanks
- Modified Fed Ex parking facility and additional truck storage lot
- Partial demolition of 3010 N. Airfield Drive warehouse facility
- Two TPSS Access Roads
- RTR 4E Access Road
- Gate 210 Access Road/Closure of existing access road
- Reconfiguration of Chesapeake frac pond (Site AD)

Table 5-1. Summary of Environmental Impacts

<i>Subject Area</i>	<i>Impacts</i>	<i>Mitigation Approach</i>
Industrial/Commercial Impacts* ¹	<p>Full or partial displacement of a logistics facility located at 3010 North Airfield Drive</p> <p>Business displacement of a portion of Federal Express trailer and employee parking area</p> <p>Partial demolition of 3010 North Airfield Drive</p>	<p>Appraisal would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Relocation benefits would be available to eligible parties.</p> <p>Mitigation for Federal Express includes reconfiguration of remaining parking area for employee parking and relocation of trailer storage to a newly constructed lot south of North Airfield Drive.</p> <p>DART will coordinate with DFW Commercial Development Department, the owner and tenant of the 3010 Airfield Drive to minimize disruption.</p>
Visual and Aesthetics*	<p>Potential impacts due to aerial structure and Traction Power Substation (TPSS)</p> <p>Potential impact from storage yard south of Taxiway</p>	<p>Maintain or replace existing vegetative screening. Install chain link fencing with PVC slats to soften views of TPSS #8 through #10. The use of screening should be considered for the storage yard. Comply with DFW Airport Design Criteria</p>
Noise and Vibration (created by LRT)	<p>Moderate noise impact to Hawthorn Suites.</p>	<p>Construct a noise barrier.</p>
Traffic Flow	<p>LRT line intersects with DFWB RTR 4E Access Road.</p> <p>Modified design blocks current access to Chesapeake Pad Site AC and Water Pump Station – NE</p> <p>Modified design blocks current Runway 17R/35I Access Road to Construction Gate 210</p> <p>LRT operations would impose restrictions to traffic on North Service Road at Crossunder #2.</p>	<p>DART will provide alternative access to RTR 4E. Maintain existing road to allow larger vehicles access to the facility.</p> <p>Provide alternative access.</p> <p>Provide a construction road to Gate 210, to be turned over to DFW for future use.</p> <p>Convert Crossunder #2 to conventional flow, and during LRT crossing events stop all traffic upstream.</p>

Table 5-1. Summary of Environmental Impacts

<p>Parking</p>	<p>Thirty automobile parking stalls and 50 tractor trailer stalls at the existing Federal Express facility</p>	<p>Parking area is a lease on DFW Airport property. A Memorandum of Agreement between DART and DFW Airport is currently under negotiation to direct mitigation activities. Mitigation includes reconfiguration of remaining parking area for employee parking and relocation of trailer storage to a newly constructed lot south of North Airfield Drive.</p>
<p>Vegetation/Wildlife Habitat*</p>	<p>Project will result in some loss of vegetation</p>	<p>Disturbed vegetated areas would be replaced with native vegetation, that would not create an unacceptable wildlife attractant for airport operations. DART will coordinate with DFW Airport to identify appropriate species.</p>
<p>Water Resources*</p>	<p>Impact to 0.22 acres waters of the U.S. DFW Airport has requested erosion control at outfalls of the three creeks to mitigate the increase in tailwater velocity.</p>	<p>DART and its contractors would follow the guidelines of the United States Army Corp of Engineers (USACE) Nationwide Permit 14 Total amount of erosion protection will be minimized. Boulder type riprap, in lieu of concrete lining, will provide a more natural appearance. Planting scheme would consist of native vegetation.</p>
<p>Hazardous Materials*²</p>	<p>Moderate to High concern - CTA Agreed Order - CTA contains pockets of subsurface petroleum (Light Non-Aqueous Phase Liquid or LNAPL) contamination, which are under active remediation. High concern - The modified alignment traverses a portion of the Northeast (NE) Cargo VCP due to documented contamination.</p>	<p>DFW Airport would be responsible for earthwork within CTA. Appropriate Phase I/II Environmental Site Assessments would be conducted as needed to assess the environmental condition of all properties contemplated for use as right-of-way (ROW) and further to identify and quantify existing hazardous materials</p>

Table 5-1. Summary of Environmental Impacts

	<p>High concern – Adjacent and proximate pipelines and natural gas well drilling and production activities. Pipelines are located and planned adjacent to and crossing the proposed LRT alignment. Two drilling pad sites are located approximately 75 feet from the alignment.</p>	<p>contamination so that the decided need for cleanup or mitigation if necessary.</p> <p>DFW Airport would continue to monitor the NE Cargo VCP and soil disturbing activities in the area would conform to a DFW Airport approved soil management plan. DART would adhere to the Storm Water Pollution Prevention Plan, Erosion Control Plan, State/Federal directives submitted/approved project specific Soil Management Plan and all other DFW Airport codes, permitting and operational requirements.</p> <p>Review and approval of construction plans and procedures by the DFW Airport Environmental Affairs Department.</p> <p>Coordination with DFW Airport staff and Chesapeake Energy regarding gas well drilling/operation activities.</p>
<p>Aeronautical Impacts Analysis</p>	<p>Presence of the LRT vehicles and infrastructure may negatively impact pilot discrimination and the visual scene.</p> <p>Presence of the LRT vehicles could penetrate RTR 4E Microwave Path</p> <p>Additional coordination and ongoing coordination will be required</p>	<p>Place red obstruction lights at the tops of catenary poles and establish a visual screening: fence with PVC slats in selected areas.</p> <p>Antenna at RTR 4E will be elevated.</p> <p>DART will coordinate an MOA and Reimbursable Agreement with FAA and DFW Airport to address issues discussed in Section 2.1 of the Environmental Re-evaluation of the DFW Airport Extension EA.</p>

Table 5-1. Summary of Environmental Impacts		
		<p>FAA will host a Safety Risk Management Panel to identify potential hazards, their risk severity and frequency, and mitigation to an acceptable level of safety for the project and the national airspace system. DART would coordinate in developing and implementing recommended mitigation.</p>
Construction Impacts* ³	<p>Temporary and limited duration impacts due to construction.</p> <p>The construction process will require equipment (cranes, drilling rigs, etc.) that may affect FAA Aeronautical clearance surfaces and associated instrument procedures for the airport.</p> <p>Temporary construction access roads and staging areas are required.</p>	<p>Comply with all codes and standards identified in the Appendix A of the <i>DART Design Standards Volume 1</i> and institute best management practices (BMPs) provided by the most current Construction Storm water regulations (NPDES or TPDES), Chapter 8 of the <i>Texas Nonpoint Source Management Program, National Menu of Stormwater Best Management Practices</i> developed by the U.S. EPA, and the <i>Integrated Storm Water Management Design Manual for Construction</i> developed by the NCTCOG.</p> <p>Prior to construction, FAA Construction Airspace Studies would be submitted for FAA review, conditional requirements, and approval.</p> <p>Temporary roads and staging areas will be restored to original condition upon completion of construction</p>

Source: URS Corporation, 2010.

*Resource Area included in FAA Order 5050.4B.

¹FAA Order 5050.4B requires consideration of several factors including acquisition and displacements in determining a Compatible Land Use Impact. The two partial displacements do not constitute a Compatible Land Use Impact.

²FAA Order 5050.4B establishes significance thresholds for hazardous material concerns that indicate concern for National Priorities List (NPL) sites only. No NPL sites were found within one mile of the proposed LRT alignment.

³The impact cited here does not meet the significance threshold established by FAA Order 5050.4B.