John Hoppie

From: Oliphant, Marc (FTA) <marc.oliphant@dot.gov>
Sent: Thursday, November 12, 2020 1:26 PM
To: John Hoppie; Koski, Donald (FTA); Shoaib, Suleman (FTA); terence.plaskon@dot.gov; Wallace, Laura (FTA); MacFarlane, John <ASW>
Cc: Kay Shelton; John Rhone; Joshipura, Vishal (FHWA); David Ehrlicher; Kady Muteba; Evelio Hernandez; Stedman, Nicholas; Steve Salin; Victor Zepeda; Victor Ibewuike; Beverly Adler; Matthew Lannon; Shelton, Tom
Subject: RE: DART RRIF Environmental Review discussion

Dear Mr. Hoppie,

The Federal Transit Administration (FTA) has reviewed the supplemental environmental documentation DART submitted for the Cotton Belt Corridor Regional Rail Project (the Silver Line) on 30 October 2020. FTA determines that, in accordance with 23 CFR 771.129, the design modifications to the Silver Line would not result in any substantial impact to the quality of the human environment, and the previously approved FEIS/ROD of 9 November 2018 remains valid.

If you have any further questions, please contact FTA Region VI.

Marc Oliphant, AICP
Community Planner
Federal Transit Administration - Region VI Fort Worth
Office: 817.978.0554
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From: John Hoppie <JHoppie@dart.org>
Sent: Friday, October 30, 2020 2:06 PM
To: Oliphant, Marc (FTA) <marc.oliphant@dot.gov>; Koski, Donald (FTA) <Donald.Koski@dot.gov>; Shoaib, Suleman (FTA) <Suleman.Shoaib@dot.gov>; Plaskon, Terence (FTA) <Terence.Plaskon@dot.gov>; Wallace, Laura (FTA) <Laura.Wallace@dot.gov>; MacFarlane, John <ASW> <john.macfarlane@faa.gov>
Cc: Kay Shelton <KShelton@dart.org>; John Rhone <JRhone@dart.org>; Joshipura, Vishal (OST) <vishal.joshipura@dot.gov>; David Ehrlicher <DEhrlicher@dart.org>; Kady Muteba <KMuteba@dart.org>; Evelio Hernandez <EHernandez4@dart.org>; Stedman, Nicholas <nsstedman@walshgroup.com>; Steve Salin <SSalin@dart.org>; Victor Zepeda <VZepeda@dart.org>; Victor Ibewuike <IBewuike@dart.org>; Beverly Adler <BAdler@dart.org>; Matthew Lannon <MLannon@dart.org>; Shelton, Tom <tom.shelton@hdrinc.com>
Subject: RE: DART RRIF Environmental Review discussion

FTA & FAA,

As we discussed in the October 8, 2020 meeting, DART has prepared a Memo to File to address the relocation of the EMF from Irving, Texas to Lewisville, Texas. The memo to file and its attachments are attached. Let me know if you have any questions or concerns. We are seeking your concurrence to finalize the RRIF.

John Hoppie
Project Manager

INTEROFFICE MEMORANDUM

DATE: October 30, 2020

TO: Project File
Marc Oliphant, FTA Region 6
John MacFarland, FAA Southwest Region

FROM: John Hoppie, Project Manager

SUBJECT: Memo to File: DART Cotton Belt Regional Rail Corridor Project (Silver Line) - Equipment Maintenance Facility (EMF) Relocation

Introduction

This memorandum documents a change to the Cotton Belt Corridor Regional Rail Project (Silver Line) that has occurred since the signing of the Final Environmental Impact Statement/Record of Decision (FEIS/ROD) on November 9, 2018. The FEIS/ROD was approved by both the Federal Transit Administration (FTA) as lead agency and the Federal Aviation Administration (FAA) as cooperating agency. This change relocates the Equipment Maintenance Facility (EMF) from Irving, Texas to Lewisville, Texas. The DART Silver Line is scheduled to begin operation on the Cotton Belt Corridor in 2023. This change is the result of design modifications to enhance the project and reduce the cost.

The Project's effects on the existing social, environmental, economic, and transportation environment were assessed and document in the FEIS/ROD in coordination with the public and interested agencies. DART will implement, as necessary, all mitigation to which the FEIS commits and will coordinate with the public and agencies during the Design-Build phase as stipulated in the FEIS. The mitigation measures and other project features that avoid or reduce adverse impacts are incorporated into the Project and are summarized in the ROD. The FEIS provides a complete description of these mitigation measures and design features. DART is designing and building the Project in accordance with the mitigation measures contained in the FEIS and documented in the ROD. DART has established a Mitigation Monitoring Program (MMP) to provide a means for DART and FTA to track the progress in accomplishing the mitigation commitments. The MMP is implemented and monitored by DART through quarterly updates of the MMP. The summary table, also located the ROD, formed the basis of the MMP.

Financial Considerations

The Cotton Belt Project is proposed to be financed through a federal loan program called Railroad Rehabilitation and Improvement Financing (RRIF), along with a combination of other federal, regional and local sources. The relocation of the EMF does not change the overall cost or budget of the project.

Equipment Maintenance Facility (EMF) Relocation

As described in **Sections 2.3.3** of the **Cotton Belt FEIS**, an Equipment Maintenance Facility (EMF) to store and maintain vehicles is required as part the Cotton Belt Corridor Regional Rail Project. DART had planned to expand the existing Trinity Railway Express (TRE) Irving Yard. A conceptual track layout for the EMF was included in **Appendix A** of the **Cotton Belt FEIS**. Rail vehicles would have used BNSF Madill Subdivision line as a nonrevenue "yard lead." No physical improvements were associated with the connection along the Madill Subdivision and TRE alignment. This EMF and yard lead are shown **Exhibit 1** in **Attachment 1.**

The **Cotton Belt FEIS** identified potential environmental impacts associated with the Irving TRE EMF and its connection to the Cotton Belt Corridor. No significant impacts were associated with the EMF or yard lead. During the design process of the EMF it became apparent, that some elements of the design may impact the construction schedule to the detriment of the project. In addition, cost estimates for the EMF were significantly higher than the construction budget. With long non-revenue, deadhead service from the TRE EMF to the Silver Line Corridor through the Madill Subdivision, DART investigated alternative solutions.

An early report in the Cotton Belt Corridor Regional Rail Project was the 2014, *Alternatives and Environmental Considerations Report* (AECR), which is included in **Appendix F** of the **Cotton Belt FEIS**. The AECR documented the 5 percent design for the Cotton Belt Regional Rail Project and identified existing environmental conditions and potential impacts along the length of the corridor. This report assumed that vehicle storage and maintenance would be accommodated at the Denton County Transportation Authority (DCTA) A-train Operations Maintenance Facility (OMF) located along the former Missouri Kansas Texas (MKT) railroad corridor approximately seven miles north of the Cotton Belt Corridor. Trains on the Cotton Belt Corridor would switch to the MKT in downtown Carrollton. Based on this prior recommendation, DART re-examined use of the DCTA OMF. A September 2020 Feasibility Study recommended the temporary joint use of the DCTA OMF by DART and DCTA.

DART has negotiated with DCTA the temporary joint use of this facility with the DCTA for the operations and maintenance for the Silver Line and the DCTA A-train. **Exhibit 2** in **Attachment 1** shows the location of the of the DCTA OMF in relation to the Silver Line. The initial agreement with DCTA is for 10 years. DART, in the interim, will seek a permanent solution which could be a permanent joint use of the facility.

Exhibit 3 in **Attachment 1** shows the existing track configuration of the 100-foot wide MKT corridor. The DART Green Line currently operates in the eastern half of corridor between Frankford Road through downtown Carrollton and points south along the DART owned Union Pacific Railroad (UPRR). The LRT line is at-grade north of Ishmaili Center Circle and aerial to the south. At-grade stations are located at Trinity Mills and at Frankford. The Trinity Mills Station provides a cross-platform transfer to the DCTA A-Train. The Green Line generally operates 20-minute peak service and 30-minute off peak service plus weekend service (pre-COVID service levels were 15-minute peak and will reestablished in the future). The DCTA A-Train currently operates at-grade in the western half of the MKT corridor between downtown Carrollton, passed

the DCTA OMF, to points north. The A-Train generally operates 30-minute peak service and 60-minute off peak service plus limited Saturday service. South of Ishmaili Center Circle the eastern portion of the corridor is unimproved track. This track is currently used by a short line railroad for local freight distribution. The Dallas, Garland and Northeastern (DGNO), operates four to six freight trains per week on MKT from downtown Carrollton into downtown Lewisville.

DART proposes to store and maintain eight FLIRT diesel, multiple unit (DMU) vehicles at the DCTA OMF. DART would use the MKT rail line to put five Silver Line vehicles into service on the Cotton Belt rail line before 6:00 a.m. These five vehicles would return to the OMF yard after 9:00 p.m. Occasionally a Silver line vehicle would use the line midday.

Environmental Analysis
In addition to the **Cotton Belt FEIS**, the environmental analysis for the relocated EMF and Yard Lead relies on three relevant studies that were conducted in the Corridor:

- The *Denton To Carrollton Regional Rail Corridor Draft Environmental Impact Statement* (July 2007), hereafter **A-Train DEIS**
- The *Denton To Carrollton Regional Rail Corridor Final Environmental Impact Statement* (March 2008), hereafter **A-Train FEIS**
- *Northwest Corridor LRT Line to Farmers Branch and Carrollton Final Environmental Impact Statement* (October 2003), hereafter **Green Line FEIS**

Note: The existing DCTA A-Train OMF and the five miles of rail improvements extending south to Ishmaili Center Circle were environmentally cleared in the **A-Train FEIS**. The OMF and this portion of the corridor are currently operational and being used by the DCTA A-Train. The remaining 2 miles of the MKT corridor extending further south to the Cotton Belt Corridor were not part of the final A-Train Project, but environmental conditions in this section of the rail corridor were documented and included in the **A-Train DEIS** and the DART **Green Line FEIS**. As such, the DART Silver Line EMF relocation project is divided into three segments for environmental analysis: 1) Existing OMF, 2) The Northern Yard Lead Segment and 3) The Southern Yard Lead Segment.

Existing OMF

The existing DCTA A-Train OMF was constructed on vacant property to serve the DCTA A-Train which opened for service in 2011. The OMF includes 39,644 square feet of vehicle equipment maintenance space and 6,644 square feet of office space, totaling 46,288 square feet of facility space for the Operations and Maintenance (O&M) of the DCTA A-Train. The OMF is designed to accommodate the O&M of 11 Stadler GTW diesel multiple units (DMU's) and also includes full DMU wash and refueling facilities; in addition to a three-track shop. The Stadler GTW DMU dimensionally closely resembles the current Silver Line Stadler FLIRT DMU. The OMF Yard was designed and constructed for possible regional expansion. The yard has a total capacity of 56 Stadler A-Train GTW DMU's on 7,500 track feet of total capacity, which includes three-yard storage tracks and three shop tracks. Of the 56 Stadler A-train GTW DMU capacity, only 11 DMU's are used for the DCTA system leaving 6,030 track feet of unused track capacity.

As Shown in **Exhibit 4** in **Attachment 1** and pursuant to implementing the joint use, DART would make the following improvements to the DCTA OMF.

- Temporary Tent Structure – Tent structure with necessary utilities at the DCTA OMF to extend the OMF south approximately 100', which would add an estimated 15,000 square feet of service space. This temporary tent structure would include all utilities necessary to perform vehicle maintenance for the Silver Line DMU's.
- Temporary Office Structure – For the purposes of temporary use, a minimum of 2,500 square feet of portable office space is required. This would be located at the north end of the OMF site. The portable office space would accommodate Stadler equipment, maintenance management, and staff personnel.
- Temporary Locker/Shower/Bathroom Structure – For the purposes of temporary use, portable space for lockers, showers, and bathrooms would also be located at north of the OMF site. The portable space would accommodate maintenance management and staff personnel with separate and private access/areas for men and women.
- No Yard Upgrades – The OMF Yard was designed and constructed for possible regional expansion in advance; therefore, no yard upgrades would be required for temporary O&M use.

The existing DCTA A-Train OMF is a somewhat isolated facility primarily within an industrial setting. The nearest non-industrial land use is mobile home park located approximately 800 feet west of the OMF property. The area between the community and the OMF is heavily wooded. Outside of property acquisition, the A-Train FEIS did not identify any site-specific impacts associated with the construction and operation of the OMF.

All proposed improvements to the existing DCTA OMF would occur within the existing footprint of the facility. All new construction would take place on previously disturbed ground. The additional buildings and train activity are not anticipated to have any additional impacts to surrounding area.

Northern Yard Lead Segment

The five-mile northern portion of the rail alignment extending south from the OMF to (Ishmaili Center Circle (just south of the Trinity Mill A-Train Station) was environmentally cleared by the **A-Train FEIS**. With the implementation of A-Train Service this portion of the corridor was improved to a minimum Class 4 track standards. All alignment improvements occurred within the existing railroad right-of-way. There are two A-Train stations (Trinity Mills and Hebron) in this segment. The alignment is primarily single track with double track through station areas and approaching the OMF. DART does not propose to make any physical improvements to the Northern Yard Lead Segment.

As part of the **A-Train FEIS**, DCTA conducted a traffic analysis of each of the arterial roadway crossings of the rail alignment. This evaluation included a detailed grade separation analysis which concluded that crossings south of the of the OMF could operate adequately as at-grade intersections. As shown in **Exhibit 5 in Attachment 1,** DCTA implemented seven at-grade

crossings in this segment. Each of the crossings was improved with new crossing panels and new crossing gates and signals were installed. The Silver Line would use the DCTA upgraded tracks and at-grade crossings to access the yard. Most Silver Line Train movements would occur during off-peak hours (Before 6:00 a.m. and after 9:00 p.m.) and would not result in traffic impacts.

Additionally, DCTA conducted noise analysis for the project. Noise impacts for the project have been mitigated through the implementation of quiet zones and noise barriers. In this segment, noise impacts at two multi-family developments located near Hebron Parkway were mitigated through the implementation of a quiet zone at Hebron Parkway. No other noise impacts were identified in this segment of the corridor; however, each of the at-grade crossings has been upgraded to a quiet zone through coordination with the cities of Lewisville and Carrollton.

As part of evaluation of the DCTA alignment for Silver Line use, DART revisited the Noise Analysis documented in the for the **A-Train FEIS** (See **Attachment 2**). Since the introduction of A-Train rail service, a third multi-family development has been constructed near the Hebron Station. The results of the assessment indicate that the use of the rail alignment by the Silver Line will not result in noise impacts to the sensitive receivers in this segment.

The implementation of A-Train service was in compliance with all applicable federal and state regulations. All alignment improvements occurred within the railroad right-of-way. All identified impacts in the corridor have been mitigated. The few additional trains per day are not anticipated to result in additional impacts in the Northern Yard Lead Segment.

Southern Yard Lead Segment

The two-mile southern portion of the rail alignment extending south from the Ishmaili Center Circle crossing near the Trinity Mills Station was not part of the A-Train final project. As such this unimproved section of track has a greater potential for environmental impacts. As noted above, this railroad corridor was environmentally cleared as part of the **Green Line FEIS** and the potential impacts were identified in the **A-Train DEIS**.

The unimproved track is FRA Class 1 Track which limits speed along this portion of the corridor to 15 mph. As shown in **Exhibit 5** in **Attachment 1**, there are eight at-grade crossings in along this segment. Two arterial roads (Old Denton Road and Whitlock Lane) are protected crossings with gates and signal bells. The six remaining crossings have crossbuck signs but no other protection. There is one industry spur and one siding just south of Jackson Road that must be maintained. DART proposes to upgrade the track to FRA Class 2 and install crossing gates and signals at the unprotected crossings. This would increase speed to 30 mph.

In this segment, very few environmental impacts were identified in the **A-Train DEIS** or the **Green Line FEIS**. The corridor is a traditional railroad corridor with existing freight service in western half of the corridor and the elevated DART Green Line on the east. The Yard Lead alignment extends north from the junction with the Cotton Belt within the MKT right-of-way. In this segment, the Silver Line would use the current rail alignment (upgraded to FRA Class 2) and at-grade crossings. As such, and upon review of the two environmental documents, there are no

impacts to land use, property, water resources, soils, visual resources, biological resources, cultural resources or parks.

Section 4.13.1 of the **Cotton Belt FEIS** indicated that Silver would not result in any Air Quality impacts. Relocating the EMF from Irving to Lewisville, which shortens the deadhead miles, will not alter this conclusion.

There is one residential community in Carrollton adjacent to the rail line that has the potential to be affected by the project. As shown in **Exhibit 6** in **Attachment 1**, this community extends from Northside Drive to Donald Avenue. Potential impacts include: Noise, traffic, safety/security and environmental justice.

As part of evaluation of the MKT alignment for Silver Line use, DART revisited the Noise Analysis documented in the for the **A-Train DEIS** (See **Attachment 2**). The original analysis identified several potential noise impacts to this Carrollton community. This re-evaluation identified 15 severe noise impacts in the residential community adjacent to the MKT due to train horns. The study recommends that the implementation of quiet zones at six crossings would mitigate these impacts. DART will implement quiet zones at the following crossings:

- Private Crossing (Boral Brick)
- Vinylex Drive
- Northside Drive
- Donald Avenue
- Westway Circle
- Old Denton Road

These crossings will be upgraded to gated crossings, and quiet zones will be implemented in coordination with the City of Carrollton. **Exhibit 7** in **Appendix 1** shows the proposed crossing configuration for the MKT yard lead alignment.

As part of the **Green Line FEIS**, DART conducted traffic analysis of the street crossings in this segment. This analysis, based on 2025 projections, recommended grade separated crossings of Old Denton Road (Luna) and Whitlock Road. The need to separate LRT over the Cotton Belt connection and various spurs combined with the proximity of other street crossings resulted in DART elevating the entire length of the LRT in this segment. As part of the **A-Train DEIS**, DCTA conducted a traffic analysis, based on 2030 projections, of the arterial roadway crossings of this rail segment. This evaluation included a detailed grade separation analysis which concluded that each of the crossings in this segment could operate adequately as at-grade intersections. See **Exhibit 8** in **Attachment 1** excerpted from **DCTA DEIS Table 5-10**.

It should be noted that the DCTA analysis assumed that the A-Train would have a peak-hour headway of 30-minutes in each direction compared to 10-minute headway in each direction used in the LRT analysis. This equates to four trains per peak hour for the A-Train and 12 trains per peak hour for LRT. Additionally, unlike the LRT, the regional rail does not need to be grade separated from the freight activity. Typically, only 10 Silver Line Train movements are anticipated

per day during off peak hours. As such, the use of the corridor as a Yard Lead would not result in any traffic impacts to any of the eight streets in this segment including those serving the residential community.

The addition of 10 trains per day has a potential for safety concerns at the currently ungated crossings. As noted above and shown in **Exhibit 7** in **Attachment 1**, these crossings will be upgraded with crossing gates and signals. The crossing events will occur during off-peak travel times, which combined with crossing improvements, will eliminate safety concerns at these crossings.

As discussed in **Section 4.9** of the **Cotton Belt FEIS**, Environmental Justice (EJ) assesses the potential impacts to minority and low-income populations along the project. As Shown in **Exhibit 9** in **Attachment** excerpted from **Figure 4.2** of the **Cotton Belt FEIS**, the residential community along the MKT in Carrollton is an EJ Community. As noted above, several noise impacts in this EJ Community would result from the use of the Southern Yard Lead Segment. The implementation of quiet zone will mitigate the noise of the Silver Line Trains The quiet zones will also eliminate the need for freight trains to blow their horns at six crossings along the EJ community. These train movements typically occur between 10:00 p.m. and 4:00 a.m. Additionally, the enhanced crossings will benefit the community by improving safety at the crossings. The **Cotton Belt FEIS** concluded that all community (EJ and non-EJ) impacts are being mitigated and that the Silver Line Project will not constitute a disproportionately high and adverse impact to EJ populations relative to non-EJ populations within the Study Area. With the planned mitigation measures, project effects will not predominantly be borne by an EJ population or will not be suffered by an EJ population. This conclusion does not change with the relocation of the Silver Line EMF. Additionally, the upgraded track, improved crossings and the implementation of quiet zones will benefit the community.

Conclusion

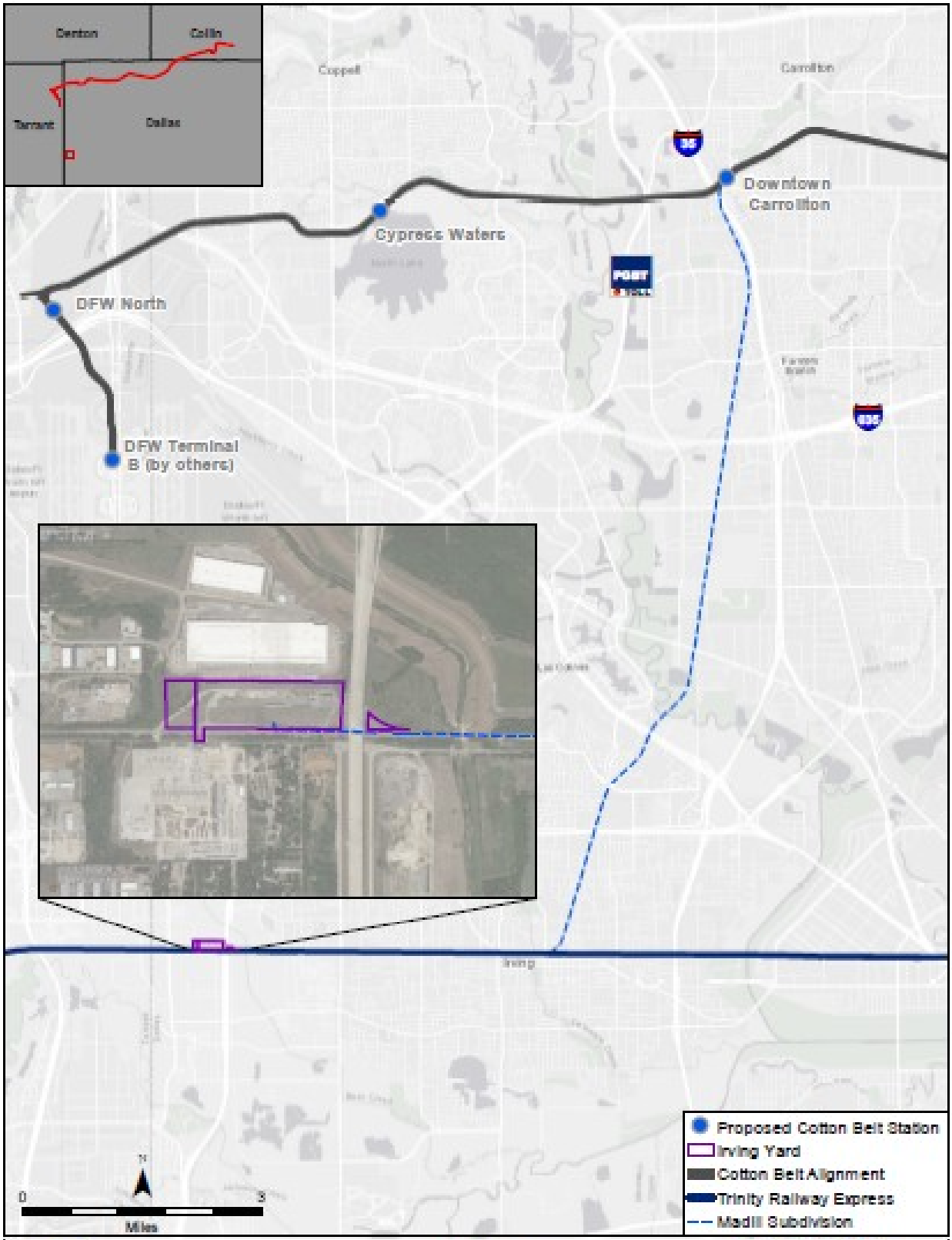
The relocation of the Equipment Maintenance Facility (EMF) from Irving, Texas to Lewisville, Texas and use of the MKT railroad corridor will not result in unmitigated significant impact. No additional environmental study is warranted.

Attachment 1

DART Cotton Belt Regional Rail Corridor Project (Silver Line) Equipment Maintenance Facility (EMF) Relocation

Exhibits

Attachment 1 Exhibit 1



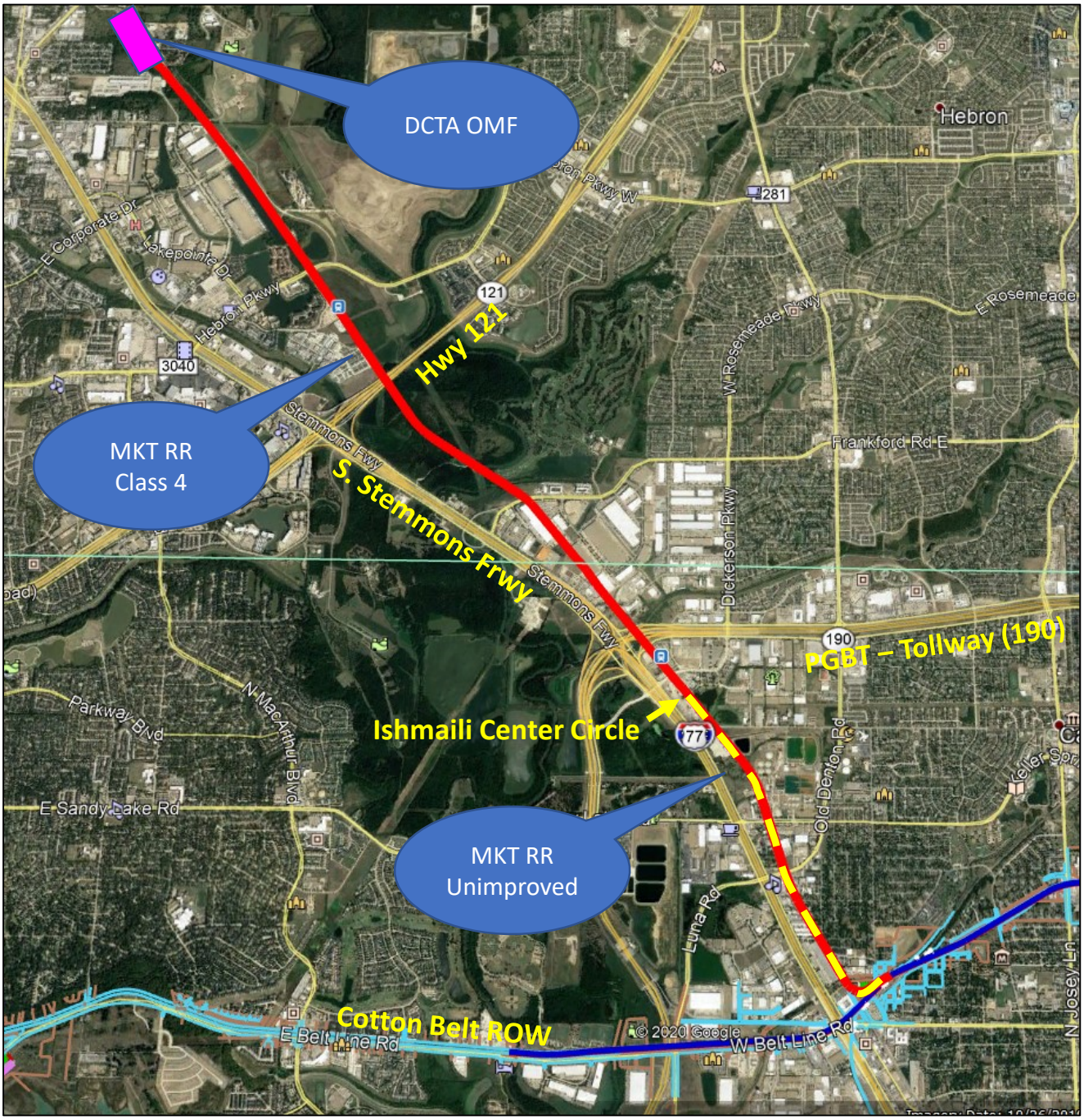
DART | COTTON BELT

FEIS: Irving EMF Site

Cotton Belt Corridor Regional Rail Project
Draft Environmental Impact Statement

Attachment 1 Exhibit 2

DCTA OMF and MKT Yard Lead

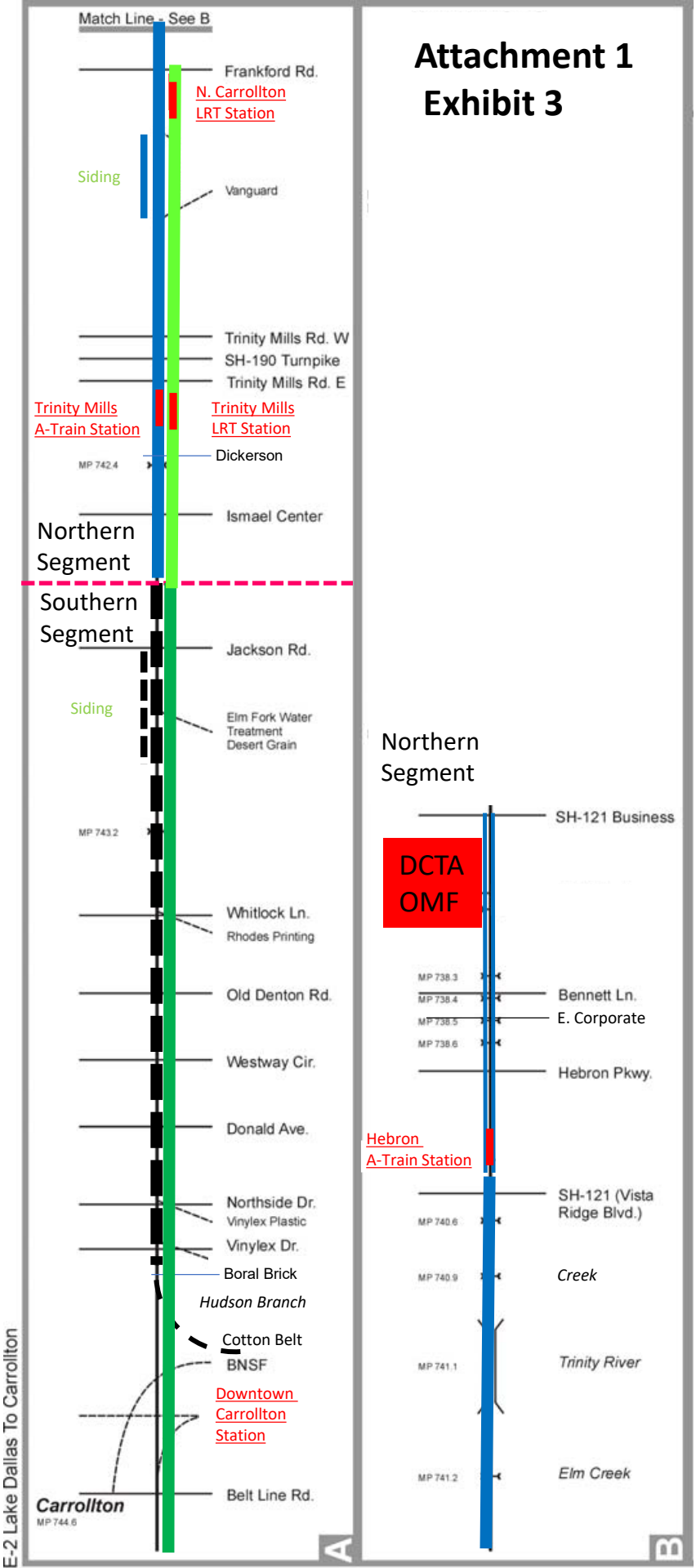


DCTA Yard Lead

Existing Track Configuration

- Unimproved
- DCTA Single
- DCTA Double
- LRT Aerial
- LRT At-Grade
- Station

Attachment 1
Exhibit 3



DCTA OMF Site

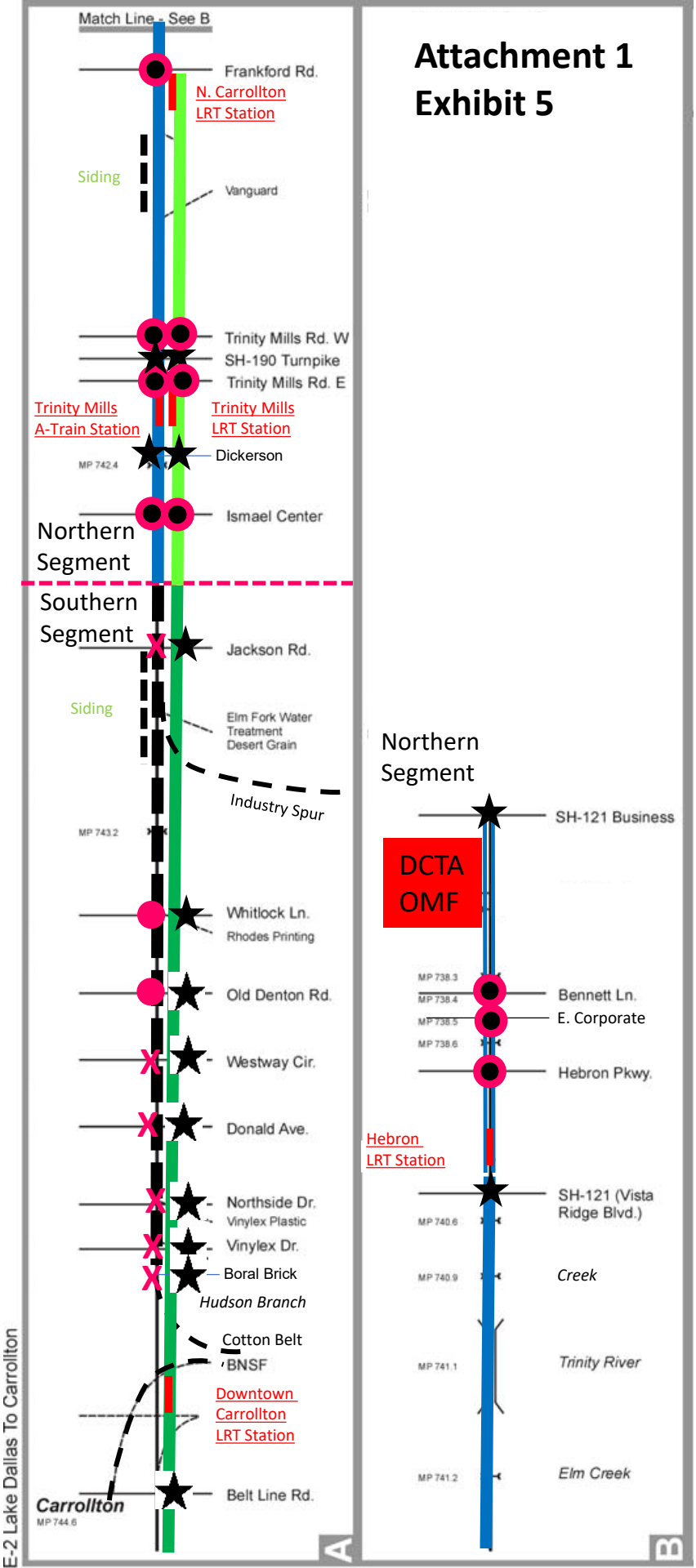
Attachment 1 Exhibit 4

DCTA Yard Lead

Existing Crossing Configuration

- X — Crossbuck Only
- ● — Gated
- ◉ — Gated/Quiet Zone
- ★ — Grade Separated

Attachment 1
Exhibit 5



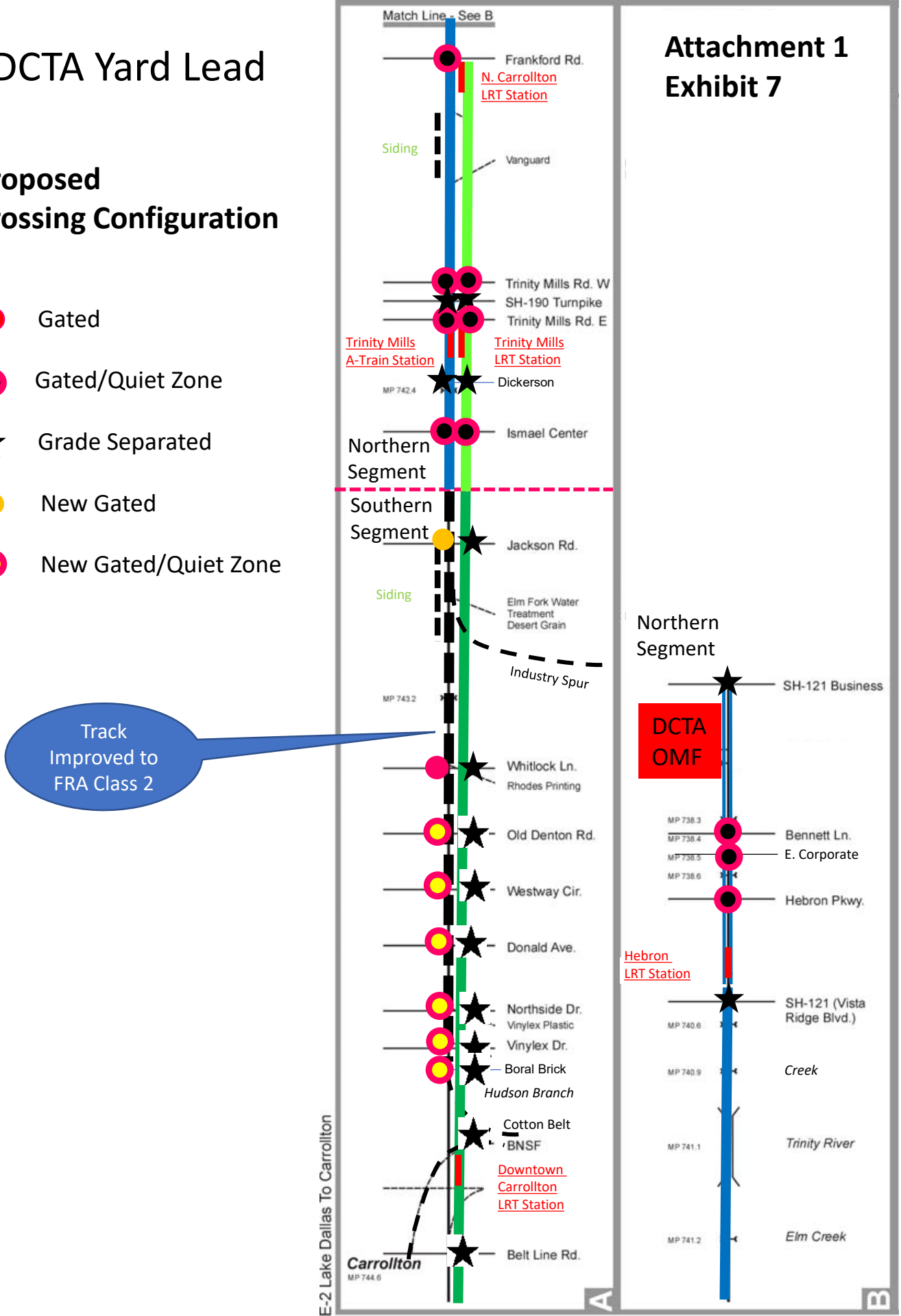
Southern Yard Lead Segment
Residential Adjacency

DCTA Yard Lead

Attachment 1
Exhibit 7

Proposed Crossing Configuration

- Gated
- Gated/Quiet Zone
- Grade Separated
- New Gated
- New Gated/Quiet Zone



Attachment 1 Exhibit 8

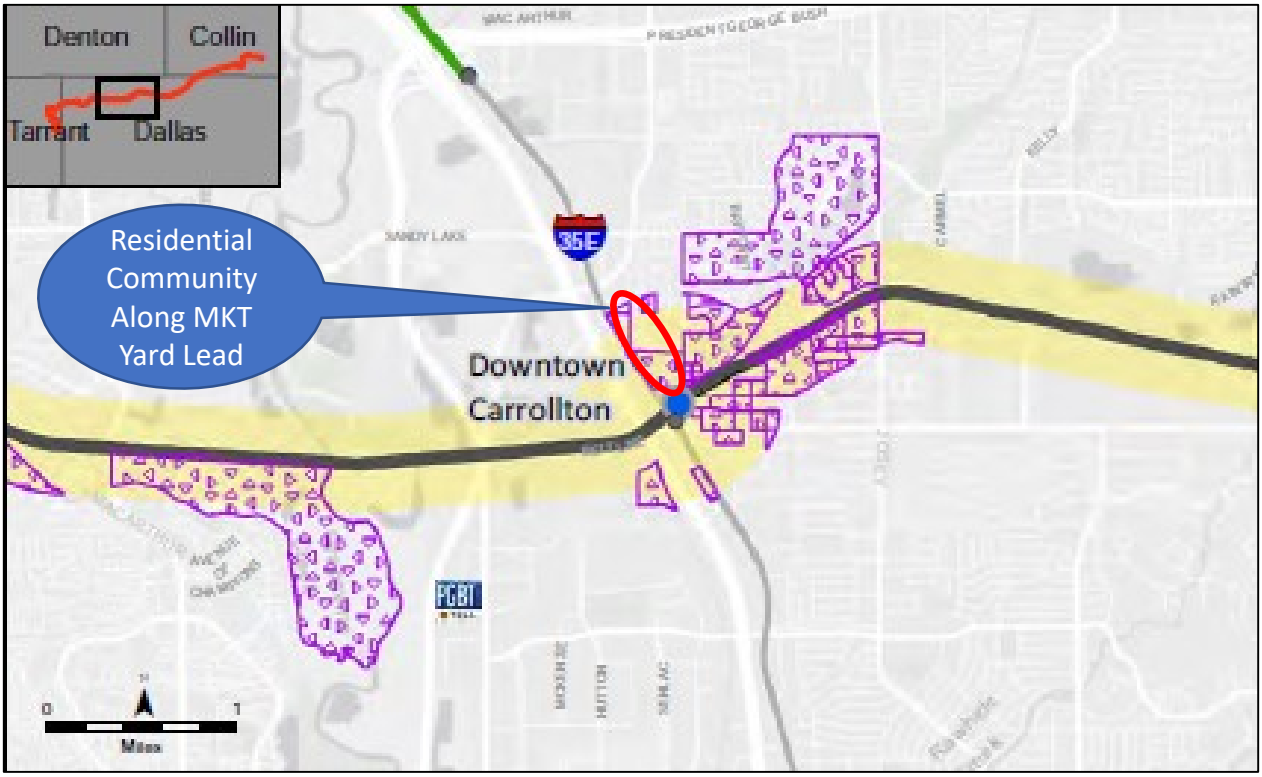
DCTA A-Train DEIS: Grade Separation Recommendations (excerpted from DCTA DESIS)

Table 5-10: Regional Rail Roadway Crossing Configurations

Map ID	Location	Roadway	Crossing Type
1	Carrollton	Belt Line Road (overlap with DART LRT)	DART NW – Grade Separation (by DART)
2	Carrollton	BNSF/Cotton Belt RR (overlap with DART LRT)	DART NW – Grade Separation (by DART)
3	Carrollton	Private Driveway (overlap with DART LRT)	DART NW – At-grade
4	Carrollton	Vinylex Drive (overlap with DART LRT)	DART NW – At-grade
5	Carrollton	Northside Drive (overlap with DART LRT)	DART NW – At-grade
6	Carrollton	Donald Avenue (overlap with DART LRT)	DART NW – At-grade
7	Carrollton	Westway Circle (overlap with DART LRT)	DART NW – At-grade
8	Carrollton	Old Denton Road (overlap with DART LRT)	DART NW – At-grade
9	Carrollton	Whitlock Lane (overlap with DART LRT)	DART NW – At-grade
10	Carrollton	Jackson Road	At-Grade
11	Carrollton	Ismaili Center Circle	At-Grade
12	Carrollton	EB Frontage Road PGBT (SH-190)	At-Grade
13	Carrollton	President George Bush-Turnpike	Grade Separation (existing)
14	Carrollton	WB Frontage Road PGBT (SH-190)	At-Grade
15	Carrollton	Frankford Road	At-Grade
16	Lewisville	EB Frontage Road SH-121	Grade Separation (existing)
17	Lewisville	SH-121 (Bypass)	Grade Separation (existing)
18	Lewisville	WB Frontage Road SH-121	Grade Separation (existing)
19	Lewisville	Hebron Pkwy	At-Grade
20	Lewisville	Bennett Lane	At-Grade

Southern Yard Lead Segment: EJ Communities

(excerpted from Figure 4.2 of the Cotton Belt FEIS)



High % Racial Minority

Attachment 2

DART Cotton Belt Regional Rail Corridor Project

(Silver Line)

Equipment Maintenance Facility (EMF) Relocation

DART Silver Line DCTA Yard Lead Noise Impact Assessment

Technical Memorandum

Date:	Wednesday, October 21, 2020
Project:	DART GPC VI – Contract C-2012668 – Task Order #32 – Cotton Belt Corridor
To:	Tom Shelton, HDR Engineering, Inc. John Hoppie, DART
From:	David A. Towers and Scott S. Edwards, Cross-Spectrum Acoustics Inc.
Subject:	DART Silver Line DCTA Yard Lead Noise Impact Assessment CSA Reference J2017-1010

INTRODUCTION AND SUMMARY

This technical memorandum summarizes an assessment of potential noise impact from Dallas Area Rapid Transit (DART) Silver Line train operations along a proposed yard lead between the Silver Line Corridor in Carrollton, TX and the Denton County Transportation Administration (DCTA) Rail Operations and Maintenance facility in Lewisville, TX. The methodology used for this assessment is consistent with the U.S. Federal Transit Administration (FTA) "Transit Noise and Vibration Impact Assessment Manual" (FTA Report No. 0123, September 2018). The assessment was conducted for DART under subcontract to HDR Engineering, Inc. by Cross-Spectrum Acoustics (CSA).

The results of the assessment indicate that without mitigation the proposed Silver Line yard lead operations will cause severe noise impact at 15 residences in Carrollton due to train horn noise in the vicinity of numerous at-grade crossings. It is anticipated that noise impact could be eliminated by establishing a quiet zone that includes six at-grade crossings near this residential neighborhood.

It should also be noted that, given the low-speed operations anticipated for Silver Line operations along the proposed yard lead, these operations will not cause any significant ground-borne vibration and therefore no vibration impacts are projected.

BACKGROUND

Subsequent to the filing of the Final Environmental Impact Statements (FEIS) and Record of Decision (ROD) for the DART Cotton Belt Corridor Regional Rail Project (now known as the Silver Line Project), it was proposed that the DCTA Rail Operations and Maintenance Facility in Lewisville, TX be used for overnight train storage and maintenance of Silver Line trains. The plan is to use existing track as a yard lead for train movements between the Silver Line Corridor in Carrollton, TX and the DCTA facility in Lewisville. In Carrollton, a single track currently carries limited freight train operations, running adjacent and parallel to the DART Green Line light rail transit (LRT) aerial structure. North of the Trinity Mills transit station, the track also carries DCTA A-Train commuter rail operations, transitioning to a double-track configuration just south of the Hebron Station in Lewisville.

EXISTING CONDITIONS

Sensitive Land Use

Although most of the land use along the proposed yard lead is industrial or vacant space, there are two areas where noise-sensitive residential land use is located near the tracks:

- **Northside Drive to Old Denton Road in Carrollton.** Along this yard lead segment there is a neighborhood of primarily single-family residences located to the east of the freight track and DART Green Line aerial structure. There are six at-grade road crossings of the freight track along this segment such that trains are required to sound horns through most of this area. In addition to noise from occasional freight trains and frequent DART LRT operations, other noise sources affecting this area include traffic on N Broadway Street, located on the west side of the freight track and LRT structure, and traffic on highway I-35, located further to the west and shielded from the neighborhood by a number of commercial buildings.

- **SR-121 to E. Corporate Drive in Lewisville.** Along this yard lead segment there are two multi-family developments located to the west of the tracks near Hebron Parkway as well as a large multi-family development located to the west of the tracks just north of highway SR-121. Noise sources affecting this area include DCTA A-Train operations as well as traffic on Hebron Parkway and SR-121. Noise from A-Train operations in this area is limited due to lower-speed operation in the vicinity of Hebron Station as well as existing quiet zone crossings that avoid routine sounding of train horns.

Existing Noise Exposure Levels

The existing noise exposure levels in each of the two noise-sensitive areas (in terms of the Day-Night Equivalent Sound Level, Ldn[1] in dBA) were estimated based on available information from the RailDCTA Draft Environmental Impact Statement (DEIS) and from available noise measurements of representative DART aerial LRT operations as follows:

- **Northside Drive to Old Denton Road in Carrollton.** The existing Ldn reported in the RailDCTA DEIS for this area is 66 dBA, measured prior to the construction of the DART Green Line LRT. The current existing Ldn was estimated by combining this baseline Ldn with the Ldn projected from the LRT operations. The LRT noise was estimated based on the results of measurements conducted at Site LT-J for the DART Cotton Belt Project. The Ldn from LRT operations at this site, located at 170 feet from the DART Red Line LRT aerial structure in Plano, TX, was estimated to be 68 dBA. This noise level was adjusted for distance and structural shielding to calculate the contribution of LRT noise at sensitive residential locations in Carrollton.

[1] Ldn is a 24-hour cumulative A-weighted noise level that includes all noises that occur during a day, with a 10-dB penalty for nighttime noise (10 pm to 7 am). This nighttime penalty means that any noise events at night are equivalent to ten similar events during the day.

- **SR-121 to E. Corporate Drive in Lewisville.** Based on data for representative locations in the RailDCTA DEIS, the existing Ldn in this area prior to implementation of the DCTA A-Train is estimated to be 55 dBA for the residences in the vicinity of Hebron Parkway and 58 dBA for the residences near SR-121. The current existing Ldn was estimated by combining these baseline levels with the Ldn projected from A-Train operations. Based on noise projections in the RailDCTA DEIS, the Ldn from A-Train operations is estimated to be 61 dBA at a distance of 60 feet. Based on FTA methodology, this noise level was adjusted for distance to calculate the contribution of A-Train noise at sensitive residential locations in Lewisville.

NOISE PREDICTION

Noise exposure levels from the proposed Silver Line yard lead operations were projected using FTA methodology along with the noise model developed for the DART Cotton Belt Corridor Project with the following assumptions:

- The Silver Line FLIRT3 Diesel Multiple Unit (DMU) consist is expected to generate a reference sound exposure level (SEL)[2] at 50 feet that varies with speed (in mph) as follows:

  SEL(50-ft) = 10.63*Log10(mph) + 66.50 (in dBA)

- Five Silver Line trains will travel southbound along the yard lead between 5:00 A.M. and 6:00 A.M. and five trains will travel northbound along the yard lead between 9:00 P.M. and 10 P.M.

- Silver Line trains on the yard lead will operate at a speed of approximately 15 mph.

- DMU horns are assumed to generate a sound level of 104.5 dBA at 100 feet, corresponding to a reference SEL of 113.5 dBA at a distance of 50 feet and a speed of 50 mph. It is assumed that the horns would begin to be sounded 20 seconds, but not more than ¼ mile, in advance of grade crossings in accordance with Federal Railroad Administration (FRA) regulations.

NOISE ASSESSMENT

Noise impact was assessed at residential locations along the proposed yard lead by comparing the predicted Silver Line noise exposure levels with the estimated existing noise exposure levels and by using applicable FTA criteria. The noise impact assessment results are summarized in **Table 1**, and in **Figure 1** and **Figure 2** for the Carrollton and Lewisville areas, respectively. Without mitigation, these results project severe noise impact at 15 residences in Carrollton due to noise from Silver Line train horns.

[2] The SEL describes a receiver's cumulative noise exposure from a single noise event. It is represented by the total A-weighted sound energy during the event, normalized to a one-second interval.

MITIGATION

Noise impact can be eliminated by establishing a quiet zone that includes the following at-grade crossings in Carrollton:

- Private Crossing (immediately south of Vinylex Drive)
- Vinylex Drive
- Northside Drive
- Donald Avenue
- Westway Circle
- Old Denton Road

Table 1. Summary of Noise Impact Assessment of Silver Line Yard Lead Operations

Receiver ID Number	Description	Corridor Segment	Distance from Yard Lead Track (feet)	Distance from Existing Elevated DART Track (feet)	Existing Noise Level[1]	Project Noise Level[1]			Number of Residential Impacts	
						Predicted[1]	Impact Criteria		Moderate	Severe
							Moderate	Severe		
1	Triplex Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	70	40	68	83[2]	63	68	0	3
2	Single-Family Res. Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	150	120	67	78[2]	62	67	0	1
3	Single-Family Res. Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	215	185	67	75[2]	62	67	0	1
4	Single-Family Res. Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	130	100	69	79[2]	63	69	0	1
5	Single-Family Res. Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	185	155	68	76[2]	63	68	0	1
6	Single-Family Res. Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	80	50	70	82[2]	65	70	0	1
7	Single-Family Res. Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	100	70	69	81[2]	64	69	0	1
8	Single-Family Res. Near Northside Dr	Northside Drive to Old Denton Road (Carrollton)	150	120	68	78[2]	63	68	0	1
9	Single-Family Res. Near Donald Ave	Northside Drive to Old Denton Road (Carrollton)	95	65	70	81[2]	64	69	0	1
10	Single-Family Res. Near Donald Ave	Northside Drive to Old Denton Road (Carrollton)	165	135	68	77[2]	63	68	0	1

Receiver ID Number	Description	Corridor Segment	Distance from Yard Lead Track (feet)	Distance from Existing Elevated DART Track (feet)	Existing Noise Level[1]	Project Noise Level[1]			Number of Residential Impacts	
						Predicted[1]	Impact Criteria		Moderate	Severe
							Moderate	Severe		
11	Single-Family Res. Near Donald Ave	Northside Drive to Old Denton Road (Carrollton)	90	60	70	81[2]	64	69	0	1
12	Single-Family Res. Near Donald Ave	Northside Drive to Old Denton Road (Carrollton)	150	120	68	78[2]	63	68	0	1
13	Single-Family Res. Near Donald Ave	Northside Drive to Old Denton Road (Carrollton)	185	155	68	76[2]	63	68	0	1
14	Hebron 121 Station Apartments	S.R. 121 to E Corporate Drive (Lewisville)	160	N/A	60	38	58	63	0	0
15	Emery Bay at Lakepointe - South	S.R. 121 to E Corporate Drive (Lewisville)	250	N/A	57	35	56	62	0	0
16	Emery Bay at Lakepointe - North	S.R. 121 to E Corporate Drive (Lewisville)	150	N/A	58	39	57	62	0	0
17	Crescent Cove at Lakepointe - South	S.R. 121 to E Corporate Drive (Lewisville)	325	N/A	56	38	56	62	0	0
18	Crescent Cove at Lakepointe - Central	S.R. 121 to E Corporate Drive (Lewisville)	375	N/A	56	32	56	62	0	0
19	Crescent Cove at Lakepointe - North	S.R. 121 to E Corporate Drive (Lewisville)	250	N/A	57	35	56	62	0	0
Total Number of Impacts									**0**	**15**

Source: Cross-Spectrum Acoustics, 2020

[1] Noise levels are based on Ldn and measured in dBA (rounded to the nearest decibel).

[2] Predicted levels include horn noise at this location (rounded to the nearest decibel).

Source: Cross-Spectrum Acoustics, 2020

Figure 1. Silver Line Yard Lead Noise Impacts in Carrollton

Source: Cross-Spectrum Acoustics, 2020

Figure 2. Silver Line Yard Lead Noise Impacts in Lewisville