



FEIS, a significant visual impact has been identified at Archstone Apartments. Recent discussions with complex management have reconfirmed the importance of maintaining the existing views and the visual mitigation described in Section 5.6.3. During the public comment period, North Lake College commented “visual aesthetics should not be sacrificed” in this area (See **Table 7-3**, Comment W-8H). Considering the low ambient conditions, soundproofing at this location is not a practical or economical solution. The cost of soundproofing a large number of apartment units does not justify the public expenditure. DART has avoided placing special trackwork, which would generate more noise, in this sensitive area. Noise is further reduced in this area due to the slower trains speeds associated with entering and exiting the station.

In summary, DART does not propose to implement any noise mitigation for the two moderate impact locations. The less than three decibel increase approaches the noticeable range but the community has not expressed any concerns regarding noise impacts. In these areas, sound walls and their associated visual impacts would be impractical or ineffective. The incremental reduction in noise associated with soundproofing does not appear to represent a reasonable public expenditure. DART is operating at slower speeds in these areas and has avoided the placement of special trackwork.

DART has committed to reevaluate noise impacts at these locations during final design to determine if projected noise levels would warrant mitigation. Additionally, DART will continue to examine feasible and cost-effective methods to reduce noise levels at these locations during final design. Considerations may include directional at-grade warning devices, track crossover relocations, and limited noise reductions that may be achieved by visual impact mitigations to be considered in some areas, or elimination of signal bells.

## 5.5 VIBRATION

### 5.5.1 Ground Vibration Impact Assessment

#### Vibration Impact Assessment Methodology

The potential vibration impact from LRT operation was assessed on an absolute basis using the FTA criteria. The same representative sensitive receptors identified in Section 3.6.2, Existing Vibration Conditions, were considered for the vibration impact assessment. The following factors were used in determining potential vibration impacts along the project corridor:

- No ambient vibration measurements were conducted along the proposed alignment because there are no significant sources of existing vibration along the corridor.
- Vibration propagation tests were conducted at three sites along the corridor near sensitive receptors. These tests measured the response of the ground to an input force. The results of these tests were combined with available vibration source level data for the DART vehicle to project vibration levels from vehicles operating on the project corridor.
- Vehicle operating speeds are based on the TPC Simulations for the project corridor. The speed limits range from 10 mph to 65 mph along the corridor.

#### Projected Vibration Levels

The No-Build Alternative is not expected to result in any ground-borne vibration impacts. Traffic, even heavy trucks and buses, rarely creates perceptible ground-borne vibration unless vehicles are operating very close to buildings or there are irregularities, such as potholes or expansion joints, in the roadway. The pneumatic tires and suspensions systems of normal automobiles, trucks and buses are sufficient to minimize most ground-borne vibration forces.



With regard to the LRT Alternative, the estimated root mean square (RMS) velocity levels (VdB re 1 micro-in./sec.) for sensitive receptors at representative distances are provided in **Tables 5-9** and **5-10**. These tables summarize the results of the analysis in terms of anticipated exceedances of the FTA criteria for “frequent events” (defined as more than 70 events per day). The criteria are discussed in more detail in Section 3.6.1.

Vibration-sensitive locations along the selected alignment are listed in **Table 5-9** for Category 2 land use and in **Table 5-10** for Category 1 and 3 land use. Each table lists the locations, the civil station, the distance to the near track, and the projected LRT speed at each location. In addition, the predicted project vibration level and the impact criterion level are indicated along with the number of impacts projected for each receptor or receptor group.

As shown in **Table 5-9** there are no projected residential vibration impacts along the Irving Corridor.

Similar to the Category 2 analysis, an assessment of vibration impact for Category 1 and 3 receptors was also conducted. As shown in **Table 5-10**, no potential impacts were identified for Category 1 or 3 receptors.

TABLE 5-9 LAND USE CATEGORY 2 VIBRATION IMPACTS							
Location	Civil Stn.	Distance to Near Track (ft)	Speed (mph)		Project Vibration Level <sup>1</sup>	Vibration Impact Criterion <sup>1</sup>	No. of Res. Impacts
			EB	WB			
Cistercian Abbey Living Quarters	188	260	40	45	53	72	0
Mandalay on the Lake Apartments	236	60	43	38	65	72	0
Lofts at Los Colinas and Delano	272	60	45	39	65	72	0
Candlewood Suites Hotel	344	230	38	47	65	72	0
Fairfield Inn Hotel	345	620	35	42	61	72	0
Las Colinas Studio Plus Hotel	347	220	27	32	62	72	0
Extended Stay Deluxe Hotel	347	400	27	32	58	72	0
Villas at Beaver Creek	358	130	25	25	66	72	0
Archstone at MacArthur Apartments	391	60	45	45	66	72	0
Mandalay Place	408	80	52	36	70	72	0
<b>Total:</b>							<b>0</b>

<sup>1</sup> Vibration levels are measured in VdB referenced to 1 µin/sec.  
Source: HMMH, 2006

TABLE 5-10 LAND USE CATEGORY 1 AND 3 VIBRATION IMPACTS								
Location <sup>1</sup>	Land Use Cat.	Civil Stn.	Distance to Near Track (ft)	Speed (mph)		Project Vibration Level <sup>2</sup>	Vibration Impact Criterion <sup>2</sup>	No of Impacts
				EB	WB			
Cistercian Abbey Church	3	189	400	37	41	52	75	0
Miss Bloomingdale's Academy	3	219	180	25	25	51	75	0
<b>Total:</b>								<b>0</b>

<sup>1</sup> Assessment is for vibration-sensitive buildings only; park lands are not included.  
<sup>2</sup> Vibration levels are measured in VdB referenced to 1 µin/sec.  
Source: HMMH, 2006

### 5.5.2 Ground-Borne Noise Impact Assessment

As indicated in Section 3.6.1 (Ground-Borne Vibration Criteria), airborne noise tends to mask ground-borne noise for above ground (i.e. at-grade or elevated) rail systems, therefore ground-borne noise impact was not assessed along the project corridor.



### 5.5.3 Ground-Borne Vibration Mitigation

Vibration impacts that exceed FTA criteria are considered to be significant and to warrant mitigation, if reasonable and feasible.

Based on the results of the vibration assessment, there are no projected vibration impacts and no vibration mitigation is required.

## 5.6 VISUAL AND AESTHETIC RESOURCES

This section presents the visual and aesthetic impacts of implementing the proposed project. It is assumed that potential impacts from existing projects by other agencies as well as DART projects have been previously mitigated. The purpose of this section is to identify changes in visual resources and the effect of such changes on the experience of the primary viewers.

### 5.6.1 Methodology

To assess visual and aesthetic impacts, each of the seven Corridor Assessment Units described in the Existing Conditions Technical Memorandum (October 2005) were analyzed. Each sensitive receptor/asset was assessed to determine which project characteristics would potentially have an impact. The characteristics of the project which could have an impact on the resource include:

- Station Areas, including platform, bus transfer, and parking areas
- Elevated Structures/Bridges
- Elevated Stations
- Other vertical elements (i.e., catenary poles, light standards, safety fencing, retaining walls).

For each of the affected resources, mitigation measures are considered. Mitigation measures are intended to be consistent with those employed for other sections of the DART LRT system, as appropriate.

### 5.6.2 Impact Assessment

The potential impact of each of the project characteristics was rated as significant, potentially significant, or generally not significant based on the sensitive receptors/assets. It was assumed that the design and construction of the project would be consistent with current DART design standards. The assessment for each of the Corridor Assessment Units is summarized in **Table 5-11** and the nature of those impacts which are either possibly significant or significant are described below.

The measures to be used for each of the affected visual and aesthetic resources are described immediately following the description of the impact. Various mitigation measures would be employed to address the adverse impacts of the selected alternative.

### Unit 1 – Bachman/Trinity River

The visual impact of the project on the Bachman/Trinity assessment unit is generally not significant. The Bachman/trinity River area is characterized by industrial and commercial uses and the concrete structures of Northwest Highway (Loop 12), Harry Hines Blvd., Stemmons Freeway (IH-35 E), and Storey Lane (Spur 482). The introduction of the LRT guideway aerial structures over Storey Lane, Stemmons Freeway, and across the Trinity River are similar to those already in place in the area. Some viewers may see the catenary supports above the trackway, but recreational users on the southeast side of Storey Lane would have their view of the LRT trackway blocked by the existing highway bridge structure. Motorists along Spur 482 currently have a view of an extensive tree canopy along the Elm Fork Greenbelt. The introduction of the LRT structure will somewhat alter this view. Trees between the roadway and the rail will remain and the canopy beyond the LRT structure will still be visible.