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 5-10
LAND USE CATEGORY 1 AND 3 VIBRATION IMPACTS

Location[1]	Land Use Cat.	Civil Stn.	Distance to Near Track (ft)	Speed (mph)		Project Vibration Level[2]	Vibration Impact Criterion[2]	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
Total:								**0**

[1] Assessment is for vibration-sensitive buildings only; park lands are not included.
[2] 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.

Mitigation Options

The assessment assumes that the LRT vehicle wheels and track are maintained in good condition with regular wheel truing and rail grinding. Beyond this, there are several approaches to reduce ground-borne vibration from LRT operation, as described below.

Ballast Mats - A ballast mat consists of a pad made of rubber or rubber-like material placed on an asphalt or concrete base with the normal ballast, ties and rail on top. The reduction in ground-borne vibration provided by a ballast mat is strongly dependent on the frequency content of the vibration and design and support of the mat.

Tire Derived Aggregate (TDA) - Also known as shredded tires, a typical TDA installation consists of an underlayment of 12 inches of nominally 3-inch size tire shreds or chips wrapped with filter fabric, covered with 12 inches of sub-ballast and 12 inches of ballast above that to the base of the ties. Tests suggest that the vibration attenuation properties of this treatment are midway between that of ballast mats and floating slab track. While this is a low-cost option, it has only recently been installed on two U.S. light rail transit systems (San Jose and Denver) and its long-term performance is unknown.

Floating Slabs - Floating slabs consist of thick concrete slabs supported by resilient pads on a concrete foundation; the tracks are mounted on top of the floating slab. Most successful floating