

Mitigation Treatments

Some wildlife would be temporarily displaced from the ROW in areas that would be cleared for construction of the proposed DART Rail to Rowlett. Long term impacts would be mitigated through re-vegetation, as discussed in Section 3.7.3. Existing vegetation or habitat would be replanted along the disturbed project areas.

3.8 Water Resources and Floodplains

The following section summarizes existing water resources in the proposed DART Rail to Rowlett Corridor, specifically the Rowlett Creek 100-year floodplain, which a significant portion of the proposed alignment passes through.

3.8.1 Water Resources

Impact Assessment

The proposed DART Rail to Rowlett would operate along the existing rail corridor from the DART Downtown Garland LRT Station to Centerville Road. Mills Branch is crossed within this section of the alignment, just west of SH 78. Impacts to Mills Branch would be associated with the construction of a new culvert. Approximately 380 linear feet of the creek would be directly impacted as a result of the proposed project (**Table 3-8**).

Table 3-8: Impacts to Surface Waters

Name	Type of Impact	Estimated Direct Impacts* (LF)
Mills Branch	Culvert	380.58
Rowlett Creek Floodplain Tributary #1	Aerial structure pilings	150.07
Rowlett Creek	Aerial structure pilings	125.23
Rowlett Creek Floodplain Tributary #2	Aerial structure pilings	124.69
Rowlett Creek Floodplain Tributary #3	Culvert	149.54
Long Branch Creek	Bridge	N/A

Source: LOPEZGARCIA GROUP, 2006

Note: *Impacts to surface waters within the project area are estimated at this time. Complete calculation of impacts will be derived upon completion of final design

After the DART Rail to Rowlett Alignment crosses Centerville Road, the LRT line would become aerial and traverse above the entire length of the Rowlett Creek 100-year floodplain for 2,600 feet along an American Association of State Highway and Transportation Officials Type IV concrete bridge with 90-foot spans. Rowlett Creek and three unnamed tributaries would be crossed by this aerial structure. Impacts to these waters would be minimal and occur solely in the vicinity of the proposed bridge pilings.



At the crossing of Longbranch Creek at Main Street, a new bridge would be constructed along the south side of the existing bridge to span over the 100-year floodplain of this creek. As this crossing has been previously culverted, associated impacts are not anticipated.

As discussed in Section 2.7.1, the Texas 2004 CWA Section 303(d) list identifies Muddy Creek (Segment 0820C) as an impaired water body not meeting the water quality standards as required by Section 303(d) of the CWA (TCEQ 2005). However, the proposed project is south of Muddy Creek and therefore, not within five miles upstream of the impaired waterbody. In addition, the proposed DART Rail to Rowlett Corridor does not appear to be within a major recharge zone for aquifers. Therefore, potential impacts to water quality and groundwater resources are anticipated to be less than significant.

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Under Section 404 of the CWA, a permit from the USACE would be required to regulate the discharging of dredged or fill material into waters of the U.S. Mitigation and permitting requirements are presented in the following section with regards to current floodplain regulations.

3.8.2 Floodplains

Impact Assessment

The encroachment of the proposed DART Rail to Rowlett into the 100-year floodplain is considered to be an impact requiring a USACE Section 404 permit. This permit is required to locate a structure, excavate or discharge dredged or fill materials into waters of the U.S.

DART policies indicate that any rail alignments be located out of the 100-year floodplain in order to minimize disruption of LRT operations. It is required that the proposed structures be constructed at a minimum of one foot above the 100-year flood elevation. The vertical profile of the proposed DART Rail to Rowlett Alignment would be raised out of the Mills Branch, Rowlett Creek and Longbranch Creek 100-year floodplains. This would result in impacts under Section 404 of the CWA due to construction of the new culvert at Mills Branch, pilings for the aerial structure over Rowlett Creek and its associated tributaries, and bridge support structures at Longbranch Creek that would be constructed within the floodplains.

To minimize the amount of fill in the floodplains and impacts to jurisdictional waters in the proposed DART Rail to Rowlett Corridor, an aerial structure is proposed over the Rowlett Creek floodplain from east of Centerville Road to west of Dexham Road. Thus, anticipated impacts are minor, a Nationwide Permit is anticipated. However, the type of Section 404 permit will be determined upon the development of engineering details during final design.

In addition to coordinating with the USACE, it will be necessary to coordinate with the cities of Garland and Rowlett Departments of Public Works – Floodplain Management and Erosion Control Divisions. The deposition or storage of fill, the placement of a structure, or excavation within a floodplain area would require a fill permit. It is federal law that municipalities participate

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in the Federal Flood Insurance Program to adopt floodplain ordinances that prohibit development in the existing 100-year floodplain. In compliance with this federal law, the cities of Garland and Rowlett developed regulations to include the uses and structures permitted and the conditions for development within the floodplain.

The use of floodplains in the City of Garland is controlled by Article IV, "*Flood Damage Prevention*," of Chapter 22 of the Code of Ordinances. In addition, the City of Garland has adopted a Flood Damage Prevention Ordinance (#3304), which generally prohibits development within 100-year floodplains. According to the City of Garland Development Guide, a Floodplain Permit is required in all situations in which there is a desire to build in or alter the character of property situated in a 100-year floodplain. The development permit can be waived, however, for non-residential development if sufficient flood-proofing measures apply.

The floodplain of Rowlett Creek is subject to the ordinance and also to the Rowlett Creek Ordinance No. 4114 passed by Garland City Council on August 4, 1987. In addition, no alteration of the floodplain of Rowlett Creek shall take place unless in compliance with the provisions of the November 1988 *Rowlett and Spring Creek Floodplain Management Study* as adopted by the City of Garland in Chapter 31, Article VIII of the Code of Ordinances, as amended.

The City of Rowlett has developed the following development criteria for construction in floodplain areas (Ch 77-502 F. Construction in Areas Subject to Flooding):

- In all areas subject to flooding, the elevation shall be a minimum of two feet above the base flood elevation as determined by the Flood Insurance Rate Map as published by FEMA, or, in absence of such, as calculated for the runoff from a rainfall event having a recurrence interval of 100 years, in a completely developed watershed. The owner/developer shall furnish, at his expense, to the city engineer, sufficient engineering information to confirm that the minimum floor elevations proposed are as required by this subsection. Permits for new residential construction will not be issued until structures are elevated in accordance with requirements adopted by the city.
- No structure, excavation, filling, or construction shall be permitted within a floodplain unless an engineering design is furnished to the City Engineer confirming that such will not increase the base flood elevation within that floodplain.
- The provisions of the city's current flood hazard prevention ordinance shall be observed in preparing land development plans.
- New construction any addition to any structure shall have the lowest floor, including the basement, elevated to the level of the base flood elevation, plus two feet, unless acceptable flood-proofing is designed into construction.

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The structures proposed to be constructed within the 100-year floodplains in the proposed DART Rail to Rowlett Corridor would meet federal, state, and local floodplain development requirements. The new structures, such as the aerial structure over the Rowlett Creek floodplain, would be designed to minimize impacts to the floodplains and associated



jurisdictional waters. It is assumed that, at a minimum, a USACE Section 404 Nationwide Permit would be necessary to construct these features.

The impacts of the fill into the floodplain cannot be fully assessed at this LEA/PE phase. A detailed hydraulic analysis will be conducted during final design. At that time, a full assessment of impacts would be determined and any mitigation treatments or further potential design modifications would be coordinated with the cities of Garland and Rowlett.

3.8.3 USACE/Section 404 Coordination

As previously discussed, coordination with the USACE has been initiated and will continue through final design. This effort will include any needed coordination with the USACE on the issue of fill in the floodplains and impacts to jurisdictional waters, including wetlands, as a result of the proposed project. It will also be necessary to coordinate with the cities of Garland and Rowlett Public Works Departments in accordance with their floodplain regulations, permits and development conditions.

3.9 Noise and Vibration

3.9.1 Noise

Impact Assessment

The results of the noise analysis indicate that the existing noise environment at locations near the proposed DART Rail to Rowlett alignment is dominated by noise from railroad operations and general community activities. Based on FTA criteria, it is predicted that without mitigation, the proposed LRT operations would cause noise impacts at 20 locations as shown in **Table 3-9**. None of these impacts are in the severe category. Detailed information regarding the impacts can be found in **Appendix C**. A number of noise mitigation treatments can be considered for the impacts listed in **Table 3-9**. The two most likely methods of noise mitigation are noise barriers and sound insulation.

Sound insulation treatments are typically applied to buildings in areas where barriers would not be effective. These areas are primarily located near grade crossings, where additional noise impact is caused by train horns and grade-crossing bells. Relocation of crossovers away from noise-sensitive receptors would also reduce the noise impact. The selection of mitigation would depend on more detailed analysis during final design, including input from abutting neighbors.

