



Unit 7 – DFW Airport/Belt Line

The visual impact of the project on the DFW Airport/Belt Line assessment unit is not significant. At the east end of the unit, the project will be viewed by industrial and commercial tenants. The structures and other visual elements of the LRT line will not be inconsistent with the visual environment of the area. The line passes through DFW Airport property along the back side of these industrial and commercial uses before it crosses over the Bush Turnpike (SH 161). Existing highway structures span the roadway nearby at the barrier toll plaza to the southwest of the LRT line, and there are overhead structures at the entrance and exit ramps where the line crosses the highway. West of the turnpike the line continues on vacant airport property to the Belt Line Station. The visual environment will not be adversely affected at this location.

5.6.3 Mitigation of Impacts to Visual and Aesthetic Resources

Various mitigation measures will be employed during final design to address the adverse impacts of the LRT Build alternative. A wide range of possible mitigation measures will be considered, including but not limited to the use of materials and finishes for LRT system elements that are consistent with the existing character of the area, the use of vegetation to screen views of the project, and changes to the guideway or location of elements so as to minimize their intrusion into the visual environment for affected viewers.

The City of Irving Development Code includes provisions for screening of residential uses from non-residential uses (such as the track alignment and stations), and screening of parking areas from residential uses. Parking areas must also be landscaped both in the interior and around the perimeter. Lighting must be so arranged as to be reflected away from residentially zoned or used property. These provisions for any visual screening, buffering, or landscaping will be included for consideration during final design of the LRT project where it is adjacent to residential uses.

5.7 ECOSYSTEMS

This section describes the potential impacts that could result from implementation of the No-Build or LRT Alternatives. The information used to analyze potential impacts included site surveys and a literature review.

5.7.1 Water and Wetland Impacts

All waters of the U.S. were delineated in August and September 2005 and June, 2006 by wetland biologists. Section 12.1.1.1 of the *Existing Conditions Technical Memorandum* (DART, October 2005) identifies the waters of the U.S. present within the project corridor. A summary of this information is presented in Section 3.11 of this Draft EIS. The following impact evaluation for these waters of the U.S. is quantified based on the acreage or linear distance of each water feature that could be impacted.

No-Build Alternative

The No-Build Alternative would not impact any wetlands or other potentially jurisdictional waters of the U.S. because this alternative would not have any ground disturbance. The waters of the U.S. would remain as described in the *Existing Conditions Technical Memorandum* (DART, October 2005).

LRT Alignment

Within the project study area there are 24 bodies of water (including 18 waters and six wetlands); of these, 16 (14 waters and 2 wetlands) could be considered potentially jurisdictional waters of the U.S. Several of these water resources lie adjacent to the proposed construction corridor, but will be avoided. All potential jurisdictional waters of the U.S. within this alternative that cannot be avoided will be bridged to minimize filling the water resources.

Preliminary engineering designs indicate that 24 water bodies would be crossed by the LRT Alignment. Infrastructure for one station would cross one water body but does not impact it (**Table**



5-12). Total impacts to these water bodies would be dependent upon the size and number of support columns placed within the ordinary high water mark for each individual water body. Despite placing support columns into these water bodies, significant impacts are not expected.

TABLE 5-12 IMPACTS TO WATERS AND WETLANDS (INCLUDING POTENTIALLY JURISDICTIONAL WATERS OF THE U.S.)					
Project Area / ID	Classification ¹	Crossing Type	Civil Station No.	Crossing Width (ft.)	Impacts (square feet)
RAIL ALIGNMENT					
Water 1	POWHx	B	58 + 00	194	NA
Wetland A	POWHx	B *	55 + 20 to 79 + 80	-	435
Water 2	R2OWH	B	74 + 50	115	9,520
Water 3	POWHx	B *	79 + 00	53	NA
Water 5 (2 loc.)	POWHx	C	168 + 00	11	NA
		C	173 + 00	16	NA
Water 9	LIOWHx	B *	216 +75	97	NA
Water 10	POWHx	C	228 + 40	141	NA
Water 12	R4SBC	B *	315 + 20	78	NA
Water 13 (3 loc.)	POWHx	B *	335 + 00	93	NA
		B *	340 + 50	151	
		B	355 + 50	56	
Wetland F	Emergent wetland	Unknown	356 + 50	-	NA
Water 16 (2 loc.)	R4SBC	C *	466 + 00	47	NA
		B *	472 + 75	23	
STATIONS					
Loop 12 (Deferred)					
	-	-	-	-	
University of Dallas					
	-	-	-	-	
South Las Colinas (Deferred)					
	-	-	-	-	
Lake Carolyn					
	-	-	-	-	
North Las Colinas					
Water 10	POWHx	B/C	283+ 10	27	NA
Carpenter Ranch					
	-	-	-	-	
North Lake College					
	-	-	-	-	
Belt Line Road					
	-	-	-	-	
¹ Based on the USFWS classification (Cowardin et al. 1979) as modified for National Wetland Inventory Mapping Convention. See Table 3-30 in Chapter 3. NA = Currently not available at 10% design; limited to bridge pier placement. B = Bridge without piers in crossing (clear span); B * = Bridge crossing with piers placed in the crossing. C = Existing culvert to be crossed, no impacts; C * = Culvert.					

Source: Geo-Marine, 2007

The remaining bodies of water lie adjacent to where the proposed construction is and would not receive any direct impacts. However, indirect impacts could occur via surface water runoff, which may transport sediment into these water bodies. During construction activities, potential erosion





from soil disturbance will be reduced by the implementation of standard engineering best management practices, such as silt fences and hay bales around the site perimeter. These construction and mitigation measures will minimize and/or alleviate any potential negative effects resulting from erosion and subsequent sedimentation.

On DFW Airport property, the proposed project crosses one potentially jurisdictional U.S. water (Water 16 and its floodplain southeast of SH 161, Bush Turnpike). The project will cross a minor tributary to this water with a culvert, and re-channel it for about 200 feet, in an area outside the floodplain. The project will also bridge over the floodplain with some support columns located in it (see Chapter 5, Section 5.9.3 Floodplains). Final design of the project will ensure that neither the 100-year base flood elevation nor floodwater velocity is increased. During the final design process, DART will coordinate with DFWIA, USACE, and FEMA to ensure that these conditions are met. There are no wetlands located on airport property in the vicinity of the proposed project.

Stations

There are eight proposed stations that were evaluated, two of which will be deferred. A ¼-mile radius around each station was analyzed, and any potentially jurisdictional waters of the U.S. were identified and labeled. **Table 5-12** identifies the types of waters of the U.S. present and the size of each within the proposed property acquisition for each station. The table lists the stations in order from east to west and includes the potentially jurisdictional waters of the U.S. within the proposed property acquisitions. One potentially jurisdictional water (Water 10) is located within the proposed property acquisition for the North Las Colinas Station.

The proposed project is within ¼-mile of two potentially jurisdictional U.S. waters (Waters 17 and 18 near the Belt Line Station), but will not have any direct impacts of acquisition or construction on these two resources.

Water and Wetlands Mitigation

DART and its contractors will follow the guidelines of the USACE Nationwide Permit 14, Linear Transportation Crossings. The guidelines stipulate that mitigation is required for any activity that impacts greater than 0.5 acres of stream channel for any single and complete project.

To evaluate whether the proposed project meets the conditions of NWP 14, it is important to understand the definition of a "single and complete project". The following is the definition of a "single and complete project" as defined by 33 CFR 330.2(i):

...the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. For linear projects, the "single and complete project" (i.e., a single and complete crossing) will apply to each crossing of a separate water of the United States (i.e., a single waterbody) at that location. An exception is for linear projects crossing a single waterbody several times at separate and distant locations: each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies.

Additionally, a pre-construction notification must be given to the USACE under General Condition 13 of the permit if an area greater than 0.1 acre is to be impacted.

Station impacts will follow guidelines of the USACE Nationwide Permit 29 and 39, *Residential, Commercial, and Institutional Developments*, as of March 19, 2007 which require mitigation for any activity that impacts more than 0.5 acres of waters of the U.S. or 300 linear feet of stream bed for a single and complete project. A pre-construction notification must be given to the USACE under General Condition 13 of the permit if an area greater than 0.1 acres is to be impacted or if any open waters, including perennial or intermittent streams (below the ordinary high water mark) will be lost.



Under General Condition 13 of Nationwide Permits 14 and 39, a pre-construction notification would be given to the USACE for all bridged crossings and stations impacting stream channels that are either intermittent or perennial in nature. The notification will include a compensatory mitigation proposal to offset permanent losses of waters of the U.S. to ensure that those losses result only in minimal adverse effects to the aquatic environment and a statement describing how temporary losses of waters of the U.S. will be minimized to the maximum extent practicable. Additionally, based on the final design, any necessary mitigation plan and permit pursuant to USACE waters of the U.S. regulations will be implemented.

The USACE requires that all mitigation efforts be conducted at a minimum ratio of 1:1 (USACE 2000) to ensure that there is no net loss of functions and values. Mitigation efforts that could be implemented include stream channel/wetland enhancement and implementation of native vegetation buffers along the fringe of the water resource. Other mitigation efforts may include reducing the size of the project, establishing an upland vegetated buffer, and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed. Other mitigation options include the in lieu fees program and mitigation banking. DART will coordinate mitigation efforts with the USACE and prescribed measures will be incorporated into the design, Final Environmental Impact Statement and the Mitigation Program. FAA guidance on federal actions as it relates to evaluating environmental impacts can be found in FAA Order 1050.1E, CHG 1, **Environmental Impacts: Policy and Procedures** and FAA Order 5050.4B, the **National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions**. These FAA Orders and their provisions will be followed for those portions of the project located on Dallas-Fort Worth International Airport property. This includes required coordination with USACE during the environmental process to address any anticipated impacts to potential jurisdictional waters of the U.S. Water 16 is the only identified water body located on airport property that may be impacted by the project.

Filling and grading activities will be in compliance with the Texas Pollution Discharge Elimination System (TPDES) General Permit for Construction Activities. The TPDES prescribes a series of measures or best management practices (BMPs) that will serve to minimize impacts to waters of the U.S. as a result of construction in adjacent uplands. BMPs can include limiting the amount of disturbed earth so that potential for excessive erosion is minimized and sedimentation outside of the right-of-way is avoided, preserving existing vegetation wherever possible. Temporary erosion and sedimentation control measures such as silt fences, rock berms, and/or soil retention blankets will be implemented as needed prior to the initiation of construction. Permanent soil erosion control features will be constructed as soon as feasible during the early stages of the contract through proper sodding and/or seeding techniques. Disturbed areas will be restored and stabilized as soon as the construction schedule permits, and temporary sodding will be considered where large areas of disturbed ground will be left bare for a considerable length of time. These erosion control measures will be coordinated with the permanent soil erosion control features which are to be a part of the completed project to ensure effective and continuous erosion control throughout the construction and post-construction periods.

Executive Order 11990 – Protection of Wetlands pertains to federal actions as they regard wetlands. The purpose of EO 11990 is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands". To meet these objectives, the EO requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The basic requirement of E.O. 11990 is that a Federal agency avoid construction or management practices that would adversely affect wetlands unless that agency finds that

- (1) there is no practicable alternative, and
- (2) the proposed action includes all practicable measures to minimize harm to the wetlands.



To demonstrate compliance with the Executive Order, the agency must address the two provisos above, provide opportunity for early public review by those who may be affected, and include its findings in its environmental or other appropriate decision documents.

As part of the NEPA process, and in compliance with this EO, the Draft EIS for the proposed project investigated a number of alignments to serve the corridor. Based on an assessment of a variety of factors described in the Alternatives Analysis (AA), the alignment presented in this Draft EIS was selected as the preferred Build Alternative. The Draft EIS presents the preferred Build Alternative and a No-Build Alternative for comparison. A final alternative will be selected following the circulation of the Draft EIS and receipt of comments from the public and agencies, including the USACE. As directed by the EO, impacts to all wetlands located within the proposed project corridor have been identified and measures have been proposed to minimize impacts (e.g. by bridging or avoiding the wetland areas). These impacts have been or will be presented to the public during the EIS preparation and review process.

In January 2001, the U.S. Supreme Court decision, *Solid Waste Agency of Northern Cook County (SWANCC) v. USACE*, changed the direction of the federal regulation of isolated wetlands under the CWA. Previously, the USACE assumed jurisdiction over isolated waters of the United States based on its 1986 preamble stating that migratory birds used these habitats. The "Migratory Bird Rule" provided the nexus to interstate commerce and thus protection under the CWA.

The USACE has established guidance for determining between isolated and adjacent wetlands. Wetlands that are bordering, contiguous, or neighboring another water of the United States (specifically one that flows into navigable water) is considered adjacent. Additionally, wetlands that are within the 100-year floodplain of another water of the United States are also considered adjacent. All other wetlands would be considered isolated and not jurisdictional under the CWA.

5.7.2 Long-Term Vegetation Impacts

The vegetation varies greatly throughout the entire project corridor. The vegetation types include grassland, woodland, shrub land, riparian, and urban areas. Potential impacts to vegetation are estimated based on the number of acres of vegetation to be permanently replaced by structures.

Both the City of Dallas and the City of Irving have landscape requirements for development projects that include the number of trees needed to be included per area of development. These requirements will be followed in the station and parking areas of the project. DART will discuss mitigation requirements for the trees removed along the corridor line with the Dallas and Irving City Arborists once the plans are finalized. The City of Irving requires a tree removal permit and a site plan showing the locations of trees in and within 5' of the right-of-way and/or road work.

No-Build Alternative

Implementation of the No-Build Alternative would result in no direct or indirect impacts to the vegetation. The plant communities would remain as described in Section 12.1.1.2 of the ***Existing Conditions Technical Memorandum*** (DART, October 2005). A summary of this information is presented Section 3.11 of this Draft EIS.

LRT Alternative

During field surveys, there were five distinct plant communities delineated throughout the project area. The primary direct effect of implementing the LRT Alternative would be the loss of vegetation and subsequent wildlife habitat.

Vegetation Mitigation

After final grading, all plant communities would be restored to the original condition. The Cities of Dallas and Irving tree ordinances would be followed. A survey would be conducted during the final design phase to determine whether the felling of any protected trees is necessary. Based on this



survey and the final design, any necessary mitigation plan and permit pursuant to the tree regulations would be implemented.

5.7.3 Wildlife Impacts

Potential impacts to biological resources are estimated based on the amount and type of wildlife habitat disturbed.

No-Build Alternative

Implementation of the No-Build Alternative would result in no ground disturbance and therefore no alteration/disturbance of the landscape. As a result, wildlife and their associated habitat in the area would not be affected.

LRT Alternative

Coordination with Texas Parks and Wildlife and US Fish and Wildlife Service has been initiated, and will continue through the Preliminary Engineering phase. Findings and recommendations will be incorporated into the design and Final Environmental Impact Statement.

Wildlife Mitigation

Most of the animals present within the project area are already subject to an environment that is regularly disturbed. Due to the animals' mobile nature, they would relocate in the event of habitat disturbance. Construction activities would temporarily disturb these animals' habitat; however, long-term impacts would be mitigated through re-vegetation. Existing vegetation or habitat would be replanted along the disturbed project area. Replacement vegetation will utilize native species that are generally useful to wildlife. The replacement vegetation can provide habitat for numerous wildlife species. On DFW Airport property, use of vegetation that is attractive to birds is discouraged since birds represent a safety risk to aircraft.

5.7.4 Protected Species

Eight species have a low to moderate potential of occurring within the project areas – Arctic peregrine falcon, interior least tern, migrant loggerhead shrike, whooping crane, wood stork, Texas garter snake, Texas horned lizard, and timber rattlesnake.

No-Build Alternative

The No-Build Alternative would not result in any ground disturbance or alterations to the potential habitat. Therefore, the No-Build Alternative would not have any impacts on protected species.

LRT Alternative

Coordination with Texas Parks and Wildlife and US Fish and Wildlife Service has been initiated, and will continue through the Preliminary Engineering phase. Any findings or recommendations resulting from this coordination will be incorporated into the design, Final Environmental Impact Statement and the Mitigation Program.

The protected bird species are all migratory species. Some of the species (interior least tern, whooping crane, and woodstork) are believed to utilize the Trinity River and its tributaries, which lies within the project corridor, as a nesting or migratory route.

Protected Species Mitigation

Construction would temporarily disturb the animal's habitat; however, impacts will be mitigated through re-vegetation. Existing vegetation or habitat will be replanted along the disturbed project areas. Additionally, through coordination during final design, preventative and/or mitigative measures in "sensitive areas" will be incorporated.



5.7.5 Aquatic Habitat Impacts

The acreage or linear distance of surface water features quantifies the potential impacts to aquatic habitat. The area of potentially affected aquatic habitats is presented below.

No-Build Alternative

The No-Build Alternative would not result in any disturbance to aquatic habitats.

LRT Alternative

The preliminary designs indicate all aquatic habitats would be bridged. Despite placing support beams into these aquatic habitats, no substantial impacts to these aquatic habitats are expected.

Coordination with Texas Parks and Wildlife and US Fish and Wildlife Service has been initiated, and will continue through the Preliminary Engineering phase. Findings and recommendations will be incorporated into the design and Final Environmental Impact Statement.

Aquatic Habitat Mitigation

Potential aquatic habitat may be indirectly impacted as a result of construction-related surface water and soil runoff. Construction mitigation measures and use of best management practices will minimize and/or alleviate any potential negative effects to the aquatic habitat resulting from erosion and subsequent sedimentation (See Section 5.12.8).

5.8 GEOLOGY AND SOILS

A small percentage of soils along the proposed alignment (approximately 17%) have a high to moderate potential for urban development. The remaining soils (approximately 83%) have a low or very low potential for urban development, primarily due to hazards such as flooding, erosion, a very high shrink swell potential and low soil strength. As the 100-year and 500-year floodplain of the Trinity River is present along approximately 54% of the proposed alignment, soils in these areas are naturally prone to flooding and wetness. Impacts to the 100-year floodplain would be minimized by bridging these LRT segments or otherwise following all DART criteria to stay above or away from the floodplain area.

Eight stations are proposed for the LRT Line including two which will be deferred; all but one of which are situated on soils described as having a low or very low potential for urban development (USDA, 1980). Limitations to development ascribed to each of the soils present along the proposed line should be considered during Preliminary Engineering and final design.

Direct impacts to soils would include the removal of vegetation, exposure of the soil, mixing of soil horizons, loss of topsoil productivity in areas which are not currently paved, and short-term increased susceptibility to wind and water erosion. These construction activities can lead to an increased potential for erosion and sedimentation during the construction process.

As stated in Section 3.12.2, approximately 22 percent of the study area contains prime farmland soils, consisting of Houston black clay, Burleson clay, Frio silty clay, Silawa fine sandy loam, Trinity clay (occasionally flooded), and Heiden clay. As the study area is located in a developed, urban area with little to no agrarian use, however, the project is not subject to the **Farmland Protection Policy Act** (FPPA), and coordination with NRCS relative to this Act is not required. A copy of the completed Farmland Conversion Impact Rating Form for Corridor Type Projects (CPA-106) is included in Appendix D.

The underlying geology in the region consists primarily of Alluvium floodplain deposits, with smaller areas of Fluvial terrace deposits. The Eagle Ford group underlies the western portion of the alignment. Proposed below-grade segments of the alignment would occur on Eagle Ford group and Fluvial terrace deposits. The Eagle Ford group could contain paleontological remains. Care