

- Long-term improvements in economic conditions
- Enhanced potential for high-density, transit-oriented development

## 5.20 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

Implementation of the LRT Alternative would involve a commitment of a range of natural, physical, human, and fiscal resources. Land required for the proposed project would be considered an irreversible commitment. The majority of the land required for the project alignment is currently owned by TxDOT, the City of Irving and Dallas/Fort Worth International Airport (DFWIA), and would, therefore, represent an efficient use of already committed property. Additional property requirements would be necessary at station locations and where the proposed project alignment would depart from publicly-owned transportation right-of-way. Most notably this would be associated with the area from IH-35E to Loop 12, and from the North Las Colinas Station west to Walnut Hill Lane.

The acquisition of property and associated displacement of residences and businesses in order to construct the proposed project and its stations would represent an irreversible commitment of real property. Owners, residents, or tenants of these properties would be afforded opportunities to relocate (as discussed in Section 5.2 Acquisitions and Displacements), but their existing properties would be converted to transit uses necessary to support the project.

Considerable amounts of fossil fuels, labor, and construction materials would be expended in the construction of the proposed project. Large amounts of labor and natural resources would also be used in the fabrication and preparation of construction materials. These materials are generally considered irretrievable. However, their availability is not limited and their use would not have an adverse impact on continued availability of these resources. The construction of the proposed project would also require substantial expenditure of local and federal funds which, once spent, would not be retrievable.

## 5.21 CUMULATIVE EFFECTS

Cumulative effects are the combined impacts of independent projects and the Northwest Corridor LRT Line to Irving/DFW on the environment. Cumulative effects refer to those effects that "...result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7). The discussion of cumulative effects presented below refers to the proposed LRT Line to Irving/DFW project.

### Methodology

Cumulative effects of the proposed LRT project were identified, analyzed and determined using methodology described in ***Considering Cumulative Effects Under the National Environmental Policy Act CEQ, 1997***. This methodology was applied throughout the environmental analysis process, from project scoping through description of existing conditions to analysis of various environmental impact areas. Cumulative effects analysis incorporates the following principles:

- past, present, and reasonably foreseeable future actions;
- federal, non-federal, and private actions;
- focus on truly meaningful effects;
- use natural boundaries to determine geographic extent;
- focus on affected resources, ecosystems, and human communities;
- address additive, countervailing, and synergistic effects;
- look beyond the life of the proposed action; and
- address the sustainability of resources, ecosystems, and human communities



The following geographic and temporal limits were applied for assessment of cumulative effects: ½-mile for land use actions; transportation facilities actions parallel to and crossing the proposed LRT project in the study corridor; year 2030 time horizon, corresponding to transportation modeling and regional and local planning horizons. Localized project-related impacts (noise, vibration, visual, parklands) were evaluated for their effects in the immediate vicinity of the proposed LRT project.

### **Findings**

The information presented in Chapters 3, 4, and 5 of this Draft EIS provides information on the past, present, and reasonably foreseeable future anticipated actions for 2030. These projects include: 1) ongoing development of the area's transit system; 2) other planned roadway improvements; and 3) area land use plans and projects. Projects identified within the immediate vicinity of the proposed project include:

- DART LRT Line to Carrollton and Farmers Branch
- DART Southeast LRT Line and other LRT system extensions
- Future commuter rail lines from Denton County and on BNSF RR alignment
- Loop 12 / IH 35-E widening and improvements
- SH 183 / West Fork
- President George Bush Turnpike (SH 161 / SH 190)
- SH 114 / SH 121 widening and improvements
- Widening and improvement of Spur 348/Northwest Highway
- Lake Carolyn Parkway extension
- Future extension of Las Colinas Boulevard
- Future redevelopment of the Texas Stadium site
- New multi-family and mixed-use development in the Las Colinas Urban Center
- Future development of the Carpenter Ranch site west of SH 114
- North Lake College campus expansion and parking improvements
- Future mixed-use development around the Belt Line Station site on DFW Airport property

These projects have all been considered in the planning of the proposed project. The transit line has been designed to accommodate these foreseeable projects. DART has worked very closely with the City of Dallas, City of Irving, TxDOT, NTTA, the University of Dallas, North Lake College, DFW Airport, DCURD, and private landowners and developers in developing a transit line that fits well within the existing and future environment.

Subsequent to completion of the Northwest Corridor Irving/DFW LRT line to Belt Line Road, DART is planning a future extension of the line to the Central Terminal Area of DFW Airport. The exact alignment, number of stations, and how the project would be designed in relation to other airport improvements has not yet been determined. Additionally, the Fort Worth Transportation Authority (FWTA) recently initiated an environmental impact statement for a rail line that will enter the airport from the northwest and terminate at the Central Terminal Area. Neither the exact alignment, nor exact mode of rail has been determined for this project.

Given the current ambiguity of the two projects, their cumulative impacts cannot yet be evaluated. The environmental documentation for the future DFW LRT Extension will consider how the two projects relate to one another and to other proposed airport improvements including taxiway extensions and perimeter roads. The cumulative impacts of all appropriate projects will be considered during the environmental phase of the extension project.

#### **5.21.1 Transportation**

Several development projects planned in the corridor include transit-supportive land uses, such as redevelopment of the Texas Stadium site, new development in the Las Colinas Urban Center and



around the University of Dallas Carpenter Ranch and Belt Line Stations, and expansion of North Lake College. These projects will benefit from increased transit service with a light rail system. The transit trips generated by these new development projects will contribute to the operational success of the LRT system. These impacts will be considered beneficial because they will benefit the transit system as a whole by increasing ridership.

If the proposed action is implemented, travel opportunities by transit would be enhanced, transit trip times would be reduced to some locations, transit mode share would be increased, and patronage would be increased. These would all be considered beneficial cumulative effects.

Other expansions planned by DART to the LRT system will have a cumulative positive impact. These include construction of the LRT Line to Carrollton and Farmers Branch, Southeast LRT Line from downtown Dallas to Loop 12, the Rowlett extension to the Northeast LRT Line, extension of the south Oak Cliff LRT Line to IH-635 and the future Northwest Corridor to Irving/DFW extension to the Central Terminal Area of DFW Airport.

The recently-formed Denton County Transit Authority, responsible for transit in the area just north of the Farmers Branch-Carrollton LRT Line terminus at Frankford Road, is currently considering plans to provide rail transit service that would tie in with the proposed Frankford Station or with the planned Carrollton Square Station. If this were to occur, cumulative impacts would again be beneficial because transit access and mobility to additional portions of the region would be achieved and transit ridership would increase, including on the Irving/DFW LRT Line.

The Burlington Northern Santa Fe Railroad (BNSF), which crosses over the LRT line in South Las Colinas, has been identified as a possible regional rail line by NCTCOG and included as a vision element of the DART 2030 Plan. The deferred South Las Colinas Station would be constructed as a multi-modal station when regional rail is implemented or additional development warrants. The station area is large enough to accommodate parking, bus transfers, an LRT platform, a regional rail platform, and an extension of the Las Colinas APT, pedestrian trails and potential transit oriented development.

A second multi-modal station would be the Lake Carolyn Station where the LRT line would connect to the Las Colinas APT line. It is envisioned that the LRT connection would greatly enhance the utility of the people mover.

DART has conferred with the appropriate authorities for roadway projects within the transit corridor. A contributing reason that the original Northwest Corridor to Irving/DFW alignment was amended to the currently proposed alignment was to accommodate for the recent construction of SH 161 and the future expansion of SH 114 (See Section 2.1.5).

Throughout the corridor DART has worked with TxDOT to coordinate the transit design with highway improvements. DART has located its alignment north of the existing Spur 482 to accommodate any future expansion of the roadway. South of the Las Colinas Urban Center, the SH 114 expansion project has been designed to allow for the placement of LRT between the main lanes and the frontage roads. A three-phased reconstruction of Spur 348 has been closely coordinated with placement of the North Las Colinas Station and alignment. The light rail aerial structure over SH 114 will appropriately avoid conflicts with the existing freeway, as well as, the future reconstructed highway.

In the City of Irving, at-grade crossings, grade separations, street closings and street relocations have been coordinated with City staff. Lake Carolyn Parkway has been designed with a large median to accommodate light rail. The design of the new roadway network in north Las Colinas, which includes the extensions of Lake Carolyn Parkway and Las Colinas Boulevard, has been coordinated with the design of the LRT alignment.



The design of the light rail crossing of SH 161 has been coordinated with both the NTTA and DFW Airport to ensure that the crossing will not impede any tollway plans and will allow for maximum development potential of the airport property.

Cumulative traffic impacts associated with the proposed action are expected to be limited and not adverse when mitigation measures are implemented. In general, new trips would not be generated by the transit alternatives, but would be beneficially redistributed toward transit because of the increased availability of transit improvements. In addition, the No-Build Alternative was used as the basis for the traffic forecasts for the proposed action. The No-Build forecast volumes were based on the NCTCOG Travel Forecasting Model, which includes projected levels of new development throughout the corridor by 2030. In this manner, all cumulative development projects are accounted for in the traffic analysis of the No-Build Alternative and the proposed action.

Localized traffic congestion at rail stations has been accounted for in the design of the project. The parking lots at North Lake College and Belt Line Station have been oversized to accommodate future demand. At the North Las Colinas Station, a pedestrian way is being constructed to provide rail patrons access to the existing 715 parking spaces at the North Irving Transit Center. Additionally, DART design criteria provides that all parking lots be designed to be converted into structured parking should the need arise.

While the DART station will not have a significant impact on the surrounding roadways, the planned transit oriented development that will be built next to the Belt Line Station will generate a significant amount of traffic and will have an impact on the area roadways. Depending on the amount of development that is open in each year, various geometric mitigation measures will be necessary to accommodate this additional traffic. Once the plans for this development are finalized, another detailed analysis should be conducted to determine the specific traffic impacts and what mitigation is necessary in each year to maintain acceptable levels of service. This process is independent of the DART station.

With regard to impacts on traffic during construction, several roadway improvement projects are planned in the project area as described in Section 2.2.1. Several highway and local roadway projects are anticipated to require close coordination with the proposed LRT project. The Spur 348/Northwest Highway improvements, Lake Carolyn Parkway extension, and Las Colinas Boulevard extension projects may result in localized congestion if these projects occur simultaneously with the construction of the LRT alignment along and adjacent to those streets. The schedules for these roadway improvements have not been finalized; however, it is probable that they may occur simultaneously or just after construction of the LRT project. DART will work closely with TxDOT, NTTA as well as with the two municipalities during final design and construction to develop and implement specific traffic control plans that will minimize impacts and will take into account the timing of both projects. As noted below in Section 5.21.2, these are short-term impacts that, upon completion, would no longer affect the community.

### **5.21.2 Land Use and Economics**

The proposed action has been developed in conjunction with planned public transportation and roadway improvements, and area land use plans and projects. The proposed LRT project would tend to integrate the communities in the corridor and encourage transit-oriented development and would also strongly support the area's land use plans and projects. The land uses surrounding potential LRT station locations are compatible with and would support the implementation of the proposed station development. The proposed action would not contribute to cumulative adverse local land use impacts that could result from development of the surrounding areas, but rather would benefit corridor communities by supporting more efficient land use development.

Despite not being located within any DART owned right-of-way, the Northwest Corridor alignment impacts relatively few parcels of private property. DART has worked with major property owners



along the corridor to develop an alignment that allows the maximum utilization of adjacent properties. Additionally, DART has met with property owners regarding the development potential at each of the LRT stations.

The City of Irving and adjacent property owners are considering redevelopment scenarios for 468 acres surrounding Texas Stadium. The deferred Loop 12 Station would be implemented with this new development. The rail station is considered an important aspect of this development. Likewise, the University of Dallas considers LRT as an alternative means of bringing people to the university and to any future development near the station. The deferred South Las Colinas Station will not be constructed until regional rail is instituted or other development warrants station implementation. DART is working with land owners and developers at the Lake Carolyn Station, North Las Colinas Station and the Carpenter Ranch Station to fully incorporate the LRT station into planned development. The North Lake College Station has been situated to blend into the Master Plan designed for the campus. DART has been working closely with DFW Airport to integrate the Belt Line Station into potential development of adjacent airport-owned land.

Construction activities would contribute to community disruptions resulting from other development projects occurring simultaneously in the area. This may result in a longer duration of noise and dust from construction, and greater traffic delays and traffic obstructions. The combined impact may heighten the perception of disruption experienced by the local community. These impacts may be concentrated in some locations at different times during construction but would diminish as the project concludes, and upon completion would no longer affect the community.

With regard to economic effects, the proposed action would have long-term benefits over the years for the communities it traverses and would further goals and policies for revitalization and investment within the study area. The fiscal benefits of operation would have a long-term impact for the communities. The loss of tax revenue would be offset by increased development near stations and along the LRT alignment. The proposed action would not result in a cumulative adverse impact during operation and would be economically beneficial to its surrounding communities.

As previously noted, construction activities would contribute to community disruptions resulting from other development projects in the area. This may result in temporary, short-term economic impacts on local businesses. Construction may result in overall beneficial impacts on tax revenues with increases in employment and spending that help offset any short-term economic impacts.

### **5.21.3 Acquisitions and Displacements**

Required property acquisitions (both full and partial takings) would be minor for the proposed action, considering its 9.3-mile length. The required takings may occur in some areas in which other related projects may also be taking property, but implementation of the LRT Build Alternative would not enlarge the area of property acquisition or result in broader displacement of persons and businesses. The proposed action would produce a slight adverse cumulative impact in the sense that it would contribute to property acquisition.

The proposed action may contribute to the displacement of some employees. It is reasonable to assume that any employees subject to relocation would be able to either relocate with the affected business or find other suitable employment in the general area. Any jobs to be displaced are not of such a unique type that relocation would be prohibitive. This displacement would not be concentrated to threaten any one industry or economic sector. In the sense that these displacements would be additive to displacements possibly resulting from other related projects, it would contribute to an adverse cumulative impact. However, because the number of persons potentially displaced would be so minimal, and it is reasonable to expect that relocation would occur in the area, the degree of the cumulative impact would not be substantial.



Approximately the last mile of the LRT alignment, including the Belt Line Station, will be located on DFW Airport Property. DART will not own the property, but use the property under a use agreement. Additional DFW property will be required when the DFW LRT Extension is implemented. The agreement will be modified to include the use of additional property.

#### **5.21.4 Air Quality**

The cumulative effect of the proposed action as well as related projects in the study area may result in modest decreases in regional emissions and have limited positive air quality impacts. However, the cumulative effect of the No-Build Alternative would also contribute to this effect since vehicle emissions of the proposed action and the No-Build Alternative are anticipated to be similar. The proposed action would not result in violations of state or federal standards for CO. For the proposed action, calculated CO concentrations were found to be similar or to increase slightly compared to the No-Build Alternative at the four locations modeled which are expected to be impacted the greatest by building the project. The LRT project would be supportive of the related land use plans and projects; and, to the extent that it facilitates access by transit rather than the private automobile, cumulative effects are anticipated to be beneficial. The proposed project, along with others in the fiscally-constrained plan, is included in regional air quality analysis and in the Regional Plan. The proposed project has received a finding of conformity.

#### **5.21.5 Noise and Vibration**

Noise and vibration levels in the corridor would be minimally increased with the proposed action, which would involve operating transit vehicles. The related projects would also likely increase noise and vibration, because they all result in increased travel. The proposed action was found to not produce significant adverse noise or vibration impacts. The level of increased noise would not be significant because it would not involve violations of FTA noise guidelines.

The possible future *Dallas/Fort Worth International Airport Development Plan* improvements may result in noise increases at some locations within the DART project area. However, the airport would adhere to FAA noise guidelines for airport noise and mitigation for significant adverse effects. There are no other known LRT project locations at which related projects may produce substantial noise increases.

#### **5.21.6 Visual and Aesthetic Resources**

The elevated portions of the LRT Build Alternative would contribute to the number of above ground structures in the project area. That would result in limited adverse impacts in those few areas with sensitive land uses, including residential neighborhoods. The area of most significant visual impact is adjacent to the North Lake College campus, including the station, between MacArthur Boulevard and Walnut Hill Lane as described in Section 5.6. DART will work closely with nearby residents and other property owners during final design to develop strategies to ensure that the structures will be designed to integrate, as appropriate, into the surrounding environment. There are no other known LRT project locations at which related projects would substantially contribute to the number of above ground structures. There are no other known projects, which would substantially contribute elevated structures in the vicinity of the North Lake College area. Future development on the east side of MacArthur Boulevard, and any future expansion or other development on the North Lake College campus may have negative effects on the visual environment, although none have been identified at this time.

#### **5.21.7 Ecosystems**

With regard to wetlands or other waters of the U.S., potential impacts of the LRT Build Alternative would be restricted to bridge supports and would be minimal. Construction activities are not expected to result in significant cumulative impacts because they will be conducted in accordance with all applicable laws, statutes, and regulations. No endangered species habitats would be affected by the proposed project. Coordination with the USFWS will continue during final design and construction in accordance with applicable laws and regulations to monitor for the presence of



any threatened or endangered species or effects on those species' habitat. In summary, no cumulative impact on ecosystems would occur.

#### **5.21.8 Geology**

The LRT Build Alternative impact on geology and soils would occur at various locations and areas in the project corridor. However, none of the potential impacts would produce additive effects on general geology and soil conditions in the Dallas metropolitan area. As a result, it is concluded that no cumulative impacts would occur for this category.

#### **5.21.9 Hydrology/Water Quality**

The LRT Build Alternative could produce increased runoff, which could result in additional sedimentation entering surface water resources downstream of the project. The magnitude of expected adverse effects would be small because the area is largely urbanized and also because appropriate design provisions will be incorporated, including adequate drainage facilities to handle runoff. LRT related runoff would be added to existing or potential runoff from other related projects.

Much of the increased runoff associated with the proposed project would be a result of station platforms and new parking facilities. Only four of the six proposed stations would have parking. The North Lake College Station has been coordinated with campus development and parking expansion plans. Three stations (including one deferred) are proposed in the Las Colinas Urban Center, which was originally created as a thousand acre reclamation project under the jurisdiction of the Dallas County Utility and Reclamation District (DCURD). DCURD manages storm water and flooding in Las Colinas, which has not yet been fully developed.

The LRT route crosses floodplains in several places. The most significant of these is the Elm Fork of the Trinity River. The LRT Build Alternative would not result in the displacement or modification of floodplains to the extent that properties not currently in a floodplain would be impacted. Therefore, the cumulative impacts are anticipated to be small and localized. The project will follow all Federal, state, and local regulations with regard to construction within the floodplain to further minimize potential impacts.

#### **5.21.10 Hazardous/Regulated Materials**

The LRT Build Alternative has the potential to affect or be affected by hazardous waste sites, both known and unknown. The related projects would also have this same potential. No adverse impacts will occur with proper mitigation in accordance with applicable hazardous waste laws, statutes, and regulations. Hazardous materials that may be encountered during construction of the LRT Build Alternative would be removed or treated in place, thus reducing the potential for cumulative impacts.

#### **5.21.11 Safety and Security**

The number of vehicular accidents may increase in the corridor due to the increased number of vehicles traveling to station locations. The cumulative effect of new development would also increase the inflow of automobiles to station areas thus increasing accident potential. However, rail access provides an alternative to the automobile thus reducing this accident potential. Corridor wide the potential cumulative effect of increased vehicle trips may be counterbalanced by a slight mode shift away from autos toward public transportation. This effect could be argued to reduce cumulative accident potential, rather than add to it.

The addition of new LRT stations may add to the number of locations in the corridor where crimes could occur. However, the additional activity concentrated around the stations may actually reduce crime. DART employs crime prevention through environmental design (CPTED) measures to reduce the risk of crime at its stations. The possible number of increased crimes occurring at stations is expected to be small. Even with planned development in the corridor, the magnitude of



additional criminal activities is not expected to be significant on a cumulative basis. The LRT Build Alternative could cause a slight increase in demand for additional fire or police personnel. This increase, if it occurs, would be characterized as a cumulative impact, although the magnitude is not considered significant. Given that construction of the LRT Build Alternative would happen over a period of years and in different phases, impacts on fire and police services from this project and in conjunction with other development projects in the area may result in short-term cumulative impacts that would be less than significant due to advanced notices on traffic detours and closures.

Due to the distance from any DFW International Airport activity centers, the proposed action is not anticipated to present any airport security issues. However, the future DFW LRT Extension will bring light rail directly to the central terminal area. The environmental documentation for the future DFW LRT Extension will address the safety and security of the extension and the cumulative impacts of connecting the entire DART LRT system to the airport's central terminal area.

#### **5.21.12 Historic and Archaeological Resources**

All project-related impacts on historic and archaeological resources will be mitigated through application of NEPA and Section 106 of the National Historic Preservation Act regulations. All other projects will evaluate their potential impact to historic and archeological resources separately, particularly those projects using federal funds, which require the application of NEPA and Section 106 of the National Historic Preservation Act regulations. The proposed project will not cause a cumulative impact on cultural resources.

#### **5.21.13 Public Parks and Recreation Areas**

The proposed project has no constructive use impacts on public parks and recreation areas within the study area. There are direct and temporary uses of public park property identified for the City of Dallas' Trinity River Elm Fork Greenbelt (L. B. Houston Park), where the Build Alternative would cross the floodplain of the Elm Fork of the Trinity Rive. These impacts are discussed further in Section 5.21.14. These impacts from the LRT Build Alternative are not expected to have cumulative effects on this or other park properties or resources.

#### **5.21.14 Section 4(f) and Section 6(f) Impacts**

There are direct and temporary uses of public park property identified for the City of Dallas' Trinity River Elm Fork Greenbelt (L. B. Houston Park). These impacts and proposed mitigation measures are discussed further in Chapter 6. The LRT Build Alternative design has avoided and minimized use of public park property. No prudent and feasible alternative exists. Section 4(f) and Section 6(f) regulations provide for a process to minimize the direct and temporary impacts, and to identify and purchase replacement property for that used for the proposed project. This process results in replacement property that is equivalent in usefulness and location to the property being converted from park use for the proposed project. This may result in expansion to another nearby Dallas park, and may have a cumulative positive impact which partly offsets the negative impacts of the proposed project. No other cumulative impacts to other park properties in the project corridor are anticipated.

#### **5.21.15 Impacts to Airport Property**

The proposed project touches the eastern portion of DFWIA but does not penetrate into operational areas of the airport. **Table 5-24** indicates that there are no major project impacts related to FAA Environmental Impact Assessment Guidance. A recently conducted Math Modeling Study of the Instrument Landing System at DFW Airport also concluded "there will be no significant effect on the performance of Runway 31 R localizer from power wires and rail cars."

The incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future action is not anticipated to have significant impacts to airport property and operations.



The environmental documentation for the future DFW LRT Extension Project will consider the cumulative effects of extending the alignment into the Central Terminal Area as well as its interface with the FWTA rail extension into the airport. Future modeling will analyze these project impacts to airport operations. Additionally, the incremental impacts of how these two transit improvements will be analyzed as they relate to other proposed airport improvements including taxiway extensions and perimeter roads. The cumulative impacts of all appropriate projects will be considered during the environmental phase of the extension project.

At present, it is too early to foresee the cumulative impacts of the transit projects that will extend to the Central Terminal Area of Dallas/Fort Worth International Airport; however, the proposed projects are supported by the airport and are proposed to be incorporated into the Airport Layout Plan, subject to FAA approval.

#### **5.21.16 Summary**

The incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future action is not anticipated to be significant. In general, the implementation of a light rail transit system tends to have a very positive impact on existing and proposed projects thus offsetting the cumulative impacts. Some of the direct benefits of transit include improved access, reduced parking requirements and reduced traffic congestion. This results in positive impacts on air quality and water quality. Light rail construction has also been demonstrated to have a very positive impact on land use and land value.

No significant environmental impacts have been identified for the Northwest Corridor to Irving/DFW LRT. DART reduced the potential for incremental impact to other past, present, and reasonably foreseeable future actions by working closely with the City of Dallas, City of Irving, TxDOT, NTTA, the University of Dallas, North Lake College, DFW Airport, DCURD, and private landowners and developers to develop a transit line that fits well within the existing and future environment. Additionally, the proposed action utilizes 2030 traffic projections and demographic forecasts, accounting for much of the foreseeable development and concomitant impacts.

Any future DART projects, such as the DFW LRT Extension into the Central Terminal Area will require additional environmental documentation. The environmental documentation for the future DFW LRT Extension will consider the cumulative impacts of all appropriate projects.