



Appendix B

Technical Memoranda and Reports

Technical memoranda and reports were prepared as independent documents to support the preparation of the Final Environmental Impact Statement (FEIS) for the Cotton Belt Corridor Regional Rail Project. Information from these documents was incorporated into the FEIS to provide information on existing conditions, and in some cases assess potential impacts to the resources. Information contained in the FEIS is the most current and supersedes information in the technical memoranda and reports



B-3

Socioeconomic Impact

Assessment and Mitigation

Technical Memorandum



Technical Memorandum

Date: Friday, February 16, 2018

Project: Task Order 32 – Cotton Belt Corridor PE/EIS

To: John Hoppie, Project Manager, DART Capital Planning

From: Tom Shelton, GPC6 Program Manager

Subject: DART GPC VI – Contract C-2012668; Cotton Belt Corridor Environmental Socioeconomic Impact Assessment and Mitigation; HDR PN 10024656

Introduction: This Technical Memorandum identifies potential socioeconomic impacts associated with the proposed Build Alternative for the Dallas Area Rapid Transit (DART) Cotton Belt Corridor passenger rail project. The study area consists of approximately 0.25 mile on either side of the proposed alignment and a 0.5-mile radius around each proposed rail station. Potential impacts were evaluated according to the following socioeconomic characteristics: community facilities; community cohesion, including neighborhoods and schools; population demographics; employment and economic conditions. This assessment follows the methodology as described in the *Socioeconomic Analysis Methodology Technical Memorandum* approved by DART for the proposed project.

Project Description: The 26-mile Cotton Belt Corridor extends between Dallas/Fort Worth International Airport (DFW Airport) and Shiloh Road in Plano, Texas. The alignment traverses seven cities: Grapevine, Coppell, Dallas, Carrollton, Addison, Richardson and Plano. The Cotton Belt Project’s primary purpose is to provide passenger rail connections and service that will improve mobility, accessibility and system linkages to major employment, population and activity centers in the northern part of the DART Service Area. The Cotton Belt Project would interface with three DART Light Rail Transit (LRT) lines: the Red Line in Richardson/Plano, the Green Line in Carrollton and the Orange Line at DFW Airport. Also at DFW Airport, the project would connect to Fort Worth Transportation Authority’s TEX Rail Regional Rail Line to Fort Worth and the DFW Airport Skylink People Mover.

Objective: DART is preparing an Environmental Impact Statement to assess the impacts and benefits of rail passenger service on the Cotton Belt Corridor. Project oversight will be conducted by the Federal Transit Administration in cooperation with the Federal Railroad Administration and the Federal Aviation Administration.

Impact Assessment: The evaluation of potential impacts to socioeconomic resources resulting from the proposed Build Alternative is discussed in terms of short-term and long-term effects.



Short-term Effects

Short-term effects are temporary impacts from the construction of the proposed project. Detailed construction plans have not been determined yet; however, temporary impacts from construction noise and access changes are anticipated to affect socioeconomic resources. Noise associated with the construction of the proposed Build Alternative is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. Construction of proposed stations, tracks, rail crossings, bridges, and overpasses would result in some detours and lane closures. Although access would be maintained for all facilities and properties, alternate routes might result from temporary detours and lane closures.

The proposed Cotton Belt Corridor Build Alternative follows existing rail tracks and expands existing stations for the most part. The exceptions are the proposed sections on new location (the DFW Terminal B connection, the Cypress Waters alignment and the CityLine/Bush alignment) and the new proposed station locations (Cypress Waters, Knoll Trail, Preston Road, Coit Road, UT Dallas, 12th Street and Shiloh Road). The other proposed stations (DFW Terminal B, DFW North, Downtown Carrollton, Addison, and CityLine/Bush) are expansions and additions to existing stations. Additional disruptions may be experienced in areas at the proposed sections on new location and the new station locations due to a longer duration of construction resulting from new tracks and facilities to be built.

The North Dallas Eruv may also be affected by temporary construction impacts if markers are down causing a break in what is to be a continuous boundary. The Eruv must remain in good repair and with no breaks to be effective.

Long-term Effects

Long-term effects are permanent impacts resulting from the proposed project. These effects to socioeconomic resources were evaluated for community facilities, community cohesion, schools, demographics, employment and economic development.

Community Facilities

Existing community facilities assessed within the study area include community centers, places of worship, daycare centers, public service and government locations, medical facilities, and other areas of community importance. The *Socioeconomic Existing Conditions Technical Memorandum* provides a list and map of 110 community facilities inventoried and observed within the study area. Facilities not adjacent to the right-of-way (ROW) are unlikely to be adversely affected by noise or access effects. Of the community facilities inventoried, 28 are adjacent to the proposed Build Alternative. Many of these facilities are already adjacent to the existing rail tracks and are not considered to be adversely impacted. **Table 1** lists the community facilities which are adjacent to the proposed Build Alternative and describes any potential impacts anticipated for each facility. The Map Id number corresponds to the number previously associated with each facility as listed in Table 1 and shown on Exhibit 1 of the *Socioeconomic Existing Conditions Technical Memorandum*. Two fire departments are adjacent to the corridor on DFW Airport and in Coppell. A detailed discussion of potential impacts associated with emergency services such as police and fire is provided in the *Safety and Security Technical Memorandum*.



| Table 1: Community Facilities Adjacent to Cotton Belt Corridor Build Alternative | | | |
|---|--|-----------------------------|---|
| Map Id | Facility Name | Street Address | Description of Impact |
| Grapevine | | | |
| 1 | DFW Airport | 2400 Aviation Dr. | None; access improvements with DFW Terminal B Station |
| 2 | Comprehensive Women's Healthcare | 1054 Texan Tr. | None |
| 3 | Surgical Group of North Texas LLP | 1056 Texan Tr. | None |
| 4 | DFW Airport Fire Station 6 | 711 Regent Blvd. | None; access improvements |
| Coppell | | | |
| 6 | U.S. Postal Service Administration Offices | 951 Bethel Rd. | None |
| 7 | Coppell Fire Department Station 1 | 520 Southwestern Blvd. | None |
| 8 | Coppell Fire Department Administration | 500 Southwestern Blvd. | None |
| 9 | Coppell Utilities Department | 816 Coppell Rd. | None |
| 11 | W.W. Pinkerton Elementary School | 260 Southwestern Blvd. | Possible noise impact* |
| 12 | Roy C. Brock Center-Coppell ISD | 268 Southwestern Blvd. | None |
| 17 | Discover and Share Preschool | 1445 Riverchase Dr. | Possible noise impact* |
| Carrollton | | | |
| 20 | Valley Ranch Baptist Church | 1501 E. Belt Line Rd. | Possible noise impact* |
| 21 | Church on the Rock International/ Semihan Church | 1615 W. Belt Line Rd. | Possible noise impact* |
| 37 | Polk Middle School | 2001 Kelly Blvd. | Possible noise impact* |
| 38 | Islamic Association of Carrollton | 1901 Kelly Blvd. | Possible noise impact* |
| Addison | | | |
| 42 | Addison Airport | 4689 Eddie Rickenbacker St. | None |
| 45 | MGA Home Healthcare | 15601 Dallas Pkwy. | None |
| Dallas | | | |
| 52 | Fairhill School | 16150 Preston Rd. | Preston Rd. Station access |
| 57 | Ivy Montessori Academy | 6950 McCallum Blvd. | Possible noise impact* |
| 65 | Highland Springs Medical Center and Retirement Community | 8000 Frankford Rd. | Possible noise impact* |

| Table 1: Community Facilities Adjacent to Cotton Belt Corridor Build Alternative | | | |
|--|--|------------------------------|--|
| Map Id | Facility Name | Street Address | Description of Impact |
| Richardson | | | |
| 67 | UT Dallas Southwestern Clinical Center | 3000 Waterview Pkwy. | Access improvements with UT Dallas Station; Possible noise/vibration impact* |
| 68 | UT Dallas | 2801 Rutford Ave. | Access improvements with UT Dallas Station; Possible noise impact* |
| Plano | | | |
| 73 | World Ministry Fellowship Church | 801 E. Plano Pkwy., Ste. 150 | Possible noise impact* |
| 101 | U.S. Post Office - Plano | 1200 Jupiter Rd. | None |
| 102 | The Collinwood Care Center | 3100 S. Rigsbee Dr. | Possible noise impact* |
| 105 | Plano ISD, Shiloh Center | 3540 14th St. | None |
| 107 | Islamic Academy | 3544 14th St. | Possible noise impact* |
| 108 | Noori Masjid | 1251 Shiloh Rd. | Possible noise impact* |
| 109 | Dai Bi Buddhist Center | 3720 14th St. | Possible noise impact* |
| 110 | Sehion Mar Thoma Church | 3760 14th St. | Possible noise impact* |

Source: GPC6 Team, November 2017. * Quiet zones would mitigate the noise impacts at these community facilities and no additional noise mitigation is required. See the Noise and Vibration Technical Report for additional information.

As shown in **Table 1**, the primary potential impacts to adjacent facilities is noise. Without mitigation, the major source of potential noise impacts for the Cotton Belt Project is noise from train horns that would be sounded at the numerous at-grade crossings along the proposed rail alignment. The potential for vibration impacts was identified at three highly vibration-sensitive facilities located along the Cotton Belt Corridor in Richardson, including the UT Southwestern Medical Center Clinic, the Qorvo semiconductor facility and the Texas Instruments semiconductor facility. It is recommended that detailed, site-specific vibration studies be conducted at these facilities during project design to make a final determination regarding impacts and any required mitigation. Such studies should include ground-to-building vibration propagation testing as well as evaluations of the buildings and any sensitive equipment they may contain. Impacts due to noise and vibration are described further in the *Noise and Vibration Technical Report*.

Community facilities adjacent to the proposed alignment and a proposed station that are anticipated to be adversely impacted include the Fairhill School and the UT Dallas Southwestern Clinical Center. The Fairhill School and its facilities would be adjacent to the proposed Preston Road Station. There is an existing private access driveway and some vegetation that serve as a buffer between school buildings and the railroad ROW, and athletic fields are located immediately to the east. While there would be some increased pedestrian/bicycle traffic associated with this neighborhood station, there would not be parking or passenger drop off areas and potential impacts would be minimal. Given the adjacency, safety fencing



would be installed along the Cotton Belt Corridor ROW to separate uses. No noise or vibration impacts were projected at this location without quiet zones.

The UT Dallas Southwestern Clinical Center is directly adjacent to the alignment near the proposed UT Dallas Station, which is located approximately 600 feet to the east. As situated, the increased foot and vehicular traffic would not directly affect the clinic. The station would actually enhance access to the clinic by providing new pedestrian and automobile crossings of the rail. The station would also provide rail and bus access to the clinic. As noted above, site-specific vibration testing would be done during final design for this facility.

Community Cohesion

Community cohesion refers to the level of social interaction experienced within and across neighborhoods. There are many registered neighborhood associations, and homeowners' associations (HOAs) within the study area which serve to bind neighbors to one another under a common identity or set of ideals, and create more meaningful social interactions.

The three proposed sections on new location (the DFW Terminal B connection, the Cypress Waters alignment and the CityLine/Bush alignment) would not cause further divisions and adverse impacts to community cohesion because they would not divide any existing neighborhoods. The DFW Terminal B connection is located in non-residential areas and would not result in community cohesion effects. The Cypress Waters alignment may result in residential displacements; however, the residences to potentially be displaced are disconnected from any neighborhood associations or groups and would not result in community cohesion effects. The CityLine/Bush alignment is located along an undeveloped area across U.S. Highway 75; therefore, this alignment is not anticipated to impact the community cohesion of any neighborhoods.

The cities of Grapevine, Irving, Coppell, Richardson, Plano and the Town of Addison do not have subdivisions or neighborhoods that are divided by the proposed Build Alternative and would not have community cohesion effects. One neighborhood association in Carrollton (Old Downtown Carrollton Association) and several neighborhoods associations belonging to the North Dallas Neighborhood Alliance span the proposed Build Alternative. Impacts are not anticipated because these neighborhoods formed around and are already separated by the existing rail tracks. Access across the existing rail corridor would continue at designated street crossings as it does today.

In Carrollton, the Old Downtown Carrollton Association acknowledges that the downtown area would see an increase in passenger rail traffic based on the master plan for the area; and the relocation of Mercer Yard would result in a decrease in railroad switching activity. Positive impacts could also result from increased customer traffic to this area from the proposed Build Alternative.

In Dallas, only one specific neighborhood, Highlands of McKamy, traverses both sides of the proposed Build Alternative. The Highlands of McKamy I, II and III neighborhoods are located south of the alignment, and Highlands of McKamy IV and V is located to the north. Given that these two neighborhood subdivisions function as separate entities and are separated by Hillcrest Road and McCallum Boulevard,



the project would not affect community cohesion. For the broader north Dallas neighborhood area, there is the potential for adverse impacts resulting from increased rail traffic given that freight service has been abandoned since 2010. These potential impacts primarily relate to noise, vibration, traffic, safety, and visual which are addressed in separate technical memoranda. While there is no longer freight service and there could be informal crossing of the corridor between neighborhoods, the corridor remains private ROW and is not designated for such access. From a community and neighborhood cohesion perspective, no impacts are anticipated and access between neighborhoods would continue as it does today at designated public street crossings.

The North Dallas Eruv is within an approximate 2-mile radius centered around McCallum Boulevard and Hillcrest Road and includes several synagogues and day schools. The proposed Build Alternative may necessitate changes in the configuration of utility poles that delineate the Eruv boundary. These potential changes, as well as the potential construction of walls, fences or other structures or removal of vegetation associated with the proposed Build Alternative may impact the Eruv either positively or negatively. The potential effects from increased rail traffic may also disrupt the function of the Eruv.

Schools

The Cotton Belt Corridor predates the development of most schools in this area. As a result, many school attendance zones along the Cotton Belt Corridor use it as a logical boundary. However, some school attendance zones are intersected by the Cotton Belt Corridor, resulting in a potential impact. **Table 2** lists schools that have attendance zones traversing the proposed Build Alternative. The table also includes a summary of the walkability characteristics for affected neighborhoods (those located across the proposed alignment from their designated schools). Locations of these schools are shown on Exhibit 2 of the *Socioeconomic Existing Conditions Technical Memorandum*.

Table 2: Schools with Attendance Zones Crossing the Cotton Belt Corridor Build Alternative

| School Name | School District (ISD) | Likelihood of Impact | Neighborhood Distance from School |
|------------------------------|-------------------------------|----------------------|---|
| W.W. Pinkerton Elementary | Coppell | Low | Less than 0.5 mile from school |
| Barbara S. Austin Elementary | Coppell | Low | Over 2 miles from school |
| Mockingbird Elementary | Coppell | Low | Over 2 miles from school |
| Coppell Middle West | Coppell | Low | Approximately 1.5 miles from school |
| Coppell Middle East | Coppell | Low | Over 2 miles from school |
| Coppell High | Coppell | Low | Approximately 1.5 mile north of alignment |
| New Tech High | Coppell | Low | Approximately 1.5 mile north of alignment |
| Riverchase Elementary | Carrollton/ Farmers Branch | Low | Approximately 1 to 1.5 mile from school |
| Carrollton Elementary | Carrollton/ Farmers Branch | Moderate | Less than 0.5 mile from school |
| Country Place Elementary | Carrollton/ Farmers Branch | Low | No residences in areas south of the corridor |
| Barbara Bush Middle | Carrollton/ Farmers Branch | Moderate | Less than 1 mile from school |
| Ted Polk Middle | Carrollton/ Farmers Branch | Moderate | Less than 1 mile from school |
| DeWitt Perry Middle | Carrollton/ Farmers Branch | Moderate | Less than 1 mile from school |
| Newman Smith High | Carrollton/ Farmers Branch | Low/ Moderate | Approximately 1 mile from school |
| Ranchview High | Carrollton/ Farmers Branch | Low | Approximately 3 miles south of alignment |
| Junkins Elementary | Dallas | Low | No residences in areas across the corridor |
| Walker Bush Elementary | Dallas | Low | No direct access and over 3 miles from school |
| Walker Middle | Dallas | Low | Over 2 miles from school |
| White High | Dallas | Low | Over 2 miles from school |
| Brentfield Elementary | Richardson | Moderate | Approximately 0.5 mile from school |
| Parkhill Junior High | Richardson | Moderate | Approximately 0.5 mile from school |
| J.J. Pearce High | Richardson | Low | Approximately 2 miles from school |
| Aldridge Elementary | Plano | Moderate | Approximately 0.5 mile from school |
| Mendenhall Elementary | Plano | Low | Over 2 miles from school |
| Forman Elementary | Plano | Low | Over 2 miles from school |
| Jackson Elementary | Plano | Low | Over 2 miles from school |
| Frankford Middle | Plano | Moderate | Less than 1 mile from school |

Table 2: Schools with Attendance Zones Crossing the Cotton Belt Corridor Build Alternative

| School Name | School District (ISD) | Likelihood of Impact | Neighborhood Distance from School |
|------------------------|-----------------------|----------------------|--|
| Wilson Middle | Plano | Low | Approximately 1 mile from school but separated by President George Bush Turnpike |
| Armstrong Middle | Plano | Low | Over 2 miles from school |
| Otto Middle | Plano | Low | Over 2 miles from school |
| Shepton High | Plano | Low | Over 2 miles from school |
| Vines High | Plano | Low | Over 2 miles from school |
| Williams High | Plano | Low | Over 2 miles from school |
| McMillen High | Plano | Low | Over 2 miles from school |
| Plano West Senior High | Plano | Low | Over 2 miles from school |
| Plano East Senior High | Plano | Low | Over 2 miles from school |
| Plano Senior High | Plano | Low | Over 2 miles from school |

Source: GPC6 Team, August 2017.

For many schools along the corridor, the neighborhoods separated by the proposed Build Alternative are also separated from their schools by long distances or other barriers, making non-motorized school access unlikely. Neighborhoods more than 1 mile from a school, separated by a major transportation facility, or disconnected by neighborhood design were not considered walkable. For this reason, most schools in **Table 2** have a low impact potential and adverse impacts to walking or biking access as a result of the proposed Build Alternative are not anticipated. It should be noted that private Fairhill School in north Dallas was assessed in the Community Facilities section as it draws from a wider area of the region and is not bound by an attendance zone.

No Dallas ISD schools are likely to have students cross the Build Alternative to walk or bike to school; therefore, Dallas ISD schools would not be impacted by the proposed project. Conversely, one school in Coppell ISD, five schools in Carrollton/Farmers Branch ISD, two schools in Richardson ISD, and two schools in Plano ISD have students who are likely to cross the Build Alternative to walk or bike to school and have the potential to be impacted by the proposed project. It should be noted that because freight rail currently operates along the existing railroad corridor in most of these school districts, school children presently crossing the tracks are already aware of trains crossing their path and the security measures at the at-grade intersections. Only the north Dallas area within Richardson ISD does not have active freight so some facilities and children may be unfamiliar with safety practices.

Coppell ISD

Coppell ISD has one school likely to have students crossing the Build Alternative and anticipated to have a moderate potential for impact to school accessibility. W.W. Pinkerton Elementary is located south of the existing railroad corridor, and west of Denton Tap Road. Its attendance zone extends both north and south of the existing railroad; however, the proposed alignment is shifted approximately 600 feet south of the school. The alignment rejoins the existing railroad corridor west of the school. Several



neighborhoods north of the school are close enough that walking or biking to school is likely to occur, especially where no major roadways create barriers to non-motorized travel between these neighborhoods and W.W. Pinkerton Elementary. Students walking along Denton Tap Road would not cross the passenger rail alignment. Students walking from one neighborhood northwest of the school would cross the passenger rail line twice, once at Coppell Road and once at Southwestern Boulevard. Although the school attendance zone extends south of the Cypress Waters Alignment, no residential neighborhoods are located to the south.

No other Coppell schools that have attendance zones that cross the Build Alternative are likely to be affected by the proposed project because students are not likely to walk or bike to school. However, a future middle school site was identified off Van Zandt Drive south of the corridor, but its attendance zone has not yet been determined to assess for potential impacts resulting from the proposed project.

Carrollton/Farmers Branch ISD

Only one of the three elementary schools with an attendance zone that traverse the Build Alternative is likely to have students walk or bike to school and is anticipated to have a moderate impact potential to school accessibility. Carrollton Elementary is located just south of the Cotton Belt Corridor on the east side of Perry Road. The attendance zone for Carrollton Elementary largely extends to the area south of the Cotton Belt Corridor, with one exception: students must cross the Cotton Belt Corridor to walk or bike to school if they live in the Woodcrest Estates neighborhood, which is nestled to the north between the Cotton Belt and BNSF corridors. The school is located approximately 0.4 mile from the nearest entrance to the neighborhood on Cecil Drive off Perry Road North, and the only formal crossing near this neighborhood is located at Perry Road North which is an at-grade crossing with railroad gates and flashers.

All three middle schools have moderate potential for impacts to school accessibility from the proposed project. DeWitt Perry Middle School is just across Perry Road from Carrollton Elementary and has the same access conditions as described above. Barbara Bush Middle School, in the City of Irving, is part of the Carrollton/Farmers Branch ISD and located south of the Cotton Belt Corridor on Cowboys Parkway at MacArthur Boulevard. The school's attendance zone encompasses areas both north and south of the Cotton Belt Corridor. Two large apartment complexes lie just north of Belt Line Road and the Cotton Belt Corridor, and are within 1 mile of the school, making it common for students to walk or bike at this crossing. Ted Polk Middle School is located north of the proposed alignment and west of Kelly Boulevard. The attendance zone for this school extends south to Belt Line Road and west to Josey Lane. Most properties south of the Build Alternative are industrial or commercial; however, a few single-family and multi-family residences south of the corridor and Country Club Drive fall within the attendance zone. These properties are approximately 0.8 mile from Ted Polk Middle School, by way of Country Club Drive and the rail crossing at Kelly Boulevard.

One high school, Newman Smith High School, is located less than 1 mile north of the Build Alternative along Josey Lane and anticipated to have a moderate potential for impacts to school accessibility from the proposed project. Students living in the neighborhood south of the alignment and east of Josey Lane would need to cross the Build Alternative as well as Keller Springs Road to access the school. Because



these are older students, and the walking and biking distance would be approximately 1 mile, some non-motorized travel is possible.

Richardson ISD

Two Richardson ISD schools are located in the North Dallas area with attendance zones that traverse the Build Alternative and that are likely to have students crossing the proposed alignment. It is anticipated that the Build Alternative would have a moderate potential for impact to school accessibility for these schools. Brentfield Elementary and Parkhill Junior High are located southeast of the Cotton Belt Corridor on Brentfield Drive and Shadybank Road, respectively. The attendance zones for both of these schools encompass the residential area northwest of the existing railroad corridor and are bounded by approximately McCallum Boulevard and Preston Road. The distance from Brentfield Elementary to the nearest neighborhood west of the Cotton Belt Corridor is approximately 0.6 mile along Davenport Road/Brentfield Drive. The distance from Parkhill Junior High across the street on Shadybank Road is approximately 0.7 mile. Apartments are located on the west side of the Davenport Road grade crossing, so it is very likely that this route is used for walking and biking to the elementary and junior high schools serving the area. Along St. Anne Street and Campbell Road, the schools are also approximately 0.6 mile from another apartment complex, located just west of the Campbell Road grade crossing. Thus, Campbell Road is also a likely pedestrian and bicycle route to school. The second Davenport Road crossing (north of Campbell Road) is approximately 0.8 mile from the schools and is in a single-family residential area. This second crossing of Davenport Road is a primary north-south access path to the schools, and would require crossing both the Cotton Belt Corridor and Campbell Road. All walking/biking routes would occur along existing streets with new controlled crossings at the project alignment.

Plano ISD

The Plano ISD schools with students likely walking or biking to school across the Build Alternative are Aldridge Elementary and Frankford Middle School. Although the attendance zone for Aldridge Elementary in Richardson crosses the alignment, it is anticipated the Build Alternative would have low potential for impact to accessibility for this school. Students would freely cross the proposed alignment at grade-separated crossings at Custer Road or Renner Road to walk or bike to the school.

Frankford Middle School is located in Dallas just north of the Build Alternative on Osage Plaza Parkway. A small portion of its attendance zone extends south of the Cotton Belt Corridor. This area consists primarily of multi-family residences, so it is likely that middle school students may walk or bike to school. On the eastern edge of the zone, Coit Road would be grade separated allowing an unrestricted crossing of the alignment. Two potential at-grade rail crossings give access to the school from the south. The distance is 0.5 mile from the middle of the neighborhood by way of Dickerson Street. The distance to the school is 0.7 mile for residences on the western side of the neighborhood, crossing at Meandering Way and using the pedestrian and bicycle path. The southwestern portion of this neighborhood also borders the Hillcrest Road and McCallum Boulevard rail crossings; however, it is not likely these crossings would be used to access the school. It is anticipated that the Build Alternative would have moderate potential for impact to accessibility to Frankford Middle School.



Population Demographics

No adverse impacts to demographics are anticipated from the proposed project. Potential changes in existing demographics may occur; however, additional passenger rail service would not alone cause substantial changes to the demographics of any communities along the project corridor as population changes depend on various economic and social factors independent of the proposed project. Although direct impacts to population demographics are not anticipated, potential indirect and cumulative impacts are further discussed in the *Indirect and Cumulative Impacts Assessment and Mitigation Technical Memorandum*.

The study area also has some areas of transportation-disadvantaged population, which are generally those without automobiles, minority, or low-income persons. Dallas County and Collin County have 29% and 24% minority populations, respectively. Dallas has 7% households with no vehicle available, while Collin County is lower at 3%. In general, the study area has some pockets of transportation-disadvantaged populations. These are primarily in the Downtown Carrollton area, around Coit Road and northeast of UT Dallas, and around 12th Street and near Shiloh Road. While the *Environmental Justice Impacts and Mitigation Technical Memorandum* provides a detailed assessment of potential impacts to these populations, the proposed project would improve overall mobility for transportation-disadvantaged populations by providing another mobility option to the numerous employment centers along the corridor. According to the NCTCOG, study area employment is anticipated to grow from 208,134 to 281,094 by the year 2040. With transfers available from rail and bus at key locations along the corridor, overall access to jobs would be improved for people around the region.

Employment

Overall, employment would benefit from transit-oriented development (TOD) and an additional method of transportation that the proposed project would provide for nearby businesses. Commercial displacements may result from the new alignment sections and proposed stations; however, no substantial adverse impacts to employment are anticipated from the proposed project. The project is anticipated to benefit employment by making locations along the corridor more desirable for businesses to locate. The No-Build Alternative would not provide this enhanced access and could adversely impact overall job growth within the corridor.

A total of 66 major employers were identified in the *Socioeconomic Existing Conditions Technical Memorandum*. Of these, approximately 10 are adjacent to the Build Alternative and several major employers would be within walking distance of a proposed station (1 mile or less) and would benefit from having access to a rail station. **Table 3** lists the major employers that are adjacent to the Build Alternative, adjacent to the Build Alternative and a station, and approximately 1 mile or less from a station. The Map Id number corresponds to the number previously associated with each employer as listed in Table 6 and shown on Exhibit 3 of the *Socioeconomic Existing Conditions Technical Memorandum*. None of these major employers would be displaced by the proposed project. In addition, access to their facilities would not be adversely affected. Therefore, these major employers are not expected to be adversely impacted by the proposed project.

Table 3: Major Employers and the Cotton Belt Corridor Build Alternative

| Map Id | Employer | Address | Employment Range | Location |
|--------|---|--|-------------------|---|
| 1A | DFW Airport | 2400 Aviation Dr., DFW Airport | 50,000- 75,000 | Adjacent to Build Alternative and DFW Terminal B Station |
| 4 | IBM Global Solution Center | 1177 S. Belt Line Rd., Coppell | 500-1,000 | Approximately 1 mile from Cypress Waters/North Lake Station |
| 6 | Haverty's | 770 Gateway Blvd., Coppell | 250-500 | Adjacent to Build Alternative |
| 7 | Minyard Food Stores, Inc. | 777 S. Freeport Pkwy., Coppell | 500-1,000 | Adjacent to Build Alternative |
| 8 | U.S. Postal Service Administrative Offices | 951 W. Bethel Rd., Coppell | 1,000-2,500 | Adjacent to Build Alternative |
| 12 | Global Furniture Group | 2025 W. Belt Line Rd., Ste. 100, Carrollton | 500-1,000 | Adjacent to Build Alternative |
| 13 | Jack Black Grooming Products | 2025 W. Belt Line Rd., Ste. 120, Carrollton | 500-1,000 | Adjacent to Build Alternative |
| 14 | Tidel Engineering LP | 2025 W. Belt Line Rd., Ste. 114, Carrollton | 500-1,000 | Adjacent to Build Alternative |
| 15 | Ykkap America | 2025 W. Belt Line Rd., Ste. 130, Carrollton | 500-1,000 | Adjacent to Build Alternative |
| 21 | Bank of America | 16001 N. Dallas Pkwy., Addison | 2,000-3,000 | Less than 1 mile from Addison Station |
| 22 | Beal Bank | 15770 Dallas Pkwy., Addison | 250-500 | Less than 1 mile from Knoll Trail Station |
| 23 | Granite Properties | 15660 Dallas Pkwy., Addison | Under 250 | Less than 1 mile from Knoll Trail Station |
| 24 | United Surgical Partners International | 15305 Dallas Pkwy., Ste. 1600, Addison | 250-500 | Less than 0.5 mile from Addison Station |
| 25 | Zurich Insurance | 15303 Dallas Pkwy., Ste. 800, Addison | 250-500 | Less than 0.5 mile from Addison Station |
| 26 | Hilton Worldwide Inc. | 15305 N. Dallas Pkwy., Ste. 600, Addison | 250-500 | Less than 0.5 mile from Addison Station |
| 27 | Intercontinental Hotel Dallas | 15201 Dallas Pkwy., Addison | 250-500 | Less than 0.5 mile from Addison Station |
| 28 | Concentra Inc. | 5080 Spectrum Dr., Addison | 250-500 | Approximately 0.5 mile from Addison Station |
| 29 | Dallas Marriott Quorum | 14901 Dallas Pkwy., Dallas | 250-500 | Approximately 1 mile from Addison Station but must cross Belt Line Road |

Table 3: Major Employers and the Cotton Belt Corridor Build Alternative

| Map Id | Employer | Address | Employment Range | Location |
|--------|--|--|------------------|---|
| 30 | Prestonwood Town Center | 325 Belt Line Rd., Dallas | 1,000-2,500 | Less than 1 mile from Knoll Trail Station |
| 32 | Bombardier | 3400 Waterview Pkwy., Ste. 400, Richardson | 250-500 | Adjacent to Build Alternative and UT Dallas Station |
| 33 | Hewlett-Packard | 3000 Waterview Pkwy., Richardson | 1,000-2,500 | Adjacent to Build Alternative and UT Dallas Station |
| 34 | Dallas International School | 17811 Waterview Pkwy., Dallas | 250-500 | Less than 1 mile from UT Dallas Station |
| 35 | UT Dallas | 800 W. Campbell Rd., Richardson | 2,500-4,000 | Adjacent to Build Alternative and UT Dallas Station |
| 37 | Qorvo | 500 W. Renner Rd., Richardson | 500-1,000 | Adjacent to Build Alternative |
| 38 | Texas Instruments | 300 W. Renner Rd., Richardson | 500-1,000 | Adjacent to Build Alternative |
| 43 | Gay McCall Isaacks Gordon and Roberts | 777 E. 15th St., Plano | 250-500 | Less than 1 mile from 12th Street Station |
| 44 | Bracane Company | 1201 E. 15th St., Ste. 204, Plano | 250-500 | Less than 0.5 mile from 12th Street Station |
| 46 | State Farm Insurance | 1251 State St., Richardson | over 5,000 | Adjacent to Build Alternative and CityLine/Bush Station |
| 47 | Regal Research and Manufacturing Company | 1200 E. Plano Pkwy., Plano | 250-500 | Less than 1 mile from 12th Street Station |
| 48 | Raytheon | 1717 E. CityLine Dr., Richardson | 1,000-2,500 | Approximately 1 mile from CityLine/Bush Station |
| 49 | XO Communications, Inc. | 2700 Summit Ave., Ste. 100, Plano | 500-1,000 | Approximately 1 mile from Shiloh Road Station |
| 50 | Asociar, LLC | 2800 E. Plano Pkwy., Ste. 400, Plano | 250-500 | Less than 1 mile from Shiloh Road Station |
| 51 | Eltak | 2925 E. Plano Pkwy., Plano | 250-500 | Less than 1 mile from Shiloh Road Station |
| 52 | CVE Technologies Group | 3000 E. Plano Pkwy., Plano | 500-1,000 | Less than 1 mile from Shiloh Road Station |
| 53 | Investor's Business Daily (see O'Neil Digital Solutions) | 3100 E. Plano Pkwy., Plano | 250-500 | Less than 1 mile from Shiloh Road Station |

Table 3: Major Employers and the Cotton Belt Corridor Build Alternative

| Map Id | Employer | Address | Employment Range | Location |
|--------|---|---------------------------------------|------------------|---|
| 54 | O'Neil Digital Solutions | 3100 E. Plano Pkwy., Plano | 250-500 | Less than 1 mile from Shiloh Road Station |
| 55 | Air System Components | 605 Shiloh Rd., Plano | 250-500 | Less than 0.5 mile from Shiloh Road Station |
| 56 | Flex (formerly Flextronics) | 600 Shiloh Rd., Plano | 250-500 | Less than 0.5 mile from Shiloh Road Station |
| 57 | Bowhead Manufacturing & Products (UICGS) | 1000 Shiloh Rd., Ste. 500, Plano | 250-500 | Adjacent to Build Alternative and Shiloh Road Station |
| 58 | Genband | 3605 E. Plano Pkwy., Plano | 250-500 | Adjacent to Build Alternative and Shiloh Road Station |
| 59 | Natural Polymer International Corp (NPIC) | 3601 E. Plano Pkwy., Ste. 150, Plano | 250-500 | Adjacent to Build Alternative and less than 0.5 mile from Shiloh Road Station |
| 60 | Precision Technology, Inc. | 3601 E. Plano Pkwy., Ste. 200, Plano | 250-500 | Adjacent to Build Alternative and less than 0.5 mile from Shiloh Road Station |
| 61 | GeoMap Co. | 110 Geomap Ln., Plano | 250-500 | Less than 1 mile from Shiloh Road Station |
| 62 | Airbus Defense and Space | 3801 E. Plano Pkwy., Ste. #200, Plano | 250-500 | Less than 1 mile from Shiloh Road Station |
| 63 | Plano Data | 3901 E. Plano Pkwy., Plano | 250-500 | Less than 1 mile from Shiloh Road Station |
| 64 | I2r Integrity Integration Resources | 4001 E. Plano Pkwy., Plano | 250-500 | Less than 1 mile from Shiloh Road Station |
| 65 | Raytheon | 4101 E. Plano Pkwy., Plano | 500-1,000 | Less than 1 mile from Shiloh Road Station |

Source: Staff input from Cities of Dallas, Plano, Richardson, Carrollton, Coppell, and Town of Addison, April 2017 and location description from GPC6 Team, August 2017.

Construction of the Cotton Belt Project would have direct and indirect employment impacts in the local economy. Direct impacts would result from construction labor; employment related to production of goods and materials for the project; and design, engineering and architectural services employment. Indirect (supplier) and induced impacts would result from the “multiplier effect” of these expenditures in the local economy. There are several models or methodologies that can be used to estimate employment impacts based on using multipliers and the project cost. The American Public Transportation Association (APTA) estimates approximately 24,000 jobs created per \$1 billion of capital spending. The current working estimate for the project (excluding real estate, vehicles and unallocated contingency) is just over



\$1 billion; therefore, approximately 24,000 jobs are estimated. Based on APTA's estimate, this can be expected to be split at about 8,200 direct, 7,900 indirect, and 7,700 induced jobs. As with all projects, duration of jobs will vary with some lasting months and others lasting years. After construction is complete, some permanent jobs would be created to operate and maintain the service, which would in turn have a multiplier effect on the local economy.

Economic Development

No adverse impacts to economic development are anticipated from the proposed project. Economic development would likely benefit from the project and continued TOD in accordance with local plans and policies. Potential development and TOD opportunities are anticipated at the DFW North, Cypress Waters, Downtown Carrollton, Addison, Coit Road, UT Dallas, and 12th Street stations. New alignment sections and new station locations may result in some commercial displacements which is further discussed in the *Acquisitions and Displacements Technical Memorandum*. These displacements, however, would not result in a substantial impact to the overall economy and economic development of the areas along the corridor.

Mitigation: Potential adverse impacts to the function of two community facilities (the Fairhill School and the UT Dallas Southwestern Clinical Center) were evaluated. Safety fencing would be provided to separate the corridor and the proposed Preston Road Station from the Fairhill School property to mitigate potential access and safety impacts. Potential noise impacts to UT Southwestern Clinical Center could be mitigated through the implementation of quiet zones. A detailed vibration analysis will be done for the UT Southwestern Clinical Center, the Qorvo semiconductor facility and the Texas Instruments semiconductor facility during final design to determine if mitigation is required. For other community facilities listed in **Table 1**, the primary recommended mitigation measure is the implementation of 37 quiet zones throughout the Cotton Belt Corridor. Additional impacts due to noise are described in more detail in the *Noise and Vibration Technical Report*.

Two areas (Old Downtown Carrollton and North Dallas) were evaluated for potential impacts to community cohesion as a result of the Build Alternative. These impacts are not considered to be substantial and would not require mitigation. DART would provide safe crossings at all existing streets currently crossing the Cotton Belt Corridor in these areas. Although not specifically a mitigation measure, DART's action to abandon freight traffic through the north Dallas part of the corridor in 2010, permanently removed freight traffic from North Dallas, thus reducing the possibility of increased train movements above proposed Cotton Belt operations and eliminating crossing events of longer durations.

The North Dallas Eruv could experience temporary adverse impacts as a result of the Build Alternative at Coit Road. As design progresses, utility poles at Coit Road may be relocated. Additional design and siting of any relocations may be necessary. DART would coordinate with the City of Dallas to minimize any effects and avoid any disruptions to the existing city ordinance. In addition, the affected community should be engaged during project design and construction to avoid and minimize impacts and to assist with proposed solutions. During construction, attempts should be made to avoid disruption on Sabbath days.



The following schools have been identified as having moderate potential for impacts to access because their attendance zones cross the Build Alternative with pedestrian accessibility. Potential impacts to these schools could be mitigated through the addition of enhanced safety features in addition to the standard at-grade crossing elements. These additional features could include flashing signals, pedestrian gates, enhanced signage or striping, and/or tactile strips. Use of these additional features will be determined during final design in consultation with school districts.

- W.W. Pinkerton Elementary
- Carrollton Elementary
- Barbara Bush Middle
- Ted Polk Middle
- DeWitt Perry Middle
- Newman Smith High
- Brentfield Elementary
- Parkhill Junior High
- Frankford Middle

In addition, DART has a comprehensive transit education program used at schools and other community organizations. DART will coordinate with schools and neighborhoods in the corridor to provide these education sessions prior to operations.

No adverse impacts to demographics, employment, or economic development are anticipated; therefore, no mitigation is proposed.