

North Central Texas
Council of Governments



DART Red & Blue Line Corridors Last Mile Connections Project

Final Report

City of Garland

December 7, 2020



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1. Introduction

One of the biggest challenges our nation's transit agencies face is finding a way to increase ridership in light of limited revenues. As is the case with many American cities, large portions of Dallas and its adjacent suburban areas have a relatively low population density level, which may make travel by transit a less viable option.

As an indication of these preferences, population density has been growing near transit stations along the Dallas Area Rapid Transit (DART) Blue and Red lines in the cities of Dallas, Garland, Plano, and Richardson. As ridership increases, the effects of existing gaps in infrastructure or barriers to pedestrian and bicycle accessibility at DART stations becomes more evident. These barriers have the potential to suppress the demand for rail traffic, increase motorized traffic to and from the rail stations, or increase safety risks for the roadway's most vulnerable users.

Coordination between transit agencies and city transportation offices is necessary in targeting first and last mile improvements that produce the greatest benefits while planning for anticipated costs. In support of these efforts, the North Central Texas Council of Governments (NCTCOG) initiated this study to verify exiting needs and to prioritize identified improvements for twenty-eight stations and their adjacent developed areas within the cities of Dallas, Garland, Plano, and Richardson.

1.1 Objectives

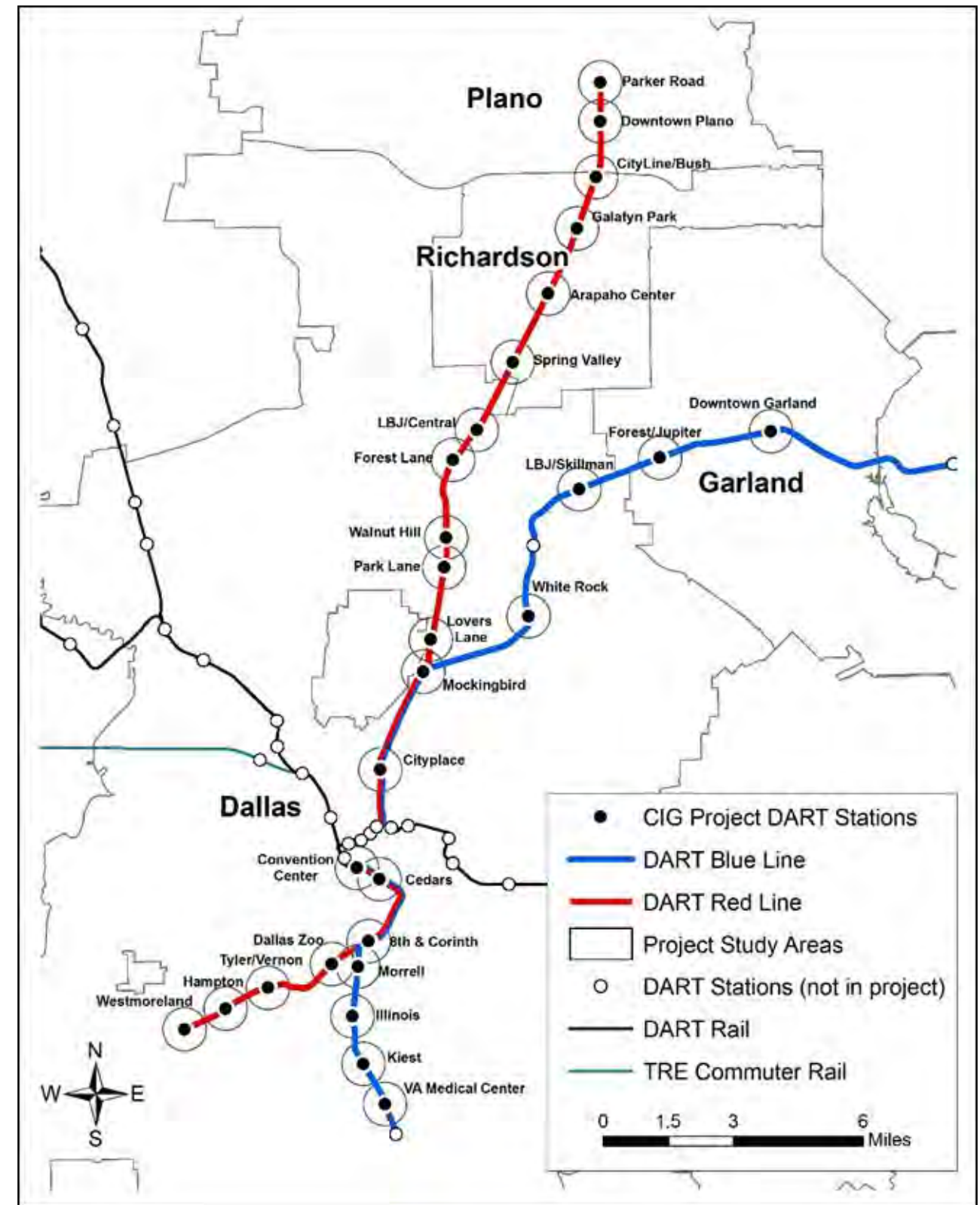
The project's objective is to provide opportunities for the greatest number of additional people to walk or bike to DART stations by identifying necessary sidewalk, shared use path, crosswalk connections, and related infrastructure within and surrounding the various DART stations. This was accomplished by:

- Conducting field investigation of existing pedestrian and bicycle infrastructure in the study area.
- Verifying the need for recommended pedestrian and bicycle improvements in priority corridors identified by NCTCOG to improve access and connectivity to light rail stations for the greatest number and density of residents and workers, thus increasing potential transit ridership.
- Identifying additional improvements based on field review, as necessary.
- Reviewing and updating NCTCOG's prior draft project prioritization of improvements based on information gathered during field review, engineering judgment, and criteria to be coordinated with City and DART staff stakeholders.
- Developing opinions of probable cost, and schematics for key pedestrian and bicycle improvements at rail stations and along prioritized routes to stations.

1.2 Study Area

The study area focused on the twenty-eight DART light rail stations built prior to 2004, included in the Red and Blue Line Platform Extension Project corridors, as shown in Figure 1.

Figure 1: Map of Study Area DART Stations



These stations are part of the Federal Transit Administration (FTA) Core Capacity Enhancement Capital Investment Grant, which made them eligible for FTA planning funds. Per FTA guidance, the one-half mile radius from the station is the effective planning area for transit-oriented development (TOD). These DART rail stations and their adjacent developed areas are located in the cities of Dallas, Garland, Plano, and Richardson.

While the intent of the planning work was to create corridor-level planning recommendations, not all areas surrounding all stations were reviewed using the same level of detail as part of this study; rather, strategic streets and sites within a broad selection of stations that were expected to be most cost effective were targeted for more thorough review.

1.3 Station Numbering & Report Organization

The system developed to organize improvements identified in the deliverables is illustrated in Figure 2. Each red or blue colored box in the figure represents a Red or Blue Line DART station respectively, arranged geographically from north to south. Purple boxes represent stations where the Red and Blue Lines run concurrently on the same alignment. Two-digit alpha-numeric codes assigned to each station are shown to the left of each box.

This report is organized for specific use by the City of Garland. Other volumes of this report have been provided to other project stakeholders (NCTCOG, DART, Dallas, Plano, and Richardson) which include similar details relevant to their jurisdictions. Figures common to all volumes of the report are numbered 1, 2, 3, etc. Figures specific to the City of Garland have figure numbers beginning with the code (3A or 3B) assigned to each station.

2. Methodology

The consultant group conducted field investigations for each of the twenty-eight DART station properties and surrounding one-half mile areas within the study area to examine existing conditions of pedestrian and bicycle infrastructure and to determine potential improvements. Field visits for each station were made between July 2018 and January 2019. Specific dates are listed in Appendix A.

2.1 Field Survey (DART Station Properties)

The consultant group documented the existing pedestrian, bicycle, bus, and motor vehicle circulation and patterns, as well as the wayfinding, signage, and lighting at each station. Potential station-

Figure 2: Project Station Numbering Schematic

City	Station ID	Red Line	Station ID	Blue Line
Plano	1A	Parker Road		
	1B	Downtown Plano		
	1C	City Line/Bush		
Richardson	2A	Galatyn Park		
	2B	Arapaho Center		
	2C	Spring Valley		
Garland			3A	Downtown Garland*
			3B	Forest/Jupiter*
Dallas	3C	LBJ/Central		
	3D	Forest Lane		
	4A	Walnut Hill		
	4B	Park Lane	4E	LBJ/Skillman
	4C	Lovers Lane*	4F	White Rock
	4D	Mockingbird		
	8A	Cityplace		
	8B	Convention Center		
	8C	Cedars		
	5A	8th & Corinth		
	5B	Dallas Zoo*	5C	Morrell
	6A	Tyler Vernon	7A	Illinois
	6B	Hampton	7B	Kiest
	6C	Westmoreland	7C	VA Medical Center

* Station with high priority improvements for 15% design

area improvements were then identified, including sidewalks, curb cuts, crosswalks, shared use paths, lighting and wayfinding, among others.

In many locations, signage for motorized and nonmotorized users needs to be updated in order to conform with the Manual on Uniform Traffic Control Devices (MUTCD).

Many pedestrian facilities were observed to be non-compliant with Americans with Disabilities Act (ADA) regulations. While a full inventory of all ADA infrastructure was outside the scope of this study, some example problems have been identified in the recommendations. It is recommended that DART conduct complete accessibility reviews to identify and correct all such concerns within DART station properties.

2.2 Field Survey (Half-Mile Radii)

Inventories were developed of all proposed improvements within one-quarter mile of each station. Streets within one-quarter mile where existing sidewalks had been preliminarily identified as acceptable condition by NCTCOG were reviewed quickly by a combination of walking, biking, and/or driving. Within one-half mile of each station, the consultant team also reviewed corridors labeled as "Primary Routes" on NCTCOG's prior in-house mapping. Of the Primary Routes, certain corridors in Garland and Dallas (that will be identified later in those cities versions of this report) had been identified by NCTCOG for preliminary engineering with 15 percent design schematic development. These select corridors received special attention during the field surveys to verify feasibility of construction.

The primary focus of data collection efforts was information about major barriers to walking or biking to the stations. These included:

- Missing sidewalk links
- Unprotected crossings
- Proximity to high-speed auto traffic
- Multi-lane crossings
- Fences & landscaping

Map data from previous projects was reviewed revealing many locations where existing conditions had changed since NCTCOG's initial analysis. For example, recent sidewalk damage resulted in some additional gaps. Other gaps previously inventoried by NCTCOG had since been constructed by adjacent development or City/TxDOT projects.

2.3 Sidewalk Condition Classification

Existing sidewalk conditions were classified as acceptable or unacceptable. As shown by the examples in Figure 3 on page 4, acceptable sidewalk was categorized as either "Excellent/Good" or "Fair." Unacceptable conditions included both "Poor" and "Nonexistent" sidewalk.

2.4 Incorporation of Other Data Sources

In some cases, additional improvements were constructed *after* the field work and were identified while conducting further review for prioritization on Google Maps aerial or Street View images. When such improvements were identified, the ArcGIS files were updated accordingly. However, other changes may have occurred between this review in Summer 2019 and the date of this report.

Information on several other sidewalk characteristics was compiled using Google Maps Street View in the office prior to the field visits and then verified by field personnel. For sidewalk segments, these characteristics included:

- Actual and effective sidewalk widths (accounting for obstructions such as utility poles)
- Type & width of buffer between sidewalk & street
- Presence & width of on-street parking, bike lanes & shoulder
- Presence of curb & gutter
- Posted speed limit
- Presence of lighting
- Number of adjacent travel lanes
- Adjacent land use category

The consultant team identified where sidewalk gaps are planned to be filled with shared use paths by reviewing NCTCOG's 2045 Regional Veloweb alignments adopted by the Regional Transportation Council. These were updated based on input from each city stakeholder about their most recent plans.

2.5 Identifying Crosswalks for Improvements

NCTCOG's prior in-house work identifying sidewalk gaps did not make any special considerations for crosswalks as distinct types of gaps in the pedestrian network. As part of this study, the consultants evaluated crosswalks at key locations, including:

- Existing signed and/or marked crosswalks crossing streets without signal or stop-sign control on the approaches being crossed.
- Unmarked/unsigned crossings of arterial or collector streets along radial lines to/from the station.
- Unmarked/unsigned crossings of arterial or collector streets not along radial lines to/from the station, but adjacent to significant pedestrian generators such as DART bus stops with significant levels of ridership, estimated by daily boarding and alighting data provided by DART.

Different types of field data were collected for signalized and unsignalized crosswalks during the field visits. At traffic signals, data collection included the number of lanes crossed in each direction, as well as the presence or absence of:

- Lighting
- Median refuge area
- Pedestrian ramps
- Countdown pedestrian signals
- Accessible pedestrian signals (APS)
- Pushbuttons (and if they were functional)

At unsignalized crosswalks, additional data collection items included:

- Whether the crosswalk had stop control for vehicular traffic or was uncontrolled.
- A two-minute count of traffic volumes crossing the crosswalk for locations where other daily traffic data from City or TxDOT sources was not available.
- Notes on any existing traffic control devices already present (such as signs, markings, or rectangular rapid flashing beacon (RRFB) assemblies).

Each input for both sidewalk segments and crosswalks were considered later for use in evaluating and prioritizing improvements, though some data were ultimately not utilized in order to simplify the prioritization process. Data collection forms (including handwritten notes taken on maps and pre-filled tables) are found in Appendix B.

2.6 Crosswalk Improvement Selection

At existing or proposed crosswalks without existing stop sign or signal control, potential improvements were evaluated based on guidance in the Federal Highway Administration's (FHWA) recent publication, "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations" (July 2018). This publication includes enhanced guidance on countermeasures that can or should be considered for uncontrolled crosswalks with various combinations of vehicular speed, traffic flow, and number of lanes to be crossed. A selection table reproduced from this publication and additional details about how the consultant team used it to develop crosswalk improvement recommendations are found in Appendix C.

Improvement options evaluated by this methodology include high visibility crosswalk markings, parking restrictions on the crosswalk approach, upgrading lighting, pedestrian crossing warning signs, "Advance Yield Here for Pedestrian" signs, curb extensions, median pedestrian refuge islands, rectangular rapid-flashing beacons (RRFB's), road diets, and pedestrian hybrid beacons. Road diets were only recommended if roadways would likely still have excess capacity after the lane reductions.

A Microsoft Excel spreadsheet was created to automate the methodology and quickly produce a list of potentially recommended improvements given the inputs entered for each candidate crosswalk improvement location to be considered for the project. The analyst in each case still used engineering judgment to select which countermeasure options would ultimately be recommended. The inputs, options, recommendations, and notes are tabulated in tables found in Appendix D.

2.7 Stakeholder Involvement

Coordination meetings were conducted with all technical stakeholders including staff from the cities of Dallas, Plano, Garland, and Richardson, as well as staff from DART and NCTCOG to review the recommendations, and for information specific to their jurisdiction and background knowledge of study locations, as needed. Meetings with the public were not held as part of this work.

Figure 3: Sidewalk Condition Classification



2.8 Half-Mile Area Improvement Prioritization – Initial Trial Method

To provide opportunities for the greatest number of additional people to walk or bike to DART stations by constructing sidewalk, shared use path, crosswalk connections, and related infrastructure, the prioritization of identified improvements was structured to provide balance between estimating this objective accurately and applying the methodology to a large study area.

Initially, a prioritization approach that attempted to track as closely as possible to potential ridership increases was tested for the Parker Road Station in Plano, with adjustments for safety, key destination access, and equity. Though some of the elements of this initial prioritization methodology were ultimately not included in this study, they are documented in Appendix E as being potentially useful for later studies on a smaller scale. Also, many of the assumptions and methodologies explained in Appendix E were retained in the ultimate methodology.

2.9 Half-Mile Area Improvement Prioritization – Final Methodology

The prioritization process used to score potential projects placed significant emphasis upon distance to/from the station and the number of (density) of persons on parcels that could be connected by constructing new infrastructure—the potential new riders who could access the DART station. The study did not attempt to correlate how many people would actually use DART if the walking and bicycling routes to the rail station were improved.

Table 1 on page 6 identifies the criteria and weighting applied to rank potential projects. Additional details about the final methodology scoring process, including figures illustrating scoring for Plano's Parker Road Station, are provided in Appendix F. Highlights for each category and percent weight in the scoring system are as follows:

Tributary Employment & Population (50%): Each sidewalk and crosswalk improvement was scored based on the total employment plus population that would be “tributary” to the station via the improvement once all proposed improvements are constructed.

Figure 4 illustrates the concept of tributary employment and population. It shows the parcels in the Parker Road Station area, with darker shades of gray representing higher population/employment

Figure 4: **Employment and Population “Tributary” to Sidewalk & Crosswalk Improvements**



totals. Note that, while some of the improvements shown in Figure 4 differ from the final recommendations, the principles illustrated still apply.

In the figure, each sidewalk and crosswalk improvement link is shown in different colors depending on the total employment plus population that would be “tributary” to the station via the improvement once all proposed improvements are constructed. The tributary employment plus population values are shown next to each link, with red links nearest the station having the highest values.

Distance (25%): Each improvement was scored based on distance to the station, measured linearly “as the crow flies” for simplicity. Improvements that connect directly to the station have a distance of 0.0 miles.

Trip Length Reduction (5%): Each improvement was evaluated based on the percentage reduction in walking distance to the station that would occur for the population of a representative reference parcel.

Access (5%): Land uses with a high proportion of visitors to employees and locations near bus routes received priority in the scoring for this criterion.

Crash History (5%): A GIS shapefile was used containing the point location of all reported bicycle and pedestrian crash locations for the study area from 2013 to 2017. While the scope of this project did not include pedestrian volume data collection, the crash data was observed to serve as somewhat of a surrogate for pedestrian demand. Therefore, a cluster of crashes may be more indicative of a place where many people walk than of a place that’s more dangerous to walk in terms of the risk to individual pedestrians.

Systemic Safety (5%): A more recent development in transportation safety that is designed to combat the drawbacks of traditional crash analysis is the concept of “systemic safety” which refers to approaches that are data driven and network-wide. This approach considered improvements at locations with similar characteristics to high crash locations, even if the locations where improvements are to be considered or proposed don’t themselves have significant crash history.

As a measure of systemic safety, the project team opted to use the posted speed limit of the roadway adjacent to sidewalk improvements or crossed by crosswalk improvements. Vehicular speed is regarded as correlating well to safety outcomes in bicycle and pedestrian crashes.

Table 1: Weighting Criteria for Scoring Sidewalk and Crosswalk Improvements

Category	Tributary Employment & Population	Distance	Trip Length Reduction	Access		Safety		Equity
						Crash History	Systemic Safety	
Weight	50%	25%	5%	5%		5%	5%	5%
Inputs	Parcel population & jobs, GIS Network Analyst runs	Distance from Station	% Change in Pedestrian Trip Length	Other Nearby Destinations	Bus Routes	Number of nearby crashes in 5-year period	Posted Speed Limit	Environmental Justice Index
Description	Potential riders "upstream" of specific sidewalk or crosswalk improvements	Distance from individual improvements to station, measured "as the crow flies"	Measured for densest or farthest reference parcel tributary to each specific sidewalk or crosswalk improvement	Number of key destinations (hospitals, clinics, urgent care, schools, government buildings, courthouses, senior living, community centers, gardens, grocery stores, malls, supercenters, hotels, motels, entertainment, fine arts, parks, landmarks, athletic facilities, places of worship, libraries, museums, bus stops with > 25 daily boardings) within 250 feet of each improvement	Number of bus routes within 50 feet of each improvement that are also > 1/4 mile from station (Up to 3 points from bus routes but max. 5 points overall for key destinations and bus routes)	Number of crashes within 250 ft of improvement in 5-year period	Posted speed limit of parallel street or street being crossed	Designation of Above/Below Regional Average Percentage for Minority & Low-Income Populations
High Criteria/ Scoring Range	9,430 - 11,787 (20 to 25 points)	0 to 1/8 mile (25 to 19 points)	40-100% (5 points)	5+ destinations (5 points)	3+ routes (3 points)	5+ crashes (5 points)	≥ 45 mph (5 points)	Above Average for Both Minority <u>and</u> Low-Income (5 points)
Medium High Criteria/ Scoring Range	7,073 - 9,429 (15 to 20 points)	1/8 to 1/4 mile (18 to 13 points)	20-40% (3-4 points)	3-4 destinations (3-4 points)	2 routes (2 points)	3-4 crashes (3-4 points)	35-40 mph (3-4 points)	Above Average for Minority <u>or</u> Low-Income (3 points)
Medium Low Criteria/ Scoring Range	2,358 - 7,072 (5 to 15 points)	1/4 to 3/8 mile (12 to 6 points)	1-20% (1-2 points)	1-2 destinations (1-2 points)	1 route (1 point)	1-2 crashes (1-2 points)	25-30 mph (1-2 points)	
Low Criteria/ Scoring Range	0 - 2,357 (0 to 5 points)	3/8 to 1/2 mile (5 to 0 points)	0% (0 points)	No other destinations (0 points)	0 routes (0 points)	0 crashes (0 points)	≤ 20 mph (0 points)	Below Average for Minority and Low-Income (0 points)



Equity (5%): The equity criterion emphasized improving communities with populations that have not historically received equal access to resources. The consultants were provided spatial data for the project area with NCTCOG's Environmental Justice Index (EJI) to comply with federal rules for identifying Environmental Justice populations. The EJI is based on data from the 2013-2017 American Community Survey, aggregated at the census block level. Each census block is categorized if the percentage of its residents is higher than the regional average for minority population, low income, or both.

2.10 Gaps to Remain

The consulting team categorized some locations where gaps in the pedestrian network had been identified by NCTCOG during preliminary GIS work to be gaps to remain for the final project listing. This decision was based on field conditions that would be impractical or undesirable to implement or would make sidewalk construction extremely cost-prohibitive. Examples are detailed in Appendix F.

2.11 Improvement Numbering

Each proposed improvement, usually consisting of a single crosswalk or segment of sidewalk along a single city street block, was assigned a unique project-wide identification number for reference. The identification number consisted of:

- A two-digit code for the station area, matching the codes shown in Figure 2 earlier (For example, 3A for Downtown Garland and 3B for Forest Jupiter).
- A two-letter abbreviation for the station name for easier reference (For example, DG for Downtown Garland and FJ for Forest Jupiter).
- A two-letter code for the type of improvement (SW for sidewalk, CW for crosswalk, RP for repair, VW for Regional Veloweb, SP for shared use path, GP for gap to remain).
- A two- or three-digit number unique to identify the improvement location on project mapping. In addition to the VW improvement type code described in the bullet above, Regional Veloweb shared use path links have an improvement location number beginning with the letter V (V01, V02, etc.) to differentiate them from other improvements since they were numbered separately beginning at 1.

2.12 Prioritization Scoring

The consulting team evaluated each proposed improvement for the seven criteria described in Section 2.9 and Table 1. The proposed improvements were scored, and then sorted based the combined overall score. Possible total values ranged from 0-100 points. Additional details are included in Appendix F.

For each city (Dallas, Garland, Plano, and Richardson) separate scales were set for dividing improvements of varying scores into high, medium, and low-priority categories, but remained consistent for all stations within that city. The thresholds between high- and medium priority and medium- and low-priority were set such that approximately one-third of improvements for each city were allocated into each category. For half-mile areas surrounding DART rail stations in Garland, the scoring ranges were as follows:

- High Priority = 21 to 100 points
- Medium Priority = 15 to 20 points
- Low Priority = 0 to 14 points

The highest scoring improvement evaluated in Garland was 3B-FJ-SW-40, a segment of sidewalk on the southeast side of a DART driveway, where a worn path in the grass indicates existing pedestrian demand. This improvement received a score of 49 points.

3. Improvement Recommendations

The following sections include project mapping and opinions of probable construction costs for existing and proposed conditions, and improvements that have been identified to improve pedestrian and bicyclist access to the stations.

3.1 DART Station Property Recommendations & Opinions of Probable Construction Cost (OPCC)

The first figure in each set for individual station properties on pages 9 and 14 illustrates the station area including DART property limits, existing sidewalks, Regional Veloweb shared use paths and local shared use paths in and around each station.

The figures on pages 10-13 and 15-19 show photographs of existing conditions at the same locations, referenced by matching, numbered orange stars. In many cases, the field photographs are enhanced with graphics to illustrate the proposed signing, pavement markings, or other traffic control devices that are recommended.

For each station, opinions of probable construction cost (OPCC's) were developed for each improvement, unless otherwise noted. The following cost components (totaling 25%) were applied to all costs, as directed and approved by both NCTCOG and DART:

- 10% design fee
- 4% mobilization
- 4% for landscaping allowance
- 2% for Erosion & Sediment Control Allowance
- 3% for traffic control
- 2% extra contingency for federal aid project

For additional details about the OPCC's, see Appendix G and Section 3.3 later in this report.

3.1.1 Downtown Garland Station

Figure 3A-1.1 on page 9 shows the 10 improvements recommended for Downtown Garland Station within DART right-of-way. Figures 3A-1.2, 3A-1.3, 3A-1.4, and 3A-1.5 on pages 10-13 illustrate existing conditions at the 10 improvement locations.

Many pedestrians were observed crossing Walnut St, a busy four-lane arterial, in front of DART station instead of adjacent signalized crosswalks at 4th St and 5th St intersections. DART should coordinate with the City of Garland to consider installing anti-climb median fencing mounted on top of concrete traffic barrier along Walnut St in front of the DART station to ensure pedestrians cross at the crosswalks.



A "goat trail" that exists between the bus loop and the northeast corner of the Walnut St/5th St intersection indicates pedestrian demand for a more direct route. A new sidewalk with crosswalk across the bus loop should be built to accommodate this demand. A section of fence adjacent to the bus loop will need to be removed as part of this improvement.

Other recommended improvements include:

- Updating or adding signs to meet MUTCD standards.
- Adding or refreshing crosswalk striping.
- Adding landscaping to remove goat trails.
- Adding covered bike parking near the southeast corner of Walnut St and 5th St intersection (location 8).

Refer to the figures for additional details. The total OPCC for the DART improvements is approximately \$175,000. Tables listing the estimated costs for individual improvements, as well as line item calculations, are included in Appendix H.

3.1.2 Forest Jupiter Station

Figure 3B-1.1 on page 14 shows the 14 improvements recommended for Forest Jupiter Station within DART right-of-way. Figures 3B-1.2 through 3B-1.6 on pages 15-19 illustrate existing conditions at the 10 improvement locations.

To the west of the station platform, a worn path in the grass indicates demand for a sidewalk along the rail alignment for more direct access to and from Jupiter Rd to the south. DART should coordinate with the City of Garland and the adjacent Union Pacific railroad to install sidewalk and fencing between the sidewalk and tracks. For pedestrian safety, lighting and security cameras may be needed.

Other recommended improvements include:

- Updating signs to meet MUTCD standards.
- Adding crosswalk striping.
- Installing pedestrian push buttons.
- Widening existing sidewalks or building new sidewalks.
- Adding ADA ramps for better wheelchair access to the station platform.
- Relocating existing signs or installing new signs for better guidance.

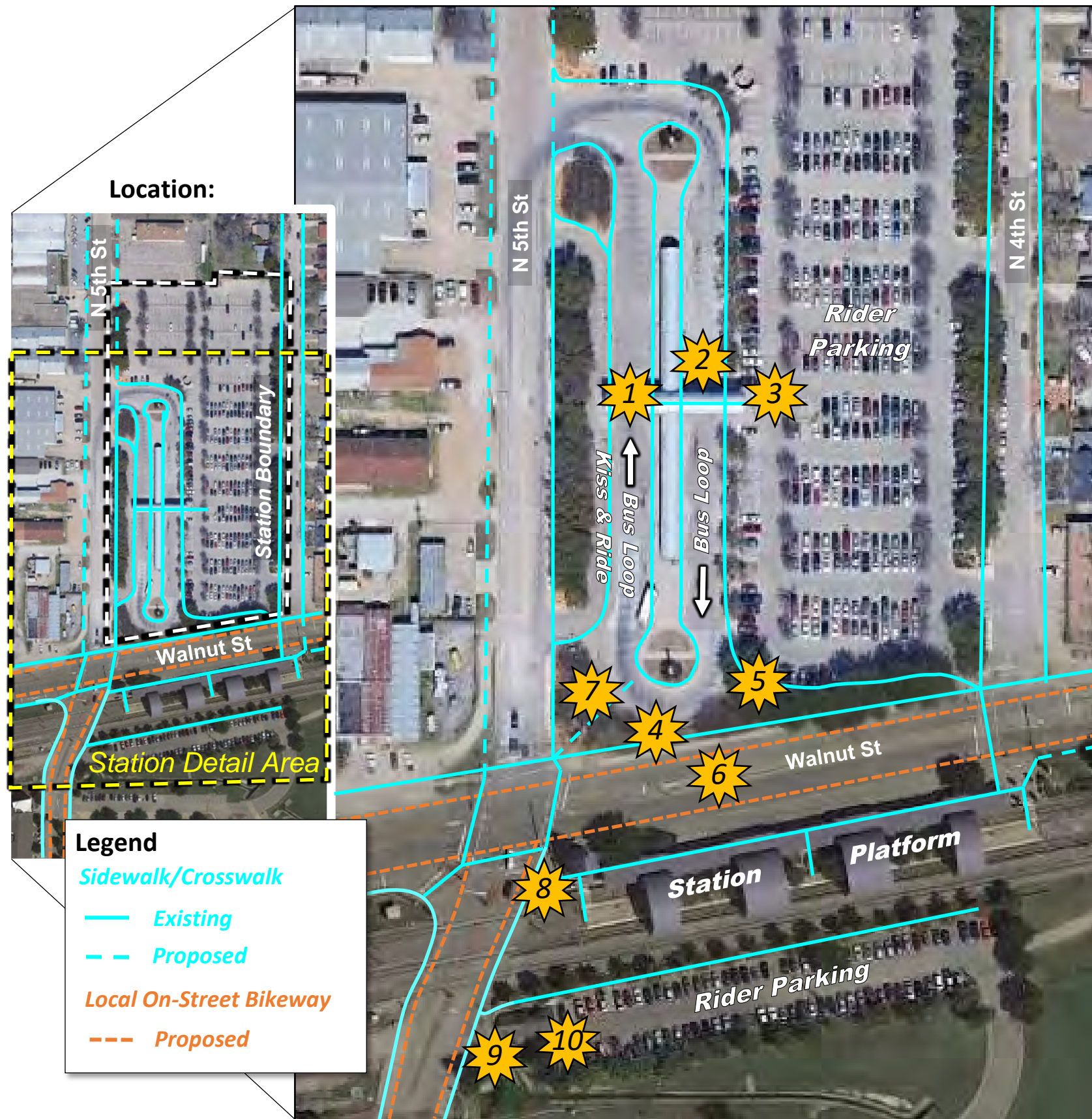
Refer to the figures for additional details. The total OPCC for the DART improvements is approximately \$190,000. Tables listing the estimated costs for individual improvements, as well as line item calculations, are included in Appendix H.



Downtown Garland Station Recommended Access Improvements



Not for Construction



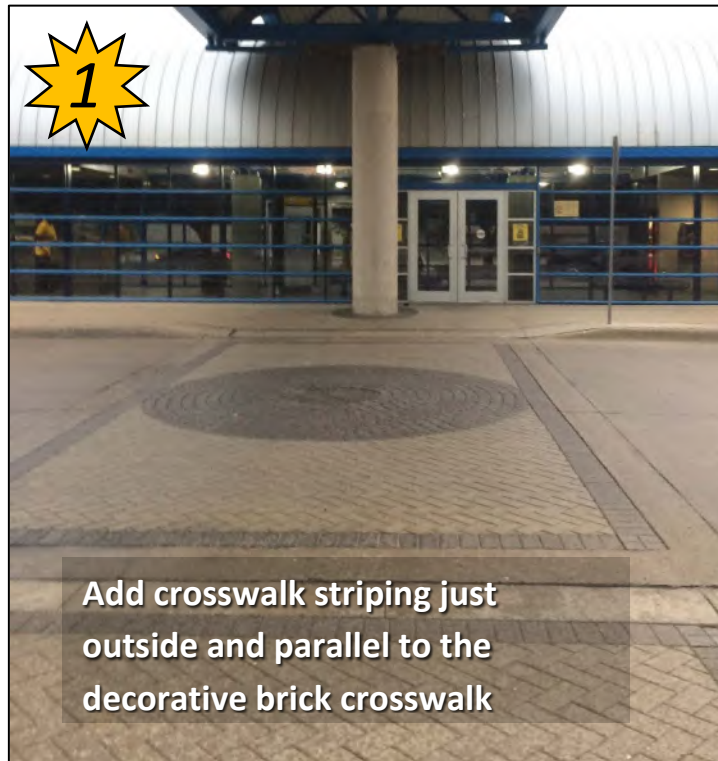
Number	Description
1-2	Add crosswalk striping just outside and parallel to the decorative brick crosswalks. Add stop bar striping ahead of the stop signs in advance of each crosswalk.
3	Add pedestrian signs ahead of pedestrian crosswalk.
4-5	Remove goat trails that encourage mid-block crossings by adding landscaping.
6	Add median fence along Walnut Street in front of DART station to restrict mid-block crossings and channelize pedestrians to signalized crosswalks at 4th Street and 5th Street intersections.
7	Add a more direct crosswalk/sidewalk connection between the bus loop and the northeast corner of the Walnut Street/5th Street intersection to encourage pedestrians to cross at the signalized crosswalk. Install crosswalk markings and stop signs for bus loop crossing. A "goat trail" exists along the path of the proposed sidewalk presently, indicating demand for a more direct pedestrian route. A section of fence adjacent to the bus loop will need to be removed as part of this improvement.
8	Add covered bike parking near the southeast corner of Walnut Street and 5th Street intersection. This will put bike parking closer to the train platform so that bicyclists do not have to cross north of Walnut Street or to the east end of the platform to park.
9	Restripe faded crosswalk on the east leg of DART driveway and 5th Street intersection.
10	Replace non-standard sign with R2-1 sign from MUTCD. Sign should be retroreflective for increased nighttime visibility. Uniform signs reinforce driver respect as legitimate traffic control devices.

FIGURE 3A-1.1

NOT TO SCALE

FEBRUARY 2020

Downtown Garland Station Existing Conditions and Improvements

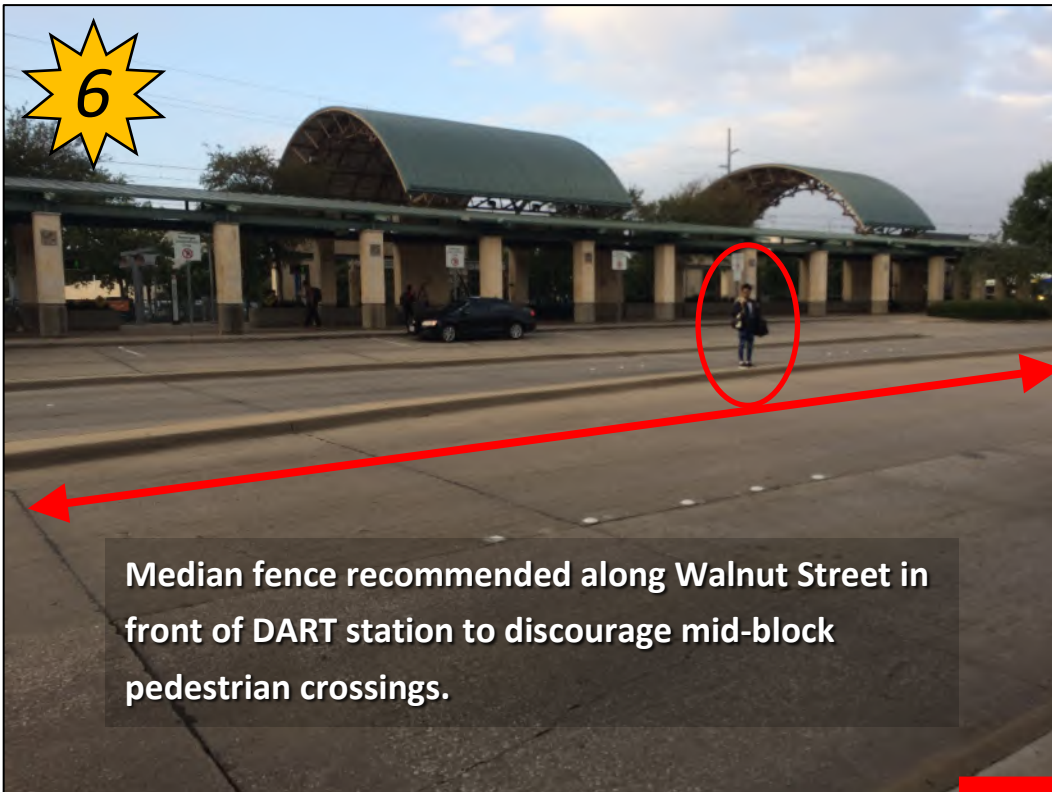


W11-2
W16-7P

* Sign should be retroreflective for increased nighttime visibility. The sign panel shall be diamond-shaped instead of having an image of a diamond-shaped sign on a rectangular panel. Uniform signs reinforce driver respect as legitimate traffic control devices.

Not for Construction

Downtown Garland Station Existing Conditions and Improvements



Median fence recommended along Walnut Street in front of DART station to discourage mid-block pedestrian crossings.

Example of median fencing on arterials. (Note that the picture shown is only an example for reference, and no specific vendors are endorsed.)

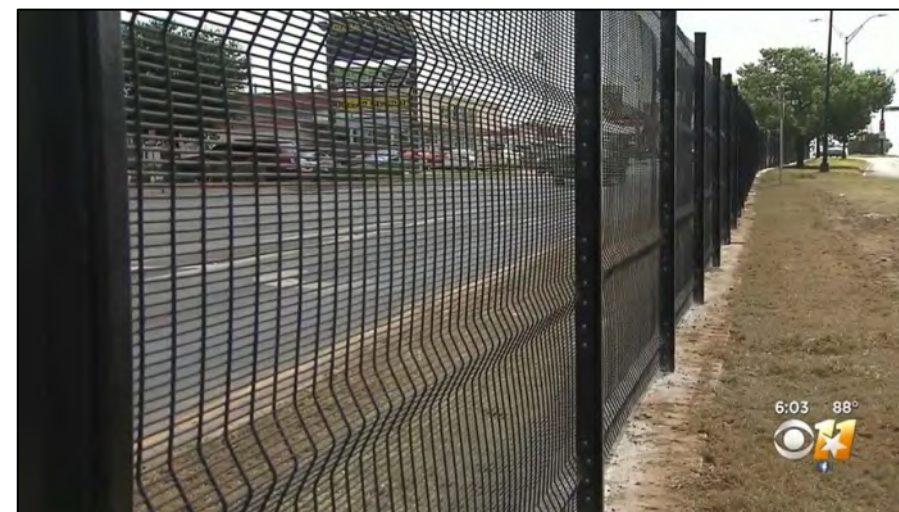


Image from Cochrane USA



Example of median fencing on arterial. (Note that the picture shown is only an example for reference, and no specific vendors are endorsed.)

Image from Seagull Concrete and Fence, Ocean City, MD.
<https://www.facebook.com/SeagullFenceConcreteLLC/videos/1749627818436692/>



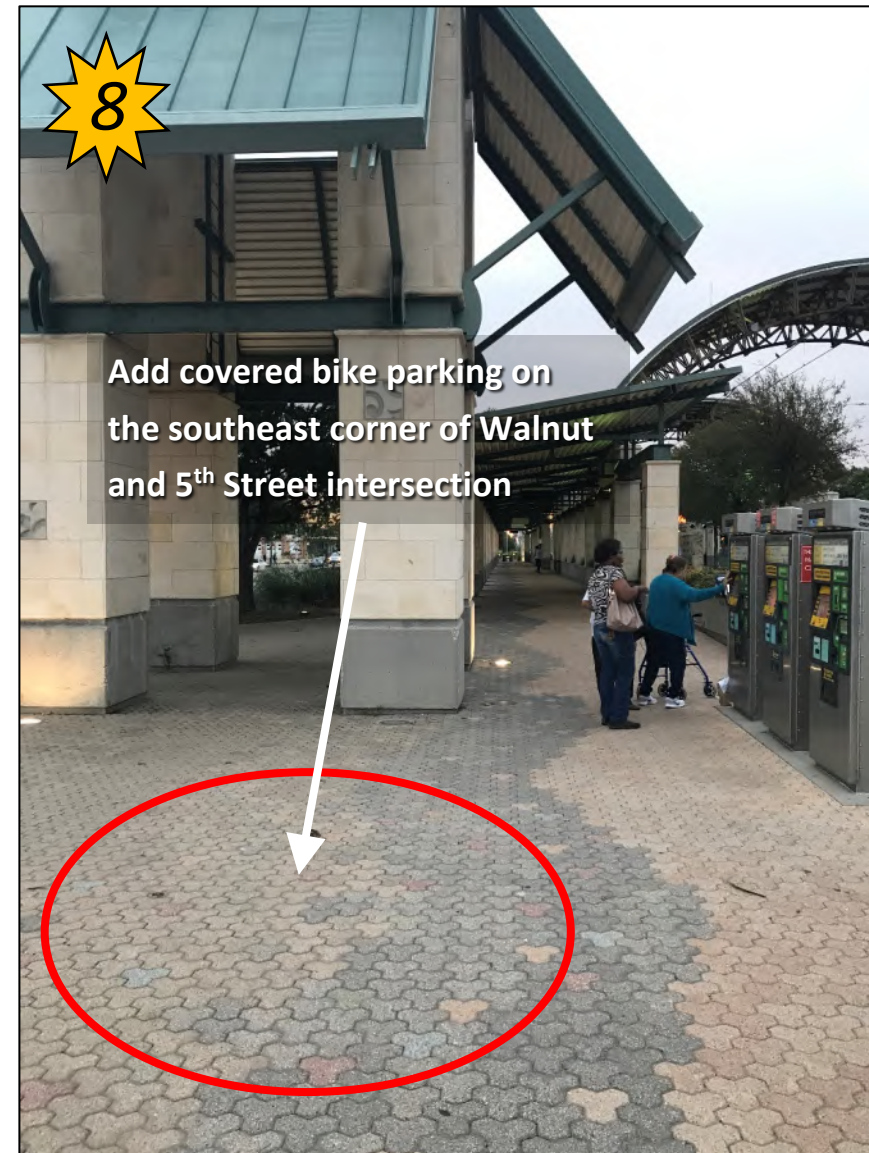
Median fencing recently installed by TxDOT on Lancaster Avenue between Sargent Ave and Oakland Blvd in Fort Worth.

<https://dfw.cbslocal.com/2019/07/26/txdot-installs-metal-fence-address-fort-worth-pedestrian-issue/>

Not for Construction



Downtown Garland Station Existing Conditions and Improvements

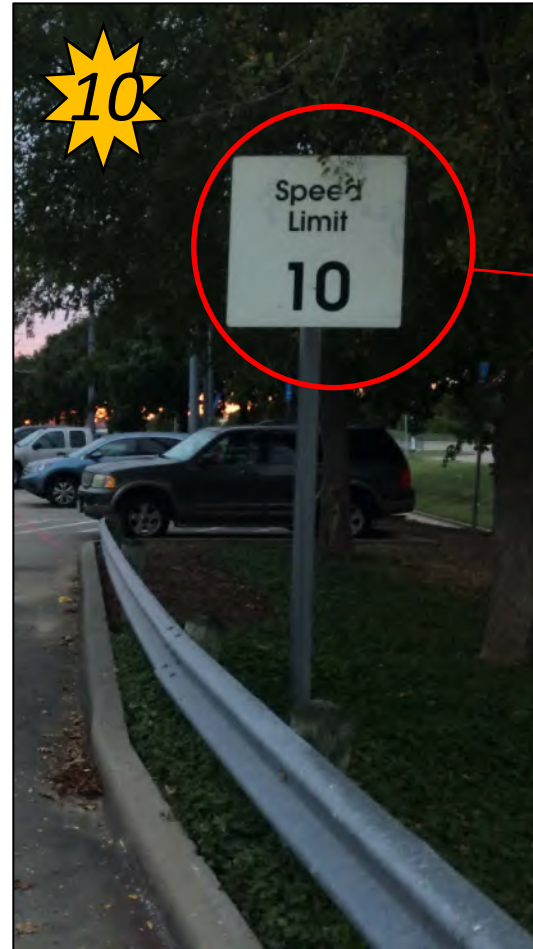


Not for Construction

FIGURE 3A-1.4 FEBRUARY 2020



Downtown Garland Station Existing Conditions and Improvements



R2-1

* Replace non-standard sign with R2-1 sign with all capital letters from MUTCD. Sign should be retro-reflective for increased nighttime visibility. Uniform signs reinforce driver respect as legitimate traffic control devices.

Not for Construction

FIGURE 3A-1.5 FEBRUARY 2020



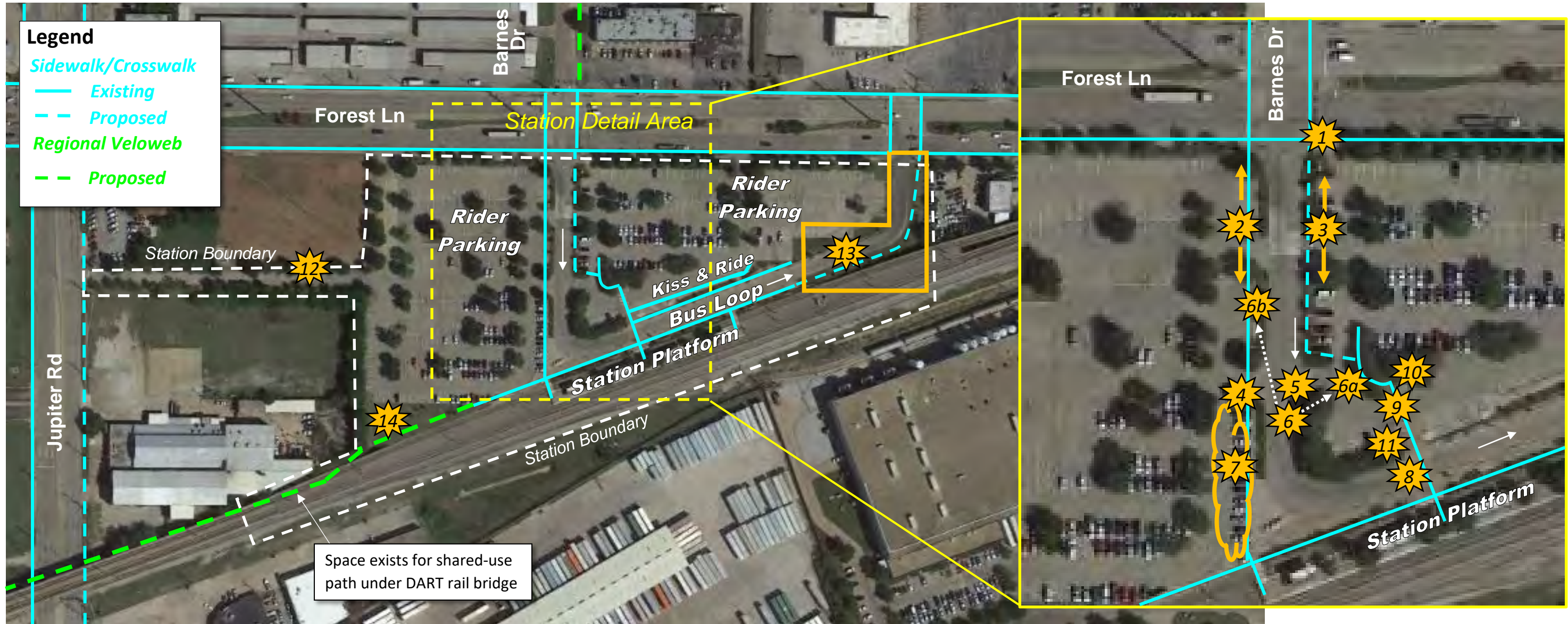
LEE ENGINEERING



Forest Jupiter Station Recommended Access Improvements



N



Number	Description	Number	Description
1	Install missing pedestrian pushbuttons on the southeast corner of Forest Lane and Barnes Drive.	8	Add crosswalk striping parallel to and on either side of the existing crosswalk.
2	Widen existing sidewalk from 3 feet to minimum 5 feet to accommodate pedestrian needs.	9	Build ramps to the existing crosswalk.
3	Build new sidewalk on the east side of the DART entrance south of Barnes Drive.	10-11	Update pedestrian signs to meet MUTCD standards.
4-5	Update "DO NOT ENTER" signs to meet MUTCD standards.	12	Update speed limit signs to meet MUTCD standards.
6	Relocate handicap parking sign and passenger loading directional sign to avoid inadvertent entry to the bus loop by non-bus drivers. If implementing recommendation 7 below, new, separate directional signs will be required. A sign for passenger loading would be appropriate at location 6, while a sign for handicap parking should be provided facing southbound driveway traffic on the west side of the entry driveway, north of the bus loop entry (location 6b).	13	Build new sidewalk connecting station platform with Forest Lane to the east. A worn path in the grass indicates existing pedestrian demand in this location.
7	Relocate handicap parking spaces from their current position near the central sidewalk access to the train platform (near location 8) to the spaces near the western sidewalk access to the platform (location 7). The current location of the handicap parking spaces requires disabled pedestrians to travel farther since the crossing to the platform does not include pedestrian ramps.	14	Build new shared use path along rail alignment for more direct access to and from Jupiter Road to the south. For pedestrian safety, add fencing to separate pedestrians from the railroad tracks. Lighting, and security cameras may be needed where the path alignment is obscured from view under the rail bridge and immediately south of the adjacent building.

DRAFT – Not for Construction

FIGURE 3B-1.1 NOT TO SCALE MAY 2020



Forest Jupiter Station Existing Conditions at Improvement Locations



Replace missing pedestrian buttons on the southeast corner of Forest Ln and Barnes Dr



Widen existing sidewalk (3 feet) to minimum of 5 feet



Build new sidewalk

DRAFT – Not for Construction

FIGURE 3B-1.2 MAY 2020

Forest Jupiter Station Existing Conditions at Improvement Locations

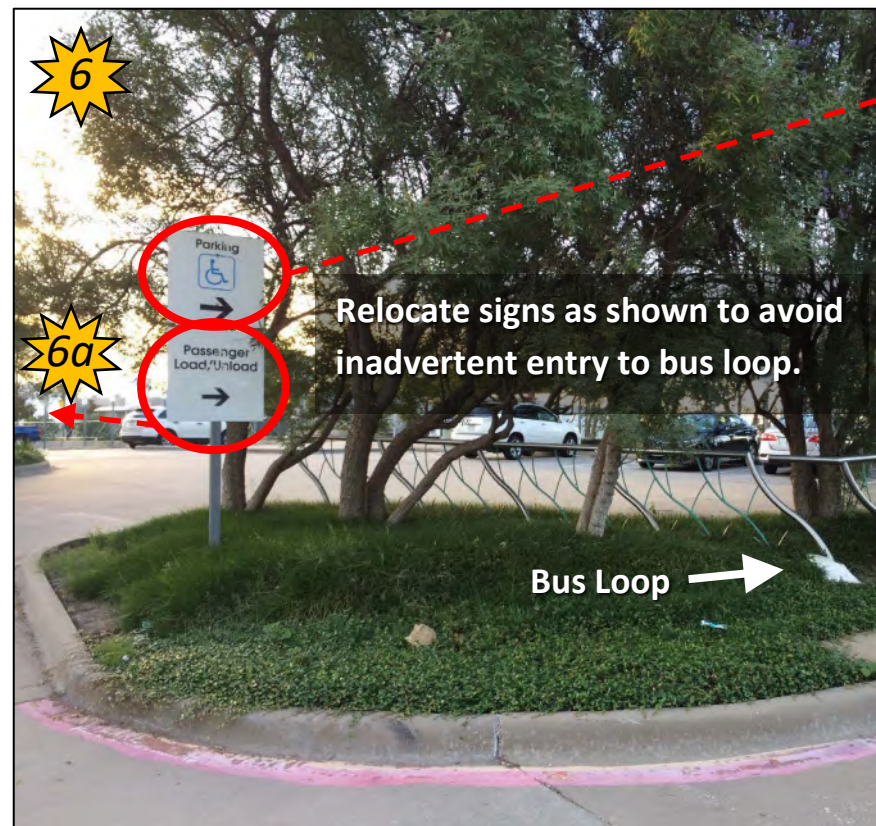


Update "DO NOT ENTER" signs to MUTCD standard with all CAPS lettering



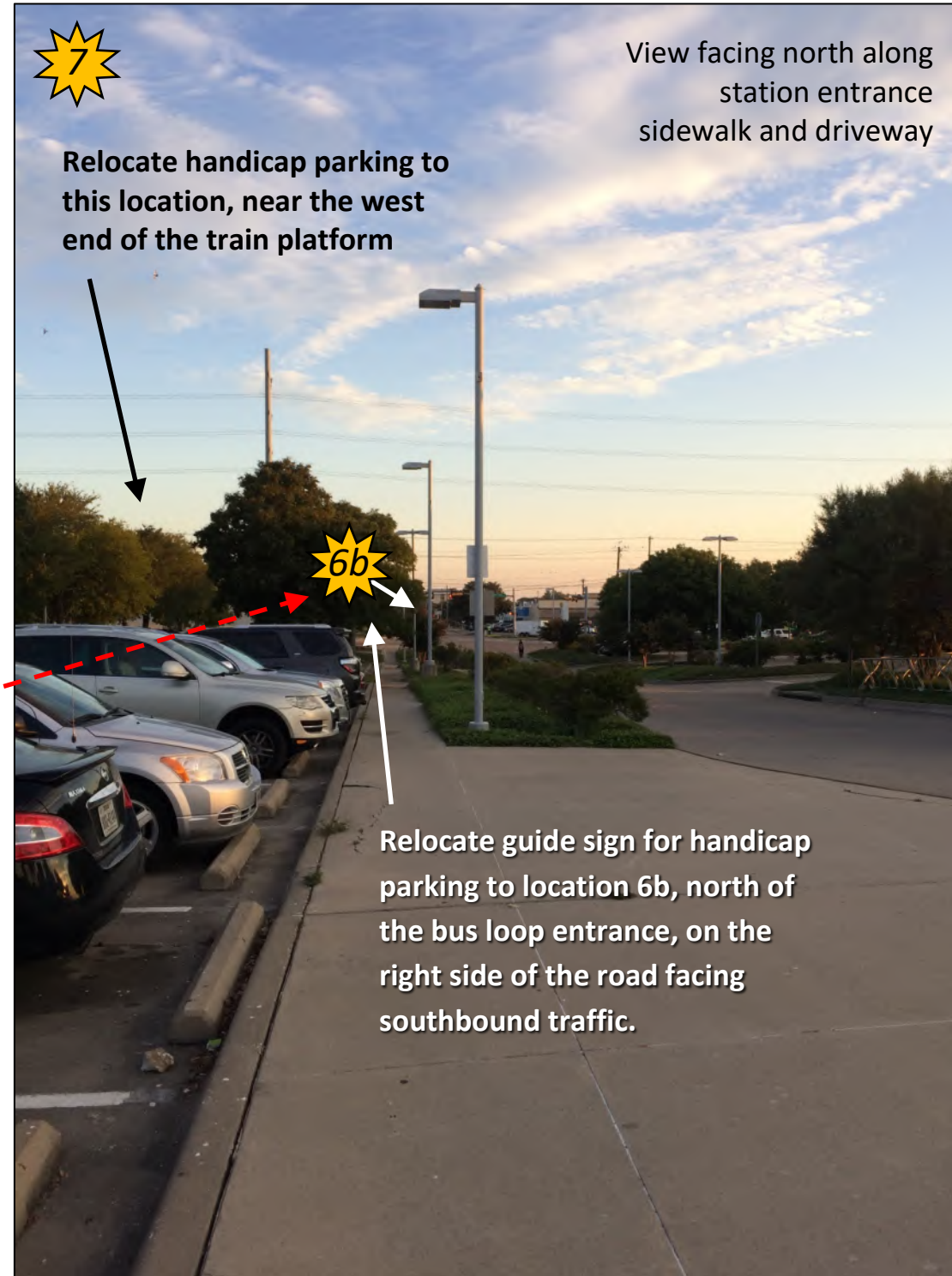
R5-1

Replace non-standard signs with R5-1 signs from MUTCD. Signs should be retro-reflective for increased nighttime visibility. The sign panel shall have all capital letters. Uniform signs reinforce driver respect as legitimate traffic control devices.



Relocate signs as shown to avoid inadvertent entry to bus loop.

Bus Loop →



View facing north along station entrance sidewalk and driveway

Relocate handicap parking to this location, near the west end of the train platform

Relocate guide sign for handicap parking to location 6b, north of the bus loop entrance, on the right side of the road facing southbound traffic.

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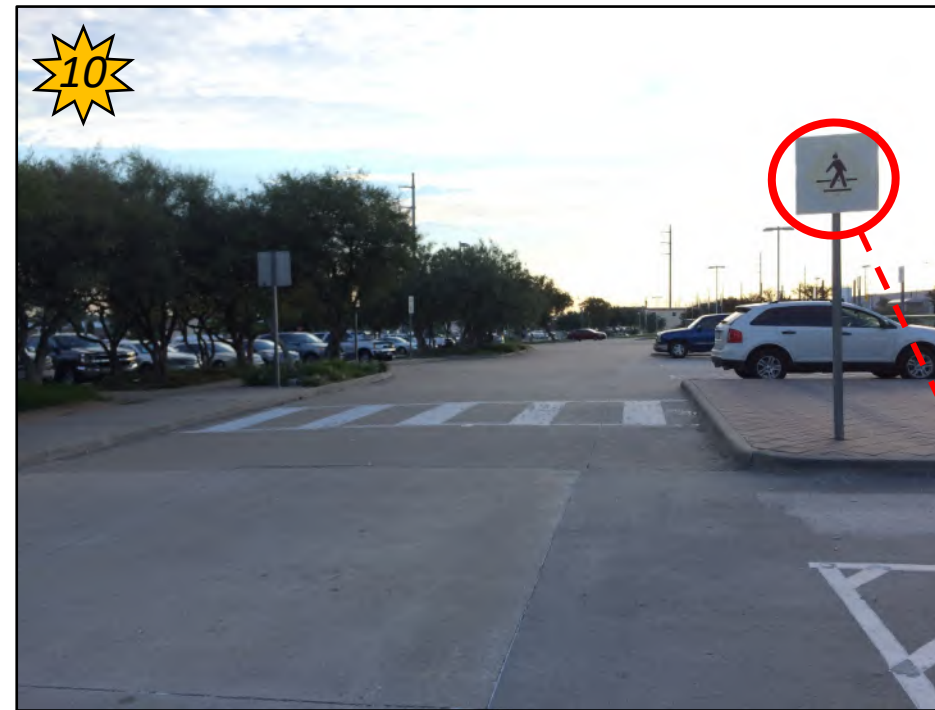
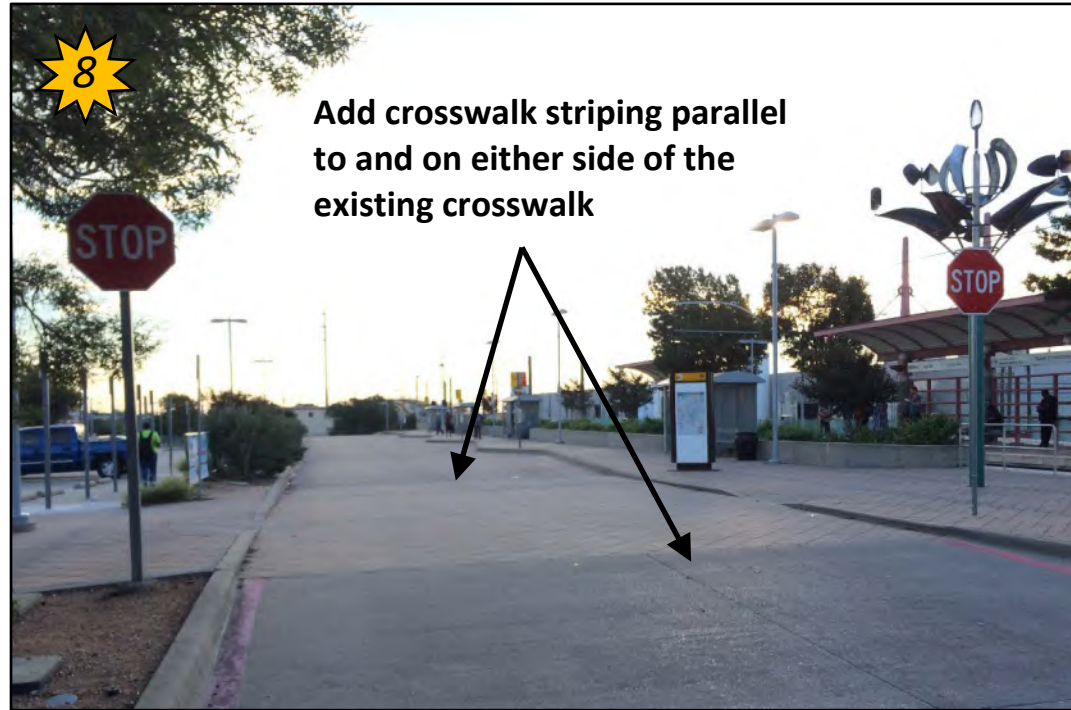
FIGURE 3B-1.3 MAY 2020



LEE ENGINEERING



Forest Jupiter Station Existing Conditions at Improvement Locations



Replace non-standard signs with W11-2 signs from MUTCD. Signs should be retro-reflective for increased nighttime visibility. The sign panel shall be diamond-shaped instead of having an image of a diamond-shaped sign on a rectangular panel. Uniform signs reinforce driver respect as legitimate traffic control devices.

Forest Jupiter Station Existing Conditions at Improvement Locations



Build new sidewalk connecting DART station and Forest Lane to the east



Worn paths in grass indicate existing demand



R2-1

Replace non-standard sign with R2-1 sign from MUTCD. Sign should be retro-reflective for increased nighttime visibility. Uniform signs reinforce driver respect as legitimate traffic control devices.

DRAFT – Not for Construction

FIGURE 3B-1.5 MAY 2020

Forest Jupiter Station Existing Conditions at Improvement Locations



Build new shared use path along rail alignment for more direct access to and from Jupiter Road to the south. For pedestrian safety, add fencing to separate pedestrians from the railroad tracks. Lighting, and security cameras may be needed where the path alignment is obscured from view under the rail bridge and immediately south of the adjacent building. Drainage culvert between DART rail bridge and adjacent fenced property will need to be covered to provide adequate sidewalk width, as may removal of existing trees. Worn path in grass indicates existing pedestrian demand along this route.

14



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FIGURE 3B-1.6 MAY 2020



3.2 Half-Mile Area Recommendations

Figure 3A-2.1, 3A-2.2 and 3B-2 on pages 21-22 and page 24 identify recommended high-, medium- and low-priority improvements as separate construction packages for each station's half-mile area in Garland. These figures are collectively referred to as phasing maps. High-priority improvements should be considered for Phase 1 of construction at each station. As funding is available the medium and low-priority improvements should be implemented either with the Phase 1 improvements or as part of future phases.

The legend for each map includes a brief summary of opinions of probable construction cost for each phase and station, which are described in greater detail in Section 3.3.

For additional context, Appendix I contains detailed maps of the recommendations for each station's half-mile area, including existing, planned, and funded regional and local shared use paths, as well as existing, planned and funded on-street bicycle networks.

In each phasing map, existing sidewalks are shown in light blue. The density of individual parcels' population plus employment are shown in grayscale, with darker colors representing higher values.

Proposed sidewalk and crosswalk improvements are shown in multiple colors, according to the assigned priority: red for high-priority (Phase 1), orange for medium-priority (Phase 2), and light pink for low-priority (Phase 3). Gaps to remain are shown in dark pink. For more details about these categories, refer to Appendix F.

Each high- medium- and low-priority improvement, along with all gaps to remain, are indicated by the boxed number labels near each improvement location. The lower right corner of each phasing map includes a legend that describes the abbreviations in the improvement ID codes, which can be used to cross-reference the improvement matrices that appear in Appendix J.

For solid red, orange, or light pink lines, the recommended improvement for a sidewalk gap is either a new or repaired 5-foot wide sidewalk or a new 10-foot shared use path along the length shown. Repairs are noted in the matrix notes for each improvement in Appendix J, and assume full removal of damaged, existing sidewalk prior to replacement.

For crosswalk gaps, the type of improvement recommended is shown with numbered circles located near each crosswalk. The numbers in the circles correspond to the legend of possible pedestrian safety countermeasures appearing at the upper right of the figure. More details about these improvements can be found in Section 2.6, as well as in Appendix C, Appendix D, and Appendix J. Treatments recommended somewhere on the phasing maps have a red box around them in the legend for easier reference.

The "Half Mile Area Improvements Matrices" appearing in Appendix J for each station list for each improvement the owner, improvement type, location, length, notes, priority score, and (in the case of high priority improvements not built by others) the opinion of probable construction cost. Additional information useful for interpreting the tables in Appendix J may be found in Appendix I.

3.2.1 Downtown Garland Station (Half-Mile Area)

Figure 3A-2.1 shows the recommended improvements in the half-mile area around the Downtown Garland Station. Figure 3A-2.2 provides a zoomed-in view of a portion of the station area with a dense concentration of improvements. The lack of sidewalk along significant portions of Walnut St, N 1st St, and W Ave B pose significant barriers to multi-modal travel along those arterials. Many industrial and downtown streets such as N 5th St and Main St also lack sidewalk. In addition to building sidewalk where absent, recommended improvements include:

- For crossing 5th St just south of the DART tracks (improvement 3A-DG-CW-216), the City should install white crosswalk lines parallel to the existing brick crosswalk. Add yield markings and signing for the southbound direction where the street is merging from two lanes to one.
- For crossing 6th St just south of the DART tracks (improvement 3A-DG-CW-215), the City should add a new marked crosswalk with warning signs and lighting.
- The City should provide high-visibility signed and marked crosswalks along 7th St at its crossings with Austin St, State St, and Main St (improvements 3A-DG-CW-217 to 222).
- For crossing W Ave A at 6th St, (improvements 3A-DG-CW-223 and 224), the City should add advance yield lines and signing in advance of the existing crosswalk in front of the Garland Senior Activity Center. Consider pedestrian-actuated rectangular rapid flashing beacons (RRFB's) and/or a road diet to implement curb extensions or a median refuge.
- Across the east leg of the signalized intersection of 1st St, Main St, Lavon Dr and Bankhead St (improvement 3A-DG-CW-154), the City should consider construction of refuge islands and/or other geometric and signal phasing changes to enable re-introduction of a crosswalk that was removed in recent years.
- Consider adding pedestrian-actuated rectangular rapid flashing beacons (RRFB's) to the existing signed and marked north leg crosswalk near the new mid-rise apartments south of W Ave A between Glenbrook Dr and 7th St (improvement 3A-DG-CW-225).

Finally, the City of Garland should coordinate with DART to improve the safety of crossings between the rail station and the bus station/park and ride lot on opposite sides of Walnut St. Many DART riders were observed crossing mid-block between 4th St and 5th St despite the presence of signalized crosswalks at both intersections. As recommended in Section 3.1.1, anti-climb median fencing mounted on top of concrete traffic barrier should be considered for this location.

Additional details about other improvements recommended in Figure 3A-2, as well as challenges associated with the recommended gaps to remain, are included in the expanded narrative and matrix notes for Downtown Garland Station that can be found in Appendix I and Appendix J.



FTA DART Stations Last Mile Connections Downtown Garland Station November 2020

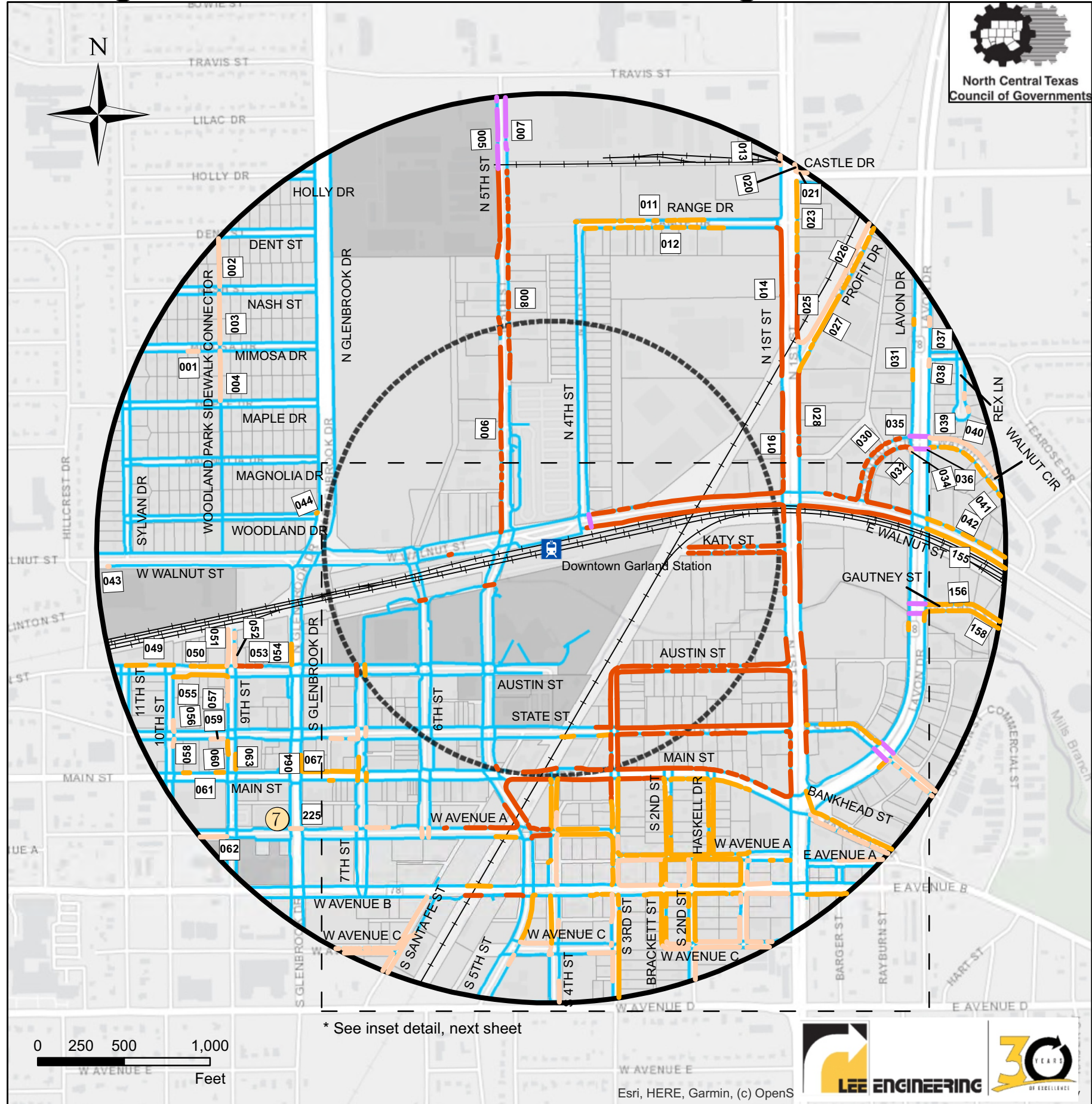


Figure 3A-2.1 Construction Packages

Legend

- DART Rail Station
- Railroad Track
- Sidewalk**
- Existing Sidewalk/Crosswalk
- Proposed Sidewalk/Crosswalk by Priority**
- High
- Medium
- Low
- Built by Others
- Gap to Remain
- Buffers**
- 0.5 Mile Buffer
- 0.25 Mile Buffer

Priority	Construction Cost Estimate
High	\$7,134,400
Medium	\$4,732,400
Low	\$4,017,400
Total	\$15,884,200 (2020 \$)



Possible Pedestrian Safety Countermeasures

Unsignalized Crosswalk Improvements

Hi	Md	Lo	Oth	Description
1	1	1	1	Crosswalk Signs, Markings & Lighting
2	2	2	2	Raised Crosswalk
3	3	3	3	Advance "Yield Here" Sign
4	4	4	4	In-Street Pedestrian Crossing
5	5	5	5	Curb Extension
6	6	6	6	Pedestrian Refuge Island
7	7	7	7	Rectangular Rapid Flashing Beacon
8	8	8	8	Road Diet
9	9	9	9	Pedestrian Hybrid Beacon

Signalized Crosswalk Improvements

10	10	10	10	Add Marked Crosswalks & Provide Countdown, Accessible Pedestrian Signals
11	11	11	11	Traffic Signal

Existing Residential and Employment Population (Number of People)

Ppl

0 - 234
235 - 1049
1050 - 2586
2587 - 5364
5365 - 10339

Improvement Code Legend (See Matrix)

3A ← Station Number
 DG ← Station Abbreviation
 SW ← Sidewalk (or CW for Crosswalk)
 01 ← Improvement Number (Matches 1 on Map)

* See inset detail, next sheet



FTA DART Stations Last Mile Connections Downtown Garland Station November 2020

Figure 3A-2.2 Construction Packages Inset Detail



Legend

- DART Rail Station
- Railroad Track
- Sidewalk**
- Existing Sidewalk/Crosswalk
- Proposed Sidewalk/Crosswalk by Priority** 1
- High
- Medium
- Low
- Built by Others
- Gap to Remain
- Buffers**
- 0.5 Mile Buffer
- 0.25 Mile Buffer

Existing Residential and Employment Population (Number of People)

Ppl

- 0 - 234
- 235 - 1049
- 1050 - 2586
- 2587 - 5364
- 5365 - 10339



Possible Pedestrian Safety Countermeasures

Unsignalized Crosswalk Improvements

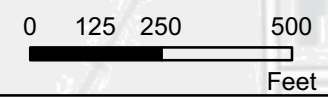
Hi	Md	Lo	Oth	Description
1	1	1	1	Crosswalk Signs, Markings & Lighting
2	2	2	2	Raised Crosswalk
3	3	3	3	Advance "Yield Here" Sign
4	4	4	4	In-Street Pedestrian Crossing
5	5	5	5	Curb Extension
6	6	6	6	Pedestrian Refuge Island
7	7	7	7	Rectangular Rapid Flashing Beacon
8	8	8	8	Road Diet
9	9	9	9	Pedestrian Hybrid Beacon

Signalized Crosswalk Improvements

10	10	10	10	Add Marked Crosswalks & Provide Countdown, Accessible Pedestrian Signals
11	11	11	11	Traffic Signal

Improvement Code Legend (See Matrix)

3A ← Station Number
 DG ← Station Abbreviation
 SW ← Sidewalk (or CW for Crosswalk)
 01 ← Improvement Number (Matches 1 on Map)



3.2.2 Forest Jupiter Station (Half-Mile Area)

Figure 3B-2 on page 24 identifies the recommended improvements in the half-mile area around the Forest Jupiter Station. This station serves an area that is mostly industrial in nature. Sidewalk is present and in good condition along Forest Ln, but Jupiter Rd, International Rd, and Miller Park Dr all have lengthy sidewalk gaps.

The City of Garland is beginning construction on a sidewalk project that will fill sidewalk gaps and make other improvements to existing sidewalk along Barnes Dr north of the station. The improvements will continue east along Edgewood Dr from its intersection with Barnes Dr to points beyond the half-mile station area. Improvement locations 3B-FJ-SW-009 through 011 are thus designated to be "built by others" as part of this project.

The City is also planning a local shared use path along the north side of the DART tracks west of the station (improvement 3B-FJ-SP-033), which will cross Jupiter Rd (at improvement 3B-FJ-CW-034). At this location, the City should add crosswalk markings, signing, and lighting. The City may wish to construct a full pedestrian traffic signal instead of an RRFB or pedestrian hybrid beacon due to the adjacency to railroad crossing gates. The need for this improvement is contingent on construction of both the local shared use-path to the west and the shared use path to the east which will connect to the station platform (improvement 3B-FJ-SP-038). Refer to Section 3.1.2 for more details about the eastern segment.

In addition to building sidewalk where absent, other recommended improvements include:

- For the existing signed and marked crosswalk across Jupiter Rd at Edgewood Dr (improvement 3B-FJ-CW-007), the City should consider replacing the existing rapid rectangular flashing beacon (RRFB) system with a pedestrian hybrid beacon. The procedure outlined in the Federal Highway Administration's (FHWA) recent publication, "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations" (July 2018) indicates that RRFB's may not be sufficiently visible to drivers on six-lane, high-speed, high-volume streets such as Jupiter Rd.
- Add signed and marked crosswalks across each leg of the Miller Park Dr roundabout (improvements 3B-FJ-CW-047 through 052). Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.

Additional details about other improvements recommended in Figure 3B-2, as well as challenges associated with the recommended gaps to remain, are included in the expanded narrative and matrix notes for Forest Jupiter Station that can be found in Appendix I and Appendix J.



FTA DART Stations Last Mile Connections Forest Jupiter Station November 2020

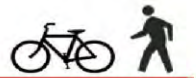


Figure 3B-2 Construction Packages

Legend

- DART Rail Station
- Railroad Track

Sidewalk

- Existing Sidewalk/Crosswalk

Proposed Sidewalk/Crosswalk by Priority

Priority	Construction Cost Estimate (2020 \$)
High	\$3,020,900
Medium	\$1,986,400
Low	\$2,489,600
Built by Others	\$7,496,900
Gap to Remain	(2020 \$)

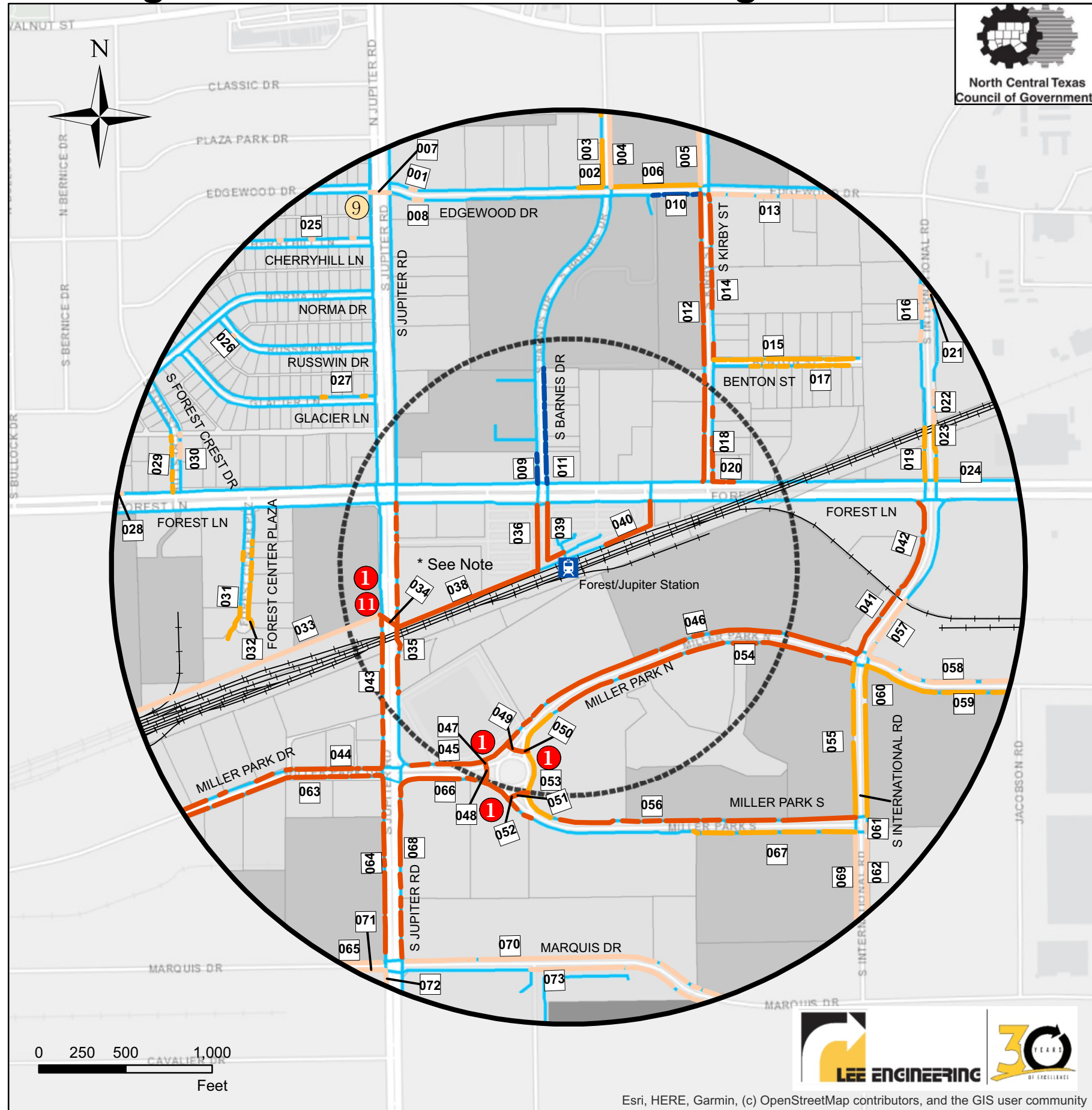
Buffers

- 0.5 Mile Buffer
- 0.25 Mile Buffer

Existing Residential and Employment Population (Number of People)

Ppl

0 - 234
235 - 1049
1050 - 2586
2587 - 5364
5365 - 10339



Possible Pedestrian Safety Countermeasures

Unsignalized Crosswalk Improvements

Hi	Md	Lo	Oth	Description
1	1	1	1	Crosswalk Signs, Markings & Lighting
2	2	2	2	Raised Crosswalk
3	3	3	3	Advance "Yield Here" Sign
4	4	4	4	In-Street Pedestrian Crossing
5	5	5	5	Curb Extension
6	6	6	6	Pedestrian Refuge Island
7	7	7	7	Rectangular Rapid Flashing Beacon
8	8	8	8	Road Diet
9	9	9	9	Pedestrian Hybrid Beacon

Signalized Crosswalk Improvements

10	10	10	10	Add Marked Crosswalks & Provide Countdown, Accessible Pedestrian Signals
11	11	11	11	Traffic Signal

Improvement Code Legend (See Matrix)

3B-FJ-SW-01

- 3B ← Station Number
- FJ ← Station Abbreviation
- SW ← Sidewalk (or CW for Crosswalk)
- 01 ← Improvement Number (Matches 1 on Map)

*Note: Need for improvement contingent on construction of local shared use-path.



3.3 Half-Mile Area Opinions of Probable Construction Cost

In addition to the Opinions of Probable Construction Cost (OPCC's) developed for the on-site improvements at DART Stations in Section 3.1, OPCC's were developed for nearly 1,100 separate high-priority improvements totalling nearly 58 linear miles in the half-mile areas surrounding each of the 28 DART stations within the study area.

OPCC's were developed in the half-mile areas for each high-priority improvement that was not assumed by City staff to be built by others (as part of another project by a developer, the City, TxDOT, etc.) in the near future. Aggregate OPCC's were developed for low- and medium-priority improvements by extrapolating average costs from the high-priority improvements.

Appendix G details the assumptions that were made in order to provide high-quality, yet preliminary OPCC's. Detailed unit price and quantity estimates for the individual high-priority Phase 1 half-mile area improvements are listed in Appendix K which supplement the OPCC's for the proposed DART property improvements in Plano provided in Appendix H. A summary of how overall cost estimates for low- and medium-priority Phase 2 and Phase 3 improvements were derived is also included in Appendix K.

The estimated cost of all projects in Garland is summarized in Table 2. For convenience, grand total costs are provided in both 2020 dollars and 2025 dollars, assuming for 2025 a 4% annual escalation rate for all three phases. Costs presented in all other figures, tables, and appendices of this report reflect 2020 dollars only.

Table 2: Summary Opinion of Probable Construction Cost for Improvements in Garland

Station No.	Station Area	DART Station Property	Half-Mile Area				
			High Priority (Phase 1)	Medium Priority (Phase 2)	Low Priority (Phase 3)	Grand Totals (2020)	Grand Totals (2025)
3A	Downtown Garland	\$174,500	\$7,134,400	\$4,732,400	\$4,017,400	\$16,058,700	\$19,537,900
3B	Forest Jupiter	\$188,400	\$3,020,900	\$1,986,400	\$2,489,600	\$7,685,300	\$9,350,400
City of Garland Totals		\$362,900	\$10,155,300	\$6,718,800	\$6,507,000	\$23,744,000	\$28,888,300

As shown in Table 2, the 2020 total estimate for all improvements in Garland is about \$23.7 million. High-priority Phase 1 multi-modal access improvements within the half-mile station areas inside Garland City limits are estimated to cost about \$10.2 million. Of this total, about \$363,000 would be the responsibility of DART on its station properties.

Medium- and low- priority costs for Phases 2 and 3 were estimated by developing more generalized unit costs for five types of improvements, based on all high-priority improvements City-wide. Tables 3-4 on page 26 illustrate this procedure.

The first row in each table lists the total linear feet of high-priority sidewalk, sidewalk repair, and Veloweb/shared use path construction City-wide, along with the respective cost totals. It also lists

the overall count and cost of crosswalks, classified as simple crosswalks (implemented with signs and markings only) or other crosswalks (which include beacons, islands, or signals). The bottom two rows of each table show how the same unit rates per linear foot or per each crosswalk were used to extrapolate overall cost estimates for the medium- and low-priority improvements without estimating costs for individual locations in those categories.

For reference, the unit price of 5 ft-wide sidewalk alone was assumed at \$35 per linear foot. The all-inclusive price per linear foot of sidewalk improvements (including items such as pedestrian ramps, utility relocation, retaining walls, driveway reconstruction, contingencies, etc.) was calculated for each of the high-priority improvements, ranging between a low of about \$61/LF to a high of about \$1,015/LF. Lower unit costs were associated with simple sidewalk improvements without obstacles, while higher unit costs were associated with higher densities of challenging conditions, especially along short segments.



Table 3: Opinion of Probable Construction Cost for Downtown Garland Station Half-Mile Area

Phase/ Priority	Sidewalks			Sidewalk Repairs			Veloweb/ Shared Use Paths			Simple Crosswalks			Other Crosswalks (with Beacon, Island or Signal)			Total Cost
	Lin. Ft	Cost	~\$/LF	Lin. Ft	Cost	~\$/LF	Lin. Ft	Cost	~\$/LF	#	Cost	~\$/EA	#	Cost	~\$/EA	
High Priority (All Garland)	34,850	\$ 9,632,600	\$ 277	490	\$ 97,100	\$ 199	855	\$ 69,700	\$ 82	5	\$ 170,900	\$ 34,180	2	\$ 338,400	\$ 169,200	***
Phase 1/ High*	19,975	\$ 7,009,900	-	115	\$ 36,400	-	-	-	-	3	\$ 88,100	-	-	-	-	\$ 7,134,400
Phase 2/ Medium**	14,795	\$ 4,098,300	\$ 277	970	\$ 193,100	\$ 199	-	-	\$ 82	3	\$ 102,600	\$ 34,180	2	\$ 338,400	\$ 169,200	\$ 4,732,400
Phase 3/ Low**	10,135	\$ 2,807,400	\$ 277	635	\$ 126,400	\$ 199	-	-	\$ 82	2	\$ 68,400	\$ 34,180	6	\$ 1,015,200	\$ 169,200	\$ 4,017,400
	44,905	\$ 13,915,600		1,720	\$ 355,900		-	-		8	\$ 259,100		8	\$ 1,353,600		\$ 15,884,200

* High priority cost opinions are based on field visits and bid item breakdowns, but without the benefit of survey, subsurface utility investigation, or other engineering information typically available for semi-final design.

** Medium- and low-priority cost opinions are not based on individual improvements, but instead extrapolated from cost/linear foot calculations for high-priority improvements; actual costs may vary significantly, especially for crosswalk improvements.

*** Costs for all Garland include costs attributed to DART and others in calculating average costs per unit length or crosswalk, and therefore do not match the total value shown in Table 2.

Table 4: Opinion of Probable Construction Cost for Forest Jupiter Station Half-Mile Area

Phase/ Priority	Sidewalks			Sidewalk Repairs			Veloweb/ Shared Use Paths			Simple Crosswalks			Other Crosswalks (with Beacon, Island or Signal)			Total Cost
	Lin. Ft	Cost	~\$/LF	Lin. Ft	Cost	~\$/LF	Lin. Ft	Cost	~\$/LF	#	Cost	~\$/EA	#	Cost	~\$/EA	
High Priority (All Garland)	34,850	\$ 9,632,600	\$ 277	490	\$ 97,100	\$ 199	855	\$ 69,700	\$ 82	5	\$ 170,900	\$ 34,180	2	\$ 338,400	\$ 169,200	***
Phase 1/ High*	14,875	\$ 2,622,700	-	375	\$ 60,700	-	855	\$ 69,700	-	2	\$ 82,800	-	2	\$ 338,400	-	***
Phase 2/ Medium**	6,740	\$ 1,867,000	\$ 277	600	\$ 119,400	\$ 199	-	-	\$ 82	-	-	\$ 34,180	-	-	\$ 169,200	\$ 1,986,400
Phase 3/ Low**	7,210	\$ 1,997,200	\$ 277	145	\$ 28,900	\$ 199	1,525	\$ 125,100	\$ 82	-	-	\$ 34,180	2	\$ 338,400	\$ 169,200	\$ 2,489,600
	28,825	\$ 6,486,900		1,120	\$ 209,000		2,380	\$ 194,800		2	\$ 82,800		4	\$ 676,800		***

* High priority cost opinions are based on field visits and bid item breakdowns, but without the benefit of survey, subsurface utility investigation, or other engineering information typically available for semi-final design.

** Medium- and low-priority cost opinions are not based on individual improvements, but instead extrapolated from cost/linear foot calculations for high-priority improvements; actual costs may vary significantly, especially for crosswalk improvements.

*** Costs for all Garland and Forest Jupiter Station high-priority improvements include costs attributed to DART and others in calculating average costs per unit length or crosswalk, and therefore do not match the total value shown in Table 2.



APPENDICES

APPENDIX A: Field Work Dates

APPENDIX B: Data Collection Maps & Forms

Downtown Garland Station

Forest Jupiter Station

APPENDIX C: Crosswalk Improvement Evaluation Details

APPENDIX D: Crosswalk Improvement Selection Tables

Downtown Garland Station

Forest Jupiter Station

APPENDIX E: Half-Mile Area Improvement Prioritization –
Initial Trial Methodology Details

APPENDIX F: Half-Mile Area Improvement Prioritization –
Final Methodology Details

APPENDIX G: Cost Estimating Details

APPENDIX H: Estimated Quantities & Opinions of Probable Construction Cost –
Station Property Improvements

Downtown Garland Station

Forest Jupiter Station

APPENDIX I: Half-Mile Area Recommendation Details &
Detailed Improvement Mapping

Downtown Garland Station

Forest Jupiter Station

APPENDIX J: Half-Mile Improvement Matrices

Downtown Garland Station

Forest Jupiter Station

APPENDIX K: Estimated Quantities & Opinions of Probable Construction Cost –
Half-Mile Improvements

Downtown Garland Station

Forest Jupiter Station

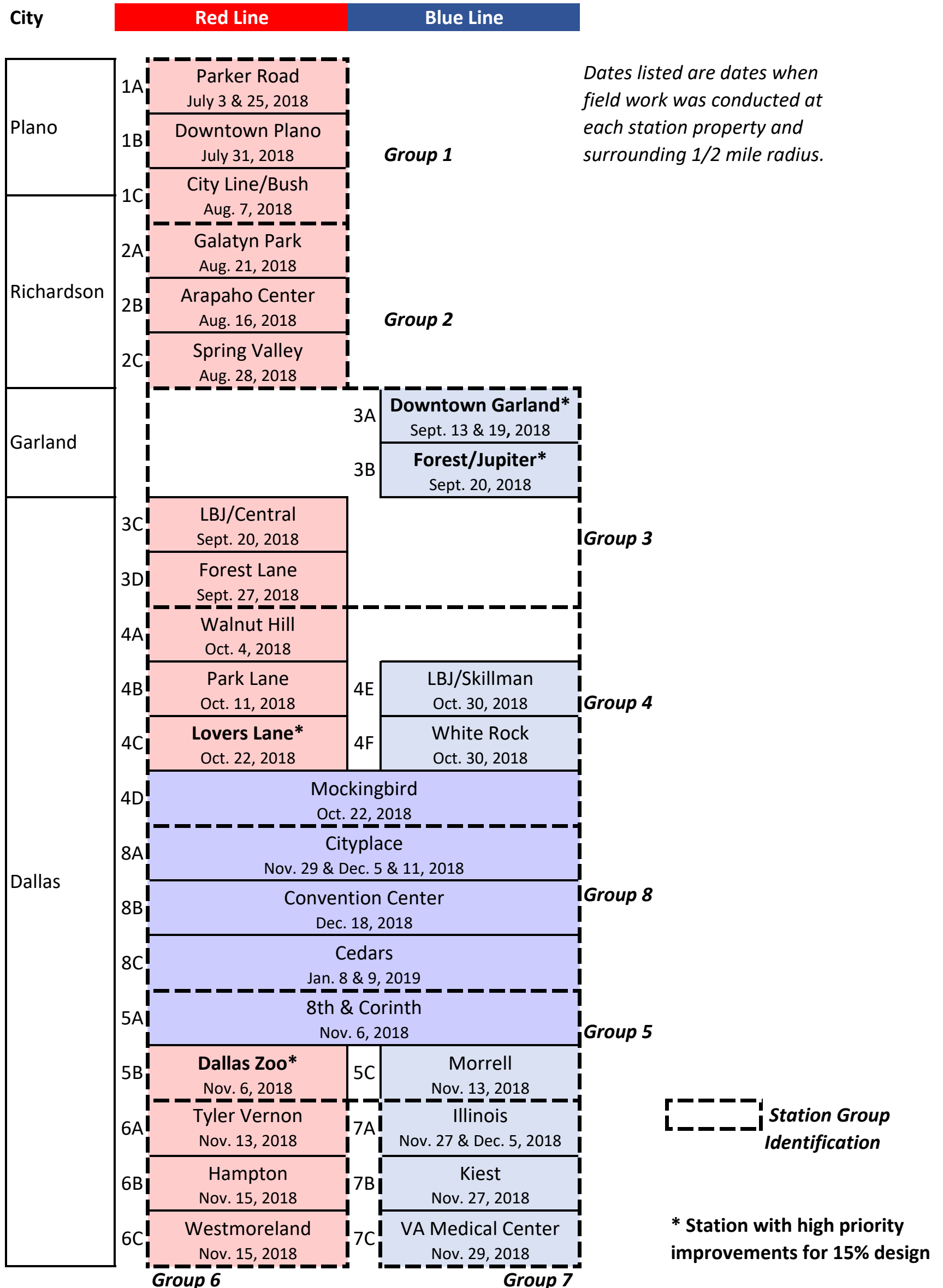


APPENDIX A: Field Work Dates



DART Red & Blue Line Last Mile Connections Project

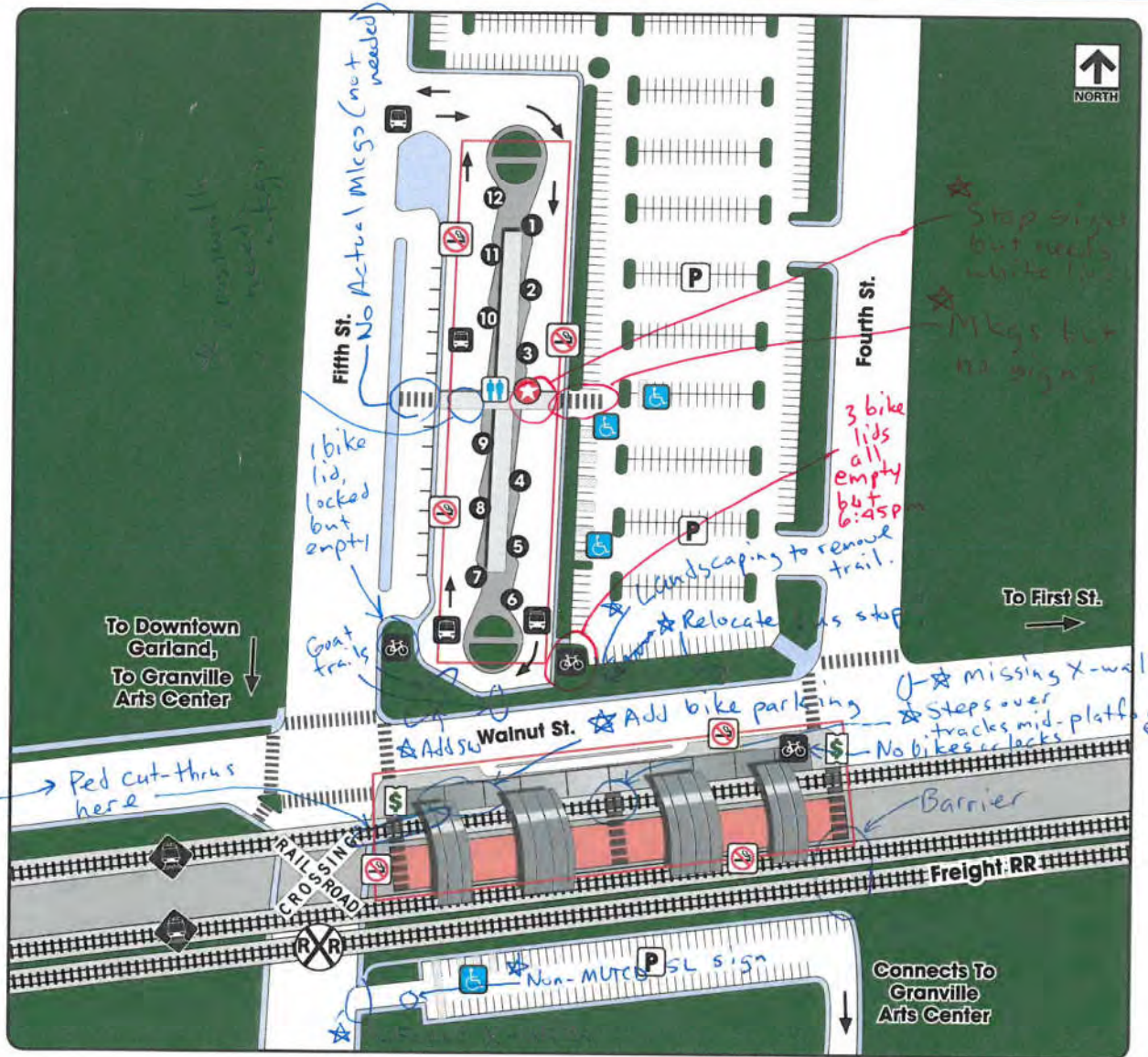
Project Schematic / Field Work Schedule



APPENDIX B: Data Collection Maps & Forms



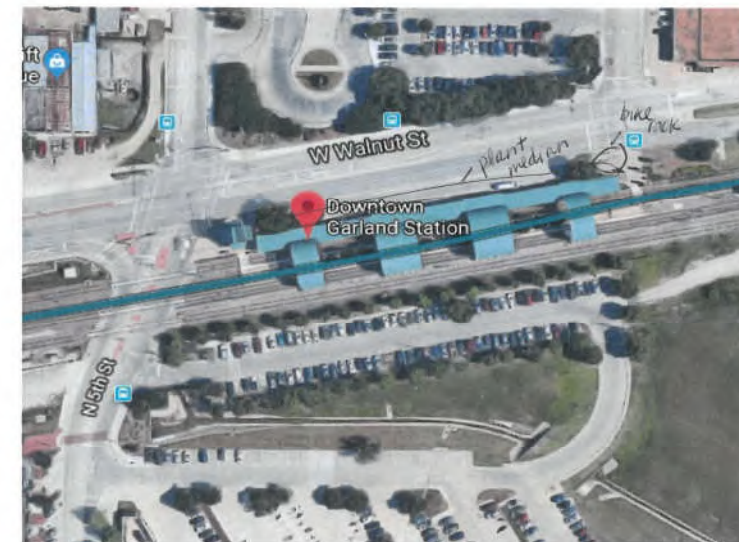
Downtown Garland Station



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Stations

Date _____
Station _____
Staff Name _____

Sketch bike & pedestrian observed travel & desire lines on aerial photo inserted below:
(Zoom out 1/2 block beyond station perimeter)



Are any desire lines missing a marked crossing location on a perimeter street, especially if mid-block? (If Yes, note on sketch and add line with "New" link ID on Crossings Checklist)

Y N
Y N
Y N
Y N
Y N
Y N
Y N

- Note bike parking locations (covered vs. rack vs. bikeshare)
- Do any travel routes differ significantly from linear desire lines?
- Note car & bus circulation patterns & conflict points
- Bike and ped desire lines continuously lit? (Note where if not).
- Trip hazards?
- Landscaping barriers? *plant median b/w rail & SW*
- Fences?
- Absent ramps?
- Bike/Pedestrian sight distance problems?
- Review questions (Post Construction Column) from p. 6-7 of Ped RSA Checklist
- Other Notes:

- ped not using crosswalk to cross Walnut St.



Legend

- You are here
- Rail Station Platform
- Bus Departures
- Ticket Vending Machine
- Parking
- Bicycle Parking
- Pedestrian Crosswalk
- Railroad Crossing
- Freight RR Crossing
- Accessible
- Restrooms
- No Smoking Areas (Outlined in RED)

Where to Board Bus

- 1** Paratransit
- 2** Rail Disruption Shuttle
- 3** 377
- 4** 463
- 5** 486
- 6** 402
- 7** 571
- 8** 566
- 9** 378
- 10** 380
- 11** 513
- 12** For Future Use

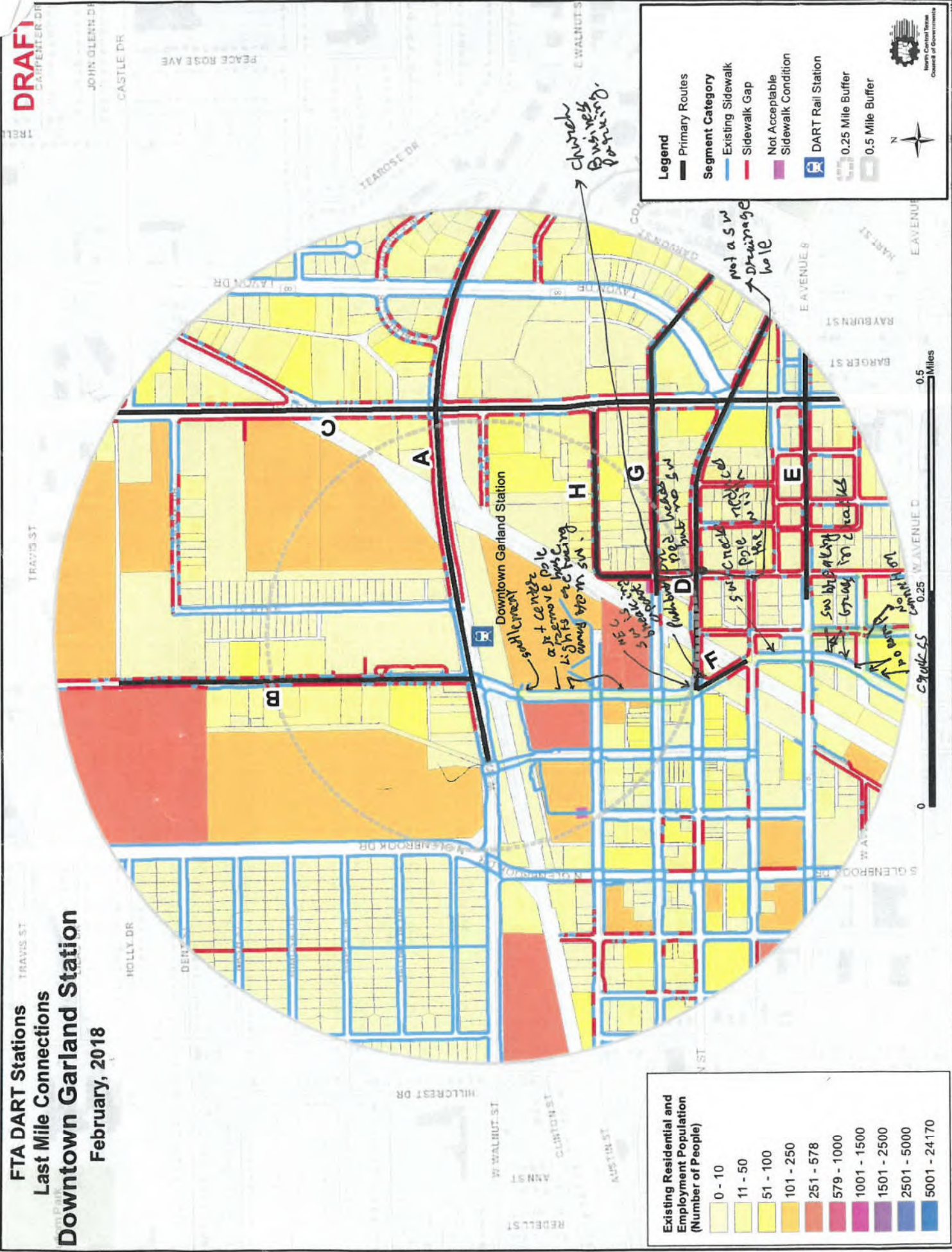
Information

Download the GoPass app

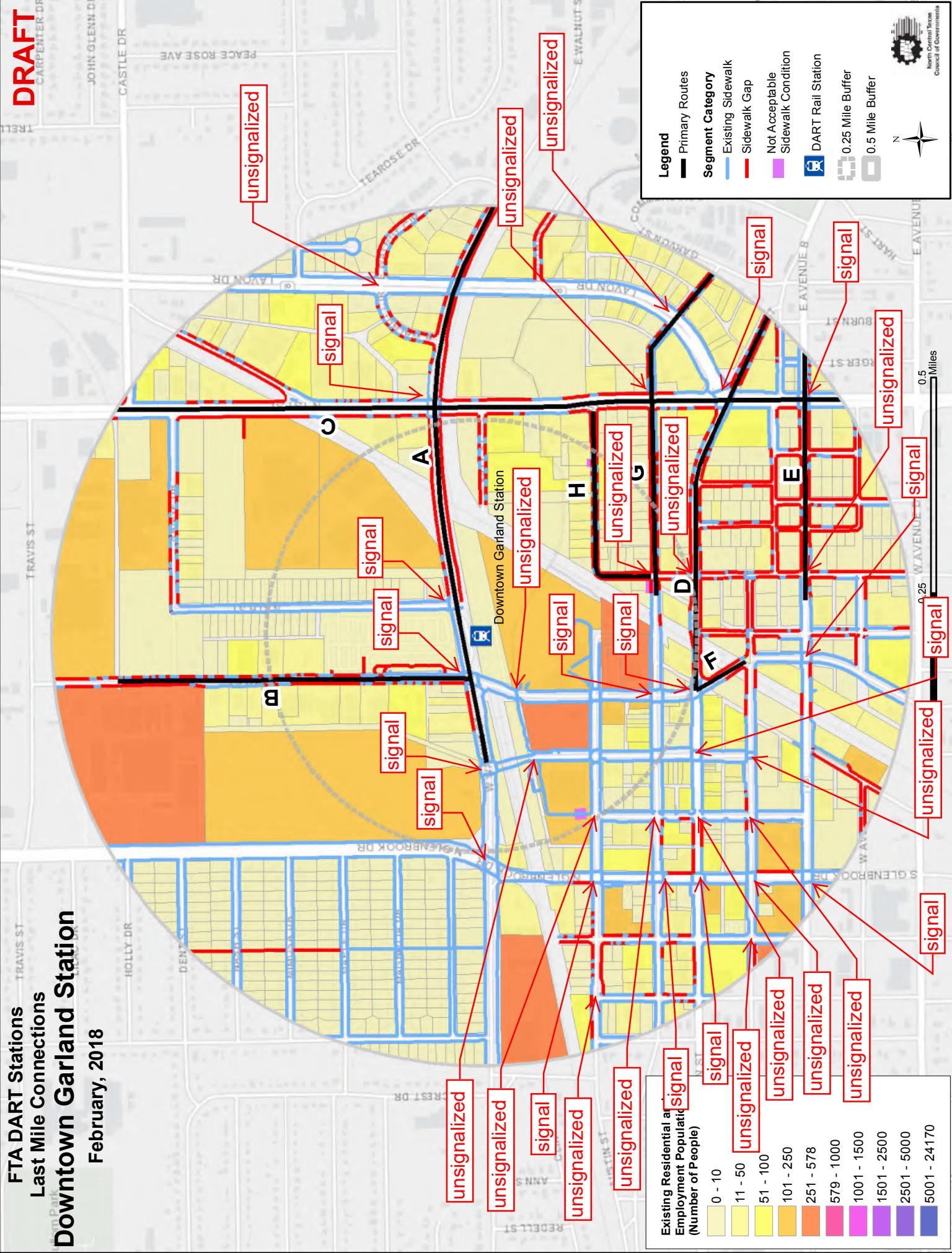
See Something? Say Something.

Text 214-256-1819
or call 214-928-6300

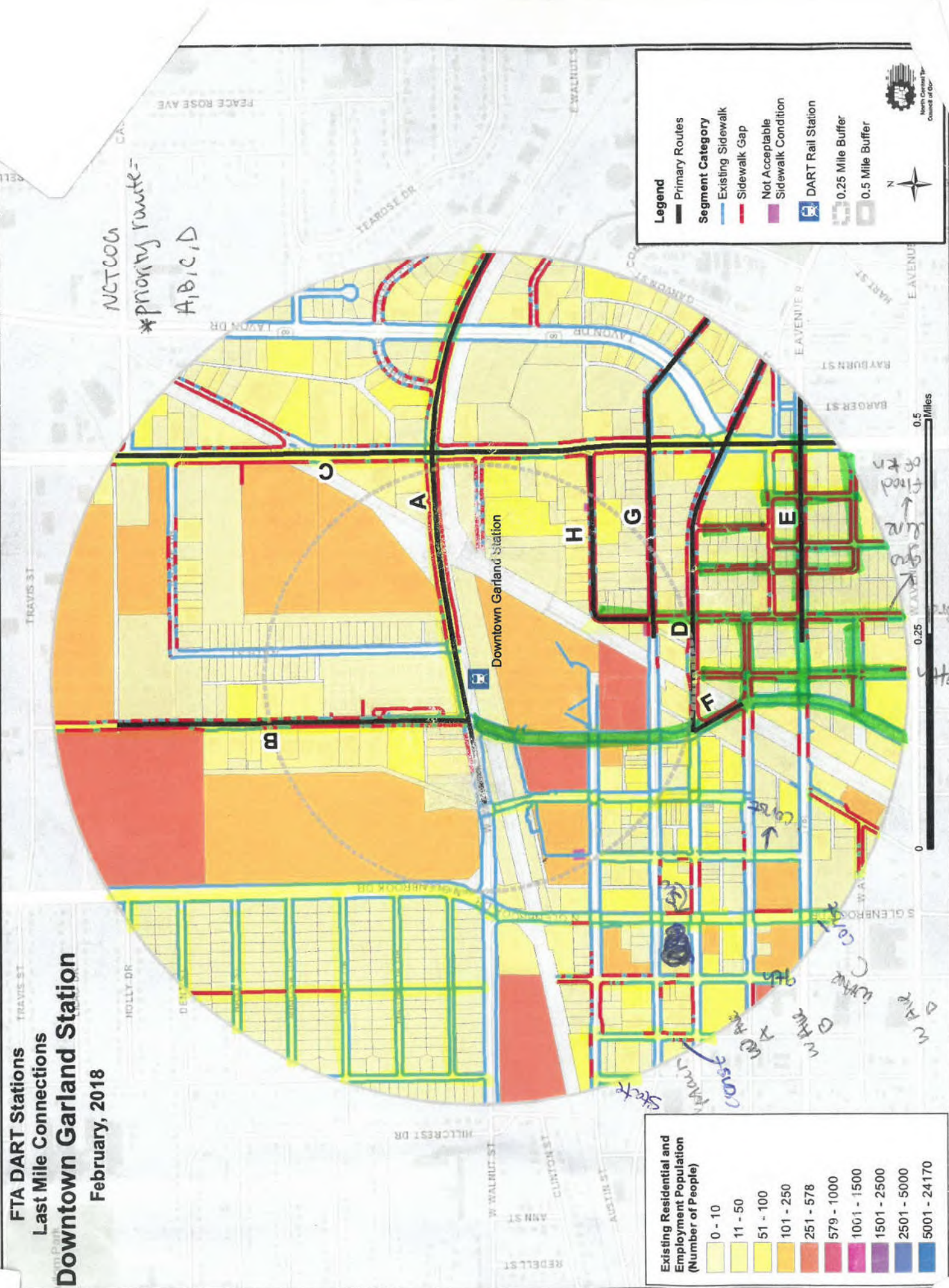
**FTA DART Stations
Last Mile Connections
Downtown Garland Station
February, 2018**



**FTA DART Stations
Last Mile Connections
Downtown Garland Station
February, 2018**



**FTA DART Stations
Last Mile Connections
Downtown Garland Station**
February, 2018



**DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalks**

Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths			If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder				
350.15G	W Walnut St	East Boundary	Parking Lot	NE	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
350.2	W Walnut St	Parking Lot		NE	5	5	Y	L	10	40	0	0	0	4	-	N	P, R, A
350.35G	W Walnut St		Walnut Cir E	N	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
350.45G	W Walnut St	Walnut Cir E	Driveway	N	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
350.5	W Walnut St	Driveway	N 1st St	N	5	5	Y	L	12	40	0	0	0	4	-	N	P, R, A
350.65G	W Walnut St	N 1st St	Railroad Tracks	N	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
350.75G	W Walnut St	Railroad Tracks	N 4th St	NW	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
350.8	W Walnut St	N 4th St	N 5th St	NW	6	6	Y	N	0	40	0	0	0	4	-	N	P, R, A
350.9	W Walnut St	N 5th St	Campus	NW	6	6	Y	L	12	40	0	0	0	4	-	N	P, R, A
351.1	W Walnut St	Campus	N Glenbrook Dr	N	6	6	Y	L	13	40	0	0	0	4	-	N	P, R, A
351.2	W Walnut St	N Glenbrook Dr	Sylvan Dr	N	4	4	Y	L	9	40	0	0	0	4	-	N	P, R, A
351.3	W Walnut St	Sylvan Dr	West Boundary	N	4	4	Y	L	5	40	0	0	0	4	-	N	P, R, A
352.1	W Walnut St	West Boundary	Sylvan Dr	S	6	6	Y	L	4	40	0	0	0	4	-	N	P, R, A
352.2	W Walnut St	Sylvan Dr	Parking Lot	S	6	6	Y	L	1	40	0	0	0	4	-	N	P, R, A
352.3	W Walnut St	Parking Lot	N Glenbrook Dr	S	6	6	Y	L	4	40	0	0	0	4	-	N	P, R, A
352.4	W Walnut St	N Glenbrook Dr	N 6th St	S	6	6	Y	L	4	40	0	0	0	4	-	N	P, R, A
352.5	W Walnut St	N 6th St	N 5th St	S	6	6	Y	N	0	40	0	0	0	4	-	N	P, R, A
352.6	W Walnut St	N 5th St	Station Area	S	6	6	Y	N	0	40	0	0	0	4	-	N	P, R, A
352.75G	W Walnut St	Station Area	N 1st St	S	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
352.85G	W Walnut St	N 1st St	Lavon Dr	S	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
352.95G	W Walnut St	Lavon Dr	East Boundary	S	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, A
353.15G	N 5th St	W Walnut St	Parking Lot	W	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, B
353.25G	N 5th St	Parking Lot		W	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, B
353.3	N 5th St	Parking Lot		W	6	6	Y	L	9	40	0	0	0	4	-	N	P, R, B
353.45G	N 5th St	Driveway	Fence	W	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, B
353.55G	N 5th St	Fence	North Boundary	W	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, B
354.15G	N 5th St	North Boundary	Fence	E	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, B
354.25G	N 5th St	Fence	Parking Lot	E	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, B
353.35G	N 5th St	Parking Lot	Parking Lot	E	0	0	Y	N	0	40	0	0	0	4	-	N	P, R, B
353.4	N 5th St	Parking Lot	W Walnut St	E	6.5	6.5	Y	N	0	40	0	0	0	4	-	N	P, R, B
354.1	N 1st St	Castle Dr	Range Dr	W	6	6	Y	N	0	40	0	0	0	6	-	N	P, R, C
354.25G	N 1st St	Range Dr	Driveway	W	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, C
354.35G	N 1st St	Driveway	Railroad Tracks	W	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, C
354.4	N 1st St	Railroad Tracks	Parking Lot	W	5	5	Y	L	5	40	0	0	0	6	-	N	P, R, C
354.55G	N 1st St	Parking Lot	W Walnut St	W	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, C
354.65G	N 1st St	W Walnut St	Katy St	W	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, C
354.75G	N 1st St	Katy St	Driveway	W	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, C
354.85G	N 1st St	Driveway	Parking Lot	W	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, C
355.1	N 1st St	Parking Lot	Driveway	W	5	5	Y	N	0	40	0	0	0	6	-	N	P, R, C
355.25G	N 1st St	Driveway	Austin St	W	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, C
355.35G	N 1st St	Austin St	W State St	W	0	0	Y	N	0	40	0	0	0	8	-	N	P, R, C
355.45G	N 1st St	W State St	Parking Lot	W	0	0	Y	N	0	40	0	0	0	8	-	N	P, R, C
355.55G	N 1st St	Parking Lot	Parking Lot	W	0	0	Y	N	0	40	0	0	0	8	-	N	P, R, C
355.65G	N 1st St	Parking Lot	Main St	W	0	0	Y	N	0	40	0	0	0	8	-	N	P, R, C
355.6	N 1st St	Main St	W Avenue B	W	6	6	Y	N	0	40	0	0	0	6	-	N	P, R, C
355.7	N 1st St	W Avenue B	South Boundary	W	6	6	Y	N	0	40	0	0	0	6	-	N	P, R, C
356.1	N 1st St	South Boundary	E Avenue B	E	6	6	Y	N	0	40	0	0	0	6	-	N	P, R, C
356.2	N 1st St	E Avenue B	E Avenue A	E	6	6	Y	N	0	40	0	0	0	6	-	N	P, R, C
356.3	N 1st St	E Avenue A	Parking Lot	E	6	6	Y	L	4	40	0	0	0	8	-	N	P, R, C
356.4	N 1st St	Parking Lot	Lavon Dr	E	4	4	Y	N	0	40	0	0	0	8	-	N	P, R, C
356.5	N 1st St	Lavon Dr	Parking Lot	E	6	6	Y	L	6	40	0	0	0	8	-	N	P, R, C
357.15G	N 1st St	Parking Lot	W State St	E	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, H
257.25G	N 1st St	W State St	Austin St	E	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, H
357.35G	N 1st St	Austin St	E Walnut St	E	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, H
357.4	N 1st St	E Walnut St	Driveway	E	5.5	5.5	Y	L	3.5	40	0	0	0	6	-	N	P, R, H
357.55G	N 1st St	Driveway	Parking Lot	E	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, H
357.6	N 1st St	Parking Lot	Profit Dr	E	4.5	4.5	Y	L	4.5	40	0	0	0	6	-	N	P, R, H
357.75G	N 1st St	Profit Dr	Parking Lot	E	0	0	Y	N	0	40	0	0	0	6	-	N	P, R, H
357.8	N 1st St	Parking Lot	Castle Dr	E	4	4	Y	L	5	40	0	0	0	6	-	N	P, R, H
358.1	N 4th St	W Walnut St	Range Dr	W	4	4	Y	L	6	30	16	0	0	2	-	N	P, R, H
358.2	N 4th St	W Walnut St	Range Dr	E	4	4	Y	L	6	30	16	0	0	2	-	N	P, R, H
358.35G	Range Dr	N 4th St	Driveway	N	0	0	Y	N	0	30	16	0	0	2	-	N	P, R, H
358.4	Range Dr	Driveway	N 1st St	N	4	4	Y	N	0	30	16	0	0	2	-	N	P, R, H
358.55G	Range Dr	N 4th St	Driveway	S	0	0	Y	N	0	30	16	0	0	2	-	N	P, R, H
358.6	Range Dr	Driveway	N 1st St	S	5	5	Y	L	3	30	16	0	0	2	-	N	P, R, H
359.15G	Katy St	N 1st St	end	N	0	0	Y	N	0	20 ADV	0	0	0	2	-	N	P, R, H
359.25G	Katy St	N 1st St	end	S	0	0	Y	N	0	20 ADV	0	0	0	2	-	N	P, R, H
360.15G	Austin St	N 1st St	N 3rd St	N	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
360.25G	Austin St	N 1st St	N 3rd St	S	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
360.35G	N 3rd St	Austin St	W State St	W	0	0	Y	N	0	30	0	0	0	2	-	N	P, R, H
360.45G	N 3rd St	Austin St	W State St	E	0	0	Y	N	0	30	0	0	0	2	-	N	P, R, H
361.15G	N 3rd St	W State St	Main St	W	0	0	Y	N	0	30	0	0	0	2	-	N	P, R, H
361.25G	N 3rd St	W State St	Main St	E	0	0	Y	N	0	30	0	0	0	2	-	N	P, R, H
363.35G	N 3rd St	Main St	W Avenue A	W	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
363.45G	N 3rd St	Main St	W Avenue A	E	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
363.55G	N 3rd St	W Avenue A	W Avenue B	W	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
363.65G	N 3rd St	W Avenue A	W Avenue B	E	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
363.75G	N 3rd St	W Avenue B	Driveway	W	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
363.85G	N 3rd St	Driveway	W Avenue C	W	4	4	N	L	12	30	0	0	0	2	-	N	P, R, H
363.95G	N 3rd St	W Avenue B	W Avenue C	E	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
364.15G	N 3rd St	W Avenue C	W Avenue D	W	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H
364.25G	N 3rd St	W Avenue C	W Avenue D	E	0	0	N	N	0	30	0	0	0	2	-	N	P, R, H

For Side of Street, choose:
 N NE
 S SE
 E NW
 W SW

Buffer Types:
 N = None
 S = Solid Surface
 L = Landscaped
 T = Landscaped w/ Trees
 V = Vertical (retaining wall)

*All lanes for 2-way street



Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths				If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder	No. of Lanes*				
365.15G	W State St	Garvon St	Lavon Dr	NE	0	0	Y	N	0	30	16	0	0	2	-	N	P.R.G	
365.25G	W State St	Garvon St	Lavon Dr	SW	0	0	Y	N	0	30	16	0	0	2	-	N	P.R.G	
365.35G	W State St	Lavon Dr	N 1st St	N	0	0	Y	N	0	30	16	0	0	2	-	N	P.R.G	
365.4	W State St	Lavon Dr	N 1st St	S	6.5	6.5	Y	L	4	30	16	0	0	2	-	N	P.R.G	
365.55G	W State St	N 1st St	N 3rd St	N	0	0	Y	N	0	30	16	0	0	2	-	N	P.R.G	
365.6	W State St	N 1st St	Parking Lot	S	6.5	6.5	Y	N	0	30	16	0	0	2	-	N	P.R.G	
365.75G	W State St	Parking Lot	Driveway	S	0	0	Y	N	0	30	16	0	0	2	-	N	P.R.G	
365.85G	W State St	Driveway	N 3rd St	S	0	0	N	N	0	30	16	0	0	2	-	N	P.R.G	
366.1	W State St	N 3rd St	Railroad Tracks	N	4	4	Y	L	6	30	0	0	0	2	-	N	P.R.G	
366.25G	W State St	N 3rd St	Driveway	S	0	0	Y	N	0	30	0	0	0	2	-	N	P.R.G	
366.3	W State St	Driveway		S	6	6	Y	L	3	30	0	0	0	2	-	N	P.R.G	
366.45G	W State St		Railroad Tracks	S	0	0	Y	N	0	30	0	0	0	2	-	N	P.R.G	
366.5	W State St	Railroad Tracks	Parking	N	6	6	Y	L	4	30	0	0	0	2	-	N	P.R.G	
366.6	W State St	Parking	N 5th St	N	6	6	Y	N	0	30	20	0	0	2	-	N	P.R.G	
366.7	W State St	Railroad Tracks	N 5th St	S	6.5	6.5	Y	N	0	30	0	0	0	2	-	N	P.R.G	
367.1	W State St	N 5th St	N 6th St	N	6	6	Y	N	0	30	20*2	0	0	2	-	N	P.R.G	
367.2	W State St	N 5th St	N 6th St	S	6.5	6.5	Y	N	0	30	20*2	0	0	2	-	N	P.R.G	
367.3	W State St	N 6th St	N 7th St	N	6	6	Y	N	0	30	20*2	0	0	2	-	N	P.R.G	
367.4	W State St	N 6th St	N 7th St	S	6	6	Y	N	0	30	20*2	0	0	2	-	N	P.R.G	
367.5	W State St	N 7th St	N Glenbrook Dr	N	6	6	Y	N	0	30	0	0	0	2	-	N	P.R.G	
367.6	W State St	N 7th St	N Glenbrook Dr	S	6	6	Y	N	0	30	0	0	0	2	-	N	P.R.G	
367.7	W State St	N Glenbrook Dr	S 9th St	N	6	6	Y	L	6	30	0	0	0	2	-	N	P.R.G	
367.8	W State St	N Glenbrook Dr	S 9th St	S	6	6	Y	N	0	30	0	0	0	2	-	N	P.R.G	
368.1	W State St	S 9th St	S 10th St	N	5	5	Y	N	0	30	0	0	0	2	-	N	P.R.G	
368.2	W State St	S 9th St	S 10th St	S	6	6	Y	N	0	30	0	0	0	2	-	N	P.R.G	
368.3	W State St	S 10th St	S 11th St	N	18	9	Y	N	0	30	0	0	0	2	-	N	P.R.G	
368.4	W State St	S 10th St	S 11th St	S	5	5	Y	L	2	30	0	0	0	2	-	N	P.R.G	
369.15G	Bankhead St	E Avenue A	N 1st St	NE	0	0	N	N	0	35	0	0	0	2	-	N	P.R.D	
369.25G	Bankhead St	E Avenue A	N 1st St	SW	0	0	N	N	0	35	0	0	0	2	-	N	P.R.D	
370.15G	Main St	N 1st St	Haskell Dr	NE	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.2	Main St	N 1st St	Driveway	SW	5	5	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.35G	Main St	Driveway	Haskell Dr	SW	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.45G	Main St	Haskell Dr	S 2nd St	N	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.55G	Main St	Haskell Dr	S 2nd St	S	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.65G	Main St	S 2nd St	S 3rd St	N	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.75G	Main St	S 2nd St	S 3rd St	S	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.85G	Main St	S 3rd St		N	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
370.9	Main St		S 4th St	N	4	4	Y	L	5	35	0	0	0	2	-	N	P.R.D	
371.15G	Main St	S 3rd St	S 4th St	S	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
372.15G	Main St	S 4th St	S 5th St	N	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
372.25G	Main St	S 4th St	S 5th St	S	0	0	Y	N	0	35	0	0	0	2	-	N	P.R.D	
372.3	Main St	S 5th St	change	N	8	8	Y	N	0	30	9*2	0	0	2	-	N	P.R.D	
372.4	Main St	S 5th St	change	S	10	6	Y	N	0	30	9*2	0	0	2	-	N	P.R.D	
372.5	Main St	change	S 6th St	N	6	6	Y	N	0	30	20+9	0	0	2	-	N	P.R.D	
372.6	Main St	change	S 6th St	S	10	6	Y	N	0	30	20+9	0	0	2	-	N	P.R.D	
372.7	Main St	S 6th St	S 7th St	N	6	6	Y	N	0	30	20+9	0	0	2	-	N	P.R.D	
372.8	Main St	S 6th St	S 7th St	S	10	6	Y	N	0	30	20+9	0	0	2	-	N	P.R.D	
373.15G	Main St	S 7th St	S Glenbrook Dr	N	7	7	Y	N	0	30	0	0	0	2	-	N	P.R.D	
373.25G	Main St	S 7th St		S	0	0	Y	N	0	30	0	0	0	2	-	N	P.R.D	
373.3	Main St		S Glenbrook Dr	S	5	5	Y	N	0	30	0	0	0	2	-	N	P.R.D	
373.4	Main St	S Glenbrook Dr	S 9th St	N	7	7	Y	N	0	30	0	0	0	2	-	N	P.R.D	
373.5	Main St	S Glenbrook Dr	S 9th St	S	5	5	Y	N	0	30	0	0	0	2	-	N	P.R.D	
373.65G	Main St	S 9th St	S 10th St	N	0	0	Y	N	0	30	0	0	0	2	-	N	P.R.D	
373.7	Main St	S 9th St	S 10th St	S	7	7	Y	N	0	30	0	0	0	2	-	N	P.R.D	
374.15G	E Avenue A	East Boundary		N	0	0	Y	N	0	30	0	0	0	2	-	N	P.R.D	
374.2	E Avenue A		S 21st St	N	5	5	Y	L	2	30	0	0	0	2	-	N	P.R.D	
374.3	E Avenue A	East Boundary	S 21st St	S	6	6	Y	N	0	30	0	0	0	2	-	N	P.R.D	
375.1	W Avenue A	S 21st St	Haskell Dr	N	6	6	N	L	10	30	0	0	0	2	-	N	P.R.D	
375.2	W Avenue A	S 21st St	Haskell Dr	S	6	6	N	L	6	30	0	0	0	2	-	N	P.R.D	
375.35G	W Avenue A	Haskell Dr	S 3rd St	N	0	0	N	N	0	30	0	0	0	2	-	N	P.R.D	
375.45G	W Avenue A	Haskell Dr	S 3rd St	S	0	0	N	N	0	30	0	0	0	2	-	N	P.R.D	
375.55G	W Avenue A	S 3rd St	S 5th St	N	0	0	N	N	0	30	0	0	0	2	-	N	P.R.D	
375.65G	W Avenue A	S 3rd St	S 5th St	S	0	0	N	N	0	30	0	0	0	2	-	N	P.R.D	
375.75G	W Avenue A	west of 5th	S 5th St	N	0	0	N	N	0	30	0	0	0	2	-	N	P.R.D	
375.8	W Avenue A	west of 5th	S 6th St	N	5	5	N	L	3	30	0	0	0	2	-	N	P.R.D	
376.1	W Avenue A	S 5th St	S 6th St	S	5	5	Y	N	0	30	0	0	0	2	-	N	P.R.D	
376.25G	W Avenue A	S 6th St	S 7th St	N	0	0	Y	N	0	30	0	0	0	2	-	N	P.R.D	
376.35G	W Avenue A	S 6th St	S 7th St	S	0	0	Y	N	0	30	0	0	0	2	-	N	P.R.D	
376.4	W Avenue A	S 7th St	S Glenbrook Dr	N	5	5	Y	N	0	30	0	0	0	2	-	N	P.R.D	
376.5	W Avenue A	S 7th St	S Glenbrook Dr	S	5	5	Y	L	4	30	0	0	0	2	-	N	P.R.D	
376.6	W Avenue A	S Glenbrook Dr	S 9th St	N	5	5	Y	N	0	30	20+9	0	0	2	-	N	P.R.D	
376.7	W Avenue A	S Glenbrook Dr	S 9th St	S	5	5	Y	N	0	30	20+9	0	0	2	-	N	P.R.D	
377.1	E Avenue B	East Boundary	S 1st St	N	4	4	Y	L	6	40	0	0	0	4	W	N	P.R.E	
377.25G	E Avenue B	East Boundary	S 1st St	S	0	0	Y	N	0	40	0	0	0	4	W	N	P.R.E	
377.35G	W Avenue B	N 1st St	S 3rd St	N	0	0	Y	N	0	40	0	0	0	4	W	N	P.R.E	
377.45G	W Avenue B	N 1st St	S 3rd St	S	0	0	Y	N	0	40	0	0	0	4	W	N	P.R.E	
377.5	W Avenue B	S 3rd St	S 5th St	N	4	4	Y	L	5	40	0	0	0	4	W	N	P.R.E	
377.6	W Avenue B	S 3rd St	S 5th St	S	4	4	Y	L	3	40	0	0	0	4	W	N	P.R.E	
377.7	W Avenue B	N 5th St	West Boundary	N	4	4	Y	L	3	40	0	0	0	4	W	N	P.R.E	
377.75G	W Avenue B	N 5th St	Railroad Tracks	N	0	0	Y	N	0	40	0	0	0	4	W	N	P.R.E	
377.8	W Avenue B	N 5th St	West Boundary	S	4	4	Y	L	3	40	0	0	0	4	W	N	P.R.E	
377.85G	W Avenue B	N 5th St	Railroad Tracks	S	0	0	Y	N	0	40	0	0	0	4	W	N	P.R.E	
378.3	N 5th St	W Walnut St	Austin St	W	20	10	Y	N	0	40	20	0	0	3	-	Y	P.R.F	
378.4	N 5th St	W Walnut St	Austin St	E	40	15	Y	N	0	40	20	0	0	3	-	Y	P.R.F	
378.5	N 5th St	Austin St	W State St	W	20	10	Y	N	0	40	20	0	0	3	-	Y	P.R.F	
378.6	N 5th St	Austin St	W State St	E	40	15	Y	N	0	40	20	0	0	3	-	Y	P.R.F	
378.7	N 5th St	W State St	Main St	W	5	5	Y	L	9	40	0	0	0	4	-	N	P.R.F	
378.8	N 5th St	W State St	Main St	E	5	5	Y	L	9	40	0	0	0	4	-	N	P.R.F	
379.15G	N 5th St	Main St	W Avenue A	SW	0	0	Y	N	0	40	0	0	0	4	-	N	P.R.F	
379.25G	N 5th St	Main St	W Avenue A	NE	0	0	Y	N	0	40	0	0	0	4	-	N	P.R.F	

For Side of Street, choose:
 N = None
 S = Solid Surface
 E = Landscaped
 W = Vertical (retaining wall)

Buffer Types:
 N = None
 S = Solid Surface
 L = Landscaped
 T = Landscaped w/ Trees
 V = Vertical (retaining wall)

*All lanes for 2-way street



Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths				If One-Way, Dir. of Travel	Lighting?	Condition Selection
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder	No. of Lanes*			
379.3	N 5th St	W Avenue A	South Boundary	W	20	10	Y	N	0	40	0	0	0	2	-	N	P.R.G
379.4	N 5th St	W Avenue A	South Boundary	E	20	10	Y	N	0	40	0	0	0	2	-	N	P.R.G
380.15G	Haskell Dr	Main St	W Avenue A	W	16	15	Y	N	0	40	0	0	0	2	-	N	P.R.G
380.25G	Haskell Dr	Main St	W Avenue A	E	16	15	Y	N	0	40	0	0	0	2	-	N	P.R.G
381.15G	S 2nd St	Main St	W Avenue A	W	16	15											

Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths				If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder	No. of Lanes*				
396.15G	9th St	North of Austin St	Austin St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
396.25G	9th St	Austin St	South of Austin St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
396.3	9th St	North of State St	State St	W	4	4	Y	N	0	30	0	0	0	2	-	N		
396.45G	9th St	State St	South of State St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
396.5	9th St	North of Main St	Main St	W	4	4	Y	N	0	30	0	0	0	2	-	N		
396.6	9th St	Main St	W Avenue A	W	5	5	Y	N	0	30	0	0	0	2	-	N		
396.7	9th St	W Avenue A	W Avenue B	W	4	4	Y	L	8	30	0	0	0	2	-	N		
397.15G	9th St	North of Austin St	Austin St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
397.25G	9th St	Austin St	State St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
397.35G	9th St	State St	Main St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
376.6	9th St	Main St	W Avenue A	E	6	6	Y	N	0	30	0	0	0	2	-	N		
397.4	9th St	W Avenue A	W Avenue B	E	5	5	Y	N	0	30	0	0	0	2	-	N		
398.1	10th St	Austin St	State St	W	5	3	Y	N	0	30	0	0	0	2	-	N		
398.2	10th St	State St	South of State St	W	5	5	Y	L	3	30	0	0	0	2	-	N		
398.35G	10th St	South of State St	Main St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
398.4	10th St	Austin St	South of Austin St	E	4	4	Y	N	0	30	0	0	0	2	-	N		
398.55G	10th St	South of Austin St	State St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
398.65G	10th St	State St	Main St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
399.1	Woodland Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	N	S	2	30	16	0	0	2	-	N		
399.2	Woodland Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	N	S	2	30	16	0	0	2	-	N		
399.3	Magnolia Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	4	30	16	0	0	2	-	N		
399.4	Magnolia Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	4	30	16	0	0	2	-	N		
399.5	Maple Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	4	30	16	0	0	2	-	N		
399.6	Maple Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	4	30	16	0	0	2	-	N		
399.7	Mimosa Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	5	30	16	0	0	2	-	N		
399.8	Mimosa Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	5	30	16	0	0	2	-	N		
399.9	Nash St	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	5	30	16	0	0	2	-	N		
400.1	Nash St	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	5	30	16	0	0	2	-	N		
400.2	Dent St	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	4	30	16	0	0	2	-	N		
400.3	Dent St	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	5	30	16	0	0	2	-	N		
5th	AVE B	AVE C	E	6	4	Y	L	2	40?	0	0	0	4	-	N	A		
5th	AVE C	South B	E	6	4	Y	L	2	40?	0	0	0	4	-	N	F		
AVE C	Fifth	Fourth	N	8	0	N	-	-	30 A	0	0	0	2	-	N	ON		
AVE C	4th	3rd	N	4	4	N/Y	D	20	30 A	0	0	0	2	-	N	F		
Bracket	B	Bracket	E	0	0	N	0	0	30 A	0	0	0	2	-	N	AL		
B	Bracket	3rd	N	0	0	N	0	0	30 A	0	0	0	2	-	N	AL		

For Side of Street, choose:
 N NE
 S SE
 E NW
 W SW

Buffer Types:
 N = None
 S = Solid Surface
 L = Landscaped
 T = Landscaped w/ Trees
 V = Vertical (retaining wall)

*All lanes for 2-way street



DART Red & Blue Line Last Mile Connections Project
 Field Data Checklist - Sidewalks

Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths				If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder	No. of Lanes*				
350.15G	W Walnut St	East Boundary	Parking Lot	NE	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
350.2	W Walnut St	Parking Lot		NE	5	5	Y	L	10	40	0	0	0	4	-	N	P.R. A	
350.35G	W Walnut St	Walnut Cir E		N	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
350.45G	W Walnut St	Walnut Cir E	Driveway	N	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
350.5	W Walnut St	Driveway	N 1st St	N	5	5	Y	L	12	40	0	0	0	4	-	N	P.R. A	
350.65G	W Walnut St	N 1st St	Railroad Tracks	N	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
350.75G	W Walnut St	Railroad Tracks	N 4th St	NW	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
350.8	W Walnut St	N 4th St	N 5th St	NW	6	6	Y	N	0	40	0	0	0	4	-	N	P.R. A	
350.9	W Walnut St	N 5th St	Campus	NW	6	6	Y	L	12	40	0	0	0	4	-	N	P.R. A	
351.1	W Walnut St	Campus	N Glenbrook Dr	N	6	6	Y	L	13	40	0	0	0	4	-	N	P.R. A	
351.2	W Walnut St	N Glenbrook Dr	Sylvan Dr	N	4	4	Y	L	9	40	0	0	0	4	-	N	P.R. A	
351.3	W Walnut St	Sylvan Dr	West Boundary	N	4	4	Y	L	5	40	0	0	0	4	-	N	P.R. A	
352.1	W Walnut St	West Boundary	Sylvan Dr	S	6	6	Y	L	4	40	0	0	0	4	-	N	P.R. A	
352.2	W Walnut St	Sylvan Dr	Parking Lot	S	6	6	Y	L	1	40	0	0	0	4	-	N	P.R. A	
352.3	W Walnut St	Parking Lot	N Glenbrook Dr	S	6	6	Y	L	4	40	0	0	0	4	-	N	P.R. A	
352.4	W Walnut St	N Glenbrook Dr	N 6th St	S	6	6	Y	L	4	40	0	0	0	4	-	N	P.R. A	
352.5	W Walnut St	N 6th St	N 5th St	S	6	6	Y	N	0	40	0	0	0	4	-	N	P.R. A	
352.6	W Walnut St	N 5th St	Station Area	S	6	6	Y	N	0	40	0	0	0	4	-	N	P.R. A	
352.75G	W Walnut St	Station Area	N 1st St	S	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
352.85G	W Walnut St	N 1st St	Lavon Dr	S	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
352.95G	W Walnut St	Lavon Dr	East Boundary	S	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. A	
353.15G	N 5th St	W Walnut St	Parking Lot	W	6.5	6.5	Y	N	0	40	0	0	0	4	-	N	P.R. B	
353.25G	N 5th St	Parking Lot		W	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. B	
353.3	N 5th St	Parking Lot		W	6	6	Y	L	9	40	0	0	0	4	-	N	P.R. B	
353.45G	N 5th St	Driveway	Fence	W	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. B	
353.55G	N 5th St	Fence	North Boundary	W	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. B	
354.15G	N 5th St	North Boundary	Fence	E	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. B	
354.25G	N 5th St	Fence	Parking Lot	E	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. B	
354.35G	N 5th St	Parking Lot	Parking Lot	E	0	0	Y	N	0	40	0	0	0	4	-	N	P.R. B	
354.4	N 5th St	Parking Lot	W Walnut St	E	6.5	6.5	Y	N	0	40	0	0	0	4	-	N	P.R. B	
354.1	N 1st St	Castle Dr	Range Dr	W	6	6	Y	N	0	40	0	0	0	6	-	N	P.R. C	
354.25G	N 1st St	Range Dr	Driveway	W	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
354.35G	N 1st St	Driveway	Railroad Tracks	W	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
354.4	N 1st St	Railroad Tracks	Parking Lot	W	5	5	Y	L	5	40	0	0	0	6	-	N	P.R. C	
354.55G	N 1st St	Parking Lot	W Walnut St	W	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
354.65G	N 1st St	W Walnut St	Katy St	W	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
354.75G	N 1st St	Katy St	Driveway	W	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
354.85G	N 1st St	Driveway	Parking Lot	W	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
355.1	N 1st St	Parking Lot	Driveway	W	5	5	Y	N	0	40	0	0	0	6	-	N	P.R. C	
355.25G	N 1st St	Driveway	Austin St	W	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
355.35G	N 1st St	Austin St	W State St	W	0	0	Y	N	0	40	0	0	0	8	-	N	P.R. C	
355.45G	N 1st St	W State St	Parking Lot	W	0	0	Y	N	0	40	0	0	0	8	-	N	P.R. C	
355.55G	N 1st St	Parking Lot	Parking Lot	W	0	0	Y	N	0	40	0	0	0	8	-	N	P.R. C	
355.65G	N 1st St	Parking Lot	Main St	W	0	0	Y	N	0	40	0	0	0	8	-	N	P.R. C	
355.7	N 1st St	Main St	W Avenue B	W	6	6	Y	N	0	40	0	0	0	6	-	N	P.R. C	
355.7	N 1st St	W Avenue B	South Boundary	W	6	6	Y	N	0	40	0	0	0	6	-	N	P.R. C	
356.1	N 1st St	South Boundary	E Avenue B	E	6	6	Y	N	0	40	0	0	0	6	-	N	P.R. C	
356.2	N 1st St	E Avenue B	E Avenue A	E	6	6	Y	N	0	40	0	0	0	6	-	N	P.R. C	
356.3	N 1st St	E Avenue A	Parking Lot	E	6	6	Y	L	4	40	0	0	0	8	-	N	P.R. C	
356.4	N 1st St	Parking Lot	Lavon Dr	E	4	4	Y	N	0	40	0	0	0	8	-	N	P.R. C	
356.5	N 1st St	Lavon Dr	Parking Lot	E	6	6	Y	L	6	40	0	0	0	8	-	N	P.R. C	
357.15G	N 1st St	Parking Lot	W State St	E	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
257.25G	N 1st St	W State St	Austin St	E	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
357.35G	N 1st St	Austin St	E Walnut St	E	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
357.4	N 1st St	E Walnut St	Driveway	E	5.5	5.5	Y	L	3.5	40	0	0	0	6	-	N	P.R. C	
357.55G	N 1st St	Driveway	Parking Lot	E	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
357.6	N 1st St	Parking Lot	Profit Dr	E	4.5	4.5	Y	L	4.5	40	0	0	0	6	-	N	P.R. C	
357.75G	N 1st St	Profit Dr	Parking Lot	E	0	0	Y	N	0	40	0	0	0	6	-	N	P.R. C	
357.8	N 1st St	Parking Lot	Castle Dr	E	4	4	Y	L	5	40	0	0	0	6	-	N	P.R. C	
35																		

Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths				If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder	No. of Lanes*				
365.15G	W State St	Garvon St	Lavon Dr	N	0	0	Y	N	0	30	16	0	0	2	-	N		P.R. G
365.25G	W State St	Garvon St	Lavon Dr	SW	0	0	Y	N	0	30	16	0	0	2	-	N		P.R. G
365.35G	W State St	Lavon Dr	N 1st St	N	0	0	Y	N	0	30	16	0	0	2	-	N		P.R. G
365.4	W State St	Lavon Dr	N 1st St	N	0	0	Y	N	0	30	16	0	0	2	-	N		P.R. G
365.55G	W State St	N 1st St	N 3rd St	N	6.5	6.5	Y	L	4	30	16	0	0	2	-	N		P.R. G
365.6	W State St	N 1st St	N 3rd St	N	0	0	Y	N	0	30	16	0	0	2	-	N		P.R. G
365.75G	W State St	Parking Lot	Parking Lot	S	6.5	6.5	Y	N	0	30	16	0	0	2	-	N		P.R. G
365.85G	W State St	Driveway	N 3rd St	S	0	0	Y	N	0	30	16	0	0	2	-	N		P.R. G
366.1	W State St	N 3rd St	Railroad Tracks	N	4	4	Y	L	6	30	0	0	0	2	-	N		P.R. G
366.25G	W State St	N 3rd St	Driveway	S	0	0	Y	N	0	30	0	0	0	2	-	N		P.R. G
366.3	W State St	Driveway	Driveway	S	0	0	Y	N	0	30	0	0	0	2	-	N		P.R. G
366.45G	W State St	Driveway	Railroad Tracks	S	6	6	Y	L	3	30	0	0	0	2	-	N		P.R. G
366.5	W State St	Railroad Tracks	Parking	N	6	6	Y	N	0	30	0	0	0	2	-	N		P.R. G
366.6	W State St	Parking	N 5th St	N	6	6	Y	L	4	30	0	0	0	2	-	N		P.R. G
366.7	W State St	Railroad Tracks	N 5th St	S	6.5	6.5	Y	N	0	30	20	0	0	2	-	Y		P.R. D
367.1	W State St	N 5th St	N 6th St	N	6	6	Y	N	0	30	0	0	0	2	-	Y		P.R. D
367.2	W State St	N 5th St	N 6th St	N	6	6	Y	N	0	30	20	0	0	2	-	Y		P.R. D
367.3	W State St	N 6th St	N 7th St	S	6.5	6.5	Y	N	0	30	20	0	0	2	-	Y		P.R. D
367.4	W State St	N 6th St	N 7th St	S	6	6	Y	N	0	30	20	0	0	2	-	Y		P.R. D
367.5	W State St	N 7th St	N Glenbrook Dr	N	6	6	Y	N	0	30	20	0	0	2	-	N		P.R. D
367.6	W State St	N 7th St	N Glenbrook Dr	N	6	6	Y	N	0	30	20	0	0	2	-	N		P.R. D
367.7	W State St	N Glenbrook Dr	N Glenbrook Dr	N	6	6	Y	N	0	30	0	0	0	2	-	Y		P.R. D
367.8	W State St	N Glenbrook Dr	S 9th St	N	6	6	Y	L	6	30	0	0	0	2	-	Y		P.R. D
368.1	W State St	S 9th St	S 10th St	N	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
368.2	W State St	S 9th St	S 10th St	N	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
368.3	W State St	S 10th St	S 11th St	N	18	9	Y	N	0	30	0	0	0	2	-	N		P.R. D
368.4	W State St	S 10th St	S 11th St	N	18	9	Y	N	0	30	0	0	0	2	-	N		P.R. D
369.15G	Bankhead St	E Avenue A	N 1st St	NE	0	0	N	L	2	30	0	0	0	2	-	N		P.R. D
369.25G	Bankhead St	E Avenue A	N 1st St	SW	0	0	N	N	0	35	0	0	0	2	-	N		P.R. D
370.15G	Main St	N 1st St	Haskell Dr	NE	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.2	Main St	N 1st St	Driveway	SW	5	5	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.35G	Main St	Driveway	Haskell Dr	SW	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.45G	Main St	Haskell Dr	S 2nd St	N	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.55G	Main St	Haskell Dr	S 2nd St	S	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.65G	Main St	S 2nd St	S 3rd St	N	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.75G	Main St	S 2nd St	S 3rd St	N	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.85G	Main St	S 3rd St	S 3rd St	S	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
370.9	Main St	S 3rd St	S 4th St	N	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
371.15G	Main St	S 3rd St	S 4th St	S	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
372.15G	Main St	S 4th St	S 5th St	N	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
372.25G	Main St	S 4th St	S 5th St	S	0	0	Y	N	0	35	0	0	0	2	-	N		P.R. D
372.3	Main St	S 5th St	change	N	8	8	Y	N	0	30	0	0	0	2	-	N		P.R. D
372.4	Main St	S 5th St	change	N	8	8	Y	N	0	30	0	0	0	2	-	N		P.R. D
372.5	Main St	change	S 6th St	S	10	10	Y	N	0	30	0	0	0	2	-	N		P.R. D
372.6	Main St	change	S 6th St	N	10	10	Y	N	0	30	0	0	0	2	-	N		P.R. D
372.7	Main St	S 6th St	S 7th St	S	10	10	Y	N	0	30	20+9	0	0	2	-	N		P.R. D
372.8	Main St	S 6th St	S 7th St	N	6	6	Y	N	0	30	20+9	0	0	2	-	N		P.R. D
373.15G	Main St	S 7th St	S Glenbrook Dr	N	10	6	Y	N	0	30	20+9	0	0	2	-	N		P.R. D
373.25G	Main St	S 7th St	S Glenbrook Dr	N	7	7	Y	N	0	30	20+9	0	0	2	-	N		P.R. D
373.3	Main St	S 7th St	S Glenbrook Dr	S	0	0	Y	N	0	30	0	0	0	2	-	N		P.R. D
373.4	Main St	S Glenbrook Dr	S Glenbrook Dr	S	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
373.5	Main St	S Glenbrook Dr	S 9th St	N	7	7	Y	N	0	30	0	0	0	2	-	N		P.R. D
373.65G	Main St	S 9th St	S 10th St	N	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
373.7	Main St	S 9th St	S 10th St	N	0	0	Y	N	0	30	0	0	0	2	-	N		P.R. D
374.15G	E Avenue A	East Boundary	S 10th St	N	7	7	Y	N	0	30	0	0	0	2	-	N		P.R. D
374.2	E Avenue A	East Boundary	S 10th St	N	0	0	Y	N	0	30	0	0	0	2	-	N		P.R. D
374.3	E Avenue A	East Boundary	S 21st St	N	5	5	Y	L	2	30	0	0	0	2	-	N		P.R. D
375.1	W Avenue A	S 1st St	Haskell Dr	N	6	6	Y	N	0	30	0	0	0	2	-	N		P.R. D
375.2	W Avenue A	S 1st St	Haskell Dr	N	6	6	Y	N	0	30	0	0	0	2	-	N		P.R. D
375.35G	W Avenue A	Haskell Dr	S 3rd St	S	6	6	N	L	10	30	0	0	0	2	-	N		P.R. D
375.45G	W Avenue A	Haskell Dr	S 3rd St	N	0	0	N	N	0	30	0	0	0	2	-	N		P.R. D
375.55G	W Avenue A	S 3rd St	S 3rd St	S	0	0	N	N	0	30	0	0	0	2	-	N		P.R. D
375.65G	W Avenue A	S 5th St	S 5th St	N	0	0	N	N	0	30	0	0	0	2	-	N		P.R. D
375.75G	W Avenue A	S 3rd St	S 5th St	S	0	0	N	N	0	30	0	0	0	2	-	N		P.R. D
375.8	W Avenue A	west of 5th	west of 5th	N	0	0	N	N	0	30	0	0	0	2	-	N		P.R. D
376.1	W Avenue A	S 5th St	S 6th St	N	5	5	N	L	3	30	0	0	0	2	-	N		P.R. D
376.25G	W Avenue A	S 5th St	S 6th St	S	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
376.35G	W Avenue A	S 6th St	S 7th St	N	0	0	Y	N	0	30	0	0	0	2	-	N		P.R. D
376.4	W Avenue A	S 7th St	S Glenbrook Dr	N	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
376.5	W Avenue A	S 7th St	S Glenbrook Dr	S	5	5	Y	L	4	30	0	0	0	2	-	N		P.R. D
376.6	W Avenue A	S Glenbrook Dr	S 9th St	N	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
376.7	W Avenue A	S Glenbrook Dr	S 9th St	N	5	5	Y	N	0	30	0	0	0	2	-	N		P.R. D
377.1	E Avenue B	East Boundary	S 1st St	N	5	5	Y	N	0	30	20+9	0	0	2	-	N		P.R. D
377.25G	E Avenue B	East Boundary	S 1st St	N	4	4	Y	L	6	40	20+9	0	0	2	-	N		P.R. D
377.35G	W Avenue B	N 1st St	S 3rd St	N	0	0	Y	N	0	40	0	0	0	4	W	N		P.R. E
377.45G	W Avenue B	N 1st St	S 3rd St	N	0	0	Y	N	0	40	0	0	0	4	W	N		P.R. E
377.5	W Avenue B	S 3rd St	S 5th St	N	0	0	Y	N	0	40	0	0	0	4	W	N		P.R. E
377.6	W Avenue B	S 3rd St	S 5th St	N	4	4	Y	L	5	40	0	0	0	4	W	N		P.R. E
377.7	W Avenue B	N 5th St	West Boundary	N	4	4	Y	L	3	40	0	0	0	4	W	N		P.R. E
377.75G	W Avenue B	N 5th St	Railroad Tracks	N	0	0	Y	N	0	40	0	0	0	4	W	N		P.R. E
377.8	W Avenue B	N 5th St	West Boundary	S	0	0	Y	N	0	40	0	0	0	4	W	N		P.R. E
377.85G	W Avenue B	N 5th St	Railroad Tracks	S	4	4	Y	L	3	40	0	0	0	4	W	N		P.R. E
378.3	N 5th St	W Walnut St	Austin St	W	0	0	Y	N	0	40	0	0	0	4	W	N		P.R. E
378.4	N 5th St	W Walnut St	Austin St	E	20	10	Y	N	0	40	20	0	0	3	-	Y		P.R. E
378.5	N 5th St	Austin St	W State St	W	20	10	Y	N	0	40	20	0	0	3	-	Y		P.R. E
378.6	N 5th St	Austin St	W State St	E	20	10	Y	N	0	40	20	0	0	3	-	Y		P.R. E
378.7	N 5th St	W State St	Main St	E	20	15	Y	N	0	40	20	0	0	3	-	Y		P.R. E
378.8	N 5th St	W State St	Main St	W	5	5	Y	L	9	40	20	0	0	3	-	Y		P.R. E
379.15G	N 5th St	Main St	W State St	E	6	6	Y	N	0	40	0	0	0	4	-	N		P.R. F
379.25G	N 5th St	Main St	W State St	NE	0	0	Y	N	0	40	0	0	0	4	-	N		P.R. F

For Side of Street, choose:
 N = None
 S = Solid Surface
 E = NW
 W = SW

Buffer Types:
 N = None
 S = Solid Surface
 L = Landscaped
 T = Landscaped w/ Trees
 V = Vertical (retaining wall)

*All lanes for 2-way street



Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths				If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder	No. of Lanes*				

Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk Width (ft)		Curb & Gutter?	Buffer		Prevailing Speed or Speed Limit (mph)	Street Widths				If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.		Type	Width		On-Street Parking	Bike Lane	Shoulder	No. of Lanes*				
396.15G	9th St	North of Austin St	Austin St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
396.25G	9th St	Austin St	South of Austin St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
396.3	9th St	North of State St	State St	W	4	4	Y	N	0	30	0	0	0	2	-	N		
396.45G	9th St	State St	South of State St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
396.5	9th St	North of Main St	Main St	W	4	4	Y	N	0	30	0	0	0	2	-	N		
396.6	9th St	Main St	W Avenue A	W	5	5	Y	N	0	30	0	0	0	2	-	N		
396.7	9th St	W Avenue A	W Avenue B	W	4	4	Y	L	8	30	0	0	0	2	-	N		
397.15G	9th St	North of Austin St	Austin St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
397.25G	9th St	Austin St	State St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
397.35G	9th St	State St	Main St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
376.6	9th St	Main St	W Avenue A	E	6	6	Y	N	0	30	0	0	0	2	-	N		
397.4	9th St	W Avenue A	W Avenue B	E	5	5	Y	N	0	30	0	0	0	2	-	N		
398.1	10th St	Austin St	State St	W	5	3	Y	N	0	30	0	0	0	2	-	N		
398.2	10th St	State St	South of State St	W	5	5	Y	L	3	30	0	0	0	2	-	N		
398.35G	10th St	South of State St	Main St	W	0	0	Y	N	0	30	0	0	0	2	-	N		
398.4	10th St	Austin St	South of Austin St	E	4	4	Y	N	0	30	0	0	0	2	-	N		
398.55G	10th St	South of Austin St	State St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
398.65G	10th St	State St	Main St	E	0	0	Y	N	0	30	0	0	0	2	-	N		
399.1	Woodland Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	N	S	2	30	16	0	0	2	-	N		
399.2	Woodland Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	N	S	2	30	16	0	0	2	-	N		
399.3	Magnolia Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	4	30	16	0	0	2	-	N		
399.4	Magnolia Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	4	30	16	0	0	2	-	N		
399.5	Maple Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	4	30	16	0	0	2	-	N		
399.6	Maple Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	4	30	16	0	0	2	-	N		
399.7	Mimosa Dr	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	5	30	16	0	0	2	-	N		
399.8	Mimosa Dr	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	5	30	16	0	0	2	-	N		
399.9	Nash St	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	5	30	16	0	0	2	-	N		
400.1	Nash St	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	5	30	16	0	0	2	-	N		
400.2	Dent St	Sylvan Dr	N Glenbrook Dr	N	4	4	Y	L	4	30	16	0	0	2	-	N		
400.3	Dent St	Sylvan Dr	N Glenbrook Dr	S	4	4	Y	L	5	30	16	0	0	2	-	N		

For Side of Street, choose:
 N = NE
 S = SE
 E = NW
 W = SW

Buffer Types:
 N = None
 S = Solid Surface
 L = Landscaped
 T = Landscaped w/ Trees
 V = Vertical (retaining wall)

*All lanes for 2-way street



DART Red & Blue Line Last Mile Connections Project
 Field Data Checklist - Signalized Crossings

Station Area Date Staff Name

Link ID or New	Location Type (circle one)	Street Crossed	Int. Leg. Control?	Stop Control?	Lighting Present?	No. Lanes Crossed		Med. Refuge Width	Both Ped. Ramps Present?	Permitted Left Turns?	Permitted Right Turns?	Countdown Ped. Signals?	If Signalized		>1 Refuge Island?	No. of Lanes Crossed at Once	>4 legs or high skew	Closed or limited x-walks	Channelized Right Turns	Photo(s)?	Notes
						Direction	Total						Functional?	w/ATS Signals?							
		N Glenbrook Dr	W Walnut St	N	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		N Glenbrook Dr	W Walnut St	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	W	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	E	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		
		W Walnut St	N Glenbrook Dr	S	Y	N	2	5	2	Y	Y	Y	Y	Y	N	5	N	N	Y		

DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location 2nd betⁿ main & Ave A

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

Utility poles?	NO	
Underground utilities?	YES	
Trees?	NO	
Slopes?	NO	
Other structures?		
Rail crossings?	NO	
Business parking/access management issues?	YES to N at main	
Insufficient bridge width?	NO	

Take photos and notes to document.

Other Notes:

E side

W side.

DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date 9/12/18
 Station Duxbury Charland
 Staff Name _____
 Location 5th St
Main St to W Ave A
(west)

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

Utility poles? NO

Underground utilities? maybe

Trees? NO

Slopes? NO

Other structures? NO

Rail crossings? YES

Business parking/access management issues? NO

Insufficient bridge width? NO

Take photos and notes to document. ✓

Other Notes:

near rail crossing



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location W Ave C

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

Santa Fe to W Bowd. Chart : south

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? *No*
- Underground utilities? *sewage*
- Trees? *No*
- Slopes? *slight*
- Other structures? *No*
- Rail crossings? *No*
- Business parking/access management issues? *No*
- Insufficient bridge width? *NO*
- Take photos and notes to document.

Other Notes:

DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location Main St

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

5th to 4th (south & north)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? *No*
- Underground utilities? *storm sewer*
- Trees? *No*
- Slopes? *No*
- Other structures? *No*
- Rail crossings? *Yes*
- Business parking/access management issues? *No*
- Insufficient bridge width? *No*
- Take photos and notes to document.

Other Notes:

rail crossing



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location W Ave A

Haskell to
(north to
south)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? sewage
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document.

Other Notes:

-fh



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 1st Ave B

1st to

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? maybe
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width?
- Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location W Ace B

3rd to driveway
Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
Underground utilities? maybe
Trees? No
Slopes? No
Other structures? No
Rail crossings? No
Business parking/access management issues? No
Insufficient bridge width? No
Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location W Ace C

2nd to 1st
Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
Underground utilities? sewage
Trees? No
Slopes? No
Other structures? No
Rail crossings? No
Business parking/access management issues? No
Insufficient bridge width? No
Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location W Ave A

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

Haskell to (circle) Haskell
(north)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? (circle) water meter
- Trees? No
- Slopes? slight
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No

Take photos and notes to document.

Other Notes:

- fh
- street sign



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location W Ave A

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

St to Haskell
(south)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? swage
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location AVE C @ 5th and 4th N/Sib

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

- Utility poles? _____
 - Underground utilities? _____
 - Trees? _____
 - Slopes? _____
 - Other structures? _____
 - Rail crossings? _____
 - Business parking/access management issues? _____
 - Insufficient bridge width? _____
 - Take photos and notes to document. _____
- NO

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location AVE C betⁿ 4th and 3rd

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

- Utility poles? _____ *705 Guy wires SWC of C @ 4th*
 - Underground utilities? _____ *may be SWC of C @ and 3rd*
 - Trees? _____ *NO*
 - Slopes? _____ *open drainage*
 - Other structures? _____
 - Rail crossings? _____
 - Business parking/access management issues? _____
 - Insufficient bridge width? _____
 - Take photos and notes to document. _____
- NO except drainage may need to buy ROW from the home.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location _____

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	3 rd E side bet ⁿ B & C	3 rd E side bet ⁿ A & B	3 rd E side bet ⁿ Main & A
Utility poles?	yes	yes	main to A yes
Underground utilities?	yes (cable/water)	maybe	maybe
Trees?	no	no	no
Slopes?	no	some	some no
Other structures?	no		
Rail crossings?	no		
Business parking/access management issues?	no	no	
Insufficient bridge width?	no		no

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location _____

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	3 rd E side, state & main	3 rd E side, Antion to state
Utility poles?	yes	yes
Underground utilities?	maybe	maybe
Trees?	no	no
Slopes?	no	no
Other structures?	no	no any wires
Rail crossings?	no	no
Business parking/access management issues?	yes	no
Insufficient bridge width?	no	no

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location Haskell betⁿ Main & Ave A

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

Utility poles? at WEC Haskell & A W side
 Underground utilities? yes
 Trees? yes
 Slopes? open drainage
 Other structures? No
 Rail crossings? no
 Business parking/access management issues? yes to the N
 Insufficient bridge width? -

W side
No
may be
no
open drainage
no
no
yes to the N
-

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location A betⁿ 3rd & Haskell

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

Utility poles? no N side
 Underground utilities? may be
 Trees? No
 Slopes? open drainage
 Other structures? No
 Rail crossings?
 Business parking/access management issues?
 Insufficient bridge width?

S side
no
yes
no
open drainage
No
-

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location _____

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

Utility poles? NE side
 Underground utilities? yes
 Trees? no
 Slopes? open drainage
 Other structures? No
 Rail crossings?
 Business parking/access management issues?
 Insufficient bridge width?
 Take photos and notes to document.

2nd betⁿ A to B
W side
yes at SWC 2nd & A
 Utility poles? yes
 Underground utilities? yes
 Trees? yes
 Slopes? open drainage
 Other structures? no
 Rail crossings?
 Business parking/access management issues?
 Insufficient bridge width?
 Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location _____

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

Utility poles? E side
 Underground utilities? may be
 Trees? -
 Slopes? -
 Other structures? sign
 Rail crossings? -
 Business parking/access management issues? -
 Insufficient bridge width? -
 Take photos and notes to document. -

Bracket betⁿ B to Bracket
W side.
 Utility poles? -
 Underground utilities? may be.
 Trees? -
 Slopes? -
 Other structures? -
 Rail crossings? -
 Business parking/access management issues? yes on N end
 Insufficient bridge width? -
 Take photos and notes to document. -

Other Notes:



DART Red & Blue Line Last Mile Connections Project
 Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location _____

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	N side	Bracket bet ⁿ 2 nd .	Bracket to S side.
Utility poles?	yes	-	-
Underground utilities?	may be	-	may be
Trees?	-	-	-
Slopes?	No	-	yes.
Other structures?	-	-	sign
Rail crossings?	No	-	No
Business parking/access management issues?	-	-	↓
Insufficient bridge width?	-	-	↓

Other Notes:



DART Red & Blue Line Last Mile Connections Project
 Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location _____

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	N side	B bet ⁿ 3 rd .	Bracket to south side.
Utility poles?	No	-	-
Underground utilities?	-	-	may be
Trees?	No	-	No
Slopes?	No	-	No
Other structures?	-	Bus stop sign	No
Rail crossings?	-	No	No
Business parking/access management issues?	-	No	No
Insufficient bridge width?	-	No	No

Other Notes:



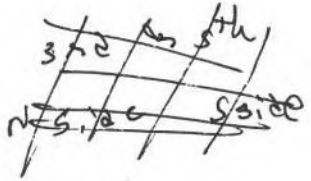
DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location AVE B N side

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

Utility poles?	yes	1st to 3rd N side	S side
Underground utilities?	yes		no
Trees?	no		may be
Slopes?	no		no
Other structures?	signs		no
Rail crossings?	no		signs
Business parking/access management issues?	yes		no
Insufficient bridge width?	no		no
Take photos and notes to document.			(Feasible)



Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
 Station _____
 Staff Name _____
 Location 9th St

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

Austin to dead end (east & west)

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

Utility poles?	yes
Underground utilities?	maybe
Trees?	No
Slopes?	No
Other structures?	No
Rail crossings?	No
Business parking/access management issues?	No
Insufficient bridge width?	No
Take photos and notes to document.	✓

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 10th

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist. State to Main (east & west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? maybe
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document.

Other Notes:
- east side under const.



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 10th

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist. State to Austin

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? yes
- Underground utilities? maybe
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? no
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document.

Other Notes:
- gap from drwy to State



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location Glenbrook

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

Main to Stark
(east)
(west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? maybe
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document.

Other Notes:

- parking lot for companies



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location Santa Fe

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

W Ave C to
W Ave B
(east - west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? sewage
- Trees? No
- Slopes? major
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document.

Other Notes:

- debris in sewage drainage



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location Haskell

W Ave A to W Ave B
(east to west)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? sewage
- Trees? Yes
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document. (circled) ✓

Other Notes:

- home owner's statues in sw line (west)
- sw in front of "Tax Pro" shop only (east)



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location Haskell

W Ave B to W Ave C
(west)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? maybe
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document. ✓

Other Notes:

- driveway on east side (entire link)
- fh on east



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 2nd St.

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.
W Ave A to W Ave B (east : west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

Utility poles? No

Underground utilities? verizon wireless (west)

Trees? No

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document.

Other Notes:

- mailbox (east)



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 2nd St.

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.
W Ave B to W Ave C (east : west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

Utility poles? No

Underground utilities? maybe

Trees? No

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document.

Other Notes:

- sw starts @ drwy, end @ "SCA Auto"
- need to buy ROW from residential lot (both side)
- sw @ Bracket st to ^{house} ~~driveway~~ (west)



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 4th St house
W Ave C to W Ave D
(east)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? Storm sewer
- Trees? No
- Slopes? slight
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document. Yes ✓

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 4th
W Ave C to W Ave B
(west)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? Storm sewer
- Trees? No
- Slopes? (C)
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document. ✓

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 4th St

Main to W Ave A
(west)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? storm sewer
- Trees? No
- Slopes? slight
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 4th

Main to W Ave A
(east)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? maybe
- Trees? Yes
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 24th

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

W Ave A to W Ave B
(east & west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? NO
- Underground utilities? uniform wireless
- Trees? NO
- Slopes? NO
- Other structures? NO
- Rail crossings? NO
- Business parking/access management issues? NO
- Insufficient bridge width? NO

Take photos and notes to document.

Other Notes:

- * sw in front of house
- ~~area~~ poor condition
- from W Ave A to fence



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 3rd st

Instructions : When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

W Ave C to W Ave D
(east & west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? NO
- Underground utilities? storm sewer
- Trees? NO
- Slopes? NO
- Other structures? NO
- Rail crossings? NO
- Business parking/access management issues? NO
- Insufficient bridge width? NO

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 3rd St

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

W Ave B to Hwy (west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

Utility poles? *NO*

Underground utilities? *storm sewer*

Trees? *NO*

Slopes? *NO*

Other structures? *NO*

Rail crossings? *NO*

Business parking/access management issues? *NO*

Insufficient bridge width? *NO*

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location W Ave B to Hwy (west)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

W Ave B to W Ave A (west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

Utility poles? *NO*

Underground utilities? *storm sewer*

Trees? *NO*

Slopes? *slight*

Other structures? *NO*

Rail crossings? *NO*

Business parking/access management issues? *NO*

Insufficient bridge width? *NO*

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 3rd st

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist. W Ave A to Main St (west)

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? No
- Underground utilities? storm sewer
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document.

Other Notes:

- sw from W Ave A to end of house
- poor condition



DART Red & Blue Line Last Mile Connections Project
Field Data Checklist - Sidewalk Gaps

Date _____
Station _____
Staff Name _____
Location 3rd

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist. Main to State

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

- Utility poles? NO
- Underground utilities? maybe
- Trees? No
- Slopes? No
- Other structures? No
- Rail crossings? No
- Business parking/access management issues? No
- Insufficient bridge width? No
- Take photos and notes to document.

Other Notes:



Field Data Checklist - Sidewalks

Group Link	Street Name	From Street	To Street	Side of Street	Sidewalk		Curb & Gutter?	Type	Width (ft)	Buffer	Prevailing Speed or Speed Limit (mph)	Street Widths			If One-Way, Dir. of Travel	Lighting?	Condition Selection	Grouping
					Actual	Eff.						On-Street Parking	Bike Lane	Shoulder				
410.1	Forest Lane	east boundary	S International Rd	N	6	6	Y	L	3	45	0	0	0	3	W	N		
410.2	Forest Lane	S International Rd	Railroad	N	4	4	Y	L	2	45	0	0	0	3	W	N		
410.3	Forest Lane	Railroad	S Kirby	N	4	4	Y	L	2	45	0	0	0	3	W	N		
410.4	Forest Lane	S Kirby	Pawn Shop	N	4	4	Y	L	2	45	0	0	0	3	W	N		
410.5	Forest Lane	Pawn Shop	Barnes St 400	N	4	4	Y	L	2	45	0	0	0	3	W	N		
410.6	Forest Lane	Barnes St 400	S Jupiter Rd	N	6	6	Y	L	3	45	0	0	0	3	E	N		
410.7	Forest Lane	S Jupiter Rd	West (Airgas)	N	5.5	5.5	Y	L	4	45	0	0	0	3	E	N		
411.1	Forest Lane	West (Airgas)	Forest Center PLZ	N	5.5	5.5	Y	L	4	45	0	0	0	3	E	N		
411.2	Forest Lane	Forest Center PLZ	Harris Hill School	S	5.5	5.5	Y	L	5	45	0	0	0	3	E	N		
411.3	Forest Lane	Harris Hill School	S Jupiter Rd	S	6	6	Y	L	5	45	0	0	0	3	E	N		
411.6	Forest Lane	Parking Lot	S Jupiter Rd	S	6	6	Y	L/N	5	45	0	0	0	3	E	N		
411.7	Forest Lane	S Jupiter Rd	Forest/Jupiter Station	S	6	6	Y	L	5	45	0	0	0	3	E	N		
411.8	Forest Lane	Forest/Jupiter Station	Railroad	S	4.5	4.5	Y	L	4.5	45	0	0	0	3	E	N		
411.9	Forest Lane	Forest/Jupiter Station	east boundary	S	4	4	Y	L	3	45	0	0	0	3	E	N		Primary Rout
412.1	Forest Lane	Railroad	Forest Lane	W	0	0	Y	N	0	45	1	0	0	2	-	N		
413.15G	Barnes St 400	Forest Lane	Apts	W	4	4	Y	N	0	45	0	0	0	2	-	N		
413.2	Barnes St 400	Apts	Edgewood	W	0	0	Y	N	0	45	0	0	0	2	-	N		
413.35G	Barnes St 400	Edgewood	north boundary	W	4	4	Y	N	0	45	0	0	0	2	-	N		
413.4	Barnes St 400	north boundary	Edgewood	E	0	0	Y	N	0	45	0	0	0	2	-	N		
413.55G	Barnes St 400	Edgewood	Benton St	E	4	4	Y	L	4	45	0	0	0	2	-	N		
413.6	Barnes St 400	Benton St	Apts	E	4	4	Y	L	4	45	0	0	0	2	-	N		
413.7	Barnes St 400	Apts	Forest Lane	E	0	0	Y	N	0	45	0	0	0	2	-	N		
413.85G	Barnes St 400	Forest Lane	Forest Lane	E	0	0	Y	N	0	45	0	0	0	2	-	N		
413.95G	Barnes St 400	Forest Lane	Apts	E	0	0	Y	N	0	45	0	0	0	2	-	N		
414.15G	Miller Park Dr	west boundary	S Jupiter Rd	S	0	0	Y	N	0	45	0	0	0	2	-	N		
414.25G	Miller Park Dr	west boundary	S Jupiter Rd	S	0	0	Y	N	0	45	0	0	0	2	-	N		
414.35G	Miller Park Dr	S Jupiter Rd (N)	S International Rd	N	0	0	Y	N	0	45	0	0	0	2	-	N		
414.45G	Miller Park Dr	S Jupiter Rd (N)	S International Rd	N	0	0	Y	N	0	45	0	0	0	2	-	N		
414.55G	Miller Park Dr	S International Rd	east boundary	N	0	0	Y	N	0	45	0	0	0	2	-	N		
414.65G	Miller Park Dr	S International Rd	east boundary	N	0	0	Y	N	0	45	0	0	0	2	-	N		
414.75G	Miller Park Dr	S Jupiter Rd (S)	sidewalk	S	0	0	Y	N	0	45	0	0	0	2	-	N		
414.85G	Miller Park Dr	S Jupiter Rd (S)	sidewalk	S	4	4	Y	N	0	45	0	0	0	2	-	N		
414.8	Miller Park Dr	S Jupiter Rd (S)	S International Rd	S	0	0	Y	N	0	45	0	0	0	3	S	N		Primary Rout
414.95G	Miller Park Dr	S Jupiter Rd (S)	S International Rd	S	0	0	Y	N	0	45	0	0	0	3	S	N		
415.1	S Jupiter Rd	Forest Lane	before railroad	W	6	6	Y	N	0	45	0	0	0	3	S	N		
415.25G	S Jupiter Rd	before railroad	Railroad	W	0	0	Y	N	0	45	0	0	0	3	S	N		
415.35G	S Jupiter Rd	Railroad	Miller Park Dr	W	0	0	Y	N	0	45	0	0	0	3	S	N		
415.45G	S Jupiter Rd	Miller Park Dr	Marquis Dr	W	0	0	Y	N	0	45	0	0	0	3	N	N		
415.55G	S Jupiter Rd	Marquis Dr	south boundary	W	0	0	Y	N	0	45	0	0	0	3	N	N		
416.15G	S Jupiter Rd	south boundary	Marquis Dr	E	0	0	Y	N	0	45	0	0	0	3	N	N		
416.25G	S Jupiter Rd	Marquis Dr	Miller Park Dr	E	4	4	Y	L	1	45	0	0	0	3	N	N		
416.3	S Jupiter Rd	Miller Park Dr	driveway	E	0	0	Y	N	0	45	0	0	0	3	N	N		
416.45G	S Jupiter Rd	driveway	Railroad	E	0	0	Y	N	0	45	0	0	0	3	N	N		
416.55G	S Jupiter Rd	Railroad	Forest Ln	W	0	0	Y	N	0	45	0	0	0	2	-	N		
417.15G	S International Rd	Forest Lane	Miller Park Dr	W	0	0	Y	N	0	45	0	0	0	2	-	N		
417.25G	S International Rd	Railroad	Miller Park S	W	0	0	Y	N	0	45	0	0	0	2	-	N		
417.35G	S International Rd	Miller Park N	south boundary	W	0	0	Y	N	0	45	0	0	0	2	-	N		
417.45G	S International Rd	Miller Park S	south boundary	E	0	0	Y	N	0	45	0	0	0	2	-	N		
417.55G	S International Rd	Miller Park S	south boundary	E	0	0	Y	N	0	45	0	0	0	2	-	N		
417.65G	S International Rd	Miller Park S	Miller Park N	E	0	0	Y	N	0	45	0	0	0	2	-	N		
417.75G	S International Rd	Miller Park N	Railroad	E	0	0	Y	N	0	45	0	0	0	2	-	N		
417.8	S International Rd	Railroad	Forest Lane	E	4	4	Y	L	4	45	0	0	0	2	S	N		
418.15G	S Kirby	Forest Lane	Benton	W	0	0	Y	N	0	45	1	0	0	2	-	N		
418.25G	S Kirby	Benton	Edgewood Dr	W	0	0	Y	N	0	45	1	0	0	2	-	N		
418.35G	S Kirby	Edgewood Dr	north boundary	W	0	0	Y	N	0	45	1	0	0	2	-	N		
418.4	S Kirby	north boundary	Edgewood Dr	E	0	0	Y	N	0	45	1	0	0	2	-	N		
418.55G	S Kirby	Edgewood Dr	Benton	E	6	6	Y	N	0	45	1	0	0	2	-	N		
418.6	S Kirby	Benton	Parking Lot	E	0	0	Y	N	0	45	1	0	0	2	-	N		
418.75G	S Kirby	Parking Lot	Forest Lane	W	8	8	Y	N	0	45	0	0	0	3	S	N		Residential A
419.1	S Jupiter Rd	Forest Lane	Parking Lot	W	4	4	Y	L	12	45	0	0	0	2	-	N		
419.2	S Jupiter Rd	Parking Lot	north boundary	E	4	4	Y	L	10	45	16	0	0	2	-	N		
419.3	S Jupiter Rd	Forest Lane	north boundary	W	0	0	Y	N	0	45	16	0	0	2	-	N		
419.45G	S Forest Crest Dr	Forest Lane	midway	W	4	4	Y	L	4	30	16	0	0	2	-	N		
419.5	S Forest Crest Dr	Forest Lane	Norma Dr	E	4	4	Y	L	3	30	16	0	0	2	-	N		
419.6	S Forest Crest Dr	Forest Lane	Norma Dr	E	4	4	Y	L	3	30	16	0	0	2	-	N		
150.1	Glacier Ln	S Jupiter Rd	Norma Dr	N	4	4	Y	L	3	30	0	0	0	2	-	N		
150.2	Glacier Ln	S Jupiter Rd	Norma Dr	N	4	4	Y	L	3	30	0	0	0	2	-	N		
150.3	Russwin Dr	S Jupiter Rd	Norma Dr	N	4	4	Y	L	3	30	0	0	0	2	-	N		
150.4	Russwin Dr	S Jupiter Rd	S Forest Crest Dr	N	4	4	Y	L	3	30	0	0	0	2	-	N		
150.5	Norma Dr	S Jupiter Rd	S Forest Crest Dr	N	4	4	Y	L	3	30	0	0	0	2	-	N		
150.6	Norma Dr	S Jupiter Rd	S Forest Crest Dr	N	4	4	Y	L	3	30	0	0	0	2	-	N		
150.7	Cherry Hill Ln	S Jupiter Rd	West Boundary	N	4	4	Y	L	3	30	16	0	0	2	-	N		
150.8	Cherry Hill Ln	S Jupiter Rd	West Boundary	N	4	4	Y	L	3	30	16	0	0	2	-	N		
151.1	Edgewood Dr	West Boundary	N Jupiter Rd	N	5	5	Y	L	4	45	16	0	0	4	-	N		
151.2	Edgewood Dr	N Jupiter Rd	West of N Barnes Dr	N	0	0	Y	N	0	45	16	0	0	4	-	N		
151.35G	Edgewood Dr	West of N Barnes Dr	N Kirby St	N	5	5	Y	L	4	45	16	0	0	4	-	N		
151.4	Edgewood Dr	N Barnes Dr	east boundary	N	4	4	Y	L	6	45	16	0	0	4	-	N		
151.5	Edgewood Dr	N Kirby St	east boundary	N	0	0	Y	N	0	45	16	0	0	4	-	N		
152.15G	Edgewood Dr	N Kirby St	west of N Kirby St	S	0	0	Y	N	0	45	16	0	0	4	-	N		
152.25G	Edgewood Dr	west of N Kirby St	S Barnes Dr	S	4	4	Y	L	5	45	16	0	0	4	-	N		
152.3	Edgewood Dr	S Barnes Dr	S Jupiter Rd	S	4	4	Y	L	5	45	16	0	0	4	-	N		
152.4	Edgewood Dr	S Jupiter Rd	West Boundary	S	4	4	Y	L	5	45	16	0	0	4	-	N		
152.5	Edgewood Dr	West Boundary	sidewalk	W	0	0	Y	N	0	30	0	0	0	4	-	N		
153.15G	N International Rd	Forest Lane	sidewalk	W	6	6	Y	N	0	30	0	0	0	4	-	N		

DART Red & Blue Line Last Mile Connections
Project
Field Data Checklist - Sidewalk Gaps

Date
Station Forest/Jupiter
Staff Name
Location Begins from Apts to
STⁿ on E side.

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	S		
Underground utilities?	may be.		
Trees?	some		
Slopes?	some		
Other structures?	signs.		

Rail crossings? no

Business parking/access management issues? yes

Insufficient bridge width? no

Take photos and notes to document.
Other Notes:



DART Red & Blue Line Last Mile Connections
Project
Field Data Checklist - Sidewalk Gaps

Date 9/20
Station Forest/Jupiter
Staff Name Josh
Location Miller Park W of
Jupiter

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	N		
Underground utilities?		Water (2) ← S side Sewer, gas ← N side	
Trees?	N		
Slopes?	N		
Other structures?	N		

Rail crossings? N

Business parking/access management issues? Y - extensive on both sides

Insufficient bridge width? N

Take photos and notes to document. Y
Other Notes:



DART Red & Blue Line Last Mile Connections

Project

Field Data Checklist - Sidewalk Gaps

Date 9/20
 Station Forest/Jupiter
 Staff Name Josh
 Location Miller Park fr Jupiter
 to Miller Park N/S

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?			
Underground utilities?			
Trees?			N
Slopes?			N
Other structures?			N
Rail crossings?			N
Business parking/access management issues?			N
Insufficient bridge width?			N
Take photos and notes to document.			Y
Other Notes:			

Water (FH)(1)
 Telecom (1)
 Elec (2)
 Gas (1)



DART Red & Blue Line Last Mile Connections

Project

Field Data Checklist - Sidewalk Gaps

Date 9/20
 Station Forest/Jupiter
 Staff Name Josh
 Location Miller Park S from
 Miller Park N to Intl Rd

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?			
Underground utilities?			
Trees?			Y
Slopes?			← some mild →
Other structures?			N, except → 1 sign
Rail crossings?			N
Business parking/access management issues?			N
Insufficient bridge width?			N
Take photos and notes to document.			Y
Other Notes:			

Water (2) 15' +
 Water (2) + 4 Small + 1 } Near Roundabout
 Irrig (2) } S side
 Elec (1)
 FireHydr Telecom 2

Water (1)
 Elec (1) Roots not avoidable
 ↑
 Near Garrett's
 Moving & storage
 S side



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date 9/20/18
Station Forest/Jupiter
Staff Name Josh
Location Miller Park N fr Intl to Miller Park S

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?			
Underground utilities?		Telecom 1111 Elec 1 Water Mtr 11+3 FireHydr 1 Cable 1 Elec 1 Water MH 2+4	
Trees?			
Slopes?	Y - some		
Other structures?			

Elec for SL poles
GAS
FH 2

Rail crossings?

Business parking/access management issues?

Insufficient bridge width?

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date 9/20
Station Forest/Jupiter
Staff Name Josh
Location Miller Park N east of Intl.

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	N		
Underground utilities?	FH	Verizon 1 Water MH 2+2+2+1 Water Valve 3 CATV - 1	
Trees?		Y mostly	~5 ← would need to be removed.
Slopes?		Some mild grading needed	
Other structures?	N		

Rail crossings? N

Business parking/access management issues? N

Insufficient bridge width? N

Take photos and notes to document. Y

Other Notes:



DART Red & Blue Line Last Mile Connections

Project

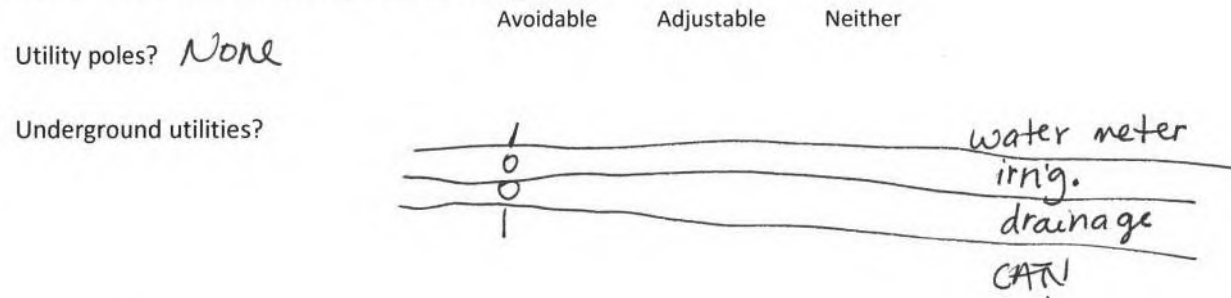
Field Data Checklist - Sidewalk Gaps

Date
Station
Staff Name Forest / Jupiter
Location Int.
Forest Ln to Railroad (west)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.



Trees? No

Slopes? No

Other structures? No

Rail crossings? Yes

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:

fire hydrant



DART Red & Blue Line Last Mile Connections

Project

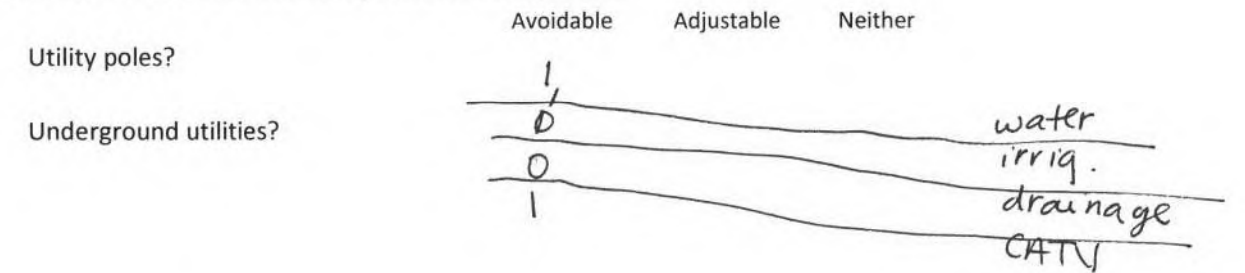
Field Data Checklist - Sidewalk Gaps

Date
Station Forest / Jupiter
Staff Name Int.
Location Railroad to Miller (west) Park N.

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.



Trees? No

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station
Staff Name *Forest/Jupiter*
Location *Int. Miller Park N. to Miller Park S. (west)*

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither	
Utility poles?			●	pole
Underground utilities?				elect. water irrig. drainage

Trees? |

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:

fire hydrant



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station
Staff Name *Forest/Jupiter*
Location *Int. M. Park S. to S. Blvd. (west)*

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither	
Utility poles?				
Underground utilities?				water drainage elect.

Trees? No

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:

fire hydrant



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest/ Jupiter
Staff Name *[initials]*

Location Int. S. Miller Park to S. Bound. to S. Miller Park east

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?		1	
Underground utilities?		11	
			water drainage elect

Trees? No

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest/ Jupiter
Staff Name

Location Int. S. Miller to N Miller (east)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?		111	
Underground utilities?			none seen

Trees? tree roots

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:

fire hydrant



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest/Jupiter
Staff Name
Location Int.

N Miller to Railroad
(east)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

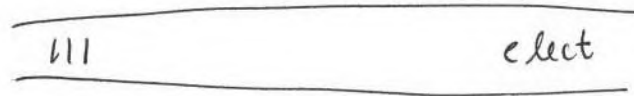
What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

Avoidable Adjustable Neither

Utility poles? None

Underground utilities?



Trees? No

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest/Jupiter
Staff Name
Location Int.

Forest Ln to Railroad
(east)

*N. of
Forest Ln

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

Avoidable Adjustable Neither

Utility poles? None

Underground utilities? none seen

Trees? No

Slopes? No

Other structures? No

Rail crossings? Yes

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:



DART Red & Blue Line Last Mile Connections
Project
Field Data Checklist - Sidewalk Gaps

Date
 Station *Forest/Jupiter*
 Staff Name
 Location *Int. Railroad to "Cash for Scrap"*

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?		/	

Underground utilities? *none seen*

Trees? *No*

Slopes? *No*

Other structures? *No*

Rail crossings? *Yes*

Business parking/access management issues? *No*

Insufficient bridge width? *No*

Take photos and notes to document. ✓

Other Notes:

fire hydrant



DART Red & Blue Line Last Mile Connections
Project
Field Data Checklist - Sidewalk Gaps

Date *Kirby belm Forest edge wood*
 Station *Forest/Jupiter*
 Staff Name
 Location

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
 Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	<i>E 7 maybe</i>	<i>W P maybe</i>	<i>E W W E W</i>

Underground utilities?

Trees?

Slopes?

Other structures?

Rail crossings?

Business parking/access management issues? *Yes*

Insufficient bridge width?

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest/Jupiter
Staff Name
Location Marquez betⁿ Jupiter to E Boundary

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.
N side: 1200' marked to EB
S side: whole length

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

	Avoidable		Adjustable		Neither	
	N	S	N	S	N	S
Utility poles?	4	8	0		1	
Underground utilities?	maybe	YES				
Trees?	YES	NO				
Slopes?	YES	YES				
Other structures?	SF signs	signs				
Rail crossings?	-	-				
Business parking/access management issues?		NO				
Insufficient bridge width?	NO	NO				

Take photos and notes to document.
Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date 9/20
Station Forest/Jupiter
Staff Name Josh
Location Forest Crest Dr (W side)

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?
Circle items below and add notes/sketches as applicable.

	Avoidable		Adjustable		Neither	
	N	S	N	S	N	S
Utility poles?			1			
Underground utilities?			1			
Trees?	N					
Slopes?	N					
Other structures?	Y					
Rail crossings?	N					
Business parking/access management issues?	Y					
Insufficient bridge width?	N					

Take photos and notes to document.
Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest Jupiter
Staff Name
Location Forest Center Plz
Forest Ln to dead end
(east)
&
west

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?		50 water ✓	✓
Underground utilities?		4 Irrig. ✓ 1 gas drainage flume	✓

Trees? No

Slopes? No

Other structures? No

Rail crossings? No

Business parking/access management issues? No

Insufficient bridge width? No

Take photos and notes to document. ✓

Other Notes:

- company mailboxes (avoidable)



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest/Jupiter
Staff Name
Location Jupiter w/side
Miller Park and Masquis

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles? 7	W 7	E 7	
Underground utilities? Yes		7	7ES

Trees? No

Slopes? Yes

Other structures? Signs

Rail crossings?

Business parking/access management issues? ~~7~~ Yes 7ES

Insufficient bridge width? No No

Take photos and notes to document.

Other Notes:

Good trail out trail.



DART Red & Blue Line Last Mile Connections
 Project
 Field Data Checklist - Sidewalk Gaps

Date
 Station Forest/ Jupiter
 Staff Name
 Location Jupiter bet Miller Park Forest to W side
 E W

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	W/E	W/E	W/E
	Avoidable	Adjustable	Neither
Utility poles?	7 NO	7	7
Underground utilities?	may be	maybe	
Trees?	yes	NO	
Slopes?	yes	NO	
Other structures?	signs	signs	
Rail crossings?	yes	yes	
Business parking/access management issues?	NO	yes	
Insufficient bridge width?	NO	NO	

Take photos and notes to document.

Other Notes: Goat trail Goat trail



DART Red & Blue Line Last Mile Connections
 Project
 Field Data Checklist - Sidewalk Gaps

Date
 Station Forest/ Jupiter
 Staff Name
 Location Marquis Jupiter to WB
 W/S

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	0 0	0 0	0 0
Underground utilities?	+	maybe	
Trees?	NO	NO	
Slopes?	NO	NO	
Other structures?	signs	any wires	
Rail crossings?	N	N	
Business parking/access management issues?	—		
Insufficient bridge width?	—		

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest / Jupiter
Staff Name
Location Edgewood Kirby to EB

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	S		
Underground utilities?	maybe		
Trees?	yes (avoidable)		
Slopes?	no		
Other structures?	signs		
Rail crossings?	no		
Business parking/access management issues?	no		
Insufficient bridge width?	no		

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections
Project

Field Data Checklist - Sidewalk Gaps

Date
Station Forest / Jupiter
Staff Name
Location Edgewood w/ Kirby to Kirby - S side

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	No		
Underground utilities?	maybe		
Trees?	No		
Slopes?	No		
Other structures?	No		
Rail crossings?	No		
Business parking/access management issues?	no		
Insufficient bridge width?			

Take photos and notes to document.

Other Notes:



DART Red & Blue Line Last Mile Connections

Project

Field Data Checklist - Sidewalk Gaps

Date

Station Forest Jupiter

Staff Name

Location Edgewood n side betn
Barnes and Lib. Dr

Instructions: When coding/confirming sidewalk condition of "Nonexistent" on sidewalk checklist, review the following and make notes here and/or on the sidewalk checklist.

What challenges are there to the feasibility/practicability of sidewalk?

Circle items below and add notes/sketches as applicable.

	Avoidable	Adjustable	Neither
Utility poles?	0		
Underground utilities?	may be		
Trees?	No		
Slopes?	No		
Other structures?	No		

Rail crossings?	No		
Business parking/access management issues?	No		
Insufficient bridge width?	No		

Take photos and notes to document.

Other Notes:

Goat Trc.



APPENDIX C: Crosswalk Improvement Evaluation Details

At existing or proposed crosswalks without existing stop sign or signal control, potential improvements were evaluated based on guidance in the Federal Highway Administration's (FHWA) recent publication, "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations", dated July 2018. Table 1 of this publication, reproduced herein also as Table C1, includes enhanced guidance on countermeasures that can or should be considered for uncontrolled crosswalks with various combinations of vehicular speed, traffic flow, and number of lanes to be crossed. This appendix describes how the consultant team used Table C1 to produce consistent recommendations for crosswalk improvements, as well as how roadway speed and daily traffic volume data required as inputs to the process were estimated where otherwise unavailable.

In the reproduction of Table 1, red boxes have been added to highlight an example crosswalk to illustrate how the table was used for each evaluation. In the example, four-lane undivided roadways with average annual daily traffic (AADT) over 15,000 vehicles/day and speeds greater than 40 miles per hour have up to six potential countermeasures recommended for possible consideration, as indicated by the six one-digit numbers in the lower right cell of the table. The strongest recommendations are indicated by white numbers in solid black circles. The number "1" inside an outlined circle denotes that marked and signed crosswalks should always occur in conjunction with other listed countermeasures. Numbers without circles around them indicate other improvements which may optionally be considered.

In the example, the number "1" in the lower right cell of the table indicates that high visibility crosswalk markings, parking restrictions on the crosswalk approach, adequate lighting levels, and crossing warning signs should all be employed to create a high visibility crosswalk wherever significant pedestrians demand exists or may be anticipated. But the outlined circle around the number "1" in the table indicates that implementation of these countermeasures alone is insufficient due to the high traffic volumes, high speeds, and large number of lanes to be crossed. One or more of the other options should always therefore be implemented.

The other options to be given strong consideration (based on the white number in the dark circle legend) include "Advance Yield Here for Pedestrian" signs (#3), a median pedestrian refuge island (#6), or a pedestrian hybrid beacon (#9). Other candidate countermeasures that may also be considered include curb extensions (#5) and a road diet (#8).

Note that the unavailable options for these circumstances include a raised crosswalk (#2), in-street pedestrian crossing signs (#4), and rectangular rapid-flashing beacons (RRFB's/#7). Where options such as the RRFB are listed as incompatible with context, research had demonstrated that the combination of speed, volume, or crossing distance would render the treatments less than acceptably effective. The footnotes indicate that some options are mutually exclusive of others.

A Microsoft Excel spreadsheet was created to automate Table 1 as a lookup table and quickly produce the list potentially recommended improvements given the inputs entered for each candidate crosswalk improvement location to be considered for the project. The analyst in each case still used engineering judgment to select which countermeasure options would ultimately be recommended, as indicated by the red boxes around items #1, #3 and #9 (but not #6) in the

Table C1: Application of Pedestrian Crash Countermeasures by Roadway Feature

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	① 2 4 5 6	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 9
3 lanes with raised median (1 lane in each direction)	① 2 3 4 5	① ③ 5 7 9	① ③ 5 7 9	① ③ 4 5 7 9	① ③ 5 7 9	① ③ 5 7 9	① ③ 4 5 7 9	① ③ 5 7 9	① ③ 5 9
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 7 9	① ③ 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 7 9	① ③ 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 9
4+ lanes with raised median (2 or more lanes in each direction)	① ③ 5 7 8 9	① ③ 5 7 8 9	① ③ 5 8 9	① ③ 5 7 8 9	① ③ 5 7 8 9	① ③ 5 8 9	① ③ 5 7 8 9	① ③ 5 8 9	① ③ 5 8 9
4+ lanes w/o raised median (2 or more lanes in each direction)	① ③ 5 6 7 8 9	① ③ 5 6 7 8 9	① ③ 5 6 8 9	① ③ 5 6 7 8 9	① ③ 5 6 7 8 9	① ③ 5 6 8 9	① ③ 5 6 7 8 9	① ③ 5 6 8 9	① ③ 5 6 8 9

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- 1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Rectangular Rapid-Flashing Beacon (RRFB)**
- 8 Road Diet
- 9 Pedestrian Hybrid Beacon (PHB)**

*Refer to Chapter 4, "Using Table 1 and Table 2 to Select Countermeasures," for more information about using multiple countermeasures.
 **# should be noted that the PHB and RRFB are not both installed at the same crossing location.
 This table was developed using information from: Zegeer, C.V., J.R. Stewart, H.H. Huang, P.A. Lagerwey, J. Feaganes, and S.J. Campbell. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines. FHWA, No. FHWA-HRT-04-100, Washington, D.C.; FHWA. Manual on Uniform Traffic Control Devices, 2009 Edition, (revised 2012). Chapter 4F, Pedestrian Hybrid Beacons. FHWA, Washington, D.C.; FHWA. Crash Modification Factors (CMF) Clearinghouse. <http://www.cmfclearinghouse.org/>; FHWA. Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE). <http://www.pedbikeinfo.org/PEDSAFE/>; Zegeer, C., R. Srinivasan, B. Lan, D. Carter, S. Smith, C. Sundstrom, N.J. Thirsk, J. Zegeer, C. Lyon, E. Ferguson, and R. Van Houten. (2017). NCHRP Report 841: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. Transportation Research Board, Washington, D.C.; Thomas, Thirsk, and Zegeer. (2016). NCHRP Synthesis 498: Application of Pedestrian Crossing Treatments for Streets and Highways. Transportation Research Board, Washington, D.C.; and personal interviews with selected pedestrian safety practitioners.

bottom right corner of the table. Notes as to the rationale for each improvement were made. The inputs, options, recommendations, and notes are tabulated in tables found in Appendix D.

The inputs to the spreadsheet analysis of crosswalk improvements were straightforward for the number of lanes in each case. Posted speed limit was also generally straightforward, though in a few cases with low posted speed limits and high number of lanes (for example, six-lane divided

roadways with posted speed limits of 35 mph) a higher prevailing speed was assumed based on engineering judgment and substituted for the posted speed limit.

In many cases, recent AADT volumes for the subject roadways for the crosswalks being evaluated were available from City or TxDOT data. Historic AADT volumes were grown at 2% annually to 2019 and used directly as inputs for the crosswalk countermeasure selection analysis.

In other cases where AADT data was not already available, particularly on collector streets, a "short-cut" method for estimating AADT without collecting new 24-hour traffic counts was developed to balance accuracy with the large amount of data to be collected and the lack of precision necessary to select the appropriate sets of columns in Table C1.

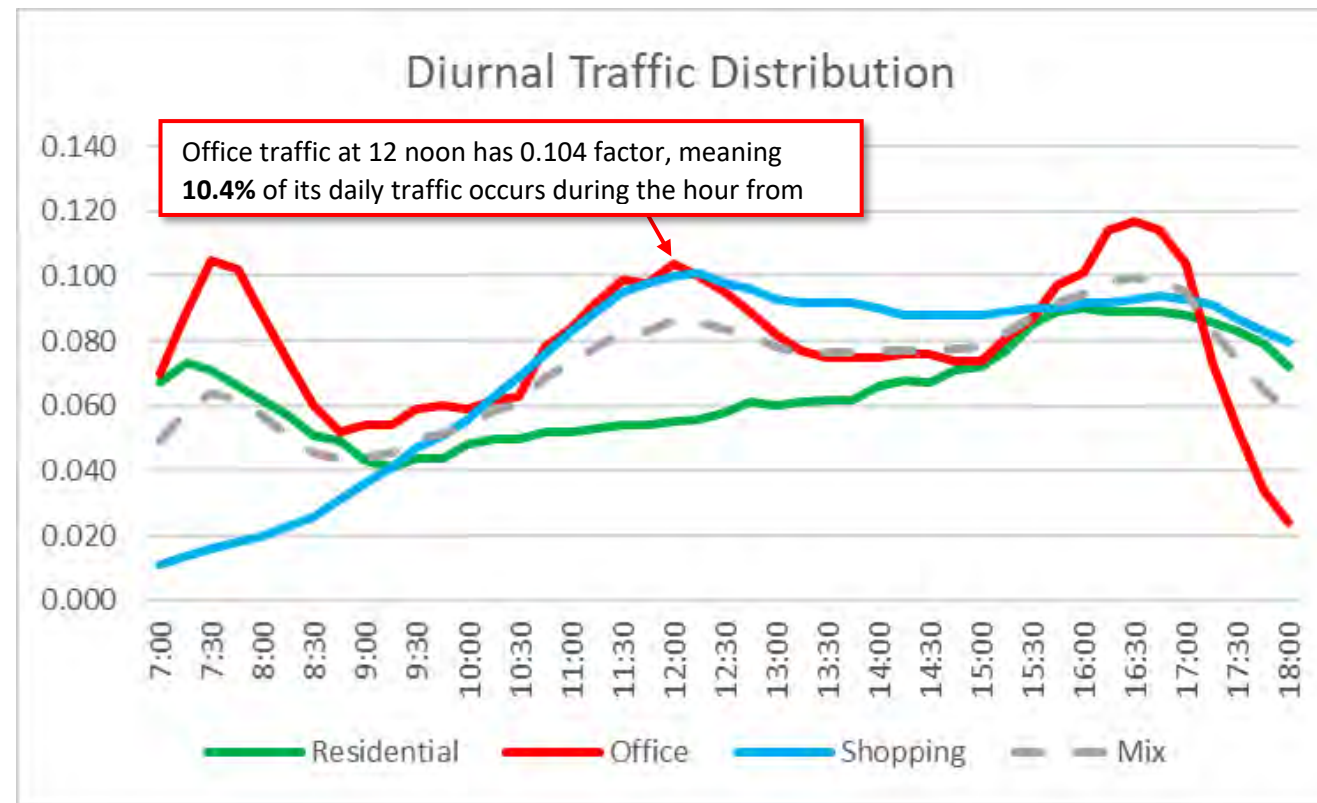
Short two-minute traffic counts were collected by consultant staff in the field at crosswalks that had been pre-selected as candidates for improvements. A two-minute time period was selected to account for the cycle length of most signalized intersections that might be nearby and therefore affect the distribution of traffic volumes. The count could be taken anytime during daylight hours to maximize field work efficiency for multiple locations.

These two-minute volumes were factored by the Excel spreadsheet program to represent approximate AADTs. The two-minute volumes are expanded to hourly volumes by multiplying by 30. The hourly volumes are then expanded to daily volumes using a lookup table based on the 15-minute period during the day that the two-minute count was taken, the adjacent land use category noted by data collection staff, and factors that were derived from data in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition for the percentage of traffic generated by different land uses at different times of day.

For each crosswalk, the analysis characterized the land use contributing to traffic at a particular crosswalk as residential, office, shopping center, or a mix of the three. Figure C1 identifies the hourly-to-daily conversion factors derived for each land use by time of day. The "mix" category was computed by averaging the values from the other three land uses.

Note that office traffic has the most distinct "peaks" with the largest percentage of its traffic occurring near morning arrival, lunch hour, and afternoon departure times. Residential traffic peaks in the morning and afternoon without the distinct lunch peak, while generally increasing in the afternoon. Shopping center traffic is very low in the morning, with higher levels in the afternoon and evening.

Figure C1: Hourly to Daily Traffic Conversion Factors, by Land Use & Time of Day



reductions.

To convert from hourly to daily traffic, the hourly total was divided by the selected conversion factor to get a daily traffic estimate. For example, a two-minute count of 40 vehicles taken at noon across an uncontrolled crosswalk near a large office building would first be converted to an hourly volume of 1,200 vehicles/hour (=40 x 30). Then, the hourly volume would be converted to a daily volume by dividing 1,200 vehicles/hour by the 0.104 factor selected from Figure 7 to yield ~11,540 vehicles/day.

Note that daily traffic volume estimates derived in this way are not assumed to be accurate enough for most traffic analysis purposes, but were assumed to be valid for planning-level purposes such as selection of the appropriate columns in Table C1.

In cases where road diets were recommended, the consultant team compared the City/TxDOT AADT or estimated daily volume and the proposed number of lanes for the roadway with the maximum service volumes assumed per lane in NCTCOG's Dallas-Fort Worth Regional Travel Model, shown in Table C2. Road diets were only recommended if roadways would likely still have excess capacity after the lane

Table C2: NCTCOG Roadway Capacity for Divided or One-way Roads

Area Type	Functional Class						
	Freeway	Principal Arterial	Minor Arterial	Collector	Ramp	Frontage Road	HOV
	Hourly Service Volume Per Lane						
CBD	2,050	725	725	475	1,250	725	2,050
Fringe	2,125	775	775	500	1,375	775	2,125
Urban Residential	2,150	850	825	525	1,425	850	2,150
Suburban Residential	2,225	925	900	575	1,600	900	2,225
Rural	2,300	1,025	975	600	1,725	975	2,300



APPENDIX D: Crosswalk Improvement Selection Tables



DART Last Mile Connections Project - Unsignalized Crosswalk Evaluations - City of Garland - July 2020

Unsignalized Crosswalk Improvement Legend

1	Crosswalk Signs, Markings & Lighting	5	Curb Extension
2	Raised Crosswalk	6	Ped. Refuge Island
3	Advance "Yield Here" Sign	7	RRFB
4	In-Street Pedestrian Crossing	8	Road Diet
		9	Ped. Hybrid Beacon

Signalized Crosswalk Improvement Legend

10	Add Marked Crosswalks & Provide Countdown, Accessible Pedestrian Signals
11	Traffic Signal

Legend: Strength of Consideration to be Given to Improvement

#	Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
#	Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
#	Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.

Station ID	Station Name	Street Crossed	At/Between	Posted Speed of Street Crossed	Number of Lanes Crossed	Median Present? ¹	AADT from Count Map	AADT Street Name	Source	Land Use (legend below) ²	2-Min. Traffic Count ²		Hourly Traffic Estimate	AADT Estimate	Assumed AADT	Improvements (See Legends Above)									Notes
											Time	Volume				Options									
3A	Downtown Garland	N 6th St	DART Tracks & Austin St	30	2	Y	2,000		Rough estimate	-	-	-	-	-	2,000	1	2	4	5	6	1	Add a new marked crosswalk with warning signs and lighting. This will be a direct route between the station and Heritage Crossing multi-family development about to occur to the west.			
3A	Downtown Garland	N 5th St	DART Tracks & Austin St	30	4	N	3,400	5th St	https://www.garlandtx.gov/DocumentCenter/View/2026/Traffic-Counts-PDF	M	-	-	-	-	3,400	1	3	5	6	7	8	9	1, 3	Install white crosswalk lines parallel to existing brick crosswalk that already has pedestrian-actuated rectangular rapid flashing beacons (RRFB's) installed. White edge lines as traffic control devices are required to make crosswalks legally enforceable. Add yield line and "Yield Here to Pedestrians" signing for southbound direction where the street is merging from two lanes to one near the crosswalk to mitigate risk of dual threat situation for pedestrians.	
3A	Downtown Garland	Austin St	N 7th St	30	2	N	1,700	Austin St	TxDOT 2014 Sat. Counts	M	-	-	-	-	1,700	1	2	4	5	6	1	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.			
3A	Downtown Garland	State St	N 7th St	30	2	N	2,000		Rough estimate	-	-	-	-	-	2,000	1	2	4	5	6	1	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.			
3A	Downtown Garland	Main St	N 7th St	30	2	N	6,100	Main St	https://www.garlandtx.gov/DocumentCenter/View/2026/Traffic-Counts-PDF	M	-	-	-	-	6,100	1	2	4	5	6	1	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.			
3A	Downtown Garland	W Avenue A	N 6th St	30	4	N	1,000		Rough estimate	M	17:00	2	60	700	1,000	1	3	5	6	7	8	9	3, 5, 6, 7, 8	Add advance yield lines and "Yield Here to Pedestrians" signing in advance of existing signed and marked crosswalk in front of Garland Senior Activity Center. Consider pedestrian-actuated rectangular rapid flashing beacons (RRFB's) and/or a road diet to implement curb extensions or a median refuge.	
3A	Downtown Garland	Glenbrook Dr	W Avenue A	30	3	N	6,700	Glenbrook Dr	https://www.garlandtx.gov/DocumentCenter/View/2026/Traffic-Counts-PDF	M	-	-	-	-	6,700	1	2	3	4	5	6	7	9	7	Consider adding pedestrian-actuated rectangular rapid flashing beacons (RRFB's) to the existing signed and marked north leg crosswalk near the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.



¹ with sufficient 6' width for ped. refuge?
² if AADT Estimate is not available.

Land Use Code Legend

R	Residential	S	Shopping
O	Office	M	Mix

Based on FHWA's "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations", July 2018, Table 1:
 Application of pedestrian crash countermeasures by roadway feature



DART Last Mile Connections Project - Unsignalized Crosswalk Evaluations - City of Garland - July 2020

Unsignalized Crosswalk Improvement Legend

1	Crosswalk Signs, Markings & Lighting	5	Curb Extension
2	Raised Crosswalk	6	Ped. Refuge Island
3	Advance "Yield Here" Sign	7	RRFB
4	In-Street Pedestrian Crossing	8	Road Diet
		9	Ped. Hybrid Beacon

Signalized Crosswalk Improvement Legend

10	Add Marked Crosswalks & Provide Countdown, Accessible Pedestrian Signals
11	Traffic Signal

Legend: Strength of Consideration to be Given to Improvement

#	Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
#	Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
#	Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.

Station ID	Station Name	Street Crossed	At/Between	Posted Speed of Street Crossed	Number of Lanes Crossed	Median Present? ¹	AADT from Count Map	AADT Street Name	Source	Land Use (legend below) ²	2-Min. Traffic Count ²		Hourly Traffic Estimate	AADT Estimate	Assumed AADT	Improvements (See Legends Above)									Notes
											Time	Volume				Options									
3B	Forest Jupiter	Jupiter Rd	Edgewood Dr	40	6	N	35,400	Jupiter Rd	https://www.garlandtx.gov/DocumentCenter/View/2026/Traffic-Counts-PDF	R	10:50	49	1,470	28,300	35,400	1	3	5	6	8	9	9	Consider replacing the existing rapid rectangular flashing beacon (RRFB) system with a pedestrian hybrid beacon at this existing signed and marked crosswalk. RRFB's may not be sufficiently visible to drivers on six-lane, high-speed, high-volume streets such as Jupiter Rd.		
3B	Forest Jupiter	Jupiter Rd	Regional Veloweb	40	6	Y	32,300	Jupiter Rd	https://www.garlandtx.gov/DocumentCenter/View/2026/Traffic-Counts-PDF	R	-	-	-	-	32,300	1	3	5		8	9	1, 11	Add crosswalk markings, signing, and lighting. Construct full signal instead of RRFB or pedestrian hybrid beacon due to adjacency to railroad crossing gates and potential confusion with alternative meanings of flashing red lights. (DART line bridges over roadway, but parallel railroad tracks cross at grade).		
3B	Forest Jupiter	International Rd	Miller Park Dr N	30	2	N	1,800	International Rd	https://www.garlandtx.gov/DocumentCenter/View/2026/Traffic-Counts-PDF	O	-	-	-	-	1,800	1	2	4	5	6			Already has signed and marked crosswalk. No further action needed.		

North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



¹ with sufficient 6' width for ped. refuge?
² if AADT Estimate is not available.

Land Use Code Legend

R	Residential	S	Shopping
O	Office	M	Mix

Based on FHWA's "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations", July 2018, Table 1:
 Application of pedestrian crash countermeasures by roadway feature



APPENDIX E: Half-Mile Area Improvement Prioritization – Initial Trial Methodology Details

To provide opportunities for the greatest number of additional people to walk or bike to DART stations by building sidewalk, shared use path, and crosswalk connections, the prioritization of identified improvements was structured to provide balance between estimating this objective accurately and applying the methodology to a large study area.

Initially, a prioritization scheme that attempted to track as closely as possible to potential ridership increases was tested for the Parker Road Station in Plano, with adjustments for safety, key destination access, and equity. Though some of the elements of this initial prioritization methodology were ultimately discarded for this study, they are documented here as being potentially useful for later studies on a smaller scale. Also, many of the assumptions and methodologies explained below were retained in the ultimate methodology.

For the ridership component of the initial methodology, the likelihood of land parcels around each station to contribute potential transit customers walking or biking to the station was assumed to be related to three primary factors:

1. The distance of the parcel from the station,
2. The number of people living or employed at the parcel, and
3. People's tolerance for different levels of stress experienced along the route between the parcel and the station.

For the first input to ridership, distance, NCTCOG had previously collected appraisal district parcel data from Collin and Dallas Counties and provided a GIS shapefile containing the data. Consultants used ArcGIS Network Analyst tools to calculate the distance of each parcel to the station along the nearest available walking route, which was created by editing sidewalk shapefiles provided by NCTCOG to ensure end-to-end connectivity. The NCTCOG sidewalk files were found to require significant numbers of edits in this regard.

For the second component of ridership, population density, NCTCOG had included in the parcel-level data assumed population and employment values for individual parcels in the study area that had been calculated as part of a previous project. These values had been calculated by land use based on building square footage and assumed densities (for example 300 square feet/person for office land use).

Consultants used GIS tools to tabulate the total number of people who might use each sidewalk and crosswalk segment for first and last mile trips based on the parcel population totals and the shortest distance routes along available sidewalks and crosswalks between each parcel and the station. This collection of routes was designated as the “pedestrian tree” for the station. Figure E1 shows an example pedestrian tree for Parker Road Station, with one “branch” of the tree to a 662-resident apartment complex highlighted in purple that could be shortened by constructing new sidewalk along a path worn in the grass by pedestrians who already take the shortcut.

This technique allowed modeling of how individual travelers would collectively contribute greater ridership increases along pedestrian routes with the highest density of population and employment.

Figure E1: Concept of Pedestrian Trees Illustrated



For the third assumed input to ridership, pedestrian stress could be due to uncomfortable circumstances such as high traffic speeds along the route, narrow sidewalks in close proximity to traffic, or multi-lane crossings of busy streets. This concept of “Pedestrian Level of Traffic Stress” (PLTS), was adapted for pedestrians by the Oregon Department of Transportation¹ from a similar method developed for bicyclists in 2012 by researchers from San Jose State University and the Northeastern University College of Engineering².

The PLTS method assigns scores to sidewalk and crosswalk segments for their levels of pedestrian stress, with scores ranging from 1 for low stress to 4 for high stress conditions. Details on the PLTS model methodology are available at the sources indicated in the footnotes.

Consultants used inputs from the field data collection in the half-mile area around Parker Road Station to create a spreadsheet program for calculating PLTS scores based on a series of look-up tables defined in ODOT's methodology, with some adaptations for local Dallas-area conditions. They then joined these scores to sidewalk shapefiles in an ArcGIS model. An example map produced from this model is shown in Figure E2, highlighting in red the higher stress PLTS 4 conditions present along higher speed arterials near Parker Road Station. Potential riders unwilling to walk along higher stress PLTS 3 or PLTS 4 sidewalks in orange and red would only have access between the Parker Road Station, its adjacent parking lots, and some commercial properties to the west, but not to any residential areas in the vicinity.

The PLTS results were then used to refine the earlier estimates of how many residents and employees might use each sidewalk and crosswalk segment for their first and last mile trips. Generalized assumptions were developed for the percentage of transit riders with trip ends within a half-mile of

¹ See Oregon Department of Transportation, “Analysis Procedures Manual, Version 2,” November 2018, pages 14-28 to 14-51. Accessed at: https://www.oregon.gov/ODOT/Planning/Documents/APMv2_Ch14.pdf

² See Mekuria, Furth & Nixon, “Low-Stress Bicycling and Network Connectivity,” May 2012. Accessed at: <https://transweb.sjsu.edu/research/low-stress-bicycling-and-network-connectivity>

Figure E2: Existing PLTS Ratings for Portion of Parker Rd Station Area

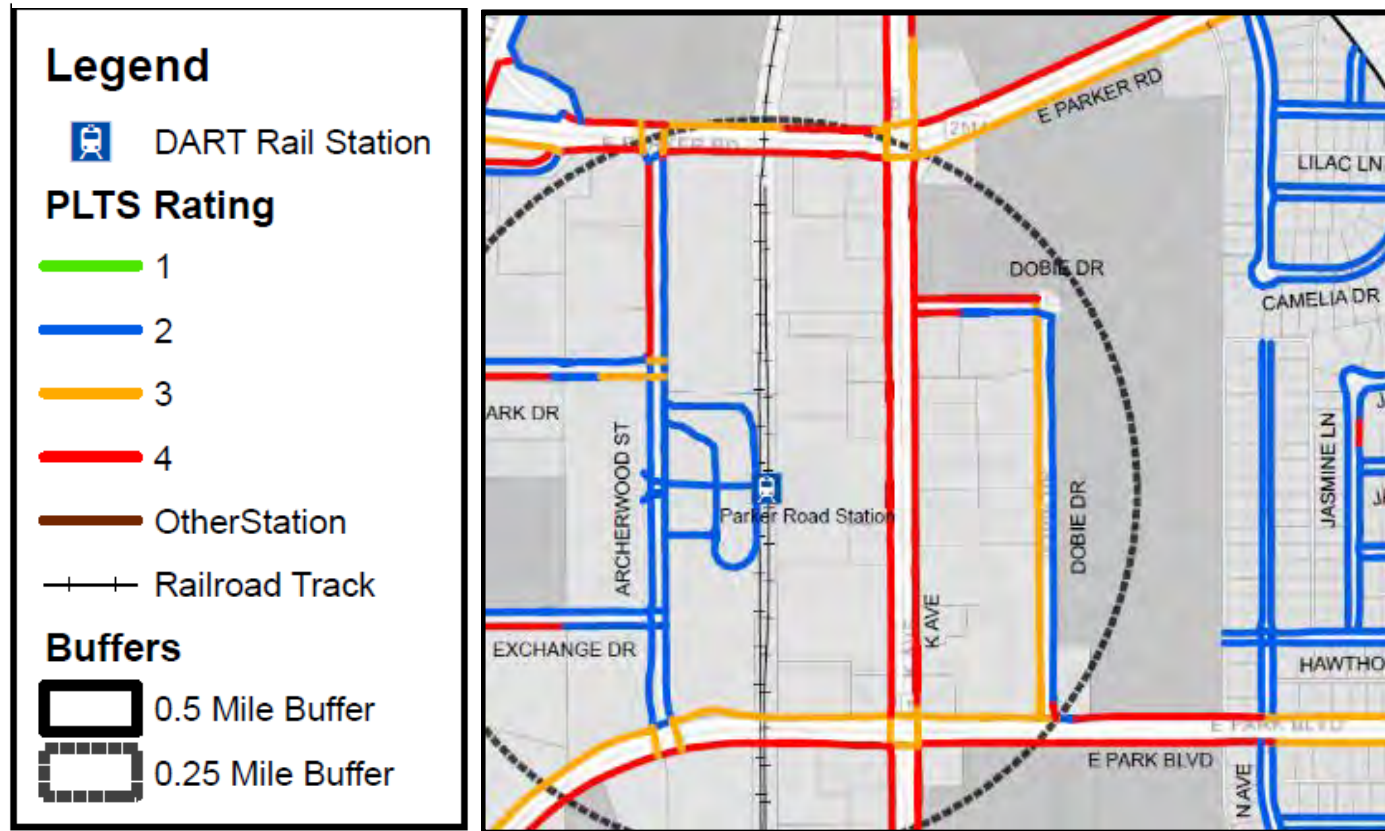
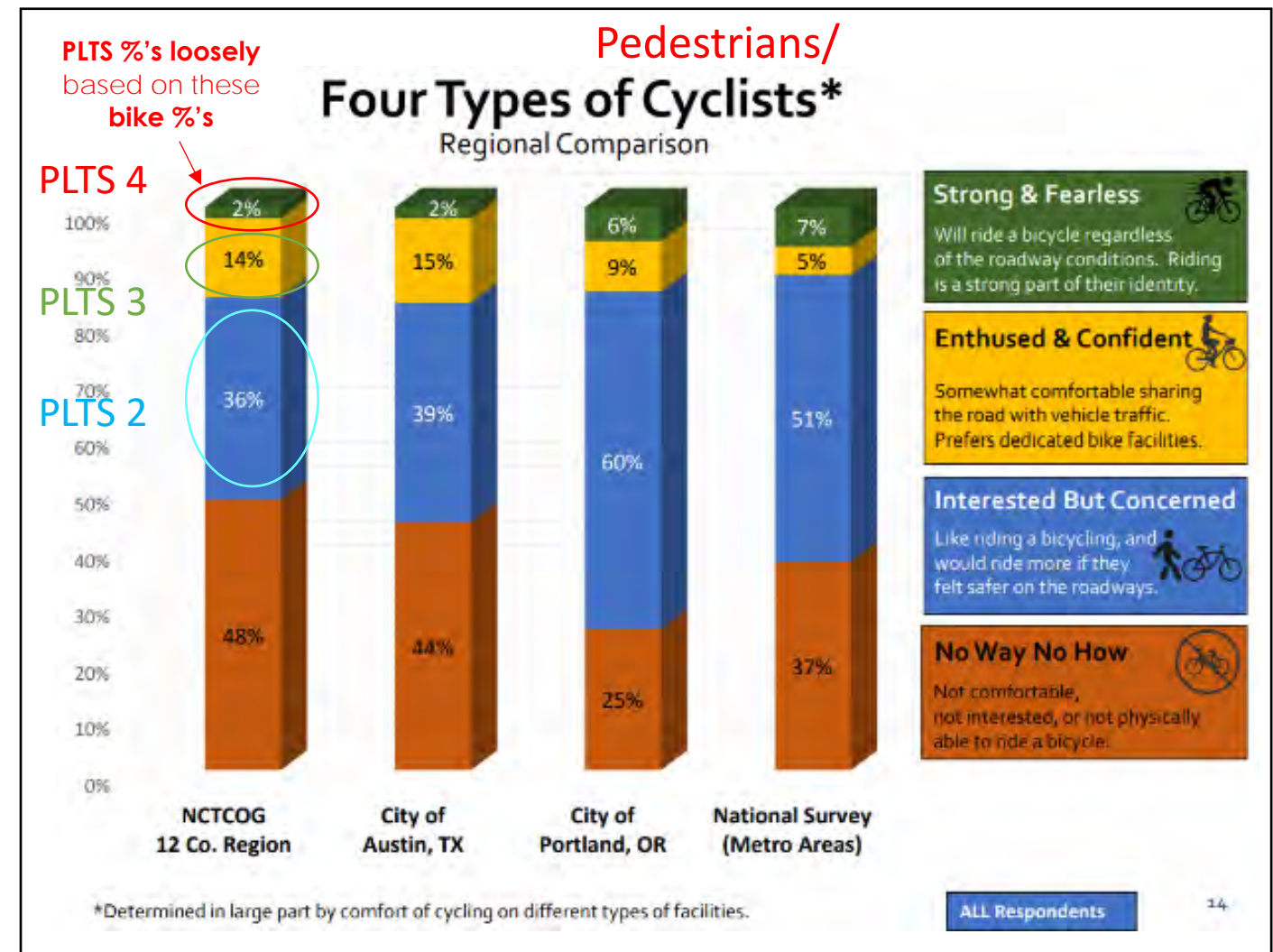


Figure E3: Data for Four Types of Cyclists Assumed Speculatively as Similar for Pedestrians



the station who would be willing or able to travel via sidewalks and crosswalks of varying PLTS stress levels. Absent more specific data, these percentages were aligned loosely (and admittedly speculatively) with survey data about the four types of cyclists as found in a recent NCTCOG survey illustrated in Figure E3. The assumed split for different groups of transit riders follows:

- 45% of transit riders were assumed to not walk or bike to transit regardless of the stress level, either based on ability or preference for car travel (similar to 48% No Way No How for bikes).
- Up to 35% of transit riders were assumed to walk or bike to transit if they could travel exclusively on PLTS 1 or PLTS 2 sidewalk and crosswalk facilities (similar to 36% Interested But Concerned for bikes).
- Up to 15% of transit riders were assumed willing to travel on PLTS 3 facilities (similar to 14% Enthused & Confident for bikes).
- Up to 5% of transit riders were assumed willing to travel on PLTS 4 facilities (similar to 2% Stong & Fearless for bikes).

More research would be ideal to investigate actual values for these assumptions.

Note that some of the in the PLTS 3 or 4 categories might be termed transit-dependent riders who don't have access to a car and for whom bus transfers to the station are not sufficiently convenient.

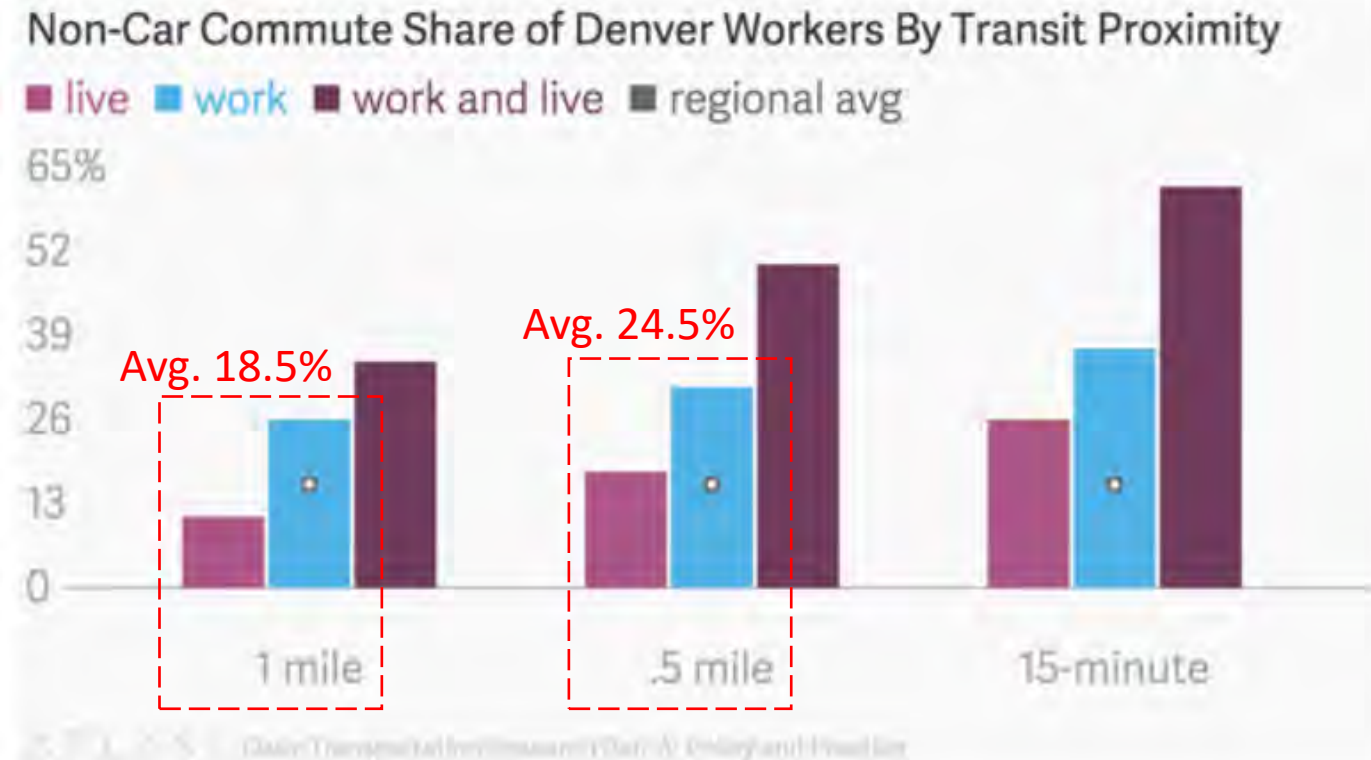
Each of the above assumed percentages was reduced based on a sliding scale for the distance of the parcel in question from the station. The sliding scale was based on data from a 2015 University

of Denver study illustrated in Figure E4 that explored the proximity relationship of the non-car commute share of Denver workers based on transit proximity. The study found that the average percentage of people living or working within 1 mile of the station who used a non-car commute mode was about 18.5%. Within a half-mile of the station, the percentage increased to about 24.5%.

As shown in Figure E5, plotting these two points from Figure E4 in a linear relationship allows for an extrapolated assumption that no more than 30% of people living or working immediately adjacent to a transit station (at a theoretical 0 mile walking distance) would use a non-car commute mode.

It was surmised that the Denver data (as with all real-world cases) would represent non-ideal conditions constrained by imperfect sidewalks and pedestrian stress levels similar to those present in the Dallas metroplex and other cities. Therefore, since the object of the above-described analysis was to account for pedestrian stress more directly, it was surmised that a nominal value of 20% be added to the equation shown in Figure E5 to normalize the relationship for ideal conditions and adjustment using the PLTS methods instead. This adjusted relationship for a proximity factor to

Figure E4: Findings of 2015 University of Denver Study



CityLab
 Source: <https://www.citylab.com/transportation/2015/09/whats-more-important-to-non-car-commuters-living-or-working-near-transit/405592/>

Figure E5: Extrapolated Relationship from 2015 University of Denver Study

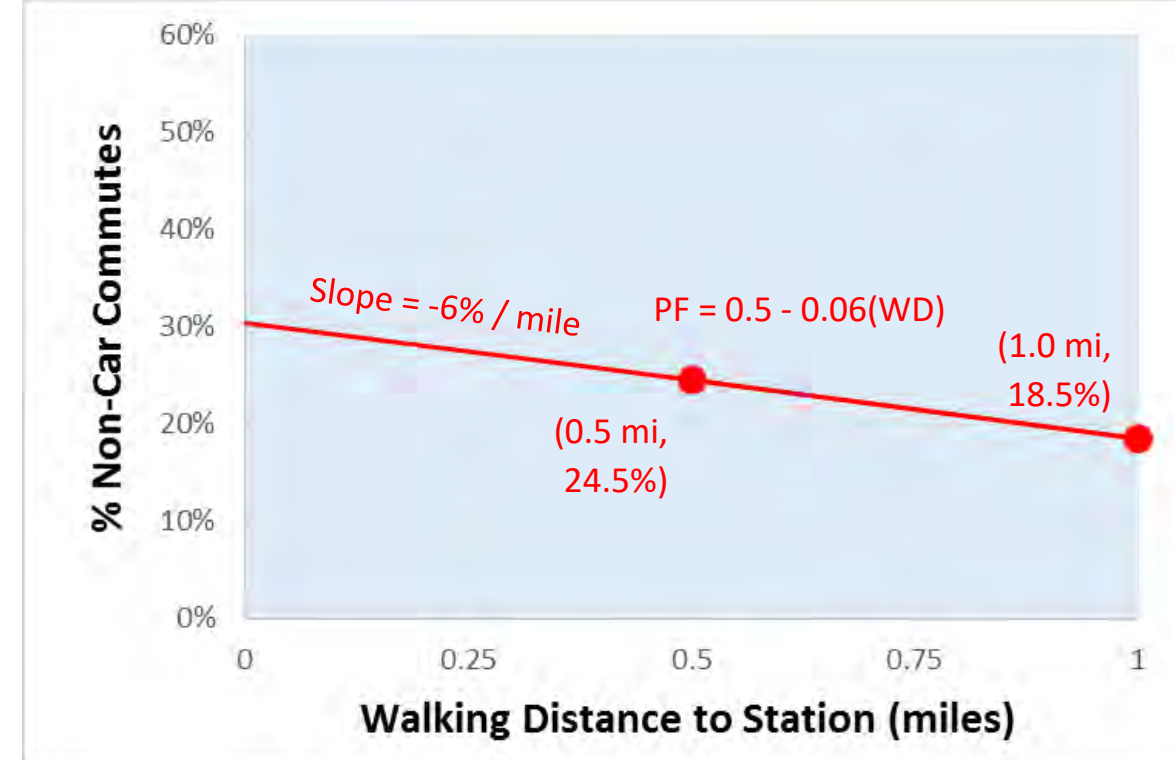


Figure E6: Adjusted Relationship Assumed for Proximity Factor

Criteria	Weight
Employment and Population Density (Number of potential riders connected by the improvement's catchment area)	50
Distance / Proximity of Improvements to the Station	25
Walkshed Trip Length Reduction (Catchment area benefitting from a reduced walk distance to the station)	5
Land Use Types and Key Destinations (e.g. schools, government buildings, social services, hospitals, large shopping centers, parks)	5
Crash History (Number of crashes in the general area of the project improvement)	5
Safety Benefit (Speed limit as a surrogate for systemic safety of the project improvement)	5
Equity / Transit Dependent Populations (Minority households, % below poverty line)	5

provide the percentage of transit riders using non-car modes to reach the station under ideal sidewalk and crosswalk conditions based on distance from the station is shown in Figure E6.

Separate ArcGIS models were created around the Parker Road Station for two different partial pedestrian networks in addition to the full existing pedestrian network described earlier. These represented pedestrian networks that would be accepted by the segments of the transit riding population "Interested but Concerned" and "Enthusied and Confident" about walking or riding to the station.

One network included only PLTS 1 and PLTS 2 links as route options (the blue lines in Figure 9) and therefore served the most limited number of parcels. Another network allowed for travel on PLTS 3 segments (the orange lines in Figure 9) in addition to PLTS 1 and PLTS 2. This network would serve a larger number of parcels. An overall estimate of existing ridership for Parker Road Station was calculated using the above-described inputs. For each parcel, a separate calculation for each PLTS group of transit riders was made as follows:

- PLTS 1+2: Parcel population x Proximity Factor x 35% of transit riders in PLTS Group
- PLTS 3: Parcel population x Proximity Factor x 15% of transit riders in PLTS Group
- PLTS 4: Parcel population x Proximity Factor x 5% of transit riders in PLTS Group

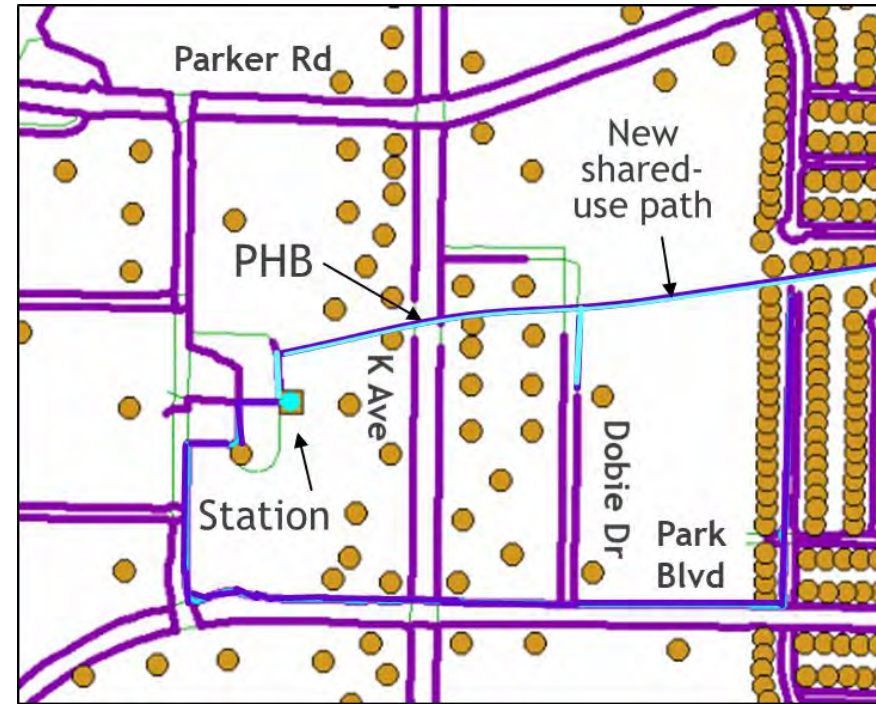
Note that the proximity factor was potentially different for each PLTS group, indicating that more selective travelers could only reach the station by following a longer path consistent with their intolerance for more stressful conditions. For parcels not connected to the station at all at a given PLTS (including PLTS 4) no ridership was assumed for that parcel as a simplifying assumption (despite the fact that many travelers, including those dependent on transit, can and do walk to the station without the benefit of sidewalk or crosswalk facilities).

The resulting estimate of existing non-car commuting trips to and from Parker Road Station was 631 people for existing conditions. This compared very favorably with 2015 survey data that had been provided by DART, indicating that 619 of the daily average riders either walked or biked to Parker Road Station.

Proposed sidewalk and crosswalk improvements were then added to the ArcGIS models for Parker Road Station so that an increase in ridership could be forecast. These are illustrated in Figure E7, which is an annotated screen capture from the GIS model where sidewalks and crosswalks are shown in purple or blue and parcel centroids are shown as brown circles.

With the originally proposed improvements, including a shared use path and pedestrian hybrid beacon (PHB) extending east of the station across K Ave, forecast ridership by non-car commute to the station was forecast to increase from 631 people to 1,018 people, a 61% increase.

Figure E7: Excerpt of Sidewalk Network, Including Originally Proposed Improvements near Parker Road



APPENDIX F: Half-Mile Area Improvement Prioritization – Final Methodology Details

After review of the process described in Appendix E, NCTCOG and the consultant team determined that the extensive editing required to the GIS shapefiles for existing sidewalks would not allow for the same level of effort at each of the 27 additional stations without compromising in other areas of the analysis. Data entry from field work could be reduced by bypassing the PLTS calculations. Finally, it was felt that some of the inputs were too speculative, despite the reasonable agreement between the existing condition model forecast and the recent DART ridership surveys.

Consequently, the prioritization process was simplified by providing separate scores for employment and population density without attempting to correlate these to ridership levels. The methods described previously were used to identify the parcel employment and population tributary to each sidewalk and crosswalk segment, without using a proximity factor or PLTS scores. Distance of each improvement from the station (measured linearly in a straight line for greater simplicity) was separated into a distinct scoring criterion, along with other scoring criteria for walkshed trip length reduction, land use types, key destinations, crash history, safety benefits, and equity. The weighting given to each criterion is shown in Table 1, in Section 2.9 of the report.

Employment & Population Density

Figure F1 illustrates the process used to score improvements on the first criterion in Table 1, employment and population density. It shows the parcels in the Parker Road Station area, with darker shades of gray representing higher population/ employment totals. Note that, while some of the improvements shown in Figure F1 and other figures that follow, such as the sidewalk, pedestrian hybrid beacon, and shared use path to the east of the station, were later revised based on input from the City of Plano, the principles illustrated still apply.

In the figure, each sidewalk and crosswalk improvement link is shown in red, orange, yellow, or green colors depending on the total employment plus population that would be “tributary” to the station via the improvement once all proposed improvements are constructed. The tributary employment plus population values are shown next to each link, with the red links closest to the station having the highest values.

Figure F1: Employment and Population “Tributary” to Sidewalk & Crosswalk Improvements



As a simplifying assumption, parcels straddling the half-mile boundary from the station were included in their entirety without any reductions, but parcels beyond the half-mile boundary were not considered to contribute to the analysis even though some travelers (particularly bicyclists) may be willing to travel without a car for longer distances.

Note that some improvements would have zero expected employment and population because the links connect to parcels that are currently vacant or to parcels that were assumed to have redundant, shorter routes to the station via another street or via the opposite side of the same street.

Figure F2: Proximity of Improvements to Station



Each improvement was assigned a score of 0-50 points, interpolated linearly based on the relative level of employment and population for the improvement, ranging from 0 to the maximum project-wide estimated value of 11,787.

Distance

Figure F2 illustrates the process used to score improvements on the second criterion in Table 1, distance to the station. Each improvement is shown color-coded based on the distance of its midpoint to the station, measured linearly “as the crow flies” for simplicity. Improvements that connect directly to the station have a distance of 0.0 miles. The figure shows the closer improvements shown in green and the most distant improvements in red. Points were assigned to each improvement on a linear scale ranging from 25 points for 0 miles from the station to 0 points at 0.5 mile from the station.

Walkshed Trip Length Reduction

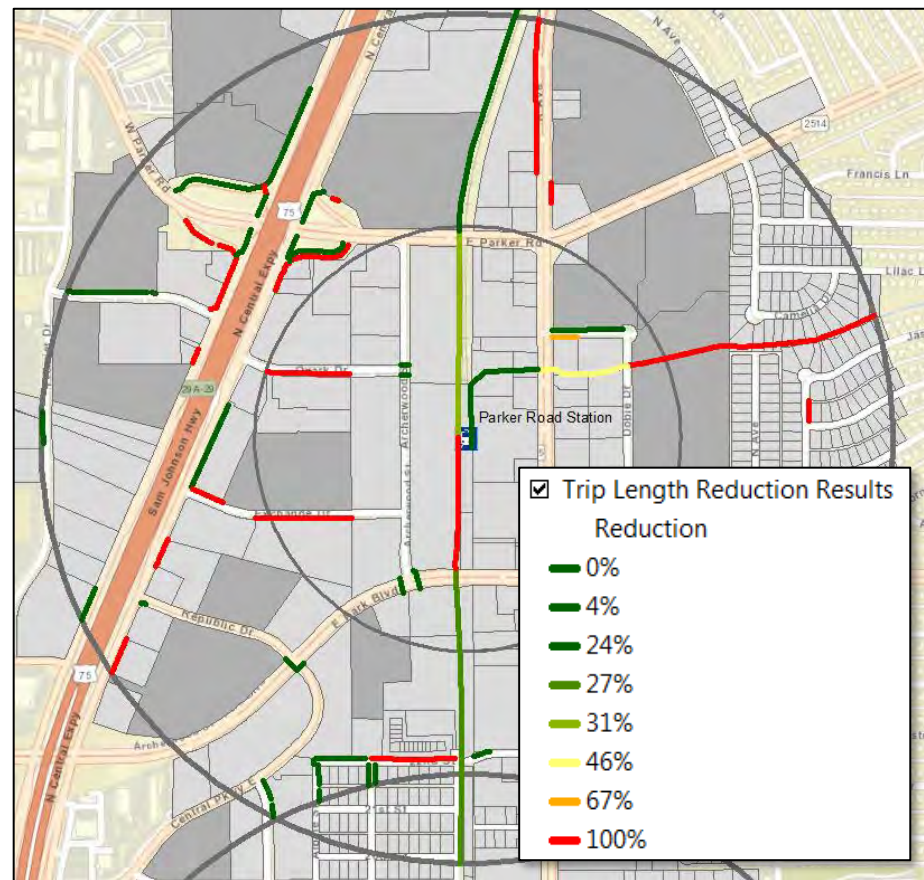
Figure F3 illustrates the process used to score improvements on the third criterion in Table 1, walkshed trip length reduction. Each improvement is shown color-coded based on the percentage reduction in walking distance to the station that would occur for the population of a reference parcel selected as representative of most parcels tributary to the improvement in question. In general, the highest population parcel was chosen. When most parcels were of similar population, such as in single-family home neighborhoods, the farthest parcel was usually selected.

For each improvement, the walking distances from the reference parcel to the station along the existing and proposed pedestrian networks were measured using Network Analyst in ArcGIS. The difference between the two values was calculated as the walkshed trip length reduction.

Consideration had been given to creating a weighted average trip length reduction for all parcels, but this would have required tedious measurements and/or custom macros in ArcGIS. Therefore, this idea was abandoned for the final analysis.

In Figure F3, improvements that would reduce trip length by a high percentage are shown in red or orange. These include improvements that would connect parcels with no existing sidewalk access to the station, which was considered for scoring purposes a 100% reduction (to avoid divide by zero errors). Lower percentages of trip length reduction are shown in yellow and shades of green. Scores for this category were assigned ranging from 0 points for no reduction in walking distance to 5 points for either a newly connected reference parcel or a reduction in walking distance greater than 40%.

Figure F3: Walkshed Trip Length Reduction



Access to Land Use Types & Key Destinations

The fourth criterion for scoring improvements was access to other land use types and key destinations. Proximity to residential and employment uses had already been accounted for in the first criterion. However, other land uses with a high number of visitors also needed to be accounted for. Land uses and destinations deserving of special access consideration were as follows:

- Hospitals, clinics, urgent care
- Places of worship
- Schools
- Government buildings³
- Libraries, museums
- Grocery stores, malls, supercenters, hotels, motels
- Entertainment, fine arts, parks, landmarks, athletic facilities
- Senior living, community centers, gardens
- Bus stops with >25 daily boardings

A shapefile was created for locations in the above categories. Bus stop boarding information in GIS format was obtained from DART for analysis. Bus stops immediately adjacent to the DART rail

³ in categories with an assumed high number of visitors, such as courthouses

stations were excluded as being redundant to the distance prioritization criteria, which already prioritizes proximity of the improvement to the station.

For each improvement, the number of key destinations within 250 feet were tabulated. Also tabulated for improvements greater than ¼ mile from the station were the number of bus routes within 50 feet of the improvement. The intent of this last criterion was to add emphasis on routes that would more often save time for those walking or biking to the station. Routes closer than ¼ mile were generally considered less useful for this purpose, since a walk to the station would more frequently take less time than waiting for the next bus.

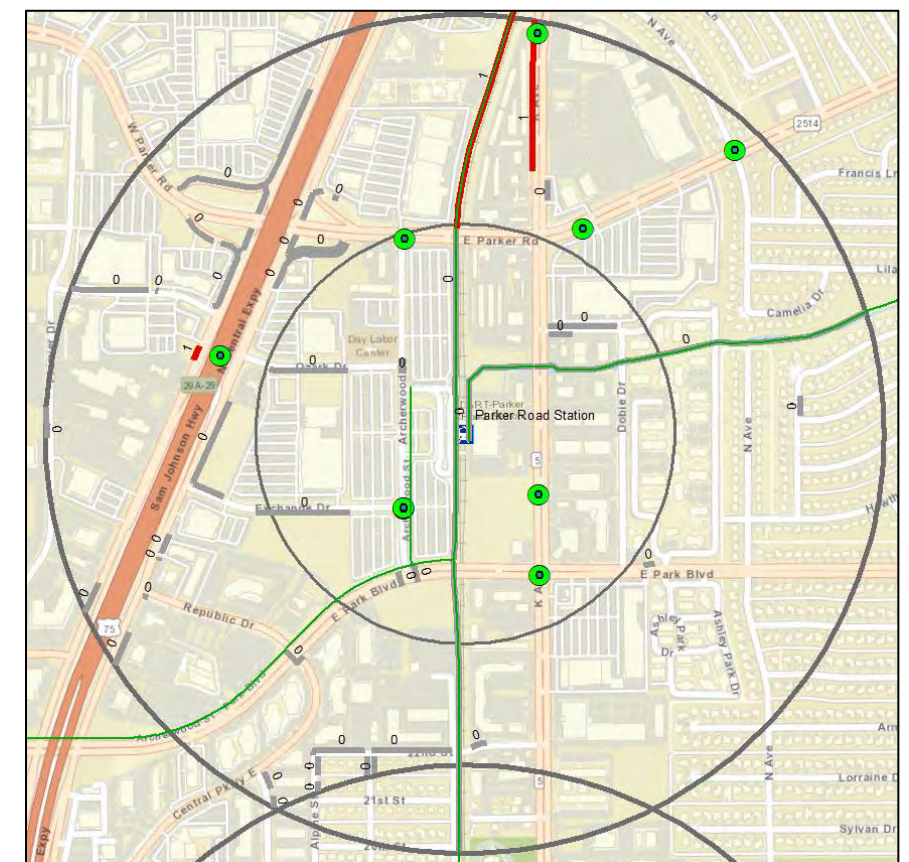
For the access criterion, points were assigned ranging from 0 points for no nearby destinations or qualifying bus routes to 5 points for 5 or more nearby destinations or bus routes. Since some arterial streets may have several bus routes without necessarily having many stops or destinations nearby, the number of points contributed by bus routes was limited to no more than 3 points.

Crash History

The fifth criterion for scoring improvements in Table 1 is crash history. A GIS shapefile was used containing the point location of all reported bicycle and pedestrian crash locations for the study area from 2013 to 2017.

Figure F4 shows that in many places, such as the Parker Road Station half-mile area, bicycle and pedestrian crashes shown by green circles are relatively rare and random occurrences. In areas of lower density development and pedestrian activity, the crashes tend to be scattered throughout the study area, mostly along major arterials. Other station areas with higher density development and greater multi-modal activity experienced higher numbers of pedestrian and bicycle crashes. Since it was not possible within the scope of this project to collect pedestrian volume data, the crash data was observed to serve as somewhat of a surrogate for pedestrian demand. Therefore, a cluster of crashes may be more indicative of a place where many people walk than of a place that's more dangerous to walk in terms of the risk to individual pedestrians.

Figure F4: Relative Scarcity of Bicycle & Pedestrian Crashes



Unfortunately, the available crash database had little detail on the nature of the crashes. For the crash shown along U.S. 75 in Figure F4, for example, the database indicated it involved a pedestrian with an incapacitating injury. However, the database did not detail what either the pedestrian or the driver involved were doing prior to the crash.

There is a sidewalk gap at this location, so perhaps the pedestrian was walking in the travel lanes of the southbound frontage road to avoid the gap. But the pedestrian could also just as well have been changing a flat tire or jaywalking across the freeway mainlanes. So, the crash data may offer some insights, but is still limited in its value for assigning relative benefits to different improvements.

The project team considered requesting police crash reports for the individual crashes and classifying them using the Federal Highway Administration's Pedestrian and Bicycle Crash Analysis Tool (PBCAT). This tool would allow for more significant insights to be drawn from a greater wealth of crash data, leading to better screening of which crash locations might be more or less susceptible to correction by certain countermeasures versus others. However, the extra effort required to code crashes was outside the scope of the project.

For the crash history criterion, improvements were scored from 0 to 5 points based on the number of bicycle- and pedestrian-related crashes within 250 feet of the improvement during the 5-year period analyzed. Figure F4 shows that only two improvements scored points near Parker Road Station. The two links in red each received 1 point for being near a single crash.

No differentiation was made in the scoring for bicycle versus pedestrian crashes or between crashes of different severity. While this data was available in the database, most bicycle and pedestrian crashes have a high potential for being serious or fatal, so it was determined any differentiation in the sparse data could be the result of statistical noise and was therefore less significant in differentiating which improvements would be of greatest benefit for positive safety outcomes.

Safety Benefit

A more recent development in transportation safety research that is designed to combat the drawbacks of traditional crash analysis mentioned in the previous section is the concept of "systemic safety." Systemic safety is a term that refers to safety approaches that are data driven, network-wide, and which consider improvements at locations with similar characteristics to high crash locations, even if the locations where improvements are to be considered or proposed don't themselves have significant crash history. The process is somewhat akin to extrapolating where it is believed crashes are more likely to occur over a longer period of perhaps 20 or 30 years, based on risk factors identified at the locations of recent crashes.

The scope for this project is in itself somewhat systemic in that areas within a half mile of light rail stations were generally observed to show higher bicycle- and pedestrian-related crash frequency than were other areas of the Dallas-Fort Worth region in general. Again, this result is not surprising due to the expected higher prevalence of multi-modal travel demand near transit stations.

As a second measure of systemic safety, the project team opted to use the posted speed limit of the roadway adjacent to sidewalk improvements or crossed by crosswalk improvements. Vehicular speed is widely regarded as having a high correlation to safety outcomes in bicycle and pedestrian crashes, as illustrated by a popular graphic in Figure F5 from the Seattle Department of Transportation.

Figure F5: Generalized Relationships between Impact Speed & Pedestrian Survival Rates

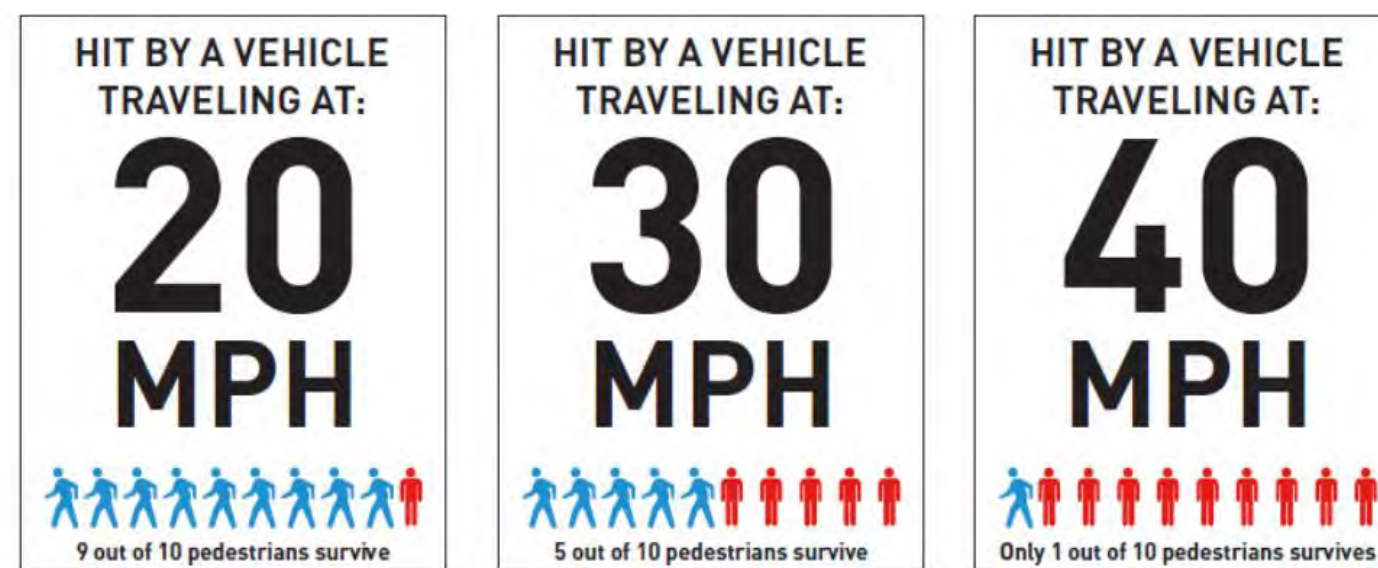


Image: Seattle Department of Transportation

The project team felt that posted speed limit was the single most important safety variable that could be easily measured and isolated, since data on posted speed was readily available in a GIS shapefile. While other variables such as 85th percentile speed and traffic volumes may be important to consider in a more detailed systemic safety study, they were determined to be outside the data collection scope of this project.

The associated scores for the safety benefit criterion ranged from 0 points at or below 20 mph to 5 points at or above 45 mph.

Shared use paths or sidewalks not adjacent to roadway alignments received 0 points for this category. Some consideration was given to assigning points for these types of off-street facilities or sidewalks along low-speed streets to prioritize safer alternatives to walking along high-speed roads. However, ultimately it was decided that inverting the scoring system in this way would de-prioritize existing gaps along higher speed streets, which are typically the "weakest links" in the multi-modal network that lead to the greatest number of decisions to avoid pedestrian and bicycle trips.

Figure F6 shows the Parker Road Station area with the speed limit of the adjacent or crossed street identified next to each improvement, which is color-coded based on the speed limit. Red and orange improvements are near roadways with speed limits of 45 mph or greater, yellow improvements are along or crossing 40 mph roadways, and improvements are shown in green for 30 mph streets.

Equity

The final criterion for prioritizing projects was equity, which seeks to emphasize improving communities with populations that have not historically received equal access to resources. The consultants were provided spatial data covering the project area for an equity metric, the Environmental Justice Index. This index is compiled by NCTCOG to comply with federal rules for identifying Environmental Justice populations. It is based on data from the 2013-2017 American

Community Survey, aggregated at the census block level. Each census block is categorized if the percentage of its residents is higher than the regional average for minority population, low income, or both. Figure F7 shows a map of Environmental Justice Index areas for the areas including the 28 half-mile station areas for the Red & Blue Lines Last Mile Connections project.

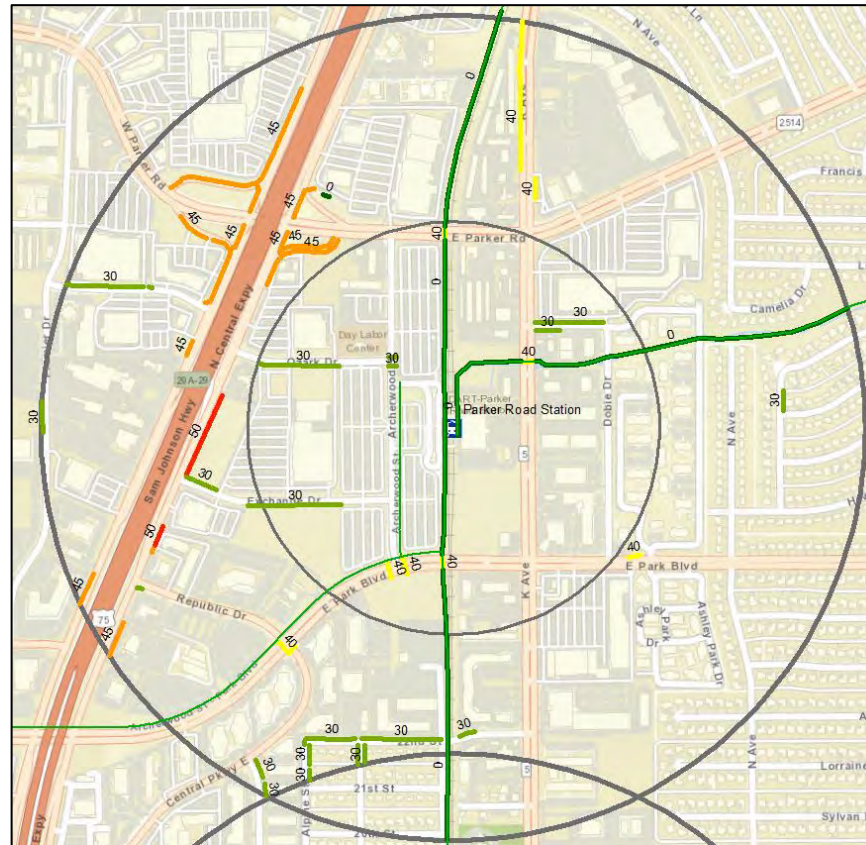
The map shows yellow areas with an above average percentage of low income residents, blue areas with an above average percentage of minority residents, and green areas with an above average percentage of both low income and minority residents. For areas where the map background is visible without any yellow, blue, or green color, no points were scored for the equity criterion. For low income and minority areas (yellow and blue), 3 points were scored for each improvement. For areas with both a higher than average percentage of low income and minority residents (green), 5 points were scored for each improvement.

Gaps to Remain

The consulting team categorized some segments where gaps in the pedestrian network had been identified by NCTCOG during preliminary GIS work to be gaps to remain for the final project listing. This decision was based on field conditions that would be impractical to analyze or would make sidewalk construction extremely cost-prohibitive. Examples include:

- Segments not connecting to the station without exiting the half-mile area.
- Right-of-way would be needed from a cemetery.
- Widening of existing bridge structures would be required without significant likely pedestrian demand.
- A building structure would need to be removed or modified.
- Parallel pedestrian access is provided a short distance away by a trail or another sidewalk such that new sidewalk adjacent to the street would be redundant.
- Street function is as a fire lane, service drive, or alleyway exclusively for vehicular use and pedestrian access is provided by sidewalk on the opposite side of the building.
- Inadequate space exists for sidewalk between roadway edge and DART tracks, without sufficient right-of-way or spare capacity to recommend a road diet.
- Environmental obstacles such as slopes down to creekbeds.
- Excessive impacts to residential properties (particularly those in older single-family home neighborhoods with very small yards, very short setbacks between the street and home and/or no garages or on-street parking width).
- Locked code-controlled pedestrian gates providing sidewalk access through private property (typically apartment complexes). These were modeled as gaps for the general public while still providing access to apartment residents.
- Sidewalk not needed due to lack of developable adjacent land use and existence of parallel sidewalk on opposite side of street.

Figure F6: Improvement Scoring by Adjacent or Crossing Posted Speed Limit



- Off-street parking for small businesses blocking the way of sidewalk where parking removal would likely cause significant harm to the business.

In most cases where sidewalk obstacles exist, the likely challenges were documented for each improvement in notes designed to guide future planning and selection of improvements for actual projects. In some cases, the obstacles might be overcome by narrowing the roadway pavement or lane widths. If this was deemed potentially feasible, the Gap to Remain category was not used. Only where obstacles were deemed exceedingly challenging or sidewalk was judged highly unlikely to be used by anyone was the Gap to Remain category used.

Prioritization Scoring

Improvements were scored using a Microsoft Excel spreadsheet program and sorted based the overall score. The spreadsheet also summarized information on multiple consecutive GIS sidewalk

Figure F7: NCTCOG Environmental Justic Index Mapping

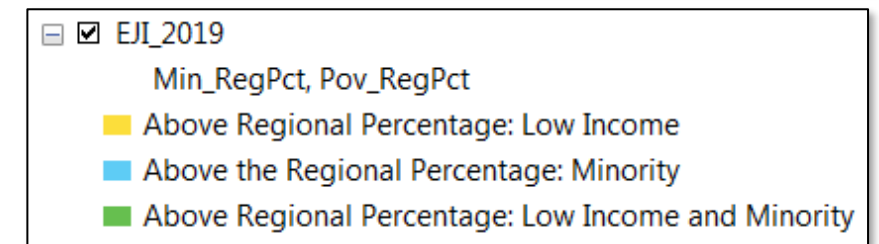
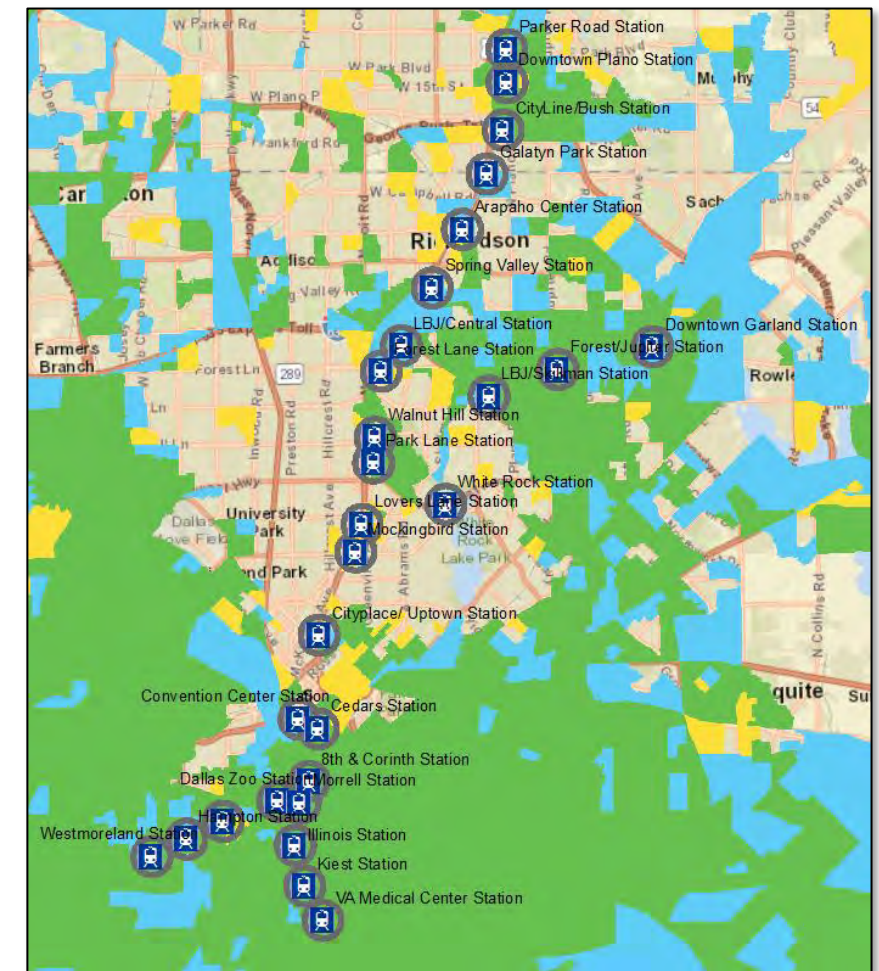


Figure F8: Screen Capture (Excerpt) from Improvement Prioritization Spreadsheet

Improvement Number	Distance		Tributary Employment & Population		Trip Length Reduction		Access					Crash History		Systemic Safety		Equity		Total Points	Priority
	Distance	Points	Tributary Emplmnt + Population	Points	Trip Length Reduction	Trip Length Reduction Points	Key Destinations (incl. high rider bus stops)	Key Destination Points	Bus Routes	Bus Routes Points	Access Points	Crashes	Points	Speed Limit	Points	EJI	Points		
1B-DP-SW-127	0.30	10	2	0	100%	5	2	2	0	0	2	0	0	30	2	Low Income and Minority	5	24	High
1B-DP-SW-128	0.34	8	10	0	100%	5	4	4	0	0	4	0	0	30	2	Low Income and Minority	5	24	High
1B-DP-SW-13	0.29	11	15	0	100%	5	0	0	0	0	0	1	1	30	2	Low Income and Minority	5	24	High
1B-DP-SW-131	0.28	11	39	0	100%	5	1	1	0	0	1	0	0	30	2	Low Income and Minority	5	24	High
1B-DP-SW-35	0.34	8	1,023	4	100%	5	0	0	0	0	0	0	0	30	2	Low Income and Minority	5	24	High
1B-DP-SW-40	0.24	13	40	0	15%	2	1	1	1	1	2	0	0	30	2	Low Income and Minority	5	24	High
1B-DP-SW-66	0.26	12	543	2	100%	5	0	0	0	0	0	0	0	30	2	Low Income	3	24	High
1B-DP-CW-93	0.21	15	0	0	0%	0	1	1	0	0	1	0	0	30	2	Low Income and Minority	5	23	High
1B-DP-CW-94	0.21	15	0	0	0%	0	1	1	0	0	1	0	0	30	2	Low Income and Minority	5	23	High
1B-DP-SW-129	0.32	9	2	0	100%	5	2	2	0	0	2	0	0	30	2	Low Income and Minority	5	23	High
1B-DP-SW-143	0.32	9	33	0	100%	5	0	0	0	0	0	0	0	40	4	Low Income and Minority	5	23	High
1B-DP-SW-145	0.34	8	124	1	100%	5	0	0	0	0	0	0	0	40	4	Low Income and Minority	5	23	High
1B-DP-SW-48	0.47	2	37	0	100%	5	0	0	1	1	1	5	5	45	5	Low Income and Minority	5	23	High
1B-DP-SW-108	0.33	9	5	0	100%	5	1	1	0	0	1	0	0	30	2	Low Income and Minority	5	22	Medium
1B-DP-SW-114	0.37	7	410	2	100%	5	1	1	0	0	1	0	0	30	2	Low Income and Minority	5	22	Medium
1B-DP-SW-120	0.34	8	22	0	100%	5	2	2	0	0	2	0	0	30	2	Low Income and Minority	5	22	Medium
1B-DP-SW-133	0.35	8	8	0	100%	5	2	2	0	0	2	0	0	30	2	Low Income and Minority	5	22	Medium
1B-DP-SW-33	0.37	7	784	3	100%	5	0	0	0	0	0	0	0	30	2	Low Income and Minority	5	22	Medium
1B-DP-SW-57	0.23	14	0	0	0%	0	0	0	1	1	1	0	0	30	2	Low Income and Minority	5	22	Medium
1B-DP-SW-98	0.20	11	7	0	100%	5	0	0	0	0	0	1	1	30	2	Low Income	3	22	Medium
1B-DP-VW-V03	0.26	12	114	0	100%	5	0	0	0	0	0	0	0	0	0	Low Income and Minority	5	22	Medium
1B-DP-SW-107	0.35	8	65	0	100%	5	1	1	0	0	1	0	0	30	2	Low Income and Minority	5	21	Medium

segments on each street block to simplify the resulting improvement tables. Figure F8 shows a screen capture from the Excel spreadsheet for Downtown Plano Station. The figure does not represent a complete listing of all improvements for this station, but is shown for illustrative purposes only. The left-hand column in Figure F8 lists the identification number for each improvement.

Consultants evaluated each improvement for the seven criteria described above, as shown by the column headers in the top row of Figure F8. Points were assigned for each improvement based on the values of the reference inputs.

In Figure F8, the partial list of improvements is shown sorted by total points, with possible total values ranging from 0-100 points. The rows of the spreadsheet were color coded based on the priority of the improvement, with dark red for high-priority improvements, orange for medium priority, and light pink for low priority.



APPENDIX G: Cost Estimating Details

DART Station Properties

At NCTCOG and DART's direction, no additional contingencies were provided to account for the pre-design nature of the estimates, made without benefit of survey, subsurface utility investigation, or engineering design practices.

Most engineering projects at early design submittals such as 30% include additional contingencies to account for unknown design details to be addressed later in design. These contingencies are typically lowered with each successive design submission and then minimized by final 100% design submission once all design procedures have been completed.

Without additional contingencies to supplement the preliminary nature of the OPCC's, the uncertainty inherent in this decision was mitigated by a general attempt to be conservative in quantity and unit price estimation. Unit prices and other elements of the OPCC's were developed consistent with the assumptions used for the half-mile areas surrounding each station.

Half-Mile Areas

Opinions of Probable Construction Cost (OPCC) were developed for each high-priority improvement that was not assumed by City staff to be built as part of another project (developer, City, TxDOT, etc.) in the near future.

OPCC's were not developed for individual low- or medium-priority improvements, but could be developed by the City in the future based on similar assumptions as outlined below. Rather, estimates for the overall cost of low- and medium-priority improvements were developed on a unit length basis for each station area. The low- and medium priority OPCC estimates are therefore of a lower fidelity and thus the City may consider verifying them with more detailed individual improvement estimates prior to making further design or construction funding decisions.

The following is a discussion of simplifying assumptions that were made in order to provide quality, yet preliminary OPCC's for the DART Station on-site improvements and nearly 1,100 separate high-priority improvements totalling nearly 58 linear miles over the 28 station areas project-wide.

Table G1 lists the project-wide number and length of improvements not assumed to be built by others. The listing is organized by station area, priority and type of improvement (sidewalk/shared use path vs. crosswalk).

Unit Costs

Consultants compared TxDOT and City of Dallas unit prices from recent bid tabulations for various items related to construction of the proposed improvements.

Adjustments were made in the comparisons due to differences in how the specifications, measurement, and payment for the City of Dallas and TxDOT are written. For example, the comparisons were made more balanced by averaging the Dallas values for different spellings of the same item number, or by adding remove and replace items together for comparison with an item that included both in the other agency's specifications.

TxDOT unit prices were in most cases much less expensive for sidewalk related items. This may be because TxDOT is the beneficiary of economies of scale from their contractors on projects of larger size where the items being constructed are contiguous, even though the City on their projects probably builds more sidewalk-related items overall. While this theory is impossible to confirm, since the Dallas prices don't have meta-data like TxDOT does on the quantities and number of times each item was used, the project team felt this effect was most likely present in the data nonetheless.

The City of Dallas bid tabulations also featured a wider array of bid items that would be used in these type of projects compared to the TxDOT standard bid items. Nonetheless, there were some bid items identified from TxDOT that were not available in the City list of bid items. In these cases, or when TxDOT listed a higher, more conservative unit price, the TxDOT items were used for OPCC's for this project.

In all other cases, including for the unit price for sidewalk, City of Dallas unit prices were used. The project team believes that City of Dallas prices would more likely reflect what local contractors would be bidding for sidewalk projects based on size of the proposed construction packages and our experience completing these type of projects in the DFW Metroplex.

Standard Assumptions

The following standard assumptions were used for most OPCC's developed for this project, though exceptions were sometimes made on a case-by-case basis as per engineering judgment.

Facility Width & Alignment

- All new and reconstructed sidewalks were assumed to be 5 feet wide.
- All shared use paths were assumed to be 10 feet wide.
- Sidewalks and shared use paths were assumed to have alignments that could meander slightly around obstacles if necessary and if permitted by the apparent right-of-way width.

Buffer Space & Setbacks

- Reconstructed sidewalk was assumed to be set back from the street where remnants of existing sidewalk had also been set back.
- For new sidewalk, a buffer between the sidewalk and roadway edge was assumed where the apparent available right-of-way seemed to be generally at least 8 feet wide.

Curb & Gutter

- Where sufficient space for buffers did not appear to exist, or where existing, damaged sidewalk that needs to be replaced is attached to the roadway curb, removal and replacement of any existing curb and gutter was assumed to also be necessary, so these costs were also included.
- New curb, gutter, and drainage systems were assumed to be necessary where not existing adjacent to sidewalk gaps.



Retaining Walls

- Retaining walls were estimated to be needed for certain lengths and heights based on engineering judgement where slopes were deemed steep enough to require them.
- Unit costs for retaining walls were estimated based on City of Dallas standard details for short retaining walls and the unit prices for their component features as follows:
 - 1' wall height = \$20/linear foot
 - 2' wall height = \$40/linear foot
 - 3' wall height = \$75/linear foot
 - 4' wall height = \$100/linear foot
 - 5' wall height = \$125/linear foot

Landscaping

- A two-foot strip of sod was assumed to be needed on each side of the work area in addition to the landscaping allowance noted below.
- Removal and replacement of trees were developed as a blended cost estimate between TxDOT costs for the item "Remove Tree and Install Plant Material" and City of Dallas costs for installing trees.

Driveways

- Standard sizes were developed for assumed reconstruction of residential and commercial driveways where needed to construct level sidewalk crossings. The standard sizes (250 sq. ft. for residential and 500 sq. ft. for commercial) helped simplify the task of making variable estimates for hundreds or thousands of driveways project-wide. Instead, estimators needed only to count the number of each type of driveway likely to be affected.
- Greater variability than indicated in the estimates may be expected in the actual construction cost in areas with steeper slopes near driveway crossings.

Table G1: Summary Improvement Statistics by Station Area, Priority & Improvement Type

Station Area	High Priority Improvements				Medium Priority Improvements				Low Priority Improvements				Gaps to Remain	
	Sidewalks & Shared-Use Paths		Crosswalks		Sidewalks & Shared-Use Paths		Crosswalks		Sidewalks & Shared-Use Paths		Crosswalks			
	#	Miles	#	Miles	#	Miles	#	Miles	#	Miles	#	Miles	#	Miles
1A Parker Rd	15	1.57	8	0.15	12	0.71	3	0.12	12	0.31	1	0.08	4	0.28
1B Downtown Plano	26	1.17	8	0.08	59	3.09	2	0.02	48	2.32	1	0.01	8	0.71
1C CityLine Bush	25	2.14	9	0.13	17	1.85	3	0.04	13	0.90	0	-	6	0.20
2A Galatyn Park	8	0.60	6	0.11	12	0.46	5	0.10	21	1.64	7	0.11	11	1.09
2B Arapaho Center	13	0.51	3	0.02	11	0.46	2	0.02	16	1.50	1	0.00	11	1.40
2C Spring Valley	7	0.32	3	0.04	9	0.29	1	0.01	18	1.32	2	0.03	12	0.61
3A Downtown Garland	54	3.65	3	0.03	69	2.93	4	0.05	65	1.94	5	0.04	9	0.25
3B Forest Jupiter	26	3.28	4	0.07	16	1.38	0	-	25	1.72	1	0.02	0	-
3C LBJ Central	29	2.31	3	0.04	19	1.80	0	-	6	0.33	0	-	2	0.02
3D Forest Ln	15	0.83	5	0.10	18	1.08	0	-	33	1.13	1	0.01	0	-
4A Walnut Hill	11	0.66	3	0.06	22	1.77	0	-	4	0.35	0	-	3	0.10
4B Park Lane	35	3.03	3	0.07	23	1.35	0	-	15	0.82	0	-	3	0.11
4C Lovers Lane	11	0.45	0	-	5	0.20	2	0.02	5	0.08	4	0.04	20	0.24
4D Mockingbird	5	0.19	1	0.02	6	0.25	2	0.03	35	1.61	0	-	11	0.77
4E LBJ Skillman	32	3.89	1	0.02	16	1.00	1	0.02	35	1.61	3	0.04	3	0.32
4F White Rock	21	2.13	3	0.05	29	2.73	2	0.02	45	3.30	1	0.02	1	0.06
5A Eight and Corinth	39	2.15	5	0.08	47	2.57	0	-	42	1.36	0	-	6	0.25
5B Dallas Zoo	57	3.09	1	0.01	54	2.45	0	-	45	1.25	0	-	1	0.07
5C Morrell	58	2.30	5	0.06	34	2.01	1	0.02	48	1.53	2	0.03	3	0.40
6A Tyler Vernon	63	4.24	4	0.06	78	4.76	10	0.12	97	3.59	5	0.06	1	0.03
6B Hampton	60	2.05	8	0.13	65	2.22	2	0.02	71	2.33	3	0.05	0	-
6C Westmoreland	44	2.46	15	0.23	39	1.46	3	0.13	45	1.63	1	0.02	0	-
7A Illinois	126	4.74	19	0.23	135	5.18	4	0.04	78	2.98	1	0.01	0	-
7B Kiest	41	2.20	0	-	83	3.95	4	0.05	67	2.70	3	0.04	0	-
7C VA Medical	55	2.65	9	0.07	69	3.43	9	0.11	75	2.93	2	0.02	6	0.49
8A City Place	3	0.03	11	0.16	4	0.40	1	0.01	21	0.67	6	0.08	1	0.21
8B Convention Center	8	0.34	2	0.04	4	0.69	2	0.04	3	0.06	1	0.01	6	0.27
8C Cedars	43	1.25	10	0.12	32	1.39	3	0.03	20	0.97	0	-	9	0.62
Totals	930	54.23	152	2.16	987	51.86	66	1.00	1008	42.90	51	0.73	137	8.48

Total High-Priority Improvements (Sidewalks + Shared Use Paths + Crosswalks) = 1,082
 Total High-Priority Improvements (Sidewalks + Shared Use Paths + Crosswalks) = 56.39 miles

Streetlighting

- Where new streetlighting was recommended in conjunction with proposed crosswalk improvements, standard unit prices for the entire installation were developed for different roadway cross sections as follows:



- o Two-lane undivided street = \$26,500
- o Three-lane undivided street = \$27,200
- o Four-lane undivided street = \$40,500
- o Four-lane divided street = \$41,200
- o Six-lane undivided street = \$41,900
- o Six-lane divided street = \$42,700

- For purposes of the OPCC's, streets with medians less than 6' wide were considered undivided, with luminaire poles only on intersection corners rather than mounted in the median.
- For segments of new streetlighting along sidewalk segments on DART property, site-specific streetlighting estimates were developed.

Signals & Beacons at Crosswalks

For crosswalks where proposed traffic signal, Pedestrian Hybrid Beacon (PHB), or Rectangular Rapid Flashing Beacon (RRFB) installations are recommended, the following standard unit prices per installation were developed based on improvement type and roadway cross-section, based on typical recent experience with previous projects:

- RRFB – Three-lane crossing without median island - \$24,000
- RRFB – with one solar unit sign with flashers/pushbutton in median refuge island - \$36,000
- RRFB – with two solar unit signs with flashers/pushbutton in median refuge island - \$48,000
- PHB or Pedestrian Traffic Signal – Three-lane undivided - \$150,000
- PHB or Pedestrian Traffic Signal – Four-lane divided - \$175,000
- PHB – Six-lane divided - \$200,000
- Pedestrian Traffic Signal – Six-lane divided - \$210,000
- Add APS pushbuttons, countdown pedestrian heads at existing signal - \$3,500 per intersection + \$6,000 per crosswalk

Road Diets

- Where road diets are recommended to provide shorter pedestrian crossings and/or provide space for pedestrian amenities such as median refuge islands and posts for signs, beacons and/or pushbuttons, the recommendations are made for consideration with the understanding that further, corridor-wide analysis outside the scope of this project will be required.
- The costs estimated are for making changes within a block in either direction of the pedestrian crossing, which would likely be the minimum viable improvement. In many cases, cities may consider a longer corridor for road diet implementation if spare capacity for auto traffic along the route is confirmed. However, costs associated with additional project length, or other costs associated with reconstructing curbs and islands beyond the one-block transition area or changes to signalized intersections, have not been included since they would difficult to estimate without additional study.

Median Anti-Climb Fencing

At a few locations where eliminating barriers to more direct pedestrian travel was determined to be impractical, aesthetic, anti-climb fencing is recommended to channelize pedestrians to the safest street crossings a reasonable distance away. City of Dallas and TxDOT standard bid items

were found to be insufficient to account for this type of fencing. Consultants identified two aesthetic, anti-climb fencing system products and requested pricing information on each from vendors and contractors. Photographs of the types of fencing available have been included in the figures shown previously for the relevant locations.

Criteria in identifying a suitable type of fencing for these applications were that it be tall enough and without hand or finger holds to allow it to be climbed. Also, since several systems would be installed in close proximity to moving traffic, it should either be crashworthy as a stand-alone installation or capable of being mounted on crash-tested standard median concrete traffic barrier.

One type of custom fencing identified had been built in recent years along the relatively narrow median of a high-speed state highway near touristed beach areas in Ocean City, Maryland. Consultants spoke with the vendor who provided the fencing and the contractor who built it. It was built to resemble a white picket fence, with pointed bars at the top to discourage climbing. The fencing was mounted on breakaway supports and a specially designed concrete foundation for wind loading in an area prone to hurricanes.

The contractor indicated the bid cost for this fencing was about \$440 per linear foot, which included all miscellaneous related items such as mobilization and temporary traffic control. The same wind load and foundation design would not likely be required for fencing in North Texas, but it isn't clear how much cost savings might be achieved with this change.

The contractor did not have examples of this type of fencing being built on top of concrete traffic barrier that would reduce the maintenance requirements for the fencing. If struck by errant vehicles traversing the curbed median, a significant amount of labor would be involved in replacing damaged sections.

The other type of fencing system identified was the ClearVu Invisible Wall system from Cochrane USA. This system was used as median pedestrian fencing in a recent project by TxDOT in the City of Fort Worth on Lancaster Ave. Quotes for fencing systems were obtained from Cochrane USA for the specific locations recommended for this project. Pricing varied from \$52 to \$73 per linear foot for the entire system, depending mostly whether the fencing was to be installed on ground mounted posts in wide medians or away from roadways or on top of concrete traffic barriers in narrow medians.

For the Lancaster Ave project, where a wide median was available, TxDOT indicated that bid prices including contractor labor for the project were about \$90 per linear foot. However, a representative from the contractor was also contacted and indicated that he would bid a higher price of \$130 to \$140 per linear foot for future contracts. Their experience after installing the fencing for the first time was that it was a labor-intensive process that would not go more quickly with additional experience. Another local contractor who has installed this type of fencing on other projects indicated a typical bid price of \$110 to \$120 per linear foot.

After reviewing the above information, consultants decided on a unit cost of \$130 / linear foot for anti-climb pedestrian fencing. This was based on 6' high fencing for stand-alone applications, or 3.5' fencing on top of 2.5' tall concrete traffic barrier for a total barrier height of 6' in narrow median applications. The \$130 per linear foot value provides for a relatively generous extra labor allowance for the Clearview Invisible Wall system and/or for vendors of other similar products to be identified.



Where median anti-climb fencing is recommended on top of concrete traffic barrier, standard TxDOT bid items for constructing concrete traffic barrier and end treatments were assumed independent of the cost of the remainder of the fence.

Right-of-Way

- No right-of-way acquisition is assumed for any improvements. Right-of-way data was unavailable for the high-level planning purposes of this study. Some assumptions about the apparent right-of-way location were made based on factors such as the location of utility poles in order to make other assumptions necessary for cost estimation.
- Some improvements on private property (such as that of hospitals or other large employers) assume that cooperation of the property owners and negotiation of easements would be necessary. However, no additional cost has been assumed for these activities.

Contingencies

The following contingencies (totaling 25%) were applied to all costs, as directed and approved by both NCTCOG and DART:

- 10% design fee
- 4% mobilization
- 4% for landscaping allowance
- 2% for Erosion & Sediment Control Allowance
- 3% for traffic control
- 2% extra contingency for federal aid project

At NCTCOG and DART's direction, no additional contingencies were provided to account for the pre-design nature of the estimates, made without benefit of survey, subsurface utility investigation, or engineering design practices.

Most engineering projects at early design submittals such as 30% include additional contingencies to account for unknown design details to be addressed later in design. These contingencies are typically lowered with each successive design submission and then eliminated at final 100% design submission once all design procedures have been completed.

Without additional contingencies to supplement the preliminary nature of the OPCC's, the uncertainty inherent in this decision was mitigated by a general attempt to be conservative in quantity and unit price estimation, as already discussed.




APPENDIX H: Estimated Quantities & Opinions of Probable Construction Cost – Station
Property Improvements



Downtown Garland Station

Opinion of Probable Constr. Cost = \$174,500

Improvement Code Legend
ID: 3A-DG-ST-01
 3A ← Station Number ST ← Station Improvement
 DG ← Station Abbreviation
 01 ← Improvement Number (matches  on Map)



Location ID	Ownership	Project Type	Description	Opinion of Probable Cost
3A-DG-ST-01 3A-DG-ST-02	DART	Add pavement crosswalk markings and stopbars	Add crosswalk striping just outside and parallel to the decorative brick crosswalks. Add stop bar striping ahead of the stop signs in advance of each crosswalk.	\$ 2,000
3A-DG-ST-03	DART	Add pedestrian signs	Add pedestrian signs ahead of pedestrian crosswalk.	\$ 1,700
3A-DG-ST-04 3A-DG-ST-05	DART	Add landscaping	Remove goat trails that encourage mid-block crossings by adding landscaping.	\$ 4,900
3A-DG-ST-07	DART	Add pavement markings for bus loop crosswalks	Add a more direct crosswalk/sidewalk connection between the bus loop and the northeast corner of the Walnut Street/5th Street intersection to encourage pedestrians to cross at the signalized crosswalk. Install crosswalk markings and stop signs for bus loop crossing. A "goat trail" exists along the path of the proposed sidewalk presently, indicating demand for a more direct pedestrian route. A section of fence adjacent to the bus loop will need to be removed as part of this improvement.	\$ 6,900
3A-DG-ST-08	DART	Install new bike lids	Add covered bike parking near the southeast corner of Walnut Street and 5th Street intersection. This will put bike parking closer to the train platform so that bicyclists do not have to cross north of Walnut Street or to the east end of the platform to park.	\$ 10,800
3A-DG-ST-9	DART	Add Crosswalk Markings	Restripe faded crosswalk on the east leg of DART driveway and 5th Street intersection.	\$ 1,300
3A-DG-ST-10	DART	Update Speed Limit sign	Replace non-standard sign with R2-1 sign from MUTCD. Sign should be retroreflective for increased nighttime visibility. Uniform signs reinforce driver respect as legitimate traffic control devices.	\$ 900
Opinion of Probable Cost - DART Subtotal.....				\$ 28,500
3A-DG-ST-06	City of Garland	Add fencing	Add median fence along Walnut Street in front of DART station to restrict mid-block crossings and channelize pedestrians to signalized crosswalks at 4th Street and 5th Street intersections.	\$ 146,000
Opinion of Probable Cost - City of Garland Subtotal.....				\$ 146,000
Opinion of Probable Cost - Total for All Recommendations at Station.....				\$ 174,500

DART Last Mile Connections Project - Downtown Garland Station Preliminary Opinion of Probable Construction Cost

Improvement No./ Description	City of Dallas Bid Item No.	Item Description	Unit	Unit Price	Quantity	Rounded Quantity	Bid Estimate	Assumptions
3A-DG-ST-01	723 A	12" THERMOPLASTIC LANE MARKER	Lin. Ft.	\$ 9.00	120	120	\$ 1,080.00	12" line on either side of 120' crosswalks, 2 stop bars
3A-DG-ST-02	724	18" THERMO STOP LINE MARKER	Lin. Ft.	\$ 8.00	60	60	\$ 480.00	
Add pavement crosswalk markings and stopbars		Contingency				25%	\$ 390.00	
		Subtotal					\$ 2,000.00	
3A-DG-ST-03	729 A	INSTALL GR. MOUNTED REG/GUIDE SIGN	Each	\$ 650.00	2	2	\$ 1,300.00	Add 2 pedestrian signs ahead of pedestrian crosswalk
Add pedestrian signs		Contingency				25%	\$ 325.00	
		Subtotal					\$ 1,700.00	
3A-DG-ST-04	DART BID ITEMS	Plant Material (5 Gal Shrub)	SF	\$ 15.00	250	250	\$ 3,750.00	Add shrub and mulch.
3A-DG-ST-05		Mulch	SY	\$ 5.00	27.78	28	\$ 140.00	
Add landscaping			Contingency				25%	
		Subtotal					\$ 4,900.00	
3A-DG-ST-06	XXXX	Architectural quality 6' metal fence	Lin. Ft.	\$ 130.00	360	360	\$ 46,800.00	Install anti-climb fence atop median barrier along median of Walnut St between 4th St & 5th St
Add fencing	545 6006	CRASH CUSH ATTEN (INSTL)(L)(N)(TL2)	EA	\$ 8,000.00	2	2	\$ 16,000.00	
	514 6038	PERM CTB (SSCB)(TY 1)(MOD)	LF	\$ 150.00	360	360	\$ 54,000.00	
		Contingency				25%	\$ 29,200.00	
		Subtotal					\$ 146,000.00	
3A-DG-ST-07	723 A	12" THERMOPLASTIC LANE MARKER	Lin. Ft.	\$ 9.00	70	70	\$ 630.00	Assume 6' wide crosswalk 35' long. Assume 5' wide sidewalk 70' long, 2 STOP SIGNS,
Add pavement markings for bus loop crosswalks	355	4" THICK REINF CONC WALK (converted from Sq. Ft. to Sq.	Sq. Yd.	\$ 63.00	41.666667	42	\$ 2,646.00	
	729 A	INSTALL GR. MOUNTED REG/GUIDE SIGN	Each	\$ 650.00	2	2	\$ 1,300.00	
	1604 A	REMOVE OR REPLACE FENCE	Lin. Ft.	\$ 53.00	5	5	\$ 265.00	
	724	18" THERMO STOP LINE MARKER	Lin. Ft.	\$ 8.00	30	30	\$ 240.00	
	DART BID ITEM	Remove Existing Shrub	SF	\$ 10.00	41.666667	42	\$ 420.00	
		Contingency				25%	\$ 1,375.25	
	Subtotal					\$ 6,900.00		
3A-DG-ST-08	XXX	BikeLid covered bike parking	Each	\$ 2,145.00	4	4	\$ 8,580.00	Add 4 bike parkings
Install new bike lids		Contingency				25%	\$ 2,145.00	
		Subtotal					\$ 10,800.00	
3A-DG-ST-9	723 A	12" THERMOPLASTIC LANE MARKER	Lin. Ft.	\$ 9.00	110	110	\$ 990.00	Assume 6' wide crosswalk 40' long, 50% covered with thermo.
Add Crosswalk Markings		Contingency				25%	\$ 247.50	
		Subtotal					\$ 1,300.00	
3A-DG-ST-10	729 A	INSTALL GR. MOUNTED REG/GUIDE SIGN	Each	\$ 650.00	1	1	\$ 650.00	1 speed limit sign needs to be updated
Update Speed Limit sign		Contingency				25%	\$ 162.50	
		Subtotal					\$ 900.00	
Grand Total							\$ 174,500.00	


Contingency Items:	Contingency	Contingency Items:	Contingency	
Design Fee	10%	Erosion & Sediment Control Allowance	2%	25% Total Contingency
Mobilization	4%	Traffic Control Allowance	3%	
Landscaping Allowance	4%	Extra Contingency for Federal Aid Project	2%	

Forest Jupiter Station

Opinion of Probable Constr. Cost = \$188,400

Improvement Code Legend

ID: 3B-FJ-ST-01

3B ← Station Number ST ← Station Improvement
 FJ ← Station Abbreviation
 01 ← Improvement Number (matches  on Map)



Location ID	Ownership	Project Type	Description	Opinion of Probable Cost
3B-FJ-ST-01	City of Garland	Install Pedestrian Push Buttons	Install missing pedestrian pushbuttons on the southeast corner of Forest Lane and Barnes Drive.	\$ 3,200
Opinion of Probable Cost - City of Garland Subtotal.....				\$ 3,200
3B-FJ-ST-02	DART	Widen existing sidewalk	Widen existing sidewalk from 3 feet to minimum 5 feet to accommodate pedestrian needs.	\$ 60,700
3B-FJ-ST-03	DART	Build new sidewalk	Build new sidewalk on the east side of the DART entrance south of Barnes Drive.	\$ 67,800
3B-FJ-ST-04 3B-FJ-ST-05	DART	Update signs	Update "DO NOT ENTER" signs to meet MUTCD standards.	\$ 1,700
3B-FJ-ST-06	DART	Relocate signs	Relocate handicap parking sign and passenger loading directional sign to avoid inadvertent entry to the bus loop by non-bus drivers. If implementing recommendation 7 below, new, separate directional signs will be required. A sign for passenger loading would be appropriate at location 6, while a sign for handicap parking should be provided facing southbound driveway traffic on the west side of the entry driveway, north of the bus loop entry (location 6b).	\$ 600
3B-FJ-ST-07	DART	Relocate ADA parking closer to platform	Relocate handicap parking spaces from their current position near the central sidewalk access to the train platform (near location 8) to the spaces near the western sidewalk access to the platform (location 7). The current location of the handicap parking spaces requires disabled pedestrians to travel farther since the crossing to the platform does not include pedestrian ramps.	\$ 20,800
3B-FJ-ST-08	DART	Add bus loop crosswalks	Add crosswalk striping parallel to and on either side of the existing crosswalk.	\$ 600
3B-FJ-ST-09	DART	Build new pedestrian ramps	Build ramps to the existing crosswalk.	\$ 5,500
3B-FJ-ST-10 3B-FJ-ST-11	DART	Pedestrian Signs	Update pedestrian signs to meet MUTCD standards.	\$ 1,700
3B-FJ-ST-12	DART	Speed Limit Sign	Update speed limit signs to meet MUTCD standards.	\$ 900
3B-FJ-ST-13	DART	Build new sidewalk	Build new sidewalk connecting station platform with Forest Lane to the east. A worn path in the grass indicates existing pedestrian demand in this location.	\$ 24,900
Opinion of Probable Cost - DART Subtotal.....				\$ 185,200
3B-FJ-ST-14	Private Property	Multi-Use Trail	Build new shared use path along rail alignment for more direct access to and from Jupiter Road to the south. Fencing, lighting, and security cameras may be needed where the path alignment is obscured from view under the rail bridge and immediately south of the adjacent building.	Separate Project
Opinion of Probable Cost - Private Property Subtotal.....				\$ -
Opinion of Probable Cost - Total for All Recommendations at Station.....				\$ 188,400

DART Last Mile Connections Project - Forest Jupiter Station Preliminary Opinion of Probable Construction Cost

Improvement No./ Description	City of Dallas Bid Item No.	Item Description	Unit	Unit Price	Quantity	Rounded Quantity	Bid Estimate	Assumptions
3B-FJ-ST-01	749	PROC & INSTALL PEDE PUSH BUTTON/SIGN	Each	\$ 1,255.00	2	2	\$ 2,510.00	Install 2 Pedestrian Push Buttons
Install Pedestrian Push Buttons		<i>Contingency</i>				25%	\$ 627.50	
	Subtotal						\$ 3,200.00	
3B-FJ-ST-02	355	4" THICK REINF CONC WALK (converted from Sq. Ft. to Sq. Yd.)	Sq. Yd.	\$ 63.00	165.33	165	\$ 10,395.00	Widen existing sidewalk from 3' to 6', assuming length 248'. Relocate 4 light poles. Reconstruct 5 existing pedestrian ramps.
Widen existing sidewalk	203	REMOVE CONCRETE SIDEWALK	Sq. Ft.	\$ 4.00	744	744	\$ 2,976.00	
	618	BARRIER FREE RAMP	Each	\$ 2,182.75	5	5	\$ 10,913.75	
	1001 A	REMOVE STREET LIGHT POLE AND ASSEMBLY	Each	\$ 585.00	4	4	\$ 2,340.00	
	1002 A	REMOVE STREET LIGHT FOUNDATION	Each	\$ 296.00	4	4	\$ 1,184.00	
	682	STREET LIGHT FOUNDATION	Each	\$ 957.00	4	4	\$ 3,828.00	
		RECONSTRUCT DRIVEWAY (COMMERCIAL)	Each	\$ 8,444.44	2	2	\$ 16,888.88	
		<i>Contingency</i>					25%	
	Subtotal						\$ 60,700.00	
3B-FJ-ST-03	355	4" THICK REINF CONC WALK (converted from Sq. Ft. to Sq. Yd.)	Sq. Yd.	\$ 63.00	136.67	137	\$ 8,631.00	Build new 205' sidewalk with 6' width. Relocate 2 signs and 2 light poles. Construct 7 pedestrian ramps. Remove 5 bushes (assume each as 0.5 tree). Adjust one electrical box and a manhole, and relocate a utility box.
Build new sidewalk	1001 A	REMOVE STREET LIGHT POLE AND ASSEMBLY	Each	\$ 585.00	2	2	\$ 1,170.00	
	1002 A	REMOVE STREET LIGHT FOUNDATION	Each	\$ 296.00	2	2	\$ 592.00	
	682	STREET LIGHT FOUNDATION	Each	\$ 957.00	2	2	\$ 1,914.00	
	728	REMOVE AND RESET SIGN	Each	\$ 223.00	2	2	\$ 446.00	
	618	BARRIER FREE RAMP	Each	\$ 2,182.75	7	7	\$ 15,279.25	
	20360	MANHOLE ADJUSTMENT	Each	\$ 572.00	1	1	\$ 572.00	
	624	REMOVE AND RESET STREET LIGHT PULL BOX	Each	\$ 1,100.00	1	1	\$ 1,100.00	
	639	REMOVE TREE	Each	\$ 886.00	5	5	\$ 4,430.00	
	20300	UTILITY BOX RELOCATION	Each	\$ 729.33	1	1	\$ 729.33	
		RECONSTRUCT DRIVEWAY (COMMERCIAL)	Each	\$ 8,444.44	1	1	\$ 8,444.44	
		RETAINING WALL (2')	LF	\$ 40.00	95	95	\$ 3,800.00	
		RETAINING WALL (3')	LF	\$ 75.00	95	95	\$ 7,125.00	
	<i>Contingency</i>					25%	\$ 13,558.26	
	Subtotal						\$ 67,800.00	
3B-FJ-ST-04	729 A	INSTALL GR. MOUNTED REG/GUIDE SIGN	Each	\$ 650.00	2	2	\$ 1,300.00	Update 2 signs
3B-FJ-ST-05		<i>Contingency</i>				25%	\$ 325.00	
Update signs	Subtotal						\$ 1,700.00	
3B-FJ-ST-06	728	REMOVE AND RESET SIGN	Each	\$ 223.00	2	2	\$ 446.00	Relocate 2 signs
Relocate signs		<i>Contingency</i>				25%	\$ 111.50	
	Subtotal						\$ 600.00	
3B-FJ-ST-07	728	REMOVE AND RESET SIGN	Each	\$ 223.00	12	12	\$ 2,676.00	Relocate 12 ADA parking spaces to the west closer to platform; add one ADA ramp for ea. 2 HC spaces
Relocate ADA parking closer to platform	618	BARRIER FREE RAMP	Each	\$ 2,182.75	6	6	\$ 13,096.50	
	XXX	STRIPE HANDICAP PARKING SPACES	Each	\$ 52.50	12	12	\$ 630.00	
	XXX	STRIPE REGULAR PARKING SPACES	Each	\$ 7.50	14	14	\$ 105.00	
	XXX	WHITE PAINT FOR HANDICAP SPACE CROSS HATCHING	LF	\$ 0.60	216	216	\$ 129.60	
		<i>Contingency</i>					25%	
	Subtotal						\$ 20,800.00	

DART Last Mile Connections Project - Forest Jupiter Station Preliminary Opinion of Probable Construction Cost

Improvement No./ Description	City of Dallas Bid Item No.	Item Description	Unit	Unit Price	Quantity	Rounded Quantity	Bid Estimate	Assumptions
3B-FJ-ST-08	723 A	12" THERMOPLASTIC LANE MARKER	Lin. Ft.	\$ 9.00	48	48	\$ 432.00	12" line on either side of 24' crosswalks
Add bus loop crosswalks		Contingency				25%	\$ 108.00	
	Subtotal						\$ 600.00	
3B-FJ-ST-09	618	BARRIER FREE RAMP	Each	\$ 2,182.75	2	2	\$ 4,365.50	Build 2 new ramps for the existing crosswalk
Build new pedestrian ramps		Contingency				25%	\$ 1,091.38	
	Subtotal						\$ 5,500.00	
3B-FJ-ST-10 3B-FJ-ST-11	729 A	INSTALL GR. MOUNTED REG/GUIDE SIGN	Each	\$ 650.00	2	2	\$ 1,300.00	Update 2 Pedestrian Signs
Pedestrian Signs		Contingency				25%	\$ 325.00	
	Subtotal						\$ 1,700.00	
3B-FJ-ST-12	729 A	INSTALL GR. MOUNTED REG/GUIDE SIGN	Each	\$ 650.00	1	1	\$ 650.00	Update 1 Speed Limit Sign
Speed Limit Sign		Contingency				25%	\$ 162.50	
	Subtotal						\$ 900.00	
3B-FJ-ST-13	355	4" THICK REINF CONC WALK (converted from Sq. Ft. to Sq. Yd.)	Sq. Yd.	\$ 63.00	236.67	237	\$ 14,931.00	Build new 355' sidewalk with 6' width
Build new sidewalk		MANHOLE ADJUSTMENT	Each	\$ 572.00	1	1	\$ 572.00	
	618	BARRIER FREE RAMP	Each	\$ 2,182.75	2	2	\$ 4,365.50	
		Contingency				25%	\$ 4,967.13	
		Subtotal					\$ 24,900.00	
3B-FJ-ST-14	<p align="center"><i>Part of separate project. See half-mile area improvement 3B-FJ-SP-38 for more details and cost information. Cost assumed attributable to City of Garland.</i></p>							
Grand Total							\$ 188,400.00	

Contingency Items:	Contingency	Contingency Items:	Contingency
Design Fee	10%	Erosion & Sediment Control Allowance	2%
Mobilization	4%	Traffic Control Allowance	3%
Landscaping Allowance	4%	Extra Contingency for Federal Aid Project	2%
			25% Total Contingency

APPENDIX I: Half-Mile Area Recommendation Details & Detailed Improvement Mapping

Figures 3A-3, Figures 3A-4, Figures 3B-3 and Figures 3B-4 on the following pages of this appendix identify existing conditions and recommended improvements for the half-mile areas around each station in Garland. The first figure in each set indicates existing conditions and the second figure indicates the recommended improvements.

In each figure, existing sidewalks are shown in light blue, as well as Regional Veloweb shared use paths (bright green) and local shared use paths (dark green). Existing shared use paths are shown with solid lines, while proposed shared use paths are shown in dashed lines.

The density of individual parcels' population plus employment totals are shown in a multi-color scale on the existing conditions figure. The population and employment density is shown in grayscale on the recommended improvements figure to allow the improvements to stand out more clearly.

Sidewalk and crosswalk gaps are shown in red on the existing conditions figures, and in multiple colors on the recommended improvements figures, according to the priority assigned to the gap: red for high-priority, orange for medium-priority, and light pink for low-priority. Gaps to remain are shown in dark pink. For more details on these gap categories, refer to Appendix F.

Each high- medium- and low-priority improvement, along with all gaps to remain, are indicated by the boxed number labels near each improvement location. The lower right corner of each recommended improvements figure includes a legend that describes the abbreviations in the improvement ID codes, which can be used to cross-reference the improvement matrices that appear in Appendix J.

For solid red, orange, or light pink lines, the recommended improvement for a sidewalk gap is either a new or repaired 5-foot wide sidewalk along the length shown. Repairs are noted in the matrix notes for each improvement in Appendix J, and assume full removal of damaged, existing sidewalk prior to replacement.

Note that in some places dashed green lines for planned shared use paths appear on top of other colored lines. Where dashed green lines appear on top of light blue lines, this indicates that a sidewalk of adequate width exists for basic pedestrian connectivity, and that a wider shared use path is also planned in the future. Such "sidewalk widening" improvements were not considered essential to provide multi-modal connectivity to transit for the purposes of this project, and as such were not listed as numbered improvements or included in any cost estimation of high-priority improvements. They are shown on the map figures for informational purposes only.

Other dashed green lines in the existing conditions and recommended improvements figures appear on top of red, orange, or light pink lines. On the existing conditions figures, dashed green over red indicates a gap where no current sidewalk or shared use path exists but a future local or regional shared use path is planned. On the recommended improvements figures, dashed green over red, orange, or light pink also indicates a gap (of the priority indicated by the non-green color) where no current sidewalk or shared use path exists but a future local or regional shared use path is planned. In these cases, 10'-wide shared use paths were considered essential as high-priority improvements (dashed green over red) to provide multi-modal connectivity to transit, and as such were listed as numbered improvements and included in the cost estimates that follow.

Some proposed shared use paths on surrounding streets and connecting to station platform areas are drawn from the City of Plano's 2018 Bicycle Transportation Map, while other proposed facilities are new recommendations made herein based on this study.

For crosswalk gaps, the type of improvement recommended is shown with numbered dark blue circles located near each crosswalk. The numbers in the blue circles correspond to the legend of possible pedestrian safety countermeasures appearing at the upper right of the figure. The first nine items in this legend correspond to the standard nine items in Table 1 of FHWA's publication, "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations," referenced earlier in Section 2.6, Appendix C, and Appendix D. Treatments recommended somewhere on a particular figure have a red box around them in the legend for easier reference.

The right-hand side of each existing and recommended improvements figure includes a legend for "Primary Routes." These are street segments identified by NCTCOG as candidates for further evaluation during preliminary analyses that preceded the subject project by the consultant team. Primary Routes are denoted with a darkened black street centerline and a letter designation matching a street name indicated in the legend. Comparing the primary routes with high priority gaps on the recommended improvements figures illustrates differences between the results of this preliminary methodology with the final methodology.

The "Half Mile Area Improvements Matrices" appearing in Appendix J for each station list for each improvement the owner, improvement type, location, length, notes, priority score, and (in the case of high priority improvements not built by others) the opinion of probable construction cost. A matrix for sidewalks and shared use paths appears first, followed by a second matrix for crosswalks sorted separately. Each of the matrices is sorted by ownership and then by ID number.

The notes discuss any observations from the field visits deemed relevant, as well as challenging conditions the City and other agencies may want to consider when advancing recommended projects to design and/or construction. This type of information captured in the notes was a primary component of developing the quantities that form the basis for the opinions of probable construction cost. Also included in the notes (where provided) is feedback received from the City about upcoming projects or development that may construct the improvement. The absence of a note indicates that the sidewalk improvement appears to be relatively straightforward without obvious challenges.

In some cases, ownership of or responsibility for improvements was assumed to be shared among agencies, such as for a sidewalk crossing the Plano/Richardson City boundary or for a crosswalk from DART property across an adjacent City street. Such mixed ownership cases appear at the end of each listing with separate OPCC subtotals. In these cases, the OPCC for individual improvements or groups of improvements was split equally among each agency in the summary tables that follow in the main body of the report.



Downtown Garland Station

Figure 3A-3 illustrates the existing conditions in the half-mile area around the Downtown Garland Station. The lack of sidewalk along significant portions of Walnut St, N 1st St, and W Ave B pose significant barriers to multi-modal travel along those arterials. Many industrial and downtown streets such as N 5th St and Main St also lack sidewalk. While the current land uses along many of these streets (industrial, auto repair shops, etc.) do not typically correlate to large numbers of walking and biking trips, the lack of sidewalk may be a barrier to employment for some and also hinders redevelopment opportunities.

On-street bike lanes are present along Main St from 7th St toward the west, as well as along Glenbrook Dr south of Main St.

Figure 3A-4.1 shows the recommended improvements in the half-mile area around the Downtown Garland Station. Figure 3A-4.2 provides a zoomed-in view of a portion of the station area with a dense concentration of improvements. The improvements highlighted in yellow along Walnut St, 1st St, 5th St, Main St, and Walnut Cir were selected by NCTCOG for 15% sidewalk design by the consultant team.

In addition to building sidewalk where absent, recommended improvements include:

- For crossing 5th St just south of the DART tracks (improvement 3A-DG-CW-216), the City should install white crosswalk lines parallel to existing brick crosswalk that already has pedestrian-actuated rectangular rapid flashing beacons (RRFB's) installed. White edge lines as traffic control devices are required to make crosswalks legally enforceable. Add yield line and "Yield Here to Pedestrians" signing for southbound direction where the street is merging from two lanes to one near the crosswalk to mitigate risk of dual threat situation for pedestrians.
- For crossing 6th St just south of the DART tracks (improvement 3A-DG-CW-215), the City should add a new marked crosswalk with warning signs and lighting. This will be a direct route between the station and Heritage Crossing multi-family development about to occur to the west.
- The City should provide high-visibility signed and marked crosswalks along 7th St at its crossings with Austin St, State St, and Main St (improvements 3A-DG-CW-217 to 222).
- For crossing W Ave A at 6th St, (improvements 3A-DG-CW-223 and 224), add advance yield lines and "Yield Here to Pedestrians" signing in advance of existing signed and marked crosswalk in front of Garland Senior Activity Center. Consider pedestrian-actuated rectangular rapid flashing beacons (RRFB's) and/or a road diet to implement curb extensions or a median refuge.
- Across the east leg of the signalized intersection of 1st St, Main St, Lavon Dr and Bankhead St (improvement 3A-DG-CW-154), the former crosswalk was removed in recent years due to the long crossing and complicated vehicular signal phasing for the congested intersection. The City should consider construction of refuge islands and/or other geometric and phasing changes to enable re-introduction of the crosswalk.

- Consider adding pedestrian-actuated rectangular rapid flashing beacons (RRFB's) to the existing signed and marked north leg crosswalk near the new mid-rise apartments south of W Ave A between Glenbrook Dr and 7th St (improvement 3A-DG-CW-225).

The City of Garland is planning on-street bikeways along Walnut St, Austin St, and 5th St. An additional on-street bikeway is funded along Glenbrook Dr north of Main St.

The City of Garland should coordinate with DART to improve the safety of crossings between the rail station and the bus station/park and ride lot on opposite sides of Walnut St. Many DART riders were observed crossing mid-block between 4th St and 5th St despite the presence of signalized crosswalks at both intersections. As recommended in Section 3.1.1, anti-climb median fencing mounted on top of concrete traffic barrier should be considered for this location.

Additional details about other improvements recommended in Figure 3A-4, as well as challenges associated with the recommended gaps to remain, are included in the matrix notes for Downtown Garland Station that can be found in Appendix J.



FTA DART Stations Last Mile Connections Downtown Garland

Station
December 2020

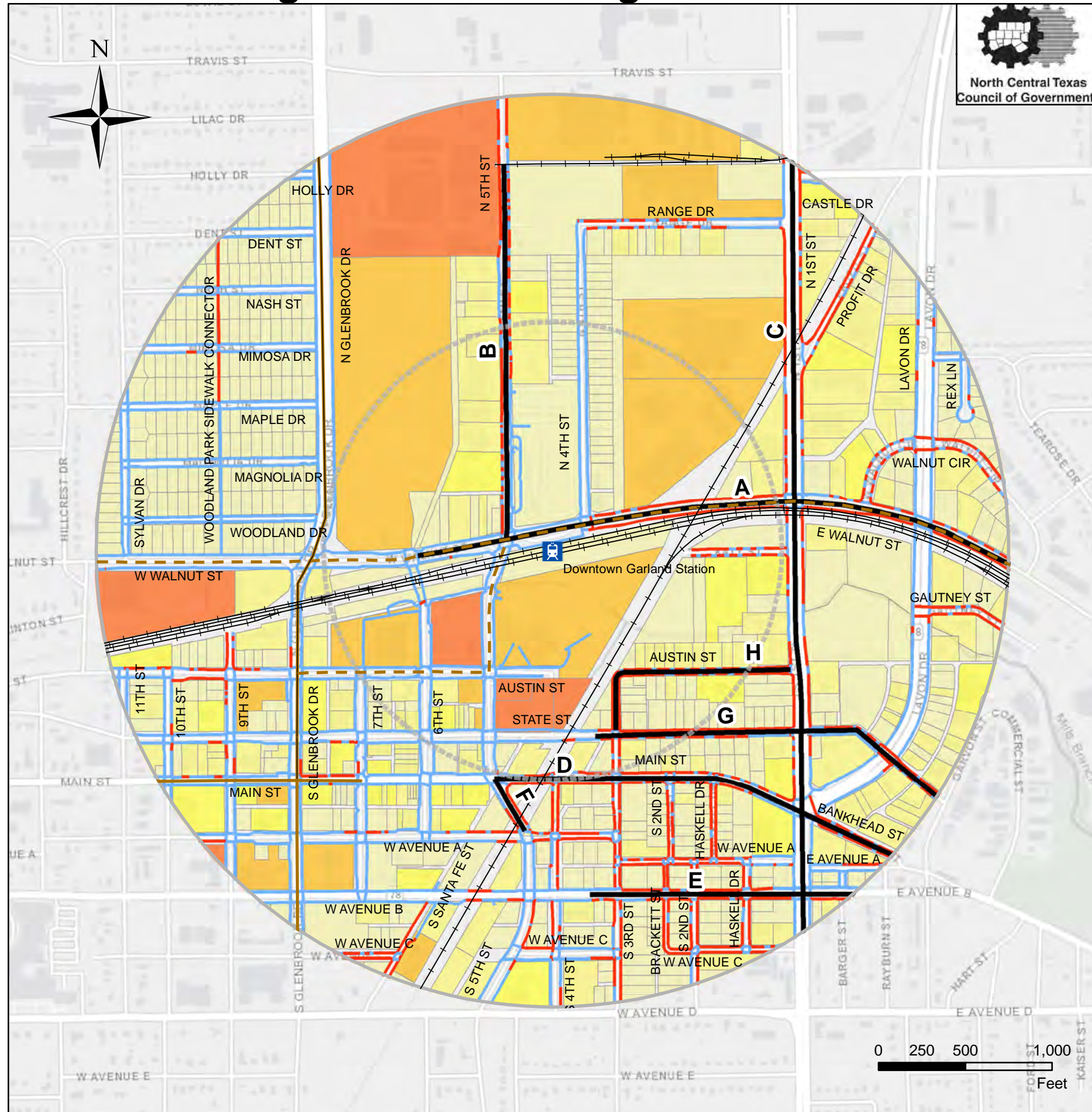


Figure 3A-3 Existing Conditions



Legend

- DART Rail Station
- Railroad Track
- Segment Category**
 - Existing Sidewalk/Crosswalk
 - Sidewalk/Crosswalk Gap
- Regional Veloweb (Mobility 2045)**
 - Regional Existing
 - Regional Funded
 - Regional Planned
- Local Shared Use Paths**
 - Local Existing
 - Local Funded
 - Local Planned
- Local On-Street Bikeways**
 - Local Existing Bicycle Facilities
 - Local Funded Bicycle Facilities
 - Local Planned Bicycle Facilities
- DISPLAY**
 - 0.5 Mile Buffer
 - 0.25 Mile Buffer
 - Primary Routes



Existing Residential and Employment Population (Number of People)

- 0 - 10
- 11 - 50
- 51 - 100
- 101 - 250
- 251 - 578
- 579 - 1000
- 1001 - 1500
- 1501 - 2500
- 2501 - 5000
- 5001 - 24170

Primary Routes

Route	Street
A	Walnut St
B	N 5th St
C	1st St
D	Main St/Bankhead St
E	W Avenue B
F	S 5th St
G	State St
H	Austin St

FTA DART Stations Last Mile Connections Downtown Garland Station November 2020



Figure 3A-4.1 Recommended Improvements

Legend

- DART Rail Station
- Railroad Track

Sidewalk

- Existing Sidewalk/Crosswalk

Proposed Sidewalk/Crosswalk by Priority 1

- High
- Medium
- Low
- Gap to Remain

Regional Veloweb (Mobility 2045)

- Regional Existing
- Regional Funded
- Regional Planned

Local Shared Use Paths

- Local Existing
- Local Funded
- Local Planned

Local On-Street Bikeways

- Local Existing Bicycle Facilities
- Local Funded Bicycle Facilities
- Local Planned Bicycle Facilities

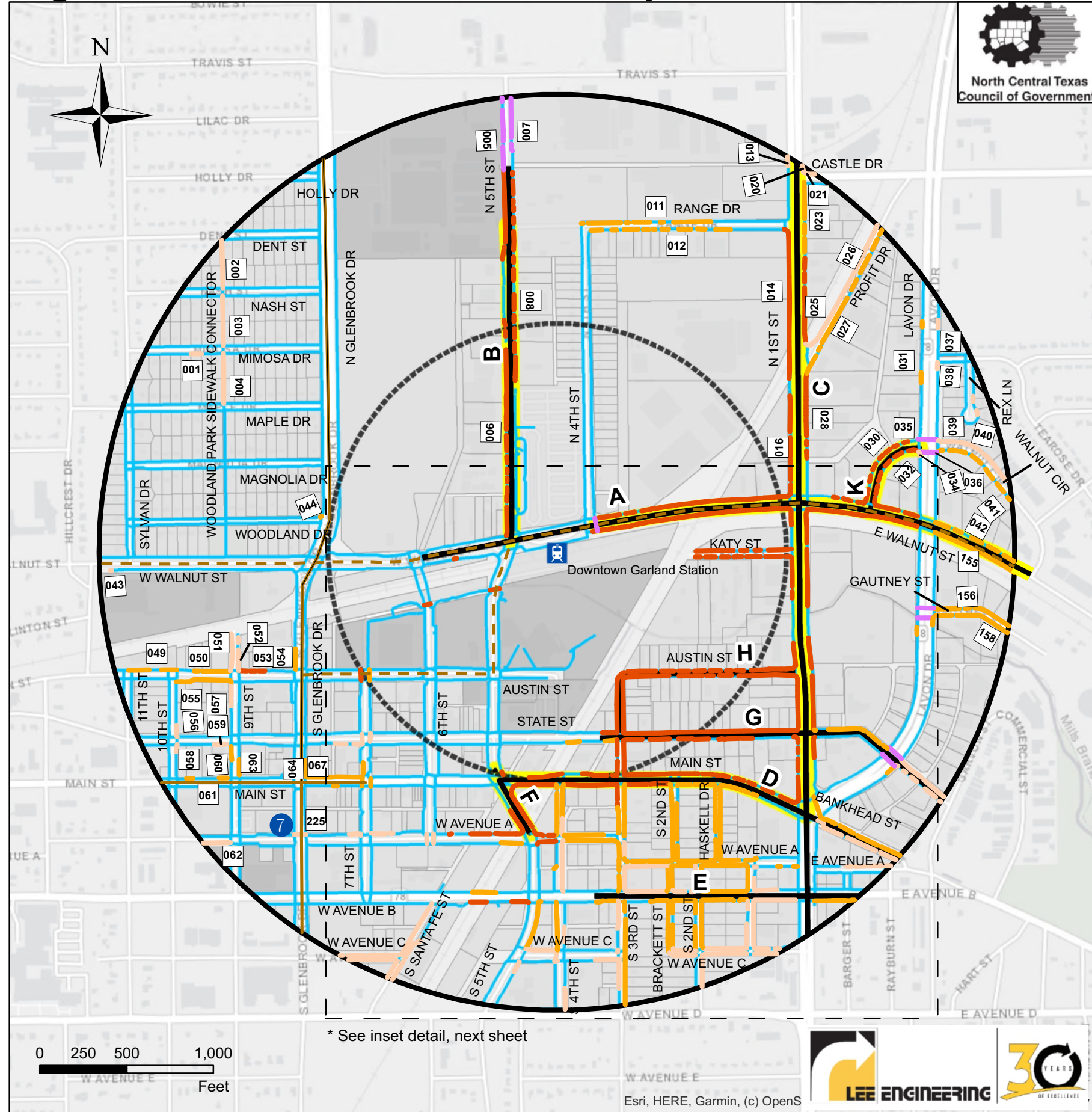
Buffers

- 0.5 Mile Buffer
- 0.25 Mile Buffer
- Primary Routes
- 15% Design Corridors

Existing Residential and Employment Population (Number of People)

Ppl

- 0 - 234
- 235 - 1049
- 1050 - 2586
- 2587 - 5364
- 5365 - 10339



Possible Pedestrian Safety Countermeasures

Unsignalized Crosswalk Improvements

- Crosswalk Signs, Markings & Lighting
- Raised Crosswalk
- Advance "Yield Here" Sign
- In-Street Pedestrian Crossing
- Curb Extension
- Pedestrian Refuge Island
- Rectangular Rapid Flashing Beacon**
- Road Diet
- Pedestrian Hybrid Beacon

Signalized Crosswalk Improvements

- Add Marked Crosswalks & Provide Countdown, Accessible Pedestrian Signals
- Traffic Signal

Primary Routes 15% Design Corridors	
Route	Street
A	Walnut St
B	N 5th St
C	1st St
D	Main St
D	Bankhead St
E	W Avenue B
F	S 5th St
G	State St
H	Austin St
K	Walnut Cir

Improvement Code Legend (See Matrix)

- 3A ← Station Number
 DG ← Station Abbreviation
 SW ← Sidewalk (or CW for Crosswalk)
 01 ← Improvement Number (Matched 1 on Map)



Forest Jupiter Station

Figure 3B-3 illustrates the existing conditions in the half-mile area around the Forest Jupiter Station. Except for the residential neighborhood west of Jupiter Rd and north of Forest Ln, this station serves an area that is mostly industrial in nature. A lower density of streets and intersections, combined with the barrier of the DART rail line itself, requires long walks or bike rides to reach the station from many of the adjacent industrial employment centers. Sidewalk is present and in good condition along Forest Ln, but Jupiter Rd, International Rd, and Miller Park Dr all have lengthy sidewalk gaps.

Figure 3B-4 shows the recommended improvements in the half-mile area around the Forest Jupiter Station. The improvements highlighted in yellow along Jupiter Rd, Kirby St, and the DART tracks were selected by NCTCOG for 15% sidewalk/shared use path design by the consultant team.

The City of Garland is beginning construction on a sidewalk project that will fill sidewalk gaps and make other improvements to existing sidewalk along Barnes Dr north of the station. The improvements will continue east along Edgewood Dr from its intersection with Barnes Dr to points beyond the half-mile station area. Improvement locations 3B-FJ-SW-009 through 011 are thus designated to be "built by others" as part of this project.

The City is also planning a local shared use path along the north side of the DART tracks west of the station (improvement 3B-FJ-SP-033), which will cross Jupiter Rd (at improvement 3B-FJ-CW-034). At this location, the City should add crosswalk markings, signing, and lighting. The City may wish to construct a full pedestrian traffic signal instead of an RRFB or pedestrian hybrid beacon due to the adjacency to railroad crossing gates and potential confusion with alternative meanings of flashing red lights. (Note that while the DART line bridges over roadway, parallel railroad tracks cross at grade). The need for this improvement is contingent on construction of both the local shared use-path to the west and the shared use path to the east which will connect to the station platform (improvement 3B-FJ-SP-038). Refer to Section 3.1.2 for more details about the eastern segment.

In addition to building sidewalk where absent, other recommended improvements include:

- For the existing signed and marked crosswalk across Jupiter Rd at Edgewood Dr (improvement 3B-FJ-CW-007), the City should consider replacing the existing rapid rectangular flashing beacon (RRFB) system with a pedestrian hybrid beacon. The procedure outlined in the Federal Highway Administration's (FHWA) recent publication, "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations" (July 2018) indicates that RRFB's may not be sufficiently visible to drivers on six-lane, high-speed, high-volume streets such as Jupiter Rd.
- Add signed and marked crosswalks across each leg of the Miller Park Dr roundabout (improvements 3B-FJ-CW-047 through 052). Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.

The City of Garland is also planning on-street bikeways along Barnes Dr and International Rd.

Additional details about other improvements recommended in Figure 3B-4, as well as challenges associated with the recommended gaps to remain, are included in the matrix notes for Forest Jupiter Station that can be found in Appendix J.

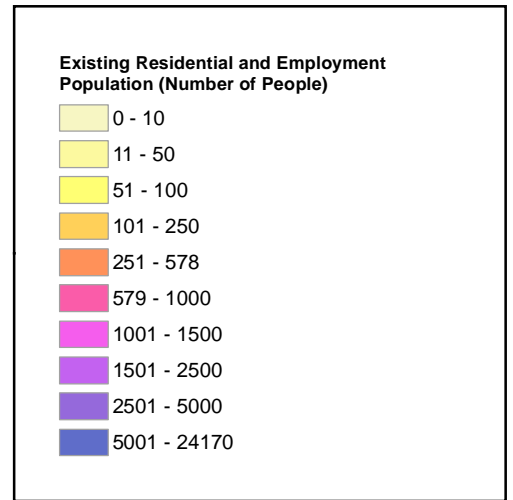
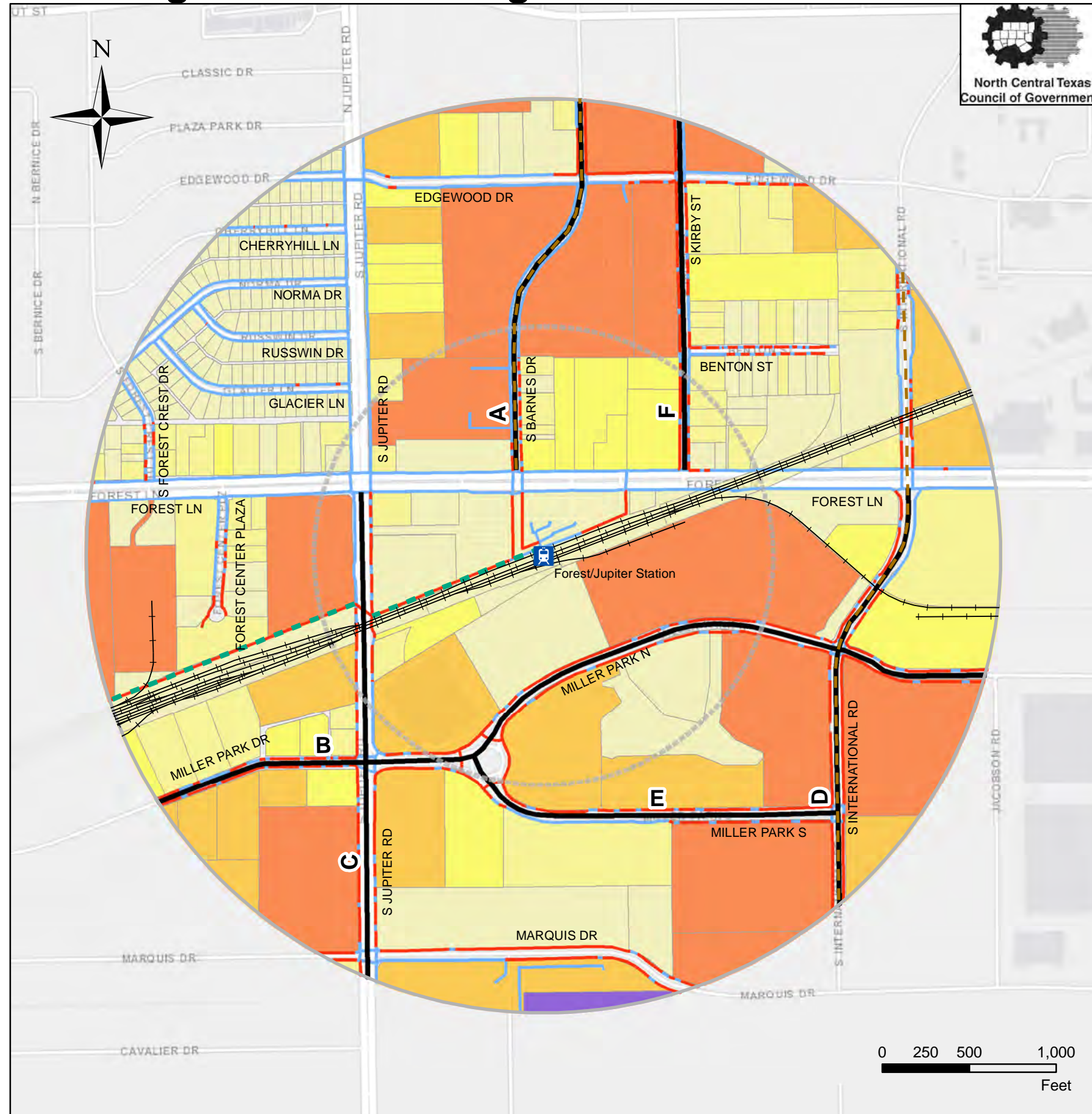


FTA DART Stations Last Mile Connections Forest Jupiter Station December 2020



- Legend**
- DART Rail Station
 - Railroad Track
 - Segment Category**
 - Existing Sidewalk/Crosswalk
 - Sidewalk/Crosswalk Gap
 - Regional Veloweb (Mobility 2045)**
 - Regional Existing
 - Regional Funded
 - Regional Planned
 - Local Shared Use Paths**
 - Local Existing
 - Local Funded
 - Local Planned
 - Local On-Street Bikeways**
 - Local Existing Bicycle Facilities
 - Local Funded Bicycle Facilities
 - Local Planned Bicycle Facilities
 - DISPLAY**
 - 0.5 Mile Buffer
 - 0.25 Mile Buffer
 - Primary Routes

Figure 3B-3 Existing Conditions



Primary Routes

Route	Street
A	S Barnes Dr
B	Miller Park N
C	S Jupiter Rd
D	S International Rd
E	Miller Park S
F	N Kirby St
G	DART Shared Use Path

FTA DART Stations Last Mile Connections Forest Jupiter Station November 2020



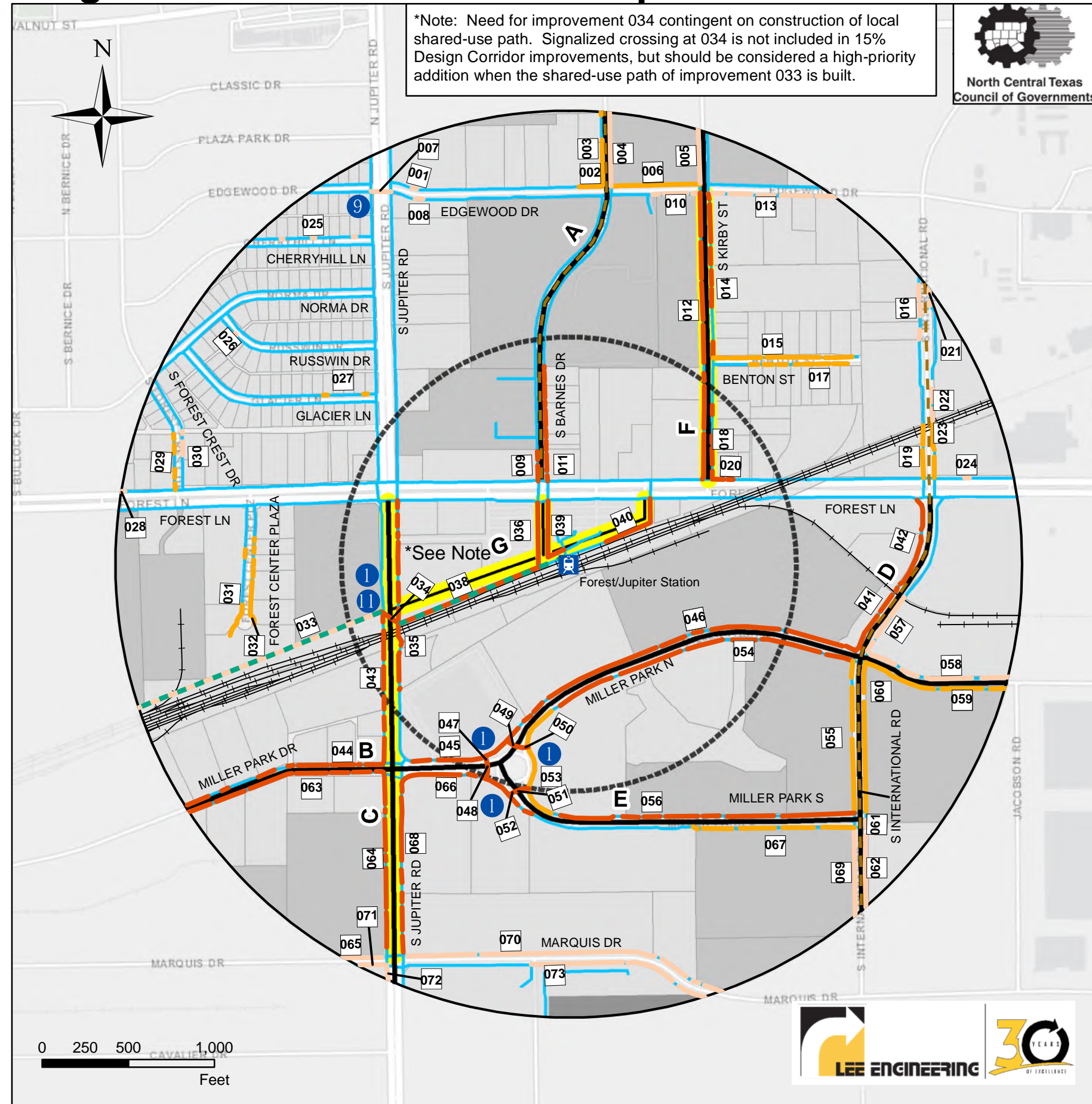
Figure 3B-4 Recommended Improvements

Legend

- DART Rail Station
- Railroad Track
- Sidewalk**
 - Existing Sidewalk/Crosswalk
 - Proposed Sidewalk/Crosswalk by Priority 1**
 - High
 - Medium
 - Low
 - Gap to Remain
- Regional Veloweb (Mobility 2045)**
 - Regional Existing
 - Regional Funded
 - Regional Planned
- Local Shared Use Paths**
 - Local Existing
 - Local Funded
 - Local Planned
- Local On-Street Bikeways**
 - Local Existing Bicycle Facilities
 - Local Funded Bicycle Facilities
 - Local Planned Bicycle Facilities
- Buffers**
 - 0.5 Mile Buffer
 - 0.25 Mile Buffer
 - Primary Routes
 - 15% Design Corridors
- Existing Residential and Employment Population (Number of People)**

Ppl

 - 0 - 234
 - 235 - 1049
 - 1050 - 2586
 - 2587 - 5364
 - 5365 - 10339



Possible Pedestrian Safety Countermeasures

Unsignalized Crosswalk Improvements

- Crosswalk Signs, Markings & Lighting
- Raised Crosswalk
- Advance "Yield Here" Sign
- In-Street Pedestrian Crossing
- Curb Extension
- Pedestrian Refuge Island
- Rectangular Rapid Flashing Beacon
- Road Diet
- Pedestrian Hybrid Beacon

Signalized Crosswalk Improvements

- Add Marked Crosswalks & Provide Countdown, Accessible Pedestrian Signals
- Traffic Signal

Primary Routes	
15% Design Corridors	
Route A	S Barnes Dr
Route B	Miller Park N
Route C	S Jupiter Rd
Route D	S International Rd
Route E	Miller Park S
Route F	N Kirby St
Route G	DART Shared Use Path

Improvement Code Legend (See Matrix)

3B-FJ-SW-01

3B ← Station Number
FJ ← Station Abbreviation
SW ← Sidewalk (or CW for Crosswalk)
01 ← Improvement Number (Matches 1 on Map)



APPENDIX J: Half-Mile Improvement Matrices



Downtown Garland Station

Opinion of Probable Constr. Cost = \$7,046,300

Sidewalk & Shared Use Path Segments

Improvement Code Legend: ID: 1A-PR-SW-01
 1A ← Station Number SW ← Sidewalk (or CW=Crosswalk,
 PR ← Station Abbreviation VW=Veloweb,
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 (matches 1 on Map) GR=Gap to Remain)

North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-RP-01	City of Garland	Repair	Mimosa Dr	Sylvan Dr & N Glenbrook Dr	South	65	Repair severely deteriorated sidewalk segment that is causing a trip hazard.	14	N/A
3A-DG-SW-02	City of Garland	New Sidewalk	Woodland Park Sidewalk Connector	North Study Boundary & Nash St	N/A	280		9	N/A
3A-DG-SW-03	City of Garland	New Sidewalk	Woodland Park Sidewalk Connector	Nash St & Mimosa Dr	N/A	290		11	N/A
3A-DG-SW-04	City of Garland	New Sidewalk	Woodland Park Sidewalk Connector	Mimosa Dr & Maple Dr	N/A	290		13	N/A
3A-DG-GR-05	City of Garland	Gap to Remain	N 5th St	North Study Boundary & Railroad Tracks	West	345	Street segment is closed and fenced off as receiving gate for General Dynamics facility.	0	N/A
3A-DG-SW-06	City of Garland	New Sidewalk	N 5th St	Railroad Tracks & W Walnut St	West	1450	Wide asphalt or gravel driveways and well-used parking areas occupy some segments of the roadside that would need to be redesigned for sidewalk. A dumpster would need to be relocated, and a retaining wall next to a driveway would need to be partially removed. Other impacts to above-ground utility boxes likely.	43	\$289,300
3A-DG-GR-07	City of Garland	Gap to Remain	N 5th St	North Study Boundary & Railroad Tracks	East	265	Street segment is closed and fenced off as receiving gate for General Dynamics facility.	0	N/A
3A-DG-SW-08	City of Garland	New Sidewalk	N 5th St	Railroad Tracks & W Walnut St	East	765	Building sidewalk would require removal of one tree and likely root damage to several others.	28	\$190,000
3A-DG-SW-11	City of Garland	New Sidewalk	Range Dr	N 4th St & N 1st St	North	540	Root damage to several trees likely if building sidewalk.	19	N/A
3A-DG-SW-12	City of Garland	New Sidewalk	Range Dr	N 4th St & N 1st St	South	490	Several trash dumpsters would need to be relocated to build sidewalk. Businesses that store cars on grass or pavement near roadway would be impacted as well.	20	N/A
3A-DG-SW-13	City of Garland	New Sidewalk	N 1st St	North Study Boundary & Railroad Tracks	West	55	Short segment of street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	8	N/A
3A-DG-SW-14	City of Garland	New Sidewalk	N 1st St	Range Dr & Railroad Tracks	West	885	A short retaining wall may be needed to construct sidewalk on northern part of this block. For other parcels, regrading on adjacent open space will likely be needed to make level grade for sidewalk.	22	\$105,800
3A-DG-SW-16	City of Garland	New Sidewalk	N 1st St	Railroad Tracks & E Walnut St	West	490	Worn path in grass indicates existing pedestrian demand. Utility poles and a fire hydrant may need to be adjusted in narrow space between street and chain link fence to make way for sidewalk. Short retaining wall would likely be needed adjacent to business parking lot. Concrete near Kansas City Southern rail crossing has too much cross slope to be considered sidewalk, either due to settlement or to an intent for it to function as a shallow retaining wall. It would need to be removed and the slope regraded to provide for level sidewalk.	28	\$172,400



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North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-18	City of Garland	New Sidewalk	W Walnut St	N 4th St & Railroad Tracks	North	555	Worn path in grass indicates existing pedestrian demand. Sidewalk construction may require modification of a culvert crossing, and crossing of the Kansas City Southern Railroad tracks will involve additional expense.	43	\$240,000
3A-DG-SW-19	City of Garland	New Sidewalk	W Walnut St	Railroad Tracks & N 1st St	North	520	Worn path in grass towards the west indicates existing pedestrian demand. Towards the east, concrete business parking lots are continuous from buildings to curb line. While durable, they do not provide a separate, protected area for pedestrians. Separate sidewalk construction would require reconfiguration of parking areas and reconstruction of a deteriorated driveway.	33	\$71,100
3A-DG-SW-20	City of Garland	New Sidewalk	N 1st St	North Study Boundary & Castle Dr	East	40		8	N/A
3A-DG-SW-21	City of Garland	New Sidewalk	Castle Dr	N 1st St & North Study Boundary	North	70	Large above-ground gas-utility structure occupies space that would be needed for sidewalk. Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	8	N/A
3A-DG-SW-23	City of Garland	New Sidewalk	N 1st St	Castle Dr & Range Dr	East	355	Existing concrete functions to retain earth on steep slope. Vertical retaining walls would need to be constructed to provide sidewalk.	17	\$0
3A-DG-SW-25	City of Garland	New Sidewalk	N 1st St	Range Dr & RailroadTracks	East	445	On south end of block, grass strip between roadway and business parking is narrow and sloped. Retaining walls would be needed to construct sidewalk, and pinch point too narrow for sidewalk exists at narrow storm drain inlet. On south end of block, utility poles obstruct narrow space between roadway and business perimeter wall.	21	\$173,000
3A-DG-SW-26	City of Garland	New Sidewalk	Profit Dr	N 1st St & East Study Boundary	North	830	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	13	N/A
3A-DG-SW-27	City of Garland	New Sidewalk	Profit Dr	N 1st St & East Study Boundary	South	735	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Street is flush with parking lots for light industrial businesses. The parking lots would need to be redesigned to accomodate sidewalk.	20	N/A
3A-DG-SW-28	City of Garland	New Sidewalk	N 1st St	Profit St & E Walnut St	East	450	Near Profit Dr, existing concrete functions to retain earth on steep slope. Grass strip is not wide enough alone for sidewalk, so vertical retaining walls would need to be constructed to provide sidewalk. To the south, sidewalk could cause tree root damage, will require bridging an open channel drainage culvert from a business parking lot, and may require reconstruction of a steep business driveway.	26	\$270,100
3A-DG-SW-29	City of Garland	New Sidewalk	E Walnut St	N 1st St & Walnut Cir W	North	115	Worn path in grass indicates existing pedestrian demand.	26	\$30,400



Downtown Garland Station

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Sidewalk & Shared Use Path Segments

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(matches 1 on Map)	GR=Gap to Remain)		

North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-30	City of Garland	New Sidewalk	Walnut Cir W	E Walnut St & Lavon Dr	North	285	Sidewalk construction would involve replacing deteriorated asphalt extension of parking lots with durable concrete sidewalk and redesigning parking lots for business access and vehicle storage. Steep driveways would also likely need to be reconstructed.	26	\$122,300
3A-DG-SW-32	City of Garland	New Sidewalk	Walnut Cir W	E Walnut St & Lavon Dr	South	315	Sidewalk construction would involve replacing deteriorated asphalt extension of parking lots with durable concrete sidewalk and redesigning parking lots for business access and vehicle storage. Steep driveways would also likely need to be reconstructed. Some small bushes would need to be removed.	25	\$112,300
3A-DG-SW-33	City of Garland	New Sidewalk	E Walnut St	Walnut Cir W & Lavon Dr	North	220	Worn path in grass indicates existing pedestrian demand. Constructing sidewalk would likely require modifying slope and guardrail protecting headwall at the Walnut Street at Lavon Drive overpass.	23	\$21,800
3A-DG-RP-34	City of Garland	Repair	Walnut Cir E	E Walnut St & Lavon Dr	South	25	Remove and replace sidewalk that has settled adjacent to storm drain inlet, creating a trip hazard. The narrow sidewalk has an increasing cross slope as it moves away from the curb and slopes upwards to retain earth at a higher elevation. Removal of this slope and replacement with a vertical retaining wall should be considered.	13	N/A
3A-DG-SW-42	City of Garland	New Sidewalk	E Walnut St	Lavon Dr & East Study Boundary	North	340	Worn path in grass indicates existing pedestrian demand. Towards the east, an asphalt parking lot is continuous from buildings to curb line. Separate sidewalk construction would require reconfiguration of the parking area.	19	\$78,300
3A-DG-RP-43	City of Garland	Repair	W Walnut St	West Study Boundary & Sylvan Dr	South	10	Remove and replace severely cracked sidewalk panel near fire hydrant and DART bus stop.	12	N/A
3A-DG-RP-44	City of Garland	Repair	N Glenbrook Dr	Magnolia Dr & Woodland Dr	West	10	Remove and replace sidewalk panels that have settled significantly behind a storm drain inlet, creating unacceptable cross slope on the sidewalk.	19	N/A
3A-DG-GR-45	City of Garland	Gap to Remain	W Walnut St	N 4th St	East	80	City of Garland desires to continue to prohibit pedestrians on this leg of the intersection to avoid conflicts with southbound left turning vehicles from the park-and-ride lot.	0	N/A
3A-DG-RP-48	City of Garland	Repair	W Walnut St	S 6th St & S 5th St	South	15	Repair sidewalk that has settled adjacent to storm drain inlet, creating significant trip hazard.	34	\$1,200
3A-DG-SW-49	City of Garland	New Sidewalk	Austin St	N 11th St & N 10th St	North	210	Street is flush with driveways or parking areas for fire station and Garland Amateur Radio Club building.	15	N/A
3A-DG-SW-50	City of Garland	New Sidewalk	Austin St	N 10th St & N 9th St	North	180	Sidewalk construction would involve reconstruction of a steep driveway and tree removal or root damage. Utility poles may also need to be adjusted depending on right-of-way or easement availability.	18	N/A
3A-DG-SW-51	City of Garland	New Sidewalk	N 9th St	DART Tracks & Austin St	West	215	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Street dead ends at DART tracks and serves a parcel that is currently undeveloped on this side.	13	N/A

Downtown Garland Station

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DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-52	City of Garland	New Sidewalk	N 9th St	DART Tracks & Austin St	East	150	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Parked cars from adjacent business abound in area where sidewalk would go. Street dead ends at DART tracks and does not currently serve pedestrian-oriented destinations.	14	N/A
3A-DG-SW-53	City of Garland	New Sidewalk	Austin St	N 9th St & N Glenbrook Dr	North	130	Adjustment to fire hydrant and/or removal of tree could be required to build sidewalk near corner with 9th Street.	21	\$94,300
3A-DG-RP-54	City of Garland	Repair	N Glenbrook Dr	W Walnut St & Austin St	West	125	Sidewalk deteriorated or missing near asphalt parking lot with drainage problems due to lack of curb and gutter on parking lot side. (Street has curb and gutter).	19	N/A
3A-DG-SW-55	City of Garland	New Sidewalk	Austin St	N 10th St & N 9th St	South	330	Sidewalk construction could involve removal of small trees, root damage or removal of large trees, utility pole relocation, reconstruction of residential front porch steps and a steep driveway, and impacts to an above-ground gas utility structure on the corner with 9th Street.	17	N/A
3A-DG-SW-56	City of Garland	New Sidewalk	N 10th St	Austin St & W State St	East	70	One small office building has right angle parking spaces flush with the street that would need to be re-designed to accommodate sidewalk. Removal of minor landscaping could allow curbside sidewalk to connect to existing sidewalk between building and parking spaces.	8	N/A
3A-DG-SW-57	City of Garland	New Sidewalk	N 9th St	Austin St & W State St	West	120	Sidewalk construction could involve impacts to an above-ground gas utility structure on the corner with Austin Street.	14	N/A
3A-DG-SW-58	City of Garland	New Sidewalk	N 10th St	W State St & Main St	East	45	Right angle parking for barbershop is flush with street but sidewalk between parking and barbershop building is connected to curbside sidewalk to the south. Right-of-way easement may be needed to connect the barbershop sidewalk to new sidewalk along the vacant parcel to the north.	9	N/A
3A-DG-SW-59	City of Garland	New Sidewalk	W State St	N 10th St & N 9th St	South	75	A small business has diagonal parking spaces flush with the street that would need to be re-designed to accommodate sidewalk. Adjustment of water meters and other small utility boxes and removal of a small tree would allow curbside sidewalk to connect to existing sidewalk between building and parking spaces.	13	N/A
3A-DG-SW-60	City of Garland	New Sidewalk	N 9th St	W State St & Main St	West	80	Right angle parking for businesses is flush with street. Sidewalk exists between parking and buildings, but is disconnected from adjacent curbside sidewalk on both sides. Business parking would need to be redesigned to provide full connectivity.	16	N/A
3A-DG-SW-61	City of Garland	New Sidewalk	Main St	N 10th St & N 9th St	North	90	Right angle parking for businesses is flush with street but sidewalk between parking and buildings is mostly connected. Gaps exist where sidewalk is disconnected in front of the Karin Wiseman collection business and between Hubbard's restaurant and the corner with 9th Street. Business parking would need to be redesigned to provide full connectivity.	17	N/A



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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-62	City of Garland	New Sidewalk	W Avenue A	West Study Boundary & S 9th St	South	160	Chain link fence surrounding the playground area of Garland ISD's Pathfinder Achievement Center is located at the back of curb such that either the fence would need to be moved back or the street would need to be narrowed to provide sidewalk.	8	N/A
3A-DG-SW-63	City of Garland	New Sidewalk	N 9th St	W State St & Main St	East	90	Diagonal parking for businesses is flush with street. Sidewalk exists between parking and buildings, but is disconnected from adjacent curbside sidewalk on south side. A pedestrian ramp and extended crosswalk across the business driveway would be needed for full connectivity.	18	N/A
3A-DG-SW-64	City of Garland	New Sidewalk	N Glenbrook Dr	W State St & Main St	East	90	Diagonal parking for businesses is flush with street. Sidewalk exists between parking and buildings on north half of the block, but is disconnected at businesses garage entrances and by steps and additional diagonal parking on the south half of the block. Business parking would need to be redesigned to provide full connectivity.	17	N/A
3A-DG-SW-65	City of Garland	New Sidewalk	W State St	N Glenbrook Dr & N 7th St	South	120	Street is flush with wide driveway, parking area for auto garage business.	14	N/A
3A-DG-SW-66	City of Garland	New Sidewalk	N 7th St	W State St & Main St	West	65	Wide driveway for defunct former auto-oriented business leaves sidewalk disconnected from corner at Main St. Look for opportunities to re-design access and provide sidewalk connection when property (for sale) redevelops.	20	N/A
3A-DG-SW-67	City of Garland	New Sidewalk	Main St	N Glenbrook Dr & N 7th St	North	300	Right angle parking and driveways for businesses are flush with street. Business parking would need to be redesigned to provide full sidewalk connectivity.	15	N/A
3A-DG-SW-68	City of Garland	New Sidewalk	Main St	N Glenbrook Dr & N 7th St	South	25	A short gap exists where curbside sidewalk and sidewalk between the businesses and right angle parking is not connected. Residential parking for a private residence would need to be redesigned to accommodate the transition for full connectivity.	15	N/A
3A-DG-RP-69	City of Garland	Repair	W Avenue A	S Glenbrook Dr & S 7th St	North	75	Remove and replace severely damaged sidewalk adjacent to vacant parcel.	12	N/A
3A-DG-SW-70	City of Garland	New Sidewalk	W Avenue A	S 7th St & S 6th St	North	115	Street is flush with parking lot for auto repair shops and right angle business parking for most of the block. Business near corner with 6th Street has sidewalk between parking and building under front porch awning, but it is not connected to sidewalk on the intersection corner. Business parking and access areas would need to be redesigned to provide sidewalk. Consider a road diet from two westbound lanes to one to make more space for sidewalk.	14	N/A
3A-DG-SW-71	City of Garland	New Sidewalk	S 5th St	Main St & W Avenue A	West	145		24	\$37,400
3A-DG-SW-72	City of Garland	New Sidewalk	W Avenue A	S 6th St & Railroad Tracks	North	300	Some tree root damage or relocation of a utility pole may be required to build sidewalk depending on availability of a sidewalk easement to bypass them on the far side of the street through the adjacent vacant parcel. Sidewalk crossing at railroad tracks will add extra expense.	22	\$249,900



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DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-73	City of Garland	New Sidewalk	W Avenue A	S 6th St & Railroad Tracks	South	60	Sidewalk crossing at railroad tracks will add extra expense. A utility pole blocks the existing sidewalk at its eastern terminus, but sidewalk can likely be constructed around its back side.	15	N/A
3A-DG-SW-80	City of Garland	New Sidewalk	W Avenue C	West Study Boundary & S Santa Fe St	North	290	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk, and multiple culverts would need to be modified.	5	N/A
3A-DG-SW-81	City of Garland	New Sidewalk	W Avenue C	West Study Boundary & S Santa Fe St	South	290	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk, and multiple culverts would need to be modified. Root damage to a tree near the intersection with Santa Fe St is likely to occur.	5	N/A
3A-DG-SW-82	City of Garland	New Sidewalk	S Santa Fe St	W Avenue C & South Study Boundary	West	115	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk, and a culvert near the intersection with W Avenue C would need to be modified.	5	N/A
3A-DG-SW-83	City of Garland	New Sidewalk	S Santa Fe St	W Avenue B & South Study Boundary	East	290	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk, and multiple culverts under driveways would need to be modified. A fire hydrant may also need to be adjusted or relocated.	11	N/A
3A-DG-SW-86	City of Garland	New Sidewalk	W State St	Railroad Tracks & N 3rd St	South	70		19	N/A
3A-DG-SW-87	City of Garland	New Sidewalk	S 3rd St	W State St & Main St	West	175	On south part of block, an asphalt business parking lot in poor condition is paved flush with old, deteriorated curb and gutter or with diagonal parking. Business parking would need to be redesigned to provide full sidewalk connectivity.	23	\$125,300
3A-DG-RP-88	City of Garland	Repair	N 5th St	W State St & Main St	East	25	Repair sidewalk that has settled adjacent to storm drain inlet, creating significant trip hazard.	26	\$12,300
3A-DG-SW-89	City of Garland	New Sidewalk	Main St	S 5th St & Railroad Tracks	North	195	Diagonal parking for Roach Feed & Seed is flush with street. Sidewalk to west connects to front porch under business awning, but steps are present. Building corner is too close to Main St for sidewalk without narrowing lane and providing curb and gutter. Street lacks curb and gutter near railroad crossing. Curb and gutter should be built together with sidewalk if possible to avoid drainage problems. Sidewalk crossing of railroad tracks will involve additional expense.	23	\$86,300
3A-DG-SW-90	City of Garland	New Sidewalk	Main St	S 4th St & S 3rd St	North	180	Insufficient space between street and business fence for both future sidewalk and existing right angle parking that is flush with street. Wide driveways at too high of a slope for sidewalk are also present. Business parking would need to be redesigned to provide full sidewalk connectivity.	23	\$56,300



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ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-92	City of Garland	New Sidewalk	S 5th St	Main St & W Avenue A	East	290		25	\$272,500
3A-DG-SW-93	City of Garland	New Sidewalk	W Avenue A	S 5th St & S 4th St	North	90	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	22	\$27,000
3A-DG-SW-94	City of Garland	New Sidewalk	S 4th St	Main St & W Avenue A	West	285	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk.	16	N/A
3A-DG-SW-95	City of Garland	New Sidewalk	W Avenue A	S 5th St & S 4th St	South	115	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	21	\$57,500
3A-DG-SW-96	City of Garland	New Sidewalk	S 4th St	W Avenue A & W Avenue B	West	25		17	N/A
3A-DG-RP-97	City of Garland	Repair	S 5th St	W Avenue B & W Avenue C	East	290	Remove and replace severely cracked sidewalk panels that have become overgrown with grass.	18	N/A
3A-DG-SW-98	City of Garland	New Sidewalk	S 4th St	W Avenue B & W Avenue C	West	270	Concrete paving for used car lot is flush with street on north part of block. Perimeter railing separates parked cars from level area that could be used as sidewalk, but a sidewalk connection to the corner at W Avenue B is still needed and curb recommended to provide elevated walking surface. Farther south, street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Some very old existing sidewalk is present on the opposite side of the open channel drainage ditch from the roadway. A tree blocks the north end of this segment, making it unlikely useful to retain. Construction of sidewalk with curb and gutter closer to the edge of pavement would also require drainage re-design where a sump drainage inlet is present near the intersection with W Avenue C.	17	N/A
3A-DG-SW-99	City of Garland	New Sidewalk	W Avenue C	S 5th St & S 4th St	North	185	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	11	N/A
3A-DG-SW-100	City of Garland	New Sidewalk	Avenue C	S 4th St	Northwest	25	On the northwest corner of 4th St and W Avenue C, new sidewalk would need to bridge the open channel drainage ditches along each street to enable crossings of the intersection legs. Providing these connections would require fill dirt and new culverts to maintain drainage.	7	N/A
3A-DG-SW-101	City of Garland	New Sidewalk	Avenue C	S 4th St	Southwest	25	On the southwest corner of 4th St and W Avenue C, the sidewalk on far side of open channel drainage ditches along each street does not bridge over the ditches to enable crossings of the intersection legs. Providing these connections would require fill dirt and new culverts to maintain drainage.	7	N/A
3A-DG-RP-102	City of Garland	Repair	S 5th St	W Avenue C & South Study Boundary	East	65	Remove and replace severely cracked sidewalk panels that have become overgrown with grass.	9	N/A



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DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-103	City of Garland	New Sidewalk	S 4th St	Avenue C	Southwest	20	On the southwest corner of 4th St and W Avenue C, the sidewalk on far side of open channel drainage ditches along each street does not bridge over the ditches to enable crossings of the intersection legs. Providing these connections would require fill dirt and new culverts to maintain drainage.	7	N/A
3A-DG-SW-105	City of Garland	New Sidewalk	S 4th St	Main St & W Avenue A	East	195	Business parking and wide driveways are flush with street on north half of block. Business parking and access areas would need to be redesigned to provide sidewalk.	16	N/A
3A-DG-RP-106	City of Garland	Repair	S 4th St	Main St & W Avenue A	East	110	On south half of block, existing sidewalk is severely damaged and should be removed and replaced. Street lacks existing curb and gutter, which could have contributed to existing sidewalk deterioration by causing drainage problems. Consider constructing new curb and gutter together with sidewalk if possible. Building sidewalk would likely cause root damage to a large tree unless an easement can be obtained on the currently vacant parcel to route it farther away from the tree.	14	N/A
3A-DG-RP-107	City of Garland	Repair	S 4th St	W Avenue A & W Avenue B	East	220	Existing sidewalk on north half of block is severely damaged and should be removed and replaced. Street lacks existing curb and gutter, which could have contributed to existing sidewalk deterioration by causing drainage problems. Consider constructing new curb and gutter together with sidewalk if possible.	12	N/A
3A-DG-SW-108	City of Garland	New Sidewalk	S 4th St	W Avenue A & W Avenue B	East	70	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. However, available right-of-way for sidewalk is wide, and so it may be possible to construct sidewalk without curb and gutter as done for most of the west side of the street.	13	N/A
3A-DG-SW-109	City of Garland	New Sidewalk	S 4th St	W Avenue B & W Avenue C	East	70	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	9	N/A
3A-DG-SW-110	City of Garland	New Sidewalk	S 4th St	W Avenue C & South Study Boundary	East	125	Sidewalk construction could create impacts to landscaping and tree roots on funeral home property.	7	N/A
3A-DG-SW-111	City of Garland	New Sidewalk	Main St	S 4th St & S 3rd St	South	315	Concrete gutter is present without curb between street and business parking lots. Right angle parking and driveways for businesses occupy space for future sidewalk on west part of block. Business parking would need to be redesigned to provide full sidewalk connectivity. On east part of block, asphalt parking lots (some in poor condition) are paved flush with the concrete gutter. A fence would need to be adjusted in order to make way for sidewalk.	21	\$69,100
3A-DG-RP-112	City of Garland	Repair	W Avenue A	S 4th St & S 3rd St	North	230	On west half of block, existing sidewalk is severely damaged and should be removed and replaced. Street lacks existing curb and gutter, which could have contributed to existing sidewalk deterioration by causing drainage problems. Consider constructing new curb and gutter together with sidewalk if possible.	19	N/A



Downtown Garland Station

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Sidewalk & Shared Use Path Segments

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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-113	City of Garland	New Sidewalk	W Avenue A	S 4th St & S 3rd St	South	340	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk. Some residential landscaping may be affected.	19	N/A
3A-DG-SW-116	City of Garland	New Sidewalk	W Avenue C	S 4th St & S 3rd St	South	135	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. If the same sidewalk alignment is maintained as on the rest of the block (on the far side of the open channel drainage ditch from the street), then continuing the sidewalk would bring it extremely close to the front door and windows of a single family home. Realigning the sidewalk closer to the street in front of this home would require curb, gutter, and drainage design.	8	N/A
3A-DG-SW-117	City of Garland	New Sidewalk	S 3rd St	Main St & W Avenue A	West	115	On north half of block, concrete gutter is present without curb between street and asphalt business parking lot, which is paved flush with the concrete gutter. At a residence to the south, neither curb nor gutter are present and right angle residential parking occupies the space for future sidewalk.	21	\$55,600
3A-DG-RP-118	City of Garland	Repair	S 3rd St	Main St & W Avenue A	West	145	On south half of block, existing sidewalk is severely damaged and should be removed and replaced. Street lacks existing curb and gutter, which could have contributed to existing sidewalk deterioration by causing drainage problems. Consider constructing new curb and gutter together with sidewalk if possible.	20	N/A
3A-DG-SW-119	City of Garland	New Sidewalk	S 3rd St	W Avenue A (N) & W Avenue A (S)	West	250	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk.	20	N/A
3A-DG-SW-120	City of Garland	New Sidewalk	S 3rd St	W Avenue B & W Avenue C	West	160	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Several trees would need to be removed or incur significant root damage if the same sidewalk alignment is maintained as on the rest of the block (on the far side of the open channel drainage ditch from the street).	12	N/A
3A-DG-SW-121	City of Garland	New Sidewalk	W Avenue C	S 3rd St	Northwest	10	A narrow strip of grass is present between the end of the pedestrian ramp and the pavement edge of Avenue C on the northwest corner of its intersection with 3rd St. Avenue C does not have curb and gutter, which should be considered to avoid drainage problems.	13	N/A



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3A-DG-SW-122	City of Garland	New Sidewalk	S 3rd St	W Avenue C & South Study Boundary	West	165	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. If the same sidewalk alignment is maintained as on the rest of the block (on the far side of the open channel drainage ditch from the street), then continuing the sidewalk would bring it extremely close to the front door and windows of a single family home. Realigning the sidewalk closer to the street in front of this home would require curb, gutter, and drainage design.	12	N/A
3A-DG-SW-123	City of Garland	New Sidewalk	W Walnut St	N 5th St & Railroad Tracks	South	635	Worn path in grass indicates existing pedestrian demand. Some tree root damage possible when constructing sidewalk, but can likely be minimized by sidewalk alignment in generous right-of-way. Crossing of the Kansas City Southern Railroad tracks will involve additional expense.	46	\$186,000
3A-DG-SW-124	City of Garland	New Sidewalk	W Walnut St	Railroad Tracks & N 1st St	South	520	Worn path in grass indicates existing pedestrian demand.	38	\$31,500
3A-DG-SW-125	City of Garland	New Sidewalk	N 1st St	DART Tracks & Katy St	West	100	Worn path in grass indicates existing pedestrian demand. Culvert crossing near railroad tracks may need to be modified to build sidewalk.	28	\$25,400
3A-DG-SW-126	City of Garland	New Sidewalk	Katy St	West Terminus & N 1st St	North	430	Street dead ends at Kansas City Southern rail line, and sidewalk would not serve any existing or future pedestrian demand adjacent to the Garland Power & Light substation. Utility poles and fire hydrants also block path of any future sidewalk.	23	\$208,400
3A-DG-SW-127	City of Garland	New Sidewalk	Katy St	West Terminus & N 1st St	South	430	Asphalt parking lot paved to curb and sign for Buddhist Community of Dallas Fort Worth lie in path of any future sidewalk.	29	\$338,400
3A-DG-SW-128	City of Garland	New Sidewalk	N 1st St	Katy St & Austin St	West	335	Worn path in grass indicates existing demand near a DART bus stop that does not have a hard surface waiting area. A sloped concrete retaining wall adjacent to an elevated parking lot for a Garland ISD building would need to be reconstructed as a vertical retaining wall in order to accommodate sidewalk. A steep concrete driveway to an asphalt parking lot would also likely need to be reconstructed.	27	\$91,500
3A-DG-SW-129	City of Garland	New Sidewalk	Austin St	N 3rd St & N 1st St	North	855	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Street is flush with parking lots for light industrial businesses. The parking lots would need to be re-designed to accommodate sidewalk. Fire hydrants and utility poles may need to be adjusted as part of re-design.	30	\$442,300
3A-DG-RP-130	City of Garland	Repair	W State St	Railroad Tracks & N 3rd St	North	90	Remove and replace several severely damaged sidewalk panels in front of single-family home.	25	\$22,900
3A-DG-SW-131	City of Garland	New Sidewalk	S 3rd St	Austin St & W State St	West	315	Two utility poles and an above ground gas utility structure would need to be relocated out of the narrow space between residential fence and street to build sidewalk. A short retaining wall would also likely be needed. Root damage to some trees in residential front yards may also occur, and a step in a sidewalk connecting the street to a residential front door may need to be re-built.	26	\$173,700

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3A-DG-SW-132	City of Garland	New Sidewalk	S 3rd St	Austin St & W State St	East	325	A few small to medium-sized trees could need to be removed or suffer root damage depending on availability of right-of-way easement for sidewalk adjacent to currently vacant parcel.	26	\$168,900
3A-DG-SW-133	City of Garland	New Sidewalk	Austin St	N 3rd St & N 1st St	South	850	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. A large pit drainage inlet occupies the space where sidewalk would need to be near the intersection with First St. One small business has right angle parking spaces flush with the street that would need to be re-designed to accomodate sidewalk.	28	\$417,200
3A-DG-SW-134	City of Garland	New Sidewalk	N 1st St	Austin St & W State St	West	345	Worn path in grass indicates existing pedestrian demand. Short retaining walls or regrading and reseeding of residential front yards would be needed to build sidewalk, as would adjustments to underground utility manholes.	24	\$108,100
3A-DG-SW-135	City of Garland	New Sidewalk	W State St	N 3rd St & N 1st St	North	1010	Building sidewalk could result in tree root damage, and would require removal of residential landscaping and adjustment to minor underground utility boxes.	25	\$182,700
3A-DG-SW-136	City of Garland	New Sidewalk	S 3rd St	W State St & Main St	East	175	Right angle parking for a business and a church is flush with street. Business parking would need to be eliminated or reduced (converted to diagonal or parallel) or the street width (~30 ft) would need to be reduced to make way for sidewalk.	23	\$120,100
3A-DG-SW-137	City of Garland	New Sidewalk	W State St	N 3rd St & N 1st St	South	615	Easements may be needed for sidewalk to bypass utility poles and a streetlight pole at locations where intermittent existing sidewalk stops. Relatively short front yard setbacks could make this challenging to negotiate with residents. Adjustments to minor underground utility boxes and structures would also be likely. Near the corner with 3rd Street, very old and badly deteriorated existing sidewalk south of the right angle parking spaces for a church should be removed and replaced.	25	\$262,600
3A-DG-SW-138	City of Garland	New Sidewalk	N 1st St	W State St & Lavon Dr	West	270	Restaurant parking lot may need to be redesigned to provide sidewalk around utility pole and steep driveways near corner with State St. Adjacent to the parking lot for the parcel to the south, a sloped retaining wall would need to be at least partially if not completely removed to provide sidewalk in the narrow grass strip between it and the street. A widened area of the street adjacent to a narrow storm drain inlet provides an additional constraint. New retaining walls and relocations or adjustments to utility boxes and a fire hydrant would also likely be needed near the restaurant on the corner with Main St. A DART bus stop is present near this corner without a hard-surface waiting area.	23	\$90,100
3A-DG-SW-139	City of Garland	New Sidewalk	Main St	S 3rd St & S 2nd St	North	330	Concrete gutter is present without curb between street and business parking lots and a vacant lot. Business parking would need to be redesigned to provide full sidewalk connectivity.	22	\$114,300

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DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-140	City of Garland	New Sidewalk	Main St	S 2nd St & S Haskell Dr	North	175	Concrete gutter is present without curb between street and asphalt business parking lots. Some lots provide right angle parking flush with the street, while others have railings extending around their useful perimeter. Asphalt extends beyond the railings to the gutter for a width sufficient for sidewalk, but at too high of a slope for some of the block's length. Reconstruction with curb and gutter would likely be needed to add sidewalk, and business parking would need to be redesigned. A fire hydrant and above-ground utility structures may need to be adjusted or relocated to make way for sidewalk.	21	\$120,700
3A-DG-SW-141	City of Garland	New Sidewalk	Main St	Haskell Dr & S 1st St	North	350	Concrete gutter is present without curb between street and narrow grass strip fronting business parking lots. Construction of curb recommended together with sidewalk to avoid drainage problems. Four utility poles with streetlighting may need to be relocated, along with a streetlight pole for a business parking lot and a brick business mailbox. Near First St, the slope in the narrow grass strip is too high for sidewalk, so a short retaining wall would be needed between the street and the higher elevation parking lot above.	22	\$267,700
3A-DG-SW-142	City of Garland	New Sidewalk	N 1st St	W Walnut St & Katy St	East	200	Culvert crossing near railroad tracks may need to be modified to build sidewalk. Large diameter poles for high-voltage overhead power lines occupy narrow grass strip on steep slope between roadway and building driveway circulation area below. Retaining walls and modification of the building driveway would likely both be required to build sidewalk.	27	\$67,500
3A-DG-SW-143	City of Garland	New Sidewalk	N 1st St	Katy St & Austin St	East	510	Worn path in grass indicates existing demand near a DART bus stop that does not have a hard surface waiting area.	26	\$58,200
3A-DG-SW-144	City of Garland	New Sidewalk	N 1st St	Austin St & W State St	East	315	Worn path in grass indicates existing pedestrian demand. Fill dirt would be needed to level the way for sidewalk on a vacant lot that slopes downward away from the roadway.	23	\$33,500
3A-DG-SW-145	City of Garland	New Sidewalk	E Walnut St	N 1st St & W Walnut Cir	South	325	Worn path in grass indicates existing pedestrian demand. Ample space is available for sidewalk under DART rail bridge, but adjacent to abutment retaining wall, space is very narrow. Constructing sidewalk would require capping on open channel drainage culvert.	26	\$35,400
3A-DG-SW-146	City of Garland	New Sidewalk	E Walnut St	W Walnut Cir & Lavon Dr	South	325	Worn path in grass indicates existing pedestrian demand. Adjacent to DART bridge abutment retaining wall, space is very narrow. Constructing sidewalk would likely require modifying guardrail protecting headwall at the Walnut Street at Lavon Drive overpass.	23	\$26,200



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ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-148	City of Garland	New Sidewalk	E State St	N 1st St & Lavon Dr	North	326	To the west, a utility pole blocks the way for sidewalk near the corner of a business parking lot where no sidewalk bypass would be possible without removing parking or relocating the pole. To the east, a used car lot parks vehicles on worn asphalt between the curb and their fence where path of sidewalk would be.	19	N/A
3A-DG-SW-149	City of Garland	New Sidewalk	N 1st St	W State St & Lavon Dr	East	125		22	\$57,000
3A-DG-SW-155	City of Garland	New Sidewalk	E Walnut St	Lavon Dr & East Study Boundary	South	515	Worn path in grass indicates existing pedestrian demand.	15	\$46,800
3A-DG-SW-156	City of Garland	New Sidewalk	Gautney St	Lavon Dr & East Study Boundary	North	400	Regrading of slope or short retaining wall would be needed to construct sidewalk into short hill.	15	N/A
3A-DG-SW-158	City of Garland	New Sidewalk	Gautney St	Lavon Dr & East Study Boundary	South	425	Above ground gas utility structure would need to be relocated in narrow space near business parking lot to make way for sidewalk. A short retaining wall would also likely be needed.	15	N/A
3A-DG-SW-159	City of Garland	New Sidewalk	E State St	Lavon Dr & East Study Boundary	North	160	Building sidewalk would require reconstruction of a steep driveway and/or removal of parking on an asphalt lot that extends to the curb, as well as relocation of a trash dumpster.	14	N/A
3A-DG-SW-160	City of Garland	New Sidewalk	E State St	Lavon Dr & East Study Boundary	North	155	Building sidewalk would require reconstruction of a steep driveway and/or removal of parking on an asphalt lot that extends to the curb, as well as relocation of a trash dumpster.	12	N/A
3A-DG-SW-162	City of Garland	New Sidewalk	E State St	Lavon Dr & East Study Boundary	South	170	Relocation of two trash dumpsters would be required to make way for sidewalk.	14	N/A
3A-DG-SW-163	City of Garland	New Sidewalk	Bankhead St	S 1st St & East Study Boundary	North	440	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Part of street is adjacent to steep slope for drainage ditch, so significant fill would be required for sidewalk. If constructing sidewalk, a connection should be made from the western terminus of Bankhead St to the sidewalk adjacent to the intersection of First St with Lavon Drive and Main St.	15	N/A
3A-DG-SW-164	City of Garland	New Sidewalk	Main St	S 3rd St & S 2nd St	South	255	Concrete gutter is present without curb between street and asphalt business parking lot with a railing extending around its useful perimeter. Asphalt extends beyond the railing to the gutter for a width sufficient for sidewalk, but at too high of a slope for much of the block's length. Reconstruction with a short retaining wall on this part of the block would likely be needed to add sidewalk.	21	\$60,600



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3A-DG-SW-165	City of Garland	New Sidewalk	Main St	S 2nd St & Haskell Dr	South	205	Concrete gutter is present without curb between street and grass strip or asphalt used car lot. It appears sidewalk could traverse the used car lot with minimal impacts to the business. The gate for a business fence at a driveway would need to be redesigned so it does not block path of sidewalk when open. Two utility poles may need to be relocated. Construction of curb recommended together with sidewalk to avoid drainage problems.	20	\$0
3A-DG-SW-166	City of Garland	New Sidewalk	Main St	Haskell Dr & S 1st St	South	200	Concrete gutter is present without curb between street and grass strip or right angle parking fronting businesses. Construction of curb recommended together with sidewalk to avoid drainage problems. Business parking would need to be redesigned to provide sidewalk connectivity.	19	\$0
3A-DG-SW-167	City of Garland	New Sidewalk	S 3rd St	Main St & W Avenue A	East	295	On north half of block, concrete gutter is present intermittently without curb between street and asphalt business parking lot, which is paved flush with the street or with the concrete gutter. A railing is present around the useful perimeter of the lot. A utility pole and manhole block the available space for sidewalk near the middle of the gutter. The utility pole would need to be relocated, the business parking re-designed, or the street narrowed to provide sidewalk. A wide driveway with right-angle residential parking occupies sidewalk space at the south end of the block. Parking could be moved closer to street to make way for sidewalk between parking and building if property owner agrees.	20	N/A
3A-DG-SW-168	City of Garland	New Sidewalk	S 3rd St	W Avenue A (N) & W Avenue A (S)	East	100	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Right angle residential parking occupies the space for future sidewalk. Parking could be moved closer to street to make way for sidewalk between parking and building if property owner agrees.	13	N/A
3A-DG-SW-169	City of Garland	New Sidewalk	S 2nd St	Main St & W Avenue A	West	440	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Near Main St, concrete gutter is present intermittently without curb between street and asphalt business parking lot with a railing and/or chain link fence extending around its useful perimeter. Asphalt extends beyond the railing to the gutter for a width sufficient for sidewalk, but at too high of a slope for some of the block's length. Right-angle residential parking flush with the street may need to be adjusted to provide sidewalk for a home mid-block.	20	N/A
3A-DG-SW-170	City of Garland	New Sidewalk	S 2nd St	Main St & W Avenue A	East	280	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Right-angle residential parking flush with the street may need to be adjusted to provide sidewalk for two homes at the south end of the block.	19	N/A

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3A-DG-SW-171	City of Garland	New Sidewalk	Haskell Dr	Main St & W Avenue A	West	400	Parked cars from used car lot that is flush with the street occupy space needed for future sidewalk on the north half of the block. Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Wide driveways and gravel parking areas occupy sidewalk space on the south end of the block.	19	N/A
3A-DG-SW-172	City of Garland	New Sidewalk	Haskell Dr	Main St & W Avenue A	East	450	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Right angle business parking flush with the street near the corner with Main St would need to be re-designed to accommodate sidewalk. To the south, sidewalk construction would cause root damage to or require removal of two trees, as well as relocation to an above-ground utility box and potential impacts to an underground gas line.	19	N/A
3A-DG-SW-173	City of Garland	New Sidewalk	W Avenue A	S 3rd St & WS 2nd St	North	250	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	17	N/A
3A-DG-SW-174	City of Garland	New Sidewalk	W Avenue A	S 2nd St & Haskell Dr	North	225	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk.	16	N/A
3A-DG-SW-175	City of Garland	New Sidewalk	W Avenue A	Haskell Dr (W) & Haskell Dr (E)	North	180	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk. A fire hydrant will also likely need to be relocated or adjusted.	15	N/A
3A-DG-SW-176	City of Garland	New Sidewalk	W Avenue A	S 3rd St & Brackett St	South	255	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Sidewalk construction could cause root damage to two or three large trees.	11	N/A
3A-DG-SW-177	City of Garland	New Sidewalk	W Avenue A	Brackett St & S 2nd St	South	140	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Five or six medium-sized trees may need to be removed or suffer root damage unless an easement can be obtained to route sidewalk around them on vacant property.	16	N/A
3A-DG-SW-178	City of Garland	New Sidewalk	W Avenue A	S 2nd St & Haskell Dr (E)	South	265	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk. Manholes and underground utility boxes will likely need to be adjusted.	15	N/A
3A-DG-SW-179	City of Garland	New Sidewalk	W Avenue A	Haskell Dr & S 1st Dr	South	5	Sidewalk lacks ramp connection to street at corner with Haskell Dr.	14	N/A
3A-DG-RP-180	City of Garland	Repair	W Avenue A	Haskell Dr & S 1st Dr	South	10	Repair a short gap and segment of settled sidewalk that exists mid-block, both likely due to drainage flow across the sidewalk. Consider adding curb, gutter and other necessary drainage features that are absent near this location.	16	N/A

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3A-DG-SW-181	City of Garland	New Sidewalk	S 3rd St	W Avenue A & W Avenue B	East	135	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Three utility poles may also need to be relocated to make way for sidewalk.	13	N/A
3A-DG-SW-182	City of Garland	New Sidewalk	Brackett St	W Avenue A & W Avenue B	West	150	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Two trees may need to be removed or incur root damage to build sidewalk.	17	N/A
3A-DG-SW-183	City of Garland	New Sidewalk	Brackett St	W Avenue A & W Avenue B	East	145	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. A small tree may need to be removed, incur root damage, or pruned significantly to build sidewalk.	17	N/A
3A-DG-SW-184	City of Garland	New Sidewalk	S 2nd St	W Avenue A & W Avenue B	West	155		12	N/A
3A-DG-SW-185	City of Garland	New Sidewalk	S 2nd St	W Avenue A & W Avenue B	East	150	Building sidewalk may require removal of some residential landscaping.	17	N/A
3A-DG-SW-186	City of Garland	New Sidewalk	Haskell Dr	W Avenue A & W Avenue B	West	160	Building sidewalk may require removal of significant residential landscaping for one home.	16	N/A
3A-DG-SW-187	City of Garland	New Sidewalk	Haskell Dr	W Avenue A & W Avenue B	East	80	Building sidewalk may require adjustment or relocation of an underground utility box.	10	N/A
3A-DG-SW-192	City of Garland	New Sidewalk	S 3rd St	W Avenue C & South Study Boundary	West	15	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. If the same sidewalk alignment is maintained as on the rest of the block (on the far side of the open channel drainage ditch from the street), then continuing the sidewalk would bring it extremely close to the front door and windows of a single family home. Realigning the sidewalk closer to the street in front of this home would require curb, gutter, and drainage design.	13	N/A
3A-DG-SW-193	City of Garland	New Sidewalk	S 3rd St	W Avenue B & South Study Boundary	East	560	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Constructing sidewalk would require relocation of one or more utility poles, removal of residential landscaping, and a chain link fence between a residence and a small office building.	18	N/A
3A-DG-SW-198	City of Garland	New Sidewalk	Brackett St	W Avenue B & W Avenue C	West	305	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. A large tree near the south end of the block may incur root damage to build sidewalk.	17	N/A
3A-DG-SW-199	City of Garland	New Sidewalk	Brackett St	W Avenue B & W Avenue C	East	220	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. A chain link fence between properties that extends nearly to the street will need to be modified to make way for sidewalk.	17	N/A
3A-DG-SW-200	City of Garland	New Sidewalk	S 2nd St	W Avenue B & W Avenue C	West	215	Constructing sidewalk may cause root damage to a tree in a residential front yard.	16	N/A



Downtown Garland Station

Opinion of Probable Constr. Cost = \$7,046,300

Sidewalk & Shared Use Path Segments

Improvement Code Legend: ID: 1A-PR-SW-01			
1A ← Station Number	SW ← Sidewalk (or CW=Crosswalk,		
PR ← Station Abbreviation	VW=Veloweb,		
01 ← Improvement Number	RP=Sidewalk Repair		
(matches 1 on Map)	GR=Gap to Remain)		

North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-201	City of Garland	New Sidewalk	S 2nd St	W Avenue B & W Avenue C	East	275	Constructing sidewalk would require removal of residential landscaping and possible root damage to a tree in a residential front yard.	15	N/A
3A-DG-SW-202	City of Garland	New Sidewalk	Haskell Dr	W Avenue B & W Avenue C	West	190	Constructing sidewalk would likely require reconstruction of a steep driveway and construction of a short retaining wall next to a used car lot. Tree root damage to a large tree on a residential lot to the south is likely.	14	N/A
3A-DG-SW-203	City of Garland	New Sidewalk	Haskell Dr	W Avenue B & W Avenue C	East	275	An asphalt parking lot for an auto parts warehouse is paved to the back of the street curb, and the area that would be needed for future sidewalk is used for storing cars. Constructing sidewalk may impact business operations and require re-design of the vehicle storage areas.	14	N/A
3A-DG-SW-204	City of Garland	New Sidewalk	W Avenue C	Brackett St & S 2nd St	North	140	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	12	N/A
3A-DG-SW-205	City of Garland	New Sidewalk	W Avenue C	S 2nd St & Haskell Dr	North	260	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	11	N/A
3A-DG-SW-206	City of Garland	New Sidewalk	W Avenue C	Haskell Dr & East Study Boundary	North	120	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Fill will need to be added in ditch to level ground for sidewalk, and a fire hydrant near the intersection with Haskell Dr would need to be adjusted or relocated.	5	N/A
3A-DG-SW-207	City of Garland	New Sidewalk	W Avenue C	Brackett St & S 2nd St	South	160	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	12	N/A
3A-DG-SW-208	City of Garland	New Sidewalk	W Avenue C	S 2nd St & Haskell Dr	South	265	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Near the corner with 2nd St, there is insufficient space for sidewalk between the street and a chain link fence for the business to the south due to a large pole for high-voltage overhead electric power. The street would need to be narrowed or the fence and business parking adjusted to provide sidewalk of sufficient width around the pole. Note that there are no land uses likely to generate pedestrian trips on this side of the street.	6	N/A
3A-DG-SW-209	City of Garland	New Sidewalk	W Avenue C	Haskell Dr & East Study Boundary	South	135	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Note that there are no land uses likely to generate pedestrian trips on this side of the street.	10	N/A
3A-DG-SW-210	City of Garland	New Sidewalk	S 2nd St	W Avenue C & South Study Boundary	East	190	Several trees on opposite side of chain link fence from future sidewalk could experience root damage if it is built.	5	N/A

Downtown Garland Station

Opinion of Probable Constr. Cost = \$7,046,300

Sidewalk & Shared Use Path Segments

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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-211	City of Garland	New Sidewalk	Bankhead St	S 1st St & East Study Boundary	South	460	Street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems. Part of street is adjacent to steep slope for drainage ditch, so significant fill would be required for sidewalk. Another part of street is flush with right angle parking for a church on poor condition asphalt. Church parking would need to be redesigned to provide sidewalk connectivity. If constructing sidewalk, a connection should be made from the western terminus of Bankhead St to the sidewalk adjacent to the intersection of First St with Lavon Drive and Main St.	10	N/A
3A-DG-SW-212	City of Garland	New Sidewalk	W Avenue A	Barger St & East Study Boundary	North	245	Insufficient space between street and chain link fence around rear perimeter of church parking lot. Fence would need to be removed and parking lot reconfigured slightly to accommodate sidewalk.	13	N/A

Opinion of Probable Cost - City of Garland Subtotal..... \$6,779,200

3A-DG-SW-85	Kansas City Southern Railroad	New Sidewalk	W State St	Railroad Tracks	South	75	Pipe culvert under roadway may need to be modified near at-grade railroad crossing to construct sidewalk across tracks.	19	N/A
3A-DG-SW-91	Kansas City Southern Railroad	New Sidewalk	Main St	S 5th St & S 4th St	South	260	Sidewalk crossing of railroad tracks will involve additional expense.	22	\$22,600

Opinion of Probable Cost - Kansas City Southern Railroad Subtotal..... \$22,600

3A-DG-SW-31	TxDOT	New Sidewalk	Lavon Dr	North Study Boundary & Walnut Circle	West	95	Repair sidewalk that has settled adjacent to storm drain inlets, creating significant trip hazards.	16	N/A
3A-DG-GR-35	TxDOT	Gap to Remain	Lavon Dr	Walnut Cir E	North	115	While a crossing of Lavon Dr would provide more direct routing to station, the relatively far distance to the station, the availability of an alternate route by traveling slightly outside the study area (via Walnut Circle East and the Walnut St overpass), and the lack of density or pedestrian-oriented businesses on the far side of Lavon Dr that do not also have more direct walking access via the Walnut St overpass make a pedestrian signal or pedestrian hybrid beacon here undesirable given the high speeds and impacts to car traffic.	0	N/A
3A-DG-GR-36	TxDOT	Gap to Remain	Lavon Dr	Walnut Cir E	South	105	While a crossing of Lavon Dr would provide more direct routing to station, the relatively far distance to the station, the availability of an alternate route by traveling slightly outside the study area (via Walnut Circle East and the Walnut St overpass), and the lack of density or pedestrian-oriented businesses on the far side of Lavon Dr that do not also have more direct walking access via the Walnut St overpass make a pedestrian signal or pedestrian hybrid beacon here undesirable given the high speeds and impacts to car traffic.	0	N/A



Downtown Garland Station

Opinion of Probable Constr. Cost = \$7,046,300

Sidewalk & Shared Use Path Segments

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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-SW-38	TxDOT	New Sidewalk	Lavon Dr	Rosewood Hills Dr & Walnut Cir	East	40	Repair sidewalk that has settled adjacent to storm drain inlet, creating significant trip hazard.	13	N/A
3A-DG-SW-75	TxDOT	New Sidewalk	W Avenue B	Railroad Tracks	North	140	Building sidewalk at railroad crossing will involve extra expense. Culvert under roadway near railroad crossing will need to be modified, with fill dirt added in ditch to provide level grade for sidewalk.	16	N/A
3A-DG-SW-76	TxDOT	New Sidewalk	W Avenue B	Railroad Tracks	South	95	Building sidewalk at railroad crossing will involve extra expense. Culvert under roadway near railroad crossing will need to be modified, with fill dirt added in ditch to provide level grade for sidewalk.	21	\$228,400
3A-DG-SW-77	TxDOT	New Sidewalk	W Avenue B	Railroad Tracks St & S 5th St	South	100	Short segment of street lacks existing curb and gutter, which should be constructed together with sidewalk if possible to avoid drainage problems.	21	\$16,100
3A-DG-SW-114	TxDOT	New Sidewalk	W Avenue B	S 4th St & S 3rd St	South	45	Sidewalk would cross single family residential front yard with short setback, taking much of front lawn.	19	N/A
3A-DG-SW-115	TxDOT	New Sidewalk	W Avenue B	S 4th St & S 3rd St	South	70	Sidewalk would cross single family residential front yard with short setback, taking much of front lawn.	19	N/A
3A-DG-RP-147	TxDOT	Repair	Lavon Dr	Gautney St & E State St	West	45	Repair sidewalk that has settled adjacent to storm drain inlet, creating significant trip hazard.	16	N/A
3A-DG-GR-150	TxDOT	Gap to Remain	Lavon Dr	Gautney St	North	100	While a crossing of Lavon Dr would provide more direct routing to station, the relatively far distance to the station, the availability of an alternate route by traveling slightly outside the study area (via Walnut Circle East and the Walnut St overpass), and the lack of density or pedestrian-oriented businesses on the far side of Lavon Dr that do not also have more direct walking access via the Walnut St overpass make a pedestrian signal or pedestrian hybrid beacon here undesirable given the high speeds and impacts to car traffic.	0	N/A
3A-DG-GR-151	TxDOT	Gap to Remain	Lavon Dr	Gautney St	South	95	While a crossing of Lavon Dr would provide more direct routing to station, the relatively far distance to the station, the availability of an alternate route by traveling slightly outside the study area (via Walnut Circle East and the Walnut St overpass), and the lack of density or pedestrian-oriented businesses on the far side of Lavon Dr that do not also have more direct walking access via the Walnut St overpass make a pedestrian signal or pedestrian hybrid beacon here undesirable given the high speeds and impacts to car traffic.	0	N/A
3A-DG-GR-152	TxDOT	Gap to Remain	Lavon St	E State St	North	95	While a crossing of Lavon Dr would provide slightly more direct routing to station, the relatively far distance to the station, the availability of a signalized crossing of First St at Main St, and the lack of density or pedestrian-oriented businesses on the far side of Lavon Dr make a pedestrian signal or pedestrian hybrid beacon here undesirable given the high speeds and impacts to car traffic.	0	N/A



Downtown Garland Station

Opinion of Probable Constr. Cost = \$7,046,300

Sidewalk & Shared Use Path Segments

Improvement Code Legend: ID: 1A-PR-SW-01
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North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-GR-153	TxDOT	Gap to Remain	Lavon St	E State St	South	100	While a crossing of Lavon Dr would provide slightly more direct routing to station, the relatively far distance to the station, the availability of a signalized crossing of First St at Main St, and the lack of density or pedestrian-oriented businesses on the far side of Lavon Dr make a pedestrian signal or pedestrian hybrid beacon here undesirable given the high speeds and impacts to car traffic.	0	N/A
3A-DG-RP-157	TxDOT	Repair	Lavon Dr	Gautney St & E State St	East	45	Repair sidewalk that has settled adjacent to storm drain inlet, creating significant trip hazard.	17	N/A
3A-DG-RP-161	TxDOT	Repair	Lavon Dr	E State St & S 1st St	East	70	Repair sidewalk that has settled adjacent to storm drain inlet, creating significant trip hazard.	16	N/A
3A-DG-SW-188	TxDOT	New Sidewalk	W Avenue B	S 3rd St & Brackett St	North	250	A manhole and other utilities may need to be adjusted to construct sidewalk. A DART bus stop without a hard surface waiting area is present on this block.	14	N/A
3A-DG-SW-189	TxDOT	New Sidewalk	W Avenue B	Brackett St & S 2nd St	North	100	Narrow space available for sidewalk between hair salon parking area and curb. Parking area may need to be re-designed to accommodate sidewalk.	14	N/A
3A-DG-SW-190	TxDOT	New Sidewalk	W Avenue B	S 2nd St & Haskell Dr	North	260	Asphalt for tire store parking lot extends to curb. Parking may need to be re-designed to accommodate sidewalk.	18	N/A
3A-DG-SW-191	TxDOT	New Sidewalk	W Avenue B	Haskell Dr & S 1st St	North	130	A large tree would likely need to be removed unless an easement to bypass it on the far side of the roadway on vacant property can be obtained. A DART bus stop without a hard surface waiting area is present on this block.	13	N/A
3A-DG-SW-194	TxDOT	New Sidewalk	W Avenue B	S 3rd St & Brackett St	South	105		18	N/A
3A-DG-SW-195	TxDOT	New Sidewalk	W Avenue B	Brackett St & S 2nd St	South	140		18	N/A
3A-DG-SW-196	TxDOT	New Sidewalk	W Avenue B	S 2nd St & Haskell Dr	South	250	Used car lot may need to be re-designed around steep driveway to accommodate sidewalk crossing.	18	N/A
3A-DG-SW-197	TxDOT	New Sidewalk	W Avenue B	Haskell Dr & S 1st St	South	250	Paved asphalt between curb and railed-off used car lot is likely level enough to be easily reconstructed as concrete sidewalk.	13	N/A

Opinion of Probable Cost - TxDOT Subtotal..... \$244,500
 Opinion of Probable Cost - Total for All Sidewalk Recommendations in Half Mile Area..... \$7,046,300



Downtown Garland Station

Opinion of Probable Constr. Cost = \$88,100

Crosswalk Segments

Improvement Code Legend: ID: 1A-PR-SW-01
 1A ← Station Number SW ← Sidewalk (or CW=Crosswalk,
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 (matches 1 on Map) GR=Gap to Remain)

North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	At/Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-CW-215	City of Garland	New Crosswalk	6th St	DART Tracks & Austin St	N/A	25	Add a new marked crosswalk with warning signs and lighting. This will be a direct route between the station and Heritage Crossing multi-family development about to occur to the west.	31	\$33,000
3A-DG-CW-216	City of Garland	New Crosswalk	S 5th St	DART Tracks & Austin St	N/A	55	Install white crosswalk lines parallel to existing brick crosswalk that already has pedestrian-actuated rectangular rapid flashing beacons (RRFB's) installed. White edge lines as traffic control devices are required to make crosswalks legally enforceable. Add yield line and "Yield Here to Pedestrians" signing for southbound direction where the street is merging from two lanes to one near the crosswalk to mitigate risk of dual threat situation for pedestrians.	44	\$6,200
3A-DG-CW-217	City of Garland	New Crosswalk	Austin St	7th St	West	65	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.	23	\$48,900
3A-DG-CW-218	City of Garland	New Crosswalk	Austin St	7th St	East	65	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.	19	N/A
3A-DG-CW-219	City of Garland	New Crosswalk	State St	7th St	West	60	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.	14	N/A
3A-DG-CW-220	City of Garland	New Crosswalk	State St	7th St	East	0	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.	14	N/A
3A-DG-CW-221	City of Garland	New Crosswalk	Main St	7th St	West	50	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.	16	N/A

Downtown Garland Station

Opinion of Probable Constr. Cost = \$88,100

Crosswalk Segments

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North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	At/Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3A-DG-CW-222	City of Garland	New Crosswalk	Main St	7th St	East	45	Consider new marked crosswalk with warning signs and lighting, particularly if more pedestrian-oriented redevelopment begins to occur in the area. This crosswalk lies along a walking route between the station and the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.	20	N/A
3A-DG-CW-223	City of Garland	New Crosswalk	W Avenue A	6th St	West	55	Add advance yield lines and "Yield Here to Pedestrians" signing in advance of existing signed and marked crosswalk in front of Garland Senior Activity Center. Consider pedestrian-actuated rectangular rapid flashing beacons (RRFB's) and/or a road diet to implement curb extensions or a median refuge.	14	N/A
3A-DG-CW-224	City of Garland	New Crosswalk	W Avenue A	6th St	East	55	Add advance yield lines and "Yield Here to Pedestrians" signing in advance of existing signed and marked crosswalk in front of Garland Senior Activity Center. Consider pedestrian-actuated rectangular rapid flashing beacons (RRFB's) and/or a road diet to implement curb extensions or a median refuge.	14	N/A
3A-DG-CW-225	City of Garland	New Crosswalk	S Glenbrook Dr	W Avenue A	North	65	Consider adding pedestrian-actuated rectangular rapid flashing beacons (RRFB's) to the existing signed and marked north leg crosswalk near the new mid-rise apartments south of W Avenue A between Glenbrook Dr and 7th St.	14	N/A

Opinion of Probable Cost - City of Garland Subtotal..... \$88,100

3A-DG-CW-154	TxDOT	New Crosswalk	Lavon Dr	N 1st St	East	120	Crosswalk removed in recent years due to long crossing and complicated vehicular signal phasing for congested intersection. Consider construction of refuge islands and/or other geometric and phasing changes to enable re-introduction of the crosswalk.	20	N/A
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Opinion of Probable Cost - TxDOT Subtotal..... \$0

Opinion of Probable Cost - Total for All Crosswalk Recommendations in Half Mile Area..... \$88,100



Forest Jupiter Station

Opinion of Probable Constr. Cost = \$2,599,700

Sidewalk & Shared Use Path Segments

Improvement Code Legend: ID: 1A-PR-SW-01
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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-RP-01	City of Garland	Repair	Edgewood Dr	S Jupiter Rd & S Barnes Dr	North	30	Repair significantly damaged sidewalk panel that is causing a trip hazard.	8	N/A
3B-FJ-SW-02	City of Garland	New Sidewalk	Edgewood Dr	S Jupiter Rd & S Barnes Dr	North	135	Worn path in grass indicates existing pedestrian demand.	17	N/A
3B-FJ-SW-03	City of Garland	New Sidewalk	S Barnes Dr	North Study Boundary & Edgewood Dr	West	300	A DART bus stop that does not have a hard surface waiting area is present near the intersection with Edgewood Dr. A business trash dumpster would need to be relocated to make way for sidewalk farther north. Manholes and underground utility boxes would also need to be adjusted to construct sidewalk.	16	N/A
3B-FJ-SW-04	City of Garland	New Sidewalk	S Barnes Dr	North Study Boundary & Edgewood Dr	East	455	Manholes and underground utility boxes would need to be adjusted to construct sidewalk. Short retaining walls would likely be necessary to level slopes for sidewalk between the street and business parking lots above.	10	N/A
3B-FJ-SW-05	City of Garland	New Sidewalk	N Kirby St	North Study Boundary & Edgewood Dr	West	320	A short retaining wall may be necessary to level slopes for sidewalk between the street and business parking lots above.	6	N/A
3B-FJ-RP-06	City of Garland	Repair	Edgewood Dr	S Barnes Dr & S Kirby St	North	545	Regrade adjacent slopes or modify drainage where erosion has caused sidewalk to be covered in earth in multiple places. Remove and replace underlying sidewalk if necessary.	18	N/A
3B-FJ-RP-08	City of Garland	Repair	Edgewood Dr	S Jupiter Rd & S Barnes Dr	South	50	Regrade adjacent slope or modify drainage for a segment where erosion has caused sidewalk to be covered in earth. Remove and replace underlying sidewalk if necessary.	14	N/A
3B-FJ-SW-09	City of Garland	New Sidewalk	S Barnes Dr	Edgewood Dr & Forest Ln	West	145	Constructing sidewalk would likely require short retaining walls and reconstruction of steep driveways near a self-storage facility. A DART bus stop that does not have a hard surface waiting area is present near the intersection with Forest Ln. City of Garland reports sidewalk for this segment will be under construction in June 2020 as part of a separate project.	36	N/A
3B-FJ-SW-10	City of Garland	New Sidewalk	Edgewood Dr	S Barnes Dr & S Kirby St	South	220		8	N/A
3B-FJ-SW-11	City of Garland	New Sidewalk	S Barnes Dr	Edgewood Dr & Forest Ln	East	510	A worn path in the grass indicates existing pedestrian demand. A DART bus stop that has a bench but does not have a hard surface waiting area is present near the intersection with Forest Ln. Damage to tree roots near the bus stop would be likely if sidewalk is built. The parking lots for several light industrial businesses are paved to the back of curb, and would need to be re-designed to make way for sidewalk.	36	N/A
3B-FJ-SW-12	City of Garland	New Sidewalk	S Kirby St	Edgewood Dr & Forest Ln	West	1460	South of Benton St, a worn path in the grass indicates existing pedestrian demand. One business lot has paved asphalt parking to the back of curb. Short- to medium-height retaining walls will be needed to level the narrow, sloped area between the curb and parking lots at a higher elevation. Utility poles will need to be adjusted, and business landscaping would be removed. Utility manholes and above-ground utility boxes would need to be adjusted or relocated.	33	\$236,100



Forest Jupiter Station

Opinion of Probable Constr. Cost = \$2,599,700

Sidewalk & Shared Use Path Segments

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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-SW-13	City of Garland	New Sidewalk	Edgewood Dr	S Kirby St & East Study Boundary	South	595	Manholes, underground utility boxes, and a fire hydrant may need to be adjusted to construct sidewalk. Removal of a few trees or root damage to others may also occur if building sidewalk.	13	N/A
3B-FJ-SW-14	City of Garland	New Sidewalk	S Kirby St	Edgewood Dr & Benton St	East	635	Manholes and underground utility boxes may need to be adjusted to construct sidewalk. Some business landscaping would need to be removed. A small parking lot for a church includes parking spaces at the back of curb blocking the path of potential future sidewalk. The parking area would need to be redesigned and four spaces likely eliminated.	21	\$158,200
3B-FJ-SW-15	City of Garland	New Sidewalk	Benton St	S Kirby St & East Terminus	North	640	Parking lots for light industrial businesses are paved to the back of curb, with frequent driveways. Parking areas would need to be re-designed to make way for sidewalk. Steep driveways, fencing, and/or utility poles may need to be adjusted to provide sidewalk.	20	N/A
3B-FJ-SW-16	City of Garland	New Sidewalk	S International Rd	North Study Boundary & Forest Ln	West	220	Manholes, underground utility boxes, and an above ground gas meter may need to be adjusted or relocated to construct sidewalk. A steep driveway may need to be reconstructed for a level sidewalk crossing. One parking space for the Travis Mitchell Auctions business nearest the street would need to be eliminated.	11	N/A
3B-FJ-SW-17	City of Garland	New Sidewalk	Benton St	S Kirby St & East Terminus	South	405	Parking lots for light industrial businesses are paved to the back of curb, with frequent driveways. Parking areas would need to be re-designed to make way for sidewalk. Fencing and trash dumpsters would need to be removed to provide sidewalk.	19	N/A
3B-FJ-SW-18	City of Garland	New Sidewalk	S Kirby St	Benton St & Forest Ln	East	250	Business landscaping and a few trees would need to be removed or incur root damage if constructing sidewalk. Utility poles also may need to be relocated, particularly if some of the trees are to be saved.	29	\$119,800
3B-FJ-SW-19	City of Garland	New Sidewalk	S International Rd	DART Tracks & Forest Ln	West	280		17	N/A
3B-FJ-SW-20	City of Garland	New Sidewalk	Forest Ln	S Kirby St & DART Tracks	North	105	Correct trip hazard caused by settling of ramp at driveway.	32	\$8,300
3B-FJ-SW-21	City of Garland	New Sidewalk	S International Rd	North Study Boundary & Forest Ln	East	80	The parking lots for light industrial businesses are paved to the back of curb, and would need to be re-designed to make way for sidewalk.	11	N/A
3B-FJ-SW-22	City of Garland	New Sidewalk	S International Rd	North Study Boundary & Forest Ln	East	125	Two utility poles, one of them a large pole for high-voltage overhead electric, block the way for sidewalk in a narrow, sloped space between the roadway curb and adjacent business parking lot. Retaining walls, adjustment of the railing surrounding the adjacent business and a sidewalk easement would all be required to bypass the large pole.	14	N/A
3B-FJ-SW-23	City of Garland	New Sidewalk	S International Rd	DART Tracks & Forest Ln	East	300	Easement may be needed for new sidewalk to bypass large poles for high-voltage overhead electric power. Some fill dirt will be needed to build level sidewalk over ditch near DART track crossing.	17	N/A



Forest Jupiter Station

Opinion of Probable Constr. Cost = \$2,599,700

Sidewalk & Shared Use Path Segments

Improvement Code Legend: ID: 1A-PR-SW-01
 1A ← Station Number SW ← Sidewalk (or CW=Crosswalk,
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 (matches 1 on Map) GR=Gap to Remain)

North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-SW-24	City of Garland	New Sidewalk	Forest Ln	S International Rd & East Study Boundary	North	30	Correct trip hazard caused by settling of sidewalk near telephone manhole.	12	N/A
3B-FJ-RP-25	City of Garland	Repair	Cherry Hill Ln	West Study Boundary & S Jupiter Rd	North	50	Correct trip hazards caused by sidewalk settlement or tree root upheaval.	13	N/A
3B-FJ-RP-26	City of Garland	Repair	Russwin Dr	Norma Dr & S Jupiter Rd	South	15	Correct signifiant trip hazard caused by tree root upheaval.	12	N/A
3B-FJ-RP-27	City of Garland	Repair	Glacier Ln	Norma Dr & S Jupiter Rd	North	55	Correct trip hazards caused by sidewalk settlement or upheaval.	17	N/A
3B-FJ-SW-28	City of Garland	New Sidewalk	Forest Ln	West Study Boundary & S Forest Crest Dr	North	30	Correct trip hazard caused by failing utility trench repair of sidewalk.	10	N/A
3B-FJ-SW-29	City of Garland	New Sidewalk	S Forest Crest Dr	North Study Boundary & Forest Ln	West	160	A business trash dumpster would need to be relocated to make way for sidewalk. Some steep driveways may need to be reconstructed.	15	N/A
3B-FJ-SW-30	City of Garland	New Sidewalk	S Forest Crest Dr	North Study Boundary & Forest Ln	East	95		12	N/A
3B-FJ-SW-31	City of Garland	New Sidewalk	Forest Center Plz	Forest Ln & DART Tracks	West	200	Adjust gate in chain link business fence so it does not block sidewalk when open. Manholes and underground utility boxes would need to be adjusted near south end of street to construct sidewalk.	16	N/A
3B-FJ-SW-32	City of Garland	New Sidewalk	Forest Center Plz	Forest Ln & DART Tracks	East	400	Manholes and underground utility boxes would need to be adjusted to construct sidewalk. A concrete open channel drainage trench from an adjacent parking area to the street would need to be modified also.	17	N/A
3B-FJ-SW-35	City of Garland	New Sidewalk	S Jupiter Rd	Forest Ln & Miller Park Dr	East	840	A worn path in the grass indicates existing pedestrian demand. Sidewalk crossing of DART tracks may involve additional expense. A DART bus stop that does not have a hard surface waiting area is present near the railroad crossing. Constructing sidewalk in the narrow grass strip between the curb and a business parking lot may require adjustment to a railing at the edge of the lot. A short retaining wall and pedestrian railing would likely be needed to level the way for sidewalk near the north end of the same business.	43	\$114,700
3B-FJ-SW-40	City of Garland	New Sidewalk	DART Driveway	DART Platform & Forest Ln	South	420	Add new sidewalk on southeast side of DART driveway where a worn path in the grass indicates existing pedestrian demand. See station improvement 3B-FJ-ST-13 for more information and cost details.	49	N/A
3B-FJ-SW-41	City of Garland	New Sidewalk	S International Rd	Railroad Tracks & Miller Park N	West	365	Slopes would require short retaining walls to build sidewalks. Adjacency to several trees may cause significant root damage. Manholes and other underground utility boxes would need to be adjusted, and the presence of utility poles could also complicate the design or cause the need for relocations. A sidewalk crossing of a railroad spur would involve additional expense.	24	\$225,100
3B-FJ-SW-42	City of Garland	New Sidewalk	S International Rd	Forest Ln & Railroad Tracks	West	520	Near the intersection with Forest Lane, a short open-channel drainage culvert would need to be modified.	22	N/A



Forest Jupiter Station

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Sidewalk & Shared Use Path Segments

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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-SW-43	City of Garland	New Sidewalk	S Jupiter Rd	Forest Ln & Miller Park Dr	West	635	A worn path in the grass indicates existing pedestrian demand. Sidewalk crossing of DART tracks may involve additional expense. A DART bus stop that does not have a hard surface waiting area is present near the railroad crossing. Sidewalk construction would require removal of a small tree, adjustments to drainage, and modification of utility pole guy wires near the railroad crossing. It will also require bridging over a concrete open channel drainage trench from an adjacent parking area to the street. Manholes and underground utility boxes would also need to be adjusted.	29	\$133,000
3B-FJ-SW-44	City of Garland	New Sidewalk	Miller Park Dr	West Study Boundary & S Jupiter Rd	North	750	Business parking is paved to the back of curb on adjacent parcels, and landscaping occupies other areas immediately behind the curb. An above-ground electric utility box also blocks the way of future sidewalk near the intersection with Jupiter Rd. To build sidewalk, either parking would need to be reconfigured, or a road diet implemented to narrow the street from its existing width of about 34 feet, which only serves one lane in each direction and no need for on-street parking. West of the drainage culvert at the bend in the road, the open channel drainage and grate inlet adjacent to the roadway would need to be modified with or without a road diet solution.	22	\$74,600
3B-FJ-SW-45	City of Garland	New Sidewalk	Miller Park N	S Jupiter Rd & Miller Park S	North	635	Some trees may experience minor root damage depending on alignment of new sidewalk.	26	\$37,300
3B-FJ-SW-46	City of Garland	New Sidewalk	Miller Park N	Miller Park Dr & S International Rd	North	1820	A bush would need to be removed near the west end of the block, some tree roots may be impacted, and some manholes and underground utility boxes may need to be adjusted, but generally enough clear space is likely available to route sidewalk around such obstructions. Near the intersection with International Rd, a short retaining wall may be needed due to slopes.	29	\$313,800
3B-FJ-SW-48	City of Garland	New Sidewalk	Miller Park Dr	Miller Park N & Miller Park S	West	45	Add signed and marked crosswalks across each leg of the Miller Park Drive roundabout. Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.	25	\$11,000
3B-FJ-SW-49	City of Garland	New Sidewalk	Miller Park Dr	Miller Park N	North	70	Add signed and marked crosswalks across each leg of the Miller Park Drive roundabout. Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.	25	\$11,300
3B-FJ-SW-51	City of Garland	New Sidewalk	Miller Park Dr	Miller Park S	South	60	Add signed and marked crosswalks across each leg of the Miller Park Drive roundabout. Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.	23	\$10,700



Forest Jupiter Station

Opinion of Probable Constr. Cost = \$2,599,700

Sidewalk & Shared Use Path Segments

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 (matches 1 on Map) GR=Gap to Remain)

North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-SW-53	City of Garland	New Sidewalk	Miller Park N/ Miller Park S	Miller Park N & Miller Park S	East	730	Sidewalk construction may cause some tree roots to be impacted. Some manholes, fire hydrants, and above-ground and underground utility boxes may need to be adjusted, but generally enough clear space is likely available to route sidewalk around such obstructions. A short retaining wall may be needed due to slope in front of one business. At the east end of the block near the roundabout, two above-ground electric utility boxes located near a cluster of trees and bushes may together impede construction of new sidewalk. Removal of some bushes and/or trees would likely be the most economical alternative.	18	N/A
3B-FJ-SW-54	City of Garland	New Sidewalk	Miller Park N	Miller Park Dr & S International Rd	South	1580	Sidewalk construction may cause some tree roots to be impacted. Some manholes, fire hydrants, and above-ground and underground utility boxes may need to be adjusted, but generally enough clear space is likely available to route sidewalk around such obstructions. A short retaining wall may be needed due to slope in front of one business. At the east end of the block near the roundabout, two above-ground electric utility boxes located near a cluster of trees and bushes may together impede construction of new sidewalk. Removal of some bushes and/or trees would likely be the most economical alternative.	28	\$184,300
3B-FJ-SW-55	City of Garland	New Sidewalk	S International Rd	Miller Park N & Miller Park S	West	780	Slopes will require that short- to medium-height retaining walls be constructed near the north end of this block. Significant root damage is likely to result for several trees. Underground utility boxes will need to be adjusted.	20	N/A
3B-FJ-SW-56	City of Garland	New Sidewalk	Miller Park S	Miller Park Dr & S International Rd	North	1490	Some manholes, fire hydrants, and underground utility boxes may need to be adjusted to build sidewalk, and removal of a small amount of business landscaping would be required. Some tree roots may be damaged depending on the alignment for sidewalk as designed to minimize other impacts.	21	\$416,300
3B-FJ-SW-57	City of Garland	New Sidewalk	S International Rd	Railroad Tracks & Miller Park N	East	330	A sidewalk crossing of a railroad spur would involve additional expense, and some tree root damage would likely occur.	12	N/A
3B-FJ-SW-58	City of Garland	New Sidewalk	Miller Park N	S International Rd & East Study Boundary	North	720	Several trees would likely need to be removed to construct sidewalk, while others would likely suffer root damage. A segment with slopes would probably require short retaining walls. Some manholes, fire hydrants, and underground utility boxes will need to be adjusted.	11	N/A
3B-FJ-SW-59	City of Garland	New Sidewalk	Miller Park N	S International Rd & East Study Boundary	South	765	Some trees may experience minor root damage depending on alignment of new sidewalk, but sufficient space is available that most if not all trees and utilities should be avoidable.	16	N/A
3B-FJ-SW-60	City of Garland	New Sidewalk	S International Rd	Miller Park N & Miller Park S	East	820	Root damage to a few trees may occur when constructing sidewalk.	18	N/A
3B-FJ-SW-61	City of Garland	New Sidewalk	S International Rd	Miller Park N & South Study Boundary	East	45	Fill dirt likely needed to create level path for future sidewalk on slope. Some underground utility boxes and manholes will likely need to be adjusted.	14	N/A



Forest Jupiter Station

Opinion of Probable Constr. Cost = \$2,599,700

Sidewalk & Shared Use Path Segments

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North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-SW-62	City of Garland	New Sidewalk	S International Rd	Miller Park N & South Study Boundary	East	420	Fill dirt likely needed to create level path for future sidewalk on slope. Some underground utility boxes and manholes will likely need to be adjusted.	12	N/A
3B-FJ-SW-63	City of Garland	New Sidewalk	Miller Park Dr	West Study Boundary & S Jupiter Rd	South	1021	Business parking is paved to the back of curb on adjacent parcels. To build sidewalk, either parking would need to be reconfigured, or a road diet implemented to narrow the street from its existing width of about 34 feet, which only serves one lane in each direction and no need for on-street parking.	23	\$72,300
3B-FJ-SW-64	City of Garland	New Sidewalk	S Jupiter Rd	Miller Park Dr & Marquis Dr	West	865	Some manholes, utility pole guy wires, and underground utility boxes may need to be adjusted to build sidewalk, and some short retaining walls may be needed. Steep driveways may need to be reconstructed or business parking re-designed so that sidewalks can bypass the existing driveways. Some tree roots may be damaged depending on the alignment for sidewalk as designed to minimize other impacts.	26	\$169,900
3B-FJ-SW-65	City of Garland	New Sidewalk	Marquis Dr	West Study Boundary & S Jupiter Rd	North	235		9	N/A
3B-FJ-SW-66	City of Garland	New Sidewalk	Miller Park S	S Jupiter Rd & Miller Park S	South	710	An easement may be needed for sidewalk to bypass a large above-ground gas meter near the east end of the block.	23	\$64,700
3B-FJ-SW-67	City of Garland	New Sidewalk	Miller Park S	Miller Park Dr & S International Rd	South	775	Some manholes, fire hydrants, and underground utility boxes will need to be adjusted to build sidewalk. Short retaining walls will be needed at some locations. Some tree roots will likely be damaged as a result.	19	N/A
3B-FJ-SW-68	City of Garland	New Sidewalk	S Jupiter Rd	Miller Park Dr & Marquis Dr	East	735	A worn path in the grass indicates existing pedestrian demand. A DART bus stop that does not have a hard surface waiting area is present near the intersection with Miller Park Dr. Some manholes, fire hydrants, and underground utility boxes may need to be adjusted to build sidewalk, and some short retaining walls may be needed. Some tree roots may be damaged depending on the alignment for sidewalk as designed to minimize other impacts.	25	\$168,600
3B-FJ-SW-69	City of Garland	New Sidewalk	S International Rd	Miller Park S & South Study Boundary	West	520	A large above-ground electric utility box near the intersection with Miller Park Rd may need to be relocated to avoid the need to construct a retaining wall and cause significant root damage to an adjacent tree. Other retaining walls and adjustment of a fire hydrant are also certain or likely to be needed.	6	N/A
3B-FJ-SW-70	City of Garland	New Sidewalk	Marquis Dr	S Jupiter Rd & East Study Boundary	North	1745	Utility poles present but likely avoidable when constructing new sidewalk. A steep driveway may need to be partially reconstructed. Near Southeast Study Boundary, silt fence has been placed around a site, indicating upcoming construction and an opportunity to fill part of the sidewalk gap.	11	N/A
3B-FJ-SW-71	City of Garland	New Sidewalk	Marquis Dr	West Study Boundary & S Jupiter Rd	South	145		8	N/A



Forest Jupiter Station

Opinion of Probable Constr. Cost = \$2,599,700

Sidewalk & Shared Use Path Segments

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North Central Texas Council of Governments
 DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-SW-72	City of Garland	New Sidewalk	S Jupiter Rd	Marquis Dr & South Study Boundary	West	95		10	N/A
3B-FJ-SW-73	City of Garland	New Sidewalk	Marquis Dr	S Jupiter Rd & East Study Boundary	South	1005	Utility poles and/or their guy wires may need to be relocated to make space for sidewalk in some places. Short- to medium height retaining walls may be needed elsewhere on narrow sloped spaces between the street and an elevated parking lot above. An open channel drainage culvert will need to be reconstructed. Two trees will likely need to be removed.	7	N/A

Opinion of Probable Cost - City of Garland Subtotal..... \$2,530,000

3B-FJ-SP-33	DART	Shared Use Path	DART Tracks	West Study Boundary & S Jupiter Rd	North	1525	Construct local shared use-path.	12	N/A
3B-FJ-RP-36	DART	Repair	DART Driveway	Forest Ln & DART Tracks	West	375	Existing sidewalk along the DART driveway is only 3 ft wide, so it should be removed and replaced with minimum 4 ft (preferably 5 ft) wide sidewalk to be functional. See station improvement 3B-FJ-ST-02 for more information and cost details.	31	N/A
3B-FJ-SP-38	DART	Shared Use Path	DART Tracks	S Jupiter Rd & DART Station	North	855	Build new local shared-use path along rail alignment for more direct access to and from Jupiter Road to the south. Fencing, lighting, and security cameras may be needed where the path alignment is obscured from view under the rail bridge and immediately south of the adjacent building. See station improvement 3B-FJ-ST-14.	41	\$69,700
3B-FJ-SW-39	DART	New Sidewalk	DART Driveway	Forest Ln & DART Tracks	East	430	Add new sidewalk on east side of DART driveway. See station improvement 3B-FJ-ST-03 for more information and cost details.	48	N/A

Opinion of Probable Cost - DART Subtotal..... \$69,700

Opinion of Probable Cost - Total for All Sidewalk Recommendations in Half Mile Area..... \$2,599,700



Forest Jupiter Station

Opinion of Probable Constr. Cost = \$421,200

Crosswalk Segments

Improvement Code Legend: ID: 1A-PR-SW-01
 1A ← Station Number SW ← Sidewalk (or CW=Crosswalk,
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North Central Texas Council of Governments

DART Red & Blue Line Corridors Last Mile Connections



ID	Owner	Improvement Type	Street Name	At/Between	Side of Street	Length (ft)	Notes	Priority Score	Opinion of Probable Cost
3B-FJ-CW-07	City of Garland	Upgrade Crosswalk	S Jupiter Rd	Edgewood Dr	South	115	Consider replacing the existing rapid rectangular flashing beacon (RRFB) system with a pedestrian hybrid beacon at this existing signed and marked crosswalk. RRFB's may not be sufficiently visible to drivers on six-lane, high-speed, high-volume streets such as Jupiter Rd.	11	N/A
3B-FJ-CW-34	City of Garland	New Crosswalk	S Jupiter Rd	Forest Ln & Dart Tracks	N/A	130	Add crosswalk markings, signing, and lighting. Construct full signal instead of RRFB or pedestrian hybrid beacon due to adjacency to railroad crossing gates and potential confusion with alternative meanings of flashing red lights. (DART line bridges over roadway, but parallel railroad tracks cross at grade). Need for improvement contingent on construction of local shared use-path.	24	\$297,500
3B-FJ-CW-47	City of Garland	New Crosswalk	Miller Park Dr	Miller Park N & Miller Park S	West	95	Add signed and marked crosswalks across each leg of the Miller Park Drive roundabout. Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.	26	\$41,900
3B-FJ-CW-50	City of Garland	New Crosswalk	Miller Park Dr	Miller Park N	North	75	Add signed and marked crosswalks across each leg of the Miller Park Drive roundabout. Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.	25	\$40,900
3B-FJ-CW-52	City of Garland	New Crosswalk	Miller Park Dr	Miller Park S	South	75	Add signed and marked crosswalks across each leg of the Miller Park Drive roundabout. Crosswalks should either be placed where existing streetlighting is present, or new streetlighting should be installed. Include sidewalk segments for crossing the wide splitter islands.	23	\$40,900

Opinion of Probable Cost - City of Garland Subtotal..... \$421,200

Opinion of Probable Cost - Total for All Crosswalk Recommendations in Half Mile Area..... \$421,200



APPENDIX K: Estimated Quantities & Opinions of Probable Construction Cost – Half-Mile Improvements



Downtown Garland Station

Improvement Code Legend: ID: 1A-PR-SW-01			
1A ← Station Number	SW ← Sidewalk (or CW=Crosswalk, VW=Veloweb, RP=Sidewalk Repair, GR=Gap to Remain)		
PR ← Station Abbreviation	01 ← Improvement Number (matches 1 on Map)		

OPCC 3A				3A-DG-SW-06		3A-DG-SW-08		3A-DG-SW-14		3A-DG-SW-16		3A-DG-SW-18		3A-DG-SW-19		3A-DG-SW-25		3A-DG-SW-28	
ENTITY	ITEM	UNIT	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST
DALLAS	SIDEWALK (6")	LF	\$42.00	1085	45570	590	\$24,780.00	767	\$32,214.00	645	\$27,090.00	570	\$23,940.00	275	\$11,550.00	535	\$22,470.00	493	\$20,706.00
DALLAS	SIDEWALK (10' PATH)	LF	\$70.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	REMOVE SIDEWALK	LF	\$20.00	282	\$5,640.00		\$0.00		\$0.00	120	\$2,400.00		\$0.00		\$0.00		\$0.00	33	\$660.00
DALLAS	RETAINING WALL (1')	LF	\$20.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	RETAINING WALL (2')	LF	\$40.00	10	\$400.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	168	\$6,720.00
DALLAS	RETAINING WALL (3')	LF	\$75.00		\$0.00		\$0.00	155	\$11,625.00	232	\$17,400.00		\$0.00		\$0.00		\$0.00	168	\$12,600.00
DALLAS	RETAINING WALL (4')	LF	\$100.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	RETAINING WALL (5')	LF	\$125.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	CURB AND GUTTER	LF	\$39.72	15	\$595.80	22	\$873.84		\$0.00		\$0.00		\$0.00	20	\$794.40		\$0.00		\$0.00
DALLAS	DRAINAGE INLETS (MODIFY)	EA	\$3,518.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	RCP 18"	LF	\$58.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
TXDOT	PED RAMPS	EA	\$2,182.75	29	\$63,299.75	19	\$41,472.25	4	\$8,731.00	9	\$19,644.75	8	\$17,462.00	7	\$15,279.25	12	\$26,193.00	16	\$34,924.00
TXDOT	MEDIAN CUT (5')	LF	\$36.15		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
TXDOT	MEDIAN CUT (10' PATH)	LF	\$72.30		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	DRIVEWAY (RESIDENTIAL)	EA	\$3,972.22		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	DRIVEWAY (COMMERCIAL)	EA	\$8,444.44	13	\$109,777.72	9	\$75,999.96	1	\$8,444.44	4	\$33,777.76	3	\$25,333.32	3	\$25,333.32	4	\$33,777.76	6	\$50,666.64
N/A	UTILITY POLE RELOCATED	EA	\$22,000.00		\$0.00		\$0.00	1	\$22,000.00	1	\$22,000.00		\$0.00		\$0.00	2	\$44,000.00	3	\$66,000.00
DALLAS	MANHOLE ADJUSTMENT	EA	\$572.00		\$0.00	5	\$2,860.00	1	\$572.00	1	\$572.00	5	\$2,860.00	1	\$572.00	4	\$2,288.00	4	\$2,288.00
DALLAS	TREE RELOCATIONS	EA	\$2,768.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	TREE REMOVALS	EA	\$886.00		\$0.00	1	\$886.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	2	\$1,772.00
N/A	RAILROAD CROSSING	EA	\$120,000.00		\$0.00		\$0.00		\$0.00		\$0.00	1	\$120,000.00		\$0.00		\$0.00		\$0.00
DALLAS	TRAFFIC SIGNS RELOCATED	EA	\$223.00	1	\$223.00	2	\$446.00	2	\$446.00	2	\$446.00		\$0.00	3	\$669.00		\$0.00	1	\$223.00
TXDOT	TRAFFIC SIGNS NEW	EA	\$650.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	PAVEMENT MARKINGS (CROSSWALK)	LF	\$9.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	PAVEMENT MARKINGS (STOP BAR)	LF	\$8.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PAVEMENT MARKINGS (TRIANGLES)	EA	\$60.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
TXDOT	UTILITY BOX RELOCATION	EA	\$729.33	6	\$4,375.98		\$0.00		\$0.00	2	\$1,458.66	1	\$729.33	2	\$1,458.66	2	\$1,458.66		\$0.00
DALLAS	LIGHT POLE RELOCATION	EA	\$4,758.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
DALLAS	FENCE (REMOVE AND REPLACE)	LF	\$53.00		\$0.00		\$0.00		\$0.00	161.16	\$8,541.48		\$0.00		\$0.00		\$0.00	203	\$10,759.00
DALLAS	FIRE HYDRANT RELOCATED	EA	\$3,640.00		\$0.00	1	\$3,640.00		\$0.00	1	\$3,640.00		\$0.00		\$0.00	2	\$7,280.00	2	\$7,280.00
DALLAS	PARKING STOP	EA	\$97.00		\$0.00		\$0.00		\$0.00		\$0.00	4	\$388.00	8	\$776.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 2 LANE UNDIVIDED	EA	\$26,435.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 3 LANE UNDIVIDED	EA	\$27,182.50		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 4 LANE UNDIVIDED	EA	\$40,407.50		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 4 LANE DIVIDED	EA	\$41,183.75		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 6 LANE UNDIVIDED	EA	\$41,839.25		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 6 LANE DIVIDED	EA	\$42,615.50		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	RRFB (#7) - 3 LANES W/O MEDIAN	EA	\$24,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	RRFB (#7) - 1 SOLAR SIGN & PUSH BUTTON IN MEDIAN	EA	\$36,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	RRFB (#7) - 2 SOLAR SIGNS & PUSHBUTTON IN MEDIAN	EA	\$48,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED HYBRID BEACON (#9) - 3 LANE UNDIVIDED	EA	\$150,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED HYBRID BEACON (#9) - 4 LANE DIVIDED	EA	\$175,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED HYBRID BEACON (#9) - 6 LANE DIVIDED	EA	\$200,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 1 CW	EA	\$9,500		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 2 CW	EA	\$15,500		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 3 CW	EA	\$21,500		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 4 CW	EA	\$27,500		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED TRAFFIC SIGNAL (#11) - 3 LANE UNDIVIDED	EA	\$150,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED TRAFFIC SIGNAL (#11) - 4 LANE DIVIDED	EA	\$175,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
N/A	PED TRAFFIC SIGNAL (#11) - 6 LANE DIVIDED	EA	\$210,000		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00

CONSTRUCTION COST (WITHOUT SIGNALS)	TOTAL		\$229,882.25	\$150,958.05	\$84,032.44	\$136,970.65	\$190,712.65	\$56,432.63	\$137,467.42	\$214,598.64
CONSTRUCTION COST	TOTAL		\$229,882.25	\$150,958.05	\$84,032.44	\$136,970.65	\$190,712.65	\$56,432.63	\$137,467.42	\$214,598.64
ENGINEERING DESIGN	10%		\$22,988.23	\$15,095.81	\$8,403.24	\$13,697.07	\$19,071.27	\$5,643.26	\$13,746.74	\$21,459.86
GENERAL LANDSCAPING	4%		\$9,195.29	\$6,038.32	\$3,361.30	\$5,478.83	\$7,628.51	\$2,257.31	\$5,498.70	\$8,583.95
SWPPP	2%		\$4,597.65	\$3,019.16	\$1,680.65	\$2,739.41	\$3,814.25	\$1,128.65	\$2,749.35	\$4,291.97
TRAFFIC CONTROL	3%		\$6,896.47	\$4,528.74	\$2,520.97	\$4,109.12	\$5,721.38	\$1,692.98	\$4,124.02	\$6,437.96
MOBILIZATION	4%		\$10,022.87	\$6,581.77	\$3,663.81	\$5,971.92	\$8,315.07	\$2,460.46	\$5,993.58	\$9,356.50
FEDERAL CONTINGENCY	2%		\$5,671.65	\$3,724.44	\$2,073.25	\$3,379.34	\$4,705.26	\$1,392.31	\$3,391.60	\$5,294.58
OPCC	TOTAL		\$289,300.00	\$190,000.00	\$105,800.00	\$172,400.00	\$240,000.00	\$71,100.00	\$173,000.00	\$270,100.00
AVERAGE COST PER LF OF SIDEWALK			\$266.64 PER LF	\$322.03 PER LF	\$137.94 PER LF	\$267.29 PER LF	\$421.05 PER LF	\$258.55 PER LF	\$323.36 PER LF	\$547.87 PER LF
GRAND TOTAL FOR GROUP 3A		\$7,134,400.00	Min Cost/LF	\$60.58 PER LF	Max Cost/LF	\$2404.21 PER LF				

Downtown Garland Station

Improvement Code Legend; ID: 1A-PR-SW-01
 1A ← Station Number SW ← Sidewalk (or CW=Crosswalk, VW=Veloweb, RP=Sidewalk Repair, GR=Gap to Remain)
 PR ← Station Abbreviation 01 ← Improvement Number (matches 1 on Map)

OPCC 3A				3A-DG-CW-215		3A-DG-CW-216		3A-DG-CW-217	
ENTITY	ITEM	UNIT	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST
DALLAS	SIDEWALK (6")	LF	\$42.00		\$0.00		\$0.00		\$0.00
DALLAS	SIDEWALK (10' PATH)	LF	\$70.00		\$0.00		\$0.00		\$0.00
DALLAS	REMOVE SIDEWALK	LF	\$20.00		\$0.00		\$0.00		\$0.00
DALLAS	RETAINING WALL (1')	LF	\$20.00		\$0.00		\$0.00		\$0.00
DALLAS	RETAINING WALL (2')	LF	\$40.00		\$0.00		\$0.00		\$0.00
DALLAS	RETAINING WALL (3')	LF	\$75.00		\$0.00		\$0.00		\$0.00
DALLAS	RETAINING WALL (4')	LF	\$100.00		\$0.00		\$0.00		\$0.00
DALLAS	RETAINING WALL (5')	LF	\$125.00		\$0.00		\$0.00		\$0.00
DALLAS	CURB AND GUTTER	LF	\$39.72		\$0.00		\$0.00		\$0.00
DALLAS	DRAINAGE INLETS (MODIFY)	EA	\$3,518.00		\$0.00		\$0.00		\$0.00
DALLAS	RCP 18"	LF	\$58.00		\$0.00		\$0.00		\$0.00
TXDOT	PED RAMP	EA	\$2,182.75		\$0.00		\$0.00		\$0.00
TXDOT	MEDIAN CUT (5')	LF	\$36.15	6	\$216.90		\$0.00		\$0.00
TXDOT	MEDIAN CUT (10' PATH)	LF	\$72.30		\$0.00		\$0.00		\$0.00
DALLAS	DRIVEWAY (RESIDENTIAL)	EA	\$3,972.22		\$0.00		\$0.00		\$0.00
DALLAS	DRIVEWAY (COMMERCIAL)	EA	\$8,444.44		\$0.00		\$0.00		\$0.00
N/A	UTILITY POLE RELOCATED	EA	\$22,000.00		\$0.00		\$0.00		\$0.00
DALLAS	MANHOLE ADJUSTMENT	EA	\$572.00		\$0.00		\$0.00		\$0.00
DALLAS	TREE RELOCATIONS	EA	\$2,768.00		\$0.00		\$0.00		\$0.00
DALLAS	TREE REMOVALS	EA	\$886.00		\$0.00		\$0.00		\$0.00
N/A	RAILROAD CROSSING	EA	\$120,000.00		\$0.00		\$0.00		\$0.00
DALLAS	TRAFFIC SIGNS RELOCATED	EA	\$223.00	2	\$446.00	2	\$446.00	1	\$223.00
TXDOT	TRAFFIC SIGNS NEW	EA	\$650.00	2	\$1,300.00	4	\$2,600.00	2	\$1,300.00
DALLAS	PAVEMENT MARKINGS (CROSSWALK)	LF	\$9.00	50	\$450.00	100	\$900.00	100	\$900.00
DALLAS	PAVEMENT MARKINGS (STOP BAR)	LF	\$8.00	24	\$192.00		\$0.00	48	\$384.00
N/A	PAVEMENT MARKINGS (TRIANGLES)	EA	\$60.00		\$0.00	16	\$960.00		\$0.00
TXDOT	UTILITY BOX RELOCATION	EA	\$729.33		\$0.00		\$0.00		\$0.00
DALLAS	LIGHT POLE RELOCATION	EA	\$4,758.00		\$0.00		\$0.00		\$0.00
DALLAS	FENCE (REMOVE AND REPLACE)	LF	\$53.00		\$0.00		\$0.00		\$0.00
DALLAS	FIRE HYDRANT RELOCATED	EA	\$3,640.00		\$0.00		\$0.00		\$0.00
DALLAS	PARKING STOP	EA	\$97.00		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 2 LANE UNDIVIDED	EA	\$26,435.00	1	\$26,435.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 3 LANE UNDIVIDED	EA	\$27,182.50		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 4 LANE UNDIVIDED	EA	\$40,407.50		\$0.00		\$0.00	1	\$40,407.50
N/A	PED CROSSWALK LIGHTING (#1) - 4 LANE DIVIDED	EA	\$41,183.75		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 6 LANE UNDIVIDED	EA	\$41,839.25		\$0.00		\$0.00		\$0.00
N/A	PED CROSSWALK LIGHTING (#1) - 6 LANE DIVIDED	EA	\$42,615.50		\$0.00		\$0.00		\$0.00
N/A	RRFB (#7) - 3 LANES W/O MEDIAN	EA	\$24,000		\$0.00		\$0.00		\$0.00
N/A	RRFB (#7) - 1 SOLAR SIGN & PUSH BUTTON IN MEDIAN	EA	\$36,000		\$0.00		\$0.00		\$0.00
N/A	RRFB (#7) - 2 SOLAR SIGNS & PUSHBUTTON IN MEDIAN	EA	\$48,000		\$0.00		\$0.00		\$0.00
N/A	PED HYBRID BEACON (#9) - 3 LANE UNDIVIDED	EA	\$150,000		\$0.00		\$0.00		\$0.00
N/A	PED HYBRID BEACON (#9) - 4 LANE DIVIDED	EA	\$175,000		\$0.00		\$0.00		\$0.00
N/A	PED HYBRID BEACON (#9) - 6 LANE DIVIDED	EA	\$200,000		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 1 CW	EA	\$9,500		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 2 CW	EA	\$15,500		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 3 CW	EA	\$21,500		\$0.00		\$0.00		\$0.00
N/A	APS & COUNTDOWN PED SIGNAL (#10) - 4 CW	EA	\$27,500		\$0.00		\$0.00		\$0.00
N/A	PED TRAFFIC SIGNAL (#11) - 3 LANE UNDIVIDED	EA	\$150,000		\$0.00		\$0.00		\$0.00
N/A	PED TRAFFIC SIGNAL (#11) - 4 LANE DIVIDED	EA	\$175,000		\$0.00		\$0.00		\$0.00
N/A	PED TRAFFIC SIGNAL (#11) - 6 LANE DIVIDED	EA	\$210,000		\$0.00		\$0.00		\$0.00

CONSTRUCTION COST (WITHOUT SIGNALS)	TOTAL	\$2,604.90	\$4,906.00	\$2,807.00
CONSTRUCTION COST	TOTAL	\$29,039.90	\$4,906.00	\$43,214.50
ENGINEERING DESIGN	10%	\$2,903.99	\$490.60	\$4,321.45
GENERAL LANDSCAPING	4%	\$104.20	\$196.24	\$112.28
SWPPP	2%	\$52.10	\$98.12	\$56.14
TRAFFIC CONTROL	3%	\$78.15	\$147.18	\$84.21
MOBILIZATION	4%	\$113.57	\$213.90	\$122.39
FEDERAL CONTINGENCY	2%	\$645.84	\$121.04	\$958.22
OPCC	TOTAL	\$33,000.00	\$6,200.00	\$48,900.00
AVERAGE COST PER LF OF SIDEWALK				
GRAND TOTAL FOR GROUP 3A		\$7,134,400.00		

