



U.S. Department
of Transportation
**Federal Highway
Administration**

Texas Division

November 23, 2022

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In Reply Refer To:
HTA-TX

Mr. Mark Nelson
Director
Transportation and Mobility Department
City of Richardson
P.O. Box 830309
Richardson, TX 75083-0309

Dear Mr. Nelson:

Enclosed for your use is the W Spring Valley Road Pedestrian and Bicycle Road Safety Assessment conducted by the Federal Highway Administration with assistance from the North Central Texas Council of Governments and other local partners. The report includes several recommendations for improving pedestrian and bicyclist safety along the W Spring Valley Road corridor from Business Parkway/E Spring Valley Road to Coit Road. Thank you for the City's interest in improving pedestrian safety for the corridor, hosting the assessment, and providing the staff from multiple departments.

After the City of Richardson has completed its response to the recommendations, please provide me with a copy. If needed, my office is available to provide further technical assistance to help implement the recommendations listed in this report. We look forward to continuing our work with the City to advance pedestrian and bicyclist safety and achieve vision zero.

Sincerely,

Amelia (Millie) Hayes, P.E., PTOE, RSP₂₁
Safety and Traffic Operations Specialist

Enclosure

cc: Daniel Herrig, City of Richardson
Karla Windsor, NCTCOG
Kevin Kokes, NCTCOG



Road Safety Audit W Spring Valley Road Richardson, TX

NOVEMBER 23, 2022

Facilitated by: Amelia (Millie) Hayes, P.E., PTOE, RSP₂₁
FHWA Texas Division



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Background

In 2021 the North Central Texas Council of Governments (NCTCOG) and the Federal Highway Administration (FHWA), along with regional stakeholders, created a regional Pedestrian Safety Action Plan (PSAP) that was adopted by the Regional Transportation Council. Texas is a FHWA pedestrian Focus State and Dallas and Fort Worth were Focus Cities until late 2021. As part of the PSAP efforts to improve pedestrian safety throughout the NCTCOG region, pedestrian safety focused Road Safety Audits (RSA) were identified as a tool to help road owners identify possible improvements along priority corridors. FHWA agreed to facilitate several RSAs under the Focused Approach to Safety, including the West Spring Valley Road corridor in Richardson.

The FHWA Office of Safety established RSAs to improve the overall safety performance of roadways. An [RSA](#) is a comprehensive formal safety performance evaluation on an existing or future road segment or intersection performed by an independent and multidisciplinary team. RSAs are a low-cost proactive approach to safety that considers all road users and identifies opportunities to enhance safety and reduce the number and severity of crashes. A [pedestrian focused Road Safety Audit](#) is a specialized type of RSA intended to focus on pedestrian safety issues. In addition to pedestrians, the RSA documented here also considered safety and operational conditions for motor vehicles, bicyclists, and transit vehicles, and users.

The RSA was conducted from September 19 to 22, 2022.

Road Safety Audit Team

- City of Richardson:
 - Daniel Herrig
- City of Dallas:
 - Wayne Powell
- TxDOT:
 - Tim Wright
- FHWA:
 - Ed Burgos-Gomez

- Stephen Ratke
- Amelia (Millie) Hayes

RSA Location



Figure 1: W Spring Valley Road corridor location map of Richardson. (Source: City of Richardson)

The W Spring Valley Road corridor is located in Richardson, in the southern part of the City that borders the City of Dallas. The east end of the corridor is bordered by Business Parkway/E Spring Valley Road, and on the west end bordered by Coit Road. Uses along the street are mixed but mainly commercial, with multifamily residential uses in the middle and west end of the corridor limits. On the east end of the corridor is Dallas Area Rapid Transit (DART) Spring Valley Station along with office buildings and retail/commercial establishments through just west of US 75. The middle portion of the corridor transitions to multifamily housing, with single family housing on the neighboring streets off the corridor. The west end of the corridor contains retail/commercial on the south side and more multifamily housing and one retail center on the north side. The corridor generally has three lanes in each direction with a raised median.

Kickoff Meeting

The kickoff meeting for the RSA was held at the Richardson Public Library on Monday, September 19, 2022 at 9am. The meeting included staff from the City of Richardson Transportation and Mobility Department, Development Services Department, Richardson Police Department, and FHWA. The list of attendees are in Appendix A. FHWA began the meeting by providing an introduction to RSAs and explaining how the RSA would be conducted. FHWA presented on the pedestrian safety focused RSAs being led by NCTCOG. The City of Richardson presented information about the W Spring Valley corridor for the Team to consider. An open discussion with all attendees was then conducted, which gave the team more specifics to consider during the review.



Figure 2: Kickoff meeting attendees

Site Visits

The following site visits were conducted:

Monday, September 19:

- Corridor drive through
- Lunchtime observations from 12:45pm to 1:30pm
- Afternoon and school dismissal observations from 3pm to 4:15pm
- Corridor drive through for PM peak from 4:45pm to 5:15pm
- PM peak observations from 5:15pm to 6:15pm
- Night observations from 7:30pm to 8:45pm

Tuesday, September 20:

- AM peak (transit at DART station) observations from 7am to 7:30am
- School arrival from 7:30am to 8am
- AM peak from 8am to 9:15am
- Lunchtime observations from 12pm to 1pm
- Corridor drive through for PM peak from 3:45pm to 4pm
- PM peak (transit at DART station) observations from 4pm to 5pm

Wednesday, September 21:

- AM peak (transit at DART station) observations from 7am to 7:45am
- AM peak observations from 7:45am to 8:30am
- AM peak (transit at DART station) observations from 8:30am to 8:45am
- Meeting with DART Operations staff from 1:30pm to 2pm
- Meeting with City of Richardson Traffic Operations staff from 2pm to 2:30pm

Closeout Meeting

A closeout meeting was held at the Richardson Public Library on Thursday, September 22, 2022 at 1pm. The RSA team reviewed the observations made in the field and covered the most important recommendations for feedback from City representatives, along with information the team requested feedback on to develop the final report. During the closeout meeting, no major issues were identified by the City, and the results of the recommendations are detailed in this report.

The Positives

While the W Spring Valley Road corridor was identified for an RSA due to concerns about pedestrian and bicyclist safety, it is important to note that there are many positive aspects to the corridor that help it function well in providing an important transportation link in the City of Richardson. Few congestion or capacity issues were observed during peak periods. The RSA Team observed signal optimization, with good vehicle progression throughout the corridor.

Many pedestrians were observed using the corridor, particularly traveling between multifamily residential and retail/commercial buildings in the area. The City had installed midblock crosswalks in five locations with high pedestrian traffic, and the crossings were constructed as z-crossings which is a best-practice design. Various areas had wider sidewalks, especially on the north side near Coit Road, the DART station, and new bridges across Cottonwood Creek. Some locations had brick pavers between curb and sidewalk for visual contrast and an extra 2 feet of buffer. Some intersections near the DART station had leading pedestrian intervals (LPI), which is an [FHWA Proven Safety Countermeasure](#) and best practice.

Signs were visible and well maintained. During the night review, signs were very visible and retroreflective. Lighting of the roadway was good overall, particularly in areas with lighting installed recently, with minimal interference from trees and other plantings.

Primary Concerns

As identified in the selection of the RSA location and the kickoff meeting, the primary concern for this corridor is the occurrence of motor vehicle crashes with pedestrians and bicyclists. A map of pedestrian and bicyclist crashes in the area is shown below.

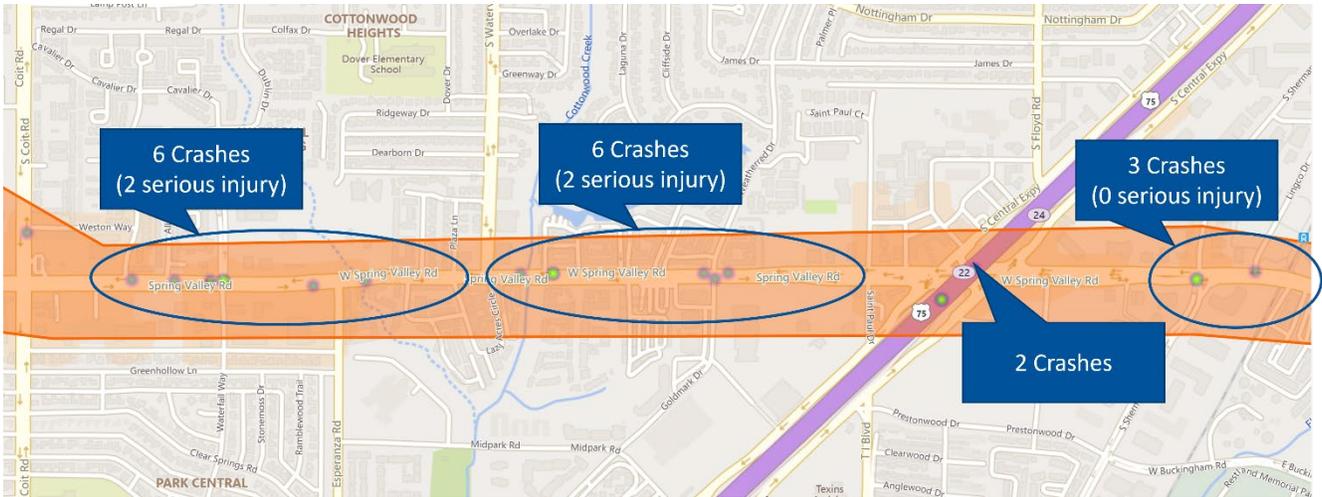


Figure 3: Pedestrian and Bicyclist crash map of the corridor. (Source: TxDOT Crash Record Information System, 2018-Sept 2022)

As shown in the map above, pedestrian crashes are overrepresented west of US 75. Most of the crashes are classified as non-intersection related. In the kickoff meeting and in subsequent interviews, the RSA Team heard feedback that many pedestrians and bicyclists cross away from marked crosswalks, particularly on the east and west ends of the Spring corridor. On the east end, pedestrians were observed crossing W Spring Valley from Central Trail underneath the DART rail overpass instead of using the intended diverted path crossing at the Business Parkway/E Spring Valley intersection. On the west end, pedestrians were observed crossing between the multifamily residential buildings and the retail establishments, typically between the two midblock crosswalks installed near that location.

During our field reviews, the RSA Team also observed pedestrians and bicyclists tending to avoid being on the sidewalk adjacent to the vehicle lane whenever possible. Pedestrians especially tended to walk through parking lots or grass of vacant lots, using the back-of-curb sidewalk only when they didn't have those other options.



Figure 4: Pedestrians avoiding back-of-curb sidewalk when possible

In some locations, marked crosswalks were not located in the desired paths of the pedestrian movements. Pedestrians were naturally taking certain paths between origin and destination, usually choosing the most direct path or crossing when and where gaps in traffic occurred.

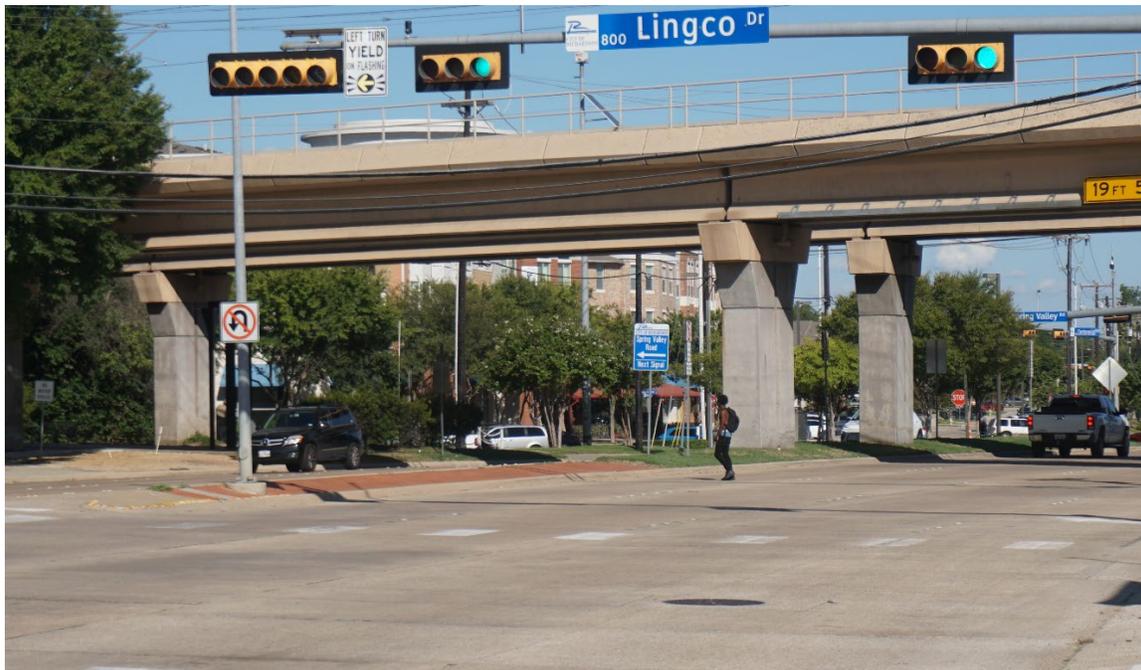


Figure 5: Some marked crosswalks were not within natural or expected paths

Figure 5 is one of several examples of a pedestrian crossing in the natural or expected path, with this crossing movement occurring where the northbound Central Trail had just ended.

During our field reviews, the RSA Team observed very little yielding to pedestrians or bicyclists by drivers. This observation was consistent for crossing movements within marked crosswalks and outside of crosswalks alike.



Figure 6: Few gaps in traffic, lack of drivers yielding, and long cycle lengths result in few pedestrians crossing at marked crosswalks

For those pedestrians and bicyclists observed crossing at signalized intersections, it was difficult to cross. Because there were permissive turns at the signals, there were few gaps in traffic for pedestrians to complete the crossing. The durations of the WALK indications were short relative to the cycle lengths, leading to expected delay for people walking (cycle length minus walk duration divided by 2) of over a minute.

For the pedestrian crossing at the signalized intersections, due to the lack of drivers yielding and needing to wait for over a minute for the WALK indication, walking extra distance to cross at a signal offers little benefit. For the pedestrian crossing at the marked midblock crossings, due to the non-direct path and needing to wait for gaps in traffic, those crossings also offer little benefit.

General Recommendations

The RSA team identified several recommendations for the entire corridor based on the primary concerns identified above and other observations identified during the RSA.

The recommendations below are presented in no order of priority but do note the relative expected timeline to implementation:

- Consider implementing speed management practices. In the kickoff meeting and in subsequent interviews, the RSA Team heard feedback that most drivers tend to exceed the posted speed of 35 miles per hour. To improve pedestrian and bicyclist safety, agencies need to be able to control speed. Drivers are much more likely to yield to pedestrians at lower speeds, and pedestrians can more easily judge gaps to cross at slower speeds. In the event of a crash, lower speeds decrease the likelihood of death or serious injury of all users, particularly pedestrians and bicyclists. The City should consider best practices below to manage speed.
 - Consider changes to lane configuration. Changing the cross-section could improve safety by reducing speeds and calming traffic. The City could consider changes like narrowing and/or removing vehicular lanes and reallocating space to wider sidewalks, bicycle facilities, and turn lanes. Timeline: Long-term.
 - Consider changes to signal progression. Signal progression speeds determine the pace of a street. Signal progression speeds should be set lower than the speed limit, promoting a safer street environment for all users by discouraging high speeds. Timing signal progressions to lower speeds also prevents drivers from being incentivized to speed to catch the progression if they fall slightly behind. Timeline: Short-term.
- Consider operational improvements for pedestrians at intersections. The City should consider the following traffic operations adjustments to increase likelihood of pedestrians crossing at signalized intersections and increase driver yielding. The subbullets below are options that the City could analyze and select as appropriate for each intersection on the corridor.

-
- Consider pedestrian phases parallel to Spring Valley on recall. At all intersections, pedestrian phases were pushbutton actuated. The City should consider configuring pedestrian phases on recall for all crosswalks parallel to Spring Valley Road, which would allow pedestrians to have a WALK indication during every cycle. Ideally, the City should extend the WALK and flashing DON'T WALK clearance to take the entire minimum green time of every phase for Spring Valley in the cycle. At all intersections, it appears that the vehicular green is long enough in most cycles that a pedestrian phase would fit without constraining the signal cycle length, so there would be no negative impacts to vehicular traffic. Timeline: Short-term.
 - Consider protected turn phasing. Permissive turns allow for more conflicts between pedestrians and opposing traffic, and adds to pedestrians feeling less safe. The City should analyze intersections to consider protected turn phasing to prevent conflicts between pedestrians and vehicles. The City could also consider protected-only turns in certain times of day, or on demand when a pedestrian pushbutton has been activated. Protected turn phasing and pedestrian phase recall should be considered at each leg of an intersection to balance safety and convenience for pedestrians alongside potential impacts to vehicular traffic. Figure 7 shows a common observation from the RSA Team filed visits: when pedestrians do choose to cross at signalized intersections within the corridor, the lack of adequate gaps made it difficult to cross. Timeline: Short-term.



Figure 7: Lack of gaps for pedestrians at signalized intersections

- Consider increased WALK time. At many intersections, pedestrian WALK indications were less than 7 seconds. The City should allow for WALK signals of at least 7 seconds per the Manual of Uniform Traffic Control Devices (MUTCD) Section 4E.10's Guidance paragraph. During our site visits, the pedestrian volumes and characteristics of the corridor did not seem appropriate for a less than 7 second Option.
- Consider Leading Pedestrian Intervals (LPIs). A LPI gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn right or left. LPIs increase the visibility of crossing pedestrians, reduce conflicts between pedestrians and vehicles, and increase the likelihood of motorists yielding to pedestrians. The City had recognized the safety benefits of LPIs during previous signal improvements near the DART station at Lingco Drive and elsewhere in the City. LPIs could be considered in other locations as well. If the LPI phase and walk phase entirely precedes the adjacent green through signal phase, accessible pedestrian signals may be required so that people who are blind or visually impaired

- are able to have an audio cue on when to start crossing. Timeline: Short-term, otherwise medium- to long-term if additional equipment is needed.
- Verify all detection/pushbuttons are operational. Some locations had pushbuttons that appeared to be non-operational. Timeline: Short-term.
- Consider crosswalk improvements at intersections. The City should consider the following improvements for pedestrian expectancy and accessibility.
 - Straighten crosswalks. Some intersections had crosswalks that changed directions mid-intersection.



Figure 8: Change in crosswalk direction delineated only with pavement marking at Esperanza Road (Google)

At some locations, there were misaligned crosswalks and ramps, including a change in direction crossing the median in multiple locations. Changes in direction delineated only in paint are not ADA compliant. Timeline: Short-term, otherwise medium-term if median changes are needed.

-
- Consider wider crosswalks. Some locations appeared to have crosswalk widths less than the 6-foot minimum. Other locations would benefit from even wider crosswalks that encompass more of the walking paths and approach pavement of the sidewalk. Timeline: Short-term.
 - Install marked crosswalks at some locations. Marked crosswalks were not provided in some locations. Esperanza Road and Waterview Drive had no marked crosswalks on the east side of the intersection; Waterview Drive was signed as No Pedestrian Crossing (Texas MUTCD R9-3). The RSA Team observed people crossing in all the locations without a marked crosswalk. Pedestrians have a reasonable expectation for traditional intersections with marked crosswalks across all legs. Removing a crosswalk because of vehicle conflicts should be the last resort that has been unable to be corrected through other countermeasures. Timeline: Medium-term.
 - Refresh pavement markings. In some locations, pavement markings were minimal or not visible, particularly at night. Refreshing the pavement markings, especially the longitudinal lines east of US 75 and at the merge location near Lingco Drive, would better inform drivers. Timeline: Short-term.
 - Consider additional improvements to midblock crosswalks. As of September 1, 2021, Texas law requires drivers to stop and yield for pedestrians and bicyclists within the crosswalk. Signage and pavement markings should be updated to reflect this change in law. Timeline: Short-term.
 - Consider standards for accessible detour paths for sidewalk closures. The RSA Team observed sidewalk closure and midblock crossing closure with no accessible path and no advance warning.



Figure 9: Closure of midblock crossing with no warning or accessible detour path

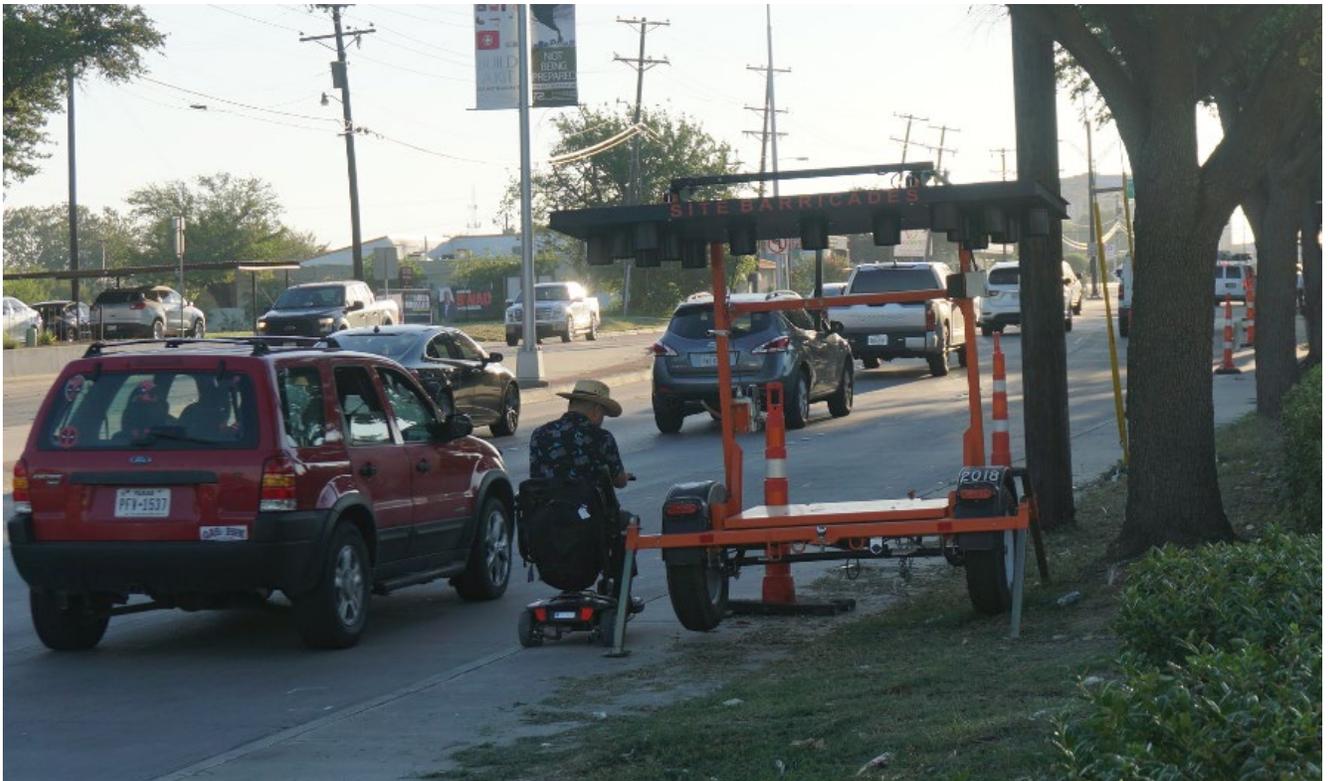


Figure 10: Closure of sidewalk with no warning or accessible detour path, located immediately adjacent to bus shelter

The RSA Team observed people trying to get around, including one user with a mobility assistance device which made it much more of a challenge. The City should investigate who is responsible for the construction work at these locations. The City should have standards for accessible detour paths for sidewalk closures. Sidewalk closures should be at least as accessible as they were prior to construction. Timeline: Short-term to provide continuous and accessible walking path, and medium-term for updating City standards for sidewalk closures.

- Consider redesign of sidewalks across driveways to encourage driver yielding to pedestrians. Throughout the corridor, the sidewalks ramp down to street level at driveways. This creates a “rollercoaster effect” for pedestrians. The design prioritizes vehicle movement and allows for turns at high speeds, which decreases likelihood of drivers yielding to pedestrians.

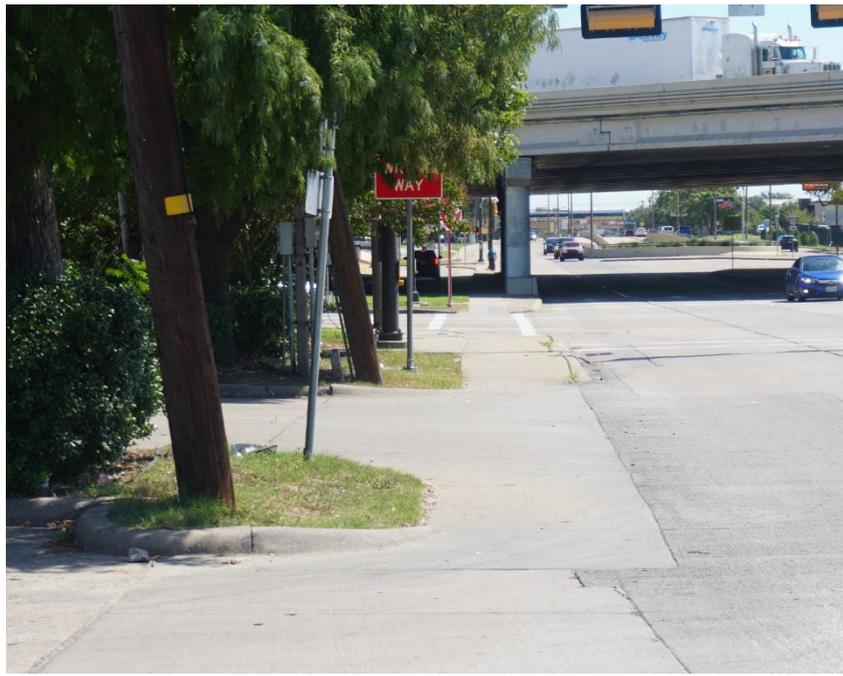


Figure 11: Ambiguous pavement area

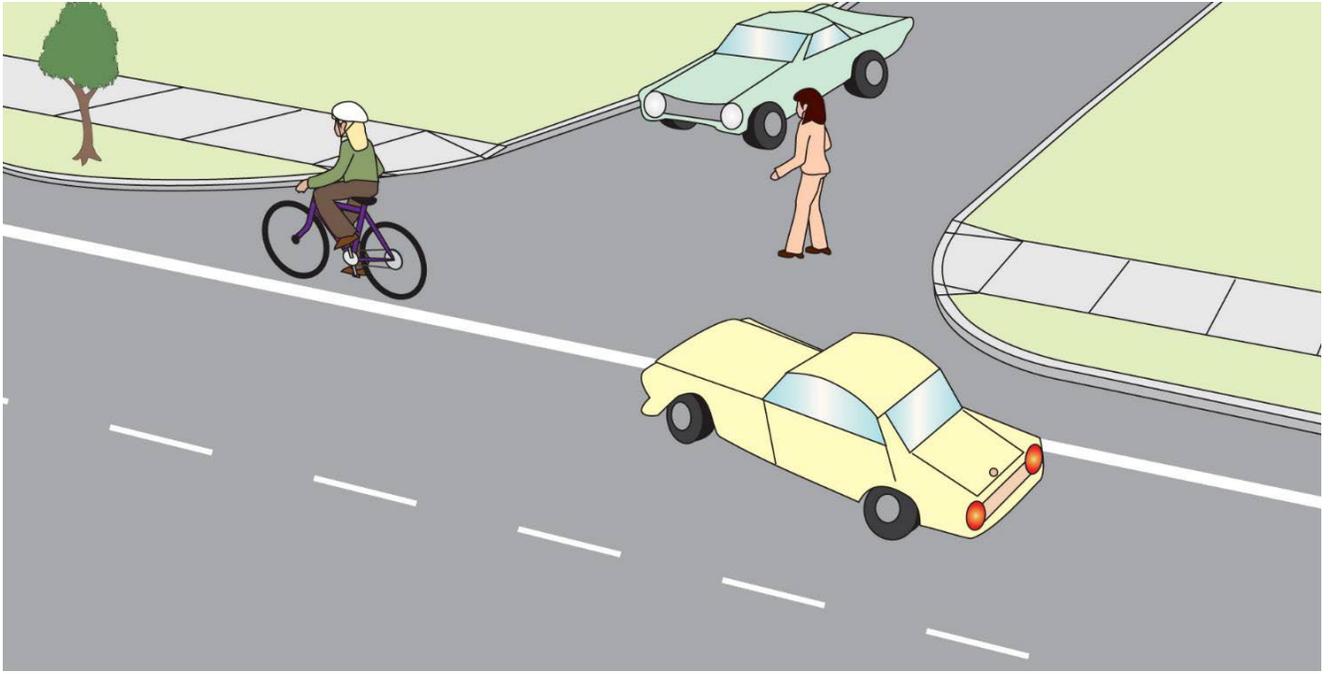


Figure 12: Driveways built like intersections encourage high-speed turns (Source: FHWA)

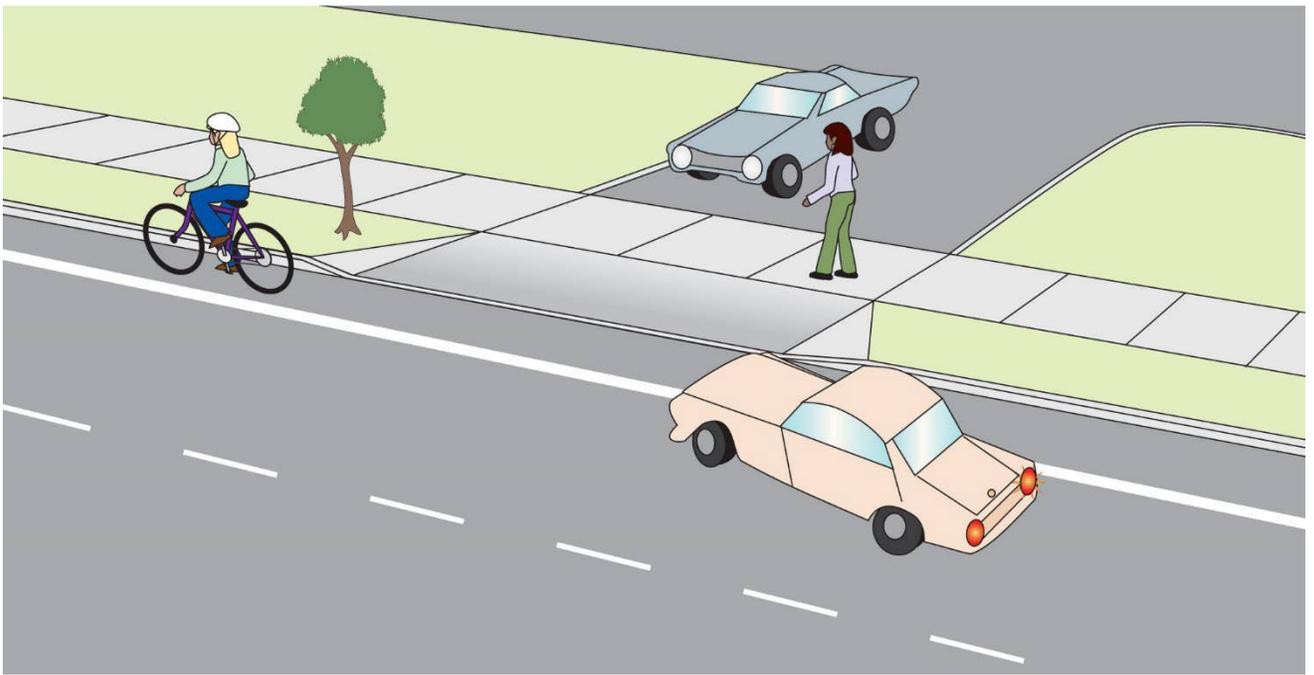


Figure 13: This design makes it clear to drivers that they are crossing a sidewalk and encourages low-speed turns (Source: FHWA)

In some locations near US 75, as shown in Figure 11, there were extended lengths where there is no curb separating the sidewalk from motorists. Timeline: Medium- to long-term.

-
- Verify lighting throughout corridor. There was very little lighting in certain areas. In particular, on the west end of the corridor there were roadway luminaries, but many were blocked by vegetation. Most of the corridor had no pedestrian-scale lighting. Some roadway lighting toward the middle of the corridor had been recently installed but was not operational due to collisions by vehicles. With many lights not being operational at the time of observation, the RSA Team cannot comment on the adequacy of the existing lighting in improving safety along this section. Once operational, evaluate to ensure proper lighting is provided. Timeline: Short-term.
 - Consider Intersection Lane Control signs and ensure consistency. Most intersections did not have Lane Control signs. Lane Control signs can be helpful for driver expectancy purposes, especially for dual left turns or other atypical configurations. Timeline: Short-term.
 - Upgrade accessibility to current standards. The corridor is primarily served by diagonal single curb ramp designed corners, while dual ramp directional designs are now preferred. Intersections east of Weathered Drive appeared particularly outdated. Additionally, the sidewalks should be a minimum of six feet wide, free of obstructions, with wider areas needed when businesses front the street closely. Some of the pushbuttons are not fully accessible, with locations that are out of the way, at inappropriate height, or lack a level landing area. Timeline: Medium- to long-term.

Location Specific Issues and Recommendations

Location: Coit Road to Waterfall Way

The RSA Team observed higher speeds as traffic transitioned from a smaller cross-section in the blocks just west of our RSA limits. Pedestrian activity was very high in this segment of the corridor and was consistent during the various times of our field

reviews. As discussed in the Primary Concerns section above, RSA Team observed pedestrians and bicyclists tending to walk through parking lots in this segment to avoid being on the sidewalk adjacent to the vehicle lane. On the east side of the intersection at Coit Road, DART bus shelters had a steady flow of passengers waiting for both eastbound and westbound buses during the various times of our field reviews.

- **Observation:** Midblock crosswalks do not align with desired crossing locations and were rarely used. As described in Primary Concerns section above, crosswalks did not appear to be within the natural or expected paths, and when crosswalks were used the RSA Team observed very little yielding to pedestrians or bicyclists by drivers. No drivers were observed yielding to, or stopping for, pedestrians in marked crosswalks. Few pedestrians or bicyclists were observed using the midblock crossings, likely due to high speeds of vehicles, few gaps in traffic, and driver yielding/stopping rates. **Recommendation:** Consider consolidating the two midblock crosswalks with one higher quality crossing, such as a Pedestrian Hybrid Beacon (PHB). The location should be one with high levels of current observed use. Timeline: Medium-term.
- **Observation:** Significant conflicts were observed at the driveway of Fiesta/Regency Drive. Conflicts were observed between pedestrians, bicyclists, drivers making left-turns into Fiesta, drivers making left-turns from Regency onto eastbound Spring Valley, and drivers making right-turns onto eastbound Spring Valley. Conflicts were especially prevalent during peak periods, particularly PM peak.



Figure 14: Conflicts at Fiesta/Regency Drive



Figure 15: Conflicts at Fiesta/Regency Drive

Recommendation: Consider driveway configuration changes (limit left turns or close driveway), consolidating midblock crosswalks with Pedestrian Hybrid Beacon (PHB), or consider signal if warrants are met. Timeline: Medium- to long-term.

- **Observation:** There is a need for improved pedestrian connections between sidewalk facilities and the commercial developments. Pedestrian and bicyclists who travel to the commercial buildings using the sidewalk have no way of entering the parking lots except by using the vehicular driveways, which creates conflicts. The RSA Team observed this throughout the corridor but it was especially prevalent in this location.



Figure 16: Pedestrian path from western midblock crosswalk/sidewalk into Fiesta is blocked

Figure 16 shows the western midblock crosswalk into Fiesta as blocked by sign and shrubs. The RSA Team interview with Fiesta indicated that they were unsure of the reason for the blockage. **Recommendation:** The City should coordinate with businesses to improve connections to the sidewalks. Timeline: Medium-term.

Location: Coit Road to Esperanza Road (extend trail)

At the RSA kickoff, the City discussed a desire for connecting the Preston Ridge Trail and the Cottonwood Trail partially along Spring Valley Road. With this in mind, the RSA Team developed separate observation and recommendation options for a more enhanced pedestrian and bicycle facility for the trail connection.

- **Observation:** On the City of Dallas side (west of Coit Road), there are two lanes in each direction, compared to the current three lanes in each direction on the City of Richardson side (east of Coit Road). **Recommendation:** Consider lane configuration changes to accommodate high quality trail connection for all ages and abilities. Reconfiguring the cross-section could provide the desired connection between Preston Ridge Trail and Cottonwood Creek Trail, on the north side of Spring Valley. Alternatively, on the south side of Spring Valley Road, additional right-of-way could be accommodated by utilizing the back row of parking from the commercial/retail development. Due to the electric transmission line, this easement or right-of-way acquisition may be easier than other locations since the businesses are already located further away from the road frontage. Timeline: Long-term.

Location: Esperanza Road

Esperanza Road creates a T-intersection with Spring Valley Road on the south side. Commercial/retail buildings are west of Esperanza Road, and multifamily residential is to the east. The RSA Team observed a steady flow of pedestrians crossing both Spring Valley Road and Esperanza Road, particularly at morning peak and Carolyn Bukhair Elementary School arrival and dismissal. Most school-bound pedestrians appeared to live in the multifamily housing complexes on the south side of Spring Valley Road between Esperanza Road and Waterview Drive. On the west side of the intersection, DART bus shelters had a steady flow of passengers waiting for both eastbound and westbound buses. Esperanza Road is the departure route for some northbound school buses. Private vehicles utilized the driveway onto Esperanza Road using the north entrance to drop off and pick up students in the mornings and afternoons. The afternoon periods featured limited number of additional conflicts from this demand,

but in the morning period the RSA Team observed several operational and safety concerns particularly for pedestrians crossing Esperanza Road just north of the school.

- **Observation:** Marked crosswalks were not provided for all movements. The east side of the intersection had no marked crosswalk, and the RSA Team observed people crossing in this location. Pedestrians, especially in a city near a school, have a reasonable expectation for traditional intersections with marked crosswalks across all legs. Removing a crosswalk because of vehicle conflicts should be the last resort that has been unable to be corrected through other countermeasures. **Recommendation:** Install marked crosswalk with associated ramps, pedestrian signal heads, and pushbuttons. Timeline: Medium-term.
- **Observation:** Traffic circulation around Carolyn Bukhair Elementary could be improved. Most students chose to walk through apartment parking lot instead of using the sidewalk along Esperanza Road.

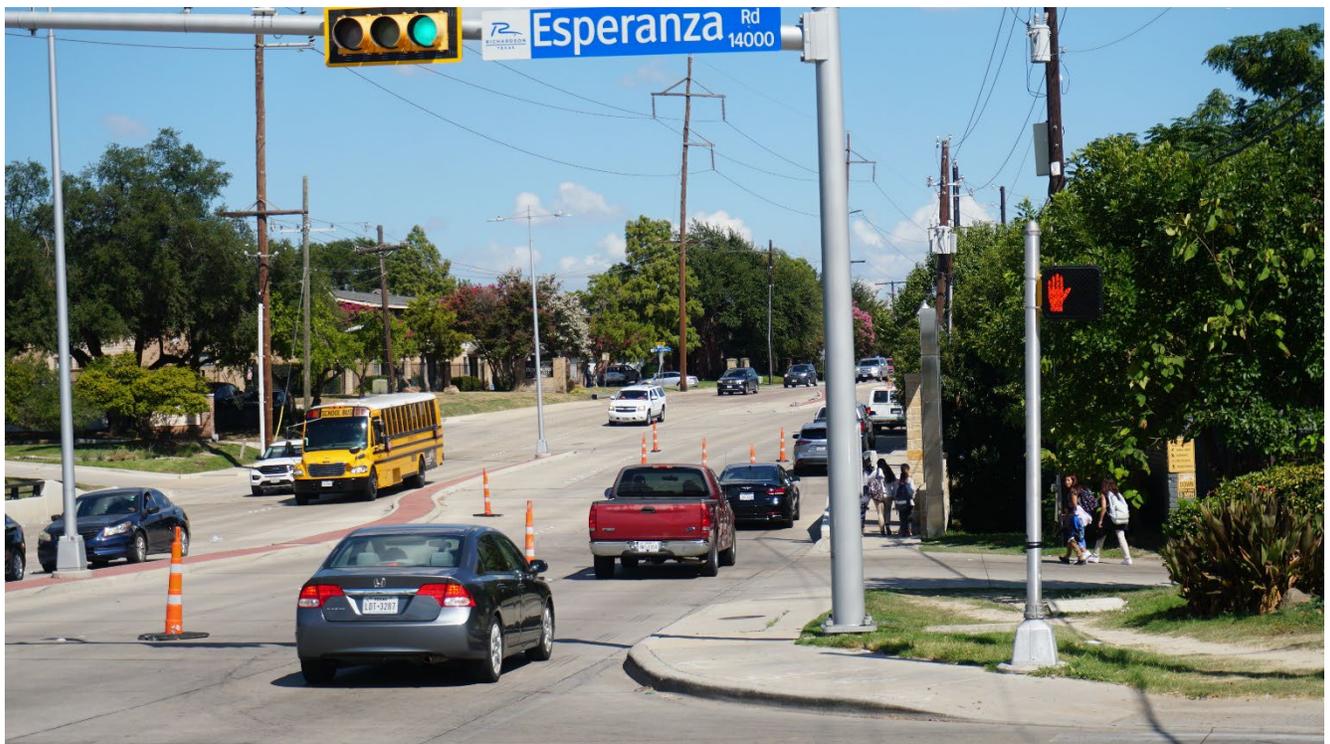


Figure 17: Walking path of students to Spring Valley Road

At both arrival and dismissal, many students and other pedestrians were observed crossing to and from the school on the north of the school at the

Cottonwood Creek Trail junction. City of Dallas school flashers were not operational. **Recommendation:** Consider coordinating with City of Dallas on school traffic circulation, including school flashers and possible marked crosswalk on the north side of the school property. Timeline: Short- to medium-term.

Location: Waterview Drive

Waterview Drive creates a T-intersection with Spring Valley Road on the north side but allows driveway access to multifamily housing on the south side. The RSA Team observed a steady flow of pedestrians crossing both Spring Valley Road and the driveway on the south side. DART bus stops had a somewhat steady flow of passengers waiting for both eastbound and westbound buses.

- **Observation:** Marked crosswalks were not provided for all movements. The east side of the intersection had no marked crosswalk, and the RSA Team observed people crossing in this location, particularly those traveling to eastbound and westbound bus stops.



Figure 18: Desired marked crosswalk location

Recommendation: Install marked crosswalk with associated ramps, pedestrian signal heads, and pushbuttons. Timeline: Medium-term.

- **Observation:** The south leg of intersection (across apartment driveway) is short and few pedestrians were observed waiting for a WALK indication.



Figure 19: Pedestrian signal head across driveway rests in DON'T WALK indication

Recommendation: This location resembles a driveway yet has a pedestrian signal head that rests in DON'T WALK indication and would benefit from pedestrian recall. Timeline: Short-term.

Location: Weatherred Drive/Goldmark Drive

The RSA Team observed higher speeds in this segment as traffic transitioned into and out of the tunnel. Weatherred Drive/Goldmark Drive provides the only full intersection for north-south traffic between Coit Road and US 75. Multifamily residential is to the north of Spring Valley Road, with single family residential in the blocks further north, and commercial/retail buildings are to the south. The RSA Team observed a steady flow of pedestrians crossing both Spring Valley Road and Weatherred/Goldmark. DART

bus shelters had a somewhat steady flow of passengers waiting for both eastbound and westbound buses.

- **Observation:** There is a dual left-turn lane for the movement for westbound Spring Valley Road to southbound Goldmark Drive. The dual left-turn seemed unnecessary during the various times of our field reviews. Large trucks tended to use both lanes, which caused conflicts. **Recommendation:** Consider reconfiguring lane assignments to remove the dual left-turn. If the dual left-turn is still warranted, consider adding an Intersection Lane Control sign. Timeline: Short-term.
- **Observation:** The RSA Team observed multiple conflicts of drivers entering and exiting the commercial development on the southwest quadrant of the intersection onto Goldmark Drive.

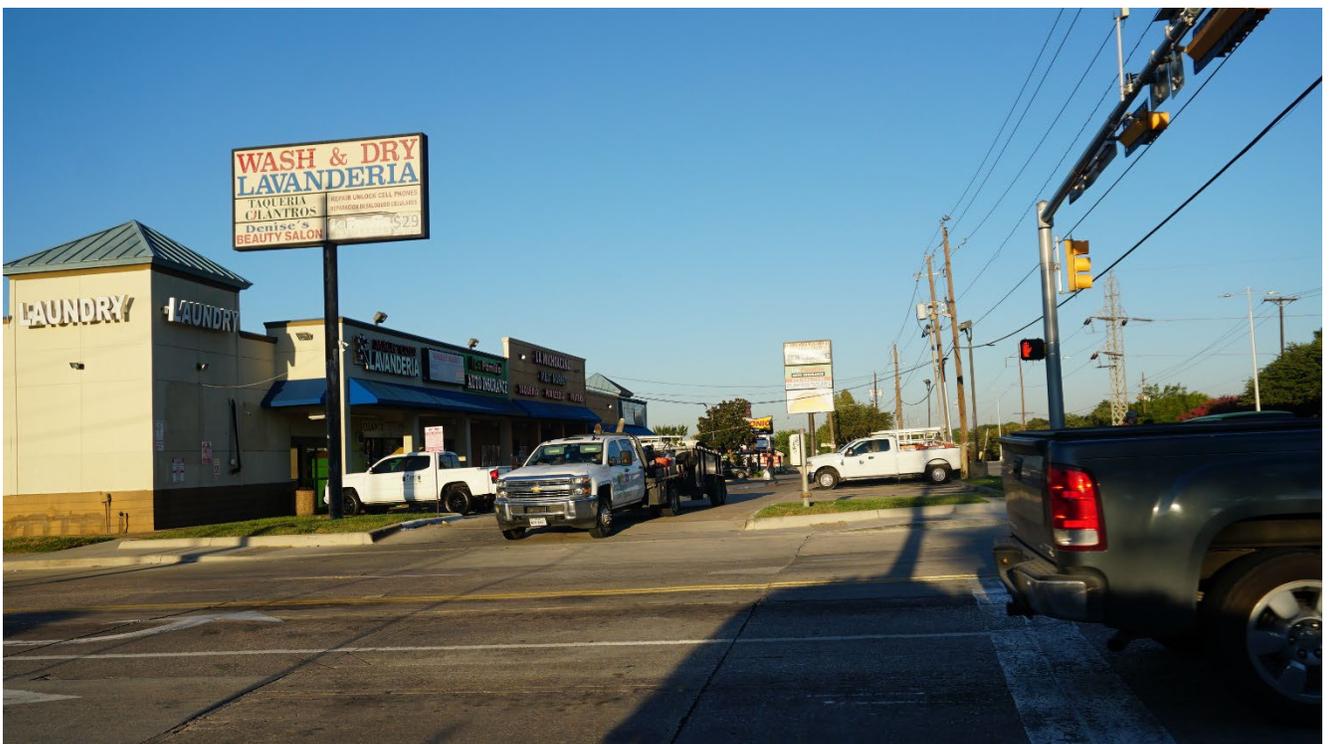


Figure 20: Conflicts at Goldmark Drive

Recommendation: Consider coordinating with the City of Dallas to work with the commercial development to potentially close the driveway. Timeline: Medium-term.

Location: Spring Valley Tunnel

The RSA Team observed higher speeds in this segment as drivers had two lanes in each direction to bypass the signalized intersection. The tunnel facilitates higher speeds which affects safety upstream and downstream of the tunnel, along with high speed freeway-like merges at the ramps to the US 75 frontage roads.

- **Observation:** The tunnel overhead approach signage is outdated, with smaller typeface. The RSA Team observed some last-moment weaving maneuvers that suggest more clear and understandable wording may be needed, and/or location adjustments may be helpful.



Figure 21: Eastbound overhead sign structure

Recommendation: Redesign tunnel approach signs to current freeway guide signing principles. In all of the overhead signs, there were individual signs for each lane; consolidation of the legend and lane arrows could accommodate larger typeface and would allow for less pieces of information for drivers to read and comprehend. Signage lighting should be considered since nighttime visibility was a challenge. The location of the first eastbound overhead sign structure might be reconsidered as it competes with the nearby midblock crosswalk for

driver attention, shown in Figure 21. The City might also consider pavement marking shields to supplement the overhead signs. Timeline: Medium- to long-term.

- **Observation:** Tunnel lighting did not appear to be working correctly. Not all lighting was operational for daytime or nighttime. Nighttime lighting seemed adequate but daytime lighting appeared to be insufficient. **Recommendation:** Verify lighting levels in the tunnel, particularly daytime versus nighttime levels. Timeline: Short-term.

Location: US 75

The intersection with US 75 is a large intersection with turn lanes at all approaches. US 75 is a TxDOT state highway and on the National Highway System. Both eastbound and westbound Spring Valley Road approaches have two through lanes in each direction, one right turn lane onto US 75 frontage road, and one U-turn lane. Both northbound and southbound US 75 approaches have two through lanes, one right turn lane, one left turn lane, and one option lane of through or left-turn lane. Vehicle speeds were higher through this segment, particularly for vehicles turning; through traffic for Spring Valley Road had typically chosen to bypass the signalized intersection using the tunnel. The skew angle of the intersection allows for higher speeds and longer crossings. While less busy with pedestrian crossings than other portions of the corridor, pedestrians are present and crossing this intersection.

- **Observation:** The RSA Team observed several pedestrian accessibility issues. Pedestrian head locations were not in direct view when crossing Spring Valley. Two pushbuttons locations were located very far away from the curb ramps. Errant rebar was observed protruding from a curb on the northeast side of the intersection. There were misaligned crosswalks crossing Spring Valley Road. Some pedestrian signal heads were missing some LED bulbs.



Figure 22: Some pushbuttons located far from curb ramps



Figure 23: Rebar obstruction on sidewalk/curb



Figure 24: Crosswalks were misaligned across Spring Valley Road

Recommendation: The City should improve pedestrian accessibility in this location by relocating pedestrian signal heads and pushbuttons, removing obstructions, and straightening crosswalks. Timeline: Short-term for rebar issue. Medium- to long-term for all others.

- **Observation:** At northeast and southwest corners, drivers turning right into the frontage road dedicated lanes turned at high speeds. Due to the high speeds and longer crossing length in these locations, the RSA Team observed pedestrians having difficulties in crossing. **Recommendation:** The City should consider raised crosswalks at these locations to slow turning vehicles. Raised crosswalks of even 2 to 3 inches in these locations could help control speed of turning movements and emphasizes the need to yield to people walking. Raised crosswalks have been successfully used in several locations in Austin, and are becoming a more regular treatment for speed management and pedestrian safety across the US



Figure 25: Design of northeast corner allows for high speed turns with reduced yielding to pedestrians



Figure 26: Example of a raised crosswalk on a turn lane joining an Interstate frontage road in Austin, TX ([Google StreetView](#))

During future improvement projects, the City could also consider [TxDOT's new standard](#) for right turn islands, which tightens the right turn and provides improved visibility for crossing pedestrians. The new standard also features

hatching and pavement markings for passenger vehicle paths, while overall curb return allows for truck off-tracking. Timeline: Medium-term.

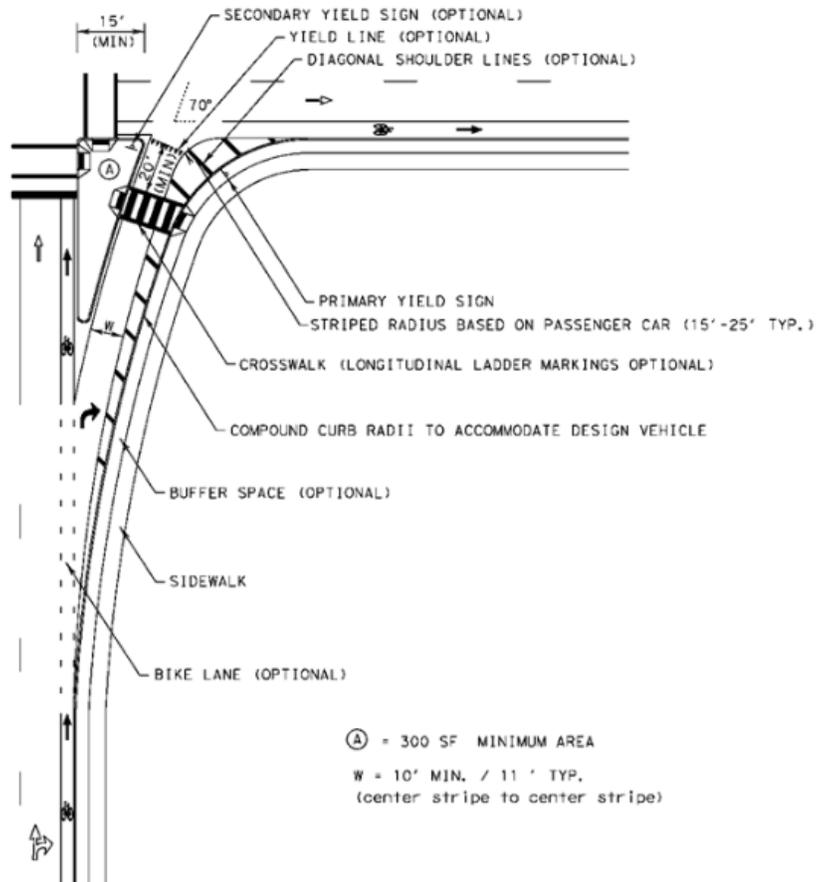


Figure 27: Right turn slip lane design (TxDOT)

- **Observation:** Sidewalks around several driveways were missing or ambiguous for extended segments.



Figure 28: Missing or ambiguous sidewalk

Recommendation: Sidewalks should be a minimum of six feet wide if directly behind back-of-curb, free of obstructions, and include a curb separation. As discussed in the General Recommendations above, sidewalks across driveways should be designed to encourage driver yielding to pedestrians. Timeline: Medium-term.

- **Observation:** At the southwest corner of the intersection, the RSA Team observed westbound drivers departing the lane when turning onto southbound US 75 frontage road. The curb appeared to have been impacted in this location.

Recommendation: Consider reflectors or other supplement to direct the west-to-south drivers around the median. Timeline: Short-term.

- **Observation:** All marked crosswalks at the intersection are the old standard of two transverse lines. **Recommendation:** The most current TxDOT standard for crosswalk pavement markings is the longitudinal crosswalk markings (continental style) which have higher visibility. During future projects (resurfacing or restriping), install high-visibility longitudinal crosswalk pavement markings, per [TxDOT traffic standard PM\(4\)-20](#) and City of Richardson Standard Detail T-5. Timeline: Short- to medium-term.

Location: Sherman Street to Business Parkway/E Spring Valley Road

The RSA Team observed higher speeds in this segment as traffic transitioned into and out of the tunnel. Some conflicts were observed with eastbound drivers made multiple lane changes to make left-turns at subsequent intersections. Pedestrian activity was consistently high during the various times of our field reviews, with many walking to or from the DART Station. The DART bus stop at Lingco Drive was especially used by alighting passengers.

- **Observation:** Pavement markings were minimal or not visible, particularly at night. **Recommendation:** Refresh pavement markings, especially the arrows at the eastbound merge location near Lingco Drive. Timeline: Short-term.
- **Observation:** The RSA Team observed many eastbound drivers making last-moment maneuvers at the lane drop and merge near Lingco. **Recommendation:** With the limited time allotted to the RSA, it was difficult for the RSA Team to ascertain whether there is an issue in this location. The City should evaluate crash data and conflicts for the eastbound merge at this location and consider any appropriate countermeasures. Timeline: Short-term.
- **Observation:** The sidewalk along the vacant lot of 111 Spring Valley Road (southeast quadrant of intersection at Sherman Street) has an indirect, meandering path. In the kickoff meeting, the City mentioned that the proposed mixed-use development is currently under review. **Recommendation:** If the developer plans to replace the sidewalk with their proposed plan, consider straightening sidewalk for usability and a more direct path. Timeline: Short-term.

Location: Central Trail and DART Station

The RSA Team observed consistent pedestrian and bicycle activity. Activity was particularly during morning and evening peaks and around school arrival and dismissal (many pedestrians appeared to be students traveling to the Evolution Academy Charter School just south of Spring Valley Road).

- **Observation:** As discussed in the Primary Concerns section, marked crosswalks were not located in the desired paths of the pedestrian movements. Pedestrians were naturally taking certain paths between origin and destination, and the crosswalks were not within those paths.

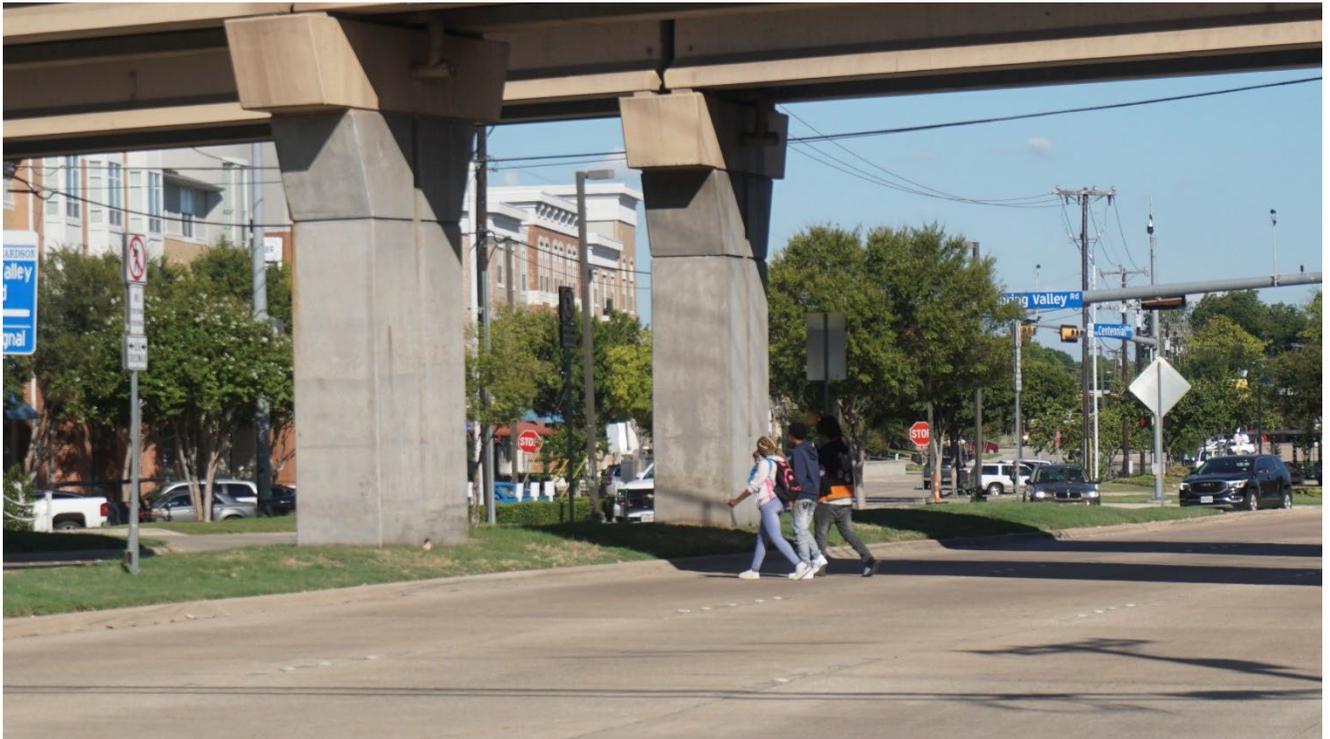


Figure 29: Some marked crosswalks were not within natural or expected paths

In Figure 29, the pedestrians are crossing where the northbound Central Trail had just ended. The RSA Team observed most trail users crossing at that location, and the fencing in place did not appear to be an adequate deterrent. Additionally, signs to route trail users across Spring Valley Road are ambiguous. Central Trail maps show Business Parkway to be the preferred routing. The RSA

Team observed few users crossing at the Business Parkway signalized intersection, instead choosing to cross at the Lingco Drive signalized intersection.



Figure 30: Prohibited movement sign



Figure 31: Signs do not indicate preferred routing

Recommendation: Clarify trail continuity and routing. To the maximum extent possible, the preferred routing should continue to have pavement width and markings similar to the trail to feel cohesive to the users. The preferred routing should be clearly indicated on guide signs, whether Business Parkway on the east side or Lingco Drive on the west side. The City should remove the PEDESTRIANS AND BICYCLES PROHIBITED signs on both the north and south sides of Spring Valley Drive, and should keep and maintain the median signs currently in place. The City should also consider adding fencing to the median to further reduce midblock crossings in this location.

Appendix A

List of attendees at meetings:

Kickoff meeting:

City of Richardson:

- Mark Nelson
- Yang Jin
- Daniel Herrig
- Keith Krum
- Sgt. Brian Meli
- Officer Chad Moore

City of Dallas:

- Wayne Powell

TxDOT:

- Tim Wright

FHWA:

- Stephen Ratke
- Ed Burgos-Gomez
- Millie Hayes

Meeting with DART operations staff:

- RSA Team
- Linicha Hunter

Meeting with City of Richardson Traffic Operations staff:

- RSA Team
- Patrick Ryan
- Tiffany Hernandez

Closeout meeting:

City of Richardson:

- Mark Nelson

-
- Yang Jin
 - Daniel Herrig
 - Officer Chad Moore

City of Dallas:

- Wayne Powell

TxDOT:

- Tim Wright

FHWA:

- Stephen Ratke
- Ed Burgos-Gomez
- Millie Hayes

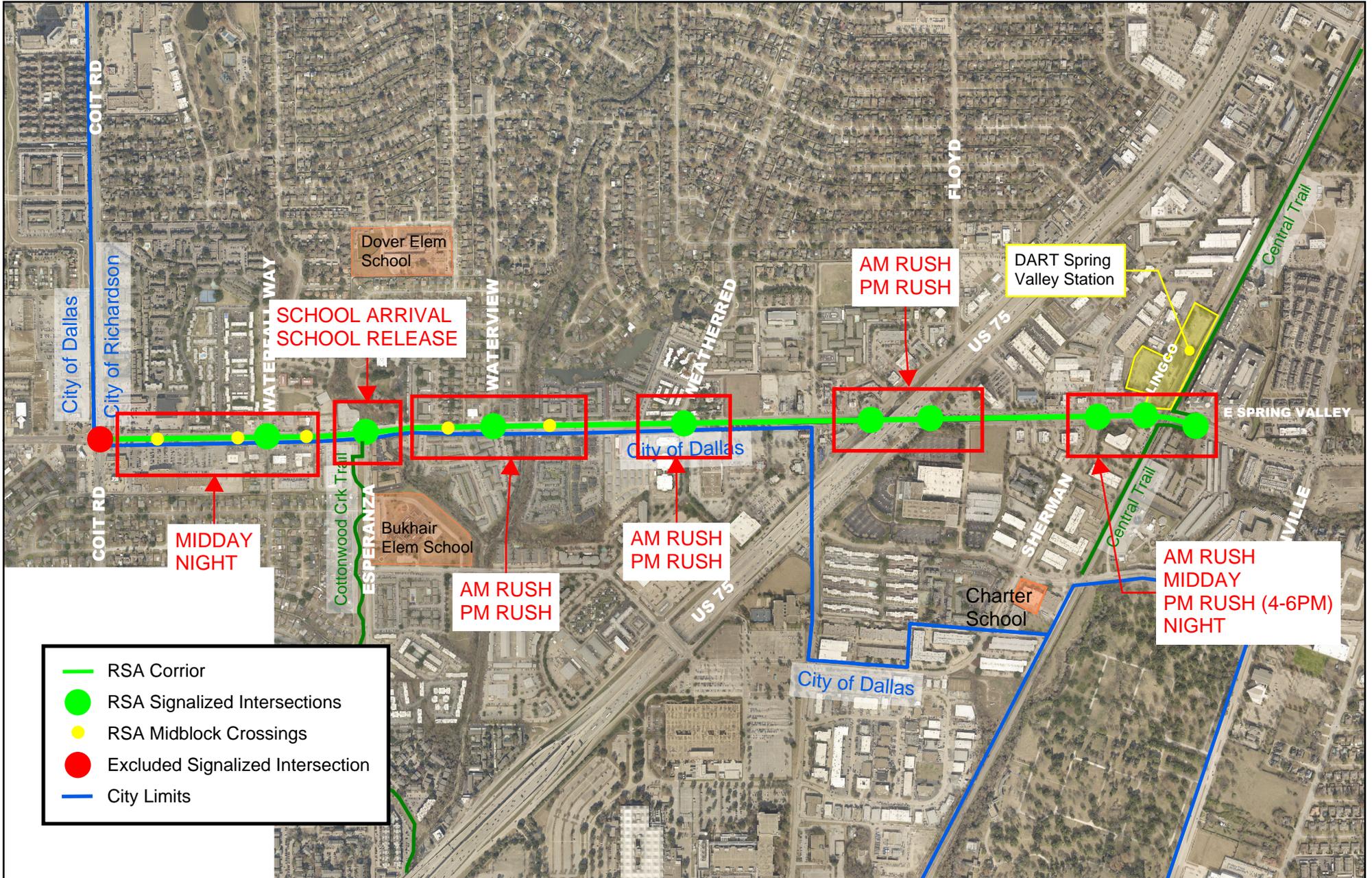
Appendix B

Corridor map provided by Transportation and Mobility staff

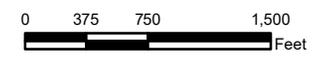
Kickoff meeting sign-in sheet

Closeout meeting sign-in sheet

Spring Valley | Bike/Ped Road Safety Audit (RSA)



- RSA Corridor
- RSA Signalized Intersections
- RSA Midblock Crossings
- Excluded Signalized Intersection
- City Limits



**City of Richardson Road Safety Audit:
W Spring Valley Road from Coit Road to DART Spring Valley Station**

Kickoff Meeting - Monday, September 19, 9am

<u>Name</u>	<u>Organization</u>	<u>Title</u>	<u>Email</u>
DANIEL HERRIG	CITY OF RICHARDSON	MOBILITY & SPECIAL PROJ. MANAGER	DANIEL.HERRIG@COR.GOV
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Wayne Powell	City of Dallas	Planner II	wayne.powell@dallas.gov
Ed Burgos	FHWA - Texas	Safety and Traffic Ops spec	edborgus-gomez@dot.gov
Yang Jin	City of Richardson	TROP manager	yang.jin@wr.gov
CHAD MOORE	CITY OF RICHARDSON	TRAFFIC OFFICER	chad.moore@cor.gov
BRIAN MELI	CITY OF RICHARDSON P.D.	TRAFFIC SGT	BRIAN.MELI@COR.GOV
Tim Wright	TxDOT	Env. Specialist	Tim.P.Wright@txdot.gov
Keith Krum	City of Richardson	Planning Projects Mgr	keith.krum@cor.gov
Stephen Ratke	FHWA - RC	Senior Safety & Geometric design engineer	stephen.ratke@dot.gov

**City of Richardson Road Safety Audit:
W Spring Valley Road from Coit Road to DART Spring Valley Station**

Closeout Meeting - Thursday, September 22, 1pm

<u>Name</u>	<u>Organization</u>	<u>Title</u>	<u>Email</u>
DANIEL HERRIG	RICHARDSON	MOBILITY (SPECIAL PROJ.) MANAGER	DANIEL.HERRIG@COR.GOV
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Tim Wright	TxDOT	Environmental Specialist	Tim.P.Wright@txdot.gov
Stephen Ratke	FHWA-RC	senior safety & operations designer engineer	stephen.ratke@dot.gov
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CHAD MOORE	RICHARDSON PD	POLICE OFFICER	chad.moore@cor.gov