Cotton Belt Corridor PE/EIS
Existing Track Assessment Report

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# Table of Contents

1.0 INTRODUCTION .................................................................................................................. 1

2.0 BACKGROUND ..................................................................................................................... 1

3.0 METHODOLOGY .................................................................................................................. 3

4.0 DOCUMENT REVIEW .......................................................................................................... 3

5.0 REVIEW OF THE CORRIDOR VIDEO .................................................................................. 4

5.1 TRACK AND ROADBED ........................................................................................................ 4

5.2 AT-GRADE ROAD CROSSINGS ......................................................................................... 5

6.0 FIELD ASSESSMENT ........................................................................................................... 6

6.1 TRACK AND ROADBED ASSESSMENT .............................................................................. 6

6.1.1 KCS Segment .................................................................................................................. 6

6.1.2 DGNO Segment .............................................................................................................. 8

6.1.3.1 Closed Section (MP 592.8 to 598.02) .................................................................. 8

6.1.3.2 Operating Section (MP 598.02 to 603.5) ............................................................. 10

6.1.3.3 FWWR Segment ...................................................................................................... 12

6.2 AT-GRADE ROAD CROSSING ANALYSIS ...................................................................... 14

6.2.1 KCS Segment .................................................................................................................. 14

6.2.2 DGNO Segment .............................................................................................................. 16

6.2.2.1 Coit Road at MP 594.03 ......................................................................................... 16

6.2.2.2 Dickerson Street at MP 594.4 ................................................................................ 16

6.2.2.3 Country Club Driveway at MP 600.87 .................................................................. 16

6.2.2.4 Addison Road at MP 598.46 ................................................................................... 16

6.2.2.5 Surveyor Blvd at MP 599.38 .................................................................................. 17

6.2.2.6 Perry Road at MP 602.50 ....................................................................................... 17

6.2.2.7 N. Broadway Street at MP 603.35 ........................................................................... 17

6.2.2.8 Overall Crossing Assessment ................................................................................ 17

6.2.3 FWWR Segment .............................................................................................................. 18

6.2.3.1 S Moore Road at MP 607.39 .................................................................................. 18

6.2.3.2 Royal Lane at MP 610.02 ....................................................................................... 19

6.2.3.3 Overall Crossing Assessment ................................................................................ 19

7.0 GENERAL ASSESSMENT AND RECOMMENDATIONS .................................................... 20

# LIST OF APPENDICES

APPENDIX A – TRACK ASSESSMENT INVENTORY, AT-GRADE CROSSING INVENTORY

APPENDIX B - AT-GRADE CROSSING PHOTOS

APPENDIX C - REFERENCE DOCUMENTS
1.0 INTRODUCTION

In support of the preliminary engineering efforts to the GPC on the Cotton Belt Corridor Regional Rail Project, Stantec conducted a site visit of the entire Cotton Belt Corridor to assess the existing track infrastructure, and to prepare an Existing Condition Report on the condition of the existing track, roadbed and at-grade crossings within the corridor. This report is intended to summarize the findings and results of a 360 degree high rail video of the Cotton Belt Corridor, document review and field inspection.

As a part of the URS project team for the Cotton Belt Corridor PE/EIS project, Stantec has been tasked with performing a cursory assessment of the condition of the track, roadbed and at-grade crossings within the Cotton Belt Corridor. The purpose of this document is to provide summary findings and results of the Stantec review of the Cotton Belt Corridor video, document reviews, and the field observations conducted as part of this assessment.

2.0 BACKGROUND

The limits of the assessment area include approximately 23 miles of the Cotton Belt Rail Corridor which is owned by the DART. The study area begins at Milepost (MP) 589.5 which is located at L Street in the City of Plano and ends at Milepost 612.5 just east of the Texas 114L Business Loop near the City of Grapevine. DART intends to introduce passenger rail service through the corridor while maintaining the freight traffic that currently utilizes it.

Currently three different freight railroads operate within the corridor.

The Kansas City Southern Railroad (KCS) operates a 3.3 mile section on the east end of the corridor from MP 589.5 to MP 592.8.

The Dallas, Garland & Northeastern Railroad (DGNO) operates a 10.7 mile central portion of the corridor from MP 592.8 to MP 603.5.

The Fort Worth Western Railroad (FWWR) operates a 9 mile portion on the western end of the corridor from MP 603.5 to 612.5.
3.0 METHODOLOGY

The scope of this assessment consists of: review of associated documents, studies, and corridor video, to be followed by a site visit of the Cotton Belt Corridor. In preparation of this assessment, Stantec implemented the following approach:

Track and Roadbed Assessment

- Step 1 - Review of available documents
- Step 2 - Review of Corridor Video
- Step 3 – Visual observations of track and roadbed using a Hi-Rail Vehicle to access the alignment
- Step 4 - Periodic Sampling of Track (Average of once per mile)
- Step 5 - Selected Sampling of Turnouts (Selected locations determined during the Visual Observation Phase)

At-Grade Road Crossing Assessment

- Step 1 - Review of Corridor Video
- Step 2 - Review of FRA Crossing Inventory List
- Step 3 - Visual Inspection of crossings via Hi-Rail vehicle
- Step 4 - Inspection of selected crossings on foot

4.0 DOCUMENT REVIEW

Stantec has met with each of the operating railroads and reviewed available documentation regarding the existing infrastructure for the corridor and reviewed the available plan and profile sheets for the corridor. Based on the assembled information, the following general data has been compiled for the Cotton Belt Corridor track and roadbed:

KCS Segment

KCS operates a 3.3 mile segment from Milepost 589.5 (L Avenue) to 592.8 (Renner Connection) of the study corridor. KCS currently operates 2 trains per day; however this could increase once their new Wylie intermodal yard becomes operational. This segment falls within their Alliance subdivision and the maximum allowable operating speed is 20 mph. The KCS segment has 2 turnouts, 5 grade separated crossings, and 9 at-grade crossings.
DGNO Segment

DGNO operates a 10.7 mile segment from Milepost 592.8 (Renner Connection with KCS) to MP 603.5 (FWWR Connection) of the study corridor. DGNO currently operates 2 trains per day, 5 days per week. This segment falls within their Carrollton Subdivision and the maximum allowable operating speed is 10 mph. The DGNO segment has 21 turnouts, 4 grade separated crossings, and 25 at-grade crossings (including 1 private crossing).

FWWR Segment

FWWR operates a 9 mile segment from Milepost 603.5 (Connection with DGNO) to 612.5 of the study corridor. FWWR utilizes their own milepost system and this segment extends from mile 24.9 to 33.7 using their system. It should be noted that their mileage runs west to east in the opposite direction of DART’s system. FWWR currently operates 1 train per day, 2 to 3 days per week. This segment falls within their Fort Worth Subdivision and the maximum allowable operating speed is 20 mph. The FWWR segment has 7 turnouts, 3 grade separated crossings, and 11 at-grade crossings.

5.0 REVIEW OF THE CORRIDOR VIDEO

Stantec reviewed the video of the entire corridor obtained by mounting cameras on a Hi-Rail vehicle which provided a 360 degree view at any point in the corridor. This video was provided by the URS Corporation for use in reviewing conditions within the corridor.

5.1 TRACK AND ROADBED

Stantec conducted a review of the Cotton Belt Corridor video provided by URS Corporation. The video was produced utilizing a camera mounted on a Hi-Rail vehicle. The video provides a 360 degree view at any point in the corridor.

KCS Segment

Overall, based only on video review, the condition of the track and roadbed appeared to be fair and relatively consistent throughout the 3.3 mile segment. It appears that the condition of the ties varies with some having been recently installed and others in marginable condition or worse. The ballast appears to have been recently maintained and in good clean condition although the shoulders appear to be lacking in some areas.

DGNO Segment

Overall, based only on video review, the condition of the track and roadbed appeared to be fair and relatively consistent throughout the 10.7 mile segment. It appears that the condition of the ties varies with some having been recently installed and others in marginable condition or worse. The ballast appears to be in fair condition although the shoulders appear to be lacking in many areas.
FWWR Segment

Overall, based only on video review, the condition of the track and roadbed appeared to be fair and relatively consistent throughout the 9.0 mile segment. It appears that the condition of the ties varies with some having been recently installed and others in marginable condition or worse. The ballast appears to be in fair condition although the shoulders appear to be lacking in many areas.

5.2 AT-GRADE ROAD CROSSINGS

The supplied video provided adequate detail to conduct a quick preliminary review of each crossing, prepare a crossing inventory for the corridor, and identify specific crossings for increased attention during the field visit step of the review process. The At-Grade Crossing Inventory in Appendix A presents data for all 45 crossings within the corridor. Summaries for each segment are presented below.

KCS Segment

The 9 crossings located within the KCS segment are all protected by Flashing Lights, Bells, and Gates (FLBG) Active Warning Systems. Six of nine crossings utilize concrete crossing panels for the road crossing while two crossings use rubber panels. The remaining three crossings consist of asphalt pavement. Many of the crossings appeared to have obstructed sight triangles; however the presence of FLBG Active Warning Systems mitigates this issue. Four of the crossings are for one way roadways and the remaining 5 have raised medians that discourage drivers from driving around lowered gates. Based on the video three crossings were selected for further inspection during the field review step:

- 10th Street at MP 589.9
- K Avenue at MP 589.63
- F Avenue at MP 590.11

DGNO Segment

With 2 exceptions, the 25 crossings located with the DGNO segment employ Active Warning FLBG systems. Thirteen crossings utilize concrete crossing planks while six crossings used rubber planks. Five crossings utilized asphalt and one crossing had wood crossing planks. Many of the crossings appeared to have obstructed sight triangles; however the presence of FLBG Active Warning Systems mitigates this issue on all but two crossings. Ten of the crossings have raised medians that discourage drivers from driving around lowered gates. Based on the video, seven crossings were selected for further inspection during the field review step.

- Coit Road at MP 594.03
- Dickerson Street at MP 594.4
Cotton Belt Corridor PE/EIS

- Country Club Driveway at MP 600.87
- Addison Road at MP 598.46
- Surveyor Blvd at MP 599.38
- Perry Road at MP 602.50
- N. Broadway Street at MP 603.35

**FWWR Segment**

All eleven of the crossings located with the FWWR employ Active Warning FLBG systems. Six crossings utilize concrete crossing planks while 4 crossings used rubber planks. One crossing had wood crossing planks. Many of the crossings appeared to have obstructed sight triangles, however the presence of FLBG Active Warning Systems mitigates this issue on all 11 crossings. Six of the crossings have raised medians that discourage drivers from driving around lowered gates. Based on the video, two crossings were selected for further inspection during the field review step:

- S Moore Road at MP 607.39
- Royal Lane at MP 610.02

**6.0 FIELD ASSESSMENT**

The corridor was visually inspected from a Hi-rail vehicle. Each operating railroad provided a Hi-Rail vehicle and a representative to accompany and assist the assessment team.

**6.1 TRACK AND ROADBED ASSESSMENT**

**6.1.1 KCS Segment**

The assessment for the KCS segment was started at Mile 589.5 (L Avenue) and continued onto Renner Junction at Mile 592.8

Track Samples were taken at MP 589.6, 590.5, 591.5 and 592.5. Sampling consisted of the inspection of a 100 tie length of track at each location. Both turnouts in this segment at MP 589.5 and 592.5 were assessed.

**Rail**

The rail through this section of track consisted of 132 lb and 112 lb rail, showing varying amounts of head wear. Due to the grades in this section the rail has many locations of wheel burns due to the slipping of locomotive wheels, these burns create a transformation in the rail steel that can results in broken rails.
Track with 112 lb rail in good condition at KCS MP 590.5

Ties
Sampling of the track ties determined that 26 percent were considered “scrap” and of no value to the integrity of the structure. The remaining ties were assessed as 30 percent “relay” with the balance needing to be assessed as to their condition when taken from the track structure. It is likely that a large percentage would be determined as scrap.

Other Track Materials (OTM)
OTM through this section exhibited several variances in type. The tie plates were all double shouldered and ranged from 8” X 14” through 7-3/4” X 11” in size. The joint bars were, for the most part, 4 hole toeless bars. Anchoring of the rails did not appear to conform to a coherent pattern and in many cases the anchors were located on one end of the tie and not the other.

Track Gauge
The gauge of the track on this section was sampled and found to be between 56-3/8” and 56-5/8” which is within safe operating limits. This indicates that the section has sufficient numbers of sound ties to maintain the proper gauge.

Special Trackwork (Turnouts)
The turnout sampled at MP 589.5 consisted of 115 lb rail manufactured in 1948 and was found to be of “relay” quality. The turnout sampled at MP 592.5 consisted of 119 lb rail manufactured in 1986 and is found to be of “relay” quality. The turnout ties for both turnouts were considered 18 percent defective.
Ballast

The Ballast section although good for the present operating speeds, would be considered light on the shoulders for operation of the railway at a higher class.

Subgrade

No deficiencies were noted.

6.1.2 DGNO Segment

The assessment began at MP 593.2, just west of Renner Junction (MP 592.8), and continued to the FWWR connection at MP 603.5. The easterly section of track from MP 593.2 to 598.02 has been taken out of service because there are no current customers along this section. Since DGNO does not perform the required inspections on this portion, they have removed a rail at each end of the closed section. The remainder of the segment, from 598.02 to 603.5, remains in service.

6.1.2.1 Closed Section (MP 592.8 to 598.02)

Track samples were taken at approximate one mile intervals and at selected locations. For this section samples were taken at MP’s 593.2, 594.03, 594.6, 595.3, 596.2, 597.3, and 597.5. Sampling consisted of inspection of a 100 tie length of track at each location.

Rail

This section of track consists of 112 lb rail manufactured mainly from 1942 to 1948. The inspected rail would be graded as #1 and #2 relay quality.
Ties

The track ties through this closed section of track were 35 percent defective. The remaining 65 percent were estimated at 30 percent relay with the balance to be assessed when removed from track.

Track Gauge

Track gauge through the closed section ranged between 3/8 inch tight gauge to 5/8 wide.

Other Track Materials (OTM)

The OTM on this section were relatively consistent. The tie plates were 7-3/4” X 11” double shouldered. The joint bars were toeless with 4 hole drilling. Once again the rails were anchored with no apparent pattern.

Special Trackwork (Turnouts)

There were no turnouts on this section of track.

Ballast

Ballast shoulders and crib at some locations were very light and would not accommodate a higher class of traffic.

Subgrade
At several locations through this section, it was observed that the track was pumping indicating possible failure in the subgrade. At MP 597.5 a sink hole in the track was observed affecting a track section of approximately 150 feet in length.

6.1.2.2 Operating Section (MP 598.02 to 603.5)

In general, track samples were taken at approximately one mile intervals. For this section samples were taken at MP’s 593.2, 594.03, 594.6, 595.3 596.2, 597.3, and 597.5. Sampling consisted of inspection of 100 tie length of track at each location.

**Rail**

This section of track mainly consists of 85 and 90 lb rail with manufacturing dates ranging from 1907 to 1928. Because of age and weight of this rail, this section is considered scrap and unsuitable for passenger rail service.

**Ties**

Track ties were sampled with 34 percent considered to be defective, approximately 20% considered to be relay and balance questionable. Due to the poor surface and lifted spikes, it was difficult to determine the extent of ties that had spike kill.

**Track Gauge**

Track gauge was between 56-1/4” and 56-7/8” where samples were taken.

**Other Track Materials (OTM)**
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OTM at the sampled locations consisted of 7-3/4” x 9” single shoulder tie plates, joint bars of the 4 hole angle variety which were improperly maintained with all bolts being either loose or missing. This has resulted in cracked and/or broken bars.

**Special Trackwork**

Turnouts sampled on this section were taken at the near the east end of the operated section at MP 598.46 and MP 598.55. A diamond was sampled at MP 603.0.

The turnout at MP 598.46 consisted of 112 lb of rail manufactured in 1944. It included a rail bound manganese (RBM) frog that had wear on the wing rails. Inspection of the turnout ties resulted in a total of 6 defective ties. Track gauge throughout was measured at 56-5/8”.

The second turnout located at MP 598.55 consisted of 119 lb rail manufactured in 1969. This turnout included a self guarded manganese (SGM) frog in the main track. Inspection of the turnout ties resulted in a total of 4 defective ties. Track gauge was measured at 56-1/2” on the main track and 56-5/8” on turnout side.

The remaining 19 turnouts on this segment are located in the 85 and 90 lb rail section and were not sampled as all are considered as scrap, and unsuitable for passenger service, due to the substandard rail weight and age. The frogs on these turnouts varied between rigid bolted, self guarded rail bound, and spring frogs.

The section also had one diamond rail crossing located at approximately MP 603.0. The lead in rail is 112lb which is compromised to 140 lb per linear yard through the diamond. This diamond is completely relay quality as long as the same angles are used.
Ballast

The track throughout the operating section has poor surface and line. There are many sections where the crib and shoulder ballast were inadequate, and would not be suitable for a higher class of train operation.

Subgrade

No subgrade deficiencies were noted.

6.1.3 FWWR Segment

In general, track samples were taken at approximate one mile intervals. For this section sample were taken at MP’s 610.3, 609.9, 608.4, 607.4, 606.0, 605.7, 604.3, and 597.5. Sampling consisted of inspection of a 100 tie length of track at each location.

Rail

The track section from 609.9 through 610.1 has two sections that compromised 136 lb rail and 112 lb rail. The 112 lb rail was manufactured in 1944 and the 136 lb rail in 1987.

The final track sample had 113 lb linear yard rail that was manufactured in 1944.

![Track with 85lb rail in poor condition at FWWR MP 605.7. Note the substandard ballast condition.](image)

The remainder of this segment consisted of 85 lb rail manufactured between 1925 and 1928 with gauge side flow up to 1/8 inch on both rails. This rail is considered unsuitable for the operation of trains at a higher class and/or speed.
Cotton Belt Corridor PE/EIS

Ties

Tie condition through sampled areas resulted in a total of 38 percent defective, 22 percent relay and the balance questionable.

Track Gauge:

Gauge of track sampled in this section varied between 56-1/4” and 56-7/8”.

Other Track Materials:

OTM at sampled locations consisted of 7-1/2” x 9” single shoulder tie plates and 4 hole angle joint bars. Bolt maintenance was being performed on this segment during the period when the inspection was being performed. The anchors followed no consistent pattern and should be considered scrap.

Ballast

Track ballast was very light in many locations. Crib ballast is low and ballast shoulders were very inconsistent and not appropriate for current freight operation much less proposed passenger rail service.

Special Trackwork (Turnouts):

Turnouts were sampled at MP 604.2 and 603.7 of this segment.

The turnout at MP 604.2 consisted of 112 lb rail manufactured in 1980. The frog for this turnout is a self guarded manganese (SGM) frog. The switch point on the main is 119 lb rail that is compatible with the 112 lb closure rails. The gauge of the main was measured at 56-3/8” and the gauge of the turnout was measured at 56-1/2”. The switch ties were found to be 24 percent defective. Switch throw was measured at 5 inches.
The turnout at MP 603.7 consisted of 119 lb rail manufactured in 1979. The frog was also a SGM. The turnout ties were found to be 35 percent defective with several of the defective ties located under the frog. The turnout throw was tight at 3-1/2 inches. The gauge of main track was measured at 57-1/4” and turnout side gauge was tight at 56-1/8”.

**Subgrade**

No subgrade deficiencies were noted.

### 6.2 AT-GRADE ROAD CROSSING ANALYSIS

Every crossing was visually observed with special attention provided to the crossings identified in the video assessment above. The field observation emphasized three general categories:

- Type of Warning System and presence of sight triangle issues
- Type and Condition of the Road Crossing Surface
- Presence and condition of other protection measures

#### 6.2.1 KCS Segment

Observation of the selected crossings:

#### 6.2.1.1 10th Street at MP 589.9

Type of Warning System: Active Warning FLBG system.
Road Crossing System: The road crossing surface is currently asphalt and is in fair condition.

Other Warning Measures: A raised median has been installed specifically for the crossing. The median appears to be new and is in good condition.

6.2.1.2  K Avenue at MP 589.63

Type of Warning System: Active Warning FLBG system with double gates on a one way street.

Road Crossing System: The road crossing surface is currently concrete panels in good condition with little wear.

Other Warning Measures: None

6.2.1.3  F Avenue at MP 590.11

Type of Warning System: Active Warning FLBG system.

Road Crossing System: The road crossing surface is currently concrete panels in good condition with minimal wear.

Other Warning Measures: A raised median has been installed specifically for the crossing. The median appears to be new and is in good condition.

Pictures for each crossing can be found in Appendix B

6.2.1.4  Overall Crossing Assessment

Active Warning System

Due to the change in operating speed that will occur with the introduction of passenger rail service all of the FLBG warning systems will most likely require upgrading to facilitate new timing requirements. The addition of a second track would also necessitate extensive modification to the crossing warning system. Often, this results in the complete replacement of the system since the hardware and electronics are usually outdated when compared to the current technology that will be installed. All of the crossings in the KCS segment appear to have been in place for several years and it is possible that most if not all of them will require total replacement.

Crossing Surface

Visual assessment of the remaining crossings revealed the crossing with concrete panels to be in good to near new condition with minimal maintenance or repair required. The rubber panels at Alma Road and Custer Parkway appeared to be in good condition although some panels appeared to be loose and may require resetting and/or reanchoring.

Other Warning Measures
Cotton Belt Corridor PE/EIS

The two other bidirectional crossings, Alma Road and Custer Parkway, both have raised medians that discourage drivers from circumventing lowered gates.

6.2.2  DGNO Segment

Observation of the selected crossings:

6.2.2.1  Coit Road at MP 594.03

Type of Warning System: Active Warning FLBG system with double gates and mast arms.

Road Crossing System: The road crossing surface is currently asphalt in fair condition. Since Coit Road is a six lane highway with high traffic volumes concrete panels should be installed at this crossing.

Other Warning Measures: Coit Road has a raised median that discourages drivers from circumventing lowered gates.

6.2.2.2  Dickerson Street at MP 594.4

Type of Warning System: Crossbucks only. This crossing will require upgrading.

Road Crossing System: The road crossing surface is currently asphalt in fair condition. Recommend upgrade to concrete panels.

Other Warning Measures: None

6.2.2.3  Country Club Driveway at MP 600.87

Type of Warning System: Crossbucks with stops signs only. This 3 track crossing will require upgrading to a FLBG protection.

Road Crossing System: The road crossing surface is currently wood planks in fair to poor condition. Recommend upgrade to concrete panels

Other Warning Measures: None

6.2.2.4  Addison Road at MP 598.46

Type of Warning System: Active Warning FLBG system.

Road Crossing System: The road crossing surface is currently rubber panels in fair to poor condition. Several panels appear to be loose.
Cotton Belt Corridor PE/EIS

Other Warning Measures: None

6.2.2.5 Surveyor Blvd at MP 599.38

Type of Warning System: Active Warning FLBG system

Road Crossing System: The road crossing surface is currently concrete panels in good condition with little wear.

Other Warning Measures: None

6.2.2.6 Perry Road at MP 602.50

Type of Warning System: Active Warning FLBG system

Road Crossing System: The road crossing surface is currently asphalt in fair condition. Recommend upgrade to concrete panels.

Other Warning Measures: None

6.2.2.7 N. Broadway Street at MP 603.35

Type of Warning System: Active Warning FLBG system.

Road Crossing System: The road crossing surface is currently rubber panels in good condition. It appears that some of the panels are coming loose and may need to be re-anchored.

Other Warning Measures: None

Pictures for each crossing can be found in Appendix B

6.2.2.8 Overall Crossing Assessment

Active Warning Systems

As mentioned above, the two non signaled crossings at Dickerson and Country Club will need to be upgraded to Active Warning FLBG systems. As mentioned in the KCS segment, the change in operating speed that will occur with the introduction of passenger rail service will most likely require upgrading of the FLBG Active Warning System to facilitate new timing requirements. The addition of a second track would also necessitate extensive modification to the crossing protection system. All of the FLBG Active Warning System crossings in the DGNO segment appear to have been in place for several years and it is possible that most, if not all, of them will require total replacement.
Cotton Belt Corridor PE/EIS

Crossing Surface
Visual assessment of the remaining crossings revealed the crossing with concrete panels to be in good to near new condition with minimal maintenance or repair required. The crossings with rubber panels appeared to be in good to fair condition although almost all of the crossings had panels that appeared to be loose and may require resetting. The two additional asphalt crossings at Knoll Trail and Denton Road appear to be in fair condition and an upgrade to concrete panels is recommended.

Other Warning Measures
Ten of the 24 crossings in the DGNO segment have raised medians that discourage drivers from circumventing lowered gates.

Rail Weight
The west end of the DGNO segment has 112-115 pound rail and the east end has 85 lb rail. However, similar to the KCS segment, all of the crossings appear to be compromised up to next heavier rail (136 lb and 112 lb). Therefore it appears that the rail through road crossings will not need to be replaced.

Typical example of compromised joint from 85lb rail to 112lb rail at at-grade crossings

6.2.3 FWWR Segment

Observation of selected crossings
6.2.3.1 S Moore Road at MP 607.39

Type of Warning System: Active Warning FLBG system.

Road Crossing System: The road crossing surface is currently rubber panels in good condition. It appears that some of the panels may be coming loose and may need to be re-anchored.
Other Warning Measures: None

### 6.2.3.2 Royal Lane at MP 610.02

Type of Warning System: Active Warning FLBG system with double gates and mast arms.  
Road Crossing System: The road crossing surface is currently concrete panels in good condition.

Other Warning Measures: A raised median that discourages drivers from circumventing lowered gates.

Pictures for each crossing can be found in Appendix B

### 6.2.3.3 Overall Crossing Assessment

**Active Warning Systems**
As mentioned previously, the change in operating speed that will occur with the introduction of passenger rail service will most likely require upgrading of the FLBG Active Warning System to facilitate new timing requirements. The addition of a second track would also necessitate extensive modification to the crossing protection system. With the exception of the Coppell Road crossing which appears to have been recently upgraded, all of the FLBG Active Warning crossings in the FWWR segment appear to have been in place for several years and it is possible that most, if not all, of them will require total replacement.

**Crossing Surface**
Visual assessment of the remaining crossings revealed the 6 crossings with concrete panels to be in good condition with minimal maintenance or repair required. The remaining 5 crossings with rubber panels appeared to be in good condition although each crossing had some panels that appeared to be loose and may require resetting.

**Other Warning Measures**
Six of the 11 crossings in the FWWR segment have raised medians that discourage drivers from circumventing lowered gates.

**Rail Weight**
Similar to the previous segment rails through crossings in this segment have been compromised up to 112-115 pound rail and will not require replacement.
7.0 General Assessment and Recommendations

Track and Roadbed

KCS Segment (3.3 miles)
General Condition Assessment: Based on the maximum operating speed, the observed materials, and general condition of the track, this section is estimated to be Class 2 at best and not well suited for conversion to passenger rail service. Because DART standards for this corridor require the installation of 136 pound rail, the track will require a complete upgrade, including rail, ties, ballast, and other track materials, to bring it up to standard.

Recommendation: Upgrade to the entire segment to bring it into compliance with DART passenger rail standards. Remove existing track to bottom of ballast, rehabilitate subballast/subgrade where necessary, reuse ballast and ties that are in good condition, and replace rail and other track materials.

DGNO Segment – Closed Section (5.2 miles)
General Condition Assessment: Based on the observed materials and general condition of the track, this section is estimated to be Class 1. However, review of the DGNO timetable shows this track to be “excepted” and therefore not suitable for passenger rail service. Again, because DART standards for this corridor require the installation of 136 pound rail, the track will require a complete upgrade, including rail, ties, ballast, and other track materials, to bring it up to standard. Additionally, there are several minor and one major area of subgrade that will required reconstruction in this section.

Recommendation: Upgrade to the entire segment to bring it into compliance with DART passenger rail standards. Remove existing track to bottom of ballast, rehabilitate or repair subballast/subgrade where necessary, reuse ballast and ties that are in good condition, and replace rail and other track materials.

DGNO Segment – Operating Section (5.5 miles)
General Condition Assessment: Based on the maximum operating speed, observed materials, and general condition of the track, this section is estimated to be Class 1 at best. Again, the DGNO timetable shows this track to be “excepted” and therefore not suitable for passenger rail service. Most of this section consists of 85 lb rail and turnouts and substandard other track materials. Once again a large percentage of ties need to be replaced.

Recommendation: Upgrade to the entire segment to bring it into compliance with DART passenger rail standards. Remove existing track to bottom of ballast, rehabilitate or repair subballast/subgrade where necessary, reuse ballast and ties that are in good condition, and replace rail and other track materials.

FWWR Segment (9 miles)
Cotton Belt Corridor PE/EIS

General Condition Assessment: Based on the maximum operating speed, observed materials, and general condition of the track, this section is estimated to be Class 1 and not suitable for passenger rail service. Almost all of this section consists of 85 lb rail and turnouts, and substandard other track materials. As exhibited throughout most of the corridor, a large percentage of ties need to be replaced and the ballast needs to be improved.

Recommendation: Upgrade to the entire segment to bring it into compliance with DART passenger rail standards. Remove existing track to bottom of ballast, rehabilitate or repair subballast/subgrade where necessary, reuse ballast and ties that are in good condition, and replace rail and other track materials.

At-Grade Road Crossings

Protection Systems
As previously stated, it is probable that most of the existing FLBG Active Warning System will require some sort of upgrade to allow for passenger rail service. Additionally, FLBG Active Warning System will need to be installed at the 2 crossings that currently do not have them.

Crossing Surface
Concrete Panels - All of the crossings with concrete panels crossing surfaces appeared to be in good condition and should not require any significant maintenance.

Rubber Panels - A majority of the crossing with rubber panels exhibited varying degrees of loose panels needing to be reset. It is probable that each crossing with rubber panels will need to have the panels reset and re-anchored. Based on the field assessment, it appears that the rubber panels may present an on-going maintenance issue, and it may be advisable to replace them with concrete panels.

Asphalt and Wood Planks – Although these crossings are not in bad condition, it is recommended that they be upgraded to concrete panels.
Appendix A

At-Grade Crossing Inventory
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*12/21/2010*
Appendix B
At-Grade Crossing Photos
10th Street - MP 589.95
Addison Road – MP 598.46
North Broadway Street – MP 603.35
Cotton Belt Corridor PE/EIS

Coit Road – MP 594.03
Cotton Belt Corridor PE/EIS

Dickerson Street – MP 594.43
K Avenue – MP 589.63
Cotton Belt Corridor PE/EIS

South Moore Road – MP 607.39
Perry Road North – MP 602.50
Cotton Belt Corridor PE/EIS

Quorum Drive – MP 598.23
Cotton Belt Corridor PE/EIS

North Royal Lane – MP 610.02
Surveyor Boulevard – MP 599.38
Waterview Parkway – MP 593.31
The following documents were referenced in the preparation of this assessment:

**Kansas City Southern Railroads**
- Minutes of the coordination meeting that took place on November 4, 2010.
- Timetable for KCS Alliance Subdivision
- Exhibits showing industrial spurs within KCS’s portion of the study area.

**Dallas Garland and Northeastern Railroad**
- Minutes of the coordination meeting that took place on November 9, 2010.
- Timetable for DGNO’ Carrollton Subdivision
- Exhibits showing industrial spurs within DGNO’s portion of the study area.

**Fort Worth & Western Railroad**
- Minutes of the coordination meeting that took place on November 2, 2010.
- Timetable for FWWR’s Fort Worth Subdivision
- Exhibit providing a mileage cross reference from FWWR’s mileposts to DART’s.

**Other Documentation**
- FRA At-Grade Crossing Inventory Reports
- Cotton Belt Corridor Plan and Profile Sheets