



**To:** Mr. Dan Meyers  
Project Manager

**From:** Sean Robitaille, PE  
Railroad Specialist

**Date:** November 12, 2012

**RE:** General Planning Consultant Services - Dallas Area Rapid Transit (DART)  
Contract ID C-1017751-01  
Task Order #4: Cotton Belt PE/EIS  
URS Project Number: 25338804

---

## **REPORT ON FREIGHT RAILROAD COORDINATION PROCEEDINGS**

### **SUMMARY**

As part of the preliminary engineering and environmental assessment phase of the DART Cotton Belt Corridor commuter rail project, Stantec was retained to help with the coordination of meetings and discussion with freight railroad operators that have an interest in the project.

Three railroads, specifically the Fort Worth and Western Railroad (FWWR), the Dallas, Garland and Northeastern Railroad (DGNO), and the Kansas City Southern (KCS) Railroad operate freight trains on the Cotton Belt corridor. The Burlington Northern Santa Fe (BNSF) Railway intersects the Cotton Belt corridor at-grade. Each freight carrier has unique operational requirements on the corridor that must be accounted for in design of the future commuter service and infrastructure.

Meetings were held with the freight railroads between November 2010 and April 2012 to introduce each carrier's representatives to the Cotton Belt project. The meetings were arranged to obtain information regarding the freight operations on each line segment to be used as input to the continued preliminary engineering design work. The railroads were provided the opportunity to voice concerns relevant to their specific operating conditions.

The FWWR and the DGNO were primarily concerned with continued access to their customer base on the corridor. The two railroads use the corridor exclusively to serve industrial clients and the future combined freight/commuter corridor must incorporate this need in the design process. The possibility to remove certain unused customer sidings adjacent to or near the alignment was discussed in order to simplify the regional rail line engineering process. Relocation of freight yard infrastructure in Carrollton has also been examined in order to accommodate the Cotton Belt and other commuter rail expansion plans.

The BNSF Railway main track will require relocation to eliminate the at-grade crossing with the Cotton Belt corridor in downtown Carrollton. The proposed relocation is suitable for the heavy tonnage traffic

that operates on the BNSF route. Additional design considerations to accommodate potential future regional rail services on BNSF have been identified and must be incorporated into further development of the Cotton Belt project.

The co-existence of freight and passenger operations is of primary concern to the KCS. Initial passenger service planning has determined that freight traffic cannot be accommodated on the line segment during morning and evening peak commuter service hours. An opportunity to accommodate freight trains during the rest of the day is available but must continue to be coordinated with KCS given their plans to increase traffic on the line in the future.

The US 75 road widening project in Plano has direct bearing on the Cotton Belt North Alternative preliminary design and KCS operations. The road project is fully funded and requires an extension of the existing bridge over US 75 that accommodates KCS trains. The revisions to the existing bridge and highway layout must be incorporated into the planned regional rail track flyover design. Additionally, the flyover plan must also be adopted into the roadwork plans in the event the Cotton Belt corridor project construction commences during or after the US 75 project.

Continued communication and coordination between the DART Cotton Belt design team and the freight railroads will be necessary as the project progresses. Some of the concerns identified by both parties will require some time to resolve. At this time the initial rounds of coordination have clarified enough freight operational details to enable preliminary design work to move forward and identified the action items that must be resolved prior to project implementation.

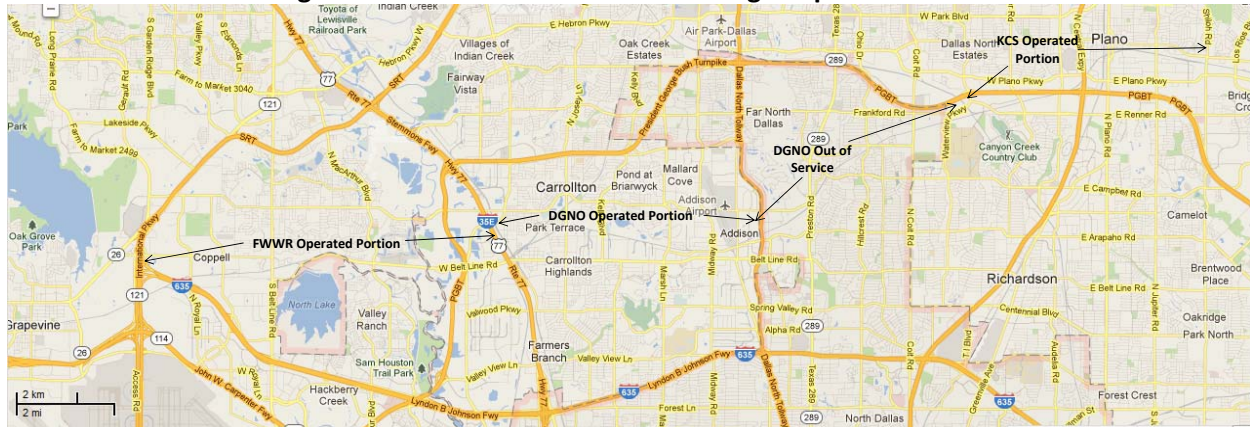
## **INTRODUCTION**

The DART Cotton Belt Corridor project concerns the development of an existing railroad right-of-way, named for its original operator (the St. Louis-Southwestern Railroad, marketed as the “Cotton Belt”), to be utilized for commuter rail operations in addition to existing freight rail services. As of 2012, there are three railroad companies that operate freight service on the Cotton Belt corridor and one railroad that intersects the alignment at-grade. These operators include:

- FWWR, operating on the western portion of the corridor
- DGNO, operating on the mid-section of the corridor
- KCS, operating on the eastern portion of the corridor
- BNSF, intersecting the corridor at-grade in Carrollton, Texas

The operating limits of each railroad are shown in Figure 1.1.

**Figure 1 - Cotton Belt Corridor and Freight Operator Limits**



The FWWR and DGNO both operate light density switching and local train movements over the corridor, designed to service on-line freight rail shippers. KCS operates a limited number of through train movements over the far eastern portion of the corridor each day. BNSF operates the greatest number of trains of all carriers although they simply cross the alignment at-grade in Carrollton. Existing agreements granting the shortline carriers the authority to operate on the corridor also prevent the interchange of revenue freight traffic between FWWR and DGNO, and between DGNO and KCS. As such, no freight trains operate continuously across the corridor from one end to the other.

As part of the initial planning for the commuter rail operation, Stantec was contracted to help conduct interviews with each of the freight rail operators in association with URS. These interviews were established to determine the current operational plans and patterns, identify issues and challenges and highlight items for future design and development for each carrier. The first round of meetings with FWWR, DGNO and KCS was held in November 2010. The second round of meetings was held between November 2011 and April 2012 and also included BNSF.

The following document provides the main points of interest from these planning sessions and the important items for future consideration in design and development of the Cotton Belt project. The complete minutes of meetings and other supporting documentation are included in the appendices.

### **FORT WORTH AND WESTERN RAILROAD**

The FWWR is a shortline railroad based in Fort Worth, Texas. The railroad is focused on providing freight service to multiple industrial customers in the Dallas/Fort Worth area. The proposed DART regional rail project may impact the ability of FWWR to serve customers on the western portion of the Cotton Belt corridor. Meetings were held with FWWR in November 2010 and November 2011 to introduce the management of the railroad to the Cotton Belt project and to develop a better understanding of the operation for the Stantec and URS design teams. The meetings also afforded FWWR the opportunity to voice their concerns and add their input to the design process.

### **Existing FWWR Freight Operations**

The FWWR currently provides freight service on the western portion of the proposed commuter corridor between Cotton Belt Milepost 603.5 and Milepost 610.0 (Carrollton to Coppell). FWWR operates the line



as part of their Fort Worth Subdivision. Currently, FWWR utilizes the line to serve customers at two industrial parks within the proposed commuter corridor. FWWR is prevented from interchanging revenue freight cars with DGNO or BNSF at downtown Carrollton. All FWWR freight traffic for the Carrollton area must arrive on FWWR trains from Fort Worth and depart via the same route.

FWWR train operations on the Cotton Belt corridor are based at Hodge Yard near Fort Worth. Freight trains operate east from Hodge Yard to reach the customers between Coppell and Carrollton. Once customer switching is completed the train will return to Fort Worth. FWWR indicated that their current service plan provides train service to Carrollton five days per week, typically in the late afternoon and evening hours.

FWWR will use sidings along the corridor for storage of rolling stock that is not required by customers or other parties during business downturns. Following the 2008 economic downturn, FWWR used several tracks on the line for temporary car storage. The equipment was removed in late 2011. FWWR indicated that this type of activity may occur in the future, so siding tracks currently considered serviceable for revenue or storage business must remain serviceable once a commuter operation is put in place.

The following table summarizes turnouts leading to customer tracks or sidings that were identified on the FWWR-operated portion of the corridor.

**Table 1 - Turnout Locations for Customer and Storage Tracks Served by FWWR**

FWWR Milepost	Cotton Belt Milepost	Switch Type	Switch Points Face	Siding or Customer Spur	Spur Location relative to Main Track	Notes
26.8	610.4	Hand Throw	West	DFW Spur	South	Lead for Freeport (DFW) spur heading south into industrial park
27.6	609.6	Hand Throw	West	Coppell "siding"	North	West switch of former Coppell siding
27.7	609.5	Hand Throw	West	Customer spur	North	"Minyards" - switch off of siding. Currently not in service
27.8	609.4	Hand Throw	East	Coppell "siding"	North	East switch of former Coppell siding
27.9	609.3	Hand Throw	East	Customer spur	South	Track apparently out of service - customer not shipping by rail (TST Impresso)
27.95	609.2	Hand Throw	West	Customer spur	North	Switch straighttrailed - spur out of service
29	608.2	Hand Throw	East	Customer spur	South	Switch straighttrailed - spur out of service
29.2	608	Hand Throw	West	Customer spur	South	Switch straighttrailed - spur out of service (former Dallas Power & Light power plant)
33.1	604.1	Hand Throw	West	Siding	South	Siding West switch Carrollton
33.3	603.9	Hand Throw	East	Siding	South	Siding East switch Carrollton
33.4	603.8	Hand Throw	East	Valwood Spur	South	Lead for Valwood spur heading south into industrial park

To serve the Freeport (DFW) and Valwood Industrial Parks, FWWR trains will exit the Cotton Belt corridor track and perform all customer switching within the industrial park trackage. Typically the main track does not need to be tied up with switching or rail car holding activities while these industrial parks are being served. Both industrial parks have enough trackage to hold complete trains, eliminating the need for storage track capacity where the spur meets the main track.

The current operating agreement between FWWR and DART includes a provision for FWWR to provide all track and signal maintenance on the line segment. At this time FWWR maintains the track to standards suitable for the light density operation. Maximum track speed is currently 20 mph. The track

structure is made up of 85-pound jointed rail on timber ties.

FWWR also accommodates the operation of tourist trains, primarily west of the DART Cotton Belt project limits. An agreement is in place to permit the Grapevine Vintage Railroad passenger train service to operate as far east as Cotton Belt Milepost 609.3 (Coppell). Tourist passenger trains operate in Coppell on rare occasions, such as the Christmas season special train.

### **Items of Concern for FWWR**

The main concern for FWWR is preservation of access to their customers. This includes the ability to operate the local freight on the Fort Worth-Carrollton route and the provision to maintain turnouts to active customer sidings. FWWR did not indicate that they had any major objection to the operation of regional trains on the corridor. FWWR noted that their trains would be capable of operating at higher speeds if the existing track were upgraded to a standard that would permit freight operation to reach speeds of 60 mph.

FWWR noted that some of their customers have been known to have short term shutdowns that result in reduced switching activity and the temporary closure of switches and sidings. Additionally, new business inquiries surface on occasion for rail service to warehouse operations in the industrial parks and in Coppell. For example, a customer siding was rebuilt for possible future service at Coppell. FWWR would like to be able to respond to new business requests in the Freeport and Valwood industrial parks and the Coppell area. New business in other areas is unlikely, given the residential, parkland and floodplain land uses outside the existing industrial areas.

### **Items for Future Development**

FWWR will provide input to future design efforts, particularly with respect to the location of customer track turnouts. Some unused turnouts have been removed. The remaining storage track and spur turnouts will likely remain in place and must be considered for the commuter track layout and operational design. The active turnouts are also well located to accommodate potential new business. Specifically, the Coppell siding is currently inactive except as temporary car storage, although the track leads to warehouses that have potential for future business development.

Proposed bridge structures for the new DART regional track, particularly for grade separation at Denton Road and the Trinity River, will require coordination with FWWR during future design phases.

## **DALLAS, GARLAND AND NORTHWESTERN RAILROAD**

The DGNO is a shortline railroad based in Richardson, Texas. DGNO is owned by RailAmerica Corporation with headquarters in Jacksonville, Florida. The railroad consists of several disconnected track segments located in Dallas and the surrounding area. The portion of railroad related to the Cotton Belt corridor has an operations base at Mercer Yard in Carrollton.

The proposed DART commuter operation may impact the ability of DGNO to serve customers on the central portion of the Cotton Belt corridor. Meetings were held with DGNO in November 2010 and November 2011 to advise railroad management of the Cotton Belt project and to develop a better understanding of DGNO's operation. DGNO was provided an opportunity to raise concerns and add

input to the design process.

### **Existing DGNO Freight Operations**

DGNO currently provides freight service between Cotton Belt Milepost 603.5 and Milepost 597 (Carrollton to Addison). DGNO previously operated between Milepost 597 and the KCS connection at Renner (Milepost 592.8), but this track segment is currently out of service. There are no customers located east of Addison and none likely to develop in future. DGNO operates the Cotton Belt corridor as the Carrollton Subdivision.

DGNO is barred from interchanging traffic with FWWR in Carrollton or the KCS at Renner. All inbound and outbound traffic is interchanged with BNSF. DGNO utilizes trackage rights on BNSF between Carrollton and Irving in order to interchange cars with BNSF at the Irving yard.

Mercer Yard near downtown Carrollton is DGNO's operations base for train service in this part of Dallas. The facility was formerly a Cotton Belt yard and it runs parallel to the Cotton Belt corridor main track. The terminal includes six tracks for freight car switching and a locomotive servicing track. Trains serving the Cotton Belt corridor, the BNSF Irving interchange/Mockingbird industrial area, and Lewisville all originate and terminate at Mercer Yard. DGNO also holds trackage rights on BNSF's track to operate from Carrollton north to Sheridan, Texas. These rights have not been exercised since 2009.

DGNO provides local freight service to customers along the Cotton Belt corridor between Carrollton and Addison on a Monday-Friday basis. Crews will assemble their train at Mercer Yard then proceed east to serve industrial clients. Upon completion of the work the train will return to Mercer Yard where the crew will switch the train to prepare it for departure to BNSF Irving Yard later in the day. The Carrollton-Addison assignment can utilize the corridor for up to eight hours each weekday.

The trains to Irving and Lewisville start their runs from Mercer Yard and use the DGNO-BNSF connection track, connecting to the BNSF Bliss siding, to exit the Cotton Belt corridor. The train service to Irving operates each weeknight and the Lewisville service operates twice per week. Both trains return to Mercer Yard through the BNSF connection track. Trains to Lewisville have a limited operation between 10:30 PM and 3:30 AM as defined by the Denton County Transit Commission (DCTC) who controls operations on that line.

Mercer Yard is utilized exclusively for the sorting of inbound and outbound revenue traffic. The facility does not accommodate short or long-term car storage business. Most switching activity takes place at the east end of the yard since all tracks funnel into a lead that enters the Cotton Belt at this location. Some switching does occur from the west end for the limited number of tracks that are not stub-ended at the west side of the yard.

While the industrial areas between Carrollton and Addison contain numerous spur tracks that could be used for short or long-term railcar storage during business downturns this type of business is generally not pursued. If requested, each possible storage opportunity is reviewed on a case-by-case basis. DGNO indicated that the Metroplex region is not ideal for car storage and that they normally avoid this type of business.

Table 3.1 provides a summary of the turnouts to customer sidings and storage tracks located between



Carrollton and Addison.

**Table 2 - DGNO Customer Sidings and Storage Tracks between Carrollton and Addison**

DGNO Carrollton Subdivision Milepost	Station	Switch Type	Switch Points Face	DGNO Track No.	Siding or Customer Spur	Spur Location relative to Main Track	Notes
603.25	Carrollton	Hand Throw	West	702	Yard Lead	South	West End Mercer Yard
603.2	Carrollton	Hand Throw	West		Yard Track	North	Crossover to West end of Track 603 - lead to BNSF exchange track
602.99	Carrollton	Hand Throw	East	702	Yard Lead	South	East End Mercer Yard
602.9	Carrollton	Hand Throw	East	603	Yard Track	North	East End Track 603
601.9	East Carrollton	Hand Throw	East	706	Customer spur	South	former US Rubber - storage only?
601.89	East Carrollton	Hand Throw	West	707	Customer spur	South	Weyerhaeuser Recycling spur
601.85	East Carrollton	Hand Throw	East	708	Customer spur	North	Akzo-Nobel spur
601.7	East Carrollton	Hand Throw	East	709	Spur Lead	South	Chrysler Lead - no apparent active customers
601.3	East Carrollton	Hand Throw	West	114	Siding	North	West Switch North Side Storage Track
601.2	East Carrollton	Hand Throw	West	115	Siding	South	West Switch South Side Storage Track
601.18	East Carrollton	Hand Throw	West	722	Customer spur	South	Former Ford Lead - one apparent customer (lumber dealer). Switch off South Side Storage Track (115)
600.8	East Carrollton	Hand Throw	East	114	Siding	North	East Switch North Side Storage Track
600.79	East Carrollton	Hand Throw	East	115	Siding	South	East Switch South Side Storage Track
600.9	East Carrollton	Hand Throw	West	116	Siding	South	West Switch South Side Storage/Service
600.71	East Carrollton	Hand Throw	West		Xover	South	Crossover to Track 116
600.7	East Carrollton	Hand Throw	East	727	Spur Lead	South	Temple Inland access - switch off South Side Storage/Service (116)
600.65	East Carrollton	Hand Throw	West	731	Customer spur	South	Apparent lumber dealer - switch off South Side Storage/Service (116)
600.63	East Carrollton	Hand Throw	West	732	Spur Lead	South	Arrow (plastics) access - switch off South Side Storage/Service (116)
600.6	East Carrollton	Hand Throw	East	116	Siding	South	East Switch South Side Storage/Service
600.4	East Carrollton	Hand Throw	West	735	Customer spur	South	Arrow storage & Base track 736
599.3	Addison	Hand Throw	East	737	Customer spur	North	Centex access
598.8	Addison	Hand Throw	West	117	Siding	North	West Switch north side storage
598.78	Addison	DTMF	West	119	Spur Lead	South	West Wye Switch Inwood Spur
598.5	Addison	Hand Throw	East	117	Siding	North	East Switch north side storage
598.48	Addison	DTMF	East	120	Spur Lead	South	East Wye Switch Inwood Spur

The train providing local and switching service may occupy part of the corridor for up to eight hours each weekday. None of the industrial spurs are suitable for clearing an entire train from the main track. The line currently operates under yard limit rules meaning trains must be prepared to stop in case rolling stock is blocking the track.

The current operating agreement between DGNO and DART includes a provision for DGNO to provide all track and signal maintenance on the line segment. At this time DGNO maintains the track to standards suitable for light density freight operation. Maximum track speed is currently 10 mph and the line is considered to be FRA Excepted Track. The track structure is made up of 85-pound jointed rail on timber ties.

### Items of Concern for DGNO

DGNO has three main items of concern related to the project as it moves forward:

- Access to industrial spurs to provide customer service
- Access to the BNSF main track in Carrollton to allow for operations to Irving and Lewisville
- Location of Mercer Yard and its relation to the commuter operation

DGNO indicated that there is no current expectation for existing customers to shut down and terminate service requirements in the foreseeable future. So, they do not anticipate new business coming online. Given the existing development surrounding the industrial areas along the line, it appears unlikely that new customer spurs will be added to the Cotton Belt corridor. It is more likely that any new business will be accommodated with the existing network of industrial spurs and customer sidings.

For planning purposes, DGNO was asked to identify any spur tracks that could be eliminated in the future. RailAmerica, DGNO's parent company, handles all customer agreements with respect to sidings.

The RailAmerica Real Estate group will determine ownership of the industrial spurs and sidings as the project moves forward. Generally, customers own their sidings beyond the limits of the railroad ROW. As many shippers have shut down and terminated service, and the properties have changed hands, the process to determine who has authority to permanently sever rail sidings can be difficult.

Current plans for the Cotton Belt corridor passenger track locate it immediately north of the existing main track and provide the least amount of conflict with existing customer sidings. There are only two customer sidings and two storage tracks located to the north of the existing main track between Carrollton and Addison. Both customer sidings are active and will likely continue to be in the future. The design team will need to provide access across the commuter track to these facilities.

BNSF's access in Carrollton will be revised to accommodate a proposed flyover to allow the commuter operation to avoid crossing any intersecting tracks at-grade. The revised connection will eliminate the current "see-saw" movements necessary to move between DGNO and BNSF. A direct connection will permit DGNO trains to depart west from Carrollton and operate south on BNSF to Irving. This proposed concept may help to expedite DGNO movements and eliminate some of the concerns that DGNO has regarding this location. Separation of freight and passenger movements at this location is important as DGNO indicated that their movements may experience delays waiting for authority to enter BNSF.

Mercer Yard presents a major operating and safety concern for DGNO. All of the functionality of the yard as it exists today must be maintained, either on its current site or at another location. Given the proposed Cotton Belt commuter operation, and a potential commuter service on BNSF, DGNO is concerned about the safety of passenger rail users in a potentially very busy rail operating environment. DGNO has indicated that their preference is to have the freight yard moved to mitigate future problems in Carrollton.

DART has purchased 5.35 acres of property in the vicinity of Cotton Belt Milepost 601 (near Country Club Drive) for a potential new yard facility. Yard track layouts have been proposed for the property in studies carried out in 2006 and 2008. Both reviews indicated that a freight yard of the same car capacity as the current Mercer Yard could be built in this area. However, to complete the design and begin the construction process, two small pieces of land will need to be acquired. There is a triangular shaped piece of land, on the west end of the purchased tract that belongs to the City of Carrollton. On the east end of the 5.35 acre tract is a segment of property (approximately 100 feet by 100 feet) that must be acquired from LIT Industrial Texas. Further, the only access road to the Columbia Golf Course cuts through the center of the land parcel and will require relocation elsewhere. The east side lead track of the proposed yard may feature a gradient of up to 1.9% and likely needs further review during detailed design. The property is not large enough to support a combined freight yard and DART Cotton Belt commuter equipment maintenance and storage facility, thereby eliminating some potential track and cost savings a mutual facility could provide. However, beyond these issues, DGNO sees relocation of Mercer Yard to the Columbia Golf Course site as a positive move that would eliminate most of their yard facility concerns.

### **Items for Future Development**

DGNO will pursue information regarding ownership and possible decommissioning of industrial spurs that are no longer required and conflict with the Cotton Belt project. As the proposed passenger track will be located on the north side, there are a limited number of customer sidings that will be affected. If



future planning develops with the commuter track on the south side of the existing main track the pursuit of spur closures will become very important. Currently eight different industrial spurs branch off to the south along with two storage tracks. Location of the passenger track is therefore preferable on the north side.

The potential relocation of Mercer Yard to the Columbia Golf Course site requires further feasibility design and investigation into the possibility of acquisition or easement of the required portions of land. Removal of the freight switching activities from Carrollton and relocation will alleviate safety concerns and free up property for future commuter rail development. The potential intersection of three different commuter/LRT lines in Carrollton will only increase the requirement for public access in the existing Mercer Yard area. As such, DART has plans to relocate Mercer Yard.

DART also plans to pursue a location for the Cotton Belt equipment maintenance and storage facility in the coming months. This facility may be located in the existing industrial area in the east side of Carrollton (near Milepost 602). Existing DGNO industrial spur tracks that lead to closed industrial facilities may be used to provide access. Cooperation with DGNO will be required to identify potential candidate trackage that is no longer required for customer service for use as a lead between the main track and the planned maintenance facility.

## **BURLINGTON NORTHERN SANTA FE RAILWAY**

BNSF is a Class I railroad that operates throughout the western portion of the United States. The line of interest to the DART Cotton Belt project is the BNSF Madill Subdivision which crosses the Cotton Belt corridor at-grade in downtown Carrollton. The Madill Subdivision forms a through route for BNSF that extends between Dallas, Texas, and Tulsa, Oklahoma. The route provides a second access between the Dallas area and the north, as the primary route extends north from Fort Worth through Oklahoma City.

The proposed DART commuter operation is not expected to heavily impact BNSF operations since a flyover is proposed to carry the passenger track above the BNSF thereby eliminating the at-grade crossing. The construction of a main track relocation of the Madill Subdivision to accommodate the flyover will have an impact on BNSF operations during the buildout phase. The relocation of the BNSF-DGNO connection will also require BNSF concurrence and approval. A meeting was held with BNSF in November 2011 to advise railroad management of the Cotton Belt project and to develop a better understanding of the operation for the Stantec and URS design teams. BNSF was provided an opportunity to raise concerns and add input to the design process.

### **Existing BNSF Freight Operations**

BNSF routinely operates large and heavy freight trains on the Madill Subdivision. Each day, BNSF typically operates three southbound and two northbound heavy manifest trains. All manifest trains are restricted to a maximum length of 7,000 feet. Coal trains with up to 135 cars operate southward up to four times each week, with the trains returning north empty on a similar frequency. A local freight train that serves customers between Irving and Sheridan operates northward three days per week and returns south the following day. Gravel trains operate five days per week in both directions to and from the stone customers in Gribble (just north of Irving). Limestone trains operating between Oklahoma and power plants in central Texas are scheduled twice per week. As indicated in Section 3, DGNO also operates on the Madill Subdivision between Carrollton and Irving each weeknight. In total, up to 12

freight trains per day will operate on the Madill Subdivision. There are currently no passenger train services on the line.

Movements on the Madill Subdivision are governed by Track Warrant Control with written authorities provided to train crews by radio or electronic data transmission. There is no signal protection on the line. An automatic interlocking exists at Carrollton to protect train movements on the at-grade crossings between BNSF and DGNO. The system at the crossing operates on a first-come, first-served basis by the approach of trains toward the location.

As noted in Section 3, DGNO accesses the BNSF main track by performing a “see-saw” movement from Mercer Yard into the BNSF Bliss siding and then changes direction and heads south onto BNSF to Irving. DGNO must request track authority before initiating this movement and may not be granted immediate authorization depending on the proximity of BNSF traffic. Once DGNO is authorized to proceed, the movements required to access the BNSF main normally take 20 minutes to complete. All track switches must be manipulated by hand from the ground during the process.

All interchange of railcars between DGNO and BNSF occurs at the Irving Yard. BNSF does not set off or pick up cars in Carrollton that are destined to/from points on DGNO. BNSF cannot interchange traffic with FWWR in Carrollton as a result of the operating agreement FWWR abides by in its contract to serve customers on the Cotton Belt corridor.

BNSF serves two customers south of the at-grade crossing in Carrollton. These facilities are served by the local freight train that operates three times per week. Service to these facilities does not impact the Cotton Belt corridor.

Operations on the route south of Irving require BNSF trains to utilize TRE trackage. Typically TRE will not allow operation of BNSF freight trains between 4 AM and 9:30 AM and again between 4 PM and 7:30 PM. This results in concentrated freight train activity on the Madill Subdivision outside of these timeframes.

### **Items of Concern for BNSF**

Currently, the main concern for BNSF is the arrangement of the at-grade crossing of the Cotton Belt corridor and the functionality of the automatic signal system that protects the interlocking. The presence of multiple public road crossings and obstructions such as the IH-35E overpass and buildings require northbound BNSF trains to stop well south and out of sight of the home signal if the advance signal indicates a stop is required. While the planned flyover will eliminate the need for the Cotton Belt at-grade crossing, the other crossing of the BNSF and DGNO Lewisville Industrial Track may remain. BNSF indicated that if any form of signal system is to remain following the Cotton Belt project, the signal circuitry will need substantial upgrading. Further, the possibility of providing a repeater signal at the location where northbound trains must stop should be reviewed.

BNSF indicated no specific concern with the flyover or the removal of the Bliss siding and agreed it would be beneficial for their operation. The Bliss siding is used exclusively by DGNO to access BNSF and is not used by BNSF for car storage or other purposes.

The new junction switch between BNSF and DGNO did not present a major concern for BNSF. Further,

BNSF did not believe that it will be necessary to provide a CTC control point for the new junction switch. BNSF indicated that there are no plans to install CTC signaling on the Madill Subdivision for the freight operation and an isolated control point to allow expedited DGNO entry/exit is not justified.

BNSF did express some concern with the proposed future Madill Subdivision main track re-alignment to accommodate the flyover. Some extra curvature will be required to align the Madill Subdivision onto the existing DGNO track in Carrollton at the current at-grade crossing. The line is proposed to use approximately 0.3 miles of the existing DGNO Cotton Belt alignment before curving northward under the future flyover to regain the existing BNSF alignment. The current curve approaching the DGNO at-grade crossing includes five separate public crossings and threads under IH-35E on a skewed angle. The present re-alignment proposal requires incorporation of compound curvature in order to route the BNSF onto the DGNO alignment. The proposed re-alignment will not allow the existing 10 mph speed limit to be relieved in any way at this location. BNSF expressed interest in having this concept reviewed for other alternatives in order to alleviate the curvature issues and help improve the track speed.

Another commuter operation, likely to be operated by TRE on the Madill Subdivision, is in very early planning stages and the relation between that project and the Cotton Belt proposal is of concern to BNSF. At this time the concept is part of a regional plan but there is no funding in place to move the project forward. The preliminary plan proposes TRE commuter trains operate between Irving and Frisco with a stop in Carrollton. The Cotton Belt project will provide a more suitable alignment for the TRE service but the preliminary Cotton Belt plans do not account for certain BNSF design requirements. For instance, BNSF will not approve commuter station platforms in single track areas. The re-alignment for the Cotton Belt project features a single track for BNSF thus the provision for double track in the vicinity of any future Carrollton stop would need to be further examined. Also the re-alignment requires retention of the DGNO Lewisville Industrial Track at-grade crossing and the associated speed restriction at the crossing and curve as described above. Again, the curve and crossing will need further design work during the Cotton Belt project efforts if the TRE commuter plan is to be protected.

### **Items for Future Development**

BNSF has expressed some concerns that will require further examination and design as the project moves forward. First the layout of the curve and remaining railroad at-grade crossing (with the DGNO Lewisville Industrial Track) will need further development. Any possibility to ease the curvature and remove the at-grade crossing should be investigated. DGNO serves one customer (International Paper) on the Lewisville Industrial Track on the south side of Carrollton and uses the at-grade crossing only for this purpose. Any opportunity to eliminate the at-grade crossing must be investigated with DGNO. The possibility of relocating the customer siding to a location that can accommodate more car storage may be attractive to both DGNO and the customer.

Also related to the curve and crossing issue is the protection of design standards in event commuter train service is pursued on the BNSF. Provision for expansion to double track at a future station on BNSF must be incorporated in the track re-alignment design undertaken during the Cotton Belt project. Curve designs must allow for operation of passenger traffic at greater than 10 mph on BNSF in Carrollton.

### **KANSAS CITY SOUTHERN RAILROAD**

KCS is a large regional railroad with operations in the central part of the US and Mexico. The line



segment of interest to the Cotton Belt project is the KCS operation over the planned corridor between Plano and Renner Junction. KCS operates the line as part of its Alliance Subdivision that extends between Alliance Junction (near Wylie Yard) and Metro Junction (near the BNSF Alliance Yard). KCS continues to use the Cotton Belt mileposts on the former Cotton Belt trackage. The segment of interest corresponds to Milepost 587.5 (Shiloh Road) at the east end to Milepost 592.3 at Renner. The route provides a connection between the KCS network and the major interchange with BNSF at Alliance.

The proposed DART commuter operation is planned to function in cooperation with KCS over the four mile segment between Renner and Plano. Meetings were held with KCS in November 2010, December 2011, January, March and April 2012 to advise railroad management of the Cotton Belt project and to develop a better understanding of KCS' operation. KCS was provided an opportunity to raise concerns and add input to the design process.

### Existing KCS Freight Operations

Under the terms of its operating agreement on the former Cotton Belt, KCS may only operate overhead through freight trains. KCS has no rights to serve customers on the industrial tracks that branch off of the Alliance Subdivision between Plano and Renner. Currently, KCS operates one regular freight train in each direction daily. The trains operate between the KCS Wylie Yard and the BNSF Alliance Yard. They provide interchange service for traffic being exchanged between KCS and BNSF.

At Renner Junction, the KCS Alliance Subdivision departs from the Cotton Belt corridor over a connection built in the mid-1990s to reach former Santa Fe track that KCS purchased in 1990. The former Santa Fe track forms the Alliance Subdivision between Renner and Metro Junction. East of Renner the former Santa Fe track is referred to as the White Rock Branch and it leads to the KCS Dallas Yard. The Alliance Subdivision west of Renner accommodates 5-6 trains per day (including the two trains that operate on the former Cotton Belt). There are three or four trains that do not utilize the former Cotton Belt and continue east on the White Rock Branch to the Dallas yard. The White Rock Branch trains may have an influence on traffic to/from the former Cotton Belt given the limited number of sidings on the Alliance Subdivision. For example, it is possible that a westbound train on the former Cotton Belt segment may have to wait at Renner for an eastbound KCS train to clear onto the White Rock Branch.

The White Rock Branch is grade separated from the DGNO portion of the Cotton Belt west of Renner. As noted in Section 3, DGNO does not operate on the alignment between Addison and Renner. DGNO holds the rights to serve customers on the KCS operated portion of the Cotton Belt east of Renner, but these rights are currently inactive. Prior to the cessation of service, DGNO served three customer sidings in Plano including a significant rock unloading facility operated by a local building materials firm. Table 5.1 summarizes the existing customer siding turnout locations identified on the KCS in Plano.

**Table 3 - Turnout Locations on KCS Operated Segment of the Cotton Belt Corridor**

KCS (Cotton Belt) Milepost	Switch Type	Switch Points Face	Siding or Customer Spur	Spur Location relative to Main Track	Notes
587.7	Spring Switch	East	Passing Siding	South	East switch of Plano passing siding
588.2	Hand Throw	West	Industrial Park Spur	South	Lead for spur into industrial park with no apparent customers
588.9	Hand Throw	West	Customer spur	South	East switch of aggregate facility - currently not in service
589.5	Hand Throw	West	Customer spur	South	West switch of aggregate facility - currently not in service
589.5	Hand Throw	West	Passing Siding	South	West switch of Plano passing siding
589.64	Hand Throw	East	Customer spur	South	Lead to industry adjacent to DART Red Line - currently not in service



A passing siding measuring 9,165 feet, suitable for mainline train meets, is located in Plano between Milepost 587.7 and 589.5. The siding was used extensively before 2008 when train counts dropped between Wylie and Alliance. Plano siding is considered to be critical for further expansion of KCS train services on the Alliance Subdivision.

Another siding is located at Cowley, two miles west of Renner on the former Santa Fe portion of the Alliance Subdivision. The Cowley siding is short, only 5,500 feet long, and is used to clear local freight trains that serve industries in that area. This siding is not suitable to replace the Plano siding because freight trains are typically 6,000 to 8,000 feet in length.

KCS has indicated that credible business opportunities exist to increase the daily train count by up to six more movements per day between Wylie and Alliance. All the new business will be associated with plans to further expand the Wylie Yard and development of new service on the upgraded route to east Texas and Louisiana. This potential expansion would increase KCS train counts on the Cotton Belt corridor to eight per day.

The existing track consists of 112-pound jointed rail on timber ties. The track is maintained by KCS for medium density traffic. Track speed is 30 mph east of Plano, and 20 mph within Plano as far west as Renner. There are nine public grade crossings on the KCS line segment in Plano between mileposts 588.6 and 590.9. KCS controls train movements on the Alliance Subdivision using a Track Warrant Control System with written movement authorities and no form of signal protection.

### **Items of Concern for KCS**

KCS is the only railroad that operates through freight services on the Cotton Belt corridor and expressed several concerns regarding the project. Access to the corridor is critical for KCS to link their network to the major interchange with BNSF at Alliance. No alternative routes can be immediately utilized to bypass the Cotton Belt corridor. Other route options are available but all would incur significant negotiations with other major rail carriers and likely result in reduced velocity for KCS traffic.

The frequency of the DART operation and potential passenger-only traffic windows is a very great concern to KCS. The preliminary commuter train schedule will see passenger traffic operating between 5 AM and midnight. Train frequency will be every 60 minutes during off-peak hours and every 20 minutes during peak hours. Peak hours have been defined as morning peak between 5 AM and 9:30 AM and afternoon peak between 3 PM and 7 PM. A new passenger track will be constructed alongside the existing main track, in line with the design concept for the FWR and DGNO track segments to the west. The existing main track will be upgraded to accommodate meets as required between DART trains. While no specific passenger-only windows have been specified the frequency of trains and the presence of the terminal station in Plano make it unlikely that the commuter operation will be dispatched exclusively on the passenger track. Preliminary train performance calculator (TPC) modeling of KCS trains, undertaken by the design team, has determined that it is not possible to operate a freight train between Plano and Renner in less than 20 minutes (see Section 5.3). These results imply that it will be unlikely that freight train operation can be supported during the morning and afternoon rush periods. Freight traffic during the rest of the passenger operations day may be limited to one train during the 60-minute timeframe between successive commuter trains. Freight movements would be unimpeded between midnight and 5 a.m.

KCS expressed concern about restrictions on freight traffic through station facilities. KCS indicated that overhead and side clearances are critical to the future development of traffic on the Alliance Subdivision. The project currently specifies a platform design that does not utilize platform roof overhangs or any other overhead obstructions. If necessary, any overpass work will respect clearances necessary for unrestricted operation of 20-foot, 2-inch high intermodal double stack and autorack freight equipment. The Plano station is being planned on dedicated, stub ended, passenger tracks that will not be part of the KCS freight route. The preliminary Plano station site is slated for the northeast corner of the Shiloh Road and KCS grade crossing, near Milepost 587.5.

Future track maintenance and operations management on the Cotton Belt corridor is another area of concern. The preliminary concept will see DART take over maintenance and operation of the Cotton Belt corridor. This will include both the new passenger-only track and the existing Alliance Subdivision main track. CTC signal control will be implemented to be managed by DART with dispatching performed by a firm designated by DART (which may include KCS). A new trackage rights agreement would be implemented between KCS and DART along with some form of charge to cover the KCS share of track maintenance costs.

A major concern to both KCS and DART is the planned widening and reconstruction of US 75 in Plano. The highway is currently crossed on a single-track through plate girder bridge structure at Milepost 590.32 Alliance Subdivision. The existing multi-span bridge must be extended to accommodate the road widening. As the railroad intersects the highway at an acute angle the expected bridge lengthening will be up to 50 feet at both ends. The existing public grade crossings just beyond the east and west ends of the bridge will remain in place after the construction project. No public grade crossings will be eliminated during the course of the work. The congestion of grade crossings and bridges in this vicinity has led to the adoption of a passenger track flyover into the DART Cotton Belt planning. The required track gradients necessary to design the passenger track flyover will prevent it from being used by freight trains.

Texas Department of Transportation (TxDOT) has secured the necessary funding for the US 75 project and design is currently underway. Preliminary design plans have been made available by TxDOT to all concerned. Further design of the Cotton Belt passenger track must take into account the final design and as-built configuration of the revised freight track bridge at the site.

Current planning calls for the DART passenger track to be located to the north of the Alliance Subdivision main track between Milepost 587.5 (Shiloh Road east terminus) and Milepost 590.8. West of Milepost 590.8 the passenger track will shift to the south side of the ROW. A crossover arrangement is being planned to move traffic between the two tracks and provide the ability to route passenger traffic on the KCS main if necessary for meets. KCS has expressed concern that any crossover arrangements be developed in cooperation to ensure all train movements are provided for in the track layouts.

### **Freight Train Run Time Simulation**

In order to quantify the estimated running time required for a KCS train to operate between Plano and Renner, the team completed a high level simulation of a freight train using the TPC function of the Berkeley Simulation Software Rail Traffic Controller (RTC) Model. The purpose of this calculation was to determine if it was possible to operate a freight train from Shiloh Road to Renner and clear the Cotton Belt corridor within the 20 minute headway between successive commuter trains. A potential future



intermodal train of approximately 10,000 feet in length, with adequate motive power to move the train over the heaviest grades on the Shreveport to Alliance route, was used in the simulation. Track speed scenarios including existing speed limits, potential upgrade to 35 mph and potential upgrade to 50 mph were tested. Movement condition at the starting point, Shiloh Road, was also modeled to determine the difference between a train in motion and starting from a stop (after waiting for the arrival of an eastbound DART train). Table 5.1 summarizes the results of the simulation efforts.

**Table 4 - Estimated Freight Train Operating Times between Plano and Renner**

	<i>Minimum Run Time - Westbound</i>		
	<b>Existing Track Speed</b>	<b>Maximum 35 mph</b>	<b>Maximum 50 mph</b>
<b>Non Stop Train</b>	23 min 51 sec	17 min 33 sec	14 min 1 sec
<b>Train Stop at MP 587.5 (Shiloh Rd.)</b>	28 min 50 sec	23 min 7 sec	21 min 21 sec
<b>Time Differential (stop vs. non-stop)</b>	4 min 59 sec	5 min 34 sec	7 min 20 sec

*Basis:*

- Elevation data from KCS track profile Alliance Sub revised 1-1-05
- TPC calculation from RTC Simulation Model

*Train Data:*

- 3 SD70ACe locomotives
- 124 x 77' double stack platform cars
- 14282 tons, 9770 feet, 0.90 HpT

In short, the existing track speeds do not allow for a freight train to operate between Plano and Renner between the 20 minute commuter train headways. Even if the track speed were increased, in the most likely scenario of starting from a stopped position, freight trains cannot operate between Plano and Renner during peak service periods. Only the case where track speed is increased to 50 mph and the freight train passes Shiloh Road at normal operating speed does the possibility exist of operating a freight train between successive commuter trains. However, given the complication of nine public grade crossings and urban development through Plano, the possibility of operating freight trains at this speed is doubtful at best. The undulating track gradient also limits the capability of the test freight train such that it is not expected that the train will be able move much faster than 40 mph.

As a result the expectation of freight operation during the peak commuter service times is highly unlikely. Freight operation is possible during the 60 minute headways during the rest of the day. At this time, even with the blackout for freight operation during peak time, the potential future freight traffic identified (up to eight trains per day) could be accommodated with the remaining operating windows.

**Items for Future Development**

The requirement to retain the existing three customer spurs in Plano will be examined by KCS. As noted previously, the rights to serve these customers belong to DGNO thus extensive research may be necessary to determine if KCS has the right to remove the industrial trackage. Elimination of the existing spur serving the building supplies facility adjacent to Plano passing siding would also provide the side benefit of simplifying a required grade crossing renewal at N Street. Ultimately, it will require a joint effort on the part of KCS, DGNO and DART to bring customer spur removals to reality in Plano.

The development of the approved US 75 widening project and its impact on the existing Cotton Belt corridor infrastructure will require close monitoring in the months to come. Detailed design and tendering will be complete by mid-2013 with construction proceeding thereafter. The design of the altered railroad overpass will become an important factor in the development of plans for the proposed future passenger track flyover.

The further development of the DART passenger operations plan will be used to identify practical freight operating windows throughout the day. Some factors, such as the west end corridor terminus and final station stop count, have not yet been concluded and as a result the commuter train schedule will require further revision. Opportunities to remove planned meets between Plano and Renner will require investigation to determine if wider freight windows may be possible in off peak times. Subject to further evaluation by KCS, it appears unlikely at this time that the 20 minute frequency of commuter traffic during the peak hours will permit any sort of freight operation in that timeframe.

Plano siding will be required for future planned KCS freight operations. However, if necessary, KCS may support the relocation of the siding to open up space for the commuter corridor development. KCS prefers relocating the Plano siding west of Renner, on the former BNSF portion of the Alliance Subdivision. This may involve extending and upgrading the existing Cowley siding. New construction standards for KCS passing sidings call for track lengths of 8,300 to 8,500 feet. This would require an extension of approximately 3,000 feet to the existing Cowley siding. KCS indicated that a siding east of Plano (beyond DART Cotton Belt limits) would not be as useful as the location west of Renner. Development of the siding relocation (if necessary) will be included in further corridor design work.

The addition of commuter service to the Cotton Belt corridor will require an amended maintenance and operating agreement between KCS and DART. KCS has indicated it will work with DART in the future on required revisions to agreements at the appropriate time.

## **FUTURE COORDINATION TASKS**

To date, the freight railroad coordination meetings have clarified the future operations parameters necessary to progress the commuter corridor design and the items that must be resolved to permit continued freight activity on the line. A number of concerns have been brought forth by the four freight railroads that will require further joint effort between the design team and railroad management.

Identification of turnouts and industrial spur tracks that can be eliminated in advance of the Cotton Belt project work will be a leading item for further coordination in the months ahead. The potential to remove siding conflicts with the proposed passenger track will reduce the capital cost of the project and help to minimize the freight/passenger interaction. The complicated nature of prior track ownership, current operating agreements and status of industrial customers will all make siding elimination a challenge to resolve.

The relocation of Mercer Yard will require continued interaction between the design team and DGNO. If the additional property necessary to complete the yard is obtained the functionality of the track layout will need further development in association with DGNO management. Planning for a separate Cotton Belt commuter maintenance and storage facility, potentially on an existing industrial spur site in Carrollton, will also require further coordination with DGNO, in order to resolve any issues with respect to spur track use and ownership.

The evolution of the regional rail operations schedule will require coordination with KCS in order to achieve reasonable operating windows for freight trains outside the AM and PM peak passenger hours. The capability to handle additional traffic at various times of the day (not just the non-passenger hours between midnight and 5 AM) will require examination as the commuter operations schedule gains further definition. As the operational requirements of a freight carrier such as KCS will vary over time it will be necessary to maintain coordination with the railroad as the design progresses.

The design requirements for the altered BNSF alignment through Carrollton will require coordination between BNSF, DGNO, DART, the design team and the planning authority for potential commuter operations on BNSF. Design components such as curvature, presence of the at-grade railroad crossing with the Lewisville Industrial Track, and the need to protect double-track station arrangements on BNSF must be confirmed as Cotton Belt design development proceeds. All of these design elements will have an impact on the proposed future BNSF alignment that will allow for a Cotton Belt commuter flyover at Carrollton.

The US 75 widening project will require continuous coordination between the Cotton Belt design team, KCS and TxDOT. The final freight track bridge configuration and timeframe for construction must be considered in the design for the passenger track flyover. Placement of the flyover structure will also need to be considered by the US 75 design team and the future highway construction plan and schedule.