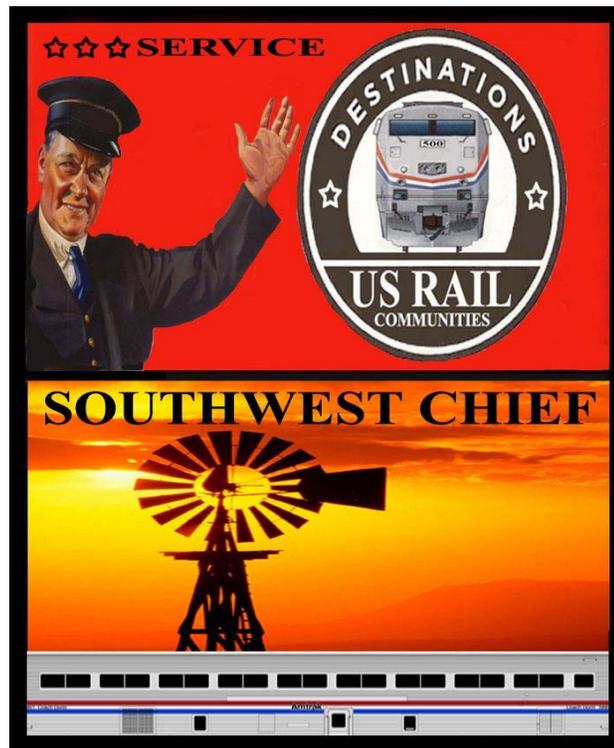


US Department of Transportation's
 National Infrastructure Investments Program
 Fiscal Year 2017 "TIGER" Discretionary Grants

Project Narrative

THE SOUTHWEST CHIEF ROUTE STABILIZATION PROJECT

<p>Lead Applicant and Point of Contact:</p>	<p>Ms. Mary Lou Kern Colfax County Manager P.O. Box 1498 Raton, NM 87740 (575) 445-9661</p> <p>Email: mlkern@co.colfax.nm.us</p>	 <p>Colfax County <i>New Mexico</i></p>
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<p>Type of Project:</p>	<p>Intercity Passenger Rail</p>	
<p>Federal Funds Requested:</p>	<p>\$17,538,615</p>	
<p>Non-Federal Match</p>	<p>\$9,189,000 (34.3%)</p>	

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Executive summary

Colfax County, New Mexico requests \$17,526,115 in TIGER funds for the Southwest Chief Route Stabilization Project. This project adds 42 miles of rehabilitated track in Kansas and Colorado to the total created in the TIGER 6 and 7 projects. It also invests in infrastructure improvements along the New Mexico-owned portion of the route in Santa Fe County, NM to benefit the Amtrak service. If awarded, three continuous sections of rehabilitated track 146 miles long, 80 miles long, and 58 miles long will result. The track will be maintained to 80 MPH standards by BNSF Railway for the next twenty years. In addition, if the grant is awarded, a signaling system worthy of a museum will be eliminated along 16.6 miles of track, a broken and eroded culvert will be replaced, and new rail, ties, and rock-slide fence will be installed on the Southwest Chief route in New Mexico. The investments will greatly stabilize the route of the Southwest Chief. Transit times are reduced and the state of good repair is highly elevated.

This grant will be combined with \$9,189,000 of non-federal matching funds for a total project cost of \$26,715,115 and a 34.4% match. The grant is 100% rural. The project is expected to meet the requirements of a NEPA categorical exclusion and can be fully completed by the statutory deadline for obligation of funds on September 20, 2020. No significant technical, commercial, schedule, or administrative risks are identified. Engineering design is either complete or progressed such that scope and costs are identified and contingencies are minimal. The companies participating in the construction have a proven track record in the field of railroad construction and construction management; these entities completed both TIGER 6 and 7 projects on schedule and under budget.

The grant award will also answer USDOT's call for innovation and accountability. The grant participants will engage the relevant liaisons at USDOT taking advantage of the new expedited permitting focus at USDOT. BNSF Railway also steps up to the call for accountability, guaranteeing the project scope under their control will be completed at (or under) budget and on schedule. If it fails to do so, BNSF will continue the project regardless and absorb the financial consequences.

The importance of the Southwest Chief to the region it serves and the psyche of its residents is illustrated by the strong, apolitical response to the threat of losing it. For the 4th year in a row, small population centers up and down the route are finding matching funds to contribute to the project. The Southwest Chief is more than just a transportation and/or vacation alternative for folks traveling across the county. It is an economic pipeline bringing thousands of visitors to the area, reviving the American entrepreneurial spirit that built this county and creating employment opportunities for the region's flourishing tourist industry. Continued investment of the train serves the public well. Annual economic impact of the train has been calculated at \$33M and approximately 400 jobs for the region.

This application consists of several components which are identified in the narrative and evaluated independently in the cost benefit analysis. The state of good repair calculations rely on robust calculations using BNSF data now available that captures actual benefits generated by the previous TIGER grants. The primary benefits are savings in personal time, increased operating efficiency, and state of good repair. Taken at the 7% discount rate, the total project has a cost benefit ratio of 2.61. This investment in the Southwest Chief legacy will contribute significantly to the preservation of this great American train and the American infrastructure on which it travels.

i. Project Description

This project continues the rehabilitation of the route of the Southwest Chief begun with the TIGER 6 and 7 grant awards. Addressing the deteriorating bolted rail condition along the BNSF La Junta Subdivision from Hutchinson, KS to Las Animas, CO and improving infrastructure along its route in New Mexico is critical to the survival of the Southwest Chief. The Southwest Chief is in turn crucial for residents and businesses along its route, connecting them to and



Figure 1: Southwest Chief clears the Raton Pass in NM

bringing customers from Chicago, Kansas City, Albuquerque, and Los Angeles and other cities. The importance of the train to these communities manifests itself with their matching of limited municipal funds and the unprecedented cooperation they demonstrate among a diverse cross section of the country spanning a thousand miles. This coalition was able to generate the necessary state and local action resulting in the previous TIGER awards and continues with the submittal of this application. Garden City, KS was the TIGER 6 applicant and La Junta, CO for TIGER 7. For TIGER 9, the applicant moves further along the route to New Mexico's Colfax County. As in the past applications, the States of Colorado, New Mexico, and Kansas support the effort with financial and administrative support in the public sector. The railroads, BNSF Railway, Amtrak, and NMRX complete the project team with their technical and operational expertise, and in the case of BNSF and Amtrak, financial support.

The TIGER 6 work was on the La Junta Subdivision, restoring track status to Class 4 with the replacement of the 60-year old bolted rail, associated turnouts, and crossings. TIGER 7 continued the La Junta rehabilitation while bringing New Mexico into the scope with tie replacements and track work along the NMRX section of the line east of Albuquerque, NM. This project adds another 42 miles of Class 4 to the La Junta Subdivision and addresses traffic, signal, and right-of-way conditions in New Mexico.

The project helps preserve an economic engine in southeastern Colorado and northern New Mexico, bringing thousands of visitors and tourists into a scenic destination area not well served with transportation options. In the entrepreneurial spirit that built this county and is flourishing once again, numerous enterprises cater to the enthusiasts arriving in the area with various outdoor activity programs, accommodations, and dining services. Continuation of the train provides a steady stream of consumers for these businesses. In addition, the rail and many of the associated construction materials involved with the project are products manufactured in the region, preserving American mills and factories to support the nation's infrastructure with American products.

Transportation challenge and no-build scenario

Out of the 315 miles between Hutchinson, KS (MP 218) and Las Animas, CO, (MP 533) the two previous TIGER projects have replaced 107 route miles of bolted rail with continuous welded rail (CWR), new turnouts and crossings. This new rail was installed adjacent to the existing 135 miles of CWR in the line. Now, 71 miles of bolted rail remain. These components were installed between 1949 and 1955 and are at the end of their useful life. Freight traffic on the subdivision doesn't justify maintaining this rail at Class 3 standards, let alone Class 4. If the bolted rail is not replaced, track classification will drop to Class 2 over the next decade. BNSF freight rail needs are satisfied even with the 25 MPH speed restrictions in these areas and there is no contractual obligation to maintain higher track speeds for Amtrak.



Figure 2: Semaphore signals and signal pole line at Levy Siding on the Raton Subdivision

Delays from the speed restrictions are significantly compounded further west on the Southwest Chief route. West of Albuquerque the route joins BNSF's Transcon freight main line, one of the highest density freight traffic rail lines in the world (if not the highest). The Southwest Chief is given a schedule slot on the Transcon just ahead of a string of freight trains bound for Los Angeles. When on schedule, the Southwest Chief can maintain passenger speeds ahead of these trains. When delayed around thirty minutes or more, the Southwest Chief enters the route in the middle of the traffic and must travel at the corresponding freight trains speeds until able to pass. Passing options are limited. BNSF estimates delays of sixty minutes to the Southwest Chief westbound trains in this scenario. (Note – these conditions don't exist for the eastbound Southwest Chief.)

In addition to speed reductions, elevated maintenance costs are also transportation challenges presented by the age the bolted rail, turnouts, and crossing on the subdivision. Rail defect rates for the older bolted rail are multiple times that of modern CWR. The multiple rail joints along with the aging turnouts and grade crossings create failure points for broken signal bond wires. Additional track gangs are required to tighten loose bolts or replace broken ones and labor to perform these tasks is increasingly hard to find.

With a few modifications to reflect the 2017 status of the line, the build scenario of the TIGER 7 grant application basically becomes the no-build scenario of this one. Using age of rail and accumulated million-gross-tons as benchmarks for degradation, both the TIGER 6 and TIGER 7 applications projected a scenario in which the remaining bolted rail would progressively fall from Class III to Class II. The TIGER 9 application continues with this methodology. The projected TIGER 9 no-build track classifications over the twenty-year period once the TIGER 9 work are listed in appendix A2b "Rail Deterioration

Assumptions”. This deterioration leads to a projected additional 52 minutes travel time at the end of the forecast period.

In New Mexico, the Southwest Chief route from Albuquerque north and east to Lamy, NM operates on NMRX, which is an NMDOT-owned railroad managed by the Rio Metro Regional Transit District. The Rail Runner commuter service between Albuquerque and Santa Fe shares this track to MP 858 where it leaves the route for the city of Santa Fe. The Rail Runner service is operated by Herzog Transit Services who provides contracted maintenance for all of the NMRX rail. The NMRX line continues beyond the Santa-Fe junction another 24 miles to the station stop at Lamy, NM at MP 834.

This segment represents a transportation challenge to the Southwest Chief for numerous reasons. The existing automatic block signal system was installed over sixty-five years ago and employs an ancient technology using mechanical semaphore or multi-lens searchlight signals with a land-line wire network draped over signal poles adjacent to the right-of-way (Figure 2). Rail and industrial history fans from all over the world admire the ancient semaphore and searchlight signals more appropriately located in a museum. The mechanical signals are increasingly difficult and costly to maintain and the signal pole line is decrepit and subject to frequent breakage and vandalism. The trains are routinely delayed due to signal failures, yet NMRX is spending increasing dollars maintaining them. Amtrak has recently funded replacement of the signals from the junction at MP 858 to MP 851, however, more replacement is necessary to restore reliable service to the route.

The rail is generally in good shape (with the exception of a curve at Devil’s Throne) and the condition of the ties has improved with the installation of new ties from the TIGER 7 award. The associated slow orders have been removed. However, there is a culvert at Devil’s Throne (MP 853) which has failed allowing storm water to erode around the culvert back into the roadbed foundation. A recent storm washed out this area to where the foundation had to be repaired (Figure 3). NMRX estimates temporary repairs will suffice for five years. Following that, the scenario will repeat when conditions occurs similar to the recent one. NMRX estimates these storms happen every two to three years. This particular storm was unusual in that rain had been in the region for the prior week and the ground was saturated, increasing the water run-off through the culvert, probably occurring once every ten years.



Figure 3: Damaged culvert and eroded foundation

Rock slides are also common at Devil’s Throne. Rocks of 20-30 pounds are frequently found on the tracks in the area. The section is on a curve restricted to 35 MPH and trains aren’t traveling that fast through the area. The transportation challenge is the limited visual detection of rocks and a corresponding notice to passing trains. The rail in the curve at Devils Throne is also in need of replacement as it is at the end of its useful life.

Amtrak reports two service disruptions in this area over 2015 and 2016, one for rocks on the rail and one for a washout. Amtrak estimates the service disruptions cost approximately \$250,000 each in cancelled tickets and passenger reimbursement/accommodations.

Along with the roadbed, there are traffic obstacles involved in the operation on this route. The eastbound and westbound Southwest Chiefs are scheduled to pass five or fifteen miles east of Lamy at CTC-controlled sidings. However, the trains are often not on schedule and a pass is required closer to Albuquerque. There are few options, one being the siding at Lamy. The Lamy siding and station is a common meeting point for the trains. The transportation challenge is that the Lamy siding ties and turnouts are in poor shape and, despite being in a CTC area, the turnouts are manually operated, requiring additional time for a train to take the siding. In addition, the Lamy siding is currently under the control of BNSF dispatchers, so a NMRX dispatcher must coordinate verbally with the BNSF dispatcher to plan any meets.

The following table summarizes these challenges for the NMRX portion of the Southwest Chief route and in order of priority.

Table 1: NMRX transportation challenges and no-build scenarios

Challenge	Transportation impact	No-build scenario
Ancient signal types and pole line, MP 851-836.3. No centralized traffic control capability from MP 858-836.3 (west end of Lamy siding).	Frequent delays due to signal malfunctions; frequent and costly replacement of single pole wire; high maintenance costs of mechanical signals. 151 delay events occurred in 2017 for a total of 1,577 delay minutes for 2 trains. The signal pole line is subject to 10 vandalism events per year.	No changes to the current delay times and signal maintenance costs projected throughout forecast period.
Manually-operated switches at the Lamy siding. Ancient signal types and pole line along the siding (MP836.2-834.4).	Delays due to stopping train allowing crew member to operate switch when meets occur with opposing Southwest Chief train. Delays due to signal problems.	No changes to the current delay times and signal maintenance costs projected throughout forecast period.
Deteriorated ties, worn turnouts and protective devices on the Lamy Siding.	Speed limit on the siding is currently 10 MPH. Interchange locks and turnouts inoperative.	No changes to the current delay times and signal maintenance costs projected throughout forecast period.
Dispatch control of Lamy Siding with BNSF	Delays due to inability to reach BNSF dispatcher in Fort Wayne, TX	No changes to the current delay time throughout forecast period.
Erosion has damaged culvert and roadbed at MP853. Culvert not long enough to direct water away from roadbed, causing erosion.	Future storm could undermine roadbed such that service disruption could occur due to impassible right-of-way.	Project two storms over the forecast period with service disruption to replace culvert and repair right-of-way. Rail traffic halted until construction complete.
Deteriorated rail at Devil's Throne, close to condemning limit	Rail traffic ceases when rail condemned.	Scenario assumes rail replaced prior to falling below condemning limit.
Rock slides occasionally occur at Devils Throne requiring caution when approaching area.	Visual detection of condition exists now, either from passing trains or maintenance-of-way resources. Speeds can be limited to 10 MPH as a precautionary measure.	Reduction in speed from 35 MPH to 10 MPH over a small section does not result in significant delays to impact a benefit-cost analysis. No difference in build and no-build scenarios projected.

At Lamy, ownership of the Southwest Chief route transfers back to the BNSF and the Glorieta Subdivision to Las Vegas, NM, about 65 miles away. The Raton Subdivision starts at Las Vegas and runs 320 miles to La Junta, CO. The portion of the route relevant to this application is the 200 miles from Lamy, NM to Trinidad, CO (MP 835 – MP 635). The terrain consists of two mountain ranges, high plains, and high desert. East of Lamy is the first mountain range and the line climbs 1000’ in ten miles to reach the summit at Glorieta Pass (MP 825). Speeds in this section are limited to 20–25 MPH due to the curves associated with a mountain railroad. The line crosses the second mountain range at the famous Raton Pass immediately north (timetable east) of Raton where it climbs 1000’ over seven miles to reach the summit. Again, speeds are limited to 20 – 25 MPH in the pass. With a few exceptions the line generally climbs and descends smaller hills between the two mountain ranges. Tangents are generally long, curves are typically broad, and speeds are 70 MPH over much of the distance.

Over the years, BNSF has performed several rounds of major tie replacement programs in addition to the routine tie maintenance on this route. A significant number were installed in 1988, 1991-1993, 1997, and 2001. Predominant tie age and corresponding speed limits are summarized by segment in Table 2.

(Note there are a few isolated curves and other locations where ties were installed in 1980, 1982, and other years are present) In many cases, BNSF made careful use of tie placement, installing less than the average of 3,500 per mile to maximize return on the investment. (This is the same technique used by NMRX in their recent tie work.)

The transportation challenge is that the older ties in this section are needing replacement, especially to maintain the Class 4 rating. Without replacement, they will soon be unable to maintain the rail geometry sufficient for the higher speeds or holding gauge in curves. The 1988 ties are close to 30 years old and at the typical end of life. The no-build scenario projects the dropping of one speed category when the ties are 30 years old. Ties already in the 20 – 25 MPH category aren’t projected to have further speed restrictions. For the analysis, the 40 – 55 MPH speed limits were classified at 50 MPH. The ties described in Table 2 were grouped by age and speed category and then were reduced one speed category at 30 years. Mileage associated with each age group and their changing condition is captured in Table 3. These numbers are used in the benefit cost analysis to project speed restrictions and identify the impact on the Southwest Chief schedule. Applying the speed restrictions results in delays of 116 minutes to the schedule.

Table 2: Tie description – Lamy, NM to Trinidad, CO

Segment	Length (miles)	Ties (year)	Speed limit (MPH)
Lamy - Glorieta	10	1999	20
Glorieta - Rowe	9	1999	50
Rowe - Ribera	17	1992	50
Ribera - Blanchard	6	1992	25
Blanchard - Chapelle	8	1992	50-79
Chapelle - Las Vegas	15	2001	50
Las Vegas - Waltrous	20	1997	79
Waltrous - Springer	15	1988	40-45
Waltrous - Springer	36	1988	79
Springer - Raton	39	1991 & 1992	79
Raton - Trinidad	25	1992 & 1993	20-25
Total miles	200		

Table 3: Lamy – Trinidad tie deterioration and impact on speed restrictions

Year	79 MPH	60 MPH	45 MPH	25 MPH	Year	79 MPH	60 MPH	45 MPH	25 MPH
2019	95	0	15	25	2029	20	75	0	40
2020	95	0	15	25	2030	20	75	0	40
2021	95	0	15	25	2031	20	75	0	40
2022	95	0	15	25	2032	20	75	0	40
2023	95	0	15	25	2033	0	95	0	40
2024	59	36	0	40	2034	0	95	0	40
2025	59	36	0	40	2035	0	95	0	40
2026	59	36	0	40	2036	0	95	0	40
2027	59	36	0	40	2037	0	95	0	40
2028	20	75	0	40	2038	0	95	0	40

Proposed engineering description

The La Junta Subdivision component will involve replacement of the bolted rail and associated turnouts and grade crossings in the project area. The new rail is surfaced and Class 4 speed limits are restored. BSNF will maintain the new track and the existing rehabilitated CWR to Class 4 standards for the next twenty years. This is the same arrangement as the previous two TIGER projects for the La Junta Subdivision work.

In the TIGER 9 application, funds are collected to support 29 miles of new rail for a net Class 4 gain of approximately 42 miles. Then net gain results from spot-replaced CWR put in place by BNSF primarily in curves as part of ongoing maintenance over the years. The work will be done from MP 477.5 to MP 514.5 where it joins a stretch



Figure 4: TIGER work continues west of Holcomb, KS

of 3.5 miles of spot-replaced rail adjacent to the TIGER 7 rehabilitated rail at MP 518. Much of the 1940-era bolted rail between in this area has been spot replaced since the original TIGER 6 application was submitted. At the completion of the project, there will be 287 miles of Class 4 track across the subdivision in three sections of continuous 146 miles, 80 miles, and 58 miles. Only 27 miles of bolted rail will remain. Note that these work locations are the proposed scope for the application. Final work locations may deviate at the time of grant agreement due to changes in track conditions or to accommodate state match requirements, however, net results aren’t expected to change. As in the earlier applications, the final miles of remaining bolted rail is projected to deteriorate in the benefit cost analysis.

Tables listing the build scenario rail deterioration are located in appendix A2b “Rail Deterioration Assumptions”.

In New Mexico on the NMRX portion of the route, the TIGER 9 project work is divided into four separate components, each addressing the transportation challenges described in Table 1. The first component addresses the first four rows of Table 1, the following components address each subsequent row. They are all listed in order of priority:

1) Centralized Traffic Control from MP 858 to 834.4 and upgrades to the Lamy siding

This component addresses the antiquated signaling system between MP 858 (where the Rail Runner service leaves the route) and the east end of the Lamy siding at MP 834.4. Amtrak recently completed an \$185,000 project to replace the signal pole line with an Electro-code system between MP 858 and 851. This component involves the segment from MP 851 to the east end of Lamy siding at MP 834.4 and completes continuous CTC from MP 858. There are ten intermediate locations between MP 851 and the siding and another six signal locations at the siding. The work involves continuation of the Electro-code system and replacing the signals and signal pole line. Each signal location will require a new signal case (with Electro-code), new wayside signals including the existing staggered pair configurations, and commercial or solar power. The scope involves removal of all existing retired signal equipment including the signal pole line.

The siding will get new power switch machines, cable, communications tower, meter service, and TMDS modification. The work will require interfacing the new signaling system with the existing signal pole system east of Lamy towards Las Vegas. The scope involves removal of all existing retired signal equipment including the signal pole line. A new turnout frog for the east end interchange track with the Santa Fe Southwestern short line, and new 9B electric locks will be installed and the east and west end of the interchange wye. New ties will also be installed on the 7,500’ siding.

2) Replace damaged culvert and extend the channel away from the alignment at MP 853

This work involves removing the existing culvert and headwall under the roadbed at MP 853 and replacing it with a new culvert and extended channel to drain water into the adjacent Galisteo River. Repairs to the eroded embankments immediately below the headwall and new channel will stabilize the tracks.

3) Devil’s Throne rail replacement

Replace approximately one-half mile of rail at Devil’s Throne curve (MP 853.2 to MP 852.8).

4) Install rock slide fence at Devils Throne

Install a new slide fence interfaced with the signal system to warn of potential, and likely rockslides at the Devil’s Throne curve.

With respect to the project component involving new ties between Lamy and Trinidad, BNSF recently did a thorough inspection of the tie condition involving individual tie x-ray imaging. The inspection identified a need of up to 24,080 ties in areas east of Lamy in the Apache Canyon around MP 832, the area of West Fox around MP 821, the area east of Watrous around MP 748, and on the Raton Subdivision between MP 730 and MP 702 or roughly between Wagon Mound and Springer. (Note that the photo in Figure 2 was taken in this section at MP 720.) After the ties are installed, BNSF will maintain the ties to support the existing speed limits.

Build scenario transportation impact

The TIGER 9 project build scenario transportation impacts are summarized in the table below.

Table 4: Build scenario transportation impact summary

Component	Impact
La Junta Subdivision rehabilitation	Transit time savings of 52 minutes across subdivision Reduced likelihood of delays west of Albuquerque Improved state of good repair Maintenance savings of \$225,374 per year
NMDOT signal renewal and upgrades to Lamy siding	Elimination of signal delays averaging 10.4 minutes every other day (8% of which are over 24 minutes) Reduced likelihood of delays west of Albuquerque Improved state of good repair Maintenance savings of \$334,674 per year
Lamy – Trinidad tie renewal	Transit time savings of 116 minutes across territory Reduced likelihood of delays west of Albuquerque Improved state of good repair
NMDOT culvert removal	Improved state of good repair Maintenance savings of \$189,000 every ten years Elimination of service disruption costing \$250,000 every ten year
Devil’s Throne rail	Improved state of good repair Maintenance savings of \$3,200 per year
Devil’s Throne rock slide fence	Improved state of good repair Continuous monitoring of presence of rock on the tracks

Project history

In 2013, the accelerating deterioration of the bolted rail on the La Junta Subdivision raised serious concerns about the future of the route. The local communities in Kansas affected by losing the train joined together and unsuccessfully applied for a TIGER grant to improve the track. By 2014, as the condition further declined and public awareness of the imminent loss of the train spread, the group applied again for a TIGER 6 grant and was successful. Part of the success was the broad public support for the train now including advocates in Colorado, activism among the communities along the route, and a commitment from BNSF and Amtrak in funds and maintenance. New Mexico joined the coalition in 2015 and another successful application was submitted for TIGER 7. The TIGER 6 work involved rehabilitation of the track on the La Junta Subdivision. The TIGER 7 work



Figure 5: Former Amtrak President Joe Boardman at a community rally to demonstrate support of the Southwest Chief route in Raton, NM in 2014

continued the La Junta Subdivision restoration and added the installation of ties on NMRX in New Mexico.

The two TIGER projects dramatically improved the quality of the right-of-way in the rehabilitated areas of the La Junta Subdivision. Passengers and crew have noted a smoother and faster ride for a greater number of miles. The TIGER 6 work started in late 2015 and completed in 2016 at \$810,000 under budget. In TIGER 7, the La Junta Subdivision work started in 2017, is almost complete (expected by the end of 2017). It should be at or slightly under budget. The New Mexico tie work started in March 2017 and was completed in August 2017. It was approximately \$400,000 under budget. Both of the TIGER projects were performed under NEPA categorical exclusions which were obtained in a timely manner not jeopardizing expenditures of federal funds prior to the statutory limit.

Figure 6 below is a diagram showing the condition of the La Junta Subdivision prior to and after each of the TIGER projects, including TIGER 9 if awarded.

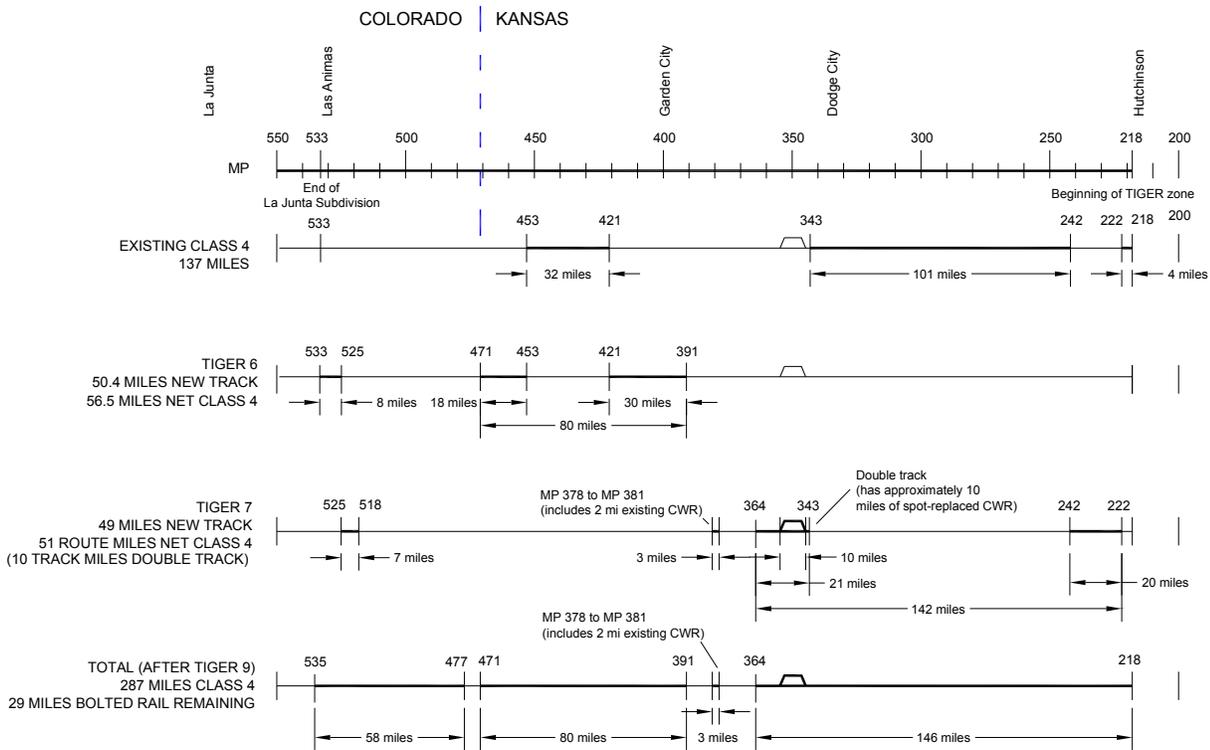


Figure 6: TIGER project results diagram for the La Junta Subdivision

Local communities pledged \$300,000 in 2014 (includes \$175,000 from Pueblo County and the I-25 Coalition in Colorado), the State of Kansas pledged \$3M, Amtrak pledged \$4M, and BNSF pledged \$2M. In 2015, local communities pledged \$233,000, the states of New Mexico, Kansas, and Colorado pledged \$1M each, Amtrak pledged \$4M, and BNSF pledged \$2M. Note that BNSF also guarantees to maintain the rehabilitated track to Class 4 standards for twenty years, a substantial financial commitment outside of any contractual arrangement, not quantifiable but nonetheless significant.

Both Amtrak and BNSF have invested in the infrastructure of the Southwest Chief outside of the TIGER projects. Amtrak completed the initial signal upgrade on NMRX mentioned above. BNSF completed installing 54,473 ties and restoring ballast to the 81 miles of track

on the Raton Subdivision between Trinidad and La Junta, CO. (MP 635-555) This work occurred between July and August of this year and cost approximately \$7.1M. BNSF absorbed these costs on a rail line lightly used by its freight trains and certainly not requiring Class 4 status. These investments were performed outside of the TIGER projects and are not considered as non-federal matches. They are identified in this application as significant private commitments to the same objective as those of the TIGER grants.

ii. Project location

The project locations span the states of Kansas, Colorado, and New Mexico as shown in Figure 7.¹ Figure 8 is a detailed map of the work locations on NMRX and the line up to Raton.



Figure 7: Map of the project areas

¹ Note that Figure 7 and Figure 8 are taken from the “Track a Train” page on Amtrak’s website which gives live updates on each train’s location and progress. By coincidence, the two figures happen to catch a transportation challenge in action. The two arrow icons represent the westbound Southwest Chief #3 and the eastbound Southwest Chief #4. #3 is at Glorieta and the summit of Glorieta pass. #4 in Figure 8 has just passed Devil’s Throne and is heading towards Lamy. Figure 7 was captured 10 or 15 minutes later and shows #4 approaching Lamy and #3 still at Glorieta. At first it was assumed that the trains would meet at Lamy since they were approximately equidistant in Figure 8. It then appeared as if #3 had some sort of issue delaying it since #4 passed Lamy and then continued towards Glorieta while #3 remained at Glorieta. Once #4 passed #3 at Glorieta, #3 started moving again. Information obtained from NMRX later explained that both Canyoncito and Lamy sidings were out of service, requiring #3 to take a 45 minute delay waiting for #4. Lamy siding was returned to service the next day. This feature on Amtrak’s website is useful for understanding track condition and transportation challenges. Clicking the icon gives train information, schedule status, and current speed.

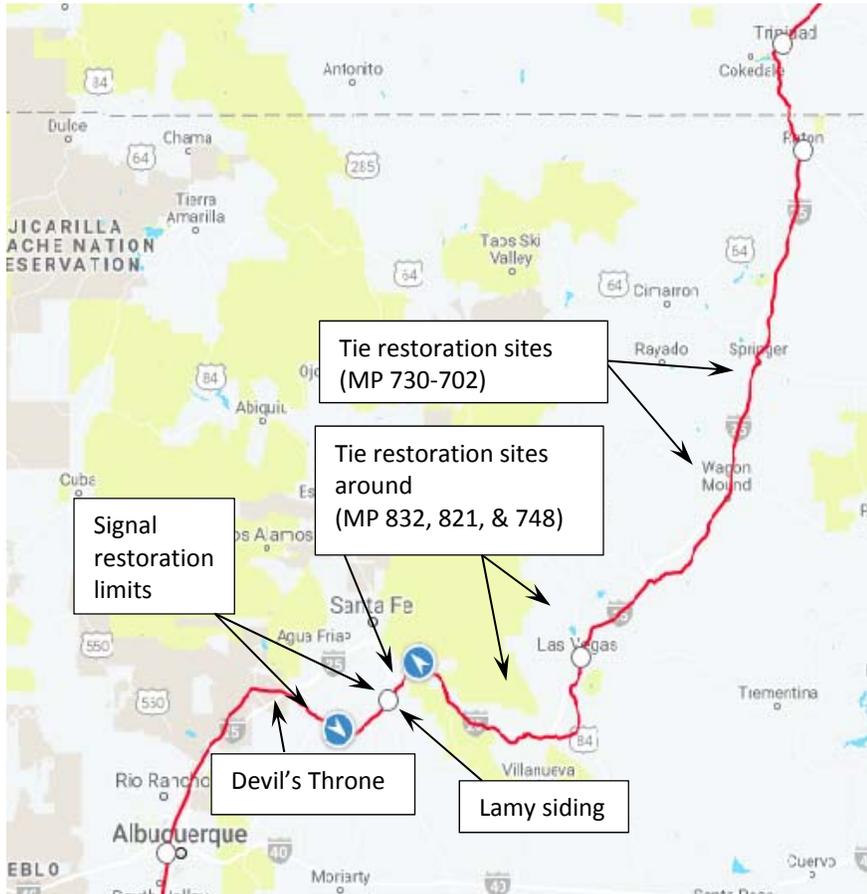


Figure 8: New Mexico work area detail

iii. Source and use of funds

(A) Project costs

Table 5 (redacted for public distribution) below lists the sources and uses of funds for the project. The grant request is for \$17,553,533 and it is matched with \$9,161,500 for a 34.3% non-federal contribution. The total project cost is \$26,715,033.

The BNSF Engineering department will be performing the La Junta Subdivision work and the tie installation on their lines in New Mexico. The New Mexico CTC work, the culvert work, the rail replacement and the rock slide fence will be performed by subcontractors.

iv. Source and use of funds

TABLE 5
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(A) Source and amount of eligible project funds

BNSF represents fully-private funds invested in the project and is approximately 33% of the non-federal match. Amtrak, while reliant upon federal funds, operates as a quasi-private entity responsible for its own budgets, investments, and cost centers. It also represents 33% of the non-federal match. Each state is contributing their \$1M through their respective departments of transportation, and the funding is non-federal, public funds from state budgets. The individual communities and few private enthusiast organizations are either local political entities with operating budgets or individual groups interested in preserving the route.

(B) Non-federal funds to be used for eligible costs

Letters pledging non-federal funds are in appendix A3.

(C) Federal funds to be used for eligible costs

The TIGER request of \$17,526,115 is listed in **Error! Reference source not found.** and is prorated over each of the line items. All the line items are for eligible costs.

(D) Budget showing how each source of funds to be spent

Table 5**Error! Reference source not found.** is divided into two categories of TIGER and non-federal match. It considers Amtrak as a component of the non-federal match. Table 5 also separates out the project components into the La Junta Subdivision work, the New Mexico BNSF tie work, and each of the NMDOT line items (signals, Devil’s Throne culvert, Devil’s Throne rail, Devil’s Throne rock slide fence). Costs for each component and subcomponent are subtotaled and listed individually.

There are two funding constraints if the project is broken into components. The first is the State of New Mexico is obligated by statute to only provide matching funds on properties the state owns. Although in New Mexico, the Lamy-Trinidad component (item 5 in Table 5) is not owned by NMDOT and therefore none of the New Mexico match applies to it.

Similarly, if the New Mexico CTC project (item 6 in Table 5) is not funded, then the state would withdraw their \$1M matching contribution. Likewise, if funding for the La Junta Subdivision is not funded, BNSF, Colorado, and Kansas would withdraw their matching contributions. The affected local communities would follow suit accordingly.

v. Merit criteria

(1) Primary Selection Criteria

The primary selection criteria includes safety, state of good repair, economic competitiveness, environmental stability, and quality of life. The following articles describe how the project addresses each criterion and includes outcomes from the benefit-cost analysis (BCA) if applicable. All benefit numbers are over the forecast period 2020 – 2039 and are discounted at the 7% rate. The BCA is an Excel spreadsheet in appendix 4. References identify the individual tab in the appendix 4 spreadsheet by lower case letter.

(a) Safety

Typically in rail project applications, safety is addressed either in either reduced highway accidents due to the modal diversion from the highways or in better separation/protection between the modes at grade crossings. The TIGER 9 project does not project any modal diversion to the Southwest Chief nor upgrade any crossing protection at grade crossings. None of the TIGER project have components which improve the safety of the Southwest Chief operation. BNSF, Amtrak, and NMRX operate with safety in mind first and foremost. The TIGER projects allow BNSF, Amtrak, and NMX to operate safely with more efficiency and productivity.

(b) State of good repair

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(c) Economic competitiveness

The broad public support of the Southwest Chief implies it is an economic contributor greater than just a transportation option for the communities it serves. The train contributes in many ways to the economic competitiveness of the region, primarily by bringing vacationers, tourists, bird watchers, outdoor adventurers, and of course the Boy Scouts, to the area. It stimulates job creation and pumps money into the local economy by providing a steady stream of customers supporting the many small business reliant upon the visitor's dollars. In New Mexico roughly 57,000 annual tourist visits resulting in \$30M in spending and 368 jobs arrive by the Southwest Chief.² Approximately 3,200 passengers arrive annually into southeastern Colorado, generating \$3M in direct and indirect spending resulting in 28 jobs.³



Figure 9: Boy Scouts taking Amtrak to the Philmont ranch near Raton

Two abandoned hotels in Las Vegas, NM were purchased in 2014, renovated, and recently opened. One, the historic Castaneda Hotel (a former Harvey House closely associated with railroads and the western United States) sits directly across from the Las Vegas train station and markets itself as a tourist destination for Amtrak passengers. The two hotels employ approximately 80 people, one of numerous examples where the Southwest Chief creates an economic lifeline for many individuals. The train is unique in that it serves an economically depressed but scenic and historic destination for the travel industry. As a result, the local population counts on the train as a source of employment opportunity as well as a connection to the larger country as a whole.

Short term job growth occurs from the TIGER project with high-quality railroad construction jobs involved with the track and tie rehabilitation, and the new signal, culvert, and rock slide fence installations. In addition to the actual construction work, rail for the

² Study: "A Report on the Annual Economic Impact of Amtrak's Southwest Chief in New Mexico", Impact DataSource, Austin, TX, November 2013

³ Study: "The Economic Impact of Amtrak's Southwest Chief Rail Service on the Colorado Economy", Duncan and Wakefield, Colorado State Pueblo, February, 2014

project has been supplied by Evraz Steel in Pueblo, CO generating many positive press releases and local enthusiasm for the project. Evraz Steel is known for high-quality railroad rail and is one of the few suppliers remaining in the United States.

The Southwest Chief provides long term employment in the region through railroad employees directly associated with the operation of the train and the infrastructure to support it. Amtrak employs 57 New Mexico residents and pays NMRX \$1.8M/year jointly with BNSF to operate over the NMRX line between Isleta and Lamy.⁴ These funds help employ NMRX workers involved in the maintenance and dispatching of trains over the line. Amtrak also has a crew change location in La Junta, CO as well station and service employees in Kansas.



Figure 10: Google view of the Evraz Steel in Pueblo, CO

There are four categories in which this TIGER project improves economic competitiveness in the region that can be quantified in the BCA. All of them are a result of reduced transit times across the project zones from 1) higher speeds on the new Class 4 track, 2) elimination of projected speed restrictions as the bolted rail or existing ties deteriorate, and 3) elimination of delays associated with the signal failures. Reduced transit times results in better utilization of BNSF locomotive and freight cars, shipper’s freight cars, BNSF train crews, and Amtrak train and service crews. Transit time savings resulting from the TIGER grant total 230 minutes for the Amtrak trains and 52 minutes for the BNSF trains on the La Junta Subdivision alone.

(d) Environmental sustainability

Modal diversion from highways to rail or vice-versa drives benefits in environmental sustainability. The TIGER 9 project doesn’t consider modal diversion from the highways to reduce congestion-related emissions or improve energy efficiency. Modal diversion benefits were assessed in the earlier TIGER application since modal diversion away from rail was estimated considering the poor ride quality and speed restrictions projected in the no-build scenarios. With the two TIGER projects complete, there is not so much difference between build and no-build scenarios that would impact a decision to go by rail or highway. Consequently, environmental sustainability impacts are not assessed in the BCA.

⁴ Online publication: “Southwest Chief Fact Sheet, New Mexico Section”, Southwest Chief Coalition, January 2015

(e) Quality of life

The role of the Southwest Chief as an economic engine for the region doesn't diminish the transportation option it represents for people along its route. There are many communities within a few hours from a station that count on the Southwest Chief to provide an easy connection to population centers such as Albuquerque and Kansas City. When there was concern over preservation of the route, many families provided testimonies on how they used the train for transportation to medical centers, business centers, and/or relatives in the larger metro areas served by the train.

Photo posted by LocoSteve

Retrieved from http://farm8.static.flickr.com/7052/6912348901_921a6df808.jpg



Figure 11: Station stop in Raton, NM

This region is not highly affluent and Amtrak is a good alternative option offering comfort and convenience at reasonable price. The train also represents an attractive option for vacationers traveling across the county to destinations such as the Grand Canyon or California. The journey becomes part of the holiday and Amtrak does a good job marketing it as such. This TIGER project impacts all of these passengers by improving ride quality and reducing transit time by 230 minutes. The NMRX signal delays are quite short when averaged over a daily occurrence but can range from 10 to 60 minutes for the affected train. These delays are quite frustrating for passengers as the train must stop for some time and/or move at restricted speed for some distance.

(2) Secondary selection criteria

The secondary selection criteria includes innovation and partnership. Secondary selection criteria are not evaluated in the BCA.

(a) Innovation

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(b) Partnership

Colfax County is the project applicant. Colfax County has been working closely with the successful applicants of the first two TIGER projects, La Junta, CO and Garden City, KS. Garden City was supported by Kansas DOT for administrative help in the first project and was able to share their knowledge with La Junta city management in the second. This same cooperation is expected for Colfax County and has already been apparent in the preparation of this application. Raton, NM is the county seat of Colfax County.

Colfax County has coordinated state and local matches and letters of support from Congressional delegations in New Mexico with support from NMRX and Amtrak. Garden

City and La Junta continued with active roles, coordinating local matches and letters of support from communities and Congressional delegations in their respective states.

The three railroads, BNSF, Amtrak, and NMRX have collaborated in scheduled conference calls to develop and manage the project scope to keep the non-federal match in balance as a favorable portion of the total project cost. Managers at BNSF, Amtrak, and NMRX responsible for passenger rail operations have worked closely with each state’s Departments of Transportation to verify state endorsement of the application. Lead local communities in each state supported the railroads’ efforts to gain their state DOT approval. As in the past, stabilizing the route of the Southwest Chief has been the recipient of collaboration among a wide range of participants all working towards a common objective. Local communities pledging support and funds are listed in Table 5.

Table 5: Pledged contributions by local communities and private organizations

Community (Colorado and Kansas)		Pledge	Community (New Mexico)		Pledge
City of Dodge City, KS		\$12,500	San Miguel County, NM		\$12,500
City of Newton, KS		\$12,500	City of Maxwell, NM		\$1,000
City of Hutchison, KS		\$12,500	City of Raton, NM		\$12,500
City of Garden City, KS		\$12,500	Mora County, NM		\$5,000
City of La Junta, CO		\$12,500	City of Cimarron, NM		\$1,000
City of Lamar, CO		\$15,000	Santa Fe County, NM		\$12,500
			Colfax County, NM		\$12,500
Bent County, CO		\$6,000			
Otero County, CO		\$12,500			
Prowers County, CO		\$12,500			
Pueblo County, CO		12,500			
TOTAL		\$121,000	TOTAL		\$57,000
Other organization					
s		American Association of Private Car Owner		\$10,000	
		Colorado Rail Passenger Association		\$1,000	
		TOTAL		\$11,000	
GRAND TOTAL \$189,000					

vi. Project readiness

The work defined in this application will be ready to begin at the time of grant agreement. BNSF and NMRX have identified work locations and have prepared plans for the work. State and local governments are in agreement. No property acquisitions are required. A NEPA categorical exclusion is expected.

(A) Technical feasibility

Technically, these project components are feasible. Each one makes use of technology that has been in place and proven in other railroad locations across North America. The railroads have expended significant resources to develop plans if the grant is awarded. BNSF has detailed plans for the La Junta Subdivision and did a thorough evaluation with X-ray assessment of tie condition in New Mexico. NMRX has a detailed work scope identifying individual signal locations, track components, and wayside equipment necessary to complete the upgrades. Much of the signal project component is a continuation of the Amtrak-funded extension of the Electro-code from MP 858 to MP 851. Design plans and

drawings have been approved for the new culvert, headwall, and channel extension. Rail location for replacement at Devil's Throne has been identified. The rock slide fence is a standard design available from industry suppliers.

The budget estimates for the BNSF-controlled project components are based on good data regarding track and tie condition. BNSF will be applying the same project management and project costing methodology used in the previous TIGER grants which were under budget. BNSF is confident of their budget estimates, so much so that they guarantee the work and will absorb any budget overruns. The NMRX budget estimates are based on preliminary discussions with contractors and readily-available information in the rail supply industry. They also reflect NMRX's experience in the extension of the Electro-code to MP 851. The budget estimates for all of the NMRX components include a 10% contingency.

(B) Project schedule

Description of various aspects of the project schedule are provided below in the appropriate articles as per the TIGER NOFO. An overview of the schedule is included in Appendix 6.

(1) Demonstrate all activities complete per statutory deadline

The project is scheduled to be completed by the statutory deadline of September 30, 2020 for obligation of funds. Assuming that judging and awards are completed by March 2018 and a grant agreement is in place with Colfax County by November 2018, construction can start in the first quarter 2019 and be complete by the first quarter 2020.

(2) Project can begin construction quickly upon obligation

There is some delay between obligation of funds and actual construction due to lead times associated with procurement of construction materials and finalization of engineering plans for the NMRX work. The majority of the procurement will occur quickly upon obligation. There are no identified or foreseen obstacles or technical risk associated with beginning procurement after a grant agreement is executed.

(3) Property and right-of-way acquisition completed in timely manner

There is no property and right-of-way acquisition associated with this project. All the project work is done on existing right-of-way owned by the project stakeholders.

(C) Required approvals

(1) Environmental review and permitting

At NEPA categorical exclusion is expected. A pro-forma copy of a sample categorical exclusion worksheet is provided in appendix A7. Completing the draft worksheet did not reveal any potential issues associated with obtaining the exclusion.

(a) NEPA status

The previous TIGER grants were successful in obtaining NEPA categorical exclusions in a timely manner. The immediate land surrounding the work zones associated with this TIGER 9 scope of work is no different than the previous grants. It is actually further

removed from a reservoir than a zone associated with TIGER 7. The NMRX project components are taking place in generally the same locations as the TIGER 7 work.

(b) Information on reviews, approvals, and permits by other agencies

This project, similar to the previous Southwest Chief TIGER projects, is not expected to require reviews, approvals, and permits by other agencies.

(c) Environmental studies or other documents

No known environmental studies or other documents are underway since the previous TIGER awards which could impact the project. Civic officials in the majority of the communities along the route have not advised of any environment studies in their jurisdictions which could impact the project.

(d) Descriptions of discussions with appropriate USDOT modal administrations

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(e) Descriptions of public engagement

Amtrak reached out to the public through numerous forums in 2014 to expand public awareness of the dire condition of the Southwest Chief route. This included a special train across the line with Amtrak and BNSF executives engaging public elected officials including Members of Congress, mayors, and state representatives (see Figure 5). Amtrak government officials have been in constant contact with state and local governments since 2014 to maintain the positive support developed around the train. A special train was run along the route in August 2016 with then-President Joe Boardman, stopping at the stations for local media events thanking citizens and officials for their support of the train and the successful TIGER awards. This level of outreach continues in 2017.

Congressional delegations, including all six Senators from the three states have pledged their commitment with signed and documented letters of support. (see Appendix A9)

(2) State and local approvals

The state transportation departments of Kansas, Colorado, and New Mexico all are aware of and support this project. No potential conflicts terminating the project occurred in TIGER 6 or 7 and none are expected to occur if this application is successful. Local counties and communities along the route are also aware and support the project and none have identified any potential local ordinances which could jeopardize execution of the project.

(3) Federal transportation requirements affecting state and local planning

The earlier TIGER grants were in compliance with federal transportation requirements affecting state and local planning. No FHWA-applicable requirements for non-highway grants were involved. Some coordination was required with relevant highway departments when working on highway crossings, however, this effort was straightforward and not problematic. BNSF, Amtrak, and NMRX are aware of the planning requirements associated with their operations and incorporate them into their project scope.

The Southwest Chief is included in the State Rail Plans for New Mexico, Colorado, and Kansas and is aligned with preservation and stabilization of the route.

(D) Project risks and mitigation strategies

Minor schedule risks for the project involve the usual issues of negotiations of the grant agreement, research for any permitting issues, and the usual issues associated with a public project such as this. Most of the construction risks are mitigated by the railway operating experience and economic weight of the BNSF Railway and Herzog Transit Services. BNSF and Herzog track gangs install hundreds of miles of relay rail and thousands of ties per year; both organizations are fully abreast of rules and regulations associated with this work. BNSF has advised they see no issues preventing this work to begin and has sufficient quantities of rail and ties on-hand to begin at any time.

Perhaps the biggest risk to the project completion involves the culvert work at Devil's Throne on NMRX. Digging into the groundwork around an embankment can lead to surprises once the digging begins. In some cases, in-ground projects such as this uncover conditions which require resolution before continuing. These conditions can be environmental, such as ground water or unstable rock, or cultural, such as excavating archeological remains. While it is unlikely these conditions will occur at the culvert work site, there is some risk they may. In the event they do, there are twelve months in the culvert schedule before the obligation deadline and another five years before the disbursement deadline. This should allow sufficient time to resolve any issues uncovered. The risk is mitigated somewhat by preliminary core samples and assessments performed by the construction contractors as part of their engineering.

vii. Benefit cost analysis

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viii. Cost share

REDACTED

(A) Applicant’s activities to maximize non-Federal project funding

The stakeholders involved have reached out to their respective state and local political entities and have secured matching funds in lieu of federal funding.

(B) Any fiscal constraints tied to non-Federal funding

REDACTED

(C) The applicant’s distribution of non-Federal funding over the their transportation program

The stakeholders joining the applicant in this project have broad transportation objectives, from operating freight or passenger railroads to overseeing the safe transport of goods and passengers in their states or communities. Funding allocated to the non-Federal portion of this project comes from budget programs with many competing needs over their transportation programs. The value the stakeholders place on the Southwest Chief in their transportation programs is demonstrated by their willingness to contribute to the non-Federal match. They recognize the potential return of the investment and the stabilization of the Southwest Chief infrastructure if the grant is awarded.

(D) How the applicant will address life cycle costs of the asset, operation and maintenance

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ix. Federal Wage Rate Certification

A copy of the Federal Wage Rate Certification is attaches at appendix A8.