



# D & I Railroad

Hudson, SD Area

Main Line Rail Replacement Project

October, 2022

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## EXECUTIVE SUMMARY

The D & I Railroad Hudson, SD Area Main Line Rail Replacement Project (the Project) will improve railroad **safety, efficiency, capacity, and reliability** on a railroad line that is critical to the success of local economies and the national and global reach and competitiveness of communities in rural eastern South Dakota and northwestern Iowa. Significant freight shipments originate or terminate on this rural railroad line, and consist of aggregates, ethanol, corn oil, cement, chemicals, agricultural products, construction materials, and plastics. 85% of the annual carloads on this line originate/terminate in South Dakota. *The majority of this vital railroad line includes several miles of legacy jointed rail on the main line that is approaching 100 years of age.* The safety, efficiency, capacity, and reliability of present-day railroad operations on the line are affected by the timeworn main line rail nearing the end of its useful life. These impacts have caused temporary speed restrictions (slow orders) to appear more frequently, despite recent concerted maintenance and capital investment by the D & I Railroad. Safety improvements at 6 grade crossings are included in the project.



Figure 1: D & I Ethanol Train at Hawarden, Iowa

The State of South Dakota is an eligible recipient for STC grant funds. The State will serve as the lead applicant for the grant funding and the South Dakota Department of Transportation (SDDOT) will be the agency managing any grant funds received from the Federal Railroad Administration (FRA). The project's Applicant is the D & I Railroad (D & I) along with support from shippers on the line. These parties are also contributing time and resources towards the development of this STC grant application. Public-private partnerships, such as this one, demonstrate an innovative approach that allows multiple stakeholders to cooperate on and deliver projects more efficiently, cost effectively, and with less federal funding required. The above-named parties are committed to delivering the Project and will contribute toward the Project as detailed in Section 2.0

The primary purpose of the Project is to enhance freight railroad infrastructure to maintain the rural economy of a large geographic area in eastern South Dakota and northwest Iowa. Ancillary benefits generated by the Project are improved railroad operation from the replacement of legacy main track rail as well as a reduction in derailment exposure and likelihood by providing safer and more reliable railroad infrastructure. This railroad line is vital to the operation and future growth for many rural shippers.

## 1.0 PROJECT SUMMARY

The proposed project will replace 5.80 miles of existing 100 lb/yd jointed rail with 115 lb/yd ribbon rail located in South Dakota on the D & I Hawarden Subdivision from MP 29.86 to MP 35.66.

The jointed rail to be replaced is nearing the end of its useful life and is on a track segment that is integral to the hazmat shipments on the lines. The rail line serves an aggregate producer, two ethanol shippers, a cement terminal, and several transload customers and facilities. Current economics and high fuel prices have 3 potential shippers looking at developing facilities along the rail line as well. Continued degradation or loss of railroad service will be detrimental to current shippers, and attracting new business. These improvements are also needed to solve lingering legacy infrastructure issues, to preserve and enhance

capacity, rail access, multimodal connectivity, and interchange connections with three Class I railroads (BNSF Railway, Canadian National Railway, and Union Pacific Railroad), and to accommodate future growth in economic and industrial development in the rural Siouxland region.

Assuming approval of the STC grant in midyear 2023, construction of the Project will begin in the spring of 2024 and be completed by the end of 2024. Overall, the Project will have an immediate positive impact on this rural area and the industries that rely on this vital link to the national freight rail network and global marketplace.

### 1.1 Challenges Addressed by the Project

The Project will improve railroad **safety, efficiency, capacity, and reliability** of the railroad line in rural south eastern South Dakota and northwestern Iowa. Most of the carloads originate on the railroad line, and consist of unit volumes of aggregate and ethanol, and carload volumes of chemicals, agricultural products, construction materials, and plastics. *The majority of the infrastructure on this railroad line is a relic of the past, including several miles of existing main line jointed rail that is nearing 100 years of age and the end of its useful life.* Temporary speed restrictions (slow orders) appear more frequently, despite the continued maintenance and capital investment made by D & I.

The purpose of the Project is to maintain freight railroad access to this robust, rural economy located in eastern South Dakota and northwestern Iowa. **Reliability** is key to the industries, businesses, and customers utilizing this railroad line. Maintaining the existing railroad line to a state of good repair is paramount to preserving and achieving economic and industrial growth in this rural area. The proposed Project improvements will enhance overall service reliability, safety and operational efficiencies.

The track segment in this proposed Project is subject to all Hazardous Material carloads on the line. The aging and worn-out main line rail also increases potential derailment exposure, further putting the railroad, its users, and communities at risk. The proposed Project improvements will replace some of the railroad line's oldest and most worn-out sections of main line rail, which will allow for **safer** railroad operations due to reductions in potential derailment exposure.

### 1.2 Grade Crossing Improvements and Information

The D & I Project includes upgrades to grade crossing components. Six rural crossings will receive plank and hardware improvements in the rail relay project element.

### 1.3 Performance Measures

As the applicant for and potential recipient of STC funds, SDDOT understands that the USDOT may establish performance measures for the D & I Hudson, SD Area Main Line Rail Replacement Project in order to assess progress in achieving strategic goals and objectives. The D & I understands that USDOT, through the SDDOT, may require it to periodically report information related to such performance measures. Potential performance measures for the Project would be confirmed through coordination with USDOT after award of STC funds to SDDOT.

## 2.0 PROJECT FUNDING

### 2.1 Main Line Rail Replacement

The Project represents a significant transportation infrastructure investment to provide enhanced service performance and reliability for this rural freight railroad line primarily serving SD originations and terminations. \$5,530,616 is the total project cost estimate. The D & I will contribute \$1.11 million toward the \$5.531 million construction cost for the Project. The \$4.43 million request for STC funds would provide the remaining project funding needed to construct the Project. Project funding sources are presented in the following table.

Task No.	Task Name/ Project Component	Cost	Percentage of Total Cost
1	South Dakota Main Line Track Rail Replacement (5.80 miles)	\$5,530,616	100%
<b>Total Project Cost</b>		<b>\$5,530,616</b>	<b>100%</b>
<b>Federal Funds Received from Previous Grant</b>		\$0	N/A
<b>STC Federal Funding Request</b>		\$4,424,492.80	80%
<b>Non-Federal Funding/Match</b>		\$1,106,123.20 <i>Cash: \$1,106,123.20 In-Kind: \$0</i>	20%
<b>Portion of Non-Federal Funding from the Private Sector</b>		\$1,106,123.20	20%
<b>Portion of Total Project Costs Spent in a Rural Area</b>		\$5,530,616	100%
<b>Pending Federal Funding Request</b>		\$0	N/A

The funding breakdown consists of an “80/20” funding package for the \$5.531 million project as supported by the following public-private partnership:

- \$4.43 million STC Grant by the Federal Railroad Administration (FRA)
- \$1.11 million from D & I Railroad

### 2.2 Preliminary Opinion of Probable Cost

#### Materials Only

Item	Description	Unit	Quantity	Unit Price	Total
1	115lb CWR	Tons	1,230	\$ 2,250.00	\$ 2,767,500.00
2	Tie Plates	Each	38,000	\$ 16.00	\$ 608,000.00
3	Anchors (115 Lb)	Each	40,000	\$ 2.00	\$ 80,000.00
4	Anchors (10035)	Each	500	\$ 2.00	\$ 1,000.00
5	Rail Spikes - 50Lb Kegs	Kegs	1,500	\$ 80.00	\$ 120,000.00
6	6"x8"x8'-6" Grade 3 Ties	Each	2,500	\$ 75.00	\$ 187,500.00
7	7"x9"x10'-0" Grade Ties	Each	175	\$ 120.00	\$ 21,000.00
8	Timber Crossing Planks	Tr-Ft	168	\$ 225.00	\$ 37,800.00
11	Weld Kits (115Lb)	Each	55	\$ 200.00	\$ 11,000.00

Total Materials: \$ 3,833,800.00

Labor Only

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 50,000.00	\$ 50,000.00
2	Rail Relay	Tr-Ft	30,624	\$ 20.00	\$ 612,480.00
3	Skew Tie Correction	Tr-Ft	30,624	\$ 1.50	\$ 45,936.00
4	Tie Replacement	Each	2,500	\$ 25.00	\$ 62,500.00
5	Ballast	Ton	1,800	\$ 30.00	\$ 54,000.00
6	Surfacing	Tr-Mi	5.8	\$ 5,000.00	\$ 29,000.00
7	Timber Crossing Reconstruction	Tr-Ft	16	\$ 350.00	\$ 5,600.00
9	Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
10	Rail Train Unloading	LS	1	\$ 10,000.00	\$ 10,000.00
11	Bonding	LS	1	\$ 10,000.00	\$ 10,000.00
12	Railroad Protective Insurance	LS	1	\$ 4,000.00	\$ 4,000.00

Total Labor: \$ 888,516.00

Total Construction:	\$ 4,722,316.00
15% Contingency:	\$ 708,300.00
Engineering:	\$ 100,000.00
Environmental:	\$ 30,000.00
Construction Administration:	\$ 100,000.00
<b>Total Project Cost:</b>	<b>\$ 5,530,616.00</b>

### 3.0 BENEFIT COST ANALYSIS

The cost effectiveness of the Project’s proposed improvements was measured by conducting a Benefit-Cost Analysis (BCA). The main line rail improvements constructed under the Project will provide many quantifiable benefits to railroad operations, rail shippers, and the public. Non-quantifiable benefits of the grade crossing improvements, increased safety and reliability to users, patrons and public along the rail line are not included in the monetized benefits explained below:

- **Annual avoided train crew costs and train delay due to improved running times - \$83.4 thousand per year**
  - Due to existing temporary slow orders, the main line within the Project Area has been operating at a slower track speed temporarily. The Project would eliminate these temporary slow orders and return the main track back to its original timetable speed.
- **Annual reduction in maintenance costs – \$101 thousand per year**
  - Due to the current condition of the track, significant time and resources are used to keep the rail in usable condition. Completion of the Project would allow maintenance crews to return to a less intense maintenance schedule

- **Annual avoided costly derailments - \$143 thousand per year**
  - Completion of the project is assumed to save one derailment per year. The average cost of a derailment has been \$143 thousand.
- **Total Annual Project Benefits - \$326.6 thousand per year.**
- **Cost Benefit Ratio is \$1.79 in public benefits for every dollar spent.**
- **Some of the track assets installed during the construction of the Project maintain residual value since their useful life is greater than the 30-year analysis period.**



Figure 2: D & I at Poet Ethanol Products. Located at Hudson, SD

## 4.0 PROJECT ELIGIBILITY

The D & I Railroad Hudson, SD Area Main Line Rail Project is requesting STC funding for Project Track 3 Final Design/Construction for the South Dakota located project. Pending publication of the STC Notice of Funding Opportunity (NOFO), it is anticipated that the Project is eligible for STC funding.

The D & I Railroad (D & I) is a short line railroad that is owned by L.G. Everist, Inc. (LGE), and operates approximately 138 route-miles of rail lines in the states of South Dakota and Iowa. From north to south, the D & I operates from:

- Dell Rapids, South Dakota to Sioux Falls, South Dakota (on trackage owned by D & I)
- Sioux Falls, South Dakota to Canton, South Dakota (via operating rights over BNSF Railway trackage)
- Canton, South Dakota to Elk Point, South Dakota (on trackage owned by D & I)
- Hawarden, Iowa to Beresford, South Dakota (on trackage owned by D & I)
- Elk Point, South Dakota to Sioux City, Iowa (via operating rights over BNSF Railway trackage)

The D & I interchanges unit train and carload rail traffic with three Class I railroads in Sioux City, Iowa (BNSF Railway, Canadian National Railway, and Union Pacific Railroad). This competitive access is critical to the ongoing success of the D & I and its shippers.

The D & I Railroad Hudson, SD Area Main Line Rail Replacement Project is a capital project that will:

- Improve short line railroad infrastructure and operations
- Address congestion challenges affecting rail service, and will increase rail capacity and upgrade the condition and capacity of railroad main lines
- Improve track conditions on a railroad line, helping to alleviate rail service interruptions and lift permanent speed restrictions

### 4.1 Expected Users and Beneficiaries of the Project

Expected users and beneficiaries of the Project include:

- **Public** – The rail upgrade will improve the health of the corridor and will decrease the potential likelihood of track-caused derailments – a livability benefit for the public. In addition, the rail

upgrade component of the project will help lift several speed restrictions resulting in faster and more efficient train operations and less overall train occupancy times at highway-rail grade crossings. Improvements at grade crossings will enhance safety to the residents along the line.

- **Industries** – Shippers and receivers of raw materials and goods entrust their businesses to the reliability of this supply chain component. Being able to ship and receive bulk materials by rail is also advantageous as it reduces input costs for the producer, as well as overall price for the end user. D & I shippers on the railroad line and their commodities include:
  - **L.G. Everist**, aggregates used in construction
  - **BX Civil & Construction**, magnesium chloride for roadway dust control and de-icing
  - **Poet Bio-Refining**, ethanol and dried distiller’s grains (DDG)
  - **Siouxland Energy Cooperative**, ethanol
  - **Poet Nutrition**, corn oil
  - **GCC Dacotah Cement**, raw cement
  - **Prinsco**, plastic pellets for the manufacture of agricultural drain tiles
  - **EnviroTech Services**, road surface products
  - **Valero**, corn oil
  - **Vollan Oil Co.**, diesel fuel and denaturant
  - **Purina Animal Nutrition**, DDG
  - **The Andersons Inc.**, corn oil
  - **Millborn Seeds**, rye, oats
- **D & I Railroad** – Railroad operator

## 5.0 PROJECT LOCATION

The Project is located fully within rural South Dakota, and within the following congressional district:

- South Dakota – At Large

The nearest Urban Area is the City of Sioux Falls, which is nearly 20 miles away from the northern end of the Project Area (Hudson, South Dakota). The Project’s southern end is located just north of the South Dakota/Iowa border and is not within the urban area.

The Project’s location (geospatial data) is in proximity to:

- Latitude and Longitude: 43°08’31.89”N - 96°27’12.94”W

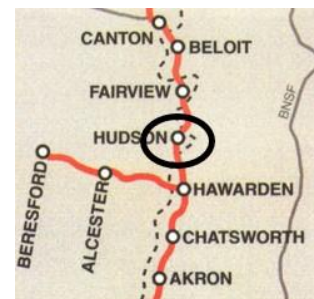


Figure 3: Map location of proposed Project

## 6.0 PROJECT ADHERENCE TO STATE RAIL PLAN GOALS

- 1) **Economic Support, Growth, and Development.** The Project will promote continued safe and reliable rail service for the shippers on the D & I Dell Rapids Subdivision, and will provide additional operational flexibility that will increase track capacity and create transportation efficiencies, all while increasing the ability to accommodate the shipments of new customers on the line. At present, nearly 75 percent

of all existing D & I rail traffic originating or terminating on the rail line traverses the Project Limits, meaning most future traffic will benefit from this Project's proposed improvements.

Over the past 10 years, freight shipments on the D & I have averaged between 17,000 and 20,000 carloads annually. New shippers to the railroad line show great potential for more growth in the transloading business, with products arriving from a four-state area, encompassing South Dakota, Minnesota, Iowa, and Nebraska. After the completion of the Project, D & I will be able to attract more business opportunities for further economic and industrial growth and development within the region.

2) **Ensuring Enhanced Competitive Access and Maximum Connectivity for Critical Industries.**

Often overlooked, short line railroads fill a critical role within the U.S. freight network as they provide bulk freight service transportation for the "first or last mile" connections between farmers, manufacturers, and the end consumer. Industries along the D & I rail line rely on D & I to transport bulk quantities of rock, sand, agricultural products, construction materials, and ethanol by rail to customers outside of the eastern South Dakota and northwestern Iowa region. These commodities have significance to the regional, national, and global economies. The D & I connects to and interchanges with three Class I railroads in Sioux City (BNSF Railway, Canadian National Railway, and Union Pacific Railroad), and thus provides local businesses and industries with broad competitive access to the national freight railroad system, global marketplace, and the opportunity to grow their market share.



**Figure 4: D & I at Siouxland Energy Cooperative located at Hudson, South**

Local industries are also leading the source of inquiries for new business on all South Dakota railroad lines, and continually look to expand their operations, leading to economic growth within this rural area. With strong growth and new business opportunities present along the D & I rail line there is an overwhelming need to maintain freight railroad access to this rural area in order to preserve existing businesses and industries, and their ability to attract new business. The D & I Railroad Hudson, SD Area Main Line Rail Replacement Project will help to maintain the reliability of existing freight rail service and to improve future rail service on the line.

3) **Maintaining State Railroad Assets in Good Repair.**

The D & I Railroad has a long history of maintaining this rail line to an acceptable standard. The rail replacement component of this Project is a much-needed improvement since the existing rail is or nearly is 100 years old. The rail has served its useful life and needs to be replaced due to its worn condition, which was caused by heavy impacts to the rail joints, leading to excessive rail end batter and warp conditions. Further rail degradation could potentially result in added maintenance for D & I, loss of the ability to



**Figure 5: Existing D & I Track Condition with Bent Rail Ends and Rail Warp**

accommodate rail cars with a maximum allowable gross weight of 286,000 lbs., or an increase in service failures and a marked reduction in operating velocity and efficiency, including an enhanced risk of train derailments and other incidents. The rail renewal proposed in the Project will allow the D & I to remain competitively connected with three Class I railroads and its transload facility in Sioux City, Iowa. It will also allow D & I to confidently maintain consistent service over the line.

Since 1981 D & I has worked diligently with ongoing public-private partnerships to invest in numerous capital projects involving bridge replacements, new rail, and track and tie maintenance, ensuring that this railroad line continues to provide reliable, safe, and fully accessible service to the states and region. Shippers, their employees, their customers, and surrounding communities all rely on this vital rural railroad connection. The capital improvement proposed in the D & I Hudson, SD Area Main Line Rail Replacement Project will greatly reduce the risk for rail traffic interruption and any negative impacts this could potentially have on existing rural-area businesses (and their ability to attract new business) on the railroad line.

- 4) **Reducing Highway Impacts.** Previous capital improvements to the D & I Sioux Valley Subdivision by the D & I have allowed for the upgrades to accommodate 286,000 lb. heavy-axle load rail cars on the railroad line, further reducing impact to local roads and the highway system. This improvement has allowed existing shippers to ship more weight per carload, thus avoiding extra shipment of smaller carloads or diverting excess shipments from freight rail to trucks during peak times. Further investment in the D & I line will continue to encourage local, regional, and state-wide growth opportunities and reduce the impact on state highways and local roads.

In addition, the local rail service that many short line railroads offer, like D & I, have helped to attract local truck-haul service for end point or origin points of shipments (or for transload from truck to rail or vice versa). The trucking companies that serve new transload customers are realizing the importance of short-haul in the freight rail system, which was previously known for long-haul shipping only. These trucking companies prefer to ship manageable distances that allow their drivers to maximize their time in the seat. In last 5 years, seven additional transload customers located their operations on the railroad line. With the Project's improvements, D & I will be better positioned to handle more of these short-haul moves in the future since the Project will improve overall capacity and reliability of the railroad line, and help to remove more long-haul trucks from local roadways and state highways (which will reduce pavement damage, air emissions, etc.).

- 5) **Improving Railroad Safety, Security, and Resiliency.** Improving railroad safety, security, and resiliency is one of the key goals identified in the South Dakota State Rail Plan (2014). The Project will provide much needed rail infrastructure and will aid in lowering potential derailment exposure caused by track defects on the D & I Hawarden Subdivision. This capital improvement project will help to improve the overall safety and reliability of this railroad line and sustain the continued operation of the D & I. For D & I, the capital improvement project will reduce the overall potential risk to train operations. A recent FRA geometry inspection shows rail in the project area contains permanent bent rail ends, which leads to track warp, a permanent condition where track surfacing is unattainable.

## 7.0 PLANNING READINESS

### For Tracks 3 (FD/Construction) Projects:

The Project's component is supported in the South Dakota State Rail Plan (2014). Table 1 summarizes the planning document coverage.

**Table 1: State Planning Documents Identifying the Importance of the Project**

Planning Document	Sponsor	Relevant Pages	Web Location
South Dakota State Rail Plan (2014)	SDDOT	41, 42, 43	<a href="#">Link</a>

This Project demonstrates the State of South Dakota's intent and commitment to finding long-term improvements that:

- Support economic growth and development
- Ensure connectivity for critical industries
- Maintain railroad assets in a state of good repair
- Reduce highway impacts
- Improve railroad safety, security, and resiliency

**The D & I Railroad will assist the SDDOT with preparation of the STC application. This document may serve as a template for the application.**

## 8.0 ENVIRONMENTAL READINESS

The National Environmental Policy Act (NEPA) requires consideration of environmental impacts for federal actions. The level of analysis and documentation required to comply with NEPA depends on the scope of the project. This Project is categorically excluded under the categories of Maintenance of Existing Track (main line replacement) [64 Federal Register 28548(4)(c)].

## 9.0 SUMMARY OF NON-QUALITATIVE BENEFITS

- ***A more reliable railroad system helps control supply chain cost variability, which is beneficial to the shippers.*** Local businesses also thrive when the shippers on the railroad line are productive and profitable.
- Maintaining the freight railroad system in southeast South Dakota and northwest Iowa is crucial to the economies of the counties and rural communities along the railroad line.
- Shippers and employees of surrounding businesses that support these local shippers rely on a reliable local rail system to transport products via the D & I Railroad.
- The recently completed 2019 STC grant funded project demonstrates that the SD DOT and D & I are a productive team.