San Juan County Four Corners Freight Rail Project

Subtask 4.3: Support Facility And Access Analysis

Feasibility Study

San Juan County, New Mexico
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I. OVERVIEW

This Task 4.3, the Support Facility and Access Analysis, addresses types and locations of facilities that are ancillary to railroad freight and train operations. These support facilities would include freight marshalling yards, maintenance facilities for rail cars and locomotives, locomotive servicing facilities, compounds for maintenance of way forces, transload facilities and/or other loading or unloading sites for freight, and interchange facilities with outside railroads.

The proposed railroad requires six types of support facilities:

1. Freight marshalling yard
2. Locomotive and railcar maintenance facility
3. Transload facilities
4. Unit train loop track
5. Maintenance of way facility
6. Interchange facilities

The size and capabilities of these facilities have been developed to be suitable for a short-line railroad with operations structured to meet the demand outlined in the Subtask 4.1 memo, "Detailed Operational Requirements and Data Collection Methodology", which identified a maximum average daily train count of 3 inbound and 3 outbound trains per day. Although specific operating patterns will be identified in Subtask 4.2, Operations Analysis, it is assumed in both Subtask 4.2 (which is currently under development) and this Subtask 4.3 that daily operations will normally be structured such that an outbound train will be exchanged for an inbound train at the main line connection (i.e., interchange point with the BNSF Railway).

Note that, since the number of inbound trains matches the number of outbound trains, and this number is similarly consistent amongst train types, manifest and bulk commodity trains, there would, at most, be one set of locomotives for each train pair (i.e., the same locomotives would power both the inbound and outbound trains, which would meet at the interchange). However, for bulk commodity trains, it is assumed that road power from the main line train will stay with the train from the BNSF interchange to the northern terminal (this assumption is consistent with Subtask 4.2 Operations Analysis).

All of the facilities are on relatively level ground and access to all of the facilities is readily available via existing roadways.

Specifics of the six aforementioned facility types follow.

II.FREIGHT MARSHALLING YARD

OVERVIEW AND LOCATION OF THE MARSHALLING YARD

The freight marshalling yard would be the primary terminus at the northern end of the proposed Railway and would be the base of operations for the railroad. The location of the marshalling yard is in the open lands to the east of the Navajo Agricultural Products Industry (NAPI) headquarters, which provides sufficient space for the marshalling yard as well as other facilities that could co-locate with the marshalling yard, such as the transload facility, maintenance facility, and a loop track for a bulk agricultural products loading facility. This location is close

to the agricultural fields of NAPI, the inputs to (such as fertilizer) and products of (such as corn) which are expected to be among the major items shipped by the railroad. Roadway access to the marshalling yard and associated facilities is provided by paved county roads 7010 and 7100. Nearby major highways include NM Highway 371 to the west and US Highway 550 to the east. County road 7010 is intended to have an overpass over the center of the marshalling yard, providing access to both east and west sides of the facility.

PURPOSE OF THE MARSHALLING YARD

The purpose of the marshalling yard is to provide a receiving point for trains from the BNSF and an origination point for trains running to the BNSF. It will also serve as a base of operations. Manifest trains arriving at the facility would have multiple types of railcars. These railcars would need to be organized and stored in sidings until it is time for their placement at an unloading or loading point, such as the transload facility (discussed below). Conversely, these disparate railcars would be collected at the marshalling yard and combined into an outbound train for the BNSF. Some sorting of the railcars may be performed so that cars heading to a similar destination or region are grouped together for operational efficiency. The marshalling yard, as the origin and termination point of the manifest trains and some of the bulk commodity unit trains, is also the logical place for maintenance and servicing facilities for locomotives and railcars, as many trains would pass through the yard area at some point in their journey. These ancillary facilities would be described later in this report.

Bulk commodity unit trains (which are of a single railcar type and generally stay intact from origin to destination and also while returning empty to be reloaded) may also arrive at the marshalling yard, particularly those destined for the loop track intended to facilitate the loading and unloading of bulk commodities while keeping the train intact (as described in the Transload Facility section, below).

DESCRIPTION OF THE MARSHALLING YARD

The marshalling yard configuration generally follows that outlined in the American Railway Engineering and Maintenance of Way Association (AREMA) Manual of Recommended Practices, Volume 3, Chapter 14, Part 2. The Marshalling Yard is proposed to have the following tracks (please see the accompanying exhibit, NAPI Yard Concept Overview):

- 1 Receiving/Departure (R&D) track of sufficient length to chamber an approximately 12,500’ foot long train, used for breaking down or making-up manifest trains. Because of the comparatively low number of trains, there is only one “dedicated” R&D track, with the Running and Staging tracks also able to perform these R&D functions, if necessary.
- 2 Unit Train Staging tracks of sufficient length to chamber an approximately 12,500' foot long train.
- 2 Running tracks, one on each side of the marshalling yard, which are tracks designated provided to allow for intra-yard movements to access the south or north ends of the marshalling yard, for example, in the event that locomotives need to access the “opposite” end of the yard during switching operations, or to allow movement of locomotives and cars between staged trains and the locomotive and railcar maintenance facility. Only one running track is necessary, but the other track can be used, as convenient, as an additional R&D track or Unit Train Staging track.
- 3 Storage tracks for railcar classification operations, or for storing cars. The shortest of the three storage tracks is 3000’. Assuming manifest trains of 85 cars (as identified in Subtask 4.1) and an average car length of 70’, two storage tracks could hold an entire manifest train. In addition, there is a 3,300’ long “pullback” track from which switch crews could work the storage yard without needing to interfere with operations on the Running track; the pullback track is situated such that the locomotive engineer would have a clear

line of sight to the yard lead and any switchmen working there. Since there is effectively only one destination for manifest traffic (the BNSF interchange), this relatively small classification yard should be adequate for pre-blocking operations and car storage. Also note that the Transload tracks (discussed below), which would be the destination for many cars, are each over 2,200' long. The track configuration offers direct access between the Storage Tracks and the Transload Facility.

- 1 Loop track for the turning of locomotives and unit trains. The loop can be incorporated with a loading or unloading facility for unit trains to allow for efficient loading or unloading operations of these trains.
- Ancillary tracks for support facilities, to be described later in this report:
    - Locomotive and Railcar Service and Repair Tracks
    - Transload Tracks
    - Rail Car Repair In Place (RIP) Tracks

Note that any of the long tracks, R&D, Running, and Unit Train Staging, are generally interchangeable and could serve different purposes on an as-needed basis.

Track lengths have been determined based on the longest expected train.

- For bulk commodity unit trains:
    - Based on Subtask 4.1, the longest train would be 125 cars for bulk commodity unit trains, a typical length for agricultural and energy unit trains. Such a train which would be approximately 8,575 feet long, assuming 65 foot long cars (slightly longer than the typical covered hopper car used for grain) and six 75 foot long locomotives.
    - By comparison, R&D Track, Unit Train Staging Track, and Running Track lengths are in excess of 12,000 feet, providing ample free track space (i.e., at least 3,000 feet additional track space) when compared to the typical unit train. This additional track length was used for the initial yard layout to ensure sufficient space was available to accommodate multiple train lengths, yard configurations, or other eventualities (such as temporary storage of additional cars in front or behind a stored unit train during switching operations).
- For manifest trains:
    - Based on Subtask 4.1, the longest train would be 85 cars. Assuming an average car length of 65 feet, the cars would total 5,525' long. With three locomotives, the overall manifest train length would be 5,750'.
    - By comparison, two of the storage tracks could hold an entire manifest train, and many of the manifest cars are assumed to be destined for the transload facility (which provides over 4,000' of additional track capacity, as described below). UP to two manifest trains could fit into the R&D or Staging tracks.

The marshalling yard would be designed to allow efficient operation of trains. Trains entering and departing the would have a path free from conflicts of intra yard operations. The location of ancillary tracks such as the transload areas, servicing and maintenance areas, would be set in such a way to allow for efficient yard operations with direct, short paths between these areas and the staging tracks and storage tracks. In addition, crossovers between tracks are configured such that a train loading or unloading o the loop track would still leave one Running Track and one R&D Track open for additional switching or train receiving and departing operations. The loop track has direct access to the unit train staging tracks, thus allowing a unit train that arrives into one of these staging tracks to move directly to the loop track or, conversely, allowing a train using the loop track to move directly to a staging track.

The locomotive servicing and maintenance tracks would be located close to the staging and R&D tracks to easily allow locomotives to move between this area and their respective trains. These tracks also have direct access to

the loop track, as locomotives occasionally need to be turned to ensure the front of the locomotive is leading on trains.

Staging Tracks and the R&D track would have 20' track centers, wide enough to allow motorized vehicles to drive between them for train inspection purposes (railroads often use small "side-by-side" or "gator" type all-terrain vehicles for inspection). Subballast between tracks would provide a suitable driving surface for such motorized inspection vehicles.

The marshalling yard layout can be easily expanded in response to traffic demands by adding more tracks to the outsides of the currently planned Unit Train Staging and Storage Yard tracks. The Marshalling Yard is also comprised of mostly tangent track, meaning that crossovers between tracks could be added, if desired, to allow further flexibility.

III. LOCOMOTIVE AND RAILCAR MAINTENANCE FACILITY, OPERATIONS FACILITY

OVERVIEW AND LOCATION

Because the proposed railroad is anticipated to have its own locomotives for manifest trains, a facility to allow for the maintenance of those locomotives is necessary. The marshalling yard at NAPI is the preferred location for such facilities since it is at the northern end of the proposed railroad, near population centers, and near utilities. NAPI would also be the origin or destination for manifest trains and many bulk commodity unit trains handling agricultural commodities and thus many railcars and all the locomotives owned by the proposed railroad would regularly enter the marshalling yard and be available for inspection. Energy commodities, handled in bulk commodity unit trains originating at the intermediate Navajo Mine would operate directly from the BNSF Railway interchange and would not need to use the marshalling yard at NAPI.

The marshalling yard at NAPI is also anticipated to be the headquarters base for operations, where operating and maintenance crews start their tours of duty and where supervisory staff are located. Co-locating the railway operational offices in the same facility offers economies for operations as well as construction.

Note that, as is typical of North American railway practice, bulk commodity unit trains are anticipated to be powered by "run-through" locomotives owned or otherwise provided by the connecting railroad, in this case, BNSF Railway. This practice of run-through power is employed in order to minimize switching of bulk commodity unit trains and expedite their handling. In most cases, such trains would be returned to the BNSF, intact with BNSF locomotives and with no intermediate switching, in 24-48 hours. The BNSF locomotives would not need to be serviced by the proposed railroad and thus the shop facilities would not need to be sized to accommodate those BNSF locomotives.

The proposed railroad is anticipated to require up to seven locomotives to operate the manifest trains: five locomotives to power a fully loaded 85-car manifest train, as well as two spares. As noted in Task 4.1, in the early years of operation, the traffic mix is for up to two outbound bulk commodity unit trains per day (powered by BNSF

locomotives) and one outbound manifest train (powered by locomotives owned or controlled by the proposed railroad) per day. The outbound trains would be mirrored by empty trains in the opposite direction. That train mix is consistent with a seven locomotive fleet, since there is only one train pair (the outbound and inbound manifest trains) needing locomotives owned/controlled by the proposed railroad.

In later years, the traffic mix is expected to change, with only one outbound bulk commodity unit train and up to two outbound manifest trains per day. However, additional locomotives are not expected to be necessary since, with the relatively short distance and travel time (approximately three to four hours one way, based on initial operations modeling), two round trips could easily be completed in two sequential shifts on a single day, thus optimizing the utilization of the locomotives. For example, a morning manifest train could operate from NAPI to the BNSF interchange and return in approximately nine hours (using approximately 7.5 hours of running time, with the remainder for switching). An evening manifest train could make the same trip, also in approximately nine hours, leaving a comfortable six hour window remaining for unexpected issues (additional detail on operating patterns will be provided in Subtask 4.2, Operations Analysis).

Spare locomotives could be undergoing inspection or repair. The locomotive maintenance shop has been sized to accommodate up to four 75’ long locomotives inside. Even in a worst-case scenario, if the locomotive fleet were to be doubled – to 14 locomotives – a shop with space for four locomotives while the remaining ten locomotives were operating (a 29% spare ratio) would be adequate.

Anticipated maintenance activities for locomotive maintenance facility include inspection (e.g., FRA mandated 31, 92 day and annual inspections) light running repairs (e.g., brake shoe replacement, filter replacement, lubrication, minor repairs, periodic testing, etc.) and medium running repairs (e.g., air reservoir tests, unit exchange of various components such as electrical contactors, power assemblies, brake valves, and wheelset-traction motor combinations). For heavy repairs, such as major overhaul of the diesel engine or repairs to traction motors, the expectation is that the components would be removed from the locomotive at the maintenance facility and shipped to a contract shop with the capability of handling such repairs. When repaired parts are available, they would be re-installed at the maintenance facility.

Although the proposed railroad is not anticipated to own any revenue-service railcars, occasional repairs are required to railcars received in interchange. Anticipated activities for the rail car maintenance facility would include repairing defects found upon inspections, such as replacing brake shoes, repairing air hoses and steps, wheelset changeouts, unit exchange of brake valves, and allowance for other minor repairs.

Please see the accompanying exhibits, “NAPI Yard Concept Overview” and “Locomotive and Railcar Maintenance Facility and Transload Overview”, and “Locomotive and Railcar Maintenance Facility Details”.

DESCRIPTION OF THE LOCOMOTIVE MAINTENANCE FACILITY

The locomotive maintenance facility consists of a building with dimensions sufficient for four 6-axle locomotives each 75’ long. The building would be approximately 190’ long by 105’ wide by 35’ tall. Two tracks would run through the building on 35’ track spacing. One track would contain an 80’ long inspection pit to allow inspections and repairs under locomotives, as well as a bridge crane to allow for medium running repairs. The second track would be at floor level, allowing forklift and vehicle access for light and medium running repairs. Some railcar

repairs could occur in this building as well, if needed. Jacking pads would be incorporated into the concrete floor in order to allow locomotives to be lifted into the air via portable jacks for removal of trucks and traction motors.

Outside the building, the tracks would remain tangent for at least 200' with adjacent road access to allow for minor repairs outside the building and servicing if required.

A portion of the locomotive maintenance facility building would be set aside for offices. Six individual offices would provide space for the operations control/dispatcher; general manager; track/infrastructure/mechanical supervisors; operations supervisor/designated supervisor of locomotive engineers; clerical/accounting support staff; and one "drop-in" or "spare" office. Each office, at approximately 10'x10', would allow ample space. The office area would also include welfare facilities, such as bathrooms, a locker area, and conference/training room. The building is large enough that the office area could be expanded, if desired.

The remainder of the building space not set aside for repairs would be used for employee break areas, mechanical workspace (e.g., a workbench for minor repairs, fixed tools such as a drill press, tool boxes, and a welding area), equipment and parts storage, or indoor parking and servicing of rubber-tired maintenance of way equipment.

Roadway access to the facility would provide geometry sufficient for a semi truck to reach the maintenance building and a loading/unloading area, before turning around and exiting the facility. Employee parking would be provided as well.

DESCRIPTION OF THE CAR REPAIR TRACKS

Car repairs are frequently conducted outside at many railroads, both Class 1 and shortline; the car repair facility for the proposed railroad is similarly outside. The exterior car repair tracks ("Repair In Place" or "RIP" tracks) would consist of a pair of tracks at 35' track spacing and at least 300' of working length available for repairs. A paved or compacted road rock apron adjacent to and between the tracks would allow for vehicular access next to the track to assist in repairs. Although not currently anticipated, a canopy could be added to the main working area for some protection from the elements. Designated storage areas with racks, bins, and laydown areas, would be provided nearby for storage of railcar parts in compliance with Association of America Railroads requirements (e.g., storing parts in racks, above the ground). A storage area for spare wheelsets would be on site as well.

Roadway access to the facility would provide geometry sufficient for semi trucks to make deliveries and pickups from the site and then exit the premises. Parking would be provided for employees. All employee welfare, such as lunch room and bathrooms, would be provided at the nearby Locomotive Maintenance building. Any offices required would also utilize the locomotive maintenance building.

DESCRIPTION OF THE LOCOMOTIVE SERVICING AREA

The locomotive fueling and servicing track would allow for fueling and minor servicing and layover of locomotives awaiting their next assignment. This track would be adjacent to the Locomotive and Car Maintenance building, 30' from the nearest track and would have access roads on either side to provide for vehicle access adjacent to the locomotives to aid in servicing. Drip pans would be installed on the track in the location where fueling would take place. A open-sided shad may be provided at the fueling area to shelter the drip pans from weather, though in the generally dry environment of the Four Corners region, such a shed may not be needed. Captured liquids would be directed to an on-site industrial wastewater treatment and oil water separator for treatment. Roadway access to

the service track would allow a fuel truck or septic cleaning truck to access the locomotives for servicing and emptying sanitary retention tanks. Please see the accompanying “NAPI Yard Concept Overview” exhibit.

Servicing activities to be performed on this track include:

- Locomotive fueling, performed by outside contractors driving fuel trucks onto the site. No fueling cranes or apparatus is expected to be required.
- Locomotive sanding
- Emptying locomotive toilets, performed by outside contractors driving septic cleaning trucks onto the site to service the locomotives. Waste would be transported to a local sewage treatment facility or leach field.
- Supplying locomotives with ice and water for upcoming trips, for crew welfare
- Very minor repairs, such as brake shoe or headlight changeouts, could also be performed on the service tracks to save the delay of moving the locomotive to the Locomotive Maintenance Building to perform these tasks.

IV. TRANSLOAD FACILITIES

OVERVIEW AND LOCATION OF TRANSLOAD FACILITIES

A transload facility is an effective and inexpensive method to allow multiple shippers access to rail transportation. Such facilities can be placed in locations where there are many infrequent shippers to save the cost of building a rail spur to each shipper, or where rail spurs cannot otherwise be economically constructed. Truck transportation is used for the “first mile/last mile” transportation between the railroad transload facility and the shipper. Although one main transload facility is anticipated at NAPI, additional transload facilities could be placed along the railroad as needed to provide additional access for shippers.

A transload facility can be located anywhere with a sufficiently flat gradient to allow the cars to be stationary during loading/unloading without any special measures required to hold the car. Flat ground is also a consideration for materials handling equipment. For example, a forklift handling a load of long structural beams would operate most efficiently if the ground were level, thus avoiding tipping of the load. The NAPI site provides an area where, with some earthwork and grading, a relatively flat area can be established for a transload facility. Importantly, the NAPI facility is close to the businesses at NAPI and in nearby Farmington. Because Farmington is in a river valley, only four miles, but 700’ lower than NAPI, a transload facility at NAPI offers the opportunity to serve the geographically dispersed customers in the Farmington area in a cost-effective manner. Conversely, it would be cost-prohibitive to not only build down into the river valley, but also to build a spur to each potential customer (many of who are already land-locked by existing development), which means a transload facility is a necessity.

A transload facility with at least 2 tracks would be provided at the marshalling yard location at the north end of the route at the NAPI site. This location, close to the industries in nearby Farmington, will maximize the number of potential local shippers available who could utilize the site.

Please see the accompanying exhibits, “NAPI Yard Concept Overview” and “Locomotive and Railcar Maintenance Facility and Transload Overview”.

DESCRIPTION OF TRANSLOAD FACILITIES

The transload facility located at NAPI would include two tracks, each approximately 1200’ long. This length allows for at least fourteen 70 foot long cars (such as “center beam” style cars for lumber or drywall or long flatcars for general freight). The transload tracks at NAPI would be approximately 100’ apart to allow for maneuvering of trucks and equipment between the tracks. This would allow sufficient space to load or unload any long items. For example, even the typical 80’ long maximum length of structural steel could be maneuvered between the two tracks; generally, forklifts do not carry such long loads any significant distance, but rather carry long items immediately onto or off of trucks parked at an angle to the railcar being loaded/unloaded. The transload facility would be a flat facility paved with a road rock apron. This apron would be level with the top of tie or top of rail for each track and would extend at least 30’ outside the tracks to allow for access on both sides of rail cars.

Rail cars to be loaded or unloaded would be parked on these tracks, with trucks and loading/unloading equipment being operated on the apron to access the rail cars. Examples of loading/unloading equipment would be conveyors for loading or unloading hopper cars, forklifts for loading or unloading flat cars, and bulk liquid trucks for tank cars.

In addition to the 1200’ long section of the two transload tracks paved with road rock there would be an additional section of the two tracks that would be “standard” track, i.e., not paved with road rock. This space would allow for staging of cars to be brought to the paved area of the transload facility, future expansion, or simply storage space for additional railcars.

Roadway access to the site would be configured to handle the semi trucks and allow for the loading/unloading equipment to access the site.

The transload facility is configured to be easily expandable, either by lengthening the working area, by adding tracks, or by adjusting the spacing of the proposed tracks.

V. UNIT TRAIN LOOP TRACK

OVERVIEW AND LOCATION OF UNIT TRAIN LOOP TRACK

Unit trains generally consist of a single type of railcar and are generally dedicated to a single shipper and receiver, with the number of cars (and thus volume of commodity handled) being relatively fixed. Such trains require little or no switching at origin, destination, or intermediate terminals, and thus can offer significant economies for rail shippers. To minimize switching, a unit train that traverses more than one railroad often uses the locomotives from only one railroad, thereby allowing a single set of locomotives to power a train for its entire journey, known as “run-through” power or locomotives. It is assumed that run-through locomotives, furnished by BNSF Railway, would power unit trains on the proposed railroad.

The unit train loop track is effectively another type of transload facility, since it provides a place where bulk commodities, such as grain or potash (fertilizer), would be moved by truck to or from a storage area for loading/unloading from trains. The loop configuration allows a train to change direction (i.e., arrive at the loop headed in one direction and depart the loop headed in the opposite direction, effectively turning the train around

without changing the controlling locomotive), further increasing economies, since, once around the loop, the train is correctly oriented to return to the BNSF interchange.

Since agricultural products and crop inputs are the primary bulk commodities handled by the proposed railroad, and the Navajo Agricultural Products Industry is the region's primary consumer of such products, the unit train loop track would be located at the far north end of the proposed railroad, where NAPI's crops are produced and crop inputs such as fertilizer are used. The loop track would be co-located with the Marshalling Yard, near the NAPI headquarters. The unit train loop track is shown on the accompanying exhibit, "NAPI Yard Concept Overview".

DESCRIPTION OF UNIT TRAIN LOOP TRACK

As noted previously, the loop track is arranged such that trains can enter and depart from one of the unit train staging tracks, so that a train can remain intact even if it needs to wait for some period of time before loading or unloading. This track configuration also provides sufficient space so that any train length up to approximately 12,500 feet could be operated around the loop. By locating the loop at the north end of the yard, north of the staging tracks (making the loop effectively the northernmost point on the railroad), trains have the option of entering a staging track prior to using the loop.

The proposed loop track has a curvature of approximately 7.5 degrees, consistent with AREMA recommendations. The current concept for the loop track was developed to maximize the length of the staging tracks. The loading or unloading area would be on a section of tangent track, with a bypass track so trains would not be required to operate through the loading or unloading areas.

The loading and unloading equipment would need to be developed in conjunction with the needs of specific users. Such equipment would typically consist of under-track unloading pits (used to empty the contents of covered hopper cars via gravity) and conveyors to move materials out of the pit and into storage areas or directly to trucks via conveyor belts. Similarly, loading equipment would typically consist of a truck unloading facility (generally unloading a truck by gravity into a pit) and then conveying that material into a storage facility and from there into railcars. It is assumed that storage facilities would be provided by the parties using the facility.

VI. MAINTENANCE OF WAY FACILITY

OVERVIEW AND LOCATION OF MAINTENANCE OF WAY FACILITY

The maintenance of way facility would be a designated area used to store materials and equipment associated with maintaining the right of way and infrastructure. Examples of such materials include spare sections of rail (typically stored as 39' lengths), spare turnout components (such as switch points, stock rails, frogs, and operating rods), spare ties, spare bridge components (such as handrail cables or, in some cases, even spare "standard" concrete double box beam girders). The facility would also have dedicated spur tracks on which to store on-track maintenance equipment, such as a ballast tamper or ballast regulator. The maintenance of way facility would also have space to park off-track equipment, such as pickup trucks, crew trucks, or backhoes. The maintenance of way facility would not have any buildings; any heavy maintenance to on-track or off-track equipment would be performed inside the locomotive and railcar maintenance facility. Please see the accompanying exhibits, "NAPI Yard Concept Overview" and "Locomotive and Railcar Maintenance Facility and Transload Overview".

An adjunct to the maintenance of way facility would be setout tracks that would be located at intervals along the proposed railroad. These tracks would consist of short spurs or sidings of roughly 500-1000' long that allow for placement of defective rail cars for repair, or short-term storage of on-track maintenance of way equipment to stage clear at intermediate points along the line, yet be clear of the main track.

The main facility would be located adjacent to the marshalling yard area at NAPI. Any office or administrative space would be integrated into the Locomotive Maintenance Building. The short setout tracks would be placed at regular intervals along the proposed railroad in conjunction with passing siding locations (i.e., one or more passing sidings, which are long enough to accommodate an entire train, would also have a short setout track) based on input from operations modeling.

DESCRIPTION OF THE MAINTENANCE OF WAY FACILITY

The maintenance of way facility would consist of a pair of spur tracks with 30' track spacing, a nearby area for track materials storage, and roadway access. One siding would be available for loading and unloading of material, and the other would be used for maintenance of way railcar storage (such as three or four ballast hoppers or a dedicated flatcar for handling materials) and on-track equipment (such as tampers and regulators) storage. Actual maintenance and repair of maintenance of way equipment would occur inside the locomotive and railcar maintenance facility; one bay of that facility is intended to accommodate rubber-tired equipment such as gang trucks or backhoes. The maintenance of way facility could be easily expanded if the need arose.

VII. RAIL INTERCHANGE FACILITIES

OVERVIEW OF RAIL INTERCHANGE FACILITIES

The proposed railroad connects the Farmington region to the BNSF Railway; however, most customers would be beyond the limits of the proposed railroad, which means trains must be turned over to or received from (i.e., "interchanged" with) the BNSF Railway at the southern end of the railroad. This exchange point requires an interchange facility for trains to exchange custody between the proposed railroad and BNSF, which involves a change of crews between the railroads, and interchange of rail cars. Arriving trains would leave their cars in a siding, locomotives would move to the opposite end of the sidings and pick up the cars left by the other railroad and return to their terminal. For unit trains, BNSF locomotives would remain with the train for the entirety of the run on the proposed railroad, thus, only an exchange of crews would take place at the interchange facility. Should a connection be made to the Navajo Mine Railroad, it is not anticipated that a formal interchange facility would be required due to low numbers of trains using that connection, and the fact that ample track space is available at the Navajo Mine to stage trains.

LOCATION OF RAIL INTERCHANGE FACILITIES

The location of the rail interchange facility would be as close to the BNSF connection as possible since BNSF will want to minimize the distance its crews to operate on the proposed railroad. Because BNSF may require a new railroad over which BNSF crews operate to comply with BNSF design, maintenance, and operating requirements,

locating the interchange facility as close to the BNSF as possible also minimizes the length of the new railroad over which BNSF may enforce these requirements.

For the three routes originating from the BNSF Defiance Subdivision (Defiance via Highway 491, Defiance via Indian Creek, and Defiance via Highway 371), the interchange facility would be located near the point where the proposed railroad connects to the BNSF Defiance Subdivision. This has excellent roadway access to Defiance Draw Rd. and New Mexico State Highway 264.

For the El Segundo and Star Lake routes, the interchange facility would be located from approximately Milepost 3.8 through Milepost 6.2 of the proposed railroad. NM State Highway 509 is nearby to provide roadway access.

DESCRIPTION OF RAIL INTERCHANGE FACILITIES

The rail interchange facility would consist of three siding tracks parallel to the main track of up to approximately 12,500 feet long or long enough to chamber the longest train that would run on the railroad (which may be shorter than 12,500'). The sidings would be located adjacent to the main track at the intended location of the rail interchange facility. While the siding turnouts could theoretically be hand operated, using radio controlled turnouts would allow trains to enter and exit the interchange facility without needing to stop to line switches. The three siding tracks would be sufficient to stage up to four trains (assuming one train occupies the main line). By providing space to stage four trains, the interchange would accommodate 2/3 of the daily train volume (a daily total of six trains, three inbound towards NAPI and three outbound for the BNSF).

Put another way, the interchange would accommodate all three inbound trains from BNSF while still leaving one open track for an outbound train. Note that the crew from any outbound train (i.e. train destined for the BNSF interchange) is expected to take an inbound train back to NAPI, thereby clearing an interchange track (formerly occupied by the inbound train). So, at the beginning of a hypothetical day, even if three interchange tracks were occupied by inbound trains, an arriving crew with one outbound train would in turn take an inbound train back to NAPI, leaving at least one track open. The same would be true for BNSF trains if there were three outbound trains staged and waiting to depart on the BNSF: a BNSF crew arriving with an inbound train would, in turn, take away one of the outbound trains, leaving one track open. At this stage, it is assumed that BNSF will be able to deliver and receive at least two trains per day from the interchange. However, if needed, additional interchange tracks could be added.

Roadway access to the nearest all-weather public road would be provided to allow crew vans access to the interchange facility.