Section F. Associated Property Types

I. Name of Property Type: Railroad Corridor Historic Districts

II. Description

The property type "railroad corridor historic district" encompasses the right of way within which a railroad operated and all of the buildings, structures, and objects that worked together for the dedicated purpose of running trains to transport freight and passengers. The elements of railroad corridor historic districts are organized within linear rights of way that range from approximately 30 feet to several hundred feet in width but may extend for hundreds of miles in length. The linear nature of the railroad corridor historic district is an important associative characteristic that conveys the sense of a train traveling to a destination (Figure 1; Note: all figures are located at the end of Section F).

The MPDF *Railroads in Minnesota, 1862-1956* does not distinguish between railroad mainlines and branch lines. Although, historically, railroad companies identified their railroad corridors as mainlines or branch lines, the definition of mainline varied from company to company, depending on volume of freight, priority on operations time tables, and other factors. In addition, a railroad corridor's status may have changed over time, depending on operating conditions. For the purposes of evaluating historic significance, a railroad corridor's status as mainline or branch line is not a determinant; a railroad corridor can be eligible for the National Register regardless of its status as a mainline or branch line.

Corridor Elements. At minimum, a railroad corridor historic district includes a railroad roadway, which is the portion of the right of way modified to support the railroad tracks (see Railroad Roadway discussion below). The configuration of a railroad roadway in Minnesota is commonly a single track on a railroad bed with cuts and fills, and ditches. Other layouts may be present or may have been used historically (see Railroad Roadway below).

In addition to the railroad roadway, a railroad corridor historic district can include associated railroad-related support buildings and structures. The railroad support buildings and structures will vary between railroad corridor historic districts and can include: railroad stations, railroad yards, railroad depots, railroad grade separation structures, and railroad section houses (see discussion below). The locations of these elements historically varied according to local geography, existence of other railroad corridors and vehicular roads, markets served, and population. For example, railroad stations historically were located every 5 to 10 miles along a railroad corridor, but railroad yards were required only in special locations, such as at terminals, division points, and large railroad stations and junctions.

Geographic Influences. The geography of Minnesota influenced the location and design of railroad corridors in the state. The Twin Cities, Duluth, and Mississippi River cities, which were early terminals connected to waterways, served as starting points for railroad corridors that subsequently radiated out to resource procurement areas: the agricultural lands of southern Minnesota and the Red River Valley, the pine forests of central and northern Minnesota, and the ore fields of the iron ranges. Access to commodities, terminal facilities, and transfer points defined the destinations for railroad corridors. Once the destination points were established, the ideal railroad corridor alignment provided the gentlest grades on the straightest route, which could require extensive cutting, filling, and bridging, depending on the topographic and other natural features to be crossed. In lightly populated western areas, however, such as Minnesota during the nineteenth century, investment capital was scarce, and corridors were often built over or around natural features. Such alignments meant steeper grades or more circuitous routes but minimized initial construction costs. Years later as traffic increased, those early corridors were often re-aligned and reconstructed to straighten curves and reduce grades through more extensive cuts and fills. The built environment influenced the alignment of railroad corridors as well; for example, railroad corridors detoured from the most direct alignments between destination points in order to connect with existing towns along the way.

Boundaries. The boundaries of a railroad corridor historic district will be the historic right of way of the railroad company that built and operated the corridor. If the current railroad right of way is different than the historic railroad right of way, the historic right of way will be the boundaries of the railroad corridor historic district. If, however, portions of the historic right of way that are not important to convey the associative linear characteristic of the district are no longer within the railroad right of way and have lost historic integrity, the boundaries of a railroad corridor historic district may be limited to the current right of way. For example, if a former railroad yard is no longer within a railroad right of way and has lost its ability to convey its association with the railroad corridor historic district, the district’s boundaries may be limited to the current railroad right of way.

Variations. A railroad corridor historic district will consist of elements that span the period of significance and that illustrate changes in industry standards for the elements of the district. The physical characteristics of railroad corridor historic districts will vary based on technological changes, the need to replace roadway elements due to wear and tear, and the desire by railroad companies to gain operating efficiencies. Ballast design and, therefore, railroad bed width was dependent on the materials used, the climate, the weight of rails, and the volume, weight, and speed of train traffic. As more powerful engines hauled heavier loads at faster speeds, or as freight volumes increased generally, railroad companies installed heavier-weight rail, more substantial ballast, and wider railroad beds, which at times necessitated more extensive cuts and fills. During the twentieth century, railroad companies regularly upgraded the railroad roadway and tracks on their railroad corridors. In addition to the elements of railroad roadway, each railroad corridor historically required different numbers and types of supporting buildings and structures. The contributing elements of a railroad corridor historic district will consist of combinations of the following elements.

Common Elements of Railroad Corridor Historic Districts

Railroad Roadway

A railroad roadway is an element in a railroad corridor historic district. The design and material composition of a railroad roadway will vary within a railroad corridor historic district depending on environmental conditions. Typically in Minnesota, a railroad roadway will include a single set of tracks (Figure 2). Historically, in single track corridors, passing sidings were located approximately every 5 miles to allow opposing trains to pass each other and to allow fast-freight or express trains to pass slower trains. Busier railroads historically may have been double-tracked, and in railroad stations and yards, multiple tracks provided access to the facilities (Figures 3 and 4).

A railroad roadway will consist of a combination of the following structural components: ground modification (cuts, fills, and grades), a railroad bed, ballast, tracks, and ditches (Figure 5). Historically, the minimal ground modification needed for a railroad roadway, typical in flat dry lands, was a smooth-graded ground surface with small amounts of fill and shallow cuts, as needed. In rougher terrain and in wetlands or seasonally inundated lands, extensive fills and cuts were necessary to maintain a gentle gradient. The slopes on the sides of cuts and fills (side slopes) were typically at a horizontal to vertical ratio of 1½:1, though flatter slopes of 2:1 or 3:1 were necessary in areas with sandy or clayey soils.

A railroad bed is always present within the railroad roadway, regardless of the amount of cut or fill necessary (Figure 6). A railroad bed consists of a layer of soils applied to the ground surface to provide a smooth regular plane for the tracks and to uniformly distribute loads from trains, tracks, and ballast. Single-track railroad beds ranged from 16 to 24 feet wide, and a 20-foot width was most common.

Active railroad corridor historic districts will always include ballast and railroad tracks, while abandoned railroad corridor historic districts may not. Ballast is the layer of material between the railroad bed and the tracks. Although current ballast materials uniformly consist of crushed stone, historically, ballast materials varied among railroad corridor historic districts and consisted of crushed stone, slag, gravel, sand, cinders, or burned clay. The purpose of ballast is to distribute the loads imposed on the railroad bed by the railroad tracks and trains. To further distribute loads and to help prevent the ballast material from being pushed into the railroad bed, a sub-ballast layer of gravel, slag, or cinder may be placed between the railroad bed and the ballast.

The railroad tracks of a railroad corridor historic district are positioned on the ballast. Railroad tracks in railroad corridor historic districts in Minnesota always conform to standard gauge (4 feet, 8 ½ inches). Although some 3-foot narrow-gauge railroad tracks were built during the nineteenth century in southeastern Minnesota river valleys, those railroad tracks are no longer extant. Narrow-gauge railroad tracks used to access timber lands and iron mines were built outside of railroad rights of way by timber or mining companies or by railroad companies on easements and, therefore, are separate from railroad corridor historic districts. Railroad tracks consist of steel rails on wood ties (Figures 7 and 8). Typical ties are pieces of timber that measure 6-by-8 inches to 7-by-9 inches in cross section and 8 to 9 feet in length; they are laid perpendicular to the rails and are bedded in the upper portion of the ballast. Rails conform to the inverted T profile (Figure 9). Rails are spiked to the ties, though they usually rest directly on square, steel tie plates to prevent them from cutting into the ties (Figure 10). Although the material composition of rails has evolved since the nineteenth century (from iron to steel and progressively heavier weight, from 35 to 45 pounds per yard to more than 130 pounds per yard), their basic appearance has changed little. Drainage ditches typically flank the railroad bed or the side slopes where fill is present (Figure 11). To further promote drainage, tile pipes often line the ditch bottoms, and culverts carry water through the railroad roadway (Figures 12 and 13). To reduce erosion, the slopes may be planted with grasses, and the shoulders rounded off. The outer shoulders of the ditch slopes are the edges of the railroad roadway.

Historically, the area between the railroad roadway and the edge of the right of way was overgrown with vegetation. This vegetation contrasted with the surrounding fields of row crops, pastures, or forests. Telegraph poles and lines, as well as fences, which were originally wood or stone and later barbed wire with wood posts, further delineated the edge of the right of way.

Railroad Grade Separation Structures

Railroad grade separation structures carry railroad tracks of one railroad corridor over those of another railroad corridor, a vehicular roadway, a water course, or a topographic feature. These structures are elements in railroad corridor historic districts; or where a railroad corridor historic district is not present, railroad bridges, trestles, viaducts, and culverts will be a separate property type (see Property Type: Railroad Grade Separation Structures).

Railroad bridges during the nineteenth century mostly consisted of iron or steel truss spans. Fixed metal bridges were installed at most permanent river crossings, and utilized a variety of truss types, the most common of which are the Howe, Pratt, and Warren trusses. Movable bridges were built in locations where another form of transportation, such as a river, required an intermittent gap in a railroad corridor and include the vertical lift bridge, the swing bridge, and the cantilevered bascule bridge. Masonry arch railroad bridges used classic hyperbolic, segmental, and semi-circular arches of cut granite or sandstone ashlar masonry seated on massive stone piers. Concrete slab railroad bridges consist of three types: reinforced concrete, concrete I-beam, and concrete rail top.

Railroad trestles and viaducts are braced-framework structures designed to cross deep river valleys that lack navigable channels or to cross minor streams and gullies. Trestles have short (12 to 14 feet) spans (bents) fashioned from driven wood piles or cut framed timber (Figure 14). Viaducts use a skeletal frame of steel girders (Figure 15).

Culverts are small bridges designed to provide drainage for water or form a passageway through a fill material (usually earth). The simplest forms of culvert are boxes constructed of wooden beams or stone or concrete slabs, and prefabricated concrete or metal pipes (Figure 16). Formal masonry arched culverts may resemble arch bridges with stone or concrete drainage floors.

Railroad Stations

Railroad stations are encompassed within railroad corridor historic districts (Figure 17). A railroad station may contribute to a railroad corridor historic district if it retains historic integrity; or where a railroad corridor historic district is not present, railroad stations will be a separate property type (see Property Type: Railroad Station Historic Districts). A railroad station is the portion of railroad right of way operated for the purpose of a railroad stop and designated by name in railroad timetables. Railroad stations consist of buildings, structures, and objects used for loading and unloading passengers and freight and for operational needs. The most common buildings and structures within a railroad station include: railroad roadway; platforms; depots (passenger, freight, or combination); commercial buildings and structures within the right of way (elevators, warehouses, stockyards, lumberyards); and operations structures (water towers, coal chutes, light signals, interlocking towers).[7] Railroad stations were the commercial nodes of a railroad corridor historic district; whereas railroad yards provided the major maintenance, repair, sorting, and classification of railroad motive power and rolling stock. Although railroad stations and yards, at times, were located in geographic proximity, they operated as separate facilities.

Factoring out special circumstances, railroad stations typically were located every 5 to 10 miles along a railroad corridor historic district (and not more than 20 miles because steam locomotives required refills of

[7] The terms “depot” and “station” were often used interchangeably by railroad companies. In this document, depot refers to the main building used for loading passengers and perhaps freight (where separate freight houses are not present) within a railroad station. A station is made up of the entire area within the right of way that operated as a railroad stop, including the depot and other buildings and structures used for loading freight or minor maintenance of engines and rolling stock.

water). Railroad corridor historic districts widen considerably at railroad stations in order to accommodate the additional tracks and support buildings and structures. As a railroad corridor historic district approaches a station, the number of approach tracks may increase, and within the railroad station, the sidings and spurs that provide access to railroad depots, loading and storage buildings and structures, and operations facilities further increases the number of tracks. The through tracks, which continue on a railroad corridor historic district beyond a railroad station, can run down the middle of a railroad station with loading and storage facilities located on both sides, or can run along the side of the railroad station with loading and storage facilities on one side. Sidings are side tracks that connect to through tracks at both ends, whereas spurs are side tracks that connect to through tracks at one end.

A railroad depot is usually oriented on a long axis parallel to the railroad tracks. In this way, it sharply defines two separate functional areas: a passenger or freight arrival area, usually recognizable as a parking lot or freight drop-off platform; and a passenger boarding or freight loading platform immediately adjacent to the tracks. There are four main groupings of railroad depots, based on size, layout, services offered, and architectural detail: flag depots, combination depots, passenger depots, and union/terminal depots. Historically, depots provided a means for receiving, sorting, and loading any combination of passengers and freight. The majority of Minnesota's railroad depots were combination depots—small and capable of receiving both passengers and freight, with separate loading facilities for bulk freight, such as grain elevators. Large cities had union or terminal depots, which were designed exclusively for passenger traffic and were often one of the most architecturally sophisticated buildings in the community.

Any one of the following building or structure types could contribute to a railroad corridor historic district if it dates to the period of significance and retains historic integrity. They have been grouped within the railroad station element for ease of identification. Note the difference from railroad station historic district, which is a separate property type from railroad corridor historic district and in which certain buildings and structures must be present.

Platforms facilitated movement between railroad cars and railroad depots and warehouses. Low platforms are at grade, which would require a passenger to board a train by climbing the passenger car steps. High platforms are built up approximately 4 feet to facilitate loading of freight and boarding of passengers. Low platforms are concrete or brick, and high platforms are built up with wood framing or concrete (Figure 18).

Flag depots are open-air or enclosed, gable- or shed-roofed buildings with simple platforms located in areas where traffic was restricted to the occasional passenger, and where the train was flagged to stop rather than making scheduled stops. If passenger traffic at a flag depot increased, it could be upgraded to include a building with a railroad agent's office and a passenger waiting room (Figure 19).

Passenger depots varied in appearance. The smallest passenger depots are single-story frame or brick buildings with a waiting room, ticket office, and baggage room, which accommodated the occasional freight shipment. Small depots express nationally popular architectural styles through standardized plans developed by railroad architects and engineers. Large first-class passenger depots were designed individually and could be two-story buildings with waiting rooms, restrooms, smoking rooms, dining rooms, baggage rooms, offices for mail, telegraph, and wire services, news stands, supply rooms, lounges for conductors and trainmen, and administrative offices (Figure 20).

Combination depots have a single, central office space where an agent processed passenger tickets and freight bills, a passenger waiting area at one end of the building, and a freight room at the other end. Architecturally, combination depots were similar to passenger depots and may include a second story, a watch-tower, and wings for baggage and freight (Figure 21).

Union or terminal depots were designed by architects in styles common for public buildings, such as Richardsonian Romanesque, Classical Revival, and Beaux Arts. They feature high-quality materials like brick, stone, and terra cotta, as well as marble floors and hardwood finishes in the interiors. These buildings include a wide variety of railroad agency offices and passenger service areas, including the station master's office, train master's office, a ticket office, express office, telegraph office, baggage rooms, men's and women's waiting rooms, restrooms, news stands, a restaurant or lunch counter, and hotel facilities, among many others (Figure 22).

Commercial buildings and structures located within railroad station districts include general freight warehouses, specialty warehouses such as for agricultural produce or beer, grain elevators and storage bins, stockyards, and lumberyards (Figure 23).

Section Houses provided living quarters for railroad employees working as section foremen or track hands. Located in low population areas approximately every 3 to 10 miles along railroad corridors, section houses are architecturally modest, wood-frame buildings with gabled or salt-box roofs (Figure 24).

Water tanks (also known as water stations) used to refill locomotive steam boilers are located within railroad station districts. A water tank included connections to the water source through uptake pipes, a wood or metal water tank or tower, a delivery-spout or discharge pipe, and a small, usually wood frame, pump house (Figure 25).

Coaling facilities (coal stations) to receive, store, and deliver coal to steam locomotives are located within railroad station districts. Elevated coaling trestles included an inclined trestle approach to a platform, where the coal was dumped through chutes into a locomotive's coal tender below. Mechanical coaling stations (coaling elevators), constructed of reinforced concrete or steel, used a conveyor system to lift coal into loading chutes or into square bins with angular hopper delivery systems, or cylindrical bins with conical bottoms (Figure 26).

Ice houses provided ice for refrigerated cars and for use in passenger cars. Ice houses are of wood frame or occasionally brick construction, were insulated, commonly with sawdust, wood shavings, or ashes, or occasionally with layers of tongue-in-groove sheathing and insulating paper (Figure 27).

Interlocking towers operated to protect trains from collisions with other trains and intersecting vehicles and were historically located as part of a block signaling system, at the head of switch and yard systems. Towers are raised, hip- or gable-roofed, wood frame buildings with large windows or banks of window to provide the operator with views of the railroad roadway and surroundings (Figure 28).

Railroad Yards

Railroad yards are encompassed within railroad corridor historic districts (Figures 29 and 30, also see Figure 17). A railroad yard may contribute to a railroad corridor historic district if it retains historic integrity; or where a railroad corridor historic district is not present, railroad yards will be a separate property type (see Property Type: Railroad Yard Districts). A railroad yard is a system of tracks and support buildings and structures, associated with the switching and assembly of trains and the construction, maintenance, service, and repair of railroad rolling stock. Historically, the most common buildings and structures within railroad yards included: engine houses, shop buildings, turntables and transfer tables, yard offices, worker shelters, power houses, coaling stations, ash pits, water stations, ice houses, storage buildings, and safety structures (signals and interlocking towers).

Railroad yards were required only in special locations along a railroad corridor historic district, such as terminals, division points, and large railroad stations and junctions. Railroad corridor historic districts widen considerably within railroad yards. The yard tracks are located on one or both sides of the through tracks or between a set of double tracks. The body tracks of the yard are laid out in groups of parallel tracks that provide for the switching and storage of railroad cars. The parallel tracks are connected via diagonal ladder tracks. Railroad tracks within a railroad yard district temporarily store trains for switching and assembly, and provide access to railroad buildings and structures within a railroad yard.

Any one of the following building or structure types could contribute to a railroad corridor historic district if it dates to the period of significance and retains historic integrity. They have been grouped within the railroad yard element for ease of identification. Note the difference from railroad yard historic district, which is a separate property type from railroad corridor historic district and in which certain buildings and structures must be present.

Engine houses were designed to provide the regular mechanical service required to keep a railroad's motive power running. Square engine houses are located in smaller railroad yards and are wood frame buildings that provided side-by-side berths for locomotives undergoing service and repair. Roundhouses were constructed with multiple engine berths in a radial pattern and could have a segmental plan with the berths occupying a segment of a circle or a closed or full-circle plan, in which a through-passage provided access to a central turntable (Berg 1900:168) (Figure 31).

Transfer tables and turntables were used to maneuver locomotives into engine houses. Railroad transfer tables, used at square houses, consist of rectangular platforms with sets of tracks that moved locomotives perpendicular to the incoming spur tracks. Railroad turntables consist of circular platforms supported by steel truss or plate frameworks that could turn engines and freight cars or orient them properly for entry into roundhouses or repair shops (Figure 32).

Maintenance shops for locomotives and rolling stock were established at junctions and division points within a railroad corridor and could be combined with engine houses. Shops complexes include machine shops, oil houses, blacksmith shops, carpentry shops, wheel foundries, and mill rooms. Passenger and freight car shops are located where paint, cabinet, upholstery, planing, electrical, pattern, and special-purpose work would be done. Shop buildings are most often constructed of brick or brick veneer on wood frames, and have large bay doors and multi-light windows. Blacksmith shops included multiple chimneys to vent the forges (Figure 33).

Railroad power houses provided steam-generated electricity to the shops and engine houses, and distributed steam for heat. Power houses could consist of a small wood frame building located near the engine house or could be more substantial buildings with a single large room for the boilers (Figure 34).

Water tanks used to refill locomotive steam boilers are located within railroad yard districts. A water tank included connections to the water source through uptake pipes, a wood or metal water tank or tower, a delivery-spout or discharge pipe, and a small, usually wood frame, pump house (see Figure 25).

Coaling facilities to receive, store, and deliver coal to steam locomotives are located within railroad yard districts. Elevated coaling trestles included an inclined trestle approach to a platform, where the coal was dumped through chutes to stationary tenders below. Mechanical coaling stations (coaling elevators), constructed of reinforced concrete or steel, used a conveyor system to lift coal into loading chutes or into square bins with angular hopper delivery systems, or cylindrical bins with conical bottoms (see Figure 26).

Ash pits allowed locomotives to dump their ash and cinders. Ash pits ranged from 1 to 4 feet deep with side walls of stone, brick, or metal and sometimes had water pits for quenching hot coals (Figure 35).

Railroad yard offices housed employees responsible for orchestrating incoming and outgoing traffic; classifying passenger and freight cars and assembling the trains; and scheduling the servicing, repair, and pre-run preparation of locomotives. Railroad yard offices are typically architecturally plain office buildings of frame construction but could be substantial brick buildings (Figure 36).

Worker shelters in railroad yards included watchman shanties, flagman shanties, and signal maintainer houses. Worker shelters were simple, standard-plan, wood frame buildings with hipped or gable roofs, board and batten or clapboard siding, and large windows.

Interlocking towers operated to protect trains from collisions with other trains and intersecting vehicles and were historically located as part of a block signaling system, at the head of switch and yard systems. Towers are raised, hip- or gable-roofed, wood frame buildings with large windows or banks of window to provide the operator with views of the railroad roadway and surroundings (see Figure 28).

III. Significance

Due to the important contributions of railroads to the economic development of Minnesota during the late nineteenth and early twentieth centuries, railroad corridor historic districts are associated with the National Register areas of significance, *transportation* and *engineering*. The significance of railroad corridors within those areas of significance are linked to a number of historic contexts in Minnesota: *Railroad Development in Minnesota, 1862-1956*; *Railroads and Agricultural Development, 1870-1940*; *Urban Centers, 1870-1940*; *Minnesota Tourism and Recreation in the Lakes Region, 1870-1945*; *Northern Minnesota Lumbering, 1870-1930s*; and *Minnesota's Iron Ore Industry, 1880s-1945*.

During the nineteenth and early twentieth centuries, as Minnesota moved from a sparsely settled territory to a state integrated in the national economy, railroads provided important transportation connections that contributed to settlement, agriculture, commerce, industry, community development, and tourism. Between 1862 and the 1890s, Minnesota established a network of railroad corridors. The network connected resource procurement areas, smaller cities, urban centers, and the state's primary commercial and industrial centers—Minneapolis, St. Paul, and Duluth—as well as other regional markets, such as Chicago and Omaha. By the turn of the twentieth century, the railroad network extended throughout southern and central Minnesota, and the Red River Valley, and within another 20 years, much of northern Minnesota. In Minnesota, railroads were the dominant form of transportation and for many people were the only practical means of long distance transportation. The economic influence of railroads peaked in

Minnesota and nationally during the early decades of the twentieth century. By 1920, railroads directly employed two million people nationwide, carried the bulk of the mail, hauled 77 percent of all freight, and carried 98 percent of the traveling public (Stover 1970:93).

The economy of Minnesota during the nineteenth and early twentieth centuries was based on the extraction of raw materials from the land. Towns were platted along railroad corridors as gathering points for commodities and as distribution centers for manufactured goods, and some of those towns grew into urban centers that became hubs for industry and commerce. Railroad corridors were at the heart of the commercial and industrial development of the state, transporting the commodities, manufactured goods, and people between the rural areas, small towns, and cities. Transportation via railroad corridors opened up whole regions of the state to agricultural production, logging, and iron ore mining. Railroad corridors brought in new residents and shipped out their produce and livestock. Furthermore, railroad corridors actively encouraged migration from the eastern United States and from abroad.

Within the context of agricultural development, railroad corridors hauled crops and animal products from farm to market with a speed and level of service that was unmatched during the nineteenth century. The massive volumes of wheat hauled on railroad corridors to mills in Minneapolis and elsewhere facilitated industrial crop production, large-scale milling, and mass marketing of flour and food products. Indeed, the "milling in transit" rates (reduced rates offered by railroads to large mills) were based on the idea that wheat/flour was only temporarily stored at the mill, and rates could be based on the lower, long-haul rates between western wheat fields and eastern markets for flour. Similarly, through efficient transportation, railroad corridors facilitated the transition to diversified agriculture in Minnesota after 1880 by connecting producers of a variety of agricultural commodities with processors.

Within the industries of logging and mining, railroad corridors connected the resource procurement areas with transfer or terminal points. Railroad corridors were integral to the iron ore mining industry because extracting the bulky commodity in areas far from water transport would not have been economically feasible but for connections provided by railroad corridors. Even hauling mining equipment into the remote mine locations would have been difficult if not for railroad corridors. Regarding commercial logging, railroad corridors opened up forest lands for logging that were far from navigable streams, which was particularly important in the far northern forests.

Railroad corridors spurred the development of urban centers at major railroad junctions and transfer points, and Minneapolis-St. Paul developed as both a railroad hub and a metropolitan center with economic influence over portions of six states. Railroad corridors modeled engineering efficiency through the designs for their own facilities and encouraged efficiency through grouped land uses, such as industrial zones and warehouse districts. In the Twin Cities for example, an extensive industrial corridor extended from North Minneapolis southeast to South St. Paul, consisting of manufacturing, storage, and wholesale operations that centered on the confluence of multiple railroad corridors. In other urban centers and smaller cities and towns, warehouses and manufacturing plants lined the railroad corridor, and central business districts either paralleled or radiated out from them. In most towns in western Minnesota, the grain elevators within the railroad corridors were the dominant feature of the skyline, and in Duluth, the massive elevators and ore docks, built to serve the converging railroad corridors, dominated the port.

In the context of tourism, many railroad corridors, as part of their passenger business, carried travelers from cities into the lakes regions or to areas renowned for hunting, and conversely, they carried tour groups from small towns into cities for cultural events or shopping. In some cases, railroad corridors were instrumental in the establishment of significant tourist destinations.

IV. Registration Requirements

A railroad corridor historic district is a substantive concentration of railroad-related buildings and structures that were built and operated within a railroad right of way in Minnesota between the years 1862 and 1956. Some railroad tracks used to access timber lands and iron mines that were built outside of railroad rights of way by timber or mining companies or by railroad companies on easements are not considered or included within the MPDF *Railroads in Minnesota, 1862-1956*.[8] To be eligible for listing in the National Register within the MPDF *Railroads in Minnesota, 1862-1956*, a railroad corridor historic district must meet one of the following significance criteria, and it must retain historic integrity.

Criterion A

To meet National Register Criterion A, a railroad corridor historic district will have significant and demonstrable association with the *transportation* area of significance. The significant association may be within any of the contexts described in Section E. Significant railroad corridors can be characterized by the important connections they made or by the types and volumes of traffic they carried. For a railroad corridor to be eligible for association with *transportation*, it must meet at least one of the following significance requirements.

1. A railroad corridor historic district opened to settlement a region of the state with no, or virtually no, regional roads or navigable rivers by providing the only long-distance transportation option, and construction of the railroad was followed by a significant increase in the rate of settlement. By definition, this first requirement (though not requirements two through four) would exclude southeastern Minnesota

[8] Birk (1998) developed registration requirements for logging railroads outside of railroad company rights of way.

(the area southeast of the lower Minnesota River), as well as areas along navigable portions of the Mississippi, Minnesota, and St. Croix rivers. Approximate geographic regions consist of the following:

- Southwestern Minnesota—south of the Minnesota River and approximately west of Mankato;
- South-Central Minnesota—between the Minnesota and Mississippi Rivers;
- Red River Valley;
- Central Minnesota—approximately from St. Cloud to Walker;
- Northeastern Minnesota;
- North Central Minnesota.

For example, a railroad corridor that built through southwestern Minnesota during the early 1870s, provided the first railroad service in the region, and was followed by rapid settlement would be a significant corridor. Such a corridor also would have been the only long-distance transportation in the area until additional railroad corridors were built during the late 1870s. If more than one railroad built into a region during the same time period, they both may be significant corridors, particularly if they built in different directions within the region. For example, two railroads building through southwestern Minnesota during the early 1870s, one in a southwesterly direction from Mankato and the other in a northwesterly direction from Mankato, would both meet the conditions of this requirement.

2. A railroad corridor historic district provided transportation between a significant class of resource or a significant manufacturing or commerce node and an important transfer point or terminal market for commodities, products, or services. Furthermore, the railroad corridor historic district either established a railroad connection that did not previously exist or served as the dominant transportation corridor, and establishment of the connection was followed by a significant expansion of an industrial, commercial, or agricultural practice. Examples of this type of association are railroad corridors that provided the first railroad connection to one of the iron ranges or that connected important logging centers, such as Bemidji or International Falls, with the pine forests.

3. A railroad corridor historic district was an influential component of the state's railroad network, or it made important early connections within the network or with other modes of transportation. An example of this association may include a transcontinental railroad corridor in Minnesota. Although transcontinental corridors (or those with transcontinental connections) are not automatically eligible under this requirement, all should be given consideration under this requirement due to their inter-regional nature. Another example of a significant railroad corridor historic district would be an early railroad corridor connection between the Twin Cities and Duluth or Chicago. The definition of an "early corridor" within the railroad network will vary by region within the state.

4. A railroad corridor historic district provided a critical link or junction between two or more important railroad corridors, and the connection led to significant expansion of operations in the transportation network or in commerce or industry. The corridor directly contributed to the development of the commercial or industrial operations, or it influenced transportation patterns in an area of particularly heavy railroad traffic. For example, a railroad corridor that, as a transfer facility in the Twin Cities, eased congestion in the crowded downtown terminals and led the development of an important industrial corridor would be a significant transportation link. Another example of a significant transportation link would be a junction that served several major railroad corridors into downtown St. Paul and ranked among the busiest junctions in the Twin Cities.

Criterion B

Railroad corridors will not be eligible for the National Register under Criterion B. Railroad corridors were built and operated by large corporations that represent the work of many people, rather than individuals. Although prominent individuals dominated some of the companies, such as James J. Hill of the Great Northern or Alpheus B. Stickney of the Chicago Great Western, they managed the construction while working out of the company’s headquarters. Administrative offices would represent their corporate lives better than railroad corridor historic districts.

Criterion C

Railroad corridors will not be eligible for the National Register under Criterion C. To be eligible for the National Register, a railroad corridor historic district would need to be a significant and distinguishable entity that embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master. Due to the nature of railroads in Minnesota, this will not be the case.

By the time railroad construction began in Minnesota during the 1860s, the basic technology of railroad tracks had been established, and railroad engineers had a great deal of experience in designing railroad roadways. As railroad technology and engineering advanced during the late nineteenth century, new components were introduced elsewhere on older, more established railroad corridors. Furthermore, there are few areas in Minnesota where the steep topography presented engineering challenges, such as the bluffs along the Mississippi River in the southeastern part of the state. Even in those areas, topographical features to be surmounted were minor compared with mountainous regions elsewhere. Furthermore, except for short branch lines, railroad corridors were not designed or built in singular episodes; rather they were built over periods of years or even decades. In all railroad corridors, the buildings and structures generally followed standard designs that were modified to meet local site conditions, except where those conditions required an original design for specific individual structures, such as a bridge at a major river crossing.

Finally, segments of railroad corridors were modified and individual components were upgraded and replaced periodically due to wear and tear or to meet evolving operational needs.

Criterion D

It is unlikely that a railroad corridor historic district would meet Criterion D. To do so, further analysis of the corridor must be likely to yield important information about significant aspects of the evolution or development of railroad corridor design, operations, or the inter-relationships between railroads and the industrial and commercial operations they served. The extant built environment of the railroad corridor historic district must be the principal source of the important information—archaeological resources are not considered or included in the *Railroads in Minnesota, 1862-1956* MPDF. It would be an extremely unusual set of circumstances by which railroad buildings and structures are extant in sufficient number and diversity within a railroad corridor to yield important new information. Even the railroad roadway itself, the single essential element of a railroad corridor historic district, is unlikely to provide important new information based on its extant physical features, due to the alteration or dismantling of railroad roadways in the course of railroad operations or abandonment.

Because so many railroad buildings have been demolished over the years, too few historic-period buildings and structures within railroad corridors are extant to make an analysis of the spatial, organizational, or construction patterns of only the extant built environment a likely source of new information regarding railroad properties. This is particularly so because railroad corridors generally were well documented by the railroad companies. Future studies, however, in which archaeological analysis is combined with analysis of the extant built environment, could provide important new information significant under Criterion D.

Criteria Considerations

The National Register Criteria Considerations will not apply to railroad corridor historic districts.

Periods of Significance

The period of significance of a railroad corridor historic district will begin with its date of construction or establishment of significant operations and will be no earlier than 1862. Railroad corridors may have relatively long periods of significance, depending on the area of significance and contexts with which they are associated, but the period will end no later than 1956. When a railroad corridor is associated with broad historic patterns, its period of significance will be the time when the corridor provided the significant transportation connection to a region or to specific commercial, industrial, or tourist operations. If a railroad corridor is significant for its association with the opening of a region of the state to settlement, its period of significance will end when another railroad line provided additional service into the area. If the corridor is significant for its association with the opening of a resource procurement area or for connecting significant commercial or industrial operations: the end date of the period of significance will coincide with the end of the significance of the resource or commercial/industrial operation; or it will end when another railroad corridor provided similar service.

An important consideration for the period of significance of a railroad corridor is to distinguish between the time when the corridor played a significant transportation role and the time when it simply provided a useful service. Continued use of a railroad corridor historic district does not necessarily justify continuing the period of significance. For example, a corridor that was significant for transporting logs from the northern Minnesota pineries to saw mills may have continued to operate as a common carrier long after the forests were cleared by the late 1920s. Its period of significance, however, would end with the end of logging operations, unless other significant associations are identified that post-date the logging era.

A railroad corridor historic district will have a single period of significance even if there are multiple construction episodes; the period of significance should encompass all significant construction episodes. This approach reflects that railroad corridors often were built and rebuilt over a time span that will be within the railroad corridor's historically significant period of time. If, for example, a smaller segment of a railroad corridor was constructed at an early date, achieved significance, and then was connected to a larger corridor later, the period of significance for the entire corridor begins at the earliest date of construction and continues to the end of the significant associations. If an early segment of a railroad corridor was not significant by itself but gained significance as part of the larger corridor, the period of significance would begin with establishment of the larger corridor.

Integrity Requirements

To be eligible for the National Register, a railroad corridor historic district must not only meet the National Register significance criteria, but it must also retain historic integrity. The seven aspects of integrity must be applied to the railroad corridor historic district to assess its historic integrity (see discussion of each aspect below). At minimum, a railroad corridor historic district must retain integrity of *location, design* and *materials*. Railroad corridor historic districts may include many contributing elements but must include, at minimum, a railroad roadway that retains historic integrity. The number and arrangement of contributing elements will vary between railroad corridor historic districts. The integrity of *location*, *design*, and *materials* of railroad buildings and structures within a railroad corridor historic district will determine whether they contribute to the district. *Setting* that still reflects the historic appearance of a railroad corridor historic district can mitigate for the loss of railroad tracks and railroad support buildings and structures within the right of way, provided the railroad bed and other elements of the roadway are intact. The loss of *setting*, however, in combination with the loss of railroad tracks and railroad support buildings and structures within the right of way, further diminishes a railroad corridor historic district's overall historic integrity and may lead to a loss of integrity. If a railroad corridor historic district retains the other aspects of integrity, it will also retain integrity of *feeling* and *association*. Integrity of *workmanship* in contributing elements, such as bridges and depots, will contribute to a railroad corridor historic district's overall historic integrity.

Historically, it has been typical for railroad corridors to evolve over time—they were extended into new geographic areas, they were rebuilt, and specific elements were replaced or upgraded—and such modifications reflect the historic operating patterns of railroads. Therefore, the historic integrity of a railroad corridor historic district should be judged based on its conditions at the end of the period of significance.

The seven aspects of historic integrity are discussed below in order of importance to the overall integrity of a railroad corridor historic district. In assessing the integrity of a railroad corridor historic district, the cumulative effect of changes to the corridor since the period of significance must be compared with the cumulative presence of the elements of the corridor that retain integrity.

Location. *Location* is the place where the elements of a railroad corridor historic district were constructed and operated, and it is the most important aspect of integrity for a railroad corridor historic district. The horizontal alignment (both the general route and the degree of curves) and the vertical alignment (particularly the degree of gradient within specific segments) affected the markets served, distance traveled, motive power required, and speeds attainable. To retain integrity of *location*, a railroad corridor historic district must conform to the horizontal and vertical alignment present at the end of the period of significance. Changes in alignment and grade or other modifications during the period of significance will not compromise the integrity of the railroad roadway. Such alterations themselves reflect historic trends or changes in operation, such as the introduction of high-speed limited passenger service or the need to accommodate longer and heavier trains running at higher speeds.

Design. *Design* is the combination of planned, developed, and constructed elements within a railroad corridor historic district that created its form, plan, and structure. Historically, much of the effort related to the design of railroad corridors was focused on the alignment of the railroad roadway. Beyond the alignment, entire railroad corridors were rarely designed and built in a single episode, and segments of corridors were reconstructed as financial conditions allowed and as needed based on wear and tear and operating requirements. In Minnesota, segments of railroad corridors and elements within them followed standardized designs and well-established technologies (see engineering context in Section E), though elements of railroad corridors often required location-specific design modifications. Although the design of a railroad corridor historic district evolved over time, this aspect of integrity is important to convey a railroad corridor historic district's function as a railroad. To retain integrity of *design*, a railroad corridor historic district must retain integrity of *location*. In addition, the elements of the railroad roadway—railroad bed, fills or cuts, and ditches—should retain sufficient visual presence to convey their historic functions. Physical changes to the railroad roadway undertaken after the close of the period of significance will affect its integrity of design.

Buildings and structures within a railroad corridor historic district other than the railroad roadway help to convey the overall design and operation of a railroad corridor historic district. When those buildings and structures retain integrity of *location* and *materials*, they increase a railroad corridor historic district's overall integrity of *design*. Railroad support buildings and structures need not be present in a railroad corridor historic district if the railroad roadway retains a high degree of integrity of *design*, *materials*, and *setting*. Railroad stations or railroad yards, however, must retain some buildings and structures other than the roadway in order to be contributing elements to a railroad corridor historic district. In addition to the railroad roadway, a railroad station must retain at least a depot and a commercial loading structure or warehouse, unless the station operated as a flag stop and there were no separate freight facilities. A railroad yard must retain at minimum, in addition to the railroad roadway, an engine house and maintenance or repair shop.

Materials. A railroad corridor historic district must retain some of the physical *materials* from its period of significance. Due to the large number of elements combined to create a railroad corridor historic district, not all of them need to be present for the railroad corridor historic district to retain at least partial integrity of materials. The modified ground of the railroad roadway, represented by cuts, fills, and grades, must retain its historic materials and they must be visible. Replacement of the ballast, ties, and rails within a railroad corridor historic district represents a loss of historic materials. However, the almost identical appearance of modern tracks to their historic counterparts—steel T-rails, supported by wood cross ties, resting on a bed of stone ballast—means that the replacement of tracks within a historic railroad roadway will not result in a complete loss of the railroad roadway's integrity of *materials* or the other aspects of integrity for the district as a whole. When the tracks have been removed altogether as part of abandonment, a railroad corridor historic district loses part (though not all) of its historic characteristics, and its ability to convey its historic significance is diminished. In a railroad corridor historic district, the loss of tracks from a railroad roadway increases the relative importance of other elements of the roadway and of other support buildings and structures in the district. For example, the district may retain overall integrity of materials if it includes an intact railroad bed clearly defined by substantial cuts and fills, as well as associated buildings and structures, such as bridges and grain elevators. The loss of the railroad tracks, in itself, would not entirely compromise the integrity of a railroad roadway as a contributing element of the district.

Setting. The *setting* of a railroad corridor historic district includes properties adjacent to the right of way and may include the broad landscapes through which railroads passed, such as agricultural fields and urban areas. Adjacent properties help to convey the transportation function of a railroad corridor historic district. In addition, due to their locations lining railroad corridor historic districts, adjacent properties help to convey the linear aspect of a corridor and to provide the corridor with a visual frame. The *setting* of a railroad corridor is an important aspect of its historic integrity, both because it helps to define the corridor and because individual elements within the corridor are often lost due to replacement, abandonment, or demolition. To retain integrity of *setting*, the general land uses adjacent to a corridor must be similar to the historic land uses. Surrounding buildings and structures will retain sufficient historic appearance to convey their functions during the period of significance. Similarly, landscape features will be able to convey the historic functions of surrounding lands, such as agricultural fields. Many railroad corridors around urban centers have lost their integrity of *setting* due to suburban development, though they may retain the other aspects of integrity. Properties comprising the *setting* of a railroad corridor historic district need not be present if the railroad corridor historic district retains a high degree of integrity of *location*, *design*, and *materials*, and the corridor's right of way is sufficiently wide to maintain the *feeling* and *association* of the railroad corridor historic district despite alterations to adjacent properties.

Feeling. *Feeling* is conveyed by a railroad corridor historic district's ability to illustrate its historic function and feel from its period of significance. It is the cumulative presence of a railroad corridor historic district's character defining features, such as a linear railroad roadway, railroad yards, depots, and compatible setting, that conveys the feeling of traveling on a railroad corridor during the late nineteenth or early twentieth centuries. The extent to which a railroad corridor historic district retains its integrity of *feeling* is derived from the extent to which it retains its other aspects of integrity.

Association. *Association* is the direct link between a railroad corridor historic district and the significant transportation it provided. A railroad corridor historic district retains its integrity of *association* if it retains integrity of *location*, *materials*, and *design*.

Workmanship. For many elements of a railroad corridor historic district, *workmanship* will not be a factor in evaluating integrity, due to the utilitarian nature of the resource and standardized design of its components. Some specific elements within a corridor, however, may exhibit high degrees of workmanship, such as the stonework on a bridge abutment or the finishes on a depot. In such cases, evidence of the craftsmanship used to work the materials should be evident.

Contributing vs. Non-Contributing Segments

The length of a railroad corridor historic district can be subdivided into segments, or linear portions, of the whole; the district will consist of contributing segments, and it may include non-contributing segments. A non-contributing segment of a railroad corridor historic district is a portion of the railroad corridor historic district that lacks historic integrity. For example, if the railroad roadway has been altered and the setting is poor, the segment is a non-contributing segment of the larger railroad corridor historic district. Provided that the non-contributing segment of a railroad corridor historic district retains some visible expression on the landscape of the former railroad roadway, the segment is within the district boundaries, and the district as a whole may retain integrity (see District Boundaries discussion below).

A railroad corridor historic district retains historic integrity when enough of its contributing segments are sufficiently intact to convey that the linear corridor is, in fact, a railroad corridor that connected regions of the state or opened them up to settlement. Although contributing segments should constitute a majority of the linear mileage of a district, it is not practical to define a minimum required percentage of contributing segments necessary for a railroad corridor historic district to retain integrity because this integrity threshold will vary to some extent between districts. For example, a particular group of corridor segments that retain their integrity may be critical to conveying the historic character of a railroad corridor, even though the segments together do not comprise a majority of the corridor's historic linear mileage. Similarly, a railroad corridor historic district significant for the connections it once made does not retain historic integrity if the segment providing connection to its significant terminal, transfer, or resource procurement area lacks historic integrity and if the portion lacking historic integrity is of sufficient length that the corridor no longer approaches the area of significant connection. This area will vary between railroad corridor historic districts. If the significant connection was a resource procurement area, contributing segments of the railroad corridor historic district must extend at least into the region where the resources were gathered. If the significant connection was a terminal or transfer, contributing segments of the railroad corridor historic district must extend at least to the metropolitan area or urban center where the connection was made, though not to the specific connection point.

District Boundaries

The starting point for delineating boundaries for a railroad corridor historic district is the historic right of way and terminal destinations. Railroad corridor historic district boundaries, however, may also be delineated based on historic integrity. Because the critical associative characteristic of a railroad corridor historic district is the linear quality, at least some visual continuity along the entire corridor is necessary to provide cohesiveness to the contributing elements of the district and maintain the overall linear quality of the district. A railroad corridor historic district cannot include a segment where the associative quality is not present. For a segment of a railroad corridor to be considered within the boundaries of a railroad corridor historic district, there must be some remaining visible expression on the landscape of the railroad. For example, when a portion of a larger corridor has been abandoned, all elements of the corridor have been removed, and the railroad bed has been plowed over, the historic district boundaries end where that removed segment begins. These physical conditions are to be distinguished from corridor segments that have lost historic integrity but retain some visual presence; such segments are non-contributing segments within a railroad corridor historic district, as discussed above.

If a railroad corridor segment has completely lost its integrity, such that there is no visible expression on the landscape, corridor segments on either side of that segment have also lost their ability to convey the operation of the whole corridor as a single transportation corridor. A railroad corridor historic district cannot jump over this type of missing gap to connect segments retaining integrity any more than a train traveling along a corridor could jump such a gap. When a segment of a larger railroad corridor retains integrity, that segment will be a railroad corridor historic district eligible for the National Register if, by itself and exclusive of other segments, it meets the significance criteria. For example, when a railroad corridor historic district retains historic integrity between a resource procurement area and an intermediary transfer or commercial market, but has been completely removed between the intermediary and terminal markets, it will be eligible if the intact connection to the intermediary market is historically significant. Also, when a railroad corridor historic district retains historic integrity up to its destination city, but not the exact terminal point, such as the railroad station or junction, the district retains integrity as a whole because it still conveys the important association of connecting two cities or a resource procurement area with a city.

I. Name of Property Type: Railroad Station Historic Districts

II. Description

The property type "railroad station historic district" is a grouping of railroad-related buildings and structures that provided the services and facilities required for the efficient railroad transport of passengers and freight (see Figure 17). A railroad station historic district functioned as a gateway for passenger traffic and as a transfer and storage point for common carrier freight. It also possessed limited repair and maintenance facilities common to railroad yards. Railroad station historic districts consist of buildings, structures, and objects used for loading and unloading passengers and freight and for operational needs. Those buildings and structures include railroad roadway and platforms; depots (combination or union/terminal); commercial buildings and structures within the right of way (elevators, warehouses, stockyards, and lumberyards); and operational support structures (watering and coaling facilities, signals, and interlocking towers).

A railroad station historic district will include, at minimum, a *railroad depot*, and it will include at least some of the following buildings and structures (for brief descriptions, see Railroad Corridor Historic District above; also see Figures 18-28).

- *Freight and Passenger Platforms (may be integrated with the depot)*
- *Associated Railroad Roadway*
- *Engine House*
- *Maintenance* or *Repair Shops*
- *Turntable or Transfer Table*
- *Coaling Station*
- *Ash Pit*
- *Watering Station*
- *Ice House*
- *Switching and Signaling Structures*
- *Freight Houses*
- *Storage Warehouses*
- *Commercial Loading Facilities* (such as grain elevators, stockyards, and lumberyards)
- *Sheds*
- *General Repair* and/or *Maintenance Buildings*
- *Power House* (although many urban stations used municipal electric services)

A railroad station historic district will *not* include the following property types that are only found in railroad yard historic districts:

- *Classification Track Systems*
- *Yard Offices*
- *Worker Shelters*
- *Car Construction Shops*

Railroad rights-of-way widen considerably within railroad station historic districts in order to accommodate additional tracks and support buildings and structures. As a railroad line approaches a station, the number of railroad tracks (termed approach tracks) increases, and within the railroad station historic district boundaries, there are additional sidings and spurs providing access to the depot and to loading and storage facilities. The through tracks, which continue on a railroad station historic district beyond a combination railroad station, run down the middle of a railroad station district with loading and storage facilities located on both sides, or along the side of the railroad station historic district with loading and storage facilities on one side. Platform structures facilitated movement between railroad cars and railroad depots and warehouses. Low platforms were built at grade, and they required a passenger to board by climbing the passenger car steps. High platforms were built up approximately 4 feet with wood framing or concrete to facilitate loading of freight and boarding of passengers, particularly when luggage was brought aboard.

A railroad depot was usually oriented on a long axis parallel to the railroad tracks. In this way, it sharply defined two separate functional areas: a passenger or freight arrival area, usually recognizable as a parking lot or freight drop-off platform; and a passenger boarding or freight loading platform immediately adjacent to the tracks. Depots provided a means for receiving, sorting, and loading any combination of passengers and freight. The majority of Minnesota's railroad depots were combination depots—small and capable of receiving both passengers and freight, with separate loading facilities for bulk commercial freight, such as grain elevators. Large cities had union or terminal depots, which were designed primarily for passenger traffic but also functioned as centers for shipping non-industrial freight.

Geographic Influences. The existing settled landscape in the southeast portion of the state strongly influenced the location of railroad corridors following the introduction of railroad transportation to Minnesota in the 1860s. Railroad companies typically built their lines to serve established rural and urban communities in this region. Similarly, many railroads located their stations near pre-existing shipping or transportation nodes in these communities, such as steamboat landings and stagecoach transfer points.

Steamboat landings on the region's major river systems were typically located close to established commercial and industrial districts on the broad, level floodplains of the Mississippi, Minnesota, and St. Croix rivers. Because the same geographical conditions that fostered the successful growth of pre-railroad communities often provided an ideal environment for the construction of the state's growing railroad network, railroad stations were often constructed near established shipping nodes.

In the largely unpopulated western portions of the state, however, railroads were designed to facilitate settlement, and their shipping services pre-dated the development of rural shipping routes. As a result, the locations of railroad stations were often determined by railroad surveyors and engineers, without regard to any existing transportation networks. These isolated shipping nodes typically provided the seed from which commercial and agricultural concerns in rural communities grew and prospered. Variables such as the projected market service area of a railroad and operations needs, such as watering and coaling facilities, were factors in the locations of railroad stations.

Boundaries. The boundaries of a railroad station historic district will be the historic right of way and station property boundaries of the railroad company that built and operated the station. If the current right of way and station property boundary is different than that of the period of significance, the historic right of way will comprise the boundary of the railroad station historic district. If, however, portions of the historic right of way and station property boundary that are not important to convey the essential characteristics of the district are no longer within the railroad right of way and no longer possess integrity, the boundaries of a railroad station historic district may be limited to the current right of way and station property boundaries.

Variations. A railroad station historic district will consist of elements that span the period of significance and that illustrate the historic significance of the railroad shipping node. The physical characteristics of a railroad station historic district will vary based on the local geographical environment, the historic volumes of shipping or passenger traffic associated with the station, the technological engineering design associated with the period of significance, and the architectural principles employed in the depot's design and construction. In addition, railroad station historic districts may include different numbers and types of supporting buildings and structures, depending on the types of services and shipping volumes associated with the station.

III. Significance

Railroad station historic districts are significant in the area of *transportation* as major nodes of passenger transportation and freight shipping on Minnesota's railroad network. A railroad station historic district's historical significance generally begins when a significant number of repair and maintenance building and structures for rolling stock (described above) are added to the site of an existing combination depot or a union/terminal depot. The gradual addition of such buildings and structures elevated simple passenger-freight depots into diversified transportation and service centers that were important engines for local economic growth, strategic storage and distribution centers for regional shipping, and way-stations for the critical servicing and repair of a railroad company's engines and freight cars.

The end of a railroad station historic district's period of significance will generally coincide with the termination of either passenger or freight shipping services, or with the closing of rolling stock service facilities.

IV. Registration Requirements

A railroad station historic district is a substantive concentration of railroad-related buildings and structures within a current or former railroad right of way that were built and operated in Minnesota between the years 1862 and 1956. To be eligible for listing in the National Register within the MPDF *Railroads in Minnesota, 1862-1956*, a railroad station historic district must meet one of the following significance criteria and must retain historic integrity.

Criterion A

To meet National Register Criterion A, a railroad station historic district must meet at least one of the following requirements.

1. The railroad station historic district was a significant contributor to the economic growth of surrounding commercial or industrial operations.

2. The railroad station historic district served as a significant regional distribution center for commercial or industrial products (defined within the context of overall regional commercial traffic).

3. The railroad station historic district served as a significant regional transportation center for passengers (defined within the context of overall regional passenger traffic).

Criterion B

Railroad Stations will not be eligible for the National Register under Criterion B. Railroad stations were built and operated by large corporations that represent the work of many people, rather than individuals. Although prominent individuals dominated some of the companies, such as James J. Hill of the Great Northern or Alpheus B. Stickney of the Chicago Great Western, they managed the construction while working out of the company's headquarters. Administrative offices would represent their corporate lives better than railroad corridor historic districts.

Criterion C

Railroad station historic districts comprise a complex of railroad-related service and maintenance buildings and structures that are associated with either a large combination depot or a union/terminal depot. These complexes were the result of the piecemeal addition of buildings and structures associated with the gradual increase of local passenger and freight traffic at a railroad depot, and not the result of a single design/construction event. As a result, railroad station historic districts will not meet Criterion C.

Criterion D

It is unlikely that a railroad station historic district would meet Criterion D. To do so, further analysis of the station area must be likely to yield important information about significant aspects of the evolution or development of railroad design, operations, or the inter-relationships between railroads and the industrial and commercial operations they served. The extant built environment of the railroad station historic district must be the principal source of the important information—archaeological resources are not considered or included in the *Railroads in Minnesota, 1862-1956* MPDF. It would be an extremely unusual set of circumstances by which historic-period railroad buildings and structures are extant in sufficient number and diversity within a railroad station to yield important new information. Even the buildings that remain within a railroad station, such as a depot or warehouse, are unlikely to provide important new information because railroad buildings in Minnesota typically followed standardized designs to meet standardized functions.

Because so many railroad buildings have been demolished over the years, too few historic-period buildings and structures within railroad stations are extant to make an analysis of the spatial, organizational, or construction patterns of only the extant built environment a likely source of new information regarding railroad properties. This is particularly so because railroad stations generally were well documented by the railroad companies. Future studies, however, in which archaeological analysis is combined with analysis of the extant built environment, could provide important new information significant under Criterion D.

Criteria Considerations

The National Register Criteria Considerations will not apply to railroad station historic districts.

Integrity Requirements

To be eligible for listing in the National Register within the MPDF *Railroads in Minnesota, 1862-1956*, a railroad station historic district must meet one of the National Register significance criteria and must retain historic integrity. Because railroad station historic districts evolved organically, they will consist of contributing elements (see Description above) and may include non-contributing elements. In addition to retaining integrity of *location*, a sufficient number of a district's contributing elements must retain integrity of *design* and *materials* to convey the district's historic character. At minimum, a railroad station historic district will include a depot and additional operations or commercial buildings and structures. The railroad roadway need not be present, but some visible expression of the railroad corridor must remain to convey a connection with a linear transportation corridor. Non-contributing elements within the district must not visually overwhelm the contributing properties to the degree that the district cannot convey its historic character. For example, non-contributing elements must not be a majority of buildings and structures within the historic district, and their height, massing, and materials must be compatible with the contributing elements of the district.

Location. Although a railroad station historic district may not be relocated, enough of its contributing elements must retain integrity of *location* sufficient to convey the historical appearance and functional character of the district. Changes in alignment and grade or other modifications during the period of significance will not compromise the integrity of the railroad roadway. Such alterations themselves reflect historic trends or changes in operation, such as the introduction of high-speed limited passenger service or the need to accommodate longer and heavier trains running at higher speeds.

Design. Because railroad station historic districts consist of a group of buildings and structures that were not designed as a single entity, the overall integrity of *design* for the layout of a railroad station historic district is not critical. However, a sufficient number of contributing buildings and structures within the district must retain enough integrity of *design* to effectively convey the district's historical appearance.

Materials. The group of contributing buildings and structures within a railroad station historic district must retain sufficient overall integrity of *materials* to convey the character and appearance of the district during its period of significance.

Setting. A railroad station historic district need not retain integrity of setting if it has a high degree of integrity of *location*, *design*, and *materials*, and alterations to adjacent properties do not significantly interfere with the district's ability to convey its period of significance.

Feeling. *Feeling* is a railroad station historic district's ability to illustrate the sense of the historic period. It is the cumulative sum of a railroad station historic district's character defining features.

Association. *Association* is the direct link between a railroad station historic district and the significant services it provided or the significant engineering embodied in its design. A railroad station historic district retains its integrity of *association* if it retains integrity of *location*, *materials*, and *design*.

Workmanship. Integrity of *workmanship* will not be a factor in evaluating integrity, due to the utilitarian nature of the resource and standardized design of its components. Some specific elements within a railroad station historic district, however, may exhibit high degrees of workmanship, such as the finishes on a depot. In such cases, evidence of the craftsmanship used to work the materials should be evident.

I. Name of Property Type: Railroad Yard Historic Districts

II. Description

A "railroad yard historic district" includes a system of tracks associated with the sorting, classification, switching, disassembly, and assembly of trains and specialized support buildings, structures, and specific facilities associated with the construction, maintenance, service, repair, refueling, and storage of railroad rolling stock (see Figures 29 and 30). This property type includes railroad yard facilities primarily designed for rolling stock maintenance, as opposed to those designed primarily for freight car classification. Although rolling stock maintenance facilities were commonly referred to as "shop complexes," they also included track systems for the sorting, switching, disassembly, and assembly of trains. Buildings and structures within this type of district include engine houses, shop buildings, turntables and transfer tables, yard offices, worker shelters, power houses, coaling stations, ash pits, water stations, ice houses, storage buildings, and signaling structures.

A standard single or double-tracked railroad corridor's right of way widens considerably as it enters a railroad yard historic district, providing space for various support buildings and structures and the multiple branches of interconnected track used for the sorting of rolling stock. The total size of a railroad yard reflects its capacity for the organization of rolling stock and the disassembly and assembly of trains. Trains arriving at a railroad yard on the through tracks were typically switched onto the arrival/departure tracks and then routed to the long yard lead track. Once positioned on the lead track, a train could be disassembled and its component cars distributed by switch engines onto parallel groups of tracks known as yard body tracks. Here, the switch engines routed cars to the proper locations on the yard body tracks and facilitated the gradual building of new trains by either physically pushing cars together or setting cars in motion down a switchable series of inclined tracks (known as a *hump yard*). Depending on the destination of a given freight car, yard personnel operated the series of switches required to shunt a car through the complex series of parallel yard body tracks and diagonal ladder tracks. Once an engine had properly distributed its freight cars, it navigated the network of track spurs that provided access to the yard's ash pit and refueling stations, and to the yard's repair and maintenance shops.

The largest railroad yard historic districts, located in major urban centers and railroad division points, also included the shops necessary for the construction of new locomotive engines and new passenger and freight cars or major repairs to locomotives and cars.

A railroad yard historic district must be associated with a historically significant railroad corridor. If the significant railroad corridor retains historic integrity, the railroad yard may contribute to the railroad corridor historic district. If the railroad corridor lacks integrity, the railroad yard itself may be eligible. A railroad yard historic district must include 1) a system of tracks and support buildings associated with the classification, switching, disassembly, and assembly of trains and specialized support buildings, structures; or 2) specific facilities associated with the construction, maintenance, service, repair, refueling, and storage of railroad rolling stock. Railroad yard historic districts will include the following contributing elements (for brief descriptions, see Railroad Corridor Historic Districts above; also see Figures 25-28 and 31-34).

- *Engine Houses* (square or round, with or without transfer or turntable structures)
- *Yard Offices, Worker Shelters, or Maintenance* or *Repair Shop Buildings*

A railroad yard historic district may also include the following elements.

- *Car Construction Shop Buildings*
- *Freight Houses*
- *Express Buildings*
- *Storage Warehouses*
- *Specialized Maintenance* and/or *Repair Shops*
- *Power Houses* (although many urban railroad yards used municipal electric services)
- *Coaling Stations*
- *Ash Pits*
- *Watering Stations*
- *Ice Houses*
- *Switching and Signaling Structures*

A railroad yard historic district will *not* include the following property type: *Passenger Depots* (any variety, excluding small buildings for the boarding of railroad employees).

Geographic Influences. Because railroad yards were used for the labor-intensive sorting and classification of freight cars, they required large acreage and level topography to function correctly. Railroad yards were often located on the fringes of rural or urban communities because of their industrial character, although many yards built in the late nineteenth and early twentieth century are now surrounded by mixed commercial and residential development. Topographical considerations aside, the locations of railroad yards were usually determined by railroad company's shipping traffic and sorting/classification needs within the railroad network, and the yard sites laid out by surveyors and engineers. As a result, railroad yards may be present in established rural or urban communities or located in more remote rural settings.

Boundaries. The boundaries of a railroad yard historic district will be the historic right of way of the railroad company that built and operated the yard. If the current right of way and yard property boundary is different than that of the period of significance, the historic right of way will comprise the boundary of the railroad yard historic district. If, however, portions of the historic right of way and yard property boundary that are not important to convey the essential characteristics of the district are no longer within the railroad right of way and no longer possess integrity, the boundaries of a railroad yard historic district may be limited to the current right of way and yard property boundaries.

Variations. Railroads yards were among the most variable of railroad facilities, including nearly any combination of railroad car classification systems, repair, and maintenance shops. The most common variation in yard function often reflected the yard's focus on the repair and maintenance of rolling stock versus railroad car classification and train building. Although repair and maintenance yards were often referred to as railroad shops, they typically possessed enough sorting and classification tracks to be considered a railroad yard variant.

III. Significance

Railroad yard historic districts are significant in the area of *transportation* for their important functions related to the historical operation of Minnesota's railroad network, including 1) the classification, disassembly and assembly of trains, and 2) the construction, repair, maintenance, and refueling of rolling stock. Although stylish depot façades are most closely identified with Minnesota's historic railroads, the utilitarian service facilities and complex web of tracks associated with railroad yards were critical to the efficient operation of the state's rail network.

If all the required elements necessary to comprise a railroad yard historic district were initially present at a site, the district's historical significance may begin on the yard's initial operation date. If a railroad yard was initially established exclusively as a classification yard but was later upgraded to include rolling stock construction and maintenance facilities, its significance as a railroad yard historic district would begin on the date when the required additional elements listed above became active.

The end of a railroad yard historic district's period of significance will generally coincide with the termination of freight car classification services, or with the closing of the rolling stock service facilities specified above.

IV. Registration Requirements

To be eligible for listing in the National Register within the MPDF *Minnesota Railroads, 1862-1956*, a railroad yard historic district must meet one of the following significance criteria and must retain historic integrity.

Criterion A

To meet National Register Criterion A, a railroad yard historic district must meet at least one of the following requirements.

1. The railroad yard historic district provided freight car classification services on a historically significant railroad corridor.

2. The railroad yard historic district provided facilities for the construction, maintenance, service, repair, refueling, and storage of railroad motive power or rolling stock on a historically significant railroad corridor.

Criterion B

Railroad yards will not be eligible for the National Register under Criterion B. Railroad yards were built and operated by large corporations that represent the work of many people, rather than individuals. Although prominent individuals dominated some of the companies, such as James J. Hill of the Great Northern or Alpheus B. Stickney of the Chicago Great Western, they managed the construction while working out of the company's headquarters. Administrative offices would represent their corporate lives better than railroad corridor historic districts.

Criterion C

A railroad yard historic district meets Criterion C if its classification tracks or rolling stock support facilities were designed and built in a single construction episode and represent a type of railroad yard important to the historical development of railroad car classification systems or rolling stock maintenance and repair facilities. If a railroad yard historic district is an important example of a cohesively designed railroad yard system, it will meet Criterion C regardless of whether it is associated with a historically significant railroad line. Because of the historically wide variation of railroad yard design and configuration, an argument for eligibility under Criterion C must provide adequate documentation of a yard's significant contributions to the development of classification systems or repair and maintenance facilities.

Criterion D

It is unlikely that a railroad yard historic district would meet Criterion D. To do so, further analysis of the yard area must be likely to yield important information about significant aspects of the evolution or development of railroad design, operations, or the inter-relationships between railroads and the industrial and commercial operations they served. The extant built environment of the railroad yard historic district must be the principal source of the important information—archaeological resources are not considered or included in the *Railroads in Minnesota, 1862-1956* MPDF. It would be an extremely unusual set of circumstances by which historic-period railroad buildings and structures are extant in sufficient number and diversity within a railroad yard to yield important new information. Even the buildings that remain within a railroad yard, such as a shop building or yard office, are unlikely to provide important new information because railroad buildings in Minnesota typically followed standardized designs to meet standardized functions.

Because so many railroad buildings have been demolished over the years, too few historic-period buildings and structures within railroad yards are extant to make an analysis of the spatial, organizational, or construction patterns of only the extant built environment a likely source of new information regarding railroad properties. This is particularly so because railroad properties generally were well documented by the railroad companies. Future studies, however, in which archaeological analysis is combined with analysis of the extant built environment, could provide important new information significant under Criterion D.

Criteria Considerations

The National Register Criteria Considerations will not apply to railroad yard historic districts.

Integrity Requirements

To be eligible for listing in the National Register within the MPDF *Railroads in Minnesota, 1862-1956*, a railroad yard historic district must not only meet one of the significance criteria, it must also retain historic integrity. Railroad yard historic districts will include contributing elements (see Description above) and may include non-contributing elements. In addition to the railroad yard historic district retaining its integrity of *location*, a sufficient number of a district's contributing buildings and structures must retain integrity of *design* and *materials* sufficient to convey the district's historic character. At minimum, a railroad yard historic district will include an engine house and support building. The classification tracks need not be present, but there must be some visible expression of the yard track areas (alterations or new construction should be limited to surface level, such as a parking lot) and of the through roadway. Non-contributing elements within the district must not visually overwhelm the contributing properties to the degree that the district cannot convey its historic character. For example, non-contributing elements must not be a majority of buildings and structures within the historic district, and their height, massing, and materials must be compatible with the contributing elements of the district.

Location. To retain its integrity of *location*, a railroad yard historic district must occupy its historic site. In addition, enough of its contributing elements must retain integrity of *location* sufficient to convey the historic appearance and functional character of the district.

Design. The integrity of *design* for the overall layout of a railroad yard from its period of significance is critical to its eligibility as a railroad yard historic district. In addition, a sufficient number of contributing buildings and structures within the district must retain adequate integrity of *design* to effectively convey the district's historic appearance.

Materials. The contributing buildings and structures within a railroad yard historic district must retain sufficient overall integrity of *materials* to convey the character and appearance of the district during its period of significance. The routine replacement of the railroad roadway structure (including railroad bed, ballast, ties, and rail) does not affect the district's overall integrity of *materials*.

Setting. A railroad yard historic district need not retain integrity of *setting* if it has a high degree of integrity of *location*, *design*, and *materials*, and the scale, height, and massing of new construction or alterations to adjacent properties do not significantly interfere with the district's ability to convey its historical character.

Feeling. *Feeling* is a railroad yard historic district's ability to illustrate the historic sense of the period of significance. Because it is the cumulative sum of character defining features, if a railroad yard historic district retains integrity of *location*, *design*, and *materials*, it will retain integrity of *feeling*.

Association. *Association* is the direct link between a railroad yard historic district and the significant classification, maintenance, or repair it provided or the significant engineering embodied in its design. A railroad yard historic district retains its integrity of *association* if it retains integrity of *location*, *materials*, and *design*.

Workmanship. Integrity of *workmanship* will not be a factor in evaluating integrity, due to the utilitarian nature of the resource and standardized design of its components. Some specific elements within a railroad station historic district, however, may exhibit high degrees of workmanship, such as the finishes on a depot. In such cases, evidence of the craftsmanship used to work the materials should be evident.

I. Name of Property Type: Railroad Grade Separation Structures

II. Description

The property type "railroad grade separation structures" is the grade-separated crossing between a railroad corridor and another railroad corridor, a vehicular roadway, a water course, or a topographic feature. Structures within this property type include railroad bridges, railroad trestles and viaducts, culverts, and tunnels. The boundaries of railroad grade separation structures include the right-of-way occupied by the railroad bridge, trestle, viaduct, or culvert without any surroundings. The following property descriptions are based on historical contexts previously developed for bridges carrying automobile traffic in Minnesota. These include *Minnesota Masonry-Arch Highway Bridges, 1870-1945* (Hess 1988); *Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945* (Frame 1988); and *Historic Iron and Steel Bridges in Minnesota, 1873-1945* (Quivik and Martin 1988).

Railroad Bridges

The ability of the arch to bear heavy loads has been known to builders for thousands of years, and the earliest railroad bridges were masonry arch structures, designed to carry fully loaded freight trains by gradually distributing their enormous weight throughout the arch structure. In Minnesota, masonry arch bridges were constructed from the earliest developmental period of the railroad network through ca. 1900. Arch forms included classic hyperbolic, segmental, or semi-circular arches of brick or of cut granite or sandstone ashlar masonry. Common geometric variants included simple arches and skewed arches. The masonry blocks at the base of the arch barrel were seated on massive stone piers (often in waterways) and the fill supporting the railroad roadway was retained by thick masonry spandrel walls.

Due to their strength and durability, masonry arch bridges were the best alternative to wood trestles or iron truss bridges prior to the introduction of steel and concrete. Although masonry arch bridges could be extraordinarily expensive, they were favored by railroad engineers for their stability and longevity. Arch bridges also had a monumental aesthetic that made them popular as public landmarks, such as James J. Hill's 1882-1883 Stone Arch Bridge in Minneapolis. While these were undoubtedly the sturdiest of the arch forms, long-span masonry arch bridges became prohibitively expensive following the economic decline of the railroads in the 1890s and were superseded by reinforced concrete bridges. Masonry arch railroad bridges in Minnesota are significant attempts to address site-specific engineering challenges and represent a rare construction type. Additional information regarding the development of masonry arch bridges is found in the historical context *Masonry-Arch Highway Bridges, 1870-1945* (Hess 1988).

Despite the popularity of the masonry arch, most of Minnesota's nineteenth and twentieth century bridges used geometric frameworks (or *trusses*) of iron or steel members in various states of tension or compression. The engineering principles underlying the development of metal truss systems for railroad traffic were based on the same principles that led to the development of earlier wooden truss systems. Although metal railroad trusses were more stoutly designed to resist the heavy live loads associated with railroad traffic, the truss types developed by pre-railroad engineers and the configuration of their posts, chords, and bracing elements remained essentially unchanged. Fixed metal bridges were installed at most permanent river crossings, and utilized a variety of truss types, the most common of which were the Howe, Pratt, and Warren varieties. Trusses of all varieties could be constructed as *through trusses* (in which traffic passes between the bridge's main girder panels and under a series of cross-bracing elements tying the panels together); *pony trusses* (in which traffic loads are transferred to a web of cross-bracing elements, but without resting directly on the main girders, but the main girders are not situated high enough to warrant the use of an upper portal brace); and *deck trusses* (in which traffic loads rest directly on the top surfaces of the main girders).

After 1840, Howe truss bridges became an early standard truss for use on railroads. Howe trusses have inclined portal posts, with vertical members in tension and a set of mirrored diagonal members in compression. Additional diagonal members may be present to cross-brace each truss panel, acting in counter-stress when loaded. The Pratt truss, patented in 1844, has vertical members in compression and diagonal members in tension. Early examples of the type have inclined portal posts, intermediate posts, hip verticals, and bottom chord joints with pin and eyebar connections; later examples have riveted or welded joints. The steel plate, channel, angle bars, and gussets that typically comprise the elements of the upper chord and inclined end posts are often riveted with straight-neck button rivets. Variants of the Pratt truss include the Parker, or camelback truss (with a single slanted upper chord in the panel medial to each portal strut), the Baltimore truss (with additional vertical and diagonal bracing in the bridge panels), and the Pennsylvania, or Petit truss, combining elements of the Parker and Baltimore variants. A typical Warren truss (patented in 1848) has inclined portal-posts and diagonals which carry both compressive and tensile forces. The Subdivided Warren variant adds vertical beams to help brace the triangular web system. Warren trusses may also have arched, polygonal upper chords.

Developed in the mid-1800s, plate girder bridges carry loads on composite steel I-beams that rest on abutments or piers and are one of the simplest forms of metal railroad span. Each I-beam girder is composed of a solid sheet of plate steel with flange plates attached to the edges by riveted or welded steel angle bars. The floor system of plate girder bridges is composed of beams and stringers, also composed of riveted or welded plate and angle. In the 1920s, rolled I-beams could be used to bridge spans of up to 30 feet. Plate girders, however, because of their composite construction, could be used spans up to 125 feet, and their ease of erection made them economically attractive alternatives to metal truss railroad bridges.

Deck plate girder bridges carry loads on the surfaces of the girder top plates, which are stabilized by cross bracing. Pony plate girder bridges, in which rail traffic is carried between the plate girders, distribute loads throughout the floor system to the main girders, with knee bracing stabilizing the juncture between the plate girders and the deck (Hool and Kinne 1924:287; Howson 1926:461).

Movable bridges are used in locations where a temporary gap in a railroad corridor is needed to allow passage of other traffic, usually water-borne shipping. Common movable bridge types included the bascule bridge, the swing bridge, and the vertical lift bridge.

In their simplest form, bascule bridges were typified by medieval castle drawbridges (the single-leaf variety). Double-leaf bascules used two symmetrical movable spans to open wider navigation channels. Hardesty et al. (1975:515) note that the first recorded railroad bascule bridge was built in Selby, England, in 1839, but engineer J. A. L. Waddell opined that the first structurally important bascule was the 1897 Michigan Avenue Bridge in Buffalo, New York, a counterweighted bridge which used a trunnion (or *axle*) system as a pivot (Waddell 1916:12). This single trunnion bascule type became known as the Chicago type. Bascules with multiple trunnions were also developed, and were known as Strauss bridges. Rolling lift bascule bridges, which rolled back from the navigational channel on semi-circular girder tracks, were first developed in the 1820s and evolved into two distinct classes: the Scherzer and the Rall (or Strobel). The Scherzer rolling lift bridge used a large counterweight that descended into a pit when the leaf was raised. The type was patented by William Scherzer, who built the first example in Chicago in 1893 (Hool and Kinne 1923:1). The Strobel bascule variant was patented by Charles Strobel in 1899, and combined the rolling aspect of the Scherzer design with the trunnion rotation of a classic bascule bridge. This allowed the use of a much smaller roller diameter, and simplified the service and replacement of critical portions of the lift mechanism (Hool and Kinne 1923:26).

Swing bridges were used as early as 1625 in Cherbourg, France, but did not become common in the United States until after the 1850s (Hovey 1926:12). Swing bridges typically utilized a metal through truss that rotated on a center pivot anchored to a pier. The earliest swing bridge mechanisms had rim-bearing pivot mechanisms, in which a series of bearings or conical rollers ran along a circular track on the top of the center pier (Hool and Kinne 1923:196). In the 1870s, simpler and more reliable center-bearing pivot mechanisms became increasingly popular and by ca. 1940, had supplanted rim-bearing pivot technology (Hool and Kinne 1943:3; Hovey 1926:36). While swing bridges were often considered the simplest and most cost-effective solution to managing competing traffic, they were slow to operate and could create significant delays for watercraft when located in proximity to each other (Hool and Kinne 1923:2).

Vertical lift bridges employed a system of counterweights, sheaves, and steel ropes to lift the central section of a bridge out of a navigable right-of-way. Squire Whipple began designing, patenting, and building small vertical lift bridges for New York state canal crossings between 1872 and 1880. Vertical lift bridges employed a system of counterweights, sheaves, and steel ropes to lift the central section of a bridge out of a navigable right-of-way. While Whipple's early bridges were operated by an imaginative double-counterweight system, their size was limited by the brittle cast iron elements and construction techniques of the time (Hovey 1926:149). In 1892, John Alexander Low Waddell proposed a 250-foot span with a vertical lift of 140 feet to bridge the Duluth ship canal, but objections by the War Department prevented the bridge from being built. An almost identical version of Waddell's Duluth lift span was completed in 1894 on South Halstead Street in Chicago, Illinois. The span was 130 feet long and carried a 34-foot roadway and two 7-foot sidewalks and allowed an overhead clearance of 155 feet when fully open. In 1910, J. B. Strauss patented a design for a movable bridge where the required vertical lift was small. Strauss' design used no sheaves or ropes, but made use of pin joints to move two large counterbalancing devices at each end of a movable span. Duplicate hoist machinery at each end of the span caused the main counterweights to rise and fall in a vertical plane, while the counterweight link pivoted, bringing the main pivot on the span up in a similar vertical plane. The Strobel vertical lift bridge was similar in design to the Strauss system, avoiding use of the somewhat problematic sheave/rope construction. The Strobel system used a rolling trunnion on the upper surface of the lift tower in an attempt to compensate for horizontal movement of the counterweight-span structure (Hovey 1926:168). By the mid-1920s, Waddell and Harrington of Kansas City, Missouri, had simplified and improved the basic design of large vertical lift bridges, but the efficient coordination of the sheaves and up-haul/down-haul rope systems still vexed engineers. The reliable operation of vertical lift spans over 400 feet (such as the Missouri Kansas and Texas Railroad's Boonville Bridge in Missouri) was only achieved with the invention of the synchronous motor systems in the late 1920s. Additional information regarding the development of iron and steel bridges is found in the historical context *Historic Iron and Steel Bridges in Minnesota, 1873-1945* (Quivik and Martin 1988).

As a raw material, the plasticity of concrete made it "peculiarly adaptable as a material for arch construction" (Howson 1926:457). Although the first concrete arch bridge was built in France in 1840, it was constructed without internal reinforcement, and relied instead on its massive structure to absorb stress (Condit 1960:246). Reinforced concrete was originally developed by Josef Monier in 1867, who succeeded in building a small concrete girder bridge in Saint-Benoît-du-Sault, France, as early as 1875. However, Monier's techniques were not practically adapted to serve structural arch systems until 1889, when Ernest L. Ransome developed a method for strengthening concrete with a twisted mesh of iron bars and built the first reinforced concrete arch bridge in San Francisco. In 1894, Josef Melan developed a reinforcing system that used a parallel series of curved steel I-beams to form the arch, which was then jacketed with concrete (Newlon 1979:100). While Melan's bridges were very popular in the first fifteen years of the twentieth century, they were primarily steel arch bridges with a coating of concrete, and their high material costs kept them small. Concurrently, Viennese engineer Fritz Elder von Emperger developed variants of the Melan system that supplemented the continuous arch barrel members with curved, lateral steel rib members. In 1898, F. W. Patterson of the Allegheny County, Pennsylvania Department of Roads created a new rib arch design by omitting Melan's and von Emperger's barrel arch members and relying entirely on two parallel, curved I-beams to support a roadway bridge deck.

By ca. 1915, the size limitations of the Melan arch had become apparent, but engineers had begun to apply aspects of Ransome's wire mesh reinforcing system to Patterson's open-spandrel arch designs. This approach to reinforced concrete construction allowed a much greater strength-to-weight ratio for arch superstructures and quickly became the economically competitive design choice for monumental concrete arch bridges. Reinforced concrete largely replaced ashlar masonry as a building material for arch bridges after ca. 1920. The most dramatic use of reinforced concrete engineering was in monumental arch bridges built from the 1920s through the 1940s, which stretched the engineering limits of the form (Howson 1926:459). These open-spandrel arch bridges often use intermediate vertical posts that rested on the upper surface of the arches and supported the roadway deck above. Single arches required massive, stable abutments to support lateral forces. Multiple concrete arches in a viaduct configuration offered some support to one another, but still required monolithic piers for overall stability. Details regarding the importance of historical reinforcing systems to the evolution of concrete arch bridge construction are presented in *Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945* (Hess 1988). Reinforced concrete structures that utilized patented systems or arch designs, including the Melan reinforcing system, the James B. Marsh rainbow-arch design, and others described in Hess (1988), are significant bridge forms.

The concrete rigid frame bridge was developed in the early 1920s. Within 15 years of its introduction, the form had replaced arches, slabs, and girders at many crossings, and by 1938, approximately 400 had been built in the United States (Hayden 1950:184). The concrete rigid-frame was the economical choice for spans from 35 to 80 feet and the steel rigid frame form for spans from 80 to 120 feet. Popular for freeway grade separations, the rigid frame design gradually gave way to less expensive concrete slab and concrete girder designs as concrete jacketing technology improved in the 1940s and 1950s. There were several varieties of the concrete rigid frame bridge, including the barrel, ribbed, and cellular types. Nevertheless, the form remains among the simplest of engineering designs. Hess (1988) provides the following description:

If a solid, horizontal slab is rigidly connected with vertical walls, a simple rigid-frame bridge has been created. The critical point is that the three sides are rigidly connected at the two "knees" or corners, and all work together in carrying a load. In sectional elevation, the rigid frame appears somewhat different from an abutment-supported slab. In the conventional slab arrangement, its abutments are heaviest at the bottom and lighter at the top where the bridge seat is located. In the rigid frame, the reverse tends to be true: the transverse vertical walls, which replace traditional abutments, are wedge-shaped, tapering downward to the footing.

Reinforced-concrete and steel girder rigid frame bridges are often not recognized as such until their construction plans are reviewed.

Reinforced-concrete slab railroad bridges were built as early as reinforced-concrete arch bridges, but were utilized for very short crossings, supporting loads through sheer strength. Still used in railroad corridor construction, they are generally of three types: reinforced-concrete slab, reinforced-concrete I-beam, and reinforced-concrete rail top. Reinforced concrete slab bridges are used for short spans (no longer than about 20 feet) where the simple cohesive strength of the concrete and metallic reinforcement bear the direct flexing moment applied by a train in motion. Concrete I-beam bridges carry these same loads by using multiple, heavy, concrete-jacketed I-beams as stringers, spaced 16 to 18 inches apart. The concrete rail top form uses closely-spaced lengths of steel rails as stringers to support a concrete slab. The concrete rail top bridge is suitable for very short spans of 6 to 10 feet. Additional information regarding the development of reinforced-concrete bridges is found in the historical context *Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945* (Hess 1988).

Bridge substructures, such as piers and abutments, also may be significant for their employment of important historical construction methods (including the use of stone masonry for abutments or underwater caissons in pier construction).

Railroad Trestles and Viaducts

Railroad trestles and viaducts are braced frameworks designed to cross deep river valleys that lack navigable channels or to cross minor streams and gullies. Trestles have short (12 to 14 feet) spans (bents) fashioned from driven wood piles or cut framed timber. Viaducts use a skeletal frame of steel girders. Trestles and viaducts had particular advantages and disadvantages—wood trestles were cheap to build, but had short lifespans; steel viaducts were expensive, but lasted longer and responded better to heavier live loads.

Small wood trestles over minor gullies, wetlands, and drainages are constructed with 15 to 18-inch diameter, creosoted wood piles vertically driven into stable sediments and with 3 by 6-inch scantlings bolted diagonally across the piles to serve as cross-bracing (usually when the piles were over about 9 feet tall [Cook 1999:144]). A series of timber stringers are attached to this wood substructure to support a standard set of ties and rail. Trestles built after the early twentieth century may use steel piles for such shallow crossings. Higher and longer wood trestles cross deeply dissected drainages or valleys where the maintenance of a navigable river channel below is not required. To allow for passage of river traffic, a metal truss, usually a deck truss, may be used to bridge the gap in the wood trestle system.

Because of their great expense, metal framework viaducts were usually only constructed in railroad corridors with high traffic volumes or trains with particularly heavy loads, or in areas that regularly experienced high cross-winds.

Railroad Culverts

Culverts provide drainage for water or form a passageway through a fill material (usually earth) and are usually provided where a railroad roadway passes over a minor or intermittent stream. Culverts are actually miniature bridges, and their historical significance should be evaluated with reference to a comparable bridge design type (e.g., masonry arch, concrete slab, etc.). Although there is little analytical information regarding their historical development, one of the earliest (pre-railroad) forms of culvert consisted of a simple box constructed of wooden beams, or wooden beams that were laid on masonry ledges to bridge small drainages. The first railroad culverts were box-like cut masonry structures, with stone slabs or sections of rail carrying the roadway load and resting on masonry sidewalls. Formal masonry arches were designed for more permanent crossings, resembling arch bridges with stone or concrete drainage floors. Occasionally, more elaborate culverts were constructed using brick or interlocking metal plate in semicircular barrel arches. Cast iron pipe culverts were developed ca. 1850, and were the most commonly used culvert type during the latter half of the nineteenth century (Howson 1926:447). After ca. 1900, prefabricated reinforced concrete pipe and/or corrugated metal pipe was increasingly used for railroad culverts (Howson 1926:446).

III. Significance

Because railroad grade separation structures played an important role in the operation of railroad corridors in Minnesota, they are associated with historical significance in *transportation*. In addition, because railroad bridges, trestles and viaducts, and culverts are associated with the application of scientific principals to the design and construction of structures, they are also associated with *engineering*. The significance of railroad corridors within those areas of significance are linked to a number of historic contexts in Minnesota: *Railroad Development in Minnesota, 1862-1956, Railroads and Agricultural Development 1870-1940, Northern Minnesota Lumbering, 1870-1945, Minnesota's Iron Ore Industry, 1880s-1945,* and *Urban Centers, 1870-1940*. In addition, Multiple Property Documentation Forms previously developed for bridges carrying automobile traffic may be used as a basis to evaluate the significance of railroad bridges. These include *Minnesota Masonry-Arch Highway Bridges, 1870-1945* (Hess 1988); *Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945* (Frame 1988); and *Historic Iron and Steel Bridges in Minnesota, 1873-1945* (Quivik and Martin 1988).

Masonry arch bridges, viaducts, and culverts are rare property types in Minnesota's railroad network and are significant for their association with early construction of the state's railroad network and for their design and construction.

Metal truss bridges and viaducts built of iron or wrought iron typically predate the mid-1890s. After that date, most metal trusses were constructed of steel. Steel trusses built during the period between circa 1894 and 1900 were early examples of the use of the material and represent an important transitional type of design and construction. Although pin-connected Pratt and riveted Warren truss bridges were the most common trusses constructed on late nineteenth and early twentieth century Minnesota railroad lines, they are significant for their association with the state's early railroad corridors and may be significant for innovative engineering design and construction related to their crossing site.

Movable spans such as bascule bridges, swing bridges, and vertical lift bridges are examples of complex engineering designs applied to unusual site circumstances. All metal truss bridges that exceed standard span lengths also are considered significant as major engineering solutions to address unusual or complex site conditions.

Early examples of reinforced-concrete arch bridges, slab bridges, girder bridges, and rigid frame bridges and viaducts are significant as transitional types of design and construction and also may be associated with historically significant grade crossing programs of the mid-twentieth century. All reinforced-concrete bridges that exceed standard span lengths also are considered significant as major engineering solutions to address unusual or complex site conditions.

Wood trestles were constructed with relatively short-lived materials and represent simple engineering solutions to grade separations. As individual structures, they are not historically significant, but may contribute to the overall historic character of a railroad historic district.

Railroad tunnels are examples of an extremely rare railroad-related property type in Minnesota and are significant as major engineering solutions to unusual or complex site conditions.

IV. Registration Requirements

To be eligible for listing in the National Register within the MPDF *Railroads in Minnesota, 1862-1956*, a railroad grade separation structure must have been built within a railroad corridor between the years 1862 and 1956; must meet one of the National Register Criteria for Evaluation; and must retain overall historic integrity.

Criterion A

A railroad grade separation structure will meet National Register Criterion A only if it is a contributing element of a railroad corridor historic district, a railroad station historic district, or a railroad yard historic district. The period of significance for the grade separation structure and the district must be the same.

Criterion B

Railroad grade separation structures will not be eligible for the National Register under Criterion B. These structures were built and operated by large corporations that represent the work of many people, rather than individuals. Although prominent individuals dominated some of the companies, such as James J. Hill of the Great Northern or Alpheus B. Stickney of the Chicago Great Western, they managed the construction while working out of the company's headquarters. Administrative offices would represent their corporate lives better than railroad corridor historic districts.

Criterion C

Registration requirements for masonry arch, metal truss, and reinforced concrete bridges in Minnesota have been developed by Hess (1988), Quivik and Martin (1988), and Frame (1988), respectively. These documents have been used as the basis for evaluating railroad structures with masonry, metal truss, and reinforced concrete spans under Criterion C.

Railroad grade separation structures will meet Criterion C if they

- represent the early work of an historically important railroad engineer, architect, contractor, or fabricator (see Frame 1988; Hess 1988; and Quivik and Martin 1988) for partial lists of bridge engineers and bridge-building companies significant to the history of Minnesota bridge-building);
- utilize designs or building systems that represent historically important types or construction methods, such as masonry arches, innovative metal truss designs or reinforced concrete systems that extended span lengths;
- employed experimental or innovative elaborations of contemporary engineering practice to meet unusual or extreme site conditions (e.g., high vertical clearance, wide channel clearance, extreme skew, etc.); or
- employed important contemporary construction methods (such as the use of stone masonry for abutments or underwater caissons in pier construction).

A railroad grade separation structure will meet Criterion C if it meets one of the following conditions (adapted from Frame 1988; Hess 1988; and Quivik and Martin 1988):

1. Masonry arch spans built prior to 1938.
2. Masonry arch bridges or viaducts with two or more spans.
3. Masonry arch bridges or viaducts with highly skewed configurations.
4. Masonry arch bridges with arch types other than semi-circular or segmental.
5. Masonry arch bridges whose rise:span ratio exceeds 1:5.
6. Metal truss bridges built prior to 1890.
7. Steel truss bridges built during the 1890s.
8. Iron or steel arch bridges, or through trusses other than those of Pratt or Warren design.
9. Reinforced concrete structures built prior to 1910.
10. Reinforced concrete bridges constructed with patented reinforcing systems.
11. Reinforced concrete bridges with spans exceeding 100 feet.
12. Rigid frame bridges built prior to 1938.
13. Rigid frame bridges with a false arch, ribbed frame or through frame.
14. Bridges fabricated by an important national bridge company or an important Minnesota bridge fabricator.
15. Structures designed with patented or otherwise specially designed elements.
16. Structures designed by an important engineer.
17. Structures which exhibit innovative design solutions to address unusual engineering conditions, including trestles, movable spans and tunnels.
18. Bridges that represent innovative attempts to exceed the engineering limits for span length:
    a. Masonry arch spans: 30 feet and longer
    b. Metal through truss spans: 100 feet and longer
    c. Concrete slab spans: 30 feet and longer
    d. Concrete deck girder spans: 50 feet and longer
    e. Concrete through girder spans: 50 feet and longer
    f. Concrete arch spans: 100 feet and longer
    g. Concrete rigid frame spans: 50 feet and longer.
19. Structures (including culverts and tunnels) with exceptional aesthetic details or ornamentation.

While most grade separation structures could be considered representatives of a type, evaluation of significance under Criterion C should address additional important aspects of the property within a larger population of similar structures. Evaluations should consider:

1. The age of the structure.
2. The relative rarity of the structure as a design type.
3. The prominence of the engineer or construction contractor.

4. Extraordinary engineering characteristics, including innovative use of materials and the presence of notable aesthetic or decorative elements.

Criterion D

Although unlikely, railroad grade separation structures or their structural remains may meet Criterion D if further analysis can yield important information about a significant type of technology or construction employed as part of the evolution of its class of railroad-related properties.

The information that a railroad grade separation structure yields, or will yield, must be evaluated within an appropriate historic context. This requires consulting the body of information already collected from similar properties or other pertinent sources, including modern and historic written records. The researcher must be able to anticipate if and how the potential information will affect the definition of the context. The information likely to be obtained from a particular railroad bridge, trestle, viaduct, or culvert structure must confirm, refute, or supplement existing information in an important way. The importance of the information to be potentially obtained must be justified through the formulation of research questions that address historically significant questions. Research questions are usually developed as part of a research design, which specifies the questions to be asked, the types of data needed to supply the answers, and the techniques needed to recover the data.

The railroad grade separation structure should then be investigated with techniques sufficient to establish the presence of data relevant to the research questions being asked. The method of investigation will depend upon specific circumstances including the structure's location, condition, and the research questions being addressed. Justification of the research potential of a railroad bridge, trestle, viaduct, or culvert may be based on analogy to another better known property if sufficient similarities exist to establish the appropriateness of the analogy. The assessment of integrity for a railroad bridge, trestle, viaduct, or culvert considered under Criterion D depends on the research design's data requirements. A structure possessing information potential does not need to recall *visually* a manufacturing process or construction technique. However, the significant data required to yield the expected important information must be sufficiently intact.

Finally, in order for a railroad grade separation structure to be eligible under Criterion D, the structure itself must be, or must have been, the principal source of the important information.

Criteria Considerations

In order to meet Criteria Consideration B, a moved railroad grade separation structure individually eligible under Criterion C must retain enough of its historic features to convey its engineering or architectural values and retain sufficient integrity of *design*, *materials*, *workmanship*, *feeling*, and *association* to effectively convey its historical function as a railroad grade separation structure.

Integrity Requirements

In addition to the requirement that a railroad grade separation structure must meet one of the National Register Criteria to be considered eligible, it must also retain integrity. Integrity requirements for masonry arch, metal truss, and reinforced concrete bridges in Minnesota have been developed by Hess (1988), Quivik and Martin (1988), and Frame (1988), respectively and may be used as a basis for evaluating the integrity of railroad bridges.

Location. A railroad grade separation structure must retain its integrity of *location* if it contributes to a railroad district under Criterion A. Grade separation structures that have been relocated may still be eligible under Criterion C for their historically significant design and construction characteristics. Per Criteria Consideration B, a grade separation structure that achieves significance after relocation within a railroad network may be considered to have integrity of *location*.

Design. A grade separation structure must retain enough original physical features to effectively convey the significance of its engineering design. The most important part of railroad bridges, trestles, viaducts, and culverts is their superstructure, which expresses the engineering principles integral to their design. Therefore, for such structures to retain integrity of *design*, their superstructures must be substantially intact, including their connection types and the composition and configuration of their structural members. Movable bridges must retain their original machinery, control systems, and structural elements (e.g., the lifting towers characteristic of a vertical lift bridge) to effectively convey their operational design.

Setting. To be eligible under Criterion A, a grade separation structure must be located in a setting similar to that during its period of significance. For example, a bridge should still cross a river or stream channel or other body of water, another railroad corridor, or be situated over a similar barrier to travel. Grade separation structures eligible under Criterion C do not need to retain integrity of *setting*.

Materials. A railroad grade separation structure retains integrity of *material*s if the superstructure either: 1) retains original construction materials; 2) has replacement *materials* that were installed during the structure's period of significance; or 3) has modern repairs or replacements that have the same material character as those used during the period of significance. The presence of a bridge's original piers, abutments, decking, and guard rails adds to the overall *material* and *design* integrity of a bridge. However, because the periodic replacement of these elements was historically required to maintain the safety and operability of a bridge, their presence is not required for eligibility. Nevertheless, any replacements in these categories should be of appropriate scale and should not substantially obscure the functional identity of the superstructure, particularly the truss type.

Workmanship. Most components of railroad grade separation structures were mass-produced and do not exhibit qualities of *workmanship*. If, however, a decorative or aesthetic feature of a grade separation structure is an important feature of a structure, that feature must retain its original visual appearance.

Feeling. A grade separation structure's integrity of *feeling* will only be lost if modern alterations to its historical design or the addition of modern materials to its structure are of sufficient scale or visual contrast so as to dominate its overall visual appearance. A structure that retains integrity of *design* and *materials* will also retain integrity of *feeling*.

Association. *Association* is the direct link between a grade separation structure and the significant engineering embodied in its design. A grade separation structure retains its integrity of *association* if it retains integrity of *location, materials,* and *design*.

Criterion A. Because a railroad grade separation structure's site is integral to its association with the historical development of a railroad corridor or the opening of a region or locality, it must retain its integrity of *location, materials, design,* and *setting* to be considered eligible under Criterion A as part of an historic district.

Criterion C. A grade separation structure may retain overall integrity even if there have been alterations to its form and materials, as long as the historically significant engineering characteristics of the design or construction method are intact. Integrity of *design* and *materials* is critical if the structure is to convey its historical significance under Criterion C. Because the expression of historically important engineering design or construction is embodied in the structure itself and not in its specific physical environment, integrity of *location* is not necessary for eligibility under Criterion C.

Criterion D. The integrity requirements for a railroad grade separation structure considered under Criterion D depends on the data requirements of the research design. For example, if a research design specified that the remains of a grade separation structure had the potential to meaningfully contribute to the body of knowledge regarding the evolution of engineering theory and manufacture for that property type, the grade separation structure would have to retain integrity of *materials* and *design*.

I. Name of Property Type: Railroad Depots

II. Description

The depot buildings associated with Minnesota's railroad system reflect the general progression of design and styles built from the 1860s to the present. The earliest depots from 1862 to circa 1870 were wood frame buildings, none of which are known to have survived. Depots served as the public face of the railroads, and their designs after 1870 reflected the influence of popular architectural styles.

Using Berg's (1900) classification system, depots can be classified into four subtypes: flag depots, passenger depots, combination depots, and union/terminal depots. From a functional standpoint, these buildings and any associated support structures serve the same purpose: to provide a means for receiving, sorting, and loading any combination of passengers and freight. The predominantly rural character of Minnesota meant that the majority of depots would be combination depots—small and capable of receiving both passengers and freight. Medium-sized towns might have larger versions of the combination depot, with separate freight loading facilities for agricultural or industrial freight, if appropriate. Large urban areas such as Minneapolis-St. Paul, Duluth, and St. Cloud, had union or terminal depots, which were designed exclusively for passenger traffic and were often one of the most architecturally sophisticated and flamboyant buildings in the community.

The main depot at a railroad station was usually oriented on a long axis parallel to the railroad tracks. In this way, it defined two separate functional areas: a passenger or freight arrival area, recognizable as a parking lot or freight drop-off platform; and a passenger boarding or freight loading platform immediately adjacent to the tracks. Smaller railroad stations were often referred to as depots, although they also included the buildings, platforms, structures, and track within the immediate right-of-way, including passenger platforms, freight loading platforms, warehouses, and service buildings. For the purposes of this property type description, however, such groups are defined as railroad "stations" and are described in the property type "railroad station historic district."

A railroad depot may be a contributing element to a railroad station district or a railroad corridor historic district. Where neither of those two district property types is present, a railroad depot will be eligible for the National Register individually if it meets the registration requirements described below.

Flag Depots

A flag depot often was the first type of station built in a small town following the construction of a railroad, or a new community may have grown and developed around it (see Figure 19). Flag depots were small buildings or simple platforms located in areas where traffic was restricted to the occasional passenger, who waved a flag to signal a train to stop. Platform stops could be either low or high. Low platforms were common at the lowest traffic points on a line, and were simple, open-air frame shelters with shed or gable roofs. Built at grade, they required a passenger to board by climbing the passenger car steps. A high platform included an approximately 4-foot-high wood-frame or concrete platform covered by an open-sided roof structure. High platforms facilitated easier passenger access to cars, particularly when luggage was being brought aboard. In cold climates such as in Minnesota, flag depot platforms were typically enclosed to provide additional shelter in the winter, but were limited to a single room.

If passenger traffic at a flag depot increased, it could be upgraded by the railroad company to include a small building with a railroad agent’s office and a passenger waiting room. From an operational standpoint, the replacement of a simple platform with a formal passenger building meant a significant change in the class of the station, which might then be referred to as a second-, third-, or fourth-class passenger depot.

Passenger Depots

Passenger depots were constructed where there was significant passenger traffic (see Figure 20). Their size and configuration usually varied directly with the volume of traffic. The smallest passenger depots were simple buildings with a waiting room, ticket office, and baggage room, which accommodated the occasional freight shipments. Large first-class passenger depots could be “two-story structures with capacious waiting-rooms, toilet-rooms, smoking-room, dining-room and appurtenances, baggage-room, express-room, mail-room, telegraph-office, parcel-room, news-stand, supply-rooms, rooms for conductors and trainmen, and offices” (Berg 1900:278). Functionally, the largest passenger depots resembled small terminal depots, although the railroad line continued past the passenger depot rather than terminating at it.

Passenger depots varied in appearance, with their scale and architectural character directly related to the volume of passenger and freight traffic. Low, single-story frame and brick buildings with various restrained expressions of eclectic Victorian architectural styles were common in smaller towns. Expressing the practicality of a railroad engineer, Berg (1900:284) noted that while “picturesqueness” in design can be important to a depot, “the style of the building should correspond to the use it is put to, [and] it can hardly be considered good practice to design a large depot on the same outlines as a church or an old-fashioned country tavern, especially when very serious defects of the ground-plan layout are created by giving too much attention to the architectural effect of the building.” Nevertheless, he recommended that the standard passenger depot plans employed by most railroad companies be slightly modified at each site to avoid architectural monotony. In practice, the likelihood of a passenger depot to vary from a standard design was a function of the size of the community it served and its volume of business.

Combination Depots

Combination depots were usually located in small rural communities where there was both passenger and freight traffic, but not enough of either to justify the construction of separate buildings (see Figure 21). Usually no larger than a small passenger depot, they had a single, central office space that processed passenger tickets and freight bills, a passenger waiting area at one end of the building, and a freight room at the other end. When space allowed, the passenger area might be split in two by the ticket office, forming separate waiting rooms for men and women. Passenger and freight loading usually occurred at either end of a common loading platform. Berg (1900:247) noted several options for safely configuring track at combination depots with a high volume of passenger service, including separate side-tracks for loading freight cars left at the depot.

High-volume "second class" combination depots and many of the lower-volume "first class" combination depots were built from standardized plans developed internally by the railroads' engineering departments. Constructed of brick or frame construction with wood siding, these depots exhibited modest stylistic influence from the Victorian Eclectic, Arts and Crafts, and Tudor Revival traditions (Esser et al. 1995; Grant and Bohi 1978). There were many variations on the design and layout of the combination depot, but the most common was the addition of living quarters for a station-master and a bunk room for railroad workers. This was customary in the American South and West, where nearby living quarters might be scarce, and it may have also been common during the early railroad years in the west and northwest regions of Minnesota.

Architecturally, combination depots were similar to passenger depots. However, if a depot engaged in a significant amount of commercial or industrial shipping and required a full-time caretaker, it might acquire any number of additions prone to architectural elaboration, including a second story, a watch-tower, and separate wings for baggage and freight.

Union or Terminal Passenger Depots

Union depots or terminal depots are large passenger depots, usually located in dense urban areas and designed by architects in contemporary styles common for public buildings, such as Richardsonian Romanesque, Classical Revival, or Beaux Arts (see Figure 22). Notable Minnesota examples are the St. Paul Union Depot, the Milwaukee Road Depot in Minneapolis, and the Duluth Union Depot. These complex buildings were built with high-quality materials like brick, stone, and terra cotta, with marble floors and hardwood finishes in the interiors. Architects were also responsible for depot design in smaller cities that were division points or junctions and had high volumes of passenger traffic. The level of stylistic expression in a union/terminal depot's support buildings and associated shop complexes generally depended on the financial success of the depot and its visibility within the community.

Variants of union/terminal depots are similar to those of passenger depots, though on a larger scale. Such depots are massive buildings that once included a wide variety of railroad agency offices and passenger service areas, including the station master's office, train master's office, a ticket office, express office, telegraph office, baggage rooms, men's and women's waiting rooms, lavatories, news stands, a restaurant or lunch counter, and hotel facilities, among many others.

Union/terminal depots also were commonly associated with freight houses, express buildings, maintenance shops, freight platforms, sheds, and shelters. For the purposes of this MPDF, this group of property types will be considered a Railroad Station District.

III. Significance

Railroad depots are associated with patterns of transportation development in Minnesota within the statewide contexts *Railroad Development in Minnesota, 1862-1956*; *Railroads and Agricultural Development, 1870-1940*; *Urban Centers, 1870-1940*; *Minnesota Tourism and Recreation in the Lakes Region, 1870-1945*; *Northern Minnesota Lumbering, 1870-1930s*; and *Minnesota's Iron Ore Industry, 1880s-1945*. The period of significance for the railroad depots property type is 1862-1956; periods of significance for individual depots will depend on construction dates and years of operation.

Depots served important functions in the development of Minnesota's railroad network, are physical reminders of the railroad's importance to the early settlement of the state, and functioned as the critical interaction point between railroad companies and their clients. Depots are also one of the most visually recognizable elements of the state's railroad infrastructure. When associated with a historically significant railroad corridor, they are significant in the area of *transportation*. When considered individually, depots may be significant in the area of *architecture*.

Some depots were among the first built features at newly-platted townsites. They initially served as delivery points for the raw materials needed to construct houses and commercial buildings, and later as gateways for passenger traffic and common carrier freight. In addition to facilitating the shipping of outgoing commercial and industrial products, depots received all order of manufactured goods that made life on the Minnesota frontier seem somewhat more "civilized." The potential economic benefits of railroad access for a pre-railroad community or growing industry in nineteenth-century Minnesota could hardly be underestimated, and railroad companies often sat by as neighboring town councils, regional business concerns, and other interest groups battled each other to provide the most attractive financial incentives. This process underscores the symbiotic relationship between pre-railroad communities and the state's expanding rail network in the last 40 years of the nineteenth century: while many municipal histories suggest that the railroad's arrival was the primary catalyst for local economic growth, it is unlikely that a railroad would have agreed to bear the expense of operating a passenger/freight depot in an economically unsound community.

Railroad companies often used standardized blueprints for the construction of smaller flag, passenger, and combination depots. These highly functional building plans were designed to reduce the costs associated with building new line and may be significant in the area of *architecture* for their ability to convey the railroad's corporate identity. Also structurally simple, most standard depots incorporated decorative details influenced by the Italianate, Tudor Revival, Stick, or Arts & Crafts architectural movements and could be a source of local pride and an inspiration for area builders.

By contrast, railroad companies showed only a modicum of architectural restraint in the high-style design of urban terminal (or union) depots. To some degree, the colossal square footage of many terminal depot interiors was the practical result of providing administrative offices, passenger platforms, business amenities, and railroad service shops within a relatively small building footprint. However, the elaborate decorative exteriors of many Beaux-Arts terminals and the massive façades of Richardsonian Romanesque depots are less indicative of the development of a truly distinct American railroad architecture than of the extraordinary level of commercial competition between railroads in the nineteenth century. Nevertheless, many terminal depots were the best examples of a particular architectural style in a community and were often built by prominent regional or national architects.

IV. Registration Requirements

Criterion A

To meet National Register Criterion A, a railroad depot must meet at least one of the following requirements.

1. The railroad depot was a significant contributor to the economic growth of surrounding commercial or industrial operations.

2. The railroad depot served as a significant regional distribution center for commercial or industrial products (defined within the context of overall regional commercial traffic).

3. The railroad depot served as a significant regional transportation center for passengers (defined within the context of overall regional passenger traffic).

Criterion B

Railroad depots will not be eligible for the National Register under Criterion B. Railroad depots were built and operated by large corporations that represent the work of many people, rather than individuals. Although prominent individuals dominated some of the companies, such as James J. Hill of the Great Northern or Alpheus B. Stickney of the Chicago Great Western, they managed the construction while working out of the company's headquarters. Administrative offices would represent their corporate lives better than railroad corridor historic districts.

Criterion C

A depot will meet Criterion C if it embodies distinctive architectural design or construction methods associated with significant railroad lines, including the use of standard railroad building plans; if it is the work of a significant architect, engineer or builder; or if it possesses high artistic values or stylistic qualities important to the development of railroad depot architecture.

Criterion D

Depots will meet Criterion D if further structural analysis can yield important information about a significant type of construction or the spatial arrangement of depot-related support facilities at important locations along significant corridors. The mere existence, or former existence, of a depot at a particular location does not constitute sufficient important information to warrant eligibility. Rather, the information to be garnered should be supplemental to or in contrast with information available through other sources, such as historical documents or similar buildings.

Integrity Requirements

In addition to the requirement that a railroad depot must meet one of the National Register Criteria to be considered eligible, it must also retain integrity. A depot's integrity of *location* and its *association* with a railroad corridor is of critical importance when evaluating its eligibility under Criterion A. Many small flag and passenger depots have been relocated, either to transportation museums or as part of their commercial renovation and reuse. Depots that are not located on the site associated with their historic significance have usually lost integrity of *location*, *setting*, *association*, and *feeling*. They may, however, still be considered eligible under Criterion A if they meet the requirements under Criteria Consideration B for moved properties.

Location. In order to meet Criterion A, a railroad depot must retain its integrity of *location* by being physically located on its historic building site within its former railroad corridor. Although a railroad corridor historic district will not present if a railroad depot is individually eligible, there must be at least some visible expression of the corridor to convey the depot's historic location within a larger transportation corridor. A depot may also retain its integrity of *location* if it has been relocated to a site with a setting comparable to its historic site, but only if the relocation site is within or adjacent to a railroad corridor that conveys the depot's association. Relocated railroad depots may still be eligible under Criterion C for historically significant design and construction characteristics. Per Criteria Consideration B, a railroad depot that achieves significance following its relocation within a railroad network, but within its period of significance, will be considered to have integrity of *location*.

Design. A railroad depot must retain enough original architectural, structural, and stylistic features to convey effectively the significance of its architectural or engineering designs or its function as a railroad depot.

Materials. A railroad depot retains integrity of *material*s if the building either: 1) retains its original materials; 2) has replacement materials that were installed during the depot's period of significance; or 3) has modern repairs, alterations, or additions that have the same design and material character as those used during the period of significance. Smaller depots were often modified to accommodate increased traffic or additional services on a railroad. Structural or decorative alterations made during a depot's period of significance may be considered part of its historic fabric, provided that they do not substantially diminish the qualities that make it architecturally or technologically significant.

Setting. To retain integrity of *setting*, a railroad depot must be located in a setting similar to that during its period of significance and must remain physically and visually associated with a railroad corridor or a corridor that maintains at least some visible expression of a former railroad corridor.

Workmanship. The structural components of railroad depots were usually mass-produced and thus do not exhibit qualities of *workmanship*. If, however, a decorative or aesthetic architectural feature of a railroad depot is considered a stylistically defining feature of the depot, that feature must retain its original visual appearance.

Feeling. A railroad depot's integrity of *feeling* will only be lost if modern alterations to its historical architectural design or the addition of modern materials or additions to the building are of sufficient scale or visual contrast so as to dominate its overall visual appearance. Usually, a depot that has lost integrity of *feeling* will have lost both integrity of *design* and *materials*.

Association. *Association* is the direct link between a railroad depot and the significant services it provided or the significant architecture embodied in its design. A railroad depot retains its integrity of *association* if it retains integrity of *location*, *materials*, and *design*.

Criterion A. Because a railroad depot's site is integral to its association with a railroad corridor, it must retain its integrity of *location*, *materials*, *design*, and *setting* to be considered individually eligible under Criterion A.

Criterion C. Integrity of *design* and *materials* are critical if the structure is to convey its historical significance under Criterion C. Integrity of *location* is not necessary for eligibility under Criterion C, and a relocated depot may retain overall integrity if it is located in a setting similar to its historic setting.

Criterion D. The integrity requirements for railroad depots considered under Criterion D depend on the data requirements of the research design. For example, if a research design specified that the remains of a railroad depot had the potential to contribute meaningfully to the body of knowledge regarding the evolution of the architectural design of depots, the depot remains would have to retain sufficient integrity of *materials* and *design* to address the research design questions.

I. Name of Property Type: Railroad Engine Houses, Transfer Tables, and Turntables

II. Description

There were two categories of engine houses: square houses and roundhouses. Both were commonly found at railroad stations and railroad yards where steam locomotives were maintained or repaired and prepared for line service (see Figures 17 and 29). Engine houses were critical components of railroad networks, providing the regular mechanical service required to keep a railroad's motive power running.

In smaller railroad yards, square houses were wood frame buildings that provided several side-by-side berths for locomotives undergoing service and repair (see Figure 31). Square houses were accessed by a single track that branched to individual berths as it approached the building. Each berth was able to accommodate two, and occasionally three engines.

Roundhouses were common at larger railroad yards in the nineteenth century, but could also be found near remote railroad junctions or on high-traffic corridors where engine service and maintenance facilities were routinely required. Constructed to allow the berthing of multiple engines in a radial pattern, roundhouses usually required the use of a turntable. Depending on the traffic volume of the railroad yard and the frequency of engine maintenance, roundhouses could be small, with an open or "segmental" plan (with only a few berths occupying a small segment of a circle) or very large, with a closed, or full-circle plan, in which a through-passage provided access to a central turntable (Berg 1900:168).

Because of the expense involved in their construction, roundhouses were very carefully located, with consideration given to the current and projected engine traffic; the topography of the building site; the availability of building materials; and the possible effect of such a large structure on the rest of the railroad yard infrastructure. Berg (1900:166) counseled railroads not to under-build their roundhouse capacity or fail to plan for possible expansions. At the same time, he warned against the construction of expensive engine houses on new railroad lines, where subsequent and potentially significant changes in traffic flow or shifting rail junctions could result in their marginalization or abandonment.

The limited space at most railroad yards required the use of transfer tables or turntables to maneuver rolling stock into engine houses (see Figure 32). Transfer tables consisted of a rectangular platform that carried an engine or several freight cars on a set of rails perpendicular to the incoming spur tracks—a system used most often at square houses. Railroad turntables consisted of circular platforms supported by steel truss or plate frameworks that could turn engines and freight cars in areas of heavy rail traffic, or orient them properly for entry into roundhouses or repair shops. There were three common types of turntables: cantilevered (or center-balanced); articulated (or center-hinged); and continuous girder, which incorporated a center pivot and wheels that rolled on a track along the circumference of the turntable. Power sources included electricity, compressed air from the local steam plant, a gasoline engine, or a hand-crank. The choice of turntable depended on the size of the railroad's rolling stock and the turning speed required. Some patented versions, such as the Mundt turntable, were designed to economize on materials while maximizing the stability of the platform. By the mid-1920s, turntable diameters ranged between 80 feet and 115 feet (Howson 1926:514).

III. Significance

Railroad engine houses and their associated transfer tables or turn tables are associated with the historical patterns of transportation development in Minnesota detailed in the statewide contexts *Development of Minnesota Railroads, 1862-1956, Railroads and Agricultural Development 1870-1940, Urban Centers, 1870-1940, Northern Minnesota Lumbering, 1870-1945,* and *Minnesota's Iron Ore Industry, 1880s-1945*. The engine houses were the most prominent buildings and structures found in nineteenth and twentieth century railroad yards and convey the extensive financial investment in maintenance and service facilities required to operate and maintain Minnesota's railroads. The utilitarian design and hard-used condition of engine houses often belies their critical importance to the ongoing functioning of locomotive engines. Many buildings were subject to heavy industrial use, and continually repaired or modified with little regard for design subtleties related to architectural ornament or material finishes. In addition, the eroding financial condition of railroad companies in the late 1910s and 1930s often resulted in the deferred maintenance of engine houses, and subsequent economic recoveries prompted the demolition of outmoded properties. As a result, few late nineteenth century and early twentieth century engine houses have survived. Those remaining early examples of railroad engine houses that possess integrity are thus considered significant for their association with the historical growth and development of Minnesota railroads and the operation of historic railroad station and yard facilities.

IV. Registration Requirements

Criterion A

Railroad engine houses and transfer tables or turntables will meet Criterion A if they are associated with railroad corridors that were historically important in the development of Minnesota's railroad transportation network, or if they are associated with important stations, terminals, railroad yards, or junctions.

Criterion B

Railroad engine houses and transfer or turn tables will not be eligible for the National Register under Criterion B. These structures were built and operated by large corporations that represent the work of many people, rather than individuals. Although prominent individuals dominated some of the companies, such as James J. Hill of the Great Northern or Alpheus B. Stickney of the Chicago Great Western, they managed the construction while working out of the company's headquarters. Administrative offices would represent their corporate lives better than railroad corridor historic districts.

Criterion C

Railroad engine houses and transfer tables or turntables will meet Criterion C if they meet one or more of the following requirements.

1. The railroad engine house, transfer table, or turntable exhibits design or construction characteristics that were important in the historical development or evolution of railroad maintenance or service facilities in Minnesota such as an early or innovative example of engine house, transfer table, or turntable design.

2. The railroad engine house, transfer table, or turntable is an important example of a standardized railroad support building design. Important examples would include, among others, any wood-framed or rectangular engine houses due to their relative rarity, and large roundhouses that encompass more than 180 degrees of a circle.

Criterion D

An engine house and transfer table or turntable will be eligible under Criterion D if further structural analysis can yield important information about a significant type of construction; the infrastructure or spatial characteristics of a significant station, terminal, railroad yard, or junction; or the physical extent or function of the facility at important locations on significant corridors. The mere existence, or former existence, of an engine house and transfer table or turntable at a particular location does not constitute sufficient important information to warrant eligibility. Furthermore, the information to be garnered should be supplemental to or in contrast with information available through other sources, such as historical documents or similar extant structures.

Integrity Requirements

A railroad engine house and transfer table or turntable must retain, at minimum, its integrity of *location*, *materials*, and *design* to be considered eligible. The property may still retain historic integrity if there have been minor alterations to its form and materials, as long as the historically significant aspects of its design or construction method are intact. Any evaluation of eligibility should consider the integrity of the surrounding railroad station or yard as it would have appeared during the period of significance, as well as the relative rarity of the property type, and any extraordinary engineering characteristics, such as the innovative use of materials or the presence of innovative technologies.

Location. In order to meet Criterion A individually, an engine house and transfer table or turntable must retain its integrity of *location* by being physically located on its historic building site within its former railroad corridor, yard, or station. Although a railroad corridor, yard, or station historic district will not present if an engine house and transfer table or turntable is individually eligible, there must be at least some visible expression of the railroad corridor to convey the structure's historic location within a larger transportation corridor. A relocated engine house and transfer table or turntable may still be eligible under Criterion C for historically significant design and construction characteristics. Per Criteria Consideration B, an engine house and transfer table or turntable may retain integrity of *location* if they have been relocated to a site with a setting comparable to their historic site, but only if the relocation site is within or adjacent to a railroad corridor that conveys the engine house and transfer table or turntable's association.

Design. To retain integrity of *design*, an engine house and transfer table or turntable must retain the original architectural, structural, and stylistic features that convey the significance of its historic functions or its architectural or engineering designs.

Materials. An engine house and transfer table or turntable retain integrity of *material*s if they either: 1) retain original materials; 2) have replacement materials that were installed during the period of significance; or 3) have modern repairs, alterations, or additions that have the same design and material character as those used during the period of significance. Structural and design alterations made during the period of significance may be considered part of the historic fabric.

Setting. To retain integrity of *setting*, an engine house and transfer table or turntable must be located in a setting similar to that during its period of significance and must remain physically and visually associated with a railroad corridor or a corridor that maintains at least some visible expression of a former railroad corridor.

Workmanship. If the decorative or aesthetic architectural features of an engine house are considered stylistically defining features of the building, to retain integrity of *workmanship*, those features must retain enough of their original visual appearance to effectively convey the building's historical significance.

Feeling. An engine house and transfer table or turntable have lost their integrity of *feeling* if modern alterations to its historic architectural design or the addition of modern materials or additions are of sufficient scale or visual contrast so as to dominate its overall visual appearance. Usually, an engine house and transfer table or turntable that have lost integrity of *feeling* will have lost both integrity of *design* and *materials*.

Association. *Association* is the direct link between an engine house and transfer table or turntable and the significant services it provided or the significant architecture or engineering embodied in its design. An engine house and transfer table or turntable retains its integrity of *association* if it retains integrity of *location*, *materials,* and *design.*

Criterion A. Because the site of an engine house and transfer table or turntable is integral to its association with a railroad corridor, they must retain their integrity of *location*, *materials,* and *design* to be considered individually eligible under Criterion A.

Criterion C. An engine house and transfer table or turntable will retain overall integrity even if there have been alterations to their *design* and *materials,* as long as the historically significant architectural characteristics of the design or construction method are intact. Integrity of *design* and *materials* is critical if the structure is to convey its historical significance under Criterion C. Integrity of *location* is not necessary for eligibility under Criterion C, and a relocated depot may retain overall integrity if it is located in a setting similar to its historic setting.

Criterion D. The integrity requirements for an engine house and transfer table or turntable considered under Criterion D depend on the data requirements of the research design. For example, if a research design specified that the structural remains of an engine house and transfer table or turntable had the potential to meaningfully contribute to the body of knowledge regarding the evolution of the design of railroad yards, the engine house and transfer table or turntable remains would have to retain sufficient integrity of *materials* and *design* to address the research design questions.

I. Name of Property Type: Railroad Section Houses

II. Description

When railroad lines passed through sparsely populated areas, railroad companies commonly divided the line into short segments called sections, each of which had a railroad employee (or a group of employees) assigned to it to provide maintenance and emergency services. The houses provided to these employees by the railroad companies were small and cheaply built dwellings called "section houses," which were typically built alongside railroad roadways within the right of way (see Figure 24). Berg (1900:15) states that a section house should be "cheap and built to suit the local climatic conditions," noting that section houses built by the Northern Pacific Railroad Company were predominantly designed "to keep the cold out" and that there were two varieties of section house: "one for accommodation of one or more families and the other for a number of men (Berg 1900:14).

Section houses could be of single or duplex configuration, but were nearly always one- or two-story wood frame structures with clapboard or board-and-batten sheathing and roofs of tin sheet, cedar shakes, or asphalt shingles. The modest architectural style expressed by section houses varied from region to region, but were generally influenced by the contemporary styles of local farmhouses.

The smallest section houses had only a living room and bedroom, with the fireplace used for cooking food, but most that were designed to accommodate a family had a living room, bedroom, and kitchen. When section houses were required to house groups of men, additional bedrooms were added to the floorplan. Berg (1900:19) describes a standard two-story section house designed by the Northern Pacific Railroad Company to accommodate a relatively large number workers:

The main portion of the house is 26 ft. x 20 ft., with a kitchen annex, 26 ft. x 10 ft. There are five rooms on the ground-floor, namely, a dining-room, three bedrooms, and a kitchen. The second floor forms one large common bedroom with a number of double bunks, 6 ft. 6 in. x 4 ft. 6 in. Where desired, this second floor can be divided into rooms by appropriate partitions.

III. Significance

Section houses are associated with historical patterns of transportation development in Minnesota within the statewide contexts *Development of Minnesota Railroads, 1862-1956, Railroads and Agricultural Development 1870-1940, Urban Centers, 1870-1940, Northern Minnesota Lumbering, 1870-1945,* and *Minnesota's Iron Ore Industry, 1880s-1945*. Section houses and the men and families who occupied them were important components of a railroad company's track maintenance system. Because section houses were usually built from standard company plans, a comparison of extant examples may provide information regarding the evolution of worker housing during the development of Minnesota's railroad network. Generally, they are considered significant for their association with historic railroad lines and for their representation of evolving trends in railroad worker housing.

IV. Registration Requirements

A railroad section house can be individually eligible under Criteria C and D. Periods of significance for individual railroad section houses will depend on the date of construction and years of operation.

Criteria A and B

A railroad section house will meet Criterion A or B as individual property. Section houses served as the residence for the section crew foreman, and as such, functioned as other residences would. The difference for a section house was that it was located on railroad property within or adjacent to a railroad corridor. Therefore, if the railroad corridor does not retain integrity as a historic district, a section house will not convey its function as a specialized railroad building, rather it will have the appearance of any other house. In addition, section houses were built and operated by large corporations that represent the work of many people, rather than individuals. Although prominent individuals dominated some of the companies, such as James J. Hill of the Great Northern or Alpheus B. Stickney of the Chicago Great Western, they managed the construction while working out of the company's headquarters. Administrative offices would represent their corporate lives better than railroad corridor historic districts.

Criterion C

A railroad section house will meet Criterion C if it meets one of the following conditions: it embodies the distinctive architectural design or construction methods associated with significant railroads, including the use of standard company designs; it embodies the work of a significant architect, engineer or builder; or it represents historically important trends in the evolution of standardized railroad company architecture.

Criterion D

A railroad section house or its structural remains will meet Criterion D if further analysis can yield important information about a significant aspect of the standardized architecture developed as part of the evolution of its class of railroad-related properties. The information that a railroad section house yields, or will yield, must be evaluated within an appropriate historic context. This requires consulting the body of information already collected from similar properties or other pertinent sources, including modern and historic written records. The researcher must be able to anticipate if and how the potential information will affect the definition of the context. The information likely to be obtained from a particular railroad section house must confirm, refute, or supplement existing information in an important way. The importance of the information to be potentially obtained must be justified through the formulation of research questions that address historically significant questions.

The railroad section house or its remains should then be investigated with techniques sufficient to establish the presence of data relevant to the research questions being asked. The method of investigation will depend upon specific circumstances including the house's location, condition, and the research questions being addressed. Justification of the research potential of a section house may be based on analogy to another better known property if sufficient similarities exist to establish the appropriateness of the analogy. The assessment of integrity for railroad section houses considered under Criterion D depends on the research design's data requirements. The significant data required to yield the expected important information about the railroad section house and its relationship to the historical development of Minnesota's railroads must be sufficiently intact.

Finally, in order for a railroad section house or its remains to be eligible under Criterion D, the structure or its ruin itself must be, or must have been, the principal source of the important information.

Integrity Requirements

In addition to the requirement that a railroad section house must meet one of the National Register Criteria to be considered eligible, it must also retain integrity.

Materials. A railroad section house retains integrity of *material*s if it: 1) retains original materials; 2) has replacement materials that were installed during the period of significance; or 3) has modern repairs, alterations, or additions that have the same design and material character as those used during the period of significance. Structural and design alterations made during the period of significance may be considered part of the historic fabric.

Design. To retain integrity of *design*, a railroad section house must retain the original architectural, structural, and stylistic features that convey the significance of its architectural design.

Workmanship. If an architectural design feature of a railroad section house is considered a stylistically defining feature of the property, that feature must retain enough of its original visual appearance to effectively convey the historical significance of its *workmanship*.

Feeling. If a railroad section house retains integrity of *design*, *materials*, and *workmanship*, it will retain integrity of feeling.

Association. A railroad section house will retain integrity of *association* if it retains its associated significant architectural features.

Location. Railroad section houses eligible under Criterion C that meet Criteria Consideration B for relocated properties are not required to retain their integrity of *location*.

Setting. Railroad section houses that are eligible under Criterion C are not required to retain integrity of *setting*.