CHAPTER 2
DESCRIPTION OF THE PROPOSED SERVICE

Regardless of which route alternative is selected, the proposed passenger rail service between Chicago and Omaha would have several similar characteristics—speed and travel time, stations, frequency, infrastructure, and phased implementation.

2.1 SPEED AND TRAVEL TIME

The initially proposed maximum speed of the passenger rail service is between 79 and 110 miles per hour (mph). Operation of a passenger train at a maximum speed of 90 mph, with reductions in speed for curvature, bridges, urban areas, and other existing features, would result in scheduled travel times between Chicago and Omaha of approximately 7 to 8 hours. An automobile or bus requires between 8.5 and 10 hours to drive the approximately 470 miles between Chicago's downtown area and Omaha's downtown area. Air service between Chicago and Omaha is approximately 1 hour and 15 minutes flying time, and a total downtown-to-downtime travel time of approximately 4 hours, 40 minutes (see Appendix B for detail on travel times of personal auto and commercial bus and airline service). Direct air service is available only between Chicago and Omaha and Chicago and some of the intermediate cities, but not from intermediate city to intermediate city.

The passenger rail service would be designed for an on-time performance of 90 percent or better to provide a competitive option with personal automobile and commercial bus and airline service, which may have a lower reliability due to inclement weather and highway traffic congestion. The proposed Chicago terminus is Chicago Union Station, which is located in Chicago's downtown core and is the hub station for Amtrak's long-distance service and much of Chicago's commuter-rail service, within walking distance of Chicago's heavy-rail rapid-transit system, and served by Chicago's bus system. Chicago Union Station is also the proposed hub for the Midwest Regional Rail System. The rapid-transit system provides direct service to Chicago's two airports. Therefore, rail passengers would have direct access to Chicago's downtown, and convenient direct connections to Chicago's airports, shopping districts, universities, hospitals, and suburban areas. Several of the previously established rail routes pass through the downtown cores of the intermediate cities between Chicago and Omaha.

2.2 STATIONS

The stations at the endpoints of the proposed passenger rail service are Chicago and Omaha. The proposed station in Chicago is Chicago Union Station, which is the current hub for Amtrak intercity and regional trains serving Chicago, and the proposed hub for the Midwest Regional Rail System. A station location at Omaha has not yet been identified. Intermediate station stops are located on each route alternative at the largest intermediate cities, or as close as possible to the largest intermediate cities, in order to attract and serve the largest possible ridership. The intermediate station stops are different for each route alternative, as the route alternatives are geographically separated except at the endpoints of the Corridor. The number of station stops was identified with recognition that too many stops would make the overall

travel time unacceptably long and less competitive with automobile travel times, thus reducing ridership. Likewise, station dwell times were kept to a minimum, to reduce overall travel times, which is common on corridor-type services where many travelers are making day-trips and most travelers tend to carry less baggage.

2.3 FREQUENCY

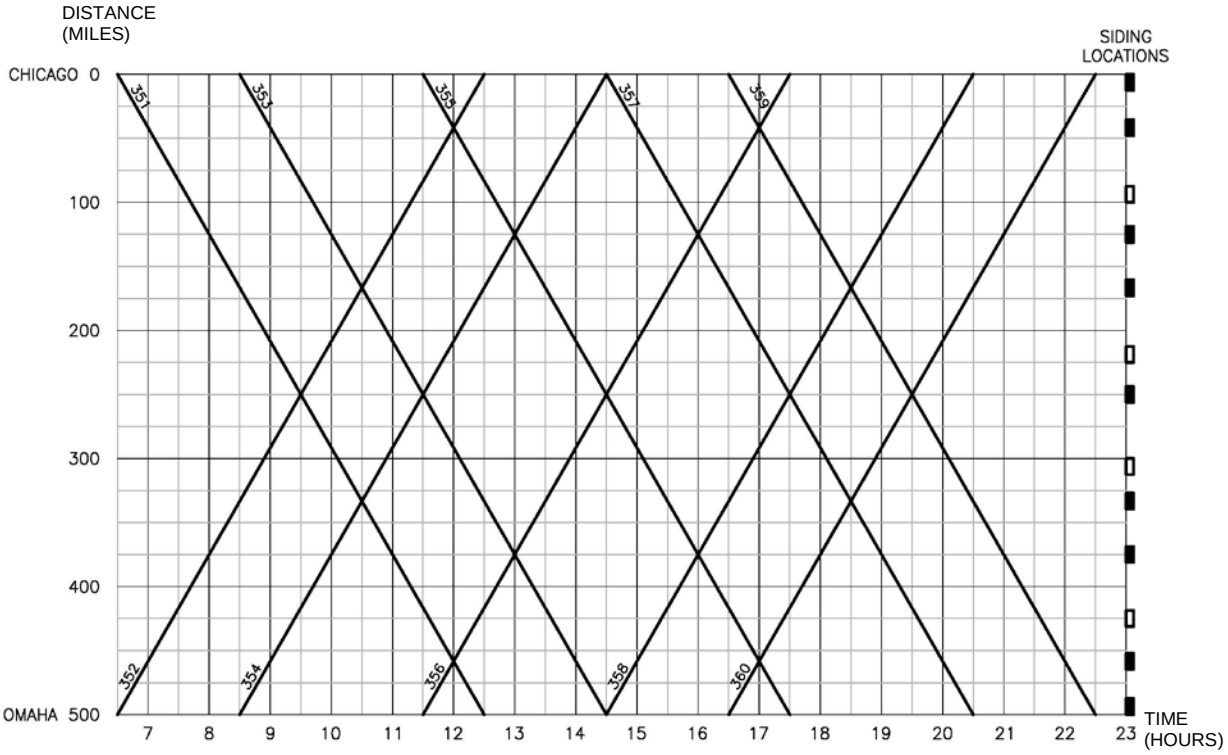
The frequency of the proposed passenger rail service has been initially defined as five daily round trips between Chicago and Omaha. Experience with other similar corridor services in Illinois, Wisconsin, Missouri, California, and Washington has shown that more round trips increase ridership because passengers have more options for departure and arrival times; the increased convenience corresponds to increased ridership (Berger, March 1, 2012). The number of daily round trips also influences the technical complexity of the infrastructure required because more trains require more line capacity. For example, Figure 2-1 illustrates the locations where the five passenger trains in each direction must meet passenger trains traveling in the opposite direction. This figure shows mileage between Chicago and Omaha on the left vertical axis, siding locations on the right vertical axis, and hours in a day on the horizontal axis. Sidings must be constructed at the locations where trains meet if sidings or a second main track are not currently at the designated meet-pass locations and are not otherwise required for the capacity and reliability of existing freight train traffic or likely future freight train traffic.

2.4 INFRASTRUCTURE

Although the proposed passenger rail service would use existing infrastructure, additional track, signal, and structure infrastructure is likely to be necessary, to varying degrees, for each route alternative to provide adequate main track capacity and track quality for passenger trains to operate reliably and consistently at a speed as near to the proposed maximum speed as possible, and to mitigate any potential loss in existing freight capacity and freight capacity expansion potential. Sidings where passenger trains moving in opposite directions can meet and pass each other are likely to be required if existing sidings or double-track is insufficient, not at the required locations for the passenger-train meet/pass events, or needed for freight trains.

A representation of the requirement for sidings is illustrated by the intersections of the lines representing a sample passenger train schedule in Figure 2-1. This figure shows the minimum locations where infrastructure would be needed for meet/pass events (where the diagonal lines intersect) for only passenger trains. The minimum distance is established by the spacing and aspect progression between railroad wayside signals, which, to help ensure safe operation of trains, controls how closely one train can follow another. The distance between signals is typically approximately 2 miles. The minimum practical distance between two unimpeded trains is typically not less than 8 miles; any closer distance, and the train behind must reduce speed according to the wayside signal aspects in the wake of the leading train. As shown in Figure 2-1, the *black* siding locations are the minimum needed for scheduled passenger train meet/pass events; the *open* siding locations are potential locations where sidings could be provided to accommodate meet/pass events for a passenger train that is running behind schedule, which would avoid additional wait times of one hour or greater for a meet/pass event for the late-running train. Maintenance facilities and station tracks at some

or all stations are also likely infrastructure requirements. Additional track, signal, and structure infrastructure may expand the footprint of the existing track, signal, and structure infrastructure. Expansion of footprint was identified and informed the identification of impacts on environmental, socioeconomic, and cultural resources.



Notes: Black siding= scheduled passenger train meet location
Open siding= delayed passenger train meet location

Figure 2-1. Chicago to Omaha Illustrative Passenger Train Stringline

2.5 PHASED IMPLEMENTATION

The proposed passenger rail service may be implemented in phases. These phases could incrementally extend the corridor geographically westward, add frequency of service, increase train speed, or add intermediate station stops within the Chicago to Omaha Corridor. Improvements required to implement phases could include:

- Construction of track, signaling, structures and stations
- Improvements to track and signaling to enable higher train speeds
- Acquisition of additional equipment (locomotives and passenger cars)
- Implementation of amenities at stations or on-board trains.

Phased implementation of the passenger rail service would also allow Iowa DOT, Illinois DOT, and FRA to provide incremental benefits of the service by taking advantage of funding as it becomes available.

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