

Elgin O'Hare - West Bypass: Tier Two Freight Railroad Accommodations

PREPARED FOR: Illinois Department of Transportation District One/Illinois Tollway
PREPARED BY: CH2MHILL/STV
DATE: April 13, 2012

Introduction

The Chicago region serves as a major junction for transcontinental freight systems and is a critical element of the continental land bridge connecting the Pacific and Atlantic coasts. Freight movement plays a significant role in the economic viability of the region, as well as to local industries. Within the Elgin O'Hare - West Bypass (EO-WB) study area, located in northwest Cook and northern DuPage counties, eastern and western railroads meet and transfer loads, which is evident by the volume and frequency of freight traffic in the area. Many intermodal facilities, where trucks amass to receive, deliver, and distribute freight containers, are also located within this study area.

Retaining the region's preeminence as the nation's rail hub is vital to the Chicago area's economy. Failure to provide for the necessary facilities may, over the long term, result in railroads relocating their operations to other metropolitan centers that can better accommodate their needs. It is, therefore, critical that potential impacts to freight rail movement within the study area be minimized where possible.

There is an extensive freight rail infrastructure within the EO-WB Tier Two Build Alternative footprint, including two major freight operators: the Canadian Pacific (CP) Railway and the Union Pacific (UP) Railroad. The Northeastern Illinois Regional Commuter Railroad Corporation (NIRCRC), commonly known as Metra, also operates shared service with freight carriers along the Milwaukee District West (MDW) track.

This memorandum documents the Tier Two Build Alternative potentially impacted areas of the freight rail network, the accommodations made to mitigate the potential impacts, and the coordination efforts with each of the carriers.

Tier Two Build Alternative

The EO-WB project has advanced in two parts, or tiers. Tier One focused on a comprehensive approach to identifying a preferred transportation system alternative for the study area, while Tier Two studies focus on traditional Phase I engineering and environmental studies. The Tier Two Build Alternative, as discussed in this memo, is based on refinements and further defined elements of the Tier One Preferred Alternative.

The EO-WB Build Alternative includes the extension of the Elgin-O'Hare Expressway from its eastern terminus at Thorndale Avenue and Rohlwing Road (IL 53) to the O'Hare International

Airport (O'Hare Airport), construction of a West Bypass connecting I-90 with I-294, and associated improvements to the area's multimodal transportation system. The proposed Build Alternative mainline improvements are planned as a toll road with approximately 25 miles of mainline improvements, and about 16 miles of supporting arterial improvements. New bridges are required in numerous locations to accommodate stream crossings, railroad crossings, and crossing roadways. Also, underpass structures are potentially required at two locations including a location under the Bensenville Yard, and one location under the CP/ UP railroad tracks along the western edge of O'Hare Airport. The crossing under the CP/UP railroad tracks is optional depending on the timing of the decommissioning of Runway 14R as part of the O'Hare Modernization Program (OMP).

Companion to the mainline improvements are interchange improvements, drainage considerations, and multimodal accommodations. There are interchange improvements at four system interchanges and 16 local access interchanges. Stormwater detention facilities, compensatory floodplain storage, and other best management practices are to be constructed to compensate for the increased impervious surface and floodplain fill. The plan includes transit and bicycle/pedestrian multimodal accommodations (to be implemented by others), including provisions for transit in the median of the Elgin O'Hare corridor and space preservation for bike/pedestrian facilities adjacent or crossing the planned roadway improvements.

The EO-WB will be implemented and operated as a tolled facility, and the Illinois Tollway will advance engineering and construction through their recently announced capital improvement program, *Move Illinois: The Illinois Tollway Driving the Future* (Illinois Tollway, 2011). Due to fiscal constraints, the Tollway will be constructing an Initial Construction Phase (ICP) plan of the Build Alternative, which is a scaled down version of the plan that still maintains the integrity of the full project.

Existing Freight Rail Infrastructure

Within the improvement area, eastern and western railroads meet and transfer loads, with a large concentration of the freight facilities located near O'Hare Airport. The area accommodates a high volume and frequency of freight traffic, and numerous intermodal facilities where trucks amass to deliver, receive, and distribute freight containers. Exhibit 1 illustrates the freight rail system within the improvement area, and Exhibits 2 and 3 illustrate freight rail features within the north and south West Bypass connection areas, as described below.

Mainline Rail Infrastructure

There are two freight rail carriers, CP Railway and UP Railroad, that operate within the Build Alternative area. Freight rail mainline and industrial track infrastructure features include:

- UP mainline double track located adjacent to the 300-foot transportation corridor east of York Road on the west side of O'Hare Airport.
- CP mainline double track located adjacent to the 300-foot transportation corridor east of York Road on the west side of O'Hare Airport.
- An east-west mainline double track, owned by Metra and operated by CP, located within the south connection area.

- A north-south mainline double track owned and operated by the UP that crosses the CP Bensenville Yard.
- Segments of the NIRCRC, or Metra track, used by freight carriers.

Rail Spurs

Spur tracks service local industries along the Tier Two Build Alternative.

Freight Rail Yards

Two freight rail yards with intermodal operations are located in the West Bypass south connection area at the CP Bensenville Yard and the UP Proviso North Yard. Within the Bensenville Yard, there are three geographic areas that have unique and vital freight operational characteristics, described below.

West Bensenville Yard Area:

- West Yard switches and classifies local freight
- Freight turn-over level less than that of the east yard area
- Houses one active railcar turntable
- Three rail carriers own trackage in the area (CP, relocated UP, and Metra)
- B-17 Interlocking that facilitates train movements in and out of the yard and onto the mainline
- CP maintenance area
- Leased container trailer area

Central Bensenville Yard Area:

- Hump Lead, Departure Track, and Arrival Track provide access to the yards located in the east area
- Hump Tower houses command operations for Bensenville Yard car classification operations
- Yard Office houses regional CP operations employees
- Car Repair Shop and Yard allows the CP to perform light maintenance and running repairs to rail cars
- UP Milwaukee Sub provides a main north-south railroad from the UP Proviso Yard to Milwaukee
- UP track is elevated over the Bensenville Yard and is oriented in a north-south direction

East Bensenville Yard Area:

- "C" Yard - 34-track classification yard
- "D" Yard - Departure yard
- "A" Yard - Arrival yard
- "F" Yard - Marshalling yard
- Intermodal Facility adjacent to and south of "A" Yard
- Center of activity for the Bensenville Yard
- Location of the majority of the freight yard storage tracks

Freight Rail Impacts

The impacts of the EO-WB on freight rail service have been evaluated at all locations along the proposed Build Alternative and categorized as major, minor, or industrial track crossing impacts. Major crossing impacts have multiple impacts to the freight rail network, including both infrastructure and operations components, and require a substantial capital investment for mitigation. Minor crossing impacts are isolated to individual locations with impacts to only one carrier. Mitigation of this type of impact has a lower complexity and infrastructure investment to accommodate the freight rail operations. Industrial track crossing impacts have also been identified within the footprint of the Build Alternative. The grade separation of the CP and UP railroads over IL 19, while in the footprint of the Build Alternative, is not considered as an impact location because both projects have been or will be completed by others. Exhibit 4 shows the freight rail impact locations by type and as numbered in the following sections.

Major Crossing Impacts

1) B-17 Interlocking Crossing

The south leg of the West Bypass will cross under the B-17 Interlocking, 1,500 feet south of Irving Park Road (IL 19) and 800 feet east of York Road, at the southeast corner of the O'Hare Airport. The O'Hare Airport proposed Runway 10R flight path crosses this area, causing the West Bypass to travel under the B-17 Interlocking. This interlocking is where two CP mainline tracks cross two tracks of the Metra Milwaukee West Line and then lead to the west end of the CP's Bensenville Yard. CP freight trains entering the yard from the west on the Metra Milwaukee West Line also use the interlocking. Approximately 60 Metra passenger trains and 10 to 20 CP freight trains pass through the interlocking each day. The interlocking uses signals and five track turnouts and four track crossovers to allow for these movements.

The West Bypass crosses the two UP Milwaukee Sub tracks directly north of the B-17 Interlocking. The OMP has recently relocated these UP tracks to this area to allow for the construction of Runways 10R and 10C. The UP tracks are approximately 20 feet higher than the other tracks in the area.

The West Bypass will then cross under the two Metra tracks, and finally, beneath the Bensenville Yard's west end and the locomotive turntable.

2) Bryn Mawr Crossing

The north leg of the West Bypass will cross the two UP Milwaukee Sub tracks and a four-track UP freight yard approximately 900 feet north of Devon Avenue and 700 feet east of York Road, in the northwest corner of O'Hare Airport. This crossing is situated just north of the Bryn Mawr Interlocking, where the two CP mainline tracks meet the two UP Milwaukee Sub tracks. The UP Milwaukee Sub is a very important north-south mainline for the UP serving 30 to 40 freight trains a day. The existing O'Hare Airport Runway 14R flight path is directly over this crossing and is proposed to be decommissioned in the future by the OMP. It has not yet been determined if the West Bypass will travel over or under the UP tracks at this location and provisions to accommodate both options have been preserved.

Minor Crossing Impacts

3) Western Terminal Area – Ramp Crossings

At the interchange of the Elgin O'Hare and West Bypass, there will be a series of ramps between the toll roads leading to the proposed O'Hare Western Terminal. These ramps will cross two mainline CP tracks and two UP Milwaukee Sub tracks. All four tracks run parallel in a north-south direction. The current configuration includes six ramps that cross over the CP and UP tracks.

4) West Bypass Crossing over UP South of Green Street

The West Bypass will cross over the two elevated UP Milwaukee tracks, approximately 200 feet south of Green Street. This crossing will be at a very sharp skew.

5) Jane Adams Tollway (I-90) Crossing over the UP Milwaukee Sub

The West Bypass and Jane Adams Tollway (I-90) interchange is located approximately 4,000 feet east of York Road. I-90 crosses over the two UP Milwaukee Sub tracks, approximately 2,200 feet east of this proposed interchange. I-90 will be widened over this crossing, and the westbound and eastbound ramps over the UP tracks will also be added to the interchange.

6) I-294 Tollway Crossing over UP's Milwaukee Sub

The West Bypass and I-294 interchange is located approximately 4,500 feet south of the Bensenville Yard. I-294 crosses over the two UP Milwaukee Sub tracks at the location of the proposed interchange. There will be southbound and northbound ramps to the I-294 interchange added over the UP tracks.

7) Taft Avenue Crossing over the Metra Milwaukee West Line

The proposed Taft Avenue will cross over the Metra Milwaukee West Line, approximately 6,500 feet east of York Road and 1,400 feet north of Green Street. The Taft Avenue alignment follows the route of the UP tracks that were relocated by the OMP.

8) Taft Avenue Crossing over the CP Bensenville Yard

The proposed Taft Avenue will cross over the CP Bensenville Yard, approximately 6,500 feet east of York Road and 900 feet north of Green Street. The Taft Avenue alignment follows the route of the UP tracks that were relocated by the OMP.

9) Touhy Avenue Crossing over the UP's Milwaukee Sub

The proposed grade separation of Touhy Avenue over the UP Milwaukee Sub will be approximately 4,200 feet east of York Road and 2,200 south of I-90. This will reduce traffic delays and provide a safer vehicular crossing of the railroad.

Industrial Track Crossing Impacts

10) CP Industrial Tracks South of the Green Street/Franklin Avenue

The West Bypass south of Green Street will require the acquisition of seven existing industrial buildings. The CP industrial tracks that service some of the seven buildings will also be removed. Other CP industrial tracks that lead to the remaining buildings in this area are also impacted by construction of the West Bypass.

11) CP Industrial Track Crossing 4,100 Feet West of York Road

The Elgin O'Hare corridor will cross over a CP industrial track located 4,100 feet west of York Road. This industrial track has an existing at-grade crossing with Thorndale Avenue, which will become two access roads on either side of the Elgin O'Hare corridor. The spur will need an at-grade crossing at the north access road.

12) CP Industrial Track Crossing 500 Feet East of Mitchell Boulevard

The existing Elgin-O'Hare Expressway crosses over a CP industrial track located 500 feet east of Mitchell Boulevard. This CP track is serviced by the Metra Milwaukee West Line. The Elgin-O'Hare Expressway will be widened in this area.

13) UP Industrial Track 1,400 Feet North of Devon Avenue

The north leg of the West Bypass will cross an UP industrial track, approximately 1,400 feet north of Devon Avenue. The UP track also has an at-grade crossing that will be impacted by improvements to York Road. The existing O'Hare Airport Runway 14R flight path is directly over this crossing and is proposed to be decommissioned by the OMP in the future. It has not yet been determined if the West Bypass will cross over or under the UP tracks.

14) CP Industrial Track Crossing with York Road 1,300 Feet South of Thorndale Avenue

The improvements to York Road will impact the CP industrial track located 1,300 feet south of Thorndale Avenue. This crossing is at a very sharp skew.

Mitigation of Impacts

Accommodations have been made to mitigate the identified freight rail impacts along the Tier Two Build Alternative. Considerations of technical feasibility, maintenance of operations, long- and short-term impacts to capacity, and financial investments have been given to each of these locations.

Mitigation of Major Crossings

1) B-17 Interlocking Crossing

Thru-girder bridges have been proposed for railroad crossings over the West Bypass. The initial configurations included 150-foot bridge spans over the northbound and southbound lanes. These extreme span lengths were caused by the shallow skew of the crossing and northbound and southbound ramps, limiting the structure type that could be used. The proposed West Bypass at this location is narrower due to the realignment of the ramps away from the area, as well as the refinements to the design. The spans now range from 150 feet for the UP bridge and about 120 feet for the rest of the bridges. With the reduction in span length, other structure types such as a bridge deck option, is now feasible, but would be more expensive. To accommodate the Build Alternative, a minimum requirement was identified that includes one 2-track bridge for the UP, one 2-track bridge for Metra, and a deck girder bridge spanning the existing footprint of the yard for the CP. The construction of these bridges would be sequenced in such a manner that rail operations would be maintained during construction and temporary track alignments provided to maintain current timetable speeds, as shown in Exhibit 5.

2) Bryn Mawr Crossing

Provisions have been made to accommodate both over and under UP crossings. If the West Bypass crosses over the UP mainline tracks and yard, horizontal and vertical clearance envelopes can be preserved. Bridge piers and abutments will be located at the right-of-way to allow for maximum future track expansion. Impacts to the UP operations during construction should be minimal.

If the West Bypass crosses under the UP tracks and yard, a PCC beam deck bridge has been identified as a suitable structure type to accommodate the Build Alternative. This bridge will have a very sharp skew. The mainline and yard tracks will need to be temporarily relocated for the construction of the bridge using staged construction, so rail operations can be maintained during construction. Temporary track alignments will be provided to maintain current timetable speeds and are shown in Exhibit 6. The signal impacts were minimized by adjusting the crossing location north of the Bryn Mawr Interlocking.

Mitigation of Minor Crossings

To mitigate the identified minor crossings for the proposed Build Alternative, considerations have been given for the railroads' horizontal and vertical clearance envelopes for the EO-WB bridges crossing over UP, CP, and Metra tracks. Proposed bridge piers and abutments shall be located along the right-of-way to allow for maximum future track expansion. The overhead crossings of these locations will preserve the existing track alignments and will not require temporary alignments to facilitate construction. Impacts to the railroad operations should be minimal.

Exhibits show each of the minor crossings, as referenced below:

- 3) Western Terminal – West Bypass Ramp Crossings (see Exhibit 7)
- 4) West Bypass Crossing over UP South of Green Street (see Exhibit 8)
- 5) Jane Adams Tollway (I-90) Crossing over the UP Milwaukee Sub (see Exhibit 9)
- 6) I-294 Tollway Crossing over the UP Milwaukee Sub (see Exhibit 10)
- 7) Taft Avenue Crossing over the Metra Milwaukee West Line (see Exhibit 11)
- 8) Taft Avenue Crossing over the CP Bensenville Yard (see Exhibit 11)
- 9) Touhy Avenue Crossing over the UP Milwaukee Sub (see Exhibit 12)

Mitigation of Industrial Track Crossings

10) CP Industrial Tracks South of the Green Street/Franklin Avenue

A modified industrial track alignment has been developed to allow for continuity of rail service to the remaining property owners within this location (see Exhibit 13). The modified alignment meets industrial track standards.

11) CP Industrial Track Crossing Thorndale Avenue 4,100 Feet West of York Road

The proposed Elgin O'Hare corridor will cross over the industrial track (see Exhibit 14). Considerations for the railroad's horizontal and vertical clearance envelopes have been given. In addition to the overhead crossing, an at-grade roadway crossing of realigned Thorndale Avenue will also be required. The existing alignment of this spur will not be impacted.

12) CP Industrial Track Crossing 500 Feet East of Mitchell Boulevard

Impacts to this location are minimal. Existing piers will be modified to accept the existing Elgin-O'Hare Expressway widening (see Exhibit 15). All work should be contained within the existing bridge envelope.

13) UP Industrial Track 1,400 Feet North of Devon Avenue

If the West Bypass crosses over the UP track, considerations for the spur track's horizontal and vertical clearance envelopes have been given (see Exhibit 6). The UP's industrial track's at-grade crossing with York Road will need to be upgraded to accommodate improvements to York Road.

If the West Bypass crosses under the UP track, a temporary alignment and at-grade crossing at York Road will be required to facilitate the bridge construction. The temporary alignment will allow for the maintenance of operation during construction. The permanent at-grade crossing with York Road will need to be upgraded to accommodate improvements to York Road.

14) CP Industrial Track Crossing with York Road 1,300 Feet South of Thorndale Avenue

The CP's industrial track's at-grade crossing with York Road will need to be upgraded for the improvements to York Road (see Exhibit 16). Impacts to operations should be minimal.

Coordination with Railroads

During the development of the Build Alternative, extensive coordination with the affected railroads has taken place. Each railroad conducts the coordination of a project of this magnitude in a slightly different manner. It is appropriate at this time to enter into the agreement process with each railroad to solidify the project and minimize the risk. The following is a brief summary of the coordination events.

Canadian Pacific

Communication with CP has been the most extensive at this point in time. Discussions to date have primarily focused on the significant land interest required to facilitate the West Bypass south connection. Staging concepts for the major crossing at the B-17 Interlocking have been presented. Initial feedback from the project services group at CP was agreeable to the project improvements. Recent participation by the CP at the Corridor Planning Group (CPG) meetings has indicated the proposed structure type (thru-girder) would be too limiting to future expansion for the CP. With the reduction in span length at this location, other structure types are an option and discussions with CP technical staff are ongoing.

At the conclusion of a meeting with CP in late 2010, it was agreed that it was an appropriate time to develop a Memorandum of Understanding (MOU) between the Illinois Department of Transportation (IDOT) and the CP, outlining the context and direction of the project. The

primary focus of the MOU was on the land acquisitions required, the need to relocation facilities (i.e., the locomotive turntable and maintenance shop), the ability to lease back portions of the sold land, and the availability of funding for advanced land acquisitions. To date, the MOU has not been executed. It is still in legal review between IDOT and the CP, and with the Illinois Tollway now serving as the implementing agency, the Tollway has also been added to the agreement.

Union Pacific

Communication with UP has advanced as far as possible without a preliminary engineering authorization from the owning agency. Discussions with UP during the alternative analysis process were conducted and UP impact and preferences were taken into consideration during the evaluation. The UP's preference for all crossings is for overhead crossings that span from right-of-way to right-of-way, where possible. cursory discussions with UP have taken place to update them on the project status and the Illinois Tollway assuming responsibilities as the implementing agency. The discussions have remained at a high level and the UP required a preliminary engineering authorization to advance their involvement to a higher level.

During the design and construction of the new UP relocation led by the OMP, discussions took place between IDOT, OMP, and UP regarding the ability to include the proposed thru-girder bridge crossing at the B-17 Interlocking in the relocation package. It was determined at that time that a temporary alignment was feasible to allow for future construction of the bridge after the relocation is placed in service. The decision was made not to include the bridge in the relocation package. However, at that time, it was agreed that the OMP would expand the footprint for the new UP bridge over Green Street to accommodate the proposed West Bypass improvements.

Metra

Communication with Metra at multiple levels within the agency has been conducted throughout project development. Initial participation from Metra was at the transit and planning level as the original alternatives were evaluated. Upon selection of the Tier One Preferred Alternative, discussions advanced to the engineering departments advising them of the project and outlining the proposed design consideration at the B-17 Interlocking. At that time, no exception to structure type or concept was presented, but concerns to the signal system impacts were raised. Following the meeting, further discussion has taken place with the signal department and a right-of-entry agreement was put in place to conduct a field survey of the existing signal system.

Additional Studies

Additional studies for high-speed rail (HSR) and commuter rail routes from the Metra Milwaukee West Line to the proposed O'Hare Western Terminal were conducted. The purpose of these studies was to assure access to the new terminal for future HSR/commuter rail service would be preserved. The study was conducted at the request of stakeholders within the study area. Potential freight rail impacts to the CP and UP have been identified and the full extent of these impacts has not yet been evaluated. These studies are included in Appendix A.

Index of Exhibits

Exhibit 1	Freight System Map
Exhibit 2	Freight Rail Features – North
Exhibit 3	Freight Rail Features – South
Exhibit 4	Freight Rail Impact Locations
Exhibit 5	B-17 Crossing
Exhibit 6	Bryn Mawr Crossing
Exhibit 7	Western Terminal Area
Exhibit 8	UP Crossing South of Green Street/Franklin Avenue
Exhibit 9	I-90 Crossing
Exhibit 10	I-294 Crossing
Exhibit 11	Taft Avenue Crossings over Metra Milwaukee West Line and CP’s Bensenville Yard
Exhibit 12	Touhy Avenue Crossing
Exhibit 13	CP Industrial Tracks South of Green Street/Franklin Avenue
Exhibit 14	CP Industrial Track Crossing with Thorndale
Exhibit 15	CP Industrial Track Crossing East of Mitchell Boulevard
Exhibit 16	CP Industrial Track Crossing with York Road

Appendix

Appendix A Commuter Rail and High Speed Rail Analysis from the Milwaukee West Line to O’Hare New West Terminal