

FREIGHT TRANSPORTATION STUDY

Indianapolis Metropolitan Planning Area

**Multimodal Freight Mobility
Planning Research Studies**

Task 1 - White Paper

**FREIGHT RAIL OVERVIEW WITH IDENTIFICATION OF
POTENTIAL PASSENGER RAIL COORDINATION ISSUES**

Prepared for:

The Indianapolis Metropolitan Planning Organization

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Executive Summary

Rail freight service is now provided in the eight-county Indianapolis Metropolitan Planning Organization urban area by two Class I railroads, one Class II, four Class IIIs¹ and one public agency. The railroads operate over a 350-route-mile system which contains seven freight yards and three railroad controlled intermodal facilities, and is comprised of approximately a dozen main and industrial tracks that radiate from Indianapolis through the eight counties.

Businesses in the Indianapolis MPO area originated and/or terminated over 100,000 carloads containing 7 million tons of freight in 2005. Marion County rail users accounted for the largest portion of that volume with Shelby County next. In addition to local rail traffic, a significant amount passes through Indianapolis, principally on one main route, having originated out of state destined for yet another state beyond Indiana. Statewide this through traffic comprised 67 percent or two-thirds of all rail traffic tonnage movements in 2005.² Historic data indicates a very similar percentage, if not slightly higher, moves through the study area.

Passenger service is provided by Amtrak with two trains, the *Cardinal* and *Hoosier State*, which combined provide service between Chicago and New York City. Amtrak trains arrive at and depart from Union Station. A new station at Indianapolis International Airport has been suggested in concert with new rail passenger services. Higher-speed intercity and commuter rail services of significant scope involving almost all of the rail lines in the MPO urban area have been suggested by a number of parties. Addition of passenger trains to the existing rail network in the volumes being discussed will result in capacity issues and conflicts on heavily used segments and a number of junctions on several lines.

From an operating standpoint, separation of freight and passenger trains would provide the best approach to resolve or mitigate issues associated with freight and passenger trains operating on the same track. Relocating freight trains to the Belt, a rail line that provides a circular route around most of Indianapolis was investigated previously, principally for safety reasons, but is now being reconsidered to accommodate passenger train access to the center city. This alternative appears to represent the most comprehensive approach when considering all potential intercity and commuter passenger services. But, even it is not without problems. Several other approaches hold promise to provide at least some measure of mitigation that could be combined for a more effective impact depending on which of the various passenger services and station locations under consideration are actually progressed and in what manner.

¹ Class I, operating revenue of \$346.8 million or more; Class II, operating revenue less than \$346.8 million, but more than \$28 million; Class III, operating revenue less than \$28million (all ranges are adjusted annually).

² *Indiana Multimodal Freight and Mobility Plan*

Task 1: Freight Rail Overview with Identification of Potential Passenger Rail Coordination Issues

Rail freight service is now provided in the eight-county Indianapolis Metropolitan Planning Organization urban area by six railroads. The railroads operate over a 350-route-mile system in the eight counties and originated and/or terminated over 100,000 carloads containing 7 million tons of freight in 2005. This report describes the components of the system, the owning/operating railroads, the freight movements generated, as well as existing and proposed rail passenger service use. It also examines the potential conflicts on freight movement resulting from the latter.

Study Area Railroads

The freight rail system in the study area is owned/operated by two Class I railroads, one Class II, four Class IIIs³ and one public agency. Route mileage⁴ totals approximately 350 miles within the MPO's eight counties.

CSX Transportation (CSXT) – This Class I railroad, a transportation unit of CSX Corporation, operates a rail system of approximately 23,000 route miles basically east of the Mississippi River. It serves 23 states, the District of Columbia and two Canadian provinces, and is the largest rail carrier in the study area with 16 line segments totaling 213 route miles or 61 percent of the total in the eight-county system. The line segments range in use from some 30 trains per day to less than one train per day. In addition, it serves two intermodal facilities in Indianapolis operated by other CSX subsidiaries.

Norfolk Southern Railway (NS) – The other Class I railroad in the Eastern United States serves 22 states, the District of Columbia and one Canadian province with a 21,500-mile system. The carrier does not own any track in the study area but has trackage rights from Anderson (over CSXT's Indianapolis Line) and Lafayette (over CSXT's Crawfordsville Secondary) into Indianapolis. The railway currently uses only the rights from Anderson and interchanges traffic with other railroads serving the area at CSXT's Hawthorne Yard five days per week.

Central Railroad of Indiana (CIND) – The Class III railroad's 159-mile-long main track runs from Cincinnati to Shelbyville. Approximately eight miles of it are located in the study area. Although Shelbyville is the interchange point, part of the CSXT line between the yard in Shelbyville and the Central Railroad of Indiana is out of service and CIND currently operates only to St. Paul, the location of its last customer.

Hoosier Heritage Port Authority (HHPA) – The authority owns an abandoned 41 miles of the Nickel Plate line between Tipton and Indianapolis. Indiana Transportation Museum operates some excursion passenger trains on the line and The Indiana Rail Road provides freight service under contract although there is minimal demand.

³ Class I, operating revenue of \$346.8 million or more; Class II, operating revenue less than \$346.8 million, but more than \$28 million; Class III, operating revenue less than \$28million (all ranges are adjusted annually).

⁴ Length of rail routes not total track mileage.

The Indiana Rail Road Company (INRD) – This regional railroad, headquartered in Indianapolis, operates a three-state 500-mile system. The only Class II rail carrier in the study area has 30 route miles running basically north-south from the county line, just south of Morgantown to Indianapolis. It also has trackage rights over several CSXT lines in the urban area. It operates 4 to 6 trains per day in the study area. The Indiana Reload Center is located at the railroad’s Indianapolis terminal. CSX holds majority ownership.

Indiana Southern Railroad (ISRR) – The 196-mile Class III carrier operates 34 miles of line in the study area. It runs from Whitaker through Morgan, Marion and a corner of Hendricks Counties on its way to Indianapolis. It connects with CSXT’s Petersburg Industrial Track near Holt Road and interchanges traffic with CSXT at Crawford Yard. It operates 2 to 3 trains daily in the study area, mostly coal from mines in southwest Indiana. The railroad’s parent company is RailAmerica.⁵

Louisville and Indiana Railroad (LIRC) – This Class III railroad’s main track runs 106 miles from Indianapolis to Louisville. Its 27 miles in the study area begins at the Johnson – Bartholomew county line at Edinburgh and end with a connection with CSXT’s Louisville Secondary Subdivision four miles south of CP IU. The railroad has trackage rights over that subdivision and CSXT’s Indianapolis Terminal Subdivision from CP IU to Avon Yard where it interchanges traffic with CSXT. Daily operations consist of a train with through traffic to Avon Yard and a local that turns at Southport. Its major customers in the study area are located at Edinburgh. The railroad’s parent company is Anacostia and Pacific.⁶

Rail Lines

CSX Transportation’s Cleveland – St. Louis route through the study area is comprised of all or segments of three Subdivisions – the Indianapolis Line, Indianapolis Terminal, and the St. Louis Line. The line segments are the most heavily used in the area with 30 some main line trains per day plus locals as well as transfer (interchange) movements and trains from other main tracks. The three line segments are shown on **Figure 1** and listed in **Table 1**, as are all in the study area, the table contains a brief description of each line segment.

Lesser used CSXT main tracks are the Crawfordsville Secondary and Branch combined as one route and the Indianapolis Subdivision as another. Both function as segments of through routes with some 6 to 12 trains daily including through and local freight, and Amtrak passenger trains.

Main tracks operated by four short line railroads also serve the study area. They all terminate in the area with any through traffic received from or forwarded by other railroads. The number of trains operating on these lines is typically 2 to 6 per day. There are also a number of industrial tracks that provide rail access for local industries. Rail service usually consists of a train a day or less depending on the level of traffic on the line.

⁵ RailAmerica owns and operates 40 short line and regional railroads with some 7,500 miles of main track in 27 states and 3 Canadian provinces.

⁶ Anacostia and Pacific is a transportation development and consulting firm that operates six short line and terminal railroads in the U.S.

0 5 10 Miles



Data Sources: ESR, USGS, IndianaMap, and others

Legend

- Change in Line Designation
- CIND - Central Railroad of Indiana
- CSXT - CSX Transportation
- IIIPA - Hoosier Heritage Port Authority
- NRD - The Indiana Rail Road Company
- SRR - Indiana Southern Railroad
- IRC - Louisville and Indiana Railroad
- Base map Indiana DOT

Indianapolis Rail Corridor Analysis

Study Area Rail System

Figure No. 1

Table 1: Study Area Line Segments

Figure # 1 Designation	OWNER	LINE SEGMENT⁷	STUDY AREA END POINTS	LENGTH⁸	COMMENTS
1	HHPA	Former Nickel Plate	Indianapolis (near 13th Street)- Atlanta	36	No current freight service
2	CSXT	Indianapolis Line	Indianapolis Terminal (near Lawrence)- Fortville ⁹	13	Indianapolis-Cleveland main track
3	CSXT	East Side Industrial Track	East Side Junction (near 21st and Sherman Drive)-Indianapolis Line (near 25th & Gladstone)	0.6	Connects CSXT Indianapolis Line with Belt ¹⁰
4	CSXT	Hunter Industrial Track	Belt Line-Hunter (near 30th & Post Road)	5	Serves industries clustered principally at end of track
5	CSXT	Hawthorne Yard & Arlington Avenue Industrial Track	Belt (just south of Pine) to end of track (near English Avenue)	3	Hawthorne Yard Heart of Belt operations, industry at end of track
6	CSXT	Indianapolis Subdivision	State Street Yard-Gwynneville	31	Indianapolis- Cincinnati main line, Amtrak route

⁷ CSXT Subdivision/Industrial Track or lines of other railroads

⁸ Routes miles in study area

⁹ When line segment crosses county line, nearest study area community shown

¹⁰ Belt is CSXT Indianapolis Belt Subdivision

Figure # 1 Designation	OWNER	LINE SEGMENT⁷	STUDY AREA END POINTS	LENGTH⁸	COMMENTS
7 ¹¹	CSXT	Shelbyville Secondary	Indianapolis Line-Shelbyville	28	Connects with CIND (near Shelbyville)
	CIND	Main line	Shelbyville-St. Paul	8	Shelbyville- Cincinnati main track
8	CSXT	Louisville Secondary	IU interlocking (Union Station)-LIRC (near Hanna Avenue and Shelby Street)	4	Connects CSXT Indianapolis Terminal at ITL with LIRC main track
	LIRC	Main track	CSXT connection (near Hanna Avenue and Shelby Street)-Edinburg	27	Indianapolis-Louisville main track
9	INRD	Main track	Belt (near Senate and Wisconsin Streets)- Morgantown	30	Indianapolis-Linton main track
10	CSXT	Caven Industrial Track	Industrial track from Belt to W. Raymond Street	1.3	Serves industries located along Kentucky Avenue

¹¹ Lines of both railroads are identified where route is comprised of multiple ownership

Figure # 1 Designation	OWNER	LINE SEGMENT⁷	STUDY AREA END POINTS	LENGTH⁸	COMMENTS
11	CSXT	Petersburg Industrial Track	CSXT Crawfordsville Branch (near Tibbs Avenue and Morris Street)- Indiana Southern Connection (near Holt Road)	3	Crawford Yard located on line
	ISRR	Main Track	CSXT connection (near Holt Road)- Whitaker	37	Indianapolis -Sandborn main track
12	CSXT	Crawfordsville Branch	CP IJ-Clermont	12	Location of transfer yard, Amtrak route
		Crawfordsville Secondary	Clermont - Jamestown	20	Amtrak route
13	CSXT	St. Louis Line	Indianapolis Terminal (at Avon)- Reno	16	Indianapolis- St. Louis Main Track
14	CSXT	Frankfort Secondary	Junction with Crawfordsville Branch at CP Clermont-Mechanicsburg	28	Connects with NS at Frankfort
15	CSXT	Zionsville Industrial Track	Connects with Indianapolis Terminal (near CP IJ)- 96th Street, North Augusta	12	Most industries located in industrial park surrounding West 86th (near end of line)

Figure # 1 Designation	OWNER	LINE SEGMENT⁷	STUDY AREA END POINTS	LENGTH⁸	COMMENTS
16	CSXT	Indianapolis Belt ¹²	HHPA-East Side Junction-CP1	2	Only industry located at East Side Junction, connects with HHPA (at 22nd Street)
	CSXT	Indianapolis Belt	East Side Junction -CP 1	8.5	Provides connection for other route segments and interchange, serves several major industries
	CSXT	Indianapolis Belt	CP 1- end of track (near West 25th Street)	3.5	Industrial and includes remnants of North Side Industrial track
17	CSXT	Indianapolis Terminal	Lawrence-Avon	22	Terminal portion of Cleveland-St. Louis through track connecting Indianapolis and St. Louis Lines, serves Union Station ¹³

¹² Shown in three segments due to different functions

¹³ The three line segments referenced total 51 miles for the east-west through route in the study area

Virtually all of the lines in the study area are connected by the Indianapolis Belt which encircles the western, southern and eastern sides of the central core of the city. The Belt also provides local service to a number of on-line businesses as well connections to the local yards that provide for collection and distribution of cars for the area's industries. Relative levels of service on each line segment are graphically depicted in **Figure 2**.

Railroad Facilities

The railways serving Indianapolis operate a number of yards and intermodal facilities within the study area. Rail yards range from large to small and serve different purposes as do intermodal facilities. All such facilities are shown on **Figure 3**.

Yards and Shops

CSX Transportation's **Avon Yard** is the largest rail freight yard in the region, one of 13 automated classification or "hump" yards on the CSXT system. The yard is used to make up trains to other terminal destinations by breaking up inbound trains and classifying or sorting out and gathering cars bound for the same destination. It also has locomotive and freight car service and repair capabilities. The yard is located on the Indianapolis Terminal Subdivision on the Cleveland – St. Louis through route west of the city. Other line segments access the yard either through direct connections with the through main track or by using the Belt and the Crawfordsville Branch.

Another CSXT facility is **Hawthorne Yard**. Carloads destined to or originating from Indianapolis businesses are handled at this "local" yard that lies just off of, but connected with, the Belt east of town. Cars are then shuttled to and from Avon Yard and mainline train movements. The yard also serves as an interchange point for Norfolk Southern and Indiana Rail Road.

Located on CSXT's Crawfordsville Branch **Transfer Yard** serves as a support facility for several major industries in the area that ship and/or receive large volumes of materials/products. Loaded cars are gathered for forwarding and empty cars are made available as needed for loading.

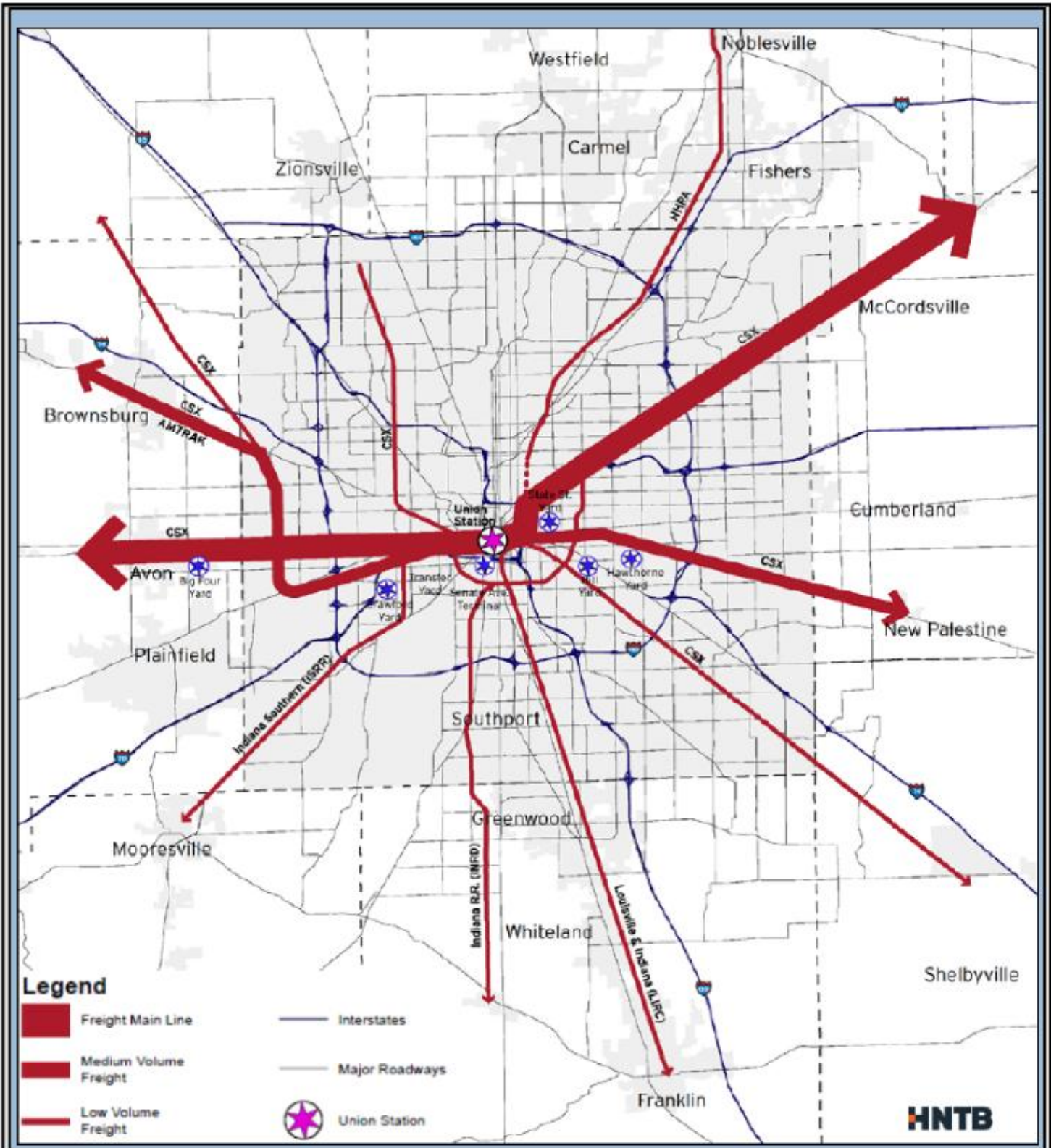
Serving a similar purpose in virtually the same area is CSXT's **Crawford Yard** located on the Petersburg Industrial Track. The yard is also used for interchange with the Indiana Southern Railroad.

State Street Yard, a former CSXT facility is located on the Indianapolis Subdivision and is now used by the Indiana Rail Road.

The **Senate Avenue Terminal** serves as Indiana Rail Road's Indianapolis yard and locomotive shop. It is also home to the Indiana Reload Center as discussed later.

A small CSXT yard is located in **Shelbyville**. It supports local businesses and is designated for interchange with CIND but is not currently used as explained earlier.

Amtrak operates a shop at **Beech Grove**. It is the railroad's major facility for heavy maintenance and reconstruction of locomotives and passenger equipment.



Indianapolis Rail Corridor Analysis

Freight Traffic Density

Figure No. 2

Central Indiana Transit Task
Force (Indy Connect)
and
HNTB

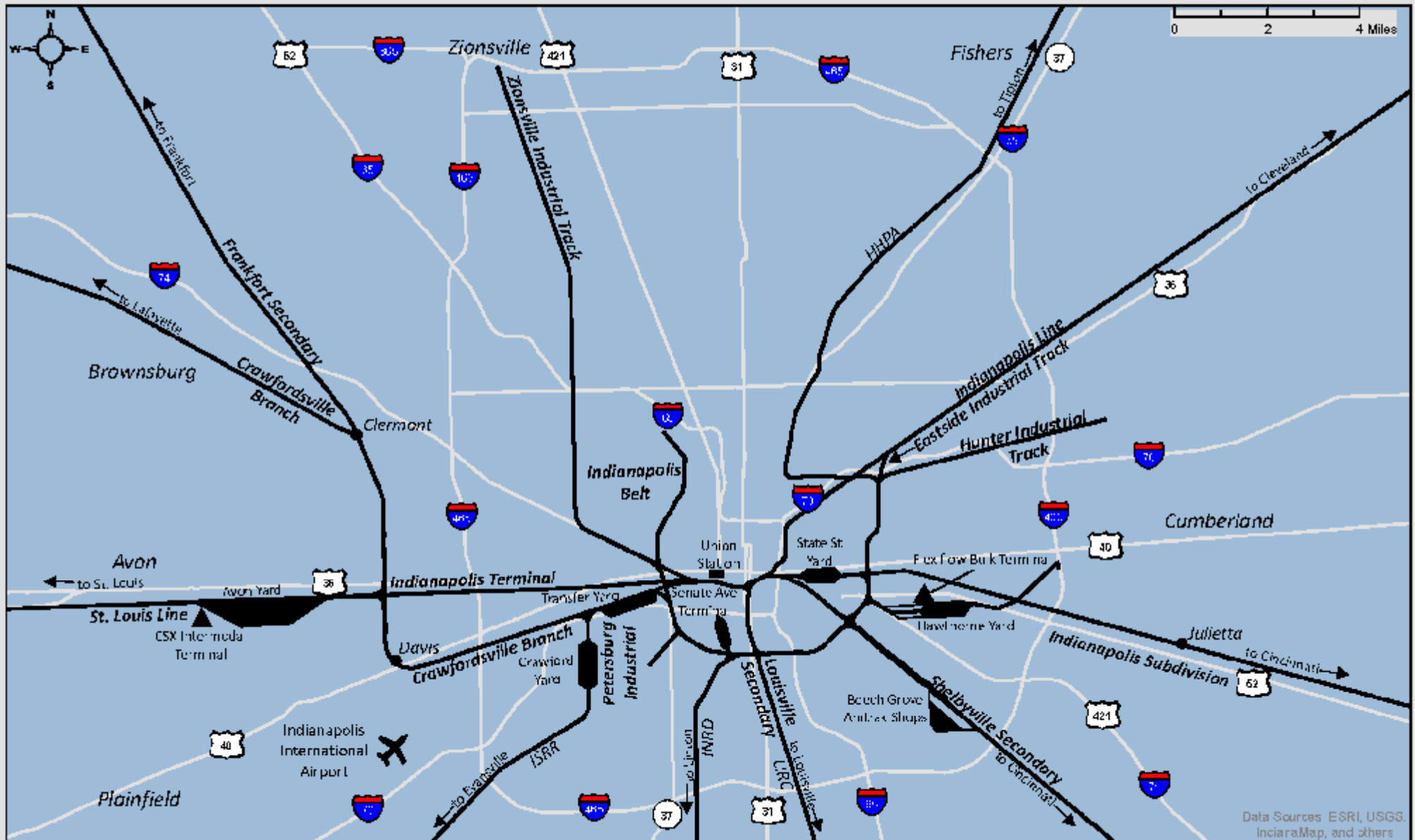
Legend

CSXT - CSX Transportation
All lines are CSXT unless otherwise marked
CIND - Central Railroad of Indiana
HHPA - Hoosier Heritage Port Authority
INRD - The Indiana Rail Road Company
ISRR - Indiana Southern Railroad
IIRC - Louisville and Indiana Railroad

Indianapolis Rail Corridor Analysis

Indianapolis Railroad Facilities

Figure No. 3



Data Sources: ESRI, USGS, IndianaMap, and others

Intermodal Facilities

Railroad intermodal facilities in the study area (see **Figure 3**) provide for the transfer of freight between truck and rail. This activity encompasses exchange of freight equipment such as containers and trailers when the freight itself is not disturbed, the transfer of bulk materials, liquid and dry, by various means such as conveyers, hoses or piping, and products such as lumber, steel and paper, are transferred piecemeal using forklifts, cranes, etc. Some shipments are stored before modal transfers are made.

CSX Intermodal (CSXI), a subsidiary of CSX Corporation, operates the CSX Intermodal Indianapolis facility which is located on 25 acres adjacent to the southwest corner of Avon Yard. Roadway access is via Dan Jones Road. The facility has two 1,250-foot working tracks and one 800-foot-long storage/overflow track. The facility performed 36,000 lifts in 2008, but service in terms of number of trains and routes is limited.¹⁴

CSX also has a bulk transfer operated by TRANSFLOW, another subsidiary of CSX Corporation. It is located at Hawthorne Yard accessed from Emerson Avenue. The facility has 45 car spots.

As stated earlier, Indiana's Rail Road's Senate Avenue Terminal in Indianapolis is the location of the Indiana Reload Center. The facility is capable of handling a variety of materials and also provides warehousing and storage. It has up to 50 car spots, approximately 25 acres of outside storage and 5 buildings with over 700,000 cubic feet of space. Access is via South Senate Avenue just off I-70.

In addition to railroad facilities, there are numerous rail-served privately owned/operated reload and warehousing operators within the study area. Some are multipurpose and some specialize in selected commodities such as lumber, steel or food products.

Rail Freight Traffic

The 2005 Surface Transportation Board Carload Waybill Sample was compiled for the eight-county study area to quantify a number of rail traffic characteristics. The findings are presented in an aggregated fashion due to the relatively small area in order to avoid disclosure whereby individual rail users could be identified through location or commodities associated with the particular business.

Originating and Terminating Volumes – The study area generated slightly more than 100,000 carloads and 7 million tons of rail freight in 2005. These volumes represented approximately 7 percent of both carloads and tonnage of originating and terminating rail traffic statewide for the same year.¹⁵ Study area inbound or terminating carloads and tonnage accounted for approximately 60 percent of totals while outbound or originating tonnage accounted for the remaining 40 percent. Interstate traffic, or that originating from or terminating in a state other than Indiana, comprised about three-fourths of totals with intrastate or both originating and terminating in Indiana made up the remaining one fourth. The actual carloads and tonnage are shown in **Table 2**. Note that about one percent of total traffic was intraregional moving both to and from study area counties.

¹⁴ Data obtained from *Conexus Indiana Intermodal Analysis* prepared by TranSystems for Conexus Indiana, April 19, 2009.

¹⁵ Statewide rail traffic source - *Indiana Multimodal Freight and Mobility Plan*, prepared for the Indiana DOT by Cambridge Systematics, Inc., July 8, 2009.

Table 2: Study Area Rail Traffic

2005 CARLOADS						
	ORIGINATING	%	TERMINATING	%	TOTAL	%
Interstate	33,956	80	46,304	76	80,260	78
Intrastate*	+ 8,712	20	+ 14,257	24	+ 22,969	22
Totals	42,668		60,561		103,229	
TON						
	ORIGINATING	%	TERMINATING	%	TOTAL	%
Interstate	1,880,381	75	3,446,173	72	5,326,554	73
Intrastate*	+ 629,244	25	+ 1,322,127	28	+ 1,951,371	27
Totals	2,509,625		4,768,300		7,277,925	
Source: WSA compilation of 2005 STB Carload Waybill Sample						
*Of the intrastate totals, 1,240 Carloads and 108,280 Tons both originated and terminated in the study area.						

Origins and Destinations – On a per-county basis within the study area, two counties accounted for the vast majority of all rail traffic. Marion County generated 85 percent of carloadings and 80 percentage of tonnage while Shelby County’s contribution was 10 and 13 percent, respectively. Thus, the two counties together accounted for some 95 percent of study area totals

Interstate traffic was shipped to the study area from 30 states, and shipped from the study area to 25 states. Sixty percent of interstate traffic moves to and from 7 states with Illinois and New Jersey comprising almost 60 percent of that total or one-third of area-wide rail traffic. The Illinois traffic, however, does not actually originate nor terminate there as it is largely comprised of traffic that has been rebilled.¹⁶ Other major rail trading partners are Georgia, Michigan, Ohio, Virginia and West Virginia. Ohio and Michigan also have a significant rebill percentage at approximately 20 and 50 percent, respectively.

Commodities - Seven principal commodities together represented 85 percent of carloads and 89 percent of tonnage of the 2005 study area rail traffic. The three largest originating commodities – food or kindred products, transportation equipment, and intermodal – comprise over half of carloads (62 percent) but only 16 percent of tonnage due to the intermodal traffic. Intermodal carloadings in the STB Carload Waybill Sample are counted by the unit (trailer or container) and the typical weight per unit is about one-sixth of that of the average carload. By weight, farm products replace intermodal.

Terminating traffic by carload is dominated by coal with intermodal and chemicals or allied products a distant second and third. Combined, the three commodities total 61 percent of 2005 totals for this category. By weight it is coal, chemicals and farm products representing 43 percent of the total. Waste or

¹⁶ Rail traffic handled by more than one carrier with a separate waybill for each. As Chicago is a major gateway for railroads serving the eastern and western United States, the actual origins/destinations are most probably in the west.

scrap materials is the seventh principal commodity grouping. However it does not rank in the top three in any category.

Through Traffic – A significant amount of rail traffic passes through Indiana having originated out of state destined for yet another state beyond Indiana. This through traffic comprised 67 percent or two-thirds of all statewide rail traffic tonnage movements in 2005.¹⁷ Based on 2003 train counts on the Cleveland-St. Louis main track, this traffic was about half and half intermodal and merchandise.¹⁸ An approximate measure using gross ton-miles of traffic to and from the study area converted to net tonnage and applying average commodity tonnage and equipment weights reveals a very similar percentage if not slightly higher.

Rail Users – Rail using local industries and businesses in Marion County are concentrated along the route of the Belt and connecting industrial tracks and short lines. They are principally located from Hawthorne Yard west to, and including, the Crawfordsville Branch. Other industrial clusters and major rail service users are concentrated in the southern part of Shelby County. Study area locations are the subject of **Figure 4** and are described in **Table 3** with rail user identifications.

Rail Passenger Service

Rail passenger service in Indianapolis is currently limited to Amtrak intercity trains operating between Chicago and New York City. There are, however, a variety of proposals being considered for additional and/or improved intercity service as well as local commuter operations. Depending on routes selected, operating characteristics and frequency, these services have the potential to significantly impact rail freight service.

Amtrak – Two trains, Amtrak's *Cardinal* and *Hoosier State*, provide service between Chicago and Indianapolis via Crawfordsville and Lafayette. The *Hoosier State* terminates in Indianapolis while the *Cardinal's* route extends to New York City via Connersville, Cincinnati and Washington, DC. The *Cardinal* operates three days per week and the *Hoosier State* the other four days of the week resulting in daily service to and from Chicago with identical Indianapolis scheduled arrivals and departures, 4:45 a.m. and 6:00 a.m., respectively, from New York to Indianapolis and from Indianapolis to Chicago and 11:50 p.m. and 11:59 p.m. in the opposite direction.


¹⁷ *Indiana Multimodal Freight and Mobility Plan*

¹⁸ *Downtown Indianapolis Railroad Relocation Feasibility Study* prepared for the Working Group by R.L. Banks & Associates and Bernardin, Lochmueller & Associates, February 2004.



Data Sources: ESR, USGS, IndianaMap, and others

Legend

-  Principle Industrial Locations
- CIND - Central Railroad of Indiana
- CSXT - CSX Transportation
- HHPA - Hoosier Heritage Port Authority
- INRD - The Indiana Rail Road Company
- ISRR - Indiana Southern Railroad
- LIRC - Louisville and Indiana Railroad

Base map Indiana DOT

Indianapolis Rail Corridor Analysis

Major Industries and Industrial Clusters

Figure No. 4

Table 3: Major Industries and Industrial Clusters

Figure 4 Location #	DESCRIPTION
1	CSXT Hunter Industrial Track – Brenntag Mid-South, Caito Foods and several rail-served businesses in Industrial Park in the vicinity of E. 30th and N. Shadeland.
2	CSXT Indianapolis Subdivision – Bunge of North America, Nabisco, Morristown Grain
3	CSXT Arlington Avenue Industrial Track - Automotive Components Holding
4	CSXT Shelbyville Secondary – Amtrak Beech Grove Shops, ADM/Countrymark
5	CSXT Shelbyville Secondary – Cluster of industries including Pilkington Glass, Culpepper Wood Preservers, Yuma Industries, Toray Resin
6	LIRC – Kokomo Grain, U.S. Army Camp Atterbury, Sonoco Flexible Packaging
7	CSXT Crawfordsville Branch, Petersburg Secondary, Craven Industrial Track and Indianapolis Belt (East Side Jct. – Cp 1) – Heavy industrialized area with rail-served businesses such as General Motors (Metal Fabrication Division and Allison Transmission Division), Stout Field Industrial Park, Roll and Hold Steel, National Starch, Quemetco. The Citizens Coke Complex is also located in this area but is to be closed.
8	INRD – Indianapolis Power and Light Harding Street Generating Plant, Indiana Reload Center, K and F Industries, Merchandise Warehouse among others
9	ISRR – Between Brooklyn and Mooresville, Industrial Park at County Road 1000 and State Road 67
10	ISRR– Near Martinsville, Indianapolis Power and Light Eagle Valley Generating Station
11	CSXT Crawfordsville Secondary – Steel Dynamics, Inc. Engineered Bar Products
12	CSXT Zionsville Secondary – Asphalt Materials, Pinnacle Oil, Willamette Industries, Marathon Petroleum, Park 100 Industrial Park
13	CSXT Indianapolis Belt (Cp 1 to EOT near W. 25 th St) – Central Soya, Illinois Cereal Mills, DA Lubricant, Heritage Environmental Services

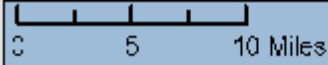
Amtrak trains use CSXT's Crawfordsville Branch and Indianapolis Subdivision to reach the Indianapolis Terminal (which connects the Indianapolis Line and the St. Louis Line) to access Union Station (see **Figure 5**). Both the Crawfordsville Branch and the Indianapolis Subdivision connect with the Terminal Subdivision's main track No. 1 and crossovers are used to reach main track No. 2 to access station tracks at Union Station as shown on **Figure 6**.

Higher-Speed Rail – Amtrak operations on existing rail corridors within the eight-county study area are limited to a top operating speed of 70 mph with much lower speeds in terminal operations. There are two initiatives to create higher-speed operations being advanced by the Midwest High Speed Rail Association and the Midwest Regional Rail Initiative. Both use basically the same routes currently used by Amtrak with an additional leg from Indianapolis to Louisville. Top speeds for the service range from 110 mph estimates in one and to as much as 220 mph in the other. Further analysis still needs to be conducted on both.

Commuter Rail – In 2007, the Indiana State Legislature required the Indiana Department of Transportation to examine the feasibility of commuter rail service on two corridors in the study area, one between Indianapolis and Muncie and one between Indianapolis and Bloomington. After review of three alternate routes and combinations of various segments of each for the Muncie route, and five alternates and combinations for Bloomington, the report¹⁹ recommended that two of the Muncie and one of the Bloomington alternatives be advanced for further study. The evaluation considered five criteria – potential ridership, station access, station area ratings, cost of, and ease of implementation. One of the Muncie recommended alternatives use an abandoned Nickel Plate line segment now in public ownership (HHPA) to reach the center of the urban area and is currently undergoing a more detailed assessment.

Indy Connect, Central Indiana's Transportation Initiative, as part of its long-range planning effort is also considering additional commuter lines as part of a total public transportation vision consisting of bus system expansion, including bus rapid transit; light rail transit; commuter rail; and higher-speed intercity service as exhibited in **Figure 7**. Additional commuter lines to Mooresville, Franklin, Brownsburg, Shelbyville and Zionsville in addition to the HHPA route referred to as the Northeast Corridor are being included in the long-range vision. Although the Northeast Corridor and service to Franklin over the LIRC are the organization's current priority corridors, all are included in this assessment.

¹⁹ *Central Indiana Commuter Rail Feasibility Study* prepared for the Indiana Department of transportation by URS in association with HNTB and Engaging Solutions, August 2008. Also the source of many of the train counts in Study Area Railroads.



Note: Hoosier State west of Indianapolis only

Data Sources: EERI, USGS, IndianaMap, and others

Legend

- Cardinal and Hoosier State Route
 - CIND - Central Railroad of Indiana
 - CSXT - CSX Transportation
 - HHPA - Hoosier Heritage Port Authority
 - INRD - The Indiana Rail Road Company
 - ISRR - Indiana Southern Railroad
 - LIRC - Louisville and Indiana Railroad
- Base map Indiana DOT

Indianapolis Rail Corridor Analysis

Route of Amtrak's Cardinal and Hoosier State


Figure No. 5

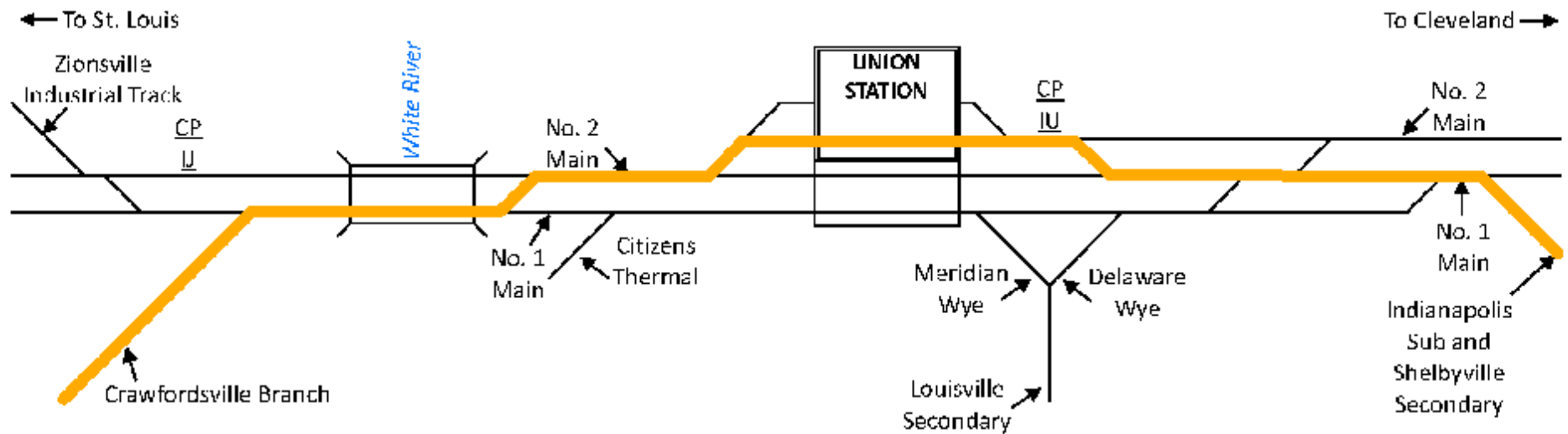
Indianapolis Rail Corridor Analysis

Route of the Cardinal and Hoosier State to Union Station

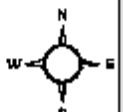
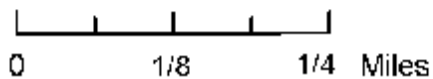
Figure No. 6

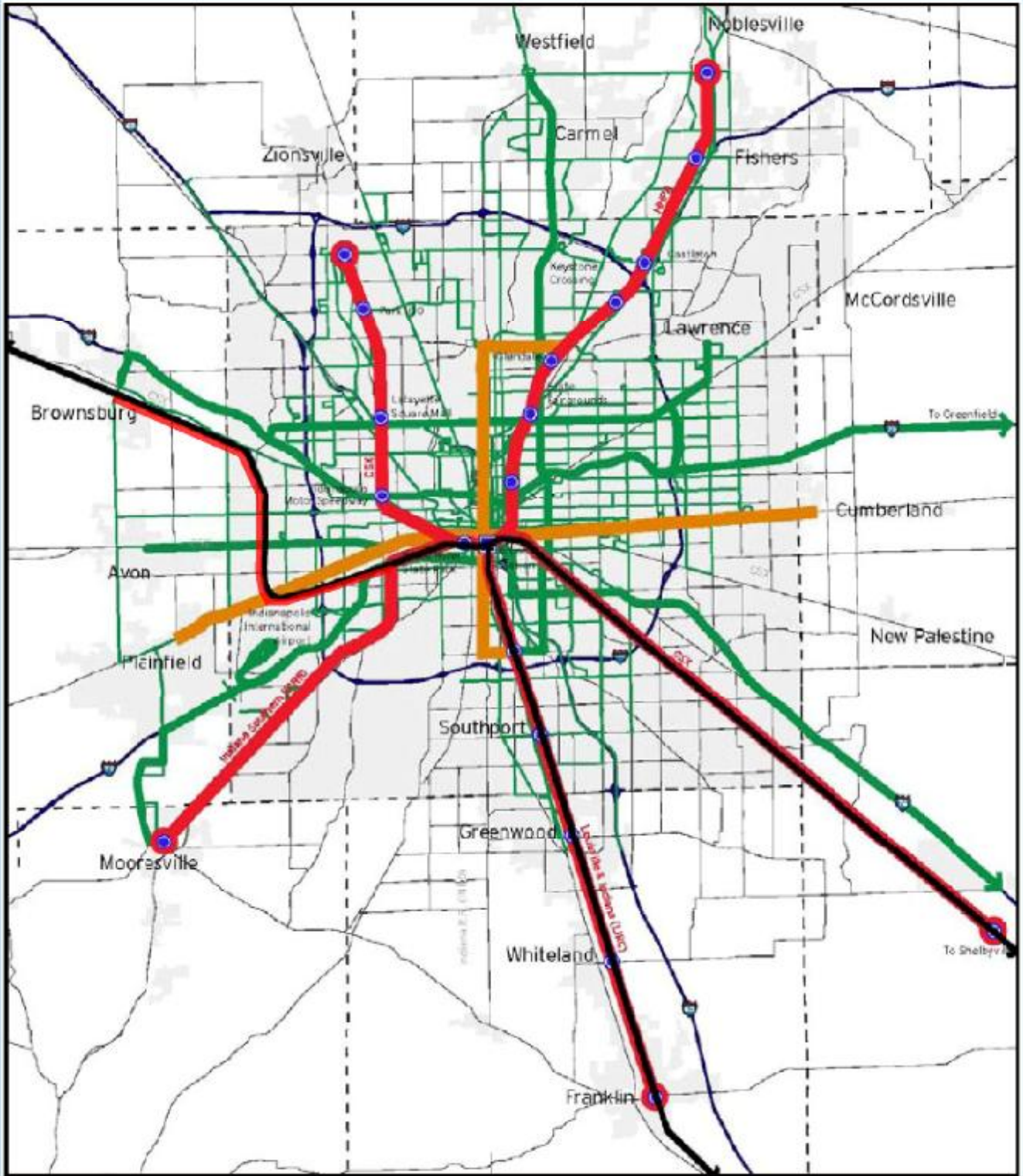
Legend

 Route of the Cardinal and Hoosier State






Approximate Scale





Legend

-  Light Rail Transit
-  Commuter Rail Service
-  Intercity Higher-Speed Rail

Indianapolis Rail Corridor Analysis

Transit System Vision

Figure No. 7

Impacts and Mitigation

Implementation of all potential rail passenger services described in the foregoing section and shown on **Figure 8** will impact existing freight operations either from the sheer number of trains, operating speeds or access requirements – most likely some combination of all factors. The magnitude of impacts will depend in large part on passenger train volumes and frequencies. As discussed earlier, the impacts on freight operation can be mitigated through introduction of capacity-increasing measures on existing tracks, or separation of freight and passenger operations. Both have pros and cons as discussed in the following paragraphs. No doubt the solutions to or mitigation of issues will involve some application of both approaches.

Track Capacity

As shown in previous illustrations, with the exception of a few industrial tracks, there is not a line segment in the study area that isn't already being used or being considered for some form of rail passenger service. Even though the services are widespread, all will traverse some part of CSXT's St. Louis Line – Indianapolis Terminal – Indianapolis Line through route. With 30 some trains per day already using the line, the addition of the multitude of potential passenger services will require major improvements such as trackage and signal system upgrades, or relief through diversion of trains to alternate routes.

Existing Capacity – A 2009 study²⁰ of capacity of principal rail lines in the U.S. revealed that the Cleveland-St. Louis line through the study area was operating under capacity in 2007. Forecasts for 2035, at the time, were for freight traffic to increase 88 percent or almost double. While the line was determined to continue to operate under capacity in 2035 with the increase in freight traffic, the analyses were performed using only current passenger service and did not consider implementation of future intercity and commuter service additions.

Impacted Line Segments – The through route track segment of the Indianapolis Terminal between the junctions of the Crawfordsville Branch and the Indianapolis Subdivision, approximately 1.5 miles, will be the most heavily impacted of all (it is the same section of main track used by Amtrak as shown earlier in **Figure 6**). It is difficult to determine the magnitude as planning for potential services has not progressed enough to define the number of passenger trains that will have to be accommodated. However, considering there could be up to seven commuter routes (two shown previously on **Figure 8** are either/or routes) with a minimum service level of three trains in and three trains out in both a.m. and p.m. peak periods, respectively, and, an-in and-out midday train, there could be as many as 56 daily trains. Add six to eight intercity trains of some sort and the result is three times the number of trains per day without including any increase in freight traffic.

²⁰ *National Rail Freight Infrastructure Capacity and Investment Study*, prepared for the Association of American Railroads by Cambridge Systematics, September 2007.



Data Sources: ESRI, USGS, Indiana Map, and others

Legend

- Change in Line Designation
- Existing Amtrak Route
- Higher-Speed Intercity Rail Proposals
- Indy Connect Commuter Routes Being Considered
- - - Abandoned Line to Lapel
- Potential Muncie and Bloomington Commuter Routes

Base map Indiana DOT

Indianapolis Rail Corridor Analysis

Existing and Potential Intercity and Commuter Routes

Figure No. 8

Access to Union Station further complicates the capacity issue as current Amtrak service and all of the potential passenger services, but possibly two, require use of both of the tracks in the double-track line effectively tying up the entire route not just one main track. One of the commuter proposals would also necessitate a backing move (as shown later in **Figure 11**) requiring even more main track time.

The problem is exacerbated when commuter trains that will lay-over in the middle of the day are considered in the train count. As there isn't room for all of them at Union Station they will have to shuttle between Union Station and a remote storage yard. State Street Yard has space on the north side where tracks have been removed, and space from track removals exists at Hawthorne and the former Hill Yard near Beech Grove. Use of the latter two, however, will require crossing the Belt but use of State Street does not. The degree to which this factor will impact operations is not known as in all probability some but not all of the routes will eventually be implemented.

Capacity Increases – To increase capacity by adding trackage requires enough right-of-way either existing or available for acquisition for the required number of tracks, and that train operating speeds are within the range of compatibility for joint freight and passenger operations. The close proximity of development in several locations along the existing east-west main track would appear to preclude or greatly increase the difficulty of adding second or third tracks. In lieu of double or triple tracking, capacity improvements could consist of more frequent universal crossovers in multi-track lines as well as advanced signal systems. Single-track lines could be improved by adding passing tracks in key locations.

The federally mandated installation of Positive Train Control (PTC) on lines that are used by passenger trains or to transport certain hazardous materials will theoretically permit operation of trains on closer headways thereby increasing capacity. However, there is debate over the actual effectiveness of the system as it will most likely be implemented. Therefore, while PTC will be required for all lines with passenger services, there is no guarantee that it will increase line capacity. The potential number of trains would exceed or push the limits of capacity of the existing main track.

Separation of Services

Separation can be accomplished by physical or temporal means, however, given the multitude of trains, with many on schedules, passenger and intermodal freight; this approach does not appear to present a viable option. Realistically, given the anticipated freight service demand and the rail passenger growth that would result from implementation of passenger services being discussed, separation of freight and passenger operation to the extent possible is the most promising means of accomplishing the long-range vision. There are several options to separate freight and passenger trains, either partially or in total. The more promising ones are reviewed in the following discussion.

Diversion of Freight Traffic to the Belt – When rail passenger service was more popular in Indianapolis and Union Station was busy handling passenger trains, freights typically detoured around the Belt leaving the main line for passenger traffic. But, as passenger traffic dropped off, use of the main line through town became the norm for freight traffic.²¹ That alternative was investigated in some detail for the Downtown Indianapolis Railroad Relocation Study Working Group in 2004²². The overall cost of the

²¹ *CTC Board*, “Buzzing Down The Bee Line,” July, 2002, p.21

²² *Downtown Indianapolis Railroad Relocation Feasibility Study* Although the purpose of the study was to eliminate use of the Indianapolis Terminal through town for safety, congestion and developmental reasons, it would also serve as a means of separating freight and passenger services.

resulting proposal to basically double track the Belt, install modern train control signaling and improve grade crossings including some separations, totaled \$100 million in 2003 dollars. Using rule of thumb measures, a practical capacity of 53 to 80 trains per day was estimated in the same study. With main track trains combined with Belt trains, totaling 37 at the time, there was adequate room for growth pending a more detailed capacity analysis.


The study also concluded that improvements providing a maximum speed of 40 mph for freight trains on the Belt would make it competitive time-wise with the through main track, some 40 minutes for both between Belt Junction on the Indianapolis Line and CP 1 on the Indianapolis Terminal (**Figure 9** depicts the location of junctions and connections between the lines). The running time estimate included a speed-restricted connection at CP 1 due to the lack of space available for a curve of greater radius and thus higher permissible speed (no such connection exists now and would have to be constructed) although the report stated a more detailed engineering evaluation might prove otherwise.

With the exception of Citizens Thermal Energy and General Motors, there are no on-line freight users located on the through mainline serving Union Station between Eastside Junction and CP 1, the location of the junction of the Belt and the through mainline east and west of town, respectively. While both are connected to the main, both are also connected to the Crawfordsville Branch. Thus, freight operations on the Cleveland-St. Louis mainline are not necessary as long as Citizens Thermal Energy, General Motors and CSXT can function without the main track connections.

Relocation of freight trains to the Belt (see **Figure 10**) would free up the through line for passenger trains²³ and use of Union Station as the concentration of business offices and event facilities in the center of town make it a more desirable station option, especially for commuter trains. In addition, a new connection in the northeast quadrant at Hunt between the Crawfordsville Branch and the Indianapolis Terminal Subdivision (shown on **Figure 10**) would eliminate the need to run passenger trains over the industry-heavy portion of the Crawfordsville Branch (the one exception would be commuter service over the Indiana Southern Railroad) which is also the line with the heaviest freight density next to the through main. However, the Crawfordsville branch provides the closest access to the airport and if an airport stop is desired (discussed more fully in the following section) the Crawfordsville Branch would be involved.

²³ Improvement of the Belt on the west side of downtown was proposed to end at CP 1 in the 2004 study with a new connection to the Cleveland-St. Louis main built at that location (the “speed restricted curve”) and the mainline abandoned to the east. In this case, mainline freight operations would not be re-routed between CP 1 and Hunt. To eliminate freights running between CP 1 and Hunt the Crawfordsville Branch would have to be used (as shown in Figure 10 as the alternate route) and improved. As there is more clear space both north and south of the mainline along this segment than downtown, and only one side track to contend with, it might be possible to construct capacity improvements permitting freight and passenger trains to coexist.

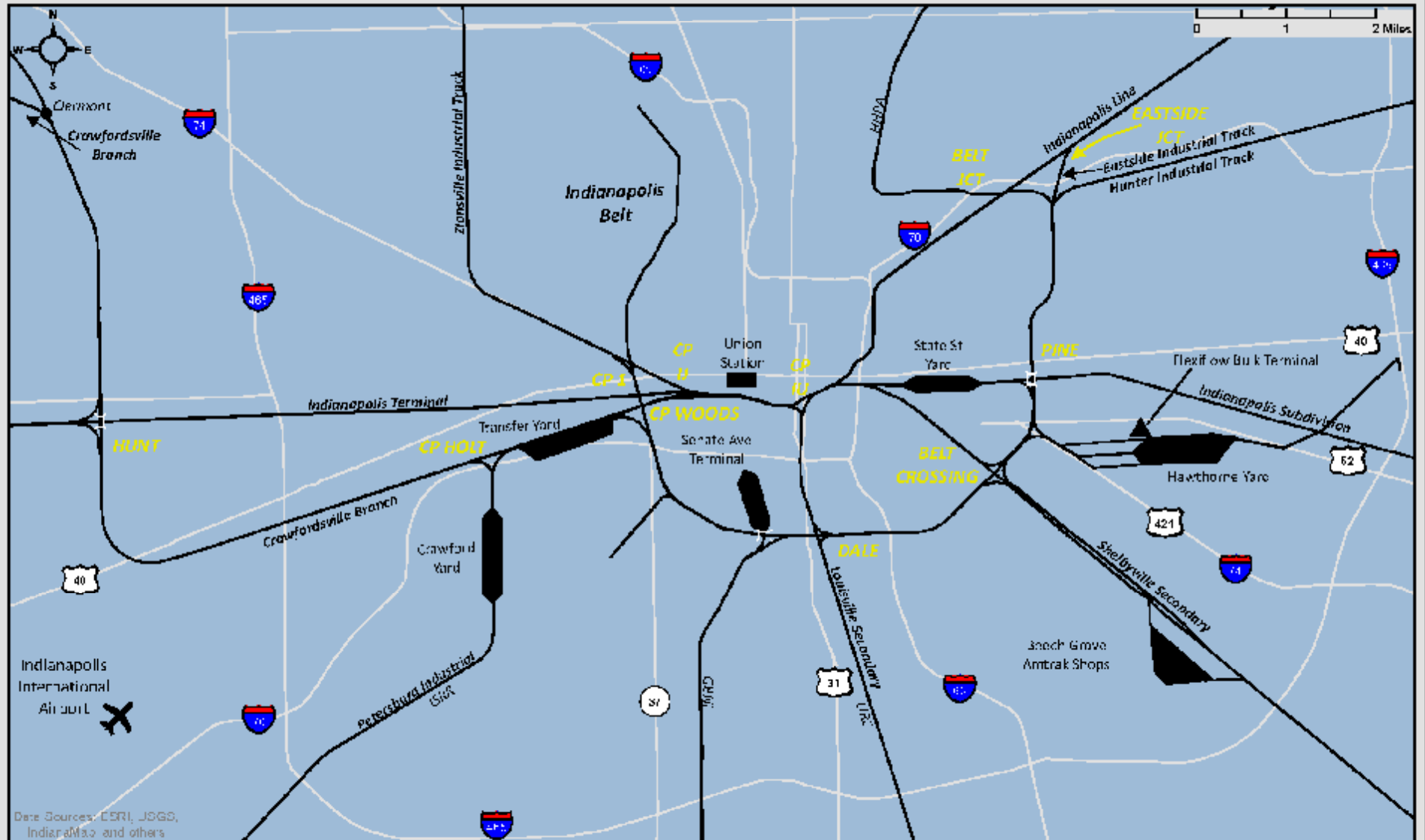
Legend

- CSXT - CSX Transportation
- All lines are CSXT unless otherwise marked
- CIND - Central Railroad of Indiana
- IHIPA - Hoosier Heritage Port Authority
- INRD - The Indiana Rail Road Company
- ISRR - Indiana Southern Railroad
- IIRC - Louisville and Indiana Railroad
-  Grade Separation

Indianapolis Rail Corridor Analysis




Junctions, Crossings and Control Points

Figure No. 9



Date Sources: ESRI, JSGS, IndianaM&O and others

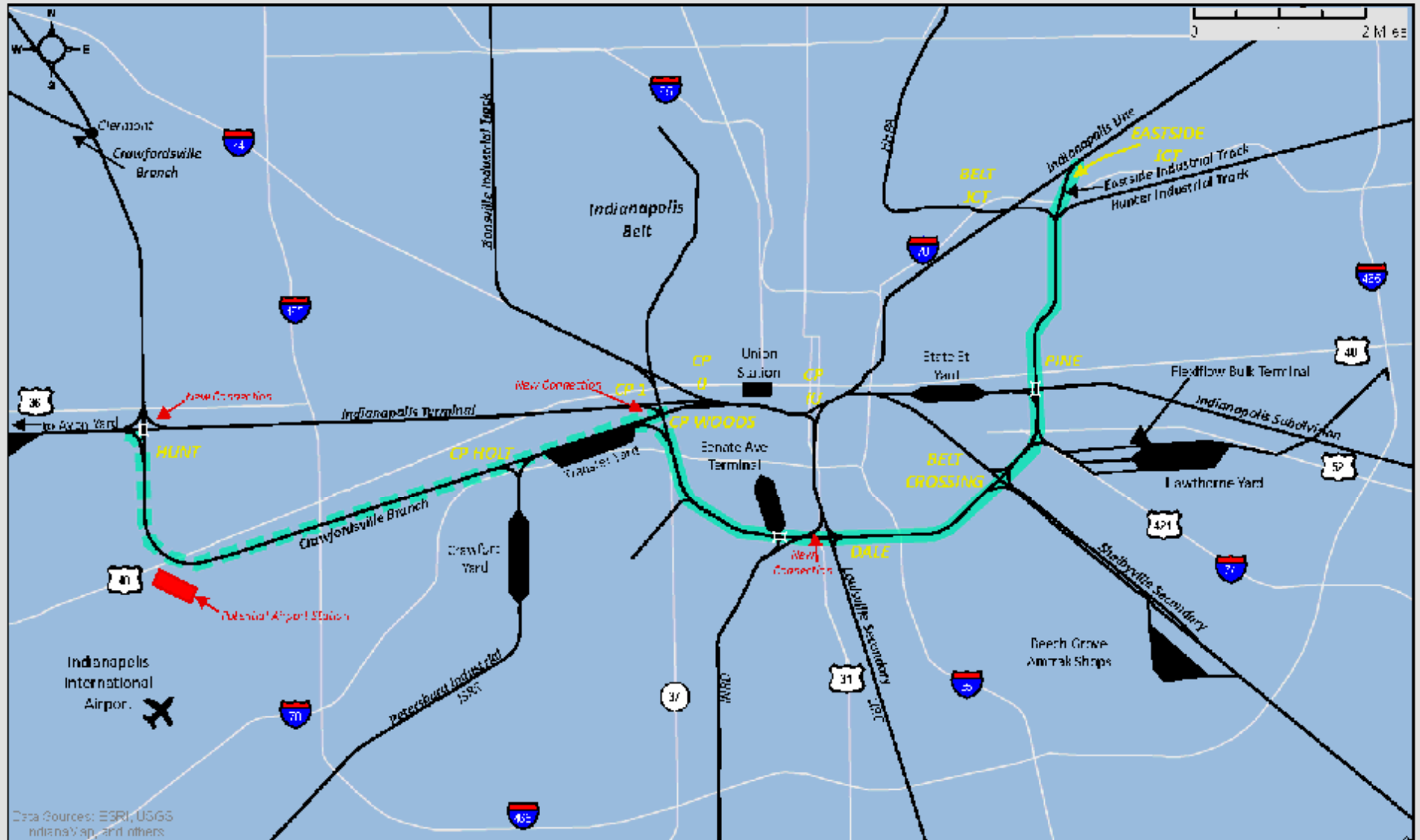
Legend

-  Through Freight Route
-  Alternate Through Freight Line Segment
- CSX - CSX Transportation
- All lines are CSX unless otherwise marked
- CIND - Central Railroad of Indiana
- HFPA - Hoosier Heritage Port Authority
- MRC - The Indiana Rail Road Company
- ISRR - Indiana Southern Railroad
- LIRC - Louisville and Indiana Railroad
-  Grade Separation

Indianapolis Rail Corridor Analysis

Through Freight Reroute on Belt

Figure No. 10



Data Sources: ESRI, USGS IndianaMap, and others

Without freight operations in the Union Station area, problems associated with the connection of the Louisville Secondary and the main track at CP IU could be mitigated as one of the main tracks could be used for a station track. However, increased use of the Louisville and Shelbyville Secondary for passenger service combined with the addition of through freight trains on the Belt will require improvements to the at-grade rail crossings at Dale and Belt Crossing. Improvement of the Belt is currently being re-examined in another ongoing study.

Station Considerations – The use of two stations, Union Station, currently used by Amtrak, and a new multimodal facility at Indianapolis International Airport have been included in various rail passenger visions. Access from the Crawfordsville Branch is required for an airport station lacking development of new alignments. Thus, routing east of the airport to or through Union Station will also require use of Indianapolis Terminal tracks.

If an airport station were adopted, improvement of the Belt would become attractive for intercity passenger services. An improved Belt (and Crawfordsville Branch) would provide easier access to lines connecting to the south. In addition, a new station could be constructed at the location where the south leg of the light rail transit line as shown on **Figure 7** would cross the Belt. That reduces the distance for intercity passengers that do not use the airport to reach downtown as compared to the airport station location. Separation of local freight and switching activity with increased use of the Belt was reviewed in the 2004 study and which considered expansion of industrial lead tracks that would permit switching to occur without using the Belt main tracks other than to get from one location to another, and powered turnouts that would permit quicker access to the industrial leads from the main. Closure of the Citizens Coke facility eliminated the need for one such improvement

Alternatively construction of new alignments running south and then east from the airport to connect with higher-speed lines south of the urban area would avoid the Crawfordsville Branch and could be designed to operate at higher speeds. The operating speeds proposed for improvement of intercity service are in steep contrast with current permissible operating speeds especially within terminal limits in the study area.

Union Station Alternative – An alternate approach to Union Station is also worth considering. Most passenger services currently being discussed would access the Indianapolis Terminal Subdivision between CP IJ and the Shelbyville Secondary connection just east of CP IU from the south and have to cross both mains through a series of crossovers to reach the station as discussed earlier. The exceptions would be commuter service from the Zionsville Industrial track and the Northeast Corridor (HHPA). They are the only proposed routes that arrive in such a fashion as to use the northernmost main track (No. 2 Main). For the Northeast Corridor route there is a possibility that a former third main track could be re-established between 10th Street and Union Station and use of CSXT's main could be avoided. Trains off the Zionsville Industrial Track would probably use the No. 2 main from the junction (CP IJ) until they reach the station.

Proposed passenger services using the Louisville Secondary connecting with the main track at CP IU, not only would have to cross both main tracks, but also back into the station tracks from the No. 2 main regardless of which leg of the Wye (Meridian or Delaware) is used (see **Figure 11**) and neither is desirable. Trains entering Union Station, depending on which way they want to be pointed for exit, would use the Meridian leg of the Wye at CP IU to move ahead until clear of the crossover between the No. 1 and No. 2 main tracks, and then back through the crossover and over the No. 2 main track to the station

tracks. Running through the Delaware leg of the Wye, the train would pull ahead through two crossovers and back down the No. 2 main into the station tracks. Note the two mains switch tracks in this area. To reach the Louisville Secondary from Union Station, each train would reverse its arrival move and back down the No. 1 main track until clear of the opposite leg of the Wye it traversed arriving and use that leg to head south.

One way of avoiding that particular move as well as the need to cross both main tracks is a new platform on the south side of the main tracks as shown on **Figure 12**. Such a facility could be used by all of the proposed services, except the two with the northern approach, that could permit avoiding the main tracks altogether. Required would be a track or tracks connecting the Crawfordsville Branch with the Indianapolis Subdivision/Shelbyville Secondary and connecting the Meridian and Delaware Wye tracks which would have to be reworked. The only freight service on the Louisville Secondary is the LIRC through freight to Avon Yard and it could be routed over the Belt with a new connection in the southwest quadrant at Dale.²⁴ This option would require more engineering analysis as one of Citizens Thermal Energy tracks is used to reach the station area and it will have to be replaced with a new track as it takes two tracks to unload coal trains, and structures exist on two blocks of the proposed platform area, and others have parking garages.

Routing Indianapolis Subdivision/Shelbyville Secondary trains to the south side facility would require reworking the connection of that track with the existing track parallel to the No. 1 main at that point, replacing the third main track for use as the No. 2 main and moving the crossover between the two main tracks to a location closer to Union Station to free up the track at that point for use by passenger trains. Adjacent development appears to rule out construction of a new and separate track on this side, but realignment of the two main tracks as they approach the station might offer possibilities to gain some room if the interlocking tower between the two can be removed. The new facility would be reached from the existing station using an overhead structure.

²⁴ This alternative was proposed in a study (Present and Future Utility Of The CSX Louisville Secondary In The Near South Side of Indianapolis, prepared for the Indianapolis Metropolitan Planning Organization by R. L. Banks and Associates in association with Bernardin, Lochmueller and Associates, September, 2002) to eliminate that section of the Louisville Secondary between the Belt and CP IU. The Louisville and Indiana Railroad objected because of train crew hours of service concerns given the slower trip over the Belt. An improved Belt or an alternative interchange point south of the Belt could be a solution for this problem.

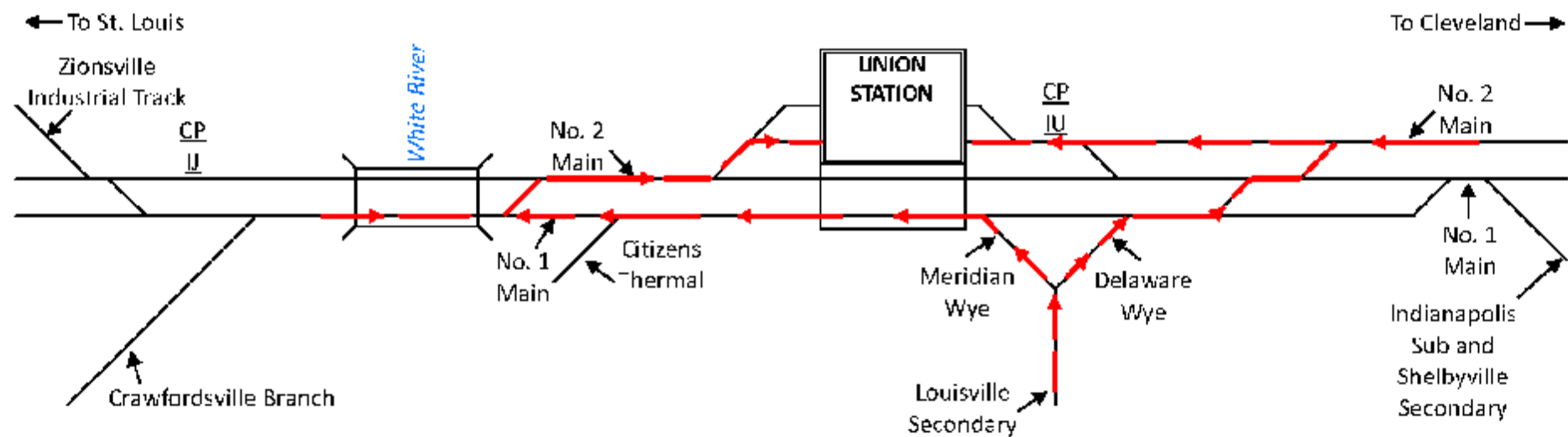
Indianapolis Rail Corridor Analysis

Union Station Backing Move

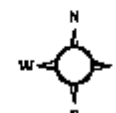
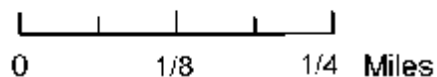
Figure No. 11

Legend

→ Move from Louisville Secondary to Union Station



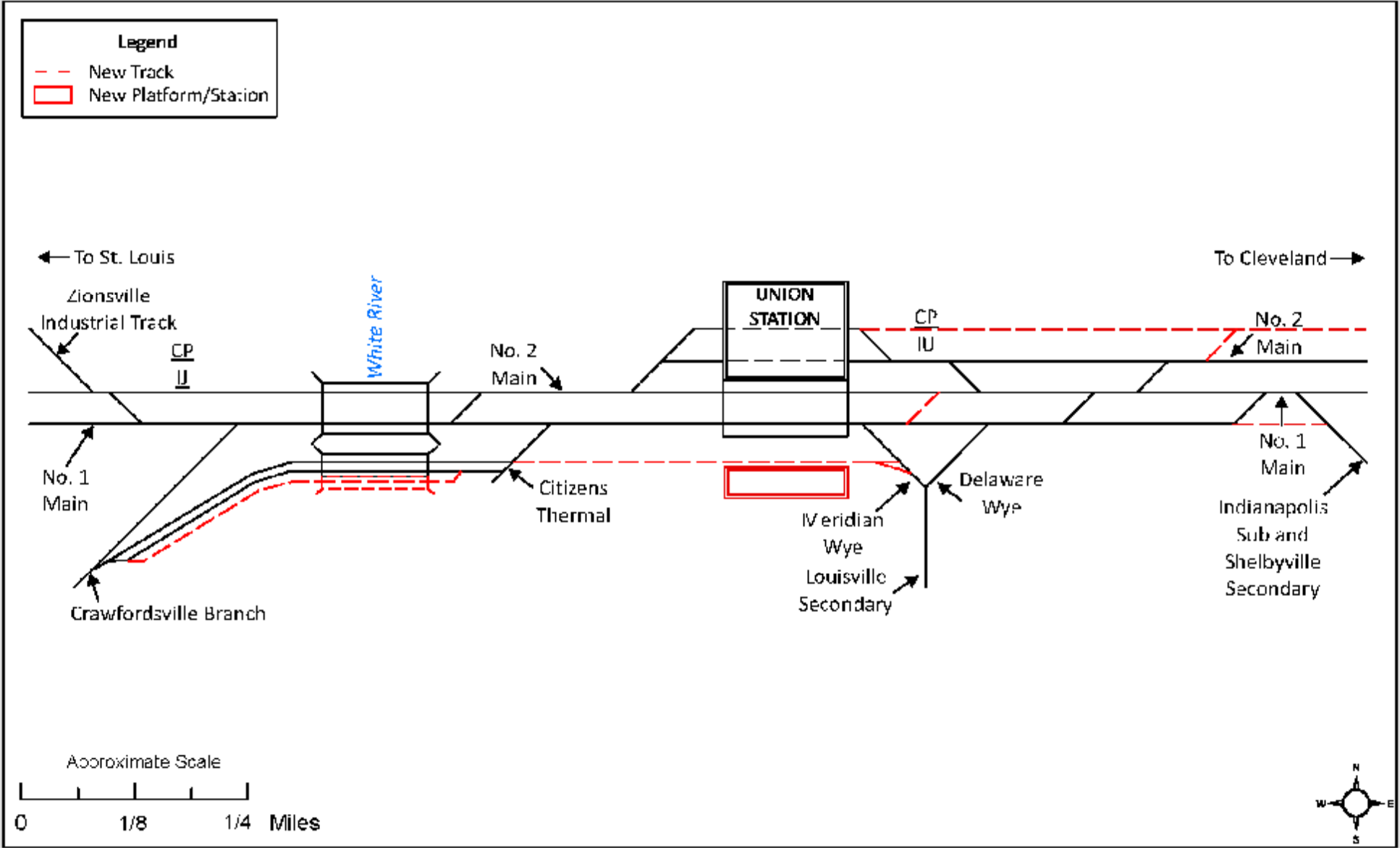
Approximate Scale



Indianapolis Rail Corridor Analysis

Alternative Station Approaches

Figure No. 12



Summary

From an operating standpoint, relocation of freight trains to the Belt would appear to be the best way to accommodate passenger trains at Union Station. This alternative also fulfills one of the safety objectives of the 2004 study by replacing freight trains with passenger trains and thus avoiding the potential for release of hazardous materials in the populous downtown. The downside is the need for passenger trains to and from the south, which could potentially represent the majority of them, to cross the Belt with the increased numbers of freight trains operating there. This problem would be most acute for trains using the Shelbyville Secondary and the Louisville Secondary as they are comprised of both commuter and intercity services and cross the Belt at Belt Crossing and Dale at-grade. Existing Amtrak trains cross the Belt at Pine which is grade separated. Potential commuter service over the Indiana Rail Road would actually have to use the Belt between that railroad and most likely Dale. Service from Mooresville over the Indiana Southern would cross the Belt at CP Woods, another at-grade rail crossing, after running over the Crawfordsville Branch.

There are also means of separating part or all of the trains with CSXT through trains continuing to use the main track. Intercity services, traveling to and from the north use the Crawfordsville Secondary and Branch. A new station at the Indianapolis International Airport combined with new alignments to the south connecting with the Louisville and Indiana Railroad and Shelbyville Secondary beyond the urban area would best separate those trains. Otherwise, they could avoid the main track to Union Station by using the Belt between the Crawfordsville Branch (CP Woods) and the routes south. A new connection in the southwestern quadrant of the crossing at Dale would be required along with some improvements on the Belt itself. Options for commuter trains, although undesirable ones due to increased travel time and the necessity of making a transfer, consist of use of the airport station and the proposed light rail transit line to downtown, or using the Belt to reach the proposed southern leg of the light rail transit line where it crosses the Belt, at which point transfers could be made to reach the downtown area. Adding commuter and intercity trains to the Belt leaves the existing mainline available for through freights.

Partial solutions which can be combined for separation with continued use of the mainline for freights depend on which direction the various passenger services come and go. There is potential for a separate track to reach Union Station from the Northeast Corridor which would keep those trains off the main track. However, there doesn't appear to be any way to accomplish that for the Zionsville trains.

Separation of trains to and from the south would be possible if a new connection between CP IJ and the Indianapolis Subdivision and Shelbyville Secondary connection could be established. It appears possible but would require new trackage and a platform/station, and potential conflicts with freight service to Citizens Thermal Energy would have to be resolved. It also appears that to make the connection work, the possible third track to separate Northeast Corridor trains would have to be used for a CSXT main track. Another potential problem relates to the number of trains and volume of passengers to be handled and the space available for trackage and a station facility. It appears to be suitable for one or two routes, but not for all southern routes.