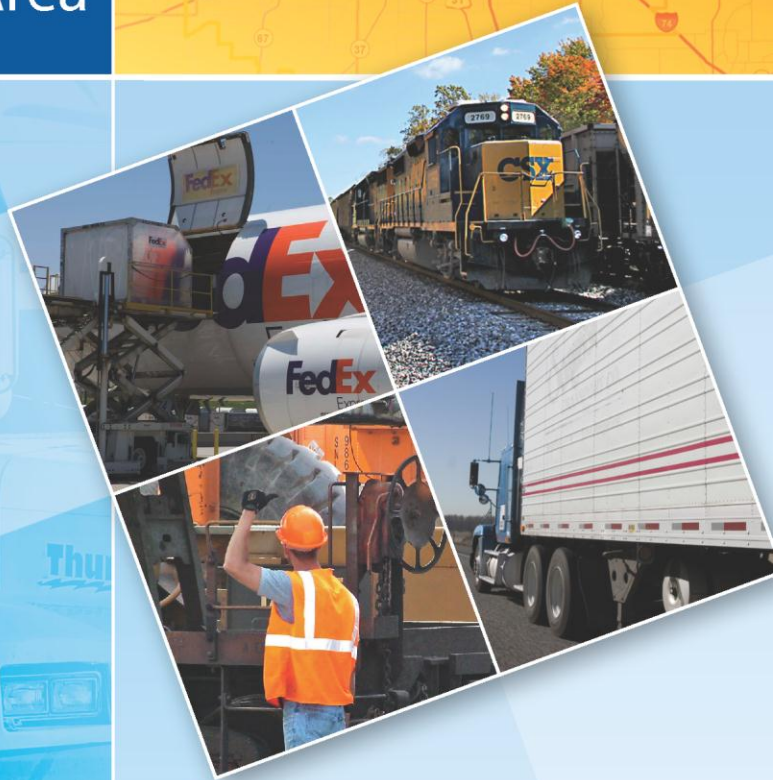


Final Report
**Regional Freight Plan for the
Indianapolis Metropolitan
Planning Area**



**Indianapolis Metropolitan
Planning Organization**

January 2016

**CDM
Smith**

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Chapter 1

Introduction

Indianapolis MPO undertook a Regional Freight Plan to enhance freight movement in the region. The plan included all modes of freight transportation and identified particular corridors and geographic areas where freight investment could solve freight mobility, congestion and safety issues as well as enhance economic development opportunities for the region's residents.

The planning process started with a vision for a desired future. From the vision, goals and performance measures were created to help achieve that vision. To define the vision of the Regional Freight Plan, the steering committee evaluated previous freight planning efforts in the region. After developing a vision, the committee defined four freight planning goals and a series of potential performance measures.

The plan identified a multimodal Regional Freight Network and utilized the methodology of the Indy FastTrack study to identify physical industry clusters and corridors that are reliant on existing freight infrastructure for continued economic activity. However, the plan did not just focus on the physical infrastructure. The steering committee identified the players and policies that impact the Indianapolis region's freight network. The team identified critical freight institutions and their abilities.

Using the lessons gained from these steps, the project team developed an assessment of existing system strengths, weaknesses, threats and opportunities. The plan concludes with a series of strategic recommendations and actionable steps the Indianapolis MPO can undertake to capitalize/mitigate the lessons from the SWOT analysis.

1.1 Stakeholder Involvement

The project team reached out to private sector freight stakeholders to capture input on current and future infrastructure needs. The primary effort focused on engaging Conexis Indiana, which effectively serves as a Freight Advisory Council for INDOT. The project was presented to Conexis during their June 2015 meeting and feedback from the meeting used throughout the plan. Similarly, a short survey was distributed to Indiana Trucking Association members. Following this feedback, the project team conducted a series of targeted interviews to follow-up on lessons learned from the initial outreach and to supplement on areas not covered.

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Chapter 2

Vision, Goals and Performance Measures

The planning process starts with a vision for a desired future. From the vision, goals and performance measures are created to help achieve that vision. To define the vision of the Regional Freight Plan, the steering committee evaluated previous freight planning efforts in the region. After developing a vision, the committee defined four freight planning goals and a series of potential performance measures.

2.1.1 Literature Review

To begin the planning process, a comprehensive literature review analyzed all relevant materials developed since the first Indianapolis MPO Freight Plan in the 1990s. The literature review developed the foundation for the development of the Regional Freight Plan. As such, the review focused on creating an inventory of previous goals, performance measures and key takeaways from previous work.

Working with regional transportation leaders, fifteen past documents were identified for the literature review. Each is thoroughly documented in **Appendix A**.

Organization	Document
Conexus Indiana	A Plan for Indiana's Logistics Future (2004)
	Delivering Indiana's Logistics Future (2010)
	Central Indiana Strategic Plan (2015)
Indianapolis MPO	Indianapolis Intermodal Freight System Plan (1998)
	Indianapolis Freight White Papers (2010)
	2035 Long Range Transportation Plan (2011)
	Indianapolis MPO Complete Streets Policy (2014)
Indianapolis Department of Metropolitan Development	Indianapolis Comprehensive Rail Study (1995)
	Indy FastTrack (2014)
	Comprehensive Economic Development Strategy (2015)
	Update to FastTrack (2015)
INDOT	Indiana Multimodal Freight & Mobility Plan (2009)
	Indiana Rail Plan (2011)
	Indiana Multimodal Freight & Mobility Plan (2014)
	Blue Ribbon Panel on Transportation (2014)

2.1.2 Building the Framework

After completing the literature review, a matrix was assembled to compile the goals, performance measures and relevant strategies from each document. Each of these components was organized by which Indianapolis MPO LRTP goal(s) the item supported. The LRTP established three goals for the regional transportation system:

- Preserve, Make Safe, and Improve Utilization of the Existing Transportation System
- Enhance Regional Transportation Mobility and Accessibility

- Coordinate Transportation System Improvements to be Consistent with Regional Values.
- The matrix was used to identify commonalities among the reports studied during the literature review. The commonalities will be used to develop a vision statement and goals to support the long-term success of the Regional Freight System.

2.1.3 Key Commonalities

Identifying commonalities among the existing plans can help define an overall regional freight vision and, ultimately, goals for the Plan. Below is a list of reoccurring themes from the literature review.

Freight Industry Communication/Executive Forum/Stakeholder Outreach

Freight needs and issues can be effectively captured by engaging with the freight industry. Because the freight industry deals with moving goods on a daily basis, they experience challenges and identify opportunities before data is able to catch up. Outreach programs or collaborative industry forums/panels are just a snapshot of how the public sector can engage the freight industry to identify challenges and provide solutions to them. The freight industry is rapidly changing; new goods, new supply chains, changing technology. Outreach is critical to understanding and anticipating industry priorities.

Targeted Infrastructure Investments

In today's political environment, transportation agencies are challenged with doing more with fewer resources. To mitigate this challenge, decision-makers should focus investment on projects that have the greatest impact on improving efficient, reliable freight movement in strategic areas. Truck routes should be identified, and measures should be taken to address truck-parking deficiencies. For all bottleneck areas, the users, commodities, and origin and destination pairs should be understood prior to providing a solution. Projects located in established priority development zones or near freight-related land uses should be prioritized.

Abandoned railway rights-of-way should receive the same evaluation; if freight land uses are along the corridor, serious consideration should be given to preservation for future freight use. In corridors with little freight prospects, the right-of-way should be prioritized for potential reuse, either for recreation or alternative transportation.

Public Awareness/Advocacy

Develop a public awareness campaign to build support for freight infrastructure investments. This campaign would educate the public on the importance of the freight industry and its economic benefits through various media outlets. Educate decision-makers and elected officials on freight-related policy issues (especially funding). Develop policy packages for elected officials that represent the needs of the freight industry. Any changes in transportation policy should focus on maximizing freight throughput while balancing the needs for residents.

Workforce Development

Support programs to increase the number of qualified workers in the region will help attract and expand businesses. A talented workforce in a myriad of industries is attractive to existing and

potential regional businesses. Educational programs that create portable skills and increase the pipeline of trained workers help the region in supplying that workforce.

Economic Development/Business Competitiveness

Freight projects should be viewed as a tool for economic development as they provide businesses with a competitive edge by reducing the cost of transportation. Improving connectivity from Indiana to other markets only increases the efficiency of freight movement. Investment in brownfield sites in areas with ample roadway capacity is one potential strategy; as long as the sites align with freight industry trends.

Freight Funding Availability

Transportation agencies must improve their ability to identify opportunities, gather funding from non-traditional sources, and build flexibility within their internal processes to address unplanned economic development opportunities. Funding must be maintained and improved. According to stakeholders, rail requires a larger share of funding in order to reach full potential, and dedicated funds for aviation and waterway infrastructure should be created. Enhancing organizational capabilities will be necessary to manage a fully integrated transportation system.

Improve/Establish Multimodal and Intermodal Facilities

Emphasis should be placed on developing intermodal container yards and multimodal facilities, including infrastructure supporting air freight. Investments in multimodal and intermodal infrastructure could prove to be more effective, and cost efficient, at alleviating bottlenecks than widespread roadway capacity expansion.

Comprehensive, Integrated, Connected, and Sustainable Transportation Infrastructure

Freight infrastructure projects should be consistent with the Indianapolis MPO's Complete Streets Policy, accommodating all users. Local and state agencies should work with local businesses to understand a balance between complete streets and freight needs. The mobility of the workforce should also be a consideration. Developers and local public agencies should work together to provide freight facilities accessible via a multitude of transportation modes – or strive to provide transportation for workers unable to access an automobile.

2.2 Freight System Vision and Goals

Using the commonalities and Steering Committee input, committee members approved a vision for the Regional Freight System, supported by goals that will help Indianapolis MPO meet the future needs of the complete transportation system. To help accomplish each goal, corresponding performance measures were created with the intention of incorporating these into the next major LRTP update.

2.2.1 Development of the Freight Plan Vision

A vision communicates the future in clear and definitive language. The purpose of a vision is to align an organization's internal and external expectations, plans, and actions. Typically, visions describe the "what" and "why" for an organization.

After extensive discussion of the literature review’s conclusions and regional needs, the project steering committee defined a vision for the Regional Freight System to:

*Support economic growth and competitiveness throughout the region,
while reducing the environmental and community impacts of freight.*

The vision simply and clearly states that the Regional Freight Plan should be focused on developing freight-focused infrastructure programs and initiatives, while doing so in a manner to improve the quality-of-life of the region’s residents.

2.2.2 Development of Freight Plan Goals

The steering committee developed four goals to support the overall vision. Each goal supports the existing Indianapolis MPO LRTP goals and future direction of the 2016 LRTP Update. As with the vision, the goals were developed to build upon previous work. Each of the three LRTP goals form the basis for categorizing the key commonalities identified during the review of past plans. These themes and their corresponding commonalities from past plans are presented in **Table 2-1**.

Table 2-1
Key Commonalities of Past Plans within LRTP Goals

Preserve, Safety, Utilize	Mobility Access	Regional Values
Efficiency/Effectiveness	Sustainable/Livable	Comprehensive
Funding/Resources	Integrated/Connected	Regional Competitiveness
Mobility	Rail/Intermodal	Repurpose Brownfields
Bottlenecks	Water	Environmental
Congestion/Delay	Air Cargo	Responsiveness to Business
Safety	Multimodal	Balanced Playing Field
Performance		Policy Involvement
Connectivity		

Source: CDM Smith

As a national freight center, the goals were also developed to help support the freight goals established in MAP-21 and INDOT’s Freight and Mobility Plan.

National Freight Policy Goals

Moving Ahead for Progress in the 21st Century Act (MAP-21) created a performance based surface transportation program. The law outlines seven freight goals that the states and the federal government should strive to achieve:

- Improve economic efficiency, productivity, and competitiveness
- Reduce congestion
- Improve safety security, and resiliency
- Improve state of good repair
- Using advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system
- Reducing adverse environmental and community impacts

INDOT Multimodal Freight & Mobility Plan Goals

INDOT's Multimodal Freight & Mobility Plan uses a data-driven approach in support of identification, prioritization, and financing of truck highway and intermodal freight projects. The plan was designed to meet federal freight criteria and goals, and to integrate existing state and modal plans into one state freight plan. The plan's goals for the Indiana Freight System are as follows:

- Reduce bottlenecks
- Global access for Indiana cities (Interstates)
- Port connectivity and improvement of waterborne freight
- Accelerated project delivery
- Support multimodal transportation networks (especially intermodal and air cargo)

2.2.3 Recommended Goals

On June 17, 2015, the preliminary goals were presented to Indianapolis MPO IRTC for concurrence. The board discussed each goal and made thoughtful revisions that reflect their intended strategic direction for the organization and the region. Following this workshop the final goals were established as described below.

Goal: Reduce Congestion and Improve Reliability of the Regional Freight System

The first goal focuses on enhancing the region's transportation infrastructure in ways that improve the efficiency and reliability of the freight system. In certain areas, transportation network capacity has not kept pace with growth in freight demand. The resulting congestion extends travel times and creates less predictable arrival times for both passengers and freight shippers. Several root causes for transportation system congestion are physical bottlenecks, traffic volume fluctuations, traffic incidents, weather, special events, work zones, and traffic control devices. As demand grows into the future, system reliability is projected to worsen if no improvements are made.

Goal: Improve the Safety and Resiliency of the Regional Freight System

Safe travel conditions are vital to the region's health, quality of life, and economic prosperity. Each year, traffic crashes cause millions of dollars of losses in terms of property damage, productivity, wasted time, and wasted fuel due to congestion. This goal aims to improve the safety and resiliency of the Regional Freight System by implementing transportation improvements that reduce fatalities and serious injuries, and subsequently crash related traffic congestion. Transportation systems are also increasingly vulnerable to disruption by disasters and extreme weather events. Building resiliency into freight infrastructure where it is less vulnerable to such events and more capable of bouncing back is crucial to the long term success of the system.

Goal: Capitalize on the Existing Infrastructure of the Regional Freight System

The Indianapolis region spent decades building its current transportation infrastructure to support its growth. As new areas have opened for development, localities with limited financial resources have prioritized constructing access to new areas for growth. The stagnation of financial resources for roadway repair forces tough decisions on localities between opening new areas for development and preserving existing infrastructure. With limited financial resources,

the funneling of dollars into added capacity has created a maintenance backlog. In Indiana, the maintenance backlog and financial constraints were aggravated by property tax caps that limit revenues available for any local services, including road improvements. Facing the decision between delaying maintenance and opening new areas for development, many localities continue to delay maintenance. Maintaining existing roadways to good repair provides a better return on the dollar; instead of replacing an entire roadway, the roadway can receive minor, less-expensive maintenance attention. State and local governments should determine their annual maintenance needs and set funding to match those needs. The construction of new facilities should not occur at the expense of maintaining existing facilities. In a period of increasing funding constraints, increased right-of-way and construction costs, and opposition from local and national groups, the “fix-it-first” strategy helps to get more out of the current infrastructure.

Goal: Provide an Interconnected, Multimodal Regional Transportation System

A system established to move goods only is incomplete. The regional transportation system should provide residents with choices about their commuting option, particularly to and from work and vital services. Economic development initiatives that create jobs or increase the potential for job growth are less effective if the workforce does not have sufficient mobility to access said jobs. The region’s economic competitiveness is facilitated by an interconnected transportation system to ensure that transportation facilities and services are coordinated with land development patterns and community needs to ensure that all citizens can easily reach important destinations. By providing alternatives, the system is better able to accommodate demands on it and provide more cost effective alternatives to its users.

2.2.4 Alignment of Goals

Table 2-2 is a matrix that compares the recommended goals of this Freight Plan with those of the MAP-21 Freight Policy, INDOT’s Multimodal Freight & Mobility Plan, Indianapolis MPO LRTP, as well as other past relevant plans reviewed as part of the review of past plans.

2.3 Freight Performance Measures

Performance measures are an effective implementation tool that can be used to focus attention and decision-making on the goals of the Regional Freight Plan. A simple and streamlined performance management program can improve communication with the general public, the private sector and elected officials. Performance measures can help communicate the performance of the planning and programming of the Indianapolis MPO. The measures will make Indianapolis MPO more flexible and responsive to the needs of its freight stakeholders and will assist in communicating about freight performance to external partners. Internally, performance measures can be integrated into Indianapolis MPO to provide three distinct functions:

- **Planning:** A tool used to evaluate proposed plan elements and scenarios to gauge their effectiveness in achieving the plan’s goals and objectives
- **Implementation:** A tool to emphasize agency goals and objectives within the policy development, budgeting, programming, and project selection processes. For example, the measures might assist decision makers in the project selection process by providing metrics about their potential effectiveness in meeting the plan’s goals and objectives

- **Accountability:** A tool to facilitate tracking and reporting towards Indianapolis' progress in achieving the plan's goals and objectives to support accountability for plan implementation and results

Table 2-2
Matrix of Goals

		Regional Freight Plan Goals			
		Reduce Congestion and Improve Reliability of the Regional Freight System	Improve the Safety and Resiliency of the Regional Freight System	Capitalize on the Existing Infrastructure of the Regional Freight System	Provide an Interconnected, Multimodal Regional Transportation System
Indianapolis MPO LRTP Goals	Preserve, Make Safe, and Improve Utilization of the Existing Transportation System		X	X	
	Enhance Regional Transportation Mobility and Accessibility	X	X	X	X
	Coordinate Transportation System Improvements to be Consistent with Regional Values.	X	X	X	X
INDOT	Reduce bottlenecks	X	X		
	Global access for Indiana cities (Interstates)	X		X	X
	Port connectivity and improvement of waterborne freight	X			X
	Accelerated project delivery	X	X		X
	Support multimodal transportation networks (especially intermodal and air cargo)				X
MAP-21 Freight Goals	Improve economic efficiency, productivity, and competitiveness	X	X	X	X
	Reduce congestion	X			
	Improve safety security, and resiliency		X		
	Improve state of good repair			X	
	Using advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system			X	X
	Reducing adverse environmental and community impacts		X	X	X

Source: CDM Smith

The establishment of freight performance measures by Indianapolis MPO will provide a link from the agency policies, programs, plans, and projects back to the goals and objectives of MAP-21, INDOT's Freight Mobility Plan, and the LRTP. The measures will allow Indianapolis MPO to actively track the performance of their freight network, helping the Indianapolis MPO identify freight specific trends and challenges. The measures will be tailored to the Indianapolis region to derive maximum usefulness. The criteria for developing performance measures include:

- **Data availability** – the data and analysis tools needed for the measure should be readily available or easy to obtain. The data should be reliable, accurate, and timely.
- **Strategic alignment** – the measures should align well with the goals and objectives of the Indianapolis MPO LRTP
- **Understandable and explainable** – the measures should be easy to understand and useful when communicating to external partners
- **Causality** – the measures should focus on the items under Indianapolis MPO and its transportation partner's control
- **Decision-making value** – The measures should provide predictive, diagnostic and reporting value to agency decision makers

Performance measures are a tool to achieve the plan, not a grade. They must be applied to something within Indianapolis MPO's control – otherwise the performance measure has no value and only presents risk of the MPO being held accountable for results they cannot influence.

Creating valuable performance measures can be complex but they must be SMART: Specific, Measurable, Achievable, Relevant, and Time-bound¹. They are only valuable if they can be reproduced and sustained over a sufficient period of time to make trends and effects of changes to the system apparent. They need to be tested, refined, and regularly reviewed for relevancy. Like the freight system itself, performance measures cannot be static.

2.3.1 Recommended Performance Measures

Using these criteria, the steering committee selected nine potential freight performance measures. In addition to the performance measures, several indicators are listed. While these indicators are outside of the span-of-control of Indianapolis MPO, they are important data points to monitor the status of the freight system. These measures and their associated indicators are outlined for each goal in **Table 2-3** through **Table 2-6**.

Goal: Reduce Congestion and Improve Reliability of the Regional Freight System

This goal focuses on reducing congestion and improving reliability of the regional freight system (Table 2-3). Improved mobility and reliable travel times on Indianapolis' transportation system are vital to the region's economic competitiveness and quality of life. The performance measures for Goal 1 cover level-of-service (VHD), which is a measure of vehicle flow through a corridor, and reliability index, which measures additional time needed to travel due to system variation.

Table 2-3
Goal: Reduce Congestion and Improve Reliability of the Regional Freight System

Number	Measure/Indicator	Description	Source
PM 1A	Level of Service	The Level of Service (VHD) on the Regional Freight System. VHD is a measure of vehicle flow through a corridor.	From the Indianapolis MPO model
PM 1B	Reliability Index	Measures additional time needed to travel, due to system variations.	INDOT (FHWA Truck Probe Data; INRIX data - or the same)

Source: CDM Smith

Goal: Improve the Safety and Resiliency of the Regional Freight System

Improving the safety and resiliency of the Regional Freight System is the main focus of this goal (Table 2-4). Safe travel conditions are vital to the region's health, quality of life, and economic prosperity. Even though the goal of increasing safety can be achieved, crashes will inevitably occur. The ability of the system to return to pre-crash conditions is a good measure of overall system performance. To further gauge progress towards system safety and resiliency, performance indicators such as incident clearance rate and railroad incident rate are employed. These indicators measure the rate at which incidents are cleared on the network and the rate of any incidents at rail crossings that may slow train movement.

Table 2-4
Goal: Improve the Safety and Resiliency of the Regional Freight System

Number	Measure/Indicator	Description	Source
PM 2A	Commercial Vehicle Crash Rate	Commercial vehicle crashes per commercial vehicles traveled on the regional freight network.	INDOT and the MPO
PM 2B	Pavement Rating	Pavement rating on the regional freight network.	INDOT and the MPO
PM 2C	Weight Restricted Bridges	Number of weight restricted bridges on the network.	MPO/County Engineers
Indicators	Incident Clearance Rate	The rate at which incidents are cleared on the network.	INDOT
	Railroad Incident Rate	Incidents at crossings.	INDOT/Railroads

Source: CDM Smith

Goal: Capitalize on the Existing Infrastructure of the Regional Freight System

This goal focuses on maintaining the region's transportation infrastructure in a good state of repair in order to preserve past investments but also promote public sector fiscal health in a period of limited funding (Table 2-5). The performance measure used to gauge progress towards this goal is a comparison of annual investment in existing facilities versus the annual investment in new facilities, through projects contained in the TIP. An example of this measure is the annual investment in resurfacing of existing roads versus the annual investment in new roads and expansion projects.

Table 2-5
Goal: Capitalize on the Existing Infrastructure of the Regional Freight System

Number	Measure/Indicator	Description	Source
PM 3A	Annual Investment in Existing vs. New Facilities	The annual investment in existing facilities (e.g. resurfacing) versus new facilities (e.g. new roads, expansion projects) on the regional freight network	MPO, specifically the TIP.

Source: CDM Smith

Goal: Provide an Interconnected, Multimodal Regional Transportation System that Supports Not Only Goods Movement, but also Access to Jobs

Several performance measures have been established to aid in achieving this goal (Table 2-6). The first measure, LOS on intermodal connectors on other linkages, focuses on congestion on the last-mile connections that are often freight bottlenecks. The second performance measure gauges the availability of transit to freight clusters, which is calculated by overlapping transit routes over freight clusters. The third measure looks at transit access to freight clusters by Indianapolis MPO Environmental Justice areas. These areas are defined by the Indianapolis MPO based on criteria including: poverty levels, aging populations, English as a second language, disabled and minority populations.

The last two measures look specifically at how well the region is doing at addressing the workforce issue identified by freight stakeholders and inversely the ability of the region to access growing freight employment.

In addition to the performance measures, Goal 4 employs several indicators to further track progress towards achieving its objective. To monitor growth in freight jobs, the first performance indicator assesses the number of freight related jobs within a standard deviation of the median regional per capita income. The second indicator addresses rail by tracking the number of intermodal connector lifts at intermodal sites across central Indiana. Despite its small volumes relative to other freight modes, air cargo supports several critical elements of the regional economy. Therefore, the third performance indicator monitors air cargo tonnages trends. Lastly, to address the accessibility to freight-related jobs, the fourth performance indicator gauges the level of transit ridership within one-half mile of a freight cluster.

2.3.2 Implementation

Implementation of these measures will ensure freight will be integrated in this overarching policy document for the MPO. Integration of some or all of these performance measures in the next LRTP update will encourage projects that support freight during the project/program selection process, in the LRTP, TIP and UPWP.

Table 2-6

Goal 4: Provide an Interconnected, Multimodal Regional Transportation System that supports not only goods movement, but also access to Jobs

Number	Measure/Indicator	Description	Source
PM 4A	LOS on intermodal connectors and other key linkages	Level of Service (VHD) on intermodal connectors and roadways that are identified in the plan as key linkages.	INDOT, MPO
PM 4B	Transit availability to freight clusters	The availability of transit to freight clusters. Calculated by the number of overlapping transit routes over freight clusters.	Transit routes; Freight clusters
PM 4C	Transit access to freight clusters by Indianapolis MPO Environmental Justice (EJ) areas	The number of transit routes that link freight clusters to EJ areas.	MPO Model
Indicators	Transit ridership in freight clusters	The level of transit ridership within 1/2 mile of a freight cluster, using available data from IndyGo	MPO, IndyGo
	Intermodal Container Lifts	The number of intermodal container lifts at intermodal sites across central Indiana.	Railroads
	Air Cargo Activity	Volume of air cargo in tonnages in the MPA.	IAA/FAA
	Freight related jobs within a standard deviation of the median regional per capita income	Jobs with a NAICS code identified as transportation-related compared to the regional per capita income.	Bureau of Labor Statistics/Census

Source: CDM Smith

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Chapter 3

Corridors and Clusters

3.1 Indianapolis Regional Freight System

The federal transportation reauthorization legislation, *Moving Ahead for Progress in the 21st Century Act* (MAP-21) directs the U.S. Department of Transportation (USDOT) to establish a national freight network to assist states in strategically guiding resources toward improved system performance for freight movement on the highways of the nation's freight transportation system. In response to MAP-21, the Regional Freight Plan proposes the Indianapolis Regional Freight System of highways, railroads, and air cargo facilities. These transportation facilities are essential to support the efficient movement of freight in the Indianapolis metropolitan region.

The Indianapolis Regional Freight System is important and will be used in a number of ways:

- Assist Indiana Department of Transportation (INDOT) with identifying the critical urban freight corridors in the Indianapolis region for the statewide freight network.
- Inform Indianapolis MPO, local governments, and INDOT of what corridors need particular attention to support efficient and safe goods movement.
- Support the Indianapolis MPO, local governments, and INDOT in making decisions regarding recommendations from transportation projects to policy and operational changes that can impact regional freight mobility.
- Help identify recommendations identified in the Indianapolis Regional Freight Plan and beyond.

3.1.1 Freight Data Analysis

In any analysis, data is instrumental. Freight specific data was collected in order to inventory and develop the regional freight system. The data used was from existing sources and is shown in the **Table 3-1**.

Along with the above data, a two-step process was used to determine the regional freight network. The first step was to develop considerations/criteria that would be used to identify freight corridors. The second step was to classify the freight corridors into network tiers (levels).

Table 3-1
Freight Data

Name of Data	Source
National Highway Primary Freight Network	USDOT Federal Highway Administration
National Highway System	Indianapolis MPO
Strategic Highway Network	USDOT Bureau of Transportation Statistics National Highway Planning Network
Indiana Commerce Corridors	INDOT 2030 Long Range Transportation Plan
Daily Truck Volumes	INDOT 2015
Functional Classification System	INDOT 2015
Indiana Railroad System	Esri USA Railroad via Federal Railroad Administration and Bureau of Transportation Statistics
All-Cargo Airports by Landed Weight	USDOT Federal Aviation Administration Air Carrier Activity Information System
Airports in the Indianapolis Metropolitan Area	Indianapolis Airport Authority
Intermodal Connectors	USDOT Bureau of Transportation Statistics Intermodal Connectors and Indianapolis MPO
Industrial Buildings over 50,000 Square Feet	CoStar

3.1.2 Corridor Identification Considerations/Criteria

Available information and GIS analysis was used to develop criteria for identifying freight corridors. The development of the criteria considered the following questions:

- Is this corridor responsible for movement of significant numbers of goods through or within the boundaries of the Indianapolis metropolitan region?
- Does the corridor play a significant role in the economy and overall quality of life of the Indianapolis metropolitan region?
- Does the corridor provide access to important intermodal facilities, or freight, retail or visitor destinations?

Based on these questions, the following considerations/criteria were used to identify corridors.

- National Highway Primary Freight Network
- National Highway System (NHS)
- Strategic Highway Network (STRAHNET)
- Indiana Commerce Corridors
- Daily Truck Volumes
- Functional Classification
- Railroads
- Airports
- Connections to Intermodal Facilities
- Connections to Industry Clusters

Following the establishment of considerations/criteria the corridors were identified and mapped. While some of the corridors overlap in areas, the predominant orientation (north-south or east-

west) of corridor infrastructure made identification of facilities straightforward and generally prevented “double-counting” by detailing infrastructure in more than one corridor. These criteria provided a basis for the identification of freight specific corridors.

3.1.3 Tiered Corridors Defined

A tiered approach was used to classify the freight specific corridors for highway and freight rail modes within the Indianapolis Regional Freight System. This approach was also used to classify air cargo airports. Below are the tiers for highways, freight rail, and airports.

Highways

Tier 1 – Primary Freight Network

The Federal Highway Administration (FHWA) was tasked by MAP-21 to define a National Primary Freight Network (PFN) to include not more than 27,000 centerline miles of existing roadways that are most critical to the movement of freight. Federal legislation also allowed an additional 3,000 centerline miles critical to the future efficient movement of goods on the PFN. The resulting highway network was the major criteria for the proposed Tier 1 corridors.

FHWA identified nearly 800 miles of roadways in Indiana to include in the PFN. The factors considered by FHWA for defining the network include:

- Origins and destinations of freight movement in the U.S.
- Total freight tonnage and value of freight moved by highways
- Percentage of annual average daily truck traffic in the annual average daily traffic on principal arterials
- Annual average daily truck traffic on principal arterials
- Land and maritime ports of entry
- Access to energy exploration, development, installation, or production areas
- Population centers
- Network connectivity

Figure 3-1 illustrates the Tier 1 corridors in the Indianapolis metropolitan region. This tier mostly encompasses the Interstates, which carry freight at higher volumes and typically over longer distances, and consists of over 540 miles of roadways.

Tier 2 – Remainder of Interstates and Commerce Corridors

There were two criteria for Tier 2 corridors. The first criterion was the remainder of the Interstate highway system which was not identified within the PFN. The second criterion was the commerce corridors established by INDOT not identified by the preceding criteria and not part of Tier 1 corridors.

Commerce corridors were established by INDOT at the direction of the Indiana General Assembly. These corridors were defined as a part of recognized system of highways that: (1) directly facilitates intrastate, interstate, or international commerce and travel, (2) enhances economic vitality and international competitiveness, or (3) provides service to all part of Indiana and the U.S.

Figure 3-2 illustrates the Tier 2 corridors in the Indianapolis metropolitan region. This tier consists of sections of I-74, US 31 and SR 37, which carry freight at higher volumes and typically over longer distances. Tier 2 represents over 160 miles of roadways in the Indianapolis region.

Figure 3-1
Tier 1 - Primary Freight Network

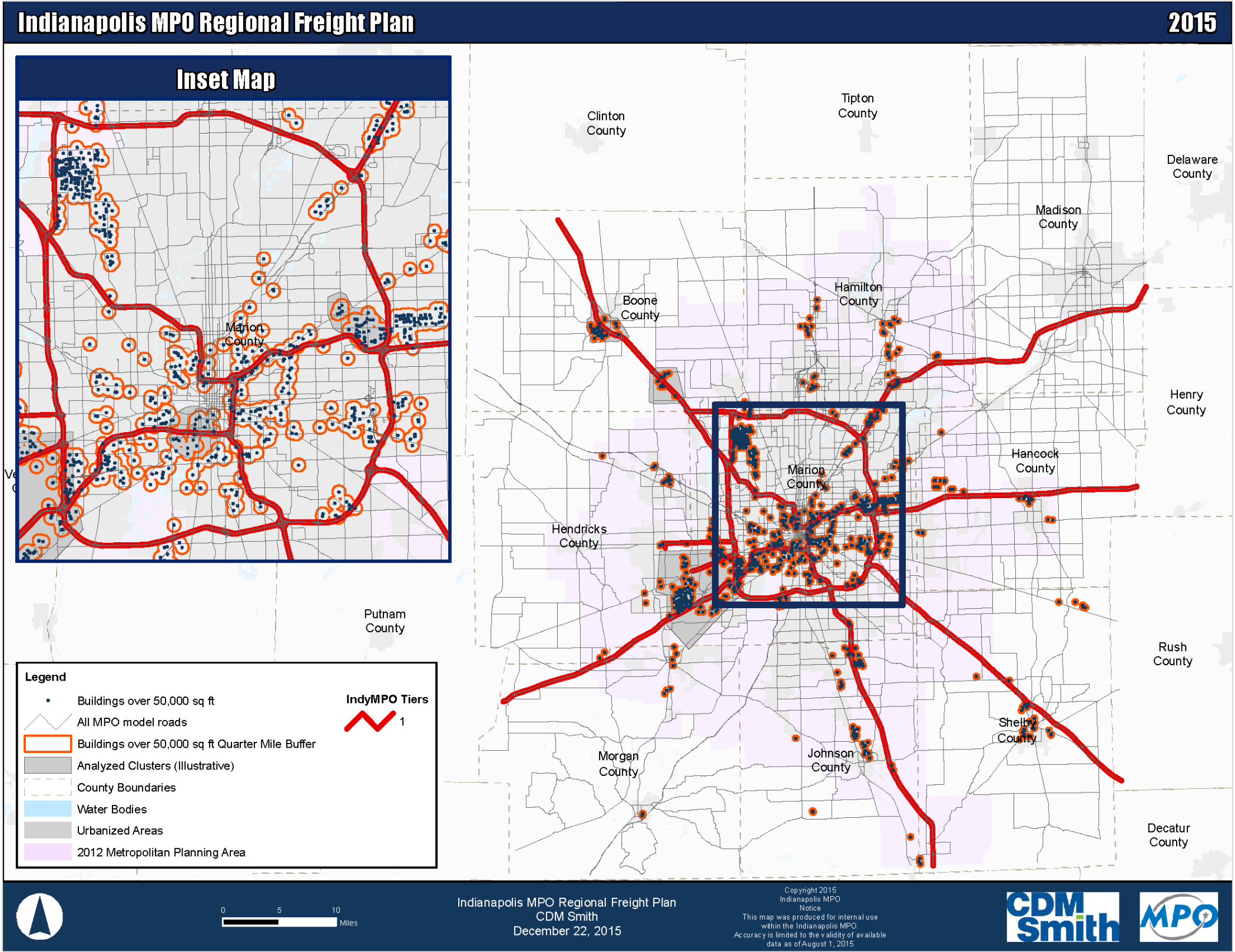
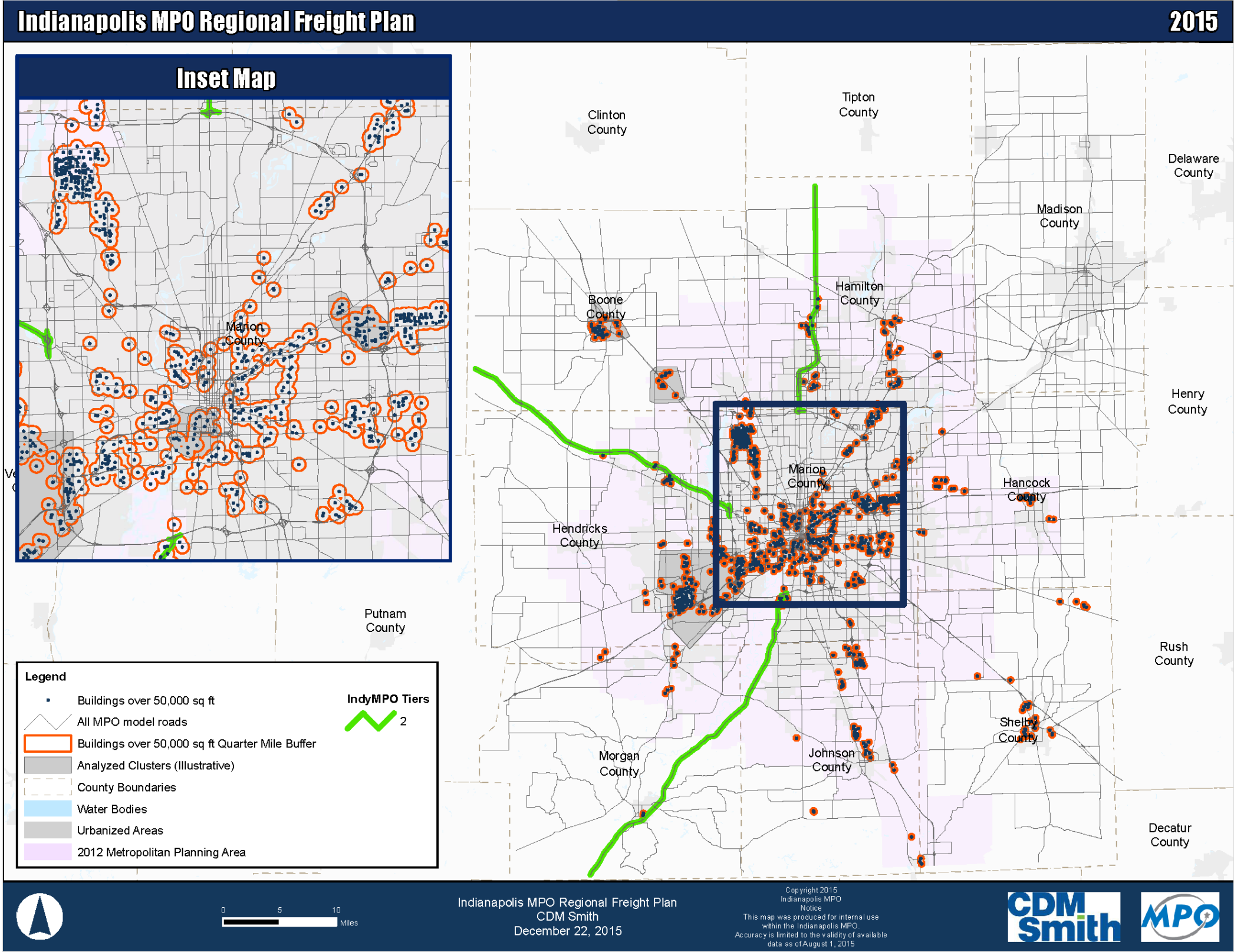


Figure 3-2
Tier 2 – Remainder of Interstates and Commerce Corridors



Tier 3 – Regional Freight Corridors

Tier 3 mainly used two criteria to determine regional freight corridors. These criterion included roadways with a functional classification as freeway, principal arterial, minor highway, or major collector, not represented by Tier 1 or Tier 2, with a daily truck volume over 1,000. Tier 3 corridor also consisted of sections of roadways with a daily truck volume less than 1,000 for regional connectivity purposes.

Figure 3-3 illustrates the Tier 3 corridors in the Indianapolis metropolitan region. This tier includes U.S. highways, State routes, parkways, and city streets/roads, which carry freight over shorter distances. Tier 3 includes over 670 miles of roadways in the region.

Tier 4 – Freight Connectors

Freight generators were the primary criterion used to determine Tier 4. This was comprised of roadways not included in Tier 1, Tier 2, or Tier 3 that connect to freight generators located in the Indianapolis metropolitan region. Freight generators are often located in industrial and commercial areas. In this case, it was an area with usually more than one industrial building over 50,000 square feet.

In addition, the intermodal connectors designated by FHWA and/or the Indianapolis MPO were included in Tier 4 if they were not part of Tier 1, Tier 2, or Tier 3. Intermodal connectors are public roads leading to major intermodal freight facilities. These connectors are key conduits for the timely and reliable delivery of goods.

Figure 3-4 illustrates the Tier 4 connectors in the Indianapolis metropolitan region that connect urban areas necessary for the movement of freight in urban settings. Tier 4 represents over 250 miles of roadway in the region.

Railroads

Tier 1 – Class I Railroads

Tier 1 was determined by the single criterion of Class I railroads that own or operate tracks in the Indianapolis metropolitan region. In the U.S., the Surface Transportation Board defines a class of railroad based on revenue thresholds adjusted for inflation. For the most recent year of classification (2013), a Class I railroad is defined as a carrier having operating revenues of \$467.0 million or more. **Figure 3-5** shows the two Tier 1 railroads (CSX and Norfolk Southern) in the Indianapolis metropolitan region.

Tier 2 – Class III Railroads

Tier 2 was determined by the criterion of Class III railroads (short line/regional) that own or operate tracks in the Indianapolis metropolitan region. A Class III railroad is a carrier with yearly operating revenues under \$37.4 million. **Figure 3-5** also shows the Tier 2 railroads in the Indianapolis metropolitan region.

Airports

Tier 1 – Cargo Service Airports

Tier 1 was defined by the criterion of airports in the Indianapolis metropolitan region that are categorized as cargo service airports by the Federal Aviation Administration (FAA). Cargo service airports are airports that, in addition to any other air transportation services that may be available, are served by aircraft

providing air transportation of only cargo with a total annual landed weight of more than 100 million pounds. Landed weight means the weight of aircraft transporting only cargo in intrastate, interstate, and foreign air transportation. **Figure 3-6** shows the single Tier 1 airport in the Indianapolis metropolitan region.

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Figure 3-3
Tier 3 – Regional Freight Corridors

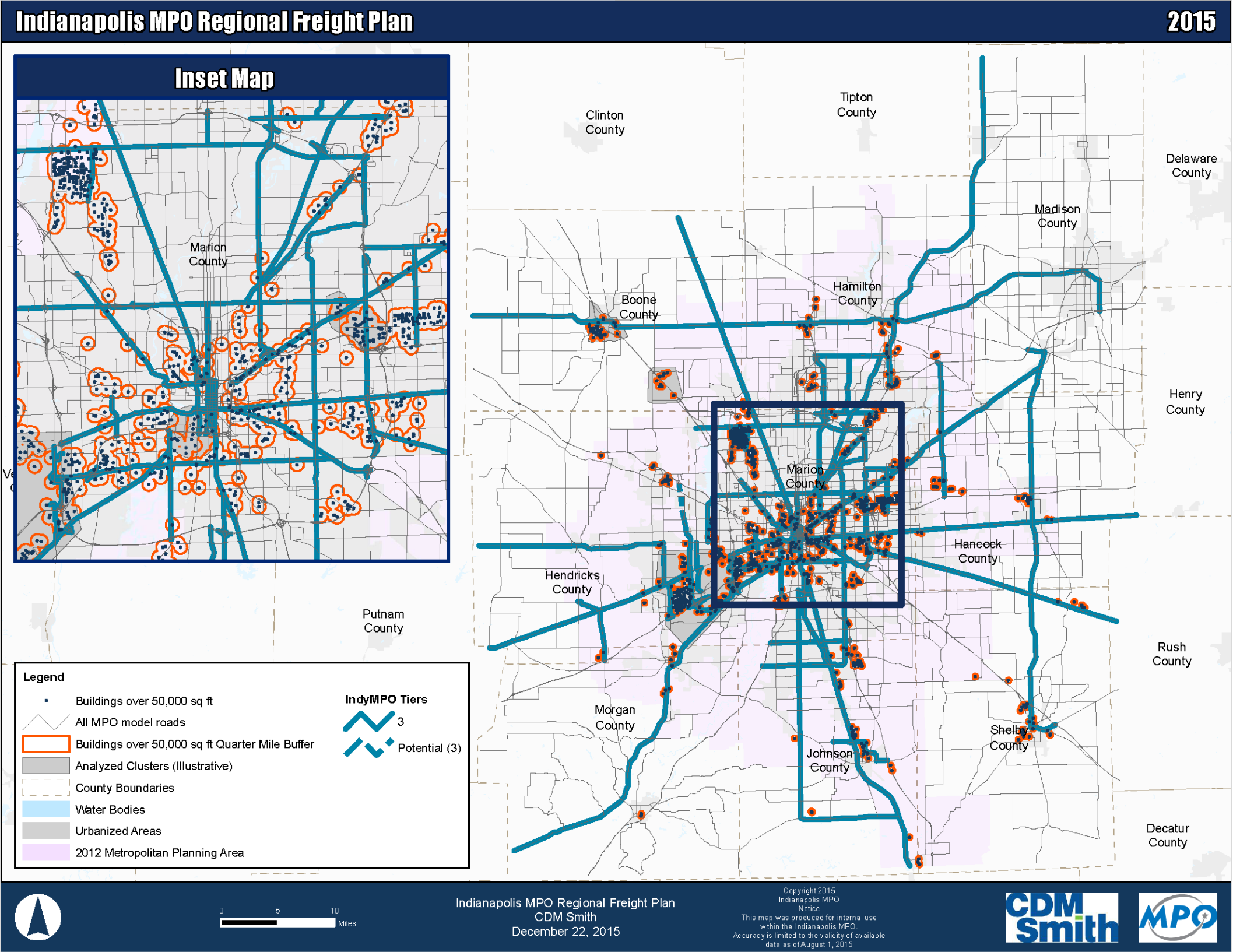


Figure 3-4
Tier 4 – Freight Connectors

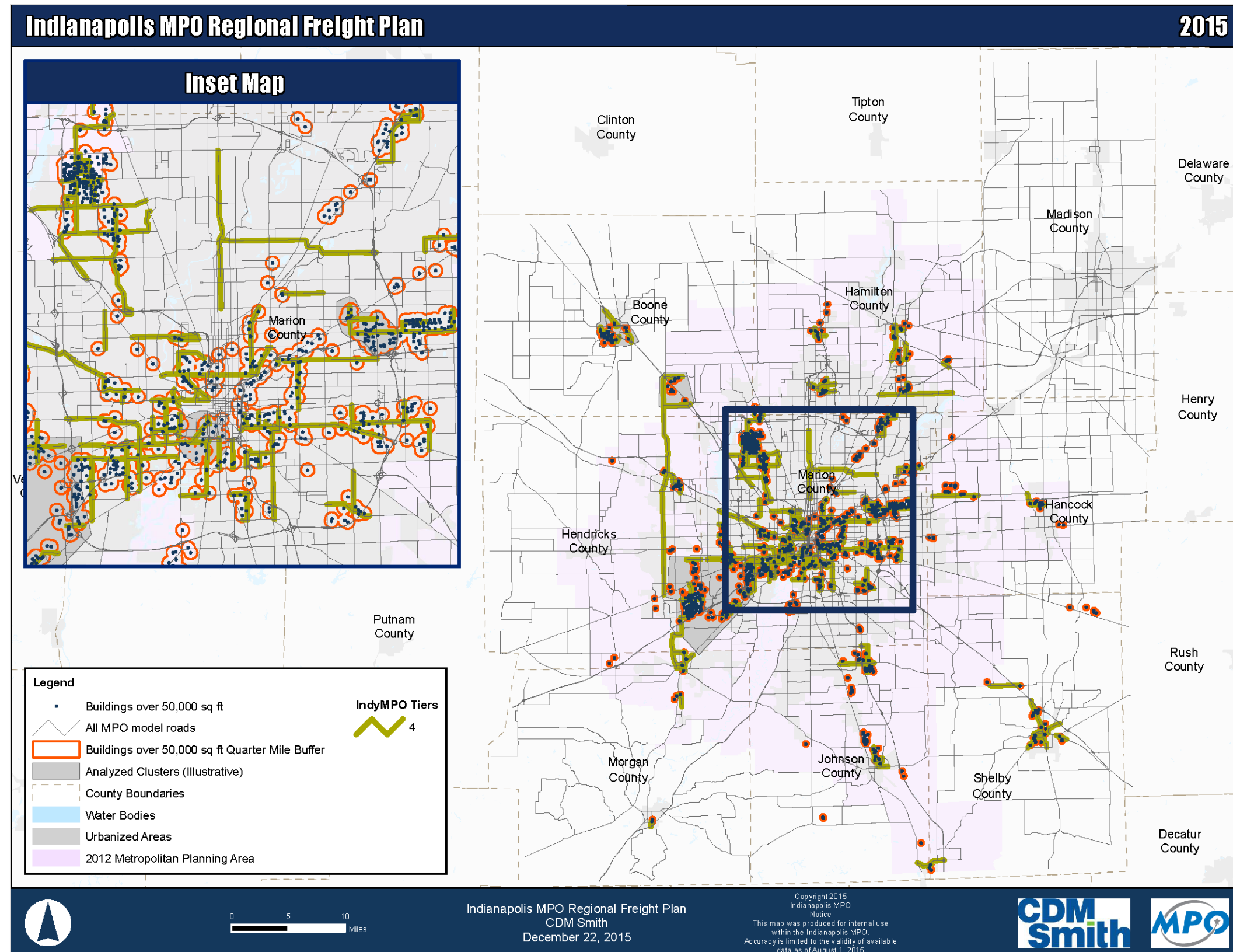


Figure 3-5
Rail Tiers

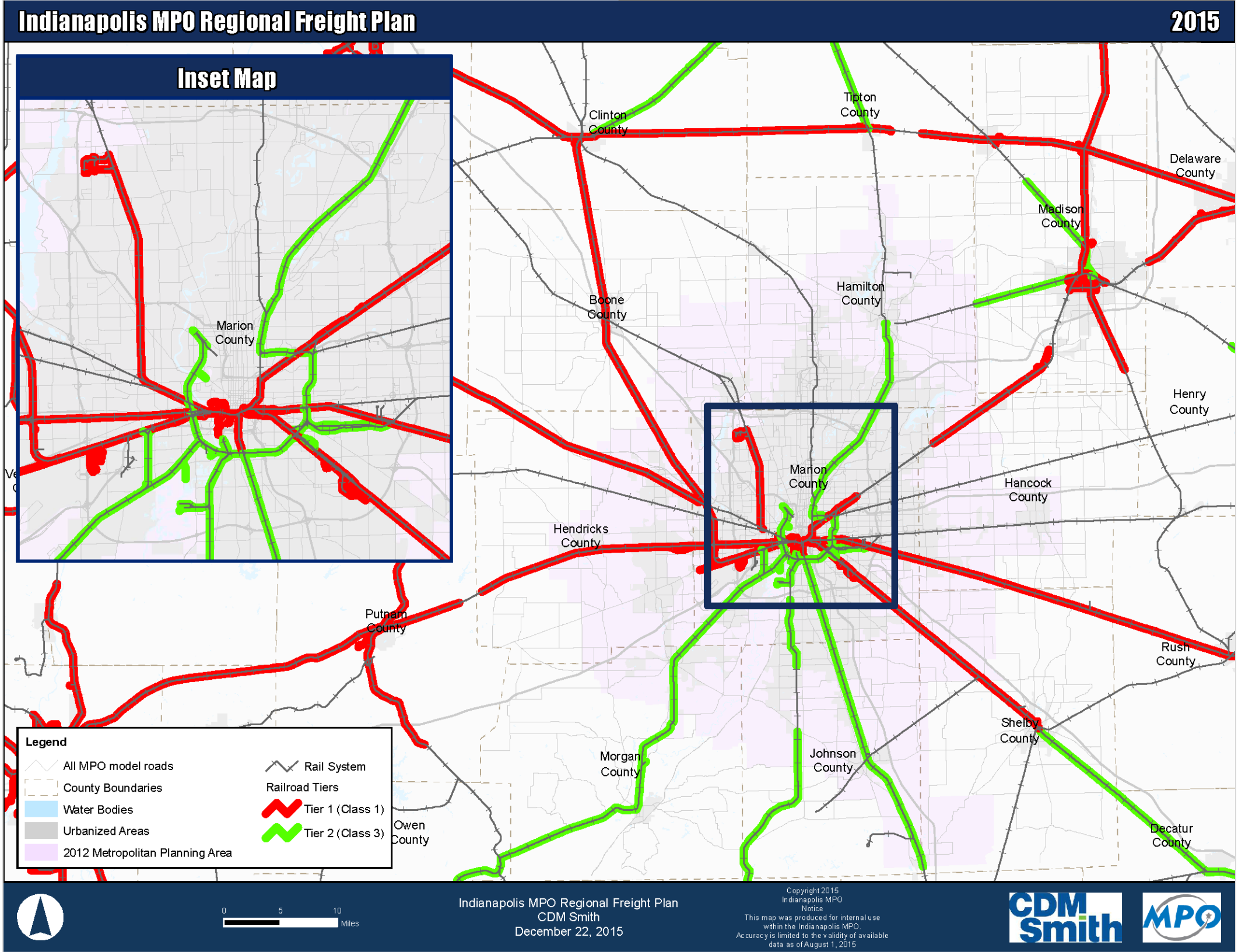
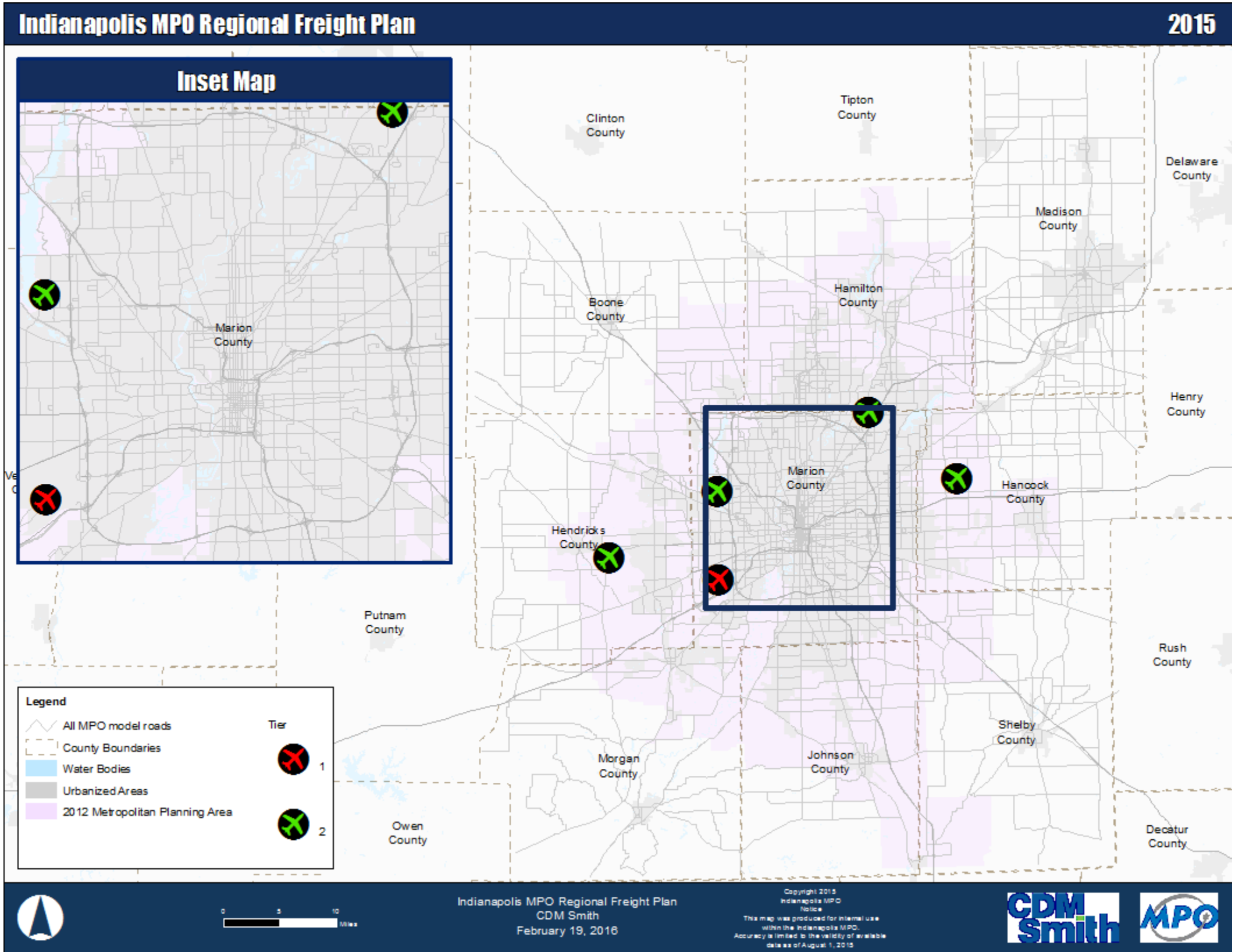


Figure 3-6
Airport Tiers



Tier 2 – Reliever Airports

Tier 2 was determined by the two criteria of airports owned, developed, and operated by the Indianapolis Airport Authority and categorized as a reliever airport by FAA. Reliever airports are airports that relieve congestion at commercial service airports and provide improved general aviation access to the overall community. These airports usually accommodate a smaller percentage of a region's air cargo service. Figure 3-6 also shows the four Tier 2 airports in the Indianapolis metropolitan region.

3.1.4 Freight Clusters

Freight clusters were identified using CoStar (data as of October, 2015). Many clusters were identified across the region. Each cluster is represented by an orange polygon on the network maps earlier in this chapter. However, the project team took a deeper dive with five clusters to look at how they interact with the freight network. Each cluster was selected by the project team and approved by the steering committee.

The Indianapolis Regional Freight Plan benefits from work completed in 2014 under the auspices of Indy FastTrack, a study which focused in part on the reuse of four former automotive assembly sites located across the City of Indianapolis. Indy FastTrack identified several core notions regarding freight movement that have continued to be a focus of concern locally:

- Central Indiana sits astride I-70, which is part of the shortest and least-tolled interstate route between Los Angeles, California and New York City, two of the largest deep water ports in the US, which attracts significant expedited truck traffic.
- The Indiana Railroad (INRR) intermodal partnership with Canadian National (CN) to move containers directly into Marion County. While INRR intermodal growth remains modest, CN intermodal lifts in Chicago have grown dramatically, from about 300,000 lifts in 2010 to 529,000 lifts in 2014. Ultimately, CN is a key element in the local conversation, in that they are the one North American Class III railroad which can directly serve Atlantic, Pacific, and Gulf Coast ports.
- Data from the Freight Analysis Framework (FAF) showed that, for 2011, Central Indiana was ranked as the 10th largest inland port in terms of origin-destination tonnage, with the financial resources of the 32nd largest metro area.
- In 2015, USDOT provided clear guidance for further growth in truck-borne freight volumes over the next 20 years, with growth in markets such as Indianapolis being particularly likely.

With these points in mind, the plan's approach focused on three steps:

1. Update information from the FastTrack study with regard to the key clusters of industrial and distribution space in the region. Location and attribute data regarding specific industrial buildings was mapped using CoStar (data as of October, 2015). Resulting clusters were mapped in ArcGIS for additional evaluation.

2. Correlate real estate concentrations with interstate truck count data from Indiana Department of Transportation to identify interchanges where the truck percentage of total average daily traffic (AADT) was in excess of 21%, which is generally when freight impacts the functionality of interchanges.
3. Evaluate specific industrial clusters to evaluate differences between reported 2012 truck counts and 2015 estimated truck trips, using Institute of Transportation Engineers Trip Generation Manual, 9th Edition.

The following map provides a regional view of the clusters and interchange truck percentages. The underlying hypotheses for this analysis are:

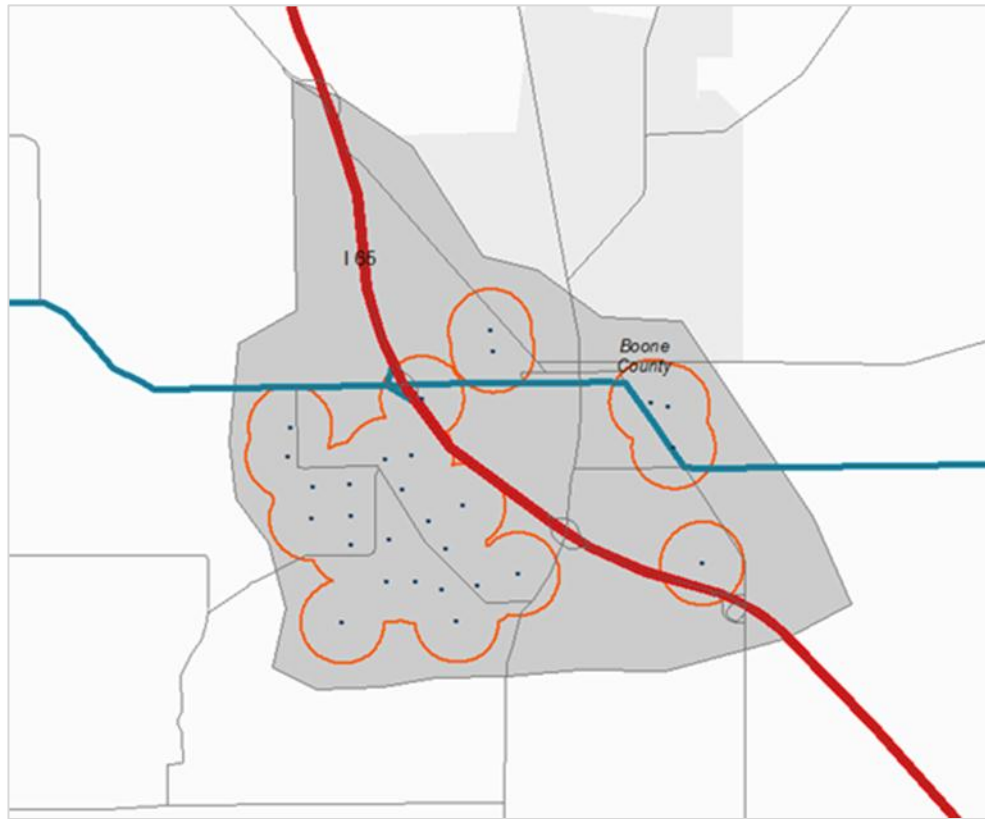
- The analysis is not looking comprehensively at a larger number of street intersections that support these industrial clusters; additional truck counts may be needed to understand how trucks are accessing these clusters once they exit from the interstate.
- Interchanges that are seeing annualized growth in industrial inventory or trucks at >3% annualized growth are a red flag, and require greater focus in future transportation planning efforts. In particular, the study suggests that specific growth in distribution centers with more than 500,000 square feet each is an important variable to pay attention to.
- That as the truck percentage for a given interchange or intersection approaches and exceeds 15% of total average daily traffic, that the interchange will start to see congestion, unless it has already been built to handle that degree of traffic. One example of an interchange that has been clearly sized to manage higher truck percentages is I-70 at Ameriplex.

3.1.5 Description of Five Clusters

Traditionally, truck counts have been used to inform the transportation planning process on growing freight challenges. However, the freight industry is rapidly changing and growing. A more responsive approach is to look at trip generation figures for the fastest growing and changing areas of the region.

I-65: Lebanon

This cluster includes a total of about 10 million SQFT of industrial space. (**Figure 3-7**) Of this industrial space, around 1.6 million sf of industrial space added between 2010 and 2014, representing an annual growth rate of 3.1%. Using the trip generation approach, the project team estimated growth from about 5,600 to 7,500 Heavy Trucks/day for this interchange over the same period, which would be a growth rate of 4.2%.

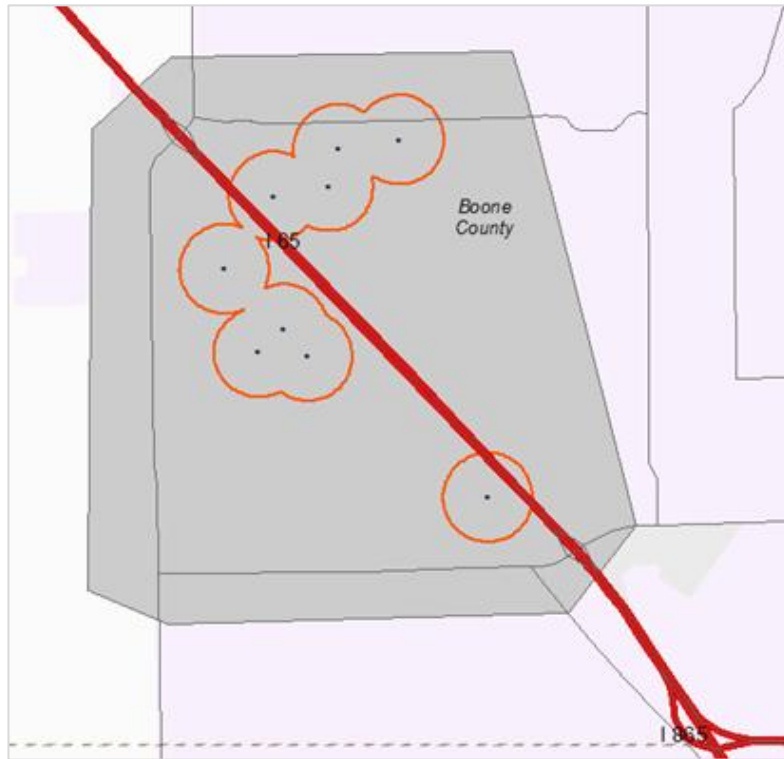
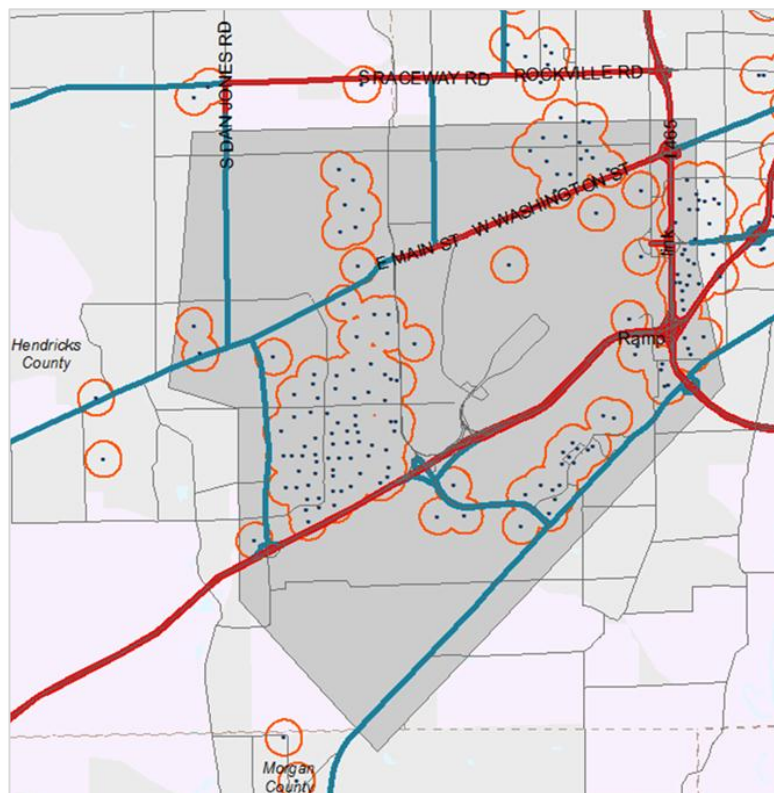
Figure 3-7: Lebanon Freight Cluster**I-65: Zionsville**

The Zionsville Cluster includes a total inventory of almost 4.3 million square feet (sqft), with almost 1 million sqft of industrial space added between 2010 and 2014, which is an annual growth rate of 4.2%. **(Figure 3-8)** Using the trip generation approach, the project team estimated a heavy truck count increase from roughly 2,300 to 2,992 Heavy Trucks / day, for an annualized growth rate of 4.3%. This growth rate would suggest that truck counts would double within 16 years, presuming that underlying land availability for industrial use could sustain this growth rate.

I-70: Ameriplex/Indianapolis International Airport

The Ameriplex area near Indianapolis International Airport is one of the single largest concentrations of industrial space in the region, with more than 31 million SQFT. (

Figure 3-9) Since 2009, this cluster has added about 5.1 million sf of industrial space, for an annual growth rate of about 3%. Using the trip generation approach, estimated truck counts at I-70 and Ameriplex would increase from roughly 19,300 to 23,300 Heavy trucks / day, representative of annualized growth of about 3.1%.

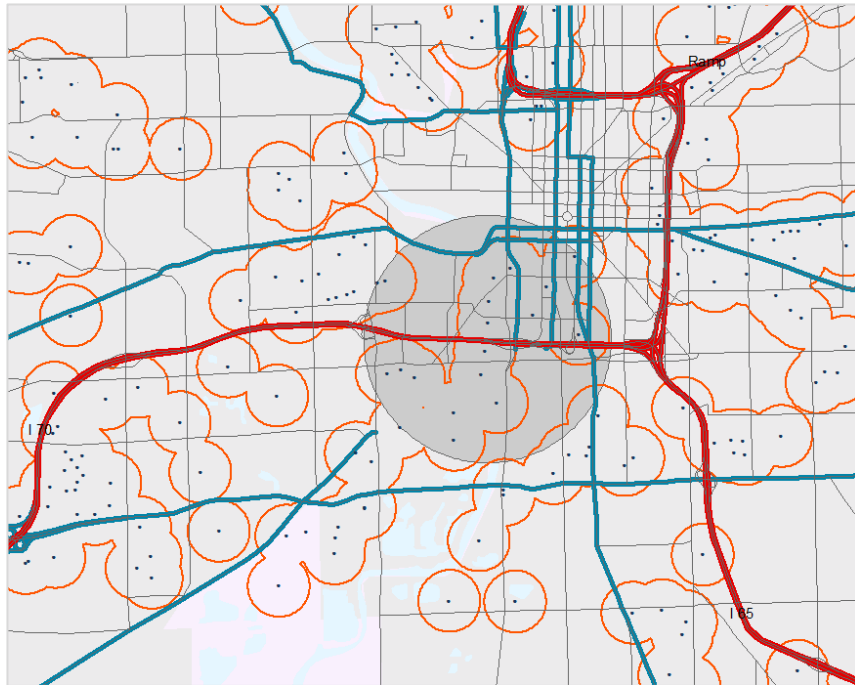
Figure 3-8: Zionsville Freight Cluster**Figure 3-9: Ameriplex/Indianapolis International Airport Freight Cluster**

I-70: Madison/Harding

The Madison and Harding interchanges with I-70 have seen significant changes in industrial activity in recent years. **(Figure 3-10)** The main challenge has been the closure of the General Motors Stamping plant, now slated for gradual reuse and redevelopment. Across the White River, former industrial land is redeveloping with the construction of Lucas Oil Stadium. Older industrial buildings are being demolished for surface parking, or for commercial development. The main driver of freight growth in this area is the INRR Senate Avenue intermodal ramp, which is now supporting a rough estimate of about 15,000 lifts per year, linked with the CN/INRR partnership. While clarity regarding intermodal growth at this location is limited, there is a sense that further growth in intermodal volumes at Senate Avenue would create pressure to relocate this facility.

The analysis indicated that since 2010 there has only been a modest increase in industrial inventory across this cluster, from about 11.9 million SQFT to about 12 million SQFT. The truck count analysis approach yielded a modest increase in average daily truck levels, from about 7,700 to about 7,800. For this area, one key factor will be the possibility of sustained truck volumes in context with broader growth in overall average daily traffic.

Figure 3-10: Madison/Harding Freight Cluster



I-70: Shadeland

While the cluster analysis only focused on the immediate vicinity of the Shadeland and I-70 interchange, the Shadeland corridor remains an important regional industrial area. **(Figure 3-11)** The closure of two large industrial assets has impacted traffic levels: Ford Assembly and the Navistar Foundry. At the same time, this corridor has also seen reuse of other industrial sites, which have been renovated and re-purposed for logistics use.

The cluster analysis identified an overall inventory of about 7.5 million SQFT near the interchange, with no appreciable change in industrial inventory since 2009. The truck count analysis approach estimated about 6,000 trucks per day; however, this factor only accounts for a portion of industrial development along the Shadeland Corridor that may access I-70 or I-465 as well.

Figure 3-11: Shadeland Freight Cluster



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Chapter 4

Competitive Matrix

Traditionally, MPO freight plans look at comparisons between the peer regions using employment, population, and other vital data (i.e., one day truck drive). The Indianapolis MPO created a more thorough goods movement competitiveness metric identifying a single product and comparing the transportation costs of the product from the Indianapolis MPO to their most common destinations with those of competing regions.

The Freight Competitiveness Metric was developed in conjunction with the Indianapolis MPO Regional Freight Plan to determine the cost to move a specific product from Indianapolis producers to market destinations and comparing this product's cost with competing regions. Specifically the metric estimates the cost of transporting Indianapolis soybeans to one of their most shipped-to destinations and the cost is then compared to the cost of shipping these same products from other nearby MPOs.

4.1 Selecting Commodities and Modes of Transport

In 2014, Indiana was among the top states in the production of soybeans.¹ The economic, and cultural, significance of soybeans was a primary factor in selecting soybeans as the commodity to analyze. Federal Highway Administration's Freight Analysis Framework (FAF) data indicated that agricultural products are mostly exported overseas. Like other Midwestern states with significant agricultural production, much of the Indiana's soybean crop is exported internationally through New Orleans.

4.2 Identifying Comparison Locations

Choosing comparison metropolitan regions for soybeans was uncomplicated, since detailed statistics on state level production are maintained and reported on every year by the National Agricultural Statistics Service (NASS)². The ten top-producing states were researched to ascertain which sent a significant portion of their soybean crop to New Orleans via barge. Choosing states by ranking alone without additional research would have resulted in unrealistic comparisons, since farmers in states like Nebraska, with no direct river access, would rarely ship by barge³. The selected metropolitan regions included: Columbus, OH; Peoria, IL; and St. Louis, MO.

¹ U.S. Department of Agriculture , 2015, Agricultural Weather Assessments, http://www.usda.gov/oce/weather/pubs/Other/MWCACP/Graphs/USA/US_Soybean.pdf

² National Agricultural Statistics Service, *2014 Soybean Production (bu), All States* <http://quickstats.nass.usda.gov/>

³ Soy Transportation Coalition, *Rail and Barge Loadings of Soybeans by State*. <http://www.soytransportation.org/KeyFindings/RailAndBargeLoadingsOfSoybeansByState.pdf>

4.3 Identifying Transport Routes

The national freight network maps helped the team identify the likeliest routes for transporting each commodity from its metropolitan region to its final export destination in New Orleans. Due to the prevalence of intermodal shipping, a single route may have different modes for different legs of the journey. For example, using a truck to transport soybeans from the farm to a river port, and then loading the soybeans onto a barge for its journey to a larger, ocean port. Slightly different methods were used to assess each mode.

Barge – Because of the characteristics of a river, barges are unable to deviate in the route towards the termination point. The primary question then was which port was likeliest to be used for a certain county's soybeans. The port choices were narrowed by distance, and then the candidate ports were researched to find out capacity and major commodities handled⁴. The port determined to be most suitable based on location and ability to process soybeans was selected as the origin port. From here, the route followed the river downstream to New Orleans.

Truck – For truck routes, it was assumed that the “most convenient” route possible would be used. Figure 4-1 In most cases, this meant the route with the shortest mileage according to Google Maps.⁵ These routes were compared to national freight maps⁶ to ensure the route used roads commonly traveled by trucks. If there was a more popular freight route with little difference in mileage, the more popular freight route was used.

4.4 Estimating Transportation Cost

The means to reach the estimated transportation cost varies with each mode, as the data availability for barges, trucking, and rail transport varies significantly. It is important to keep in mind that these are all *estimates* of transportation costs and are not *actual* costs that should be expected in the future.

Barge – Barge freight rates for grain are set in reference to a common and frequently reported baseline: the 1976 Tariff Benchmark Rate, the tariff in place until 1976 when the barge industry was deregulated. Although private shippers technically set their own rates, industry practice is to base rates on a percentage of this tariff. The percentage that dictates the current rates is affected by a number of market factors and is updated weekly by the Agricultural Marketing Service (AMS), a branch of the U.S. Department of Agriculture (USDA).

⁴ Iowa Department of Transportation, *River Barge Terminal Directory*. (April 2011)
http://www.iowadot.gov/pdf_files/river_barge_directory.pdf

⁵ Google Maps; www.google.com/maps

⁶ Federal Highway Administration, *Major Freight Corridors* [Map].
http://www.ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/mjrfreightcorridors.htm

The USDA reports weekly on the current market rates to ship one ton of grain via barge from a handful of origins to New Orleans⁷. Because barge rates are extremely volatile, an annual average of the weekly rates was used for calculating the performance measure. The origins for which rates are reported include the Illinois River, St. Louis, and Cincinnati. Since the majority of origins are not at these exact points, slight adjustments were made to the estimated rate based on the ratio of the cost to ship from the origin port and one of the ports in the rate data. This ratio was obtained using a private barge company's online shipping calculator.⁸ The cost of shipping a standard barge load from the actual origin port to New Orleans was compared to the cost to ship the same load from a port in the rate data to New Orleans. The ratio was then applied to the average rates being used in the analysis.

Truck – Cost estimates for trucking were applied on a per mile basis. Average per mile trucking costs came from a 2014 report by the American Transportation Research Institute (ATRI), *An Analysis of the Operational Costs of Trucking*⁹. The report outlines the following individual cost elements:

Variable	2013 Cost per Mile	Share of 2013 Cost
Wages & Benefits	\$.569	34%
Fuel & Oil	\$.645	39%
Equipment Lease Payments	\$.163	10%
Repair and Maintenance	\$.148	9%
Insurance Premiums	\$.064	4%
Permits & Licensing	\$.026	2%
Tires	\$.041	2%
Tolls	\$.019	1%

In an attempt to tailor the results of the metric to individual state circumstances, the labor and fuel costs were adjusted to be state-specific using state-level Bureau of Labor Statistics (BLS) data on truck driver wages¹⁰, and the American Automobile Association's (AAA) listing of diesel fuel prices by state¹¹. State-specific data for the other costs components is currently not easily obtained, but it is possible that in the future such data could become available.

⁷ Agricultural Marketing Service, *Average Weekly Mississippi River Barge Rates*.

<http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&navID=AgriculturalTransportation&leftNav=AgriculturalTransportation&page=ATBarge&description=Barge%20Rates%20and%20Movements>

⁸ Terral River Service Calculator <http://terralriverservice.com/barge-rate/calculator>

⁹ American Transportation Research Institute (ATRI), *An Analysis of the Operational Costs of Trucking*. <http://www.atri-online.org/wp-content/uploads/2014/09/ATRI-Operational-Costs-of-Trucking-2014-FINAL.pdf>

¹⁰ Bureau of Labor Statistics, *Occupational Employment and Wages, May 2014, Heavy and Tractor Trailer Truck Drivers* [Table 533032]. <http://www.bls.gov/oes/current/oesrscst.htm>

¹¹ American Automobile Association (AAA) *State Prices*; 6/24/2014; <http://fuelgaugereport.aaa.com/?redirectto=http://fuelgaugereport.opisnet.com/index.asp>

The state-specific adjustment was done by comparing each state's cost to the national average for the same time and data set, which would give a number like 98.8% or 102.3% of the average. This multiplier was then applied to ATRI's cost estimate for that individual component. For example, the \$.569 per mile wage cost in the ATRI report became \$.62 for Illinois because Illinois' trucker wages are 108% of the national average, according to BLS statistics ($.569 \times 1.08 = .62$). Final per mile costs were applied to the total mileage for each route to get the final cost estimates.

4.5 Analysis

As a result of the process described above, the comparative locations are shown on the graphic below. As is shown in **Figure 4-1**, the Indianapolis and Columbus metropolitan regions have to ship their commodities a longer distance to reach the nearest port, in this case, the closest port to both metropolitan regions is the Port of Cincinnati.

Figure 4-1
Transportation Routes to New Orleans



Peoria and St. Louis both have far less distance by truck to their ports. As a result, St. Louis metropolitan region has lower shipping costs at an estimated \$20 per ton of soybeans to New Orleans of these four metropolitan regions. The remaining three metropolitan regions (Indianapolis, Columbus, and Peoria) are relatively comparable in the cost to ship soybeans to

New Orleans, ranging from \$29 per ton from Peoria to \$32 and \$33 per ton from Columbus and Indianapolis as shown in **Figure 4-2**.

The Freight Competitiveness Metric results show that Indianapolis area’s distance from the nearest port adds to the overall cost of shipping products transportation network. The closest port to both Indianapolis and Columbus is the Port of Cincinnati but Indianapolis is slightly farther away than Columbus which accounts for the slightly higher cost of shipping soybeans to New Orleans.

Figure 4-2
Transportation Cost per Ton of Soybeans



The Freight Competitiveness Metric results show that Indianapolis area’s distance from the nearest port adds to the overall cost of shipping products transportation network. The closest port to both Indianapolis and Columbus is the Port of Cincinnati but Indianapolis is slightly farther away than Columbus which accounts for the slightly higher cost of shipping soybeans to New Orleans. Tracking the shipping routes and cost of shipping Indianapolis products allows the metropolitan planning organization to work with freight stakeholders and transportation service providers to recognize parts of the transportation system that support businesses. This will facilitate decision-making, planning and investment well into the future and keep Indianapolis a place where businesses can continue to compete and thrive in the global economy.

Tracking the shipping routes and cost of shipping products from the Indianapolis MPA allows the Indianapolis MPO to work with freight stakeholders and transportation service providers to recognize parts of the transportation system that impact freight movement the most. Tracking shipping routes and costs will facilitate decision-making, planning and investment well into the future and keep Indianapolis a place where businesses can continue to compete and thrive in the global economy.

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Chapter 5

Governance

The region's multimodal freight system is part of a larger national freight network that serves as the backbone for the U.S. economy. The effectiveness of this network relies on the coordination and collaboration of many institutions, both public and private. Almost all freight movement is multi-jurisdictional, which requires consensus building between local, regional, state, and even national agencies and jurisdictions. This chapter summarizes the national freight policies and strategies, the role of the Indianapolis MPO, and **Appendix C** various entities that influence the movement of freight in the Indianapolis region.

5.1 Freight Planning Complexities

Freight is very complex. It involves infrastructure that is owned by the public and private sector. It is operated by truck drivers that may or may not work for the company that ships the goods or receive them. Increasingly freight decisions are being made by third party brokers.

Freight challenges often have no perfect solution. Freight infrastructure improvements occur within a global supply chain, versus traditional improvements that are driven by commuting patterns and personal travel needs. Freight requires planners to have a full understanding of the complexities and trade-off involved in making good market driven decisions. However, these decisions cannot be made in a vacuum. To be successful, public and private sector stakeholders must be engaged to provide their unique perspectives. Often stakeholder outreach is undertaken as a formal partnership, like a Freight Advisory Council (FAC). This formation allows a diverse group of freight stakeholders that understand and trust the public process.

Multiple stakeholders are impacted/cause freight issues and play a major role in developing solutions. No single stakeholder is capable of completely solving the most acute freight issues affecting metropolitan areas. Given these two factors, stakeholder cooperation and engagement can be the only means to progress. The engagement process should be designed to create an environment where all stakeholders can be heard and can participate, in a constructive fashion, to improve the freight system.¹²

5.2 National Freight Strategies

MAP-21 contains a number of initiatives and provisions to improve the condition and performance of the national freight network and support investment in freight-related surface transportation projects. The law required USDOT to develop a National Freight Strategic Plan (NFSP). To begin the process, the National Freight Advisory Committee published three overarching recommendations to guide the development of the NFSP:

¹² Holguin-Veras, J., Haake, D., Hodge, S., Frazier, R., Browne, M. *NCFRP Report 33: Improving Freight System Performance in Metropolitan Areas: A Planning Guide*, Transportation Research Board, 2015, Pg 4-7.

1. Barriers: An assessment of statutory, regulatory, technological, institutional, financial, and other barriers to improved freight transportation performance (including opportunities for overcoming the barriers)
2. Best Practices: To improve the performance of the national freight network, and
3. Best Practices: To mitigate the impacts of freight movement on communities.

The draft NFSP was published in October 2015. The plan, “aims to describe the freight transportation system and future demands on it; identify major corridors and gateways; assess physical, institutional, and financial barriers to improvement; and specify best practices for enhancing the system.”¹³ The study identified the strategies shown in **Table 5-1** to improve national freight movements:

Table 5-1: Draft National Freight Strategic Plan Strategies

Strategies to Address Infrastructure Bottlenecks	
	Reduce congestion to improve performance of the freight transportation system
	Improve the safety, security, and resilience of the freight transportation system
	Facilitate intermodal connectivity
	Identify major trade gateways and multimodal national freight networks/corridors
	Mitigate impacts of freight projects/movements on communities
	Support research and promote adoption of new technologies and best practices
Strategies to Address Institutional Bottlenecks	
	Streamline project planning, review, permitting, and approvals
	Facilitate multijurisdictional, multimodal collaboration, and solutions
	Improve coordination between public and private sectors
	Ensure availability of better data and freight transportation models
	Develop the next generation freight transportation workforce
Strategies to Address Financial Bottlenecks	
	Enhance existing freight funding sources
	Develop new freight funding sources

5.3 FAST Act

On December 4, 2015, the Fixing America’s Surface Transportation (FAST) Act was signed into law. This six year transportation reauthorization placed a major emphasis on freight investment. In particular, the law created the National Highway Freight Program (NHFP) funded at an average of \$1.2 billion per year and distributed to the States by formula. In addition, a new discretionary program entitled the Nationally Significant Freight and Highway Projects is established, funded at an average of \$900 million per year.¹⁴

¹³ FHWA, National Freight Strategic Plan (Draft), October 2015, Pg. 5.

While there are no major freight related changes for MPOs, States are now required to complete Statewide Freight Plans and the law removes the enhanced federal funding match for freight projects.

5.4 Role of INDOT in Freight

Indiana Department of Transportation's (INDOT) stated mission is to plan, build, maintain, and operate a superior transportation system enhancing safety, mobility, and economic growth. INDOT is responsible for the construction, maintenance, and signage of state roads, interstates, and U.S. routes including adjacent overpasses and ramps on these roadways. INDOT also regulates 4,500 miles of rail and more than 110 public use airports and 560 private access airports across the state. Over the past decade, the agency has provide significant funding for freight related projects and recently completed an update to its Multimodal Freight and Mobility Plan in 2014.¹⁵

5.5 Role of the Indianapolis MPO in Freight

The Indianapolis Metropolitan Planning Organization (Indianapolis MPO) is the federal designated regional transportation planning agency for the Indianapolis Urban Area. As such, it is responsible for the region's transportation planning, programming, and project coordination efforts. Since transportation improvements cut across municipal boundaries, the MPO is needed to coordinate cooperation and participation from all levels of government. This multijurisdictional partnership will be critical to the successful implementation of the Regional Freight Plan.

5.6 Role of Local Governments in Freight

Counties, cities and towns can have a significant impact on freight movement. Local governments control last mile roadway connections, access management regulations, economic development incentives and zoning control. Each power individually and in practice combined can significantly impact freight movement and development.

¹⁵ <http://www.in.gov/indot/2341.htm>

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Chapter 6

Strengths and Weaknesses

The Indianapolis region embodies Indiana's reputation as the "Crossroads of America." The region serves as the 10th largest inland and 21st largest overall port in the nation.

The region is truck dependent. Tonnage moved on its highways, rivals regions like Atlanta, Boston, Miami, San Antonio, and Washington D.C.

From a freight perspective, the region functions as a Top 10 metropolitan area, while being supported by the resources of the 32nd largest in terms of population.¹⁶ Similarly, investment in the FedEx facility at the Indianapolis International Airport has resulted in significant air cargo opportunities unlike those found in most regions.¹⁷



The Indianapolis region is at a crossroads; today its infrastructure system supports a growing logistics and distribution sector. FHWA estimates that freight volumes will increase 45 percent by 2040. To continue its success in the face of significant freight volume increases, the region's transportation planners must focus investment in areas that will have the greatest impact. The first step of identifying investment areas is to develop an assessment of the current strengths and weaknesses of the region's freight system.

6.1 Strengths

6.1.1 Interstate Connections

The region is well-connected by an interstate network that can reach many other metropolitan areas within a one-day truck drive. Indiana's interstates connect the region's economic generators to Chicago, East Coast, West Coast, and Canadian markets.

- **Interstate 70:** Provides the shortest, least-tolled route between New York City and Los Angeles. This route is used by higher value, time sensitive goods.
- **Interstate 65:** I-65 provides a key linkage to the Chicago market and its containerized freight yards.

¹⁶ FastTrack, Pg. 17.

¹⁷ CEDS Competitive Assessment, Pg. 31.

- **Interstate 69:** Provides direct access to the Canadian export market. The I-69 corridor has been commercially attractive to auto parts suppliers and manufacturing companies. Corridor completion will improve the trade connections between Texas and Canada. In Indiana, once the final section of I-69 is completed, every business within Indiana will be within 60 miles, or roughly one hour driving time, to an interstate highway.
- **Interstate 74:** Provides quick access to the DHL Global Hub at the Cincinnati / Northern Kentucky International Airport.

6.1.2 Interstate Highway Capacity

The Indianapolis region does not suffer from interstate mainline capacity issues. Over the past decade, significant lane-miles have been added to I-65, 70 and 465 near major freight generators like the Indianapolis FedEx Hub. Investment near these locations allows freight to move with minimal delay on arterial roadways. The system provides a reliable link between major freight facilities in the region and allows the region to grow its high value and high velocity manufacturing industries. Both highway and runway services are the fastest and most flexible forms of transportation.

6.1.3 Land Value

The region's overall land values and cost of living are low compared to other Midwestern competitors. Considering the footprint of logistics buildings, particularly distribution centers, cheap and ample land are attractive to logistic companies, particularly in areas with interstate access.

6.1.4 Relative Geographic Location

Location is one of the most important aspects of logistics. Supply chains aim to get product to the closest regional hub and then they rely on the "last mile" to make the final delivery. With Indianapolis's robust highway network, fanning out like spokes in all directions from the Indianapolis hub this urban location is attractive to logisticians. While trucks and air freight might be the most expensive freight transportation option, it is the quickest and most flexible modes of transportation. Indianapolis's strategic location and facilities promote high value logistics and manufacturing.

6.1.5 Air Cargo/FedEx

A large segment of the national air cargo market is dominated by the UPS and FedEx hubs in Louisville and Memphis, respectively. Fortunately for Indianapolis, the FedEx Memphis facility is physically landlocked and cannot expand any further. Recognizing this unique opportunity, significant public investment has been made both inside the fence and along I-70 to position Indianapolis to be the next global hub for FedEx.

IND airport has more than 10 cargo based firms and offers over 165 flights per day and 10 large airline carriers which carry cargo in passenger planes. Coupled with the excellent Interstate Highway network which serves more than 75% of the U.S. population in one day's drive time would provide an excellent location of internet distribution centers or other high value

manufacturing firms. Many parcel and LTL firms look for that optimal mix of air and highway accessibility.

6.2 Weakness

6.2.1 Interchange Congestion

While there has been significant investment in expanding interstate capacity throughout the region, bottlenecks emerge at interchange points that handle significant truck volumes (ex. I-465 & I-69, I-465 & SR 37). Travel time delay impacts inventory costs due to uncertain inbound and outbound transportation service. If transportation schedules cannot be met then another day of inventory must be added to assure a secure volume of safety stock. Congestion also impacts carrier productivity and can result in distant appointments not being met, or multi-stop loads may be delayed missing deliveries all together. Multimodal freight facilities rely on connecting one mode with another. If transit times are not reliable, connections will be missed creating the need for increased inventories.

6.2.2 Roadway Maintenance

The region's Comprehensive Economic Development Study (CEDS) identified roadway maintenance as a major weakness for the central Indiana region. In particular, it credits the public sector's efforts to expand current roadway capacity, but warns that it should not be undertaken at the expense of maintenance. The total cost of transportation not only includes the total time/mileage to a destination, but also maintenance on vehicles and equipment using roads that are exhibiting significant wear due to poor roadway conditions.

6.2.3 Lack of Class I Diversity/Port Access

One Class I railroad services the Indianapolis region, CSX. Norfolk Southern has access to a limited portion of the region via trackage rights. CSX level of service is rated at D and F along different segments which connect to the CSX network. Most rail freight is multimodal by nature. When one transportation partner's service is poor, all connections suffer.

CSX provides intermodal container service from Indianapolis to the Ports of New York/New Jersey. Additionally, they provide domestic container service to Dallas, TX; Lathrop, CA; Little Ferry, NJ; Los Angeles, CA; Oakland, CA; Portland, OR; Seattle, WA; Salt Lake City, UT; and Worcester, MA. By comparison many cities the size of Indianapolis have more than one Class I railroad and offer a more robust selection of intermodal rail.

6.2.4 Position Relative to Rail Gateways

The railroad gateway cities of the Midwest include Chicago, St. Louis, Kansas City, Memphis and New Orleans. These gateway cities connect eastern and western railroads. Indianapolis is not a gateway city and the close proximity of Indianapolis to Chicago and St. Louis makes Indianapolis less attractive to Eastern rail carriers due to the short distances to their final end of the railroad stop. Drayage services have been developed to move cargo to and from Indianapolis to these gateway cities but this adds a higher cost to the total transportation cost.

6.2.5 Lack of High Volume Container Facilities

The Indianapolis region is home to two intermodal container facilities. CSX has a small intermodal container operation in Avon and Indiana Railroad has one just south of downtown on Harding Street. While these facilities provide a valuable service to regional businesses, their volume is not large enough to facilitate a frequent backhaul headways necessary to support sustained export growth via containers. Because the Indianapolis region is relatively close to Chicago area mega-intermodal yards, it is more cost effective to dray containers than build a large yard in the Indianapolis region. Peer regions slightly more geographically distant from Chicago, like Columbus and Toledo, can see close to a million lifts annually.

6.2.6 Pass through Freight

A significant portion of the region's freight passes through to its final destination. These pass-through shipments do not create any real value for the region, only increased costs (i.e. road maintenance, emissions, etc.). Efforts should be made to limit the impact of this pass-through freight or create value-added opportunities for the supply chains that bisect the region.

6.2.7 Trade Imbalance

Indianapolis receives more inbound freight than it ships outbound. However, the outbound capacity created by the inbound goods represents an opportunity to grow exports. By doing so, the region will not only create new basic economic opportunities, but will allow the region's freight network to expand. Most carriers are reluctant to expand an imbalanced network. By working on balancing the existing network, carriers will be more likely to expand services.

6.2.8 Limited Rail Access to Ports

Indianapolis's inland location is not accessible to vessels on the Great Lakes or barge companies operating on the Ohio River. While not physically located on the water, many regional businesses rely on the inland waterway system to move freight. Multimodal connectivity to these facilities is required to maintain Indianapolis area economic advantages.

6.2.9 Overall Multimodal Connectivity

IND airport has fewer departures and is not an airline hub like Chicago, Louisville or Cincinnati. Duluth, Cleveland, St. Louis and Evansville benefit from their marine connections which are attractive to bulk cargos. Each of these Midwest Cities has at least two Class I railroads which result in greater market reach and a competitive rate environment.

6.2.10 Worker Mobility

Many of the newer logistics companies in central Indiana are located in green-field suburban areas. The logistics facilities pay higher than minimum wage and do not require a college degree, providing economic stability for a part of workforce hard hit by the decline of manufacturing in central Indiana. The suburban locations of these warehouses and distribution centers lack affordable housing for many of these workers. Companies are struggling both to attract workers with reliable transportation and deal with the congestion of massive shift changes. Limited public transportation options to these facilities further exacerbates mobility for these warehouse workers.

6.3 Opportunities

6.3.1 Innovation - Dedicated Truck Lanes

Historically, Indiana has been open to exploring innovative solutions to freight challenges. For example, INDOT led a multi-state effort to explore the feasibility of developing dedicated truck facilities between Kansas City and Wheeling, WV. While this idea was ahead of its time, technology is rapidly advancing. Connected vehicles which will allow truck platooning and even potentially driverless trucks are not that far in the future. The Indianapolis region is truck dependent; therefore a strong focus must be made on capturing opportunities but also mitigating the negative externalities.

6.3.2 Lack of Truck Congestion

Indianapolis's highway networks are attractive to truck dependent supply chains. Federal Express (FedEx) is the premier tenant at IND along with 10 other air cargo carriers. These air cargo carriers handle time critical packages. Shippers and receivers plan on reliable transit times to and from the airport to meet airline schedules. When highway congestion impacts predictable travel schedules, on time deliveries can be compromised. Leveraging road and air cargo capacity will enhance the regions pharmaceutical and high value manufacturers. Ensuring freight fluidity and managing congestion is essential for high value, high velocity supply chains.

6.3.3 Heavy Haul Route Investment

In 2011, over half of truck movements in the region flowed through the region. This pass-through freight currently provides no real benefit, other than diesel tax revenue. However, an opportunity exists to provide trucking services, warehousing and distribution hubs to intercept this flow and create value-added activities.

6.3.4 Mode Conversion

Indianapolis regional highways see as much freight traffic as Atlanta or Boston. There is an opportunity to convert a portion of this truck traffic to intermodal containers, by establishing jointline service with the railroads. Jointline services allow two railroads to connect directly without having to ground, and street interchange to the second rail carrier. Effectively one unit train would travel between two major railroads. An example of this would be the Union Pacific container train that travels via CSX through downtown Indianapolis daily on the way to Marion, Ohio.

As discussed earlier Indianapolis is a half day drive to the gateway rail centers in the Midwest. If joint line services could be established with CSX and one of the western rail carriers, either BNSF over Kansas City or Union Pacific over St. Louis, Indianapolis would be a stronger rail center. The rule of thumb is that rail carriers must have a 500-750 mile length of haul for intermodal for the service to be profitable for the carrier. The Indianapolis terminal is too close (less than 500 miles) from the western carriers. To make joint line service attractive for the carriers, full trains need to be blocked for Indianapolis (200 -240 containers per train) to make the effort profitable for the rail partners.

6.3.5 Develop Trade and Sister City Relationships

Rail service is most cost effective if the end markets are more than 750 miles apart. For Indianapolis, partnering with rail served ports and cities along the CSX network would promote rail shipments along a low cost corridor. Often small businesses with long supply chains are not familiar with rail shipping options and must rely on a network of intermodal retailers to provide these services. Expanding public education about rail service options would benefit Indianapolis manufacturers.

6.3.6 Indiana Railroad Intermodal – Prince Rupert

In 2014, the Indiana Railroad established intermodal container service at their Harding Street yard. The containers reach the Indiana Railroad from the Ports of Vancouver and Prince Rupert via the Canadian National (CN) railroad. While current volumes are relatively low, the yard's potential is significant. The Port off Prince Rupert is the closest port to Asia in North America and has invested heavily to increase container throughput. Similarly, Canadian National has invested heavily to increase container velocity. Most notably, CN purchased the EJ&E railroad in Chicago that serves as Chicago's "rail outerbelt."¹⁸

6.3.7 Transload Facilities

Several brownfield redevelopment studies have indicated that many underutilized industrial spaces throughout the region could align with activities like food processing. To support this opportunity, investments should be made in truck-to-rail transload facilities and improving roadway connectivity to existing facilities.

The high cost of rail switches (approximately \$200,000) makes rail access prohibitive for many industries seeking rail access, along with the other facility investments to store and load rail cars. Transloaders are service oriented companies that provide their customers rail access. Customers truck freight to the transload which is then loaded to the train or co-mingled with other freight to fill out railcar loads. Transloads increase rail access for shippers who have no rail access.

6.3.8 Empty Backhauls – Export Opportunities

Ocean carriers provide international containers which seek balanced markets (where inbound and outbound freight patterns roughly match each other). When an imbalance of loads to empties exist either empty containers need to be repositioned into the market or empty containers need to be moved out of the market at an additional cost to the carrier. Because Indianapolis is not located on a marine highway or at a deep water port, international containers move inland by rail. Imbalanced container lanes offers regional firms an opportunity for attractive export rates as carriers seek to move out empty import containers with local loads.

6.3.9 Cold Chain Development

As mentioned above, the region's air cargo assets provide a unique opportunity to create high-value manufacturing opportunities. Many of these shipments are highly perishable and require a climate controlled supply chain (i.e. Cold Chain). For example, Eli Lilly uses IND to ship pallets of

¹⁸ Indy FastTrack, page 145.

glucose to customers around the world. Each of these pallets are worth close to \$1 million. The Indianapolis region has a unique opportunity to create advanced manufacturing jobs by supporting the cold chain. While traditional cold chain development will be undertaken by the private sector, reliability on the roadway connections between various nodes of the cold chain must be maintained to capture this opportunity.

6.3.10 Decreased Railroad Coal Volumes

The Indiana rail network moves substantial volumes of coal, but as regulations restrict the use of coal as a source of fuel for energy production, a robust rail network which previously moved coal will be looking for new freight to fill this unused capacity. Indianapolis should develop a strategy for identifying multimodal freight connections which would be able to take advantage of this latent capacity in the future.

6.3.11 Shortline Railroads

While the region may lack Class I diversity, its shortline railroads are growing at a faster rate than Class 1 railroads. Short Lines have often been described as the incubators of new rail shippers. Their customer focus and ability to navigate complicated railroad connections help users find different modes of transportation, thereby reducing highway congestions and leveraging multimodal connections. In particular, shortlines provide valuable railroad siding service that many Class I railroads cannot provide.

6.4 Threats

6.4.1 Interstate Corridor Congestion

While interstate corridor capacity is a strength within the region, many of the interstate linkages to other metropolitan areas are congested. The Indiana Blue Ribbon Report and Conexus have called to add travel lanes to I-65 and I-70 to support freight movement. I-65 to Chicago and I-70 to Columbus, Ohio are particularly important for reliable container service from major intermodal yards to the Indianapolis market.

6.4.2 Workforce availability (transit)

Workforce availability is a major concern for the freight industry. Locally, the Indianapolis CEDS and Conexus Report have identified workforce shortages as a major challenge to continued growth in the freight industries. At the same time, per capita income has dropped in the region. There is a disconnect between where logistics facilities are built and where potential workers live. Recognizing that, the Central Indiana Regional Transportation Authority (CIRTA) and other groups have worked to link transit options to large freight clusters. However, there are very limited public funding opportunities to create additional synergies.

6.4.3 Railroad Rates

While Indiana ranks 3rd in the total number of freight railroads in the state, Indianapolis is primarily dependent on CSX for domestic container service and the Indiana Railroad - CN international connection. With limited rail competition in Indianapolis, many intermodal users are leveraging the competitive rail rate and service environment in nearby Northeast Illinois.

6.4.4 Bridges

Roadway bridges provide a unique challenge to the freight system. A number of bridges throughout the region are weight restricted, others are geometrically challenging for freight movements. Often bridges provide singular access to rural freight generators and care needs to be taken to maintain those bridges and/or provide resiliency by developing alternate routes to those facilities.

6.5 Lessons for Recommendations

The assessment will essentially serve as a framework for the development of each individual project, policy, or operational improvement offered in Chapter 7. Equal attention must be paid to both the region's strengths and weaknesses. From an economic development strategy standpoint, it is more productive to support existing businesses than encourage expansion opportunities. Therefore, the implementation strategies that result from identified strengths will focus on maintaining and improving what the region already does well, in addition to mitigating weaknesses and promoting new growth.

Chapter 7

Strategic Recommendations

The Regional Freight Plan is designed to be an active document that positions the Indianapolis MPO to proactively address freight issues. To accomplish this, 4 overarching strategic recommendations were developed to support the freight plan goals as exhibited in **Table 7-1**. The recommendations focus on broad-based programs, improvements as well as future plans that could help Indianapolis MPO overcome the challenges documented in the plan and capture future economic opportunities. Each of the strategic recommendations are backed by a series of implementation tactics that are designed to service as a potential “to-do” list. While some of the tactics are long term projects, several are immediately actionable.

Table 7-1
Overarching Strategies to Implement the RFP

Strategic Recommendations	Regional Freight Plan Goals			
	Congestion and Reliability	Safety and Resiliency	Fix it First	Provide an Interconnected, Multimodal Regional Freight System
Develop a MPO Freight Planning program				✓
Become a Regional Facilitator	✓	✓		✓
Actively manage the Regional Freight System	✓	✓	✓	✓
Strategically invest in the Regional Freight System	✓	✓	✓	✓

Each of the strategic recommendations are backed by a series of implementation tactics that are designed to service as a potential “to-do” list. While some of the tactics are long term projects, several are immediately actionable.

Strategy: Develop an MPO Freight Planning Program**Tactics**

Develop Internal Capacity

- Participate in AASHTO/FHWA Freight Partnership activities
- Ask FHWA to facilitate a Peer-to-Peer exchange from MPO's with mature freight planning programs
- Attend I-95 Freight Academy (or similar program)
- Attend regional freight conferences (Ohio, MAFC, etc.)

Cross-train MPO staff in freight planning

Actively invite Conexus's participation in MPO activities

Develop a Freight Advisory Committee (FAC) in coordination with Conexus

In coordination with LPAs, host "freight scanning" tours for elected/senior officials to raise the profile of freight

Create one-page fact sheets about various aspects of the regional freight system

Obtain/analyze regional freight data

Develop regional freight database

Give presentations on freight planning issues to both traditional and non-traditional audiences

Participate in the development of the next INDOT Freight and Rail Plans

Strategy: Become a Regional Facilitator**Tactics**

Actively invite Conexus's participation in MPO activities

Actively participate in Conexus and Indiana Trucking Association (ITS) meetings and activities

Present the Regional Freight Plan to regional organizations and governments

Work with the Indy Chamber, Conexus, and LPAs to align future transportation needs

Develop cross functional relationships with rail and air partners to increase connectivity between the modes

Create an educational program to educate local officials on issues like intermodal connectors and mitigating the negative externalities created by freight.

Work with local governments to integrate freight into local land use, transportation plans, and zoning, especially around major freight clusters like Indianapolis International Airport.

Become active in groups like Aerovision to help facilitate coordinated activities to support air cargo expansion.

Hold a regional freight summit every year to update aspects of the Regional Freight plan; this could be held in concert with the Indiana Freight Summit

Actively seek out opportunities like Indy Chamber's Brooking's Export Initiative

Strategy: Actively Manage the Regional Freight System	
Tactic	
Implement freight performance measures as part of the LRTP update	
Fund a transit study to look at the relationship between logistical employment locations and EJ populations	
Work with INDOT to implement the current Functional Class update with FAST Act requirements	
Regularly update the Regional Freight Network with attention paid to Tier IV last mile connections	
Monitor bridge inspection reports along the Regional Freight System to identify unfavorable trends	
Work with the private sector to identify further geometric, bridge, design and regulatory challenges in the region	
Identify key freight corridors that do not have any redundancies	
Fund technology to provide real time parking information at public and private facilities	
Create a multimodal resiliency plan to evaluate multimodal options to deal with any disruptions to truck movements	
Request assistance/training from police to enforce truck regulations on roads where truck counts show that weight restrictions that are being ignored (i.e. Meridian between 38 th and Kessler Boulevard)	
Invest in Weight in Motion (WIM) and infrared technology to enforce truck regulations and weight restrictions	
Technology solutions for truck parking along BRT routes	

Strategy: Strategic Investment	
Tactic	
Integrate freight criteria into the MPO project selection process, for example:	
<ul style="list-style-type: none"> • Truck percentages • Truck volumes • Correlation between VMT and substandard pavement/bridge ratings • Freight Clusters (last mile connections) • CMV Crashes 	
Actively work with CIRT to explore new opportunities to develop new connector routes	
Evaluate the effect of delivery movements on planned Bus Rapid Transit corridors	
Identify non-traditional capacity improvements to reduce congestion (See Appendix D)	
Evaluate dedicated facilities to move pass-through freight efficiently	
Implement policy that requires investment in existing freight infrastructure before new construction	
Implement policy that requires the most cost-effective solution, regardless of mode	
Study the availability of truck parking in the region and for CMAQ funding	
Work with IAA to advocate for airfield improvement funding from FAA	
Ensure the roadways that serve regional air cargo facilities are reliable and clearly signed	
Increase traffic flow in freight areas by implementing signal connectivity across jurisdictional lines	

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Appendix A

Literature Review

Conexus Indiana

A Plan for Indiana's Logistics Future (2010)

The private sector driven, not-for-profit Conexus Indiana developed a strategic plan which outlines actions to strengthen the state's logistics sector. The plan's central strategy revolves around establishing Conexus Indiana an industry forum for collectively vetting critical and relevant logistics-related public policy issues. Among the plan's recommendations:

- Specific projects to address bottlenecks
- Develop large intermodal facilities across the state
- Construction and re-design of inland waterway lock and dams
- Develop an plan to attract increased air cargo facilities
- Advocacy campaigns to raise public awareness of freight issues
- Strategies to increase workforce availability: Education, etc.

Delivering Indiana's Logistics Future (2014)

Conexus developed plan to showcase the successes of their 2010 plan, but more importantly to provide updated recommendations to policymakers on how to implement the remaining initiatives. The report carries over a lot of themes from the Phase I report including infrastructure, communication/outreach, public policy, public awareness, and workforce development.

Strengthening the Crossroads: Driving Central Indiana's Logistics Industry (2015)

This plan developed by freight stakeholders identified infrastructure, public policy and workforce development issues with the goal of maximizing short- and long-term success for the business community and residents of Central Indiana. The project details and prioritizes over 74 infrastructure projects, as well as other public policy initiatives. The prioritization was based on each initiatives potential ability to decrease transportation bottlenecks, increase direct rail service, increase use of regional air facilities for freight, and improve mode-to-mode connectivity within the region.

Indianapolis – Department of Metropolitan Development

Indianapolis Comprehensive Rail Study (1995)

This study was commissioned to inventory and evaluate the regional rail system after dramatic ownership changes resulted in significant rail abandonments. The study revealed that area rail lines were in appropriate condition for their use at the time. The study suggested that active railroad corridors held potential for commuter rail services, while abandoned lines could be used for trails and recreational rail service.

Indy FastTrack (2014)

This plan looked at four large brownfield assets that were vacated as a result of changes in the automotive industry. While the plan focused on the four sites, they were evaluated in a large context defined by concern about the competitive position of Marion County, which has lost 18,000 manufacturing jobs since 2003 and is heavily dependent on the Pharmaceutical sector. The FastTrack sites are strategic assets for the region, but they do not resolve the limited supply of larger ‘shovel-ready’ development sites in Marion County. This plan demonstrates that the path to economic development can be achieved through an organized effort to prepare strategic brownfield and blighted sites for redevelopment, all while integrating transportation assets, infrastructure investment priorities, targeted industry clusters, and workforce development.

Indianapolis Metropolitan Planning Organization

Intermodal Freight System Plan (1998)

This plan assessed the strengths and weaknesses of the regional freight system and recommended strategies that the region could undertake to enhance the efficiency and safety of freight movement. Among the strategies:

- Priority Development Zones to target investment
- Airport Intermodal Transportation Development Study
- Intelligent Transportation System (ITS) improvements
- Enhanced resources and capacity building for freight planning

Freight White Papers (2010)

Three white papers were prepared take a deeper dive on specific freight mobility issues facing the region in 2010.

- ***Freight Rail Overview with identification of Potential Passenger Rail Coordination Issues:*** The white paper provided an overview of the region’s rail infrastructure and demands placed on the system, including freight and passenger use. The white paper recommended relocating freight trains to the Belt, which would eliminate some negative externalities to downtown. Most importantly, it would allow passenger and (potential) commuter trains access to the urban core.
- ***Assessment of Intermodal Transfer Areas:*** This white paper identified intermodal transfer facilities, described their use and developed an overall strategies to improve the region’s position in the intermodal market. In particular, the strategy recommended working with western Class I railroads (Union Pacific and BNSF) to demonstrate the value and induce the railroads to provide direct intermodal rail service from west coast ports.
- ***Identification of Regional Freight Bottlenecks:*** outlines the negative impacts bottlenecks have on efficient operation of the motor carrier industry, and the subsequent difficulties that affected areas have in attracting and retaining freight intensive operations. A methodology was developed to prioritize bottlenecks that most influence truck movements in the MPO region.

2035 Long Range Transportation Plan

The MPO Long-Range Transportation Plan (LRTP) serves as the overall transportation plan for the Indianapolis region. Any projects that receive federal funding or significantly impact air quality must be included in the plan. It serves as the comprehensive plan for transportation investment to support the safe and efficient movement of people and goods within the Indianapolis. In addition to system preservation and maintenance, the key focus of this LRTP is on multimodal expansion. The expansion of transit and bicycle-pedestrian networks to supplement roadway capacity enhancements will increase choices for travelers. One relevant takeaway is the use of freight-related land use as a criterion for ranking subareas in the region for roadway expansion and maintenance.

Indianapolis MPO Complete Streets Policy (2014)

The Indianapolis MPO requires all projects funded with their attributable federal funding to support Complete Streets principals. The policy was developed to support the multimodal emphasis within their 2035 LRTP. The MPO defines Complete Streets as roadways designed to safely and comfortably accommodate all users, of all ages and abilities, including but not limited to motorists, cyclists, pedestrians, transit users, school bus riders, delivery and service personnel, freight haulers, and emergency responders.

Indiana Department of Transportation

Indiana Multimodal Freight & Mobility Plan (2009)

In 2009, the Indiana Department of Transportation completed its first freight plan to guide future decision regarding freight transportation investments, and ensure the efficient use of resources to support system wide objectives. The plan provided an overview of trends in goods movement and the factors that drive demand, as well as the policies that impact freight mobility. The plan recommended a variety of strategies that focus on increasing the understanding of freight industry needs and issues by INDOT/MPOs through ongoing communication and outreach programs. In particular, the plan noted that consideration of freight should occur at all levels of INDOT planning and programming, and continuous, multi-faceted, targeted communication is vital between stakeholders and MPOs/policy makers. Various other recommendations include designating statewide truck routes, advocating for freight planning and investment, and exploring all possible funding sources accessible to INDOT.

Indiana Rail Plan (2011)

This plan was created with the goals of supporting the safety, efficiency, funding, economic output, and environmental considerations of the state's railways. The plan promotes the benefits of rail – both freight and passenger – which include energy efficiency, emissions, reduced highway congestion, and cost efficiency. Outreach efforts found that rail stakeholders want INDOT to take a more multi-modal, integrated approach to transportation infrastructure within the state, giving rail a larger share of funding. Stakeholders shared that rail should be used as a tool for economic development tool by linking Indiana to other markets, thereby making Indiana businesses more efficient and competitive.

Indiana Multimodal Freight & Mobility Plan (2014)

The 2014 Plan provided INDOT with a data-driven approach in support of identification, prioritization, and financing of (freight related) highway and intermodal connectivity projects. The plan was developed to position the state for future federal freight related legislation. Building upon the success of the previous plan, its goals focused on reducing bottlenecks, enhancing business competitiveness, increasing multimodal connectivity, and improving the planning process. Key recommendations included:

- Using Major Moves 2020 as a blueprint for identifying locations for added travel lanes,
- Coordinating construction projects to avoid repeated disturbance of traffic
- Establishing dedicated truck lanes,
- Implementing Intelligent Transportation System (ITS) solutions
- Addressing truck parking deficiencies
- Working with operators of various modes to identify issues.

Blue Ribbon Panel on Transportation Infrastructure

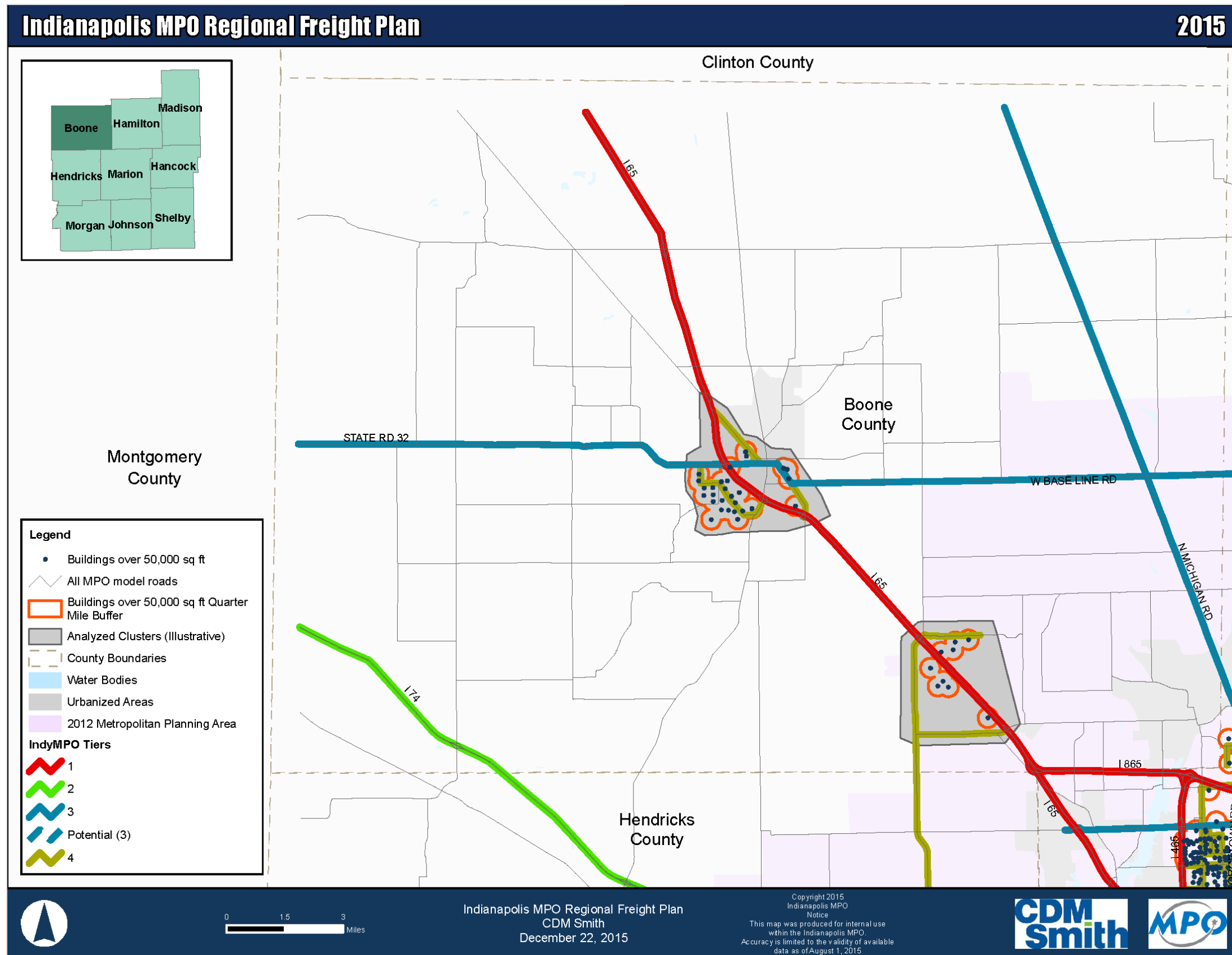
Governor Pence established a Blue Ribbon panel of transportation leaders to execute his vision of having the best transportation system in the nation. His vision is guided by three major principals: 1) take care of what we have, 2) finish what you start, and 3) plan for the future. The Panel was charged with recommending a path forward to meet the needs of the next generation. In 2014, the Blue Ribbon panel published its report with the following recommendations:

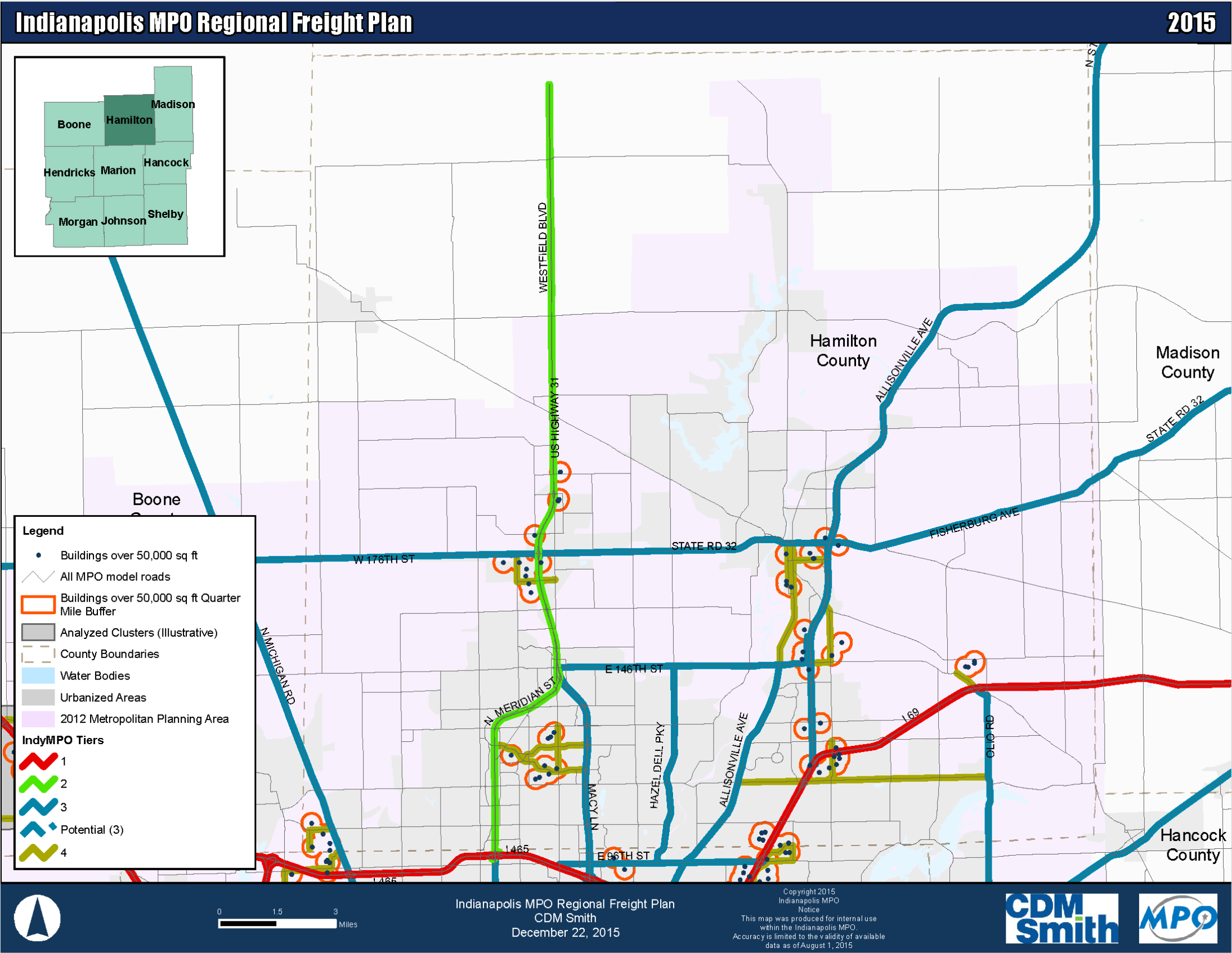
- Address top priority projects and initiatives
- Change transportation policy to maximize throughput of freight and passengers
- Adjust funding streams to be indexed to inflation and user-fee based for all modes
- End revenue diversions from transportation-related activities from their original intended funding purpose
- Create new dedicated funds to enhance aviation and waterways infrastructure
- Prepare infrastructure for inevitable innovations through university-based student competitions and collaborative industry panels
- Enhance the state's organization capabilities to manage a fully integrated transportation system

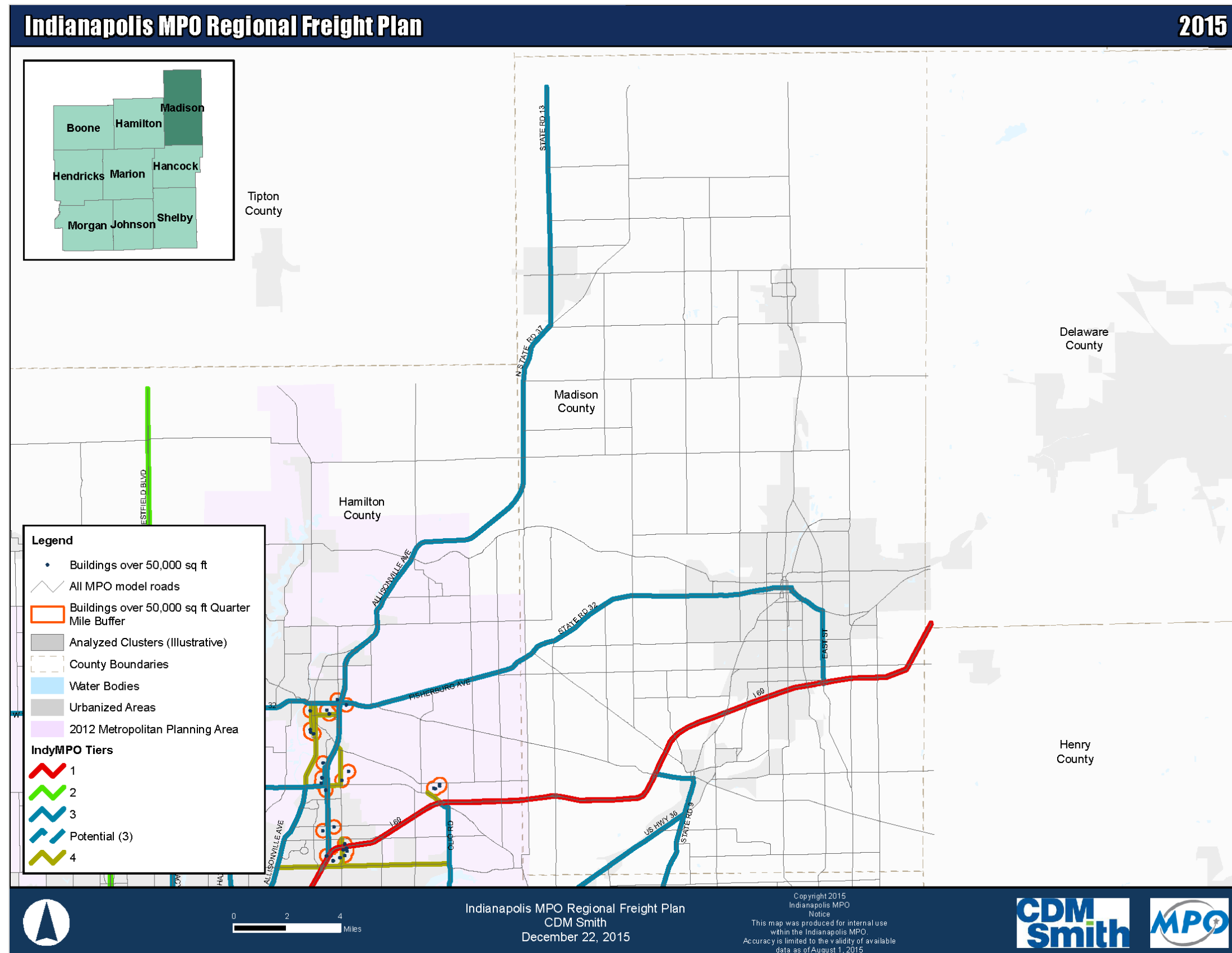
Appendix B

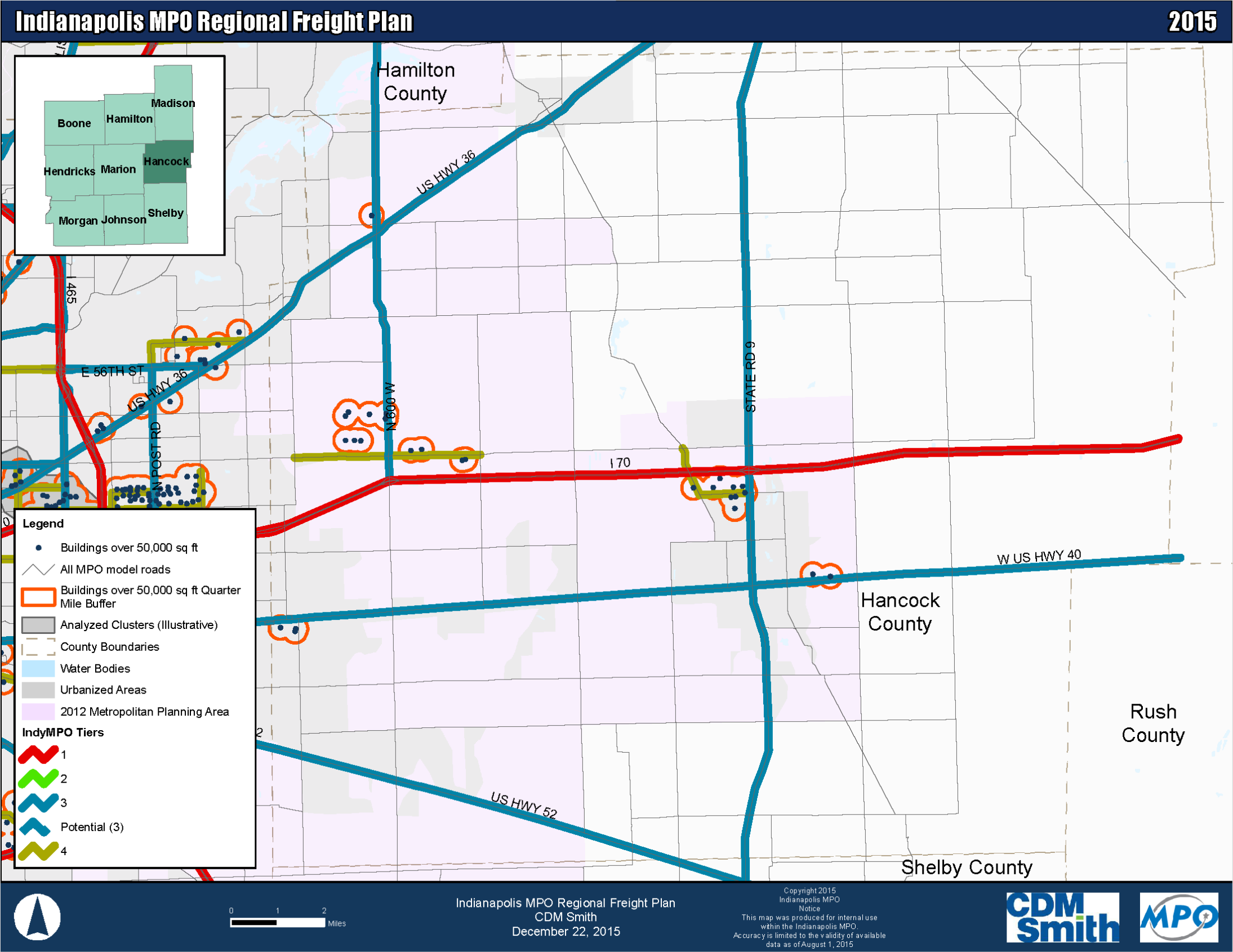
County-Level Freight Maps

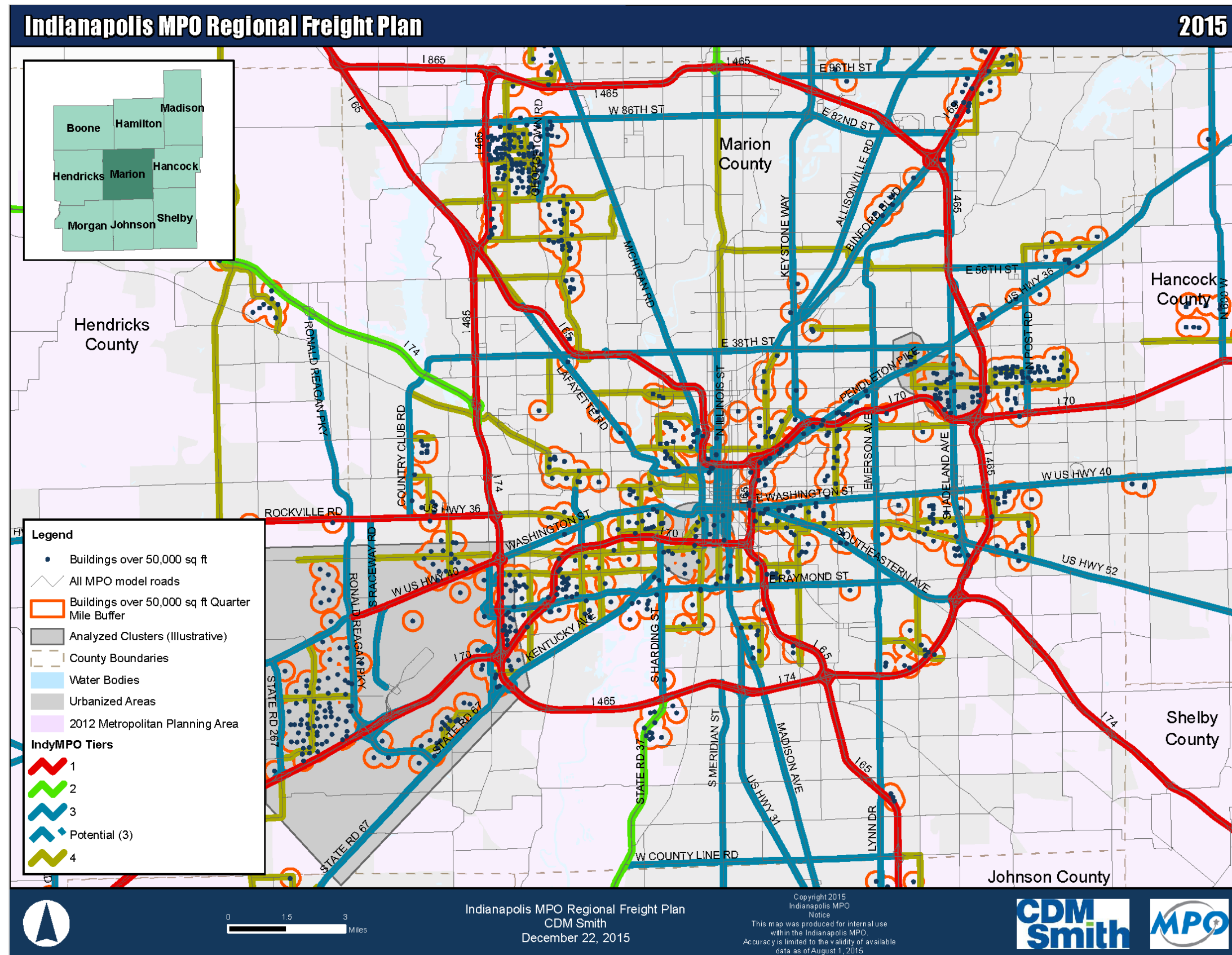
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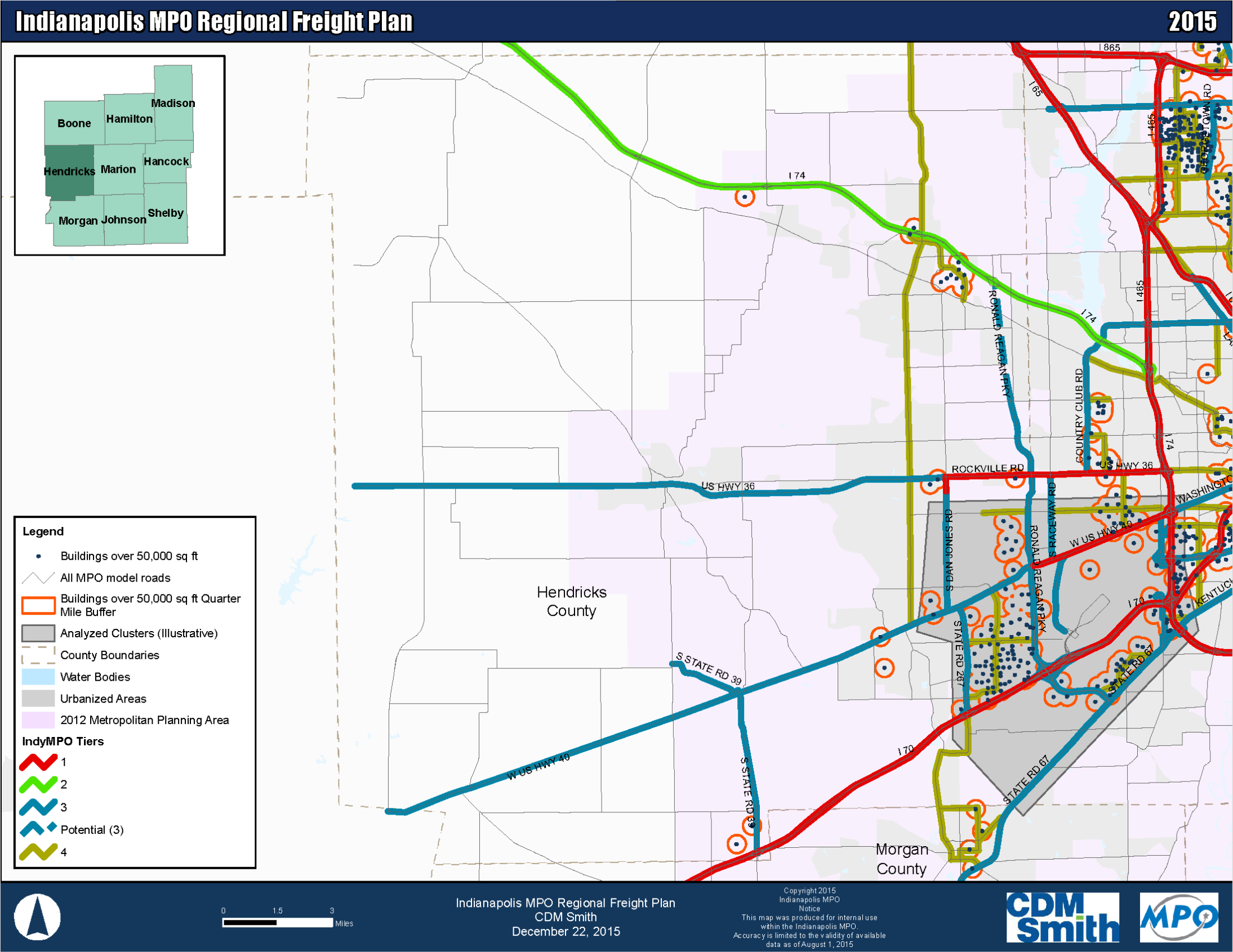


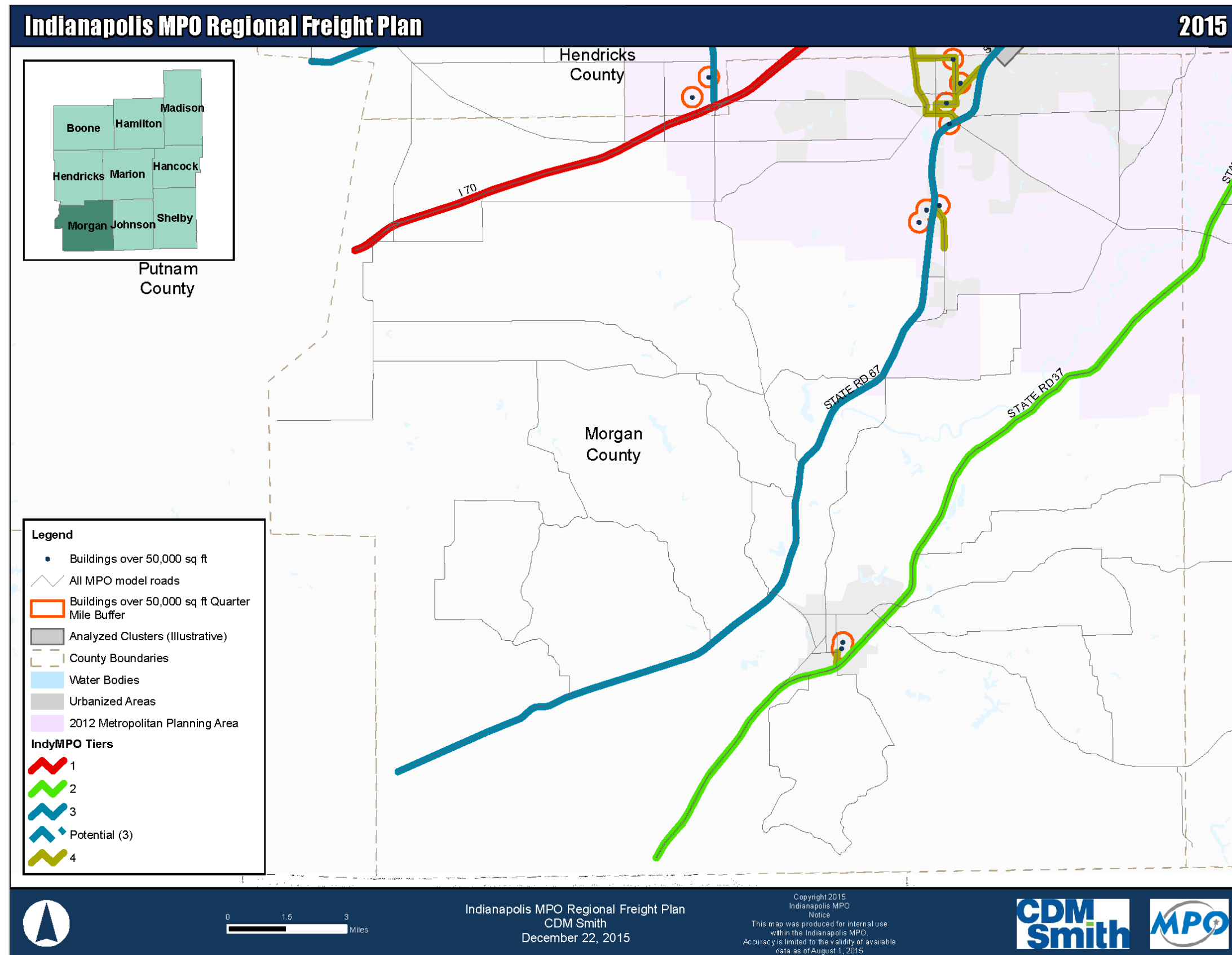


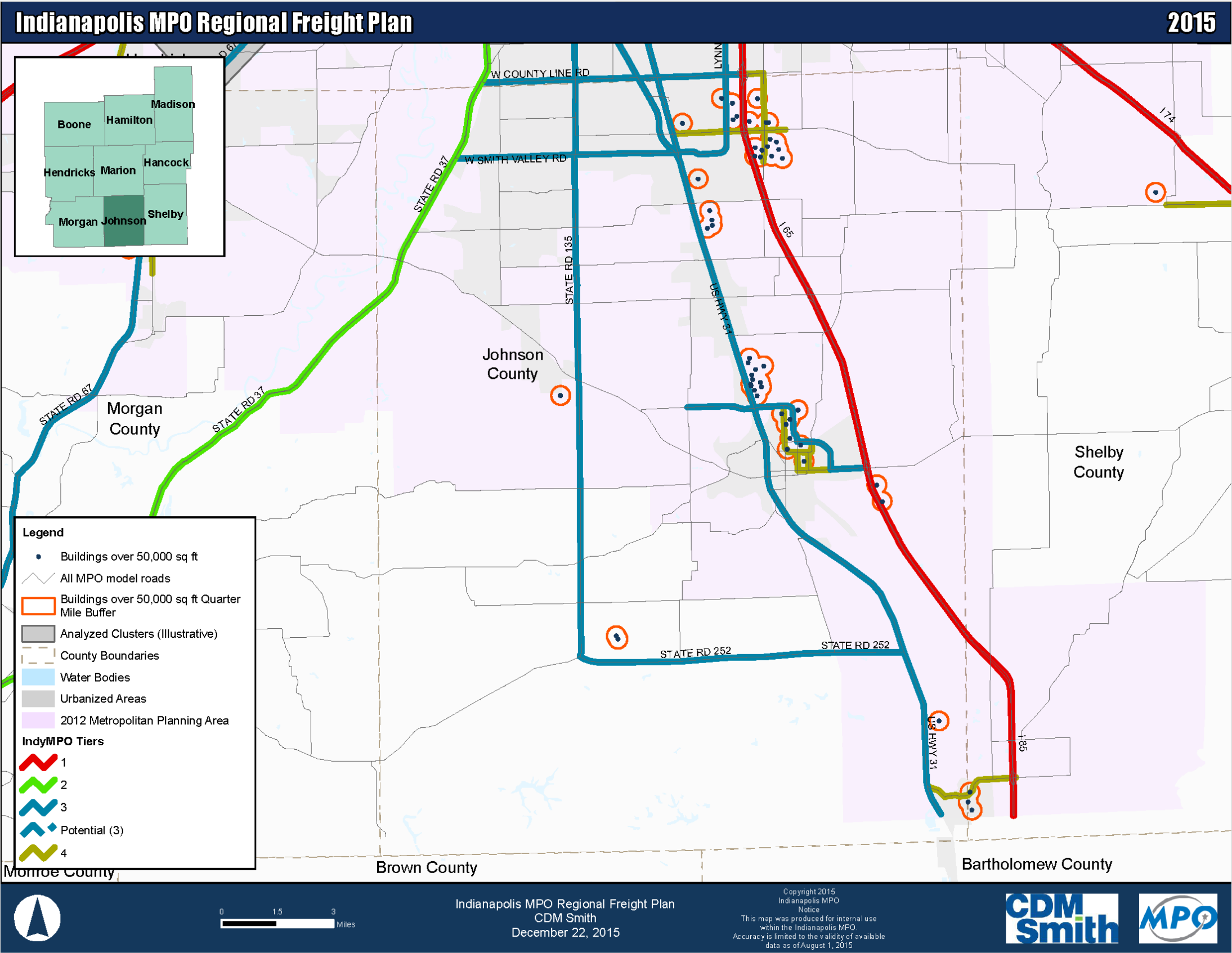


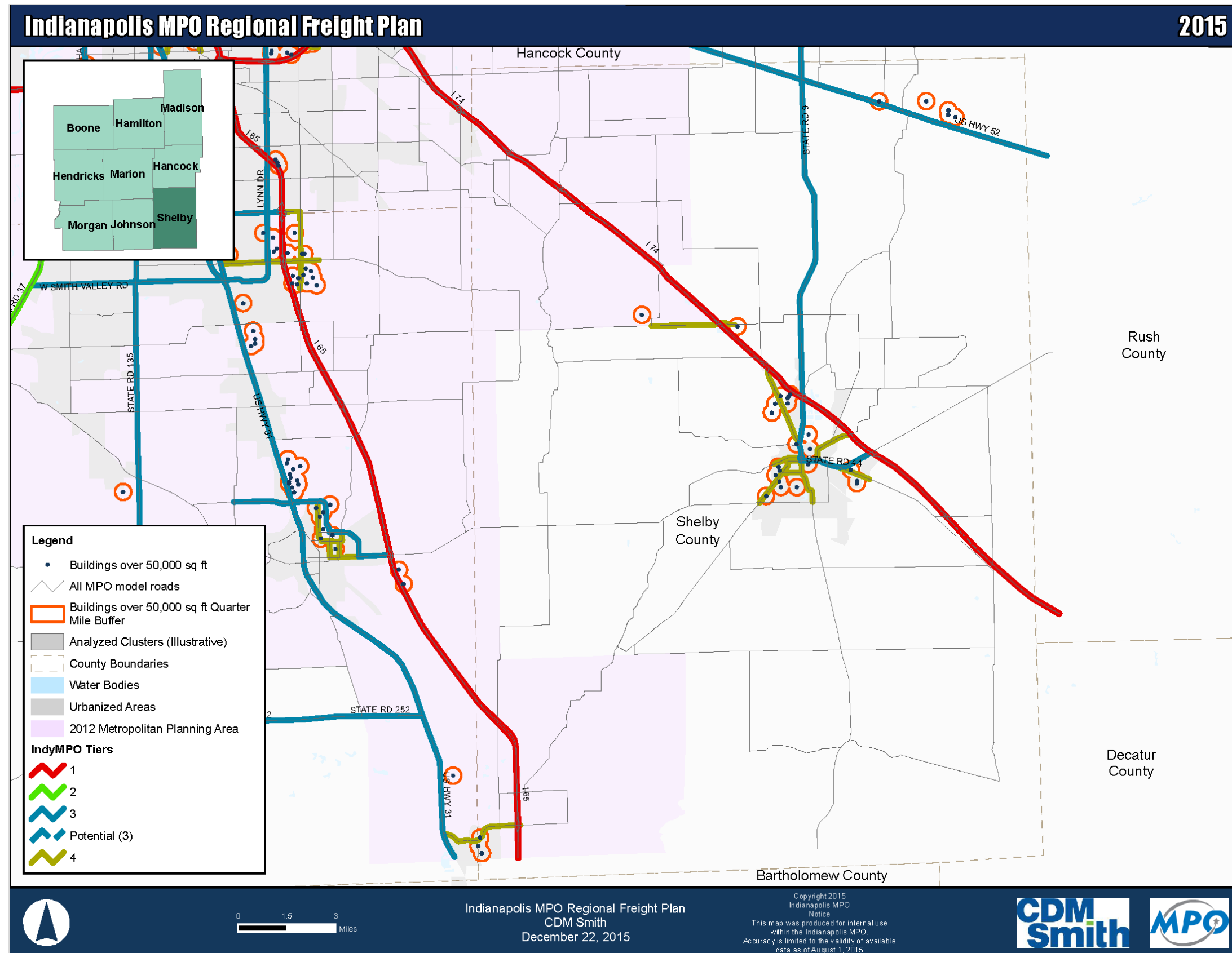












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Appendix C

Governance Actors

Federal Freight Institutions

U.S. Department of Transportation

The United States Department of Transportation (USDOT) is the federal department responsible for carrying out the nation's transportation policy. In respect to freight, the USDOT is charged with improving the condition and performance of an integrated national freight transportation system that is safe, economically efficient, and environmentally sustainable, and that provides a foundation for the United States to compete in a global economy. There are a number of number agencies and departments within USDOT that directly or indirectly impact national freight policy.

Federal Highway Administration (FHWA)

The Federal Highway Administration (FHWA) coordinates highway transportation programs in cooperation with states and other partners to enhance the country's safety, economic vitality, quality of life, and the environment. Major program areas include the Federal-Aid Highway Program, which provides Federal financial assistance to the states to construct and improve the roads and bridges. FHWA also manages a comprehensive research, development, and technology program.

Highway Office of Freight Management

The Highway Office of Freight Management (HOFM) promotes the deployment of technology and the adoption of State DOT/MPO best practices to facilitate the smooth flow of goods on the transportation system and across our borders. The Intermodal Freight Technology program within the HOFM conducts operational tests of Intelligent Transportation Systems (ITS) freight related technologies that could ultimately lead to operational improvements to the Indianapolis Regional Freight System.

National Highway Traffic Safety Administration (NHTSA)

The National Highway Traffic Safety Administration's (NHTSA) mission is to reduce deaths, injuries and economic losses resulting from motor vehicle crashes. NHTSA sets and enforces safety performance standards for motor vehicles and equipment, and funds local highway safety programs. NHTSA investigates safety defects in motor vehicles; sets and enforces fuel economy standards; helps states and local communities reduce the threat of drunk drivers; promotes the use of safety belts, child safety seats and air bags; investigates odometer fraud; establishes and enforces vehicle anti-theft regulations; and provides consumer information on motor vehicle safety topics.

Federal Aviation Administration

The Federal Aviation Administration (FAA) is the federal agency charged with ensuring the safety and efficiency of the U.S. aerospace industry. Within the Indianapolis region, FAA authority/oversight is most evident at the Indianapolis International Airport (IND). The FAA is

responsible for issuing the Airport Operating Certificate (Part 139) for the airport as well as Air Carrier Certificates (Part 121) for all airlines operating at the airport, including air cargo airlines. These certificates serve to ensure safety in air transportation as airports and air carriers must agree to certain operational and safety standards

The majority of funding for airport projects comes from the FAA, while INDOT supplements federal funding with state funds when available.

Pipeline and Hazardous Materials Safety Administration

The Pipeline and Hazardous Materials Safety Administration (PHMSA) oversees the safety of more than 800,000 daily shipments of hazardous materials in the U.S. and 64 percent of the nation's energy that is transported by pipelines. PHMSA is dedicated to safety by working toward the elimination of transportation-related deaths and injuries in hazardous materials and pipeline transportation, and by promoting transportation solutions that enhance communities and protect the natural environment.

Federal Motor Carrier Safety Administration

The Federal Motor Carrier Safety Administration's (FMCSA) primary mission is to prevent commercial motor vehicle-related fatalities and injuries. The USDOT regulates the motor carrier industry through the enforcement of the Federal Motor Carrier Safety Regulations Act (FMCSR). Standards set by the FMCSR cover driver qualification, hours-of-service requirements, inspection and maintenance of the vehicles, and hazardous materials transportation.

Federal Railroad Administration

The Federal Railroad Administration (FRA) promotes safe and environmentally sound rail transportation. With the responsibility of ensuring railroad safety throughout the nation, the FRA employs safety inspectors to monitor railroad compliance with federally mandated safety standards including track maintenance, inspection standards and operating practices. Among other duties FRA is responsible for promulgating and enforcing rail safety regulations.

In 2012, the FRA awarded nearly \$900,000 to the City of Indianapolis to conduct the preliminary engineering and environmental analysis for the relocation of CSX rail traffic from downtown Indianapolis to the nearby Indianapolis Belt Railroad line. This project will separate freight and passenger rail operations, remove 10 to 12 grade crossings, and will improve safety while decreasing congestion and emissions. The project also aims to improve quality of life by reducing noise exposure to residents, office buildings, the convention center, and sports venues.¹⁹

Surface Transportation Board

The Surface Transportation Board (STB) is an independent regulatory agency, which is administratively affiliated with USDOT. It is responsible for the economic regulation of interstate surface transportation, primarily railroads. Among its core responsibilities, the STB is charged with resolving railroad rate and service disputes and reviewing proposed railroad mergers.

¹⁹ http://www.progressiverailroading.com/csx_transportation/news/USDOT-provides-900000-to-relocate-freight-rail-traffic-in-Indianapolis--32293

Maritime Administration

Among the Maritime Administration's (MARAD) many responsibilities, it is responsible for ensuring the nation has adequate shipbuilding and repair service, efficient ports, effective water transportation systems, and reserve shipping capacity in time of national emergency. MARAD is the federal policy leader for commercial maritime matters, and is responsible for compliance with other than safety statutory requirements enacted by Congress.



The agency's Marine Highway Initiative identifies opportunities for to reduce Interstate Highway congestion by shifting freight to the Inland Waterway System. One of the corridors identified, is Interstate 70. The M-70 Marine Highway Corridor is the designated alternative maritime alternative to I-70 stretching from Pittsburgh to Kansas City, consisting of the Ohio, Mississippi, and Missouri Rivers. In addition to alleviating congestion, the M-70 also has the potential to improve safety and reduce maintenance costs for highway infrastructure.²⁰

Department of Homeland Security

The Department of Homeland Security (DHS) combined 22 different federal departments and agencies into a unified, integrated cabinet agency when it was established in 2002. Homeland Security Department agencies such as the Transportation Security Administration (TSA) and Customs and Border Protection (CBP) agency run a number of cargo transportation security programs. Securing product supply chains is a concern as shipments move across various modes operating through many corridors and gateways. Incidents around the world have highlighted the

²⁰ <http://www.marad.dot.gov/ships-and-shipping/dot-maritime-administration-americas-marine-highway-program/>

vulnerability of transportation assets to terrorists, and other persons intending to do harm to national governments, as well as create economic consequences through trade disruptions and material theft.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines as well as licensing hydropower projects. In the Indianapolis region, FERC approves the development and abandonment of interstate natural gas pipelines and storage facilities.²¹

Indiana Freight Institutions

Indiana Department of Transportation

Indiana Department of Transportation's (INDOT) stated mission is to plan, build, maintain, and operate a superior transportation system enhancing safety, mobility, and economic growth. INDOT is responsible for the construction, maintenance, and signage of state roads, interstates, and U.S. routes including adjacent overpasses and ramps on these roadways. INDOT also regulates 4,500 miles of rail and more than 110 public use airports and 560 private access airports across the state. Over the past decade, the agency has provide significant funding for freight related projects and recently completed an update to its Multimodal Freight and Mobility Plan in 2014.²²

Indiana Utility Regulatory Commission

Originally established to regulate railroad activity, the Indiana Utility Regulatory Commission (IURC) is now responsible for regulating electric, natural gas, telecommunications, steam, water and sewer utilities. IURC's Pipeline Safety Division receives its federal authority from the USDOT to conduct inspections, investigate incidents, and enforce federal safety regulations and state statutes and rules. The division also monitors and evaluates regulatory and policy initiatives and advises the Commission about proceedings initiated by Indiana's system operators.²³

Indiana Finance Authority

The mission of the Indiana Finance Authority (IFA) is to oversee State-related debt issuance and provide efficient and effective financing solutions to facilitate state, local government, and business investment in Indiana. In practice, the IFA is authorized to issue revenue bonds payable from lease rentals under lease agreements with various state agencies and to finance or refinance the cost of acquiring, building and equipping structures for state use including highways, bridges, and airport facilities. Recent freight related IFA projects include the Indiana Toll Road lease, I-69

²¹ <http://www.ferc.gov/about/ferc-does.asp>

²² <http://www.in.gov/indot/2341.htm>

²³ <http://www.in.gov/iurc/>

Section 5, I-69 Major Moves Expansion Project and the Indianapolis International Airport Maintenance Center.²⁴

Indiana State Police

The Indiana State Police (ISP) are tasked with protecting life and property while enforcing federal and state laws. The ISP is also responsible for ensuring public safety on roadways through vigorous traffic enforcement. The ISP Commercial Vehicle Enforcement Division (CVED) is responsible for enforcement of laws and regulations related to commercial vehicles in the state, providing numerous resources to aid carriers and drivers in understanding and meeting compliance requirements for transporting goods across Indiana's roadways. ISP CVED currently has ten permanent scales located along Indiana's Interstate system to enforce regulations for approximately 1.5 million commercial vehicle per year. Additionally, five of the permanent stations use weigh-in-motion technology called PrePass and patrol vehicles are equipped with portable scales.²⁵



Ports of Indiana

Indiana is home to three ports on two major international freight arteries, Burns Harbor on Lake Michigan and river ports at Mount Vernon and Jeffersonville on the Ohio-Mississippi River System. The Ports of Indiana is a quasi-governmental organization that operates the statewide system of ports, foreign trade zones, and economic development programs. The mission of the Ports of Indiana is to develop and maintain a world class port system that operates as an agile, strategically-driven, self-funded enterprise dedicated to growing Indiana's economy. It is authorized to construct, maintain, and operate, in cooperation with the federal government, public ports with terminal facilities and traffic exchange points throughout Indiana that benefit all forms of transportation. The Ports of Indiana's powers are not limited to ports and may be exercised throughout Indiana for projects that enhance, foster, aid, provide, or promote economic development, public-private partnerships, and other industrial, commercial, business, and transportation purposes. The Ports of Indiana also administers Indiana's Foreign Trade Zones (FTZs), which includes each of the three maritime ports and the Indianapolis International Airport. The Ports of Indiana can also pursue the development of intermodal rail ports in the state.²⁶

Indiana Economic Development Corporation

The Indiana Economic Development Corporation (IEDC) is the state's lead economic development agency. The IEDC is organized as a public private partnership governed by a 12-member board focused on assisting private companies in identifying locations and financial incentive structures

²⁴ <http://www.in.gov/ifa/>

²⁵ <http://www.in.gov/isp/2554.htm>

²⁶ http://www.portsofindiana.com/poi/about_us/overview.cfm

to attract, retain, and expand targeted industries in Indiana. Logistics and transportation is one of eleven targeted industries identified by IEDC in which to focus business retention and expansion efforts. Most of the other ten targeted industries rely on logistics and transportation to support continued growth.²⁷

Multijurisdictional Partnerships

Mid-America Freight Coalition

The Mid-America Freight Coalition (MAFC) is a coalition of Midwestern states with a mission to support the economy of the region by working to ensure that freight can move reliably, safely, and efficiently within and through the region. The coalition consists of 10 state Departments of Transportation (including INDOT), each state has signed and memorandum of understanding demonstrating their willingness to meet freight demand through regional cooperative efforts. The MAFC is built upon the Upper Midwest Freight Corridor Study, which focuses on developing capacity, regulatory, planning, and public/private initiatives to help meet the nation's need for safe, efficient, and sustainable infrastructure for the movement of goods. The MAFC and its studies provide a valuable source of regional data and analysis for Indianapolis MPO to consider when working to enhance the regional transportation system's ability to meet freight demand.²⁸

Interstate 70 Dedicated Truck Lanes Coalition

In 2009, the Indiana, Illinois, Missouri and Ohio DOTs formed a coalition to explore the use of dedicated truck lanes along I-70 between Kansas City and Wheeling, West Virginia. The concept proposes adding four dedicated truck lanes to the existing infrastructure, two in each direction. Separating trucks and personal vehicles would reduce congestion, improve safety, and decrease maintenance costs of general purpose lanes. It would also improve the predictability of goods movement; however, a project of this size would have a significant cost. While this corridor has been identified by the FHWA as a Corridor of the Future, public funding for the development and construction lanes will be limited. There are many design challenges to overcome as there are several urban areas along the route. To date, only a feasibility study has been conducted. However, were dedicated truck lanes implemented it would have a major impact on the trucking industry in Indianapolis and the entire I-70 corridor.

Regional Agencies/Partners

Central Indiana Regional Transportation Authority

The Central Indiana Regional Transportation Authority (CIRTA) is a quasi-governmental organization focused on bringing more transportation options to Central Indiana. By improving and increasing transit options, employees and employers throughout the region benefit from better accessibility and connectivity between the workforce and their places of employment. One of CIRTA's major initiatives is to provide transit service to the region's logistics centers. These "Connector" routes provide service between IndyGo routes and large employment centers like

²⁷ <http://www.iedc.in.gov/about-the-iedc>

²⁸ <http://midamericafreight.org/about/governance/>

Plainfield's logistics and distribution cluster. Improving transit options directly impacts the freight industry by not only connecting employees to employers, but also reduces congestion which subsequently reduces delay of freight movements.²⁹

IndyGo

The Indianapolis Public Transportation Corporation, branded as IndyGo, is the public transportation provider for Indianapolis – Marion County. IndyGo operates 31 bus routes throughout the county and provided 10.29 million passenger trips in 2014, making it the largest public transportation provider in the state of Indiana. Transit providers like IndyGo and CIRTa provide access to jobs for the region's residents and a talented workforce for the industry.

Indianapolis Airport Authority

The Indianapolis Airport Authority (IAA) is the municipal corporation that owns, develops, and operates six airports in the Indianapolis metropolitan area. In addition to Indianapolis International Airport (IND), they include Downtown Heliport, Eagle Creek Airpark, Hendricks County Airport-Gordon Graham Field, Indianapolis Regional Airport, and Metropolitan Airport. From a freight perspective, IAA is a partner with industry leading air cargo service providers that move life sciences and other critical supply chain needs. IND is home to the second largest FedEx Express operation in the world, contributing to IND's status as the 8th busiest airport³⁰ in North America by cargo tonnage. IAA is actively engaged in partnering with local, national, and international businesses, freight forwarders, and cargo airlines to pursue new services and streamlined shipping operations. In recent years IAA has made major investments in support of special needs air cargo, specifically temperature-controlled product, which is a regular commodity at IND given the substantial pharmaceutical presence in Indianapolis. Its location at the intersection of several Interstates makes IND a major player in express freight.³¹

Foreign Trade Zone #72 / INzone

Foreign Trade Zones (FTZs) are federally designated locations within the U.S. considered to be outside U.S. Customs Territory. The FTZ program allows U.S. based companies to defer, reduce, or even eliminate customs duties on products admitted to the zone, in turn providing a competitive advantage to U.S. companies over their foreign counterparts. There are 12 active firms in FTZ #72 with an annual trade volume between \$1-5 billion and \$250-500 million in exports. FTZ #72 offers numerous on-site services to its member firms, including climate controlled warehousing, third-party logistics, repackaging/relabeling, inventory control software, transportation coordination, quality control services, and import/export services.³²

Indiana Economic Development Association

The Indiana Economic Development Association (IEDA) is the voice of economic development for Indiana and consists of economic developers, utilities, attorneys, consultants, financial

²⁹ <http://www.cirta.us/pages/about/>

³⁰ http://www.aci-na.org/sites/default/files/nam2014_top_50.xlsx

³¹ http://www.indianapolisairport.com/employment_business/airservice.aspx

³² <http://inzone.org/ftz-overview/>

institutions, higher education professionals, engineers, architects, and construction professionals. The goal of the IEDA is to attract and retain jobs by promoting state and federal policies that support a positive business climate in the state. IEDA advocates ensure that economic development issues remain on the agenda for Indiana administrators and elected officials.³³ The IEDA could be helpful in advocating for freight improvement projects and in attracting freight-related industries to the region.

Chambers of Commerce

The Indy Chamber is the primary chamber of commerce for Indianapolis Region, which is comprised of 3,000 business members representing 235,000 employees. Indy Chamber works to strengthen the business climate, revitalize the neighborhoods, and enhance the workforce in the region. Indy Chamber has several committees and councils that aid in areas of business advocacy, economic development, education, workforce, local government policy, Hispanic business council, as well as transportation, infrastructure, and environment.³⁴ The Indiana Chamber is the state chamber of commerce tasked with similar mission on the statewide level. Both of these chambers should be considered instrumental partners in economic development initiatives that are directly or indirectly related to freight.

Local Government

Counties, cities and towns can have a significant impact on freight movement. Local governments control last mile roadway connections, access management regulations, economic development incentives and zoning control. Each power individually and in practice combined can significantly impact freight movement and development.

Private Industry

Private institutions, including trucking companies and railroads, play a critical role in the movement of freight.

Trucking

The state of Indiana and, more specifically, the city of Indianapolis are colloquially known as the “Crossroads of America” due to the numerous Interstate Highways that intersect the state and city. The trucking industry is on the front lines of the regional highway infrastructure and any projects that impact the flow of freight. In addition to the numerous trucking companies that traverse its highways each day, Indianapolis is home to several large trucking firms that should be considered important partners in developing a vision for transportation system improvements.

Rail

Similar to highways, numerous rail corridors pass through the Indianapolis region. All major railroads that transverse the region are private companies. As such, the majority of capital

³³ <http://ieda.org/wp/category/resources/>

³⁴ <http://www.indychamber.com/belong/about/>

investment made in terms of new, upgraded, and properly maintained infrastructure is funded by the railroads themselves. However, it is important to note that there has been increasing public investment across the country to alleviate major chokepoints and develop corridors for intermodal container transport. The primary railroads operating in the Indianapolis region include CSX, Indiana Southern, Indiana Rail Road, and Louisville Indiana. CSX is the only Class I railroad operating in the region, while the rest are Class II and Class III (“short line”) railroads.³⁵ These freight rail service providers are the primary stakeholders for this mode of transportation and are therefore invaluable partners in identifying and vetting opportunities to improve rail policies, projects, and programs in order to better meet transportation needs in the region.

Conexus Indiana

Conexus Indiana is a private-sector group of university, automotive, manufacturing, trucking, and development representatives that focus on improving the advanced manufacturing and logistics markets in Indiana. Conexus Indiana identifies and capitalizes on emerging opportunities while aligning resources and expertise. It focuses its efforts on issues like workforce development, exploring new market opportunities and building research and supplier networks to help Indiana manufacturing and logistics firms succeed. Conexus Indiana emphasizes the importance of the relationship between these sectors and the economic success of the region. With its workforce development program and industry councils, Conexus Indiana is an important partner in identifying opportunities for economic development throughout the region and state.³⁶

MAP-21 encourages each state to establish a freight advisory committee composed of a representative cross-section of public- and private-sector freight stakeholders. Conexus Indiana could serve as ready-made Indianapolis regional freight advisory committee.

Associations

Transportation-related professional organizations such as Railroads of Indiana, the Indiana Motor Truck Association, and the Indiana Pipeline Awareness Association, provide important professional training, information, and assistance to the freight transportation industry. The membership of these groups can serve as an outreach vehicle for future planning activities.

Other

Universities

This Plan’s outreach and literature review identified workforce development as a major issue for the region’s freight industry. These programs provide educational opportunities for one of the fastest growing regional industries. Transit linkages between these programs and other vehicles to enter the industry will be key.

Ivy Tech Community College offers a certificate and an associate’s degree in Supply Chain Management and Logistics. A curriculum which features Courses in Transportation Systems, Logistics management, and Supply Chain Management provides students with a foundation for

³⁵ Indiana State Rail Plan, 2011

³⁶ http://www.conexusindiana.com/about_overview

pursuing logistics supervisory roles. Ivy Tech has numerous locations in the greater Indianapolis area and offers on-line courses.

Vincennes University features the Supply Chain Logistics Management program. VU recently opened a classroom facility in Plainfield and offers classes on-line. VU also offers the Tractor Trailer Driver Training (TTDT) Program, commercial vehicle operator training that allows the student to earn a commercial driver's license (CDL).

IUPUI, Kelley School of Business offers a B.S. in Supply Chain Management. This program features the interactive flow of products, information, and cash flows between supply chain partners as well as balancing supply and demand, managing supplier and customer relations, improving processes, fulfilling orders, developing logistics and transportation networks, and controlling returns.

Conexus Indiana has the "Dream It. Do It. Indiana" program. This initiative promotes the pursuit of careers in advanced manufacturing and logistics to high school students. The A+Partner Program connects students with employers. Corporations provide real-world experience to allow students an opportunity to learn about the high-tech, fast-paced, and diversified roles in supply chain management.

Several commercial vehicle operator programs in the greater Indianapolis area provide truck driver training which culminates in the student qualifying for a CDL. One of these, Celadon Trucking provides the Celadon Driving Academy which features the CDL training for free and guarantees job placement.

Appendix D

ITS Suggestions

Potential Non-Infrastructure Solutions

What follows is a listing of potential initiatives that can help improve freight efficiency in Central Indiana without building new roadway capacity. They leverage technology and operational strategies.

Limiting Deliveries

Problem:

Trucks loading and offloading at stores and businesses along urban streets frequently double park due to limited parking. This practice reduces the capacity of the streets, causes congestion, and is a significant problem during rush hours.

Solutions:

Many of the solutions to this problem fall into a category of limiting deliveries. These could include many strategies such as...

- Public/Private agreements to limit deliveries to off hours only for high congestion areas
- Special on-street parking stall signs that limit parking to only deliveries during specified hours. The recipient stores could pay the parking fees for these special stalls during the designated hours of limited parking.
- Real time traffic congestion monitoring systems that time the "release" of participating trucks to make deliveries from staging areas at the perimeter of a business district. (Similar to how taxi services often operate at airports) This could include a smart phone APP which provides the shipper with a permit that designates a window of opportunity from which they will be notified by text message when it is time to make their delivery.
- Lane rental permit fees that allow trucks to block traffic during deliveries but they must pay substantial fees in an effort to discourage such practice.
- Increased parking enforcement initiatives that target lane blocking trucks
- A "pod" system whereby commercial products are delivered in containers that are dropped off in parking stalls or designated areas in alleys. The end-user loads/offloads the pods instead of the truck driver. Interruption to traffic flow is thereby limited to the few minutes it takes to drop off or pick up the pods which can be accessed from either the curb side or back of the container. In severe cases, container movements might only be allowed during specified off-hours. The return phase of the operation could also include recycling of materials to eliminate some waste management trips and increase the revenue for the shipper.

- Stringent guidelines for issuing lane blocking permits for construction and special events

Truck Traffic Management

Problem:

Because trucks are large, noisy and find it difficult to maneuver on narrow streets they often create problems in local neighborhoods and at intersections with substandard geometrics.

Solutions:

There are several systems that can be used to address this problem.

- **Truck Routes:** Historically, the typical approach to these issues has been to post "NO TRUCK" signs in problem areas as complaints arise from local residents, but this can sometimes create impediments along otherwise useful truck routes. Some transportation agencies are getting better results by posting "TRUCK ROUTE" signs on well thought out paths that are favorable to large vehicles. This is a positive approach that offers a workable solution to the truck drivers who find the network of restricted routes difficult to navigate. This solution does require some sort of compliance program to sustain the benefits, however. Because many truck drivers use truck friendly GPS navigation systems (there are currently about 9 such services), it is possible to work with those service providers so their systems limit the choices to only designated truck routes.
- **Incident Management:** Delay from incidents accumulates exponentially as time elapses, so the sooner a lane blocking incident is managed, the less delay is experienced for all motorists, including trucks. Various strategies are used by Traffic Management Centers (TMC's) to target incidents quickly and get traffic flowing as rapidly as possible. INDOT currently has two TMC's, and is linked with similar systems in Illinois, Michigan, Kentucky and Ohio to share information in both directions. Further improvements could be made to these systems to emphasize freight movements by truck in Indiana.
- **Traveler Information Systems for Trucks:** Providing timely information to truck drivers through traveler information systems such as email, dynamic message signs or text alerts to dispatch operators can be another way to help the truck drivers make informed decisions so they can divert to alternate routes with available capacity. A good example of this is TRIMARC's "Notify Every Truck" system in Kentucky. The system gives commercial vehicle operators route specific traffic information pertaining to complete closures in excess of two hours.

Another possible upgrade would be to leverage Indiana's unique Automated Traveler Information System (ATIS) by expanding the system to include neighboring states' message delivery devices such as changeable message signs. When major incidents occur, the system could automatically generate suggested messages for the appropriate signs in each state within 15 seconds of entering ten simple pieces of incident data. Each participating state could submit or receive this information, and each could then utilize their own systems to react to the suggested messages as they see fit. This system has been in operation in Indiana for over 20 years, and has proven to be

a cost effective mechanism for delivering traveler information via dynamic signs, media alerts, highway advisory radios, Indiana's 511 system and email texts to subscribers.

Weight Compliance Program

Problem:

Numerous truck weight compliance studies have shown that overweight trucks cause a major part of the roadway and bridge damage even with as few as 3% of the trucks operating overloaded, which is quite common. This damage causes unnecessary expenditures of limited agency maintenance funds and also increases user costs in the form of delays from construction work zones.

Solution:

There are several strategies that can be used to establish a truck weight compliance program that would effectively manage the occurrences of overweight trucks on Central Indiana roadways.

- Virtual Weigh Stations:** Technology in the form of Virtual Weigh Stations (VWS) can be used to record the occurrences of overweight vehicles and to provide visual images of the violators. This can be used in both historical and real time by enforcement officers. Historical data can reveal the hours of the week when the events occur, and real time data and images can be used by officers positioned downstream from the VWS to intercept specific vehicles caught operating overweight. They can then be inspected and fined if their weights, their vehicle condition, or their credentials are outside of legal limits. Historical data can also be used to identify habitual offenders. In that case, enforcement officers can simply contact the shippers' base of operations to conduct audits, send warning letters, or escalate the inspection frequency for that carrier's trucks until they comply with the rules. These are proven strategies for achieving higher levels of compliance with a minimum of effort.

Truck Traffic Performance Monitoring

Problem:

Performance metrics can be very effective tools for affecting positive change and for reducing costs, and this directly applies to freight movements. Solid, timely performance data can be used to diagnose, deploy and evaluate various strategies for improving efficiency.

Solution:

Truck Counting Sites: Various tools can be used to count trucks at strategic locations. This data can be used in many ways as performance metrics. For example, the data can be used to optimize traffic signal timings to make them respond more effectively when trucks use an intersection, particularly if they are making left turns. The data can also be used to update pavement management plans so the maintenance is appropriately applied in the right locations at the right times. The data can be used to identify when, and to what extent non-compliant trucks are using evasion routes around weigh stations. The data also has value in economic studies to identify trends in the movement of goods across the state.

Some of the tools that may be useful for developing performance measures include:

- **Virtual Weigh Stations:** VWS mentioned above to capture vehicle specific data
- **INRIX Data:** It is possible that INRIX data may potentially be used to capture volumetric data across various routes identified as truck routes. This historical data could help identify problem areas and trends.
- **Fuel Tax Revenue Data:** It may even be possible to track fuel tax data which has been normalized against variance in fuel pricing and seasonal impacts as a rough measure of changes to the economy. This suggestion is based on the premise that the movement of goods (i.e. freight activity) will vary with economic changes. If it can be assumed that truck stop fuel tax payment information can be acquired and correlated with seasonal and fuel tax data, then this could be a low cost way of capturing trends early enough to respond in the form of adjustments to motor carrier enforcement levels, justification for pavement/bridge maintenance request for funding, increased truck friendly traffic management strategies and increased levels of vigilance for traffic incident management efforts when truck volumes are high. This data may also have value in freight research studies.

