



INDIANAPOLIS
METROPOLITAN PLANNING ORGANIZATION

Tech Memo II-4
Refined Purpose and Need Statement

Indianapolis Metropolitan Area
Rapid Transit Study



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Appendix B – Regional Mass Transit Service Plan for Central Indiana, Central Indiana Regional Transit Alliance (CIRTA), December 1999



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1.0 PROBLEM STATEMENT

The ConNECTions study, which included the development of a Draft Environmental Impact Statement (DEIS) for transportation improvements in the northeast (of Indianapolis) corridor, examined transit alternatives as a joint project of the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). In the ConNECTions DEIS, it was determined that additional studies were needed to determine the transit needs of the greater central Indiana region.¹ As a result, this regional transit study (called "DiRecTionS") has been undertaken to determine the range and extent of the region's transit needs.

This section identifies the need for improvements in transit facilities and services in the Indianapolis metropolitan region by specifying both the transportation and non-transportation goals and objectives that the transit improvements should satisfy by resolving the specific transportation problems. With 1.5 million people and nearly 700,000 households, the Indianapolis Metropolitan Statistical Area (MSA) is the 29th largest in the US. The general study area is depicted in Figure 1.

Peak-period traffic congestion on the region's interstate highway network and its feeder roads is a growing problem for morning and evening commuters. As traffic congestion increases, both in duration and geographic coverage, more trips will be affected by congestion. Increasing congestion has many negative impacts that include increased air pollution and noise pollution, compromised economic development, and ultimately, it leads to traffic accidents that adversely affect public safety causing even more professional and personal time to be lost during a commute.

Without a regional transit authority or other regional transit service arrangements, the existing Indianapolis Public Transportation Corporation, which operates IndyGO, the local bus system, is presently compelled to provide transit service primarily within the city limits of Indianapolis. By comparison, the private interurban transit lines that went out of business, when they could no longer compete with the automobile, provided broader geographic coverage for the Indianapolis region in the early 1900s. The absence of good regional transit coverage is a problem for the region.

Not only is public transit service in the Indianapolis metropolitan region currently limited in geographic coverage, but frequency of the existing operational service is unsatisfactory. Consequently, the existing local bus system is considered inadequate to provide for the overall transit needs of the region. Furthermore, the region's highways, which now provide the dominant mode of travel in the region, are getting more congested all the time and cannot be expanded sufficiently to keep up with the pace of urban sprawl or overcome increased congestion. Where highway expansion is possible, new roadways would likely result in impaired water quality and fragmentation of existing wildlife habitat. The growing number of automobile trips and the resulting congestion are causing other problems, namely air quality. Air pollution has become and will continue to be an increasing problem for the region as the federal air quality standards get tougher. The city's limited bus system and its service, which is adversely affected by the region's traffic congestion, is not sufficient to draw enough patrons to reduce congestion and air pollution.

¹ Source: ConNECTions Final Environmental Impact Statement (FEIS)



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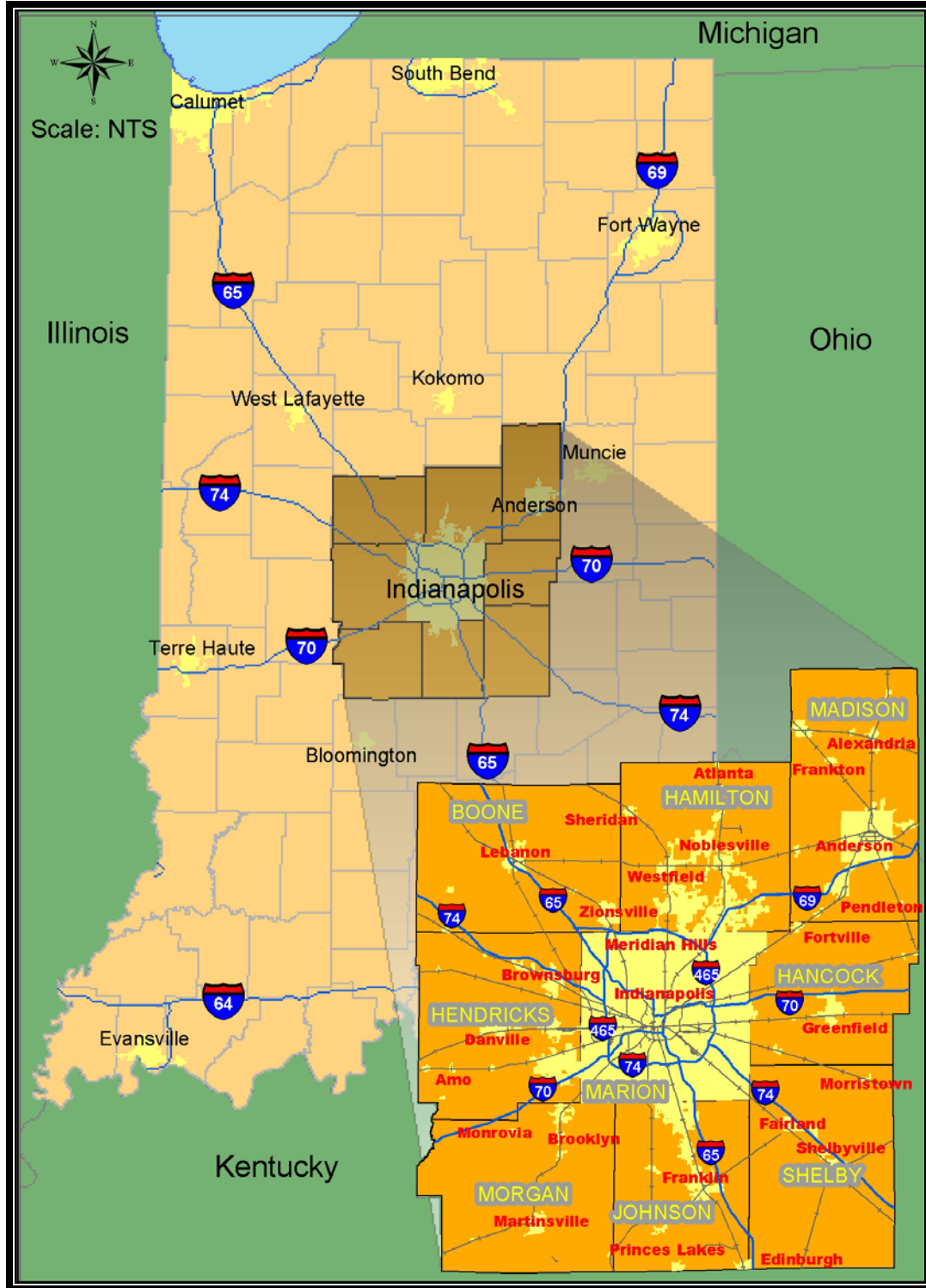


Figure 1: General Study Area



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In conclusion, the peak-period origin-destination survey data indicates that a majority of peak-period trips extend beyond the current local bus service area. Thus, the current bus service cannot affect enough trips to reduce congestion. Even expanding the existing local bus service area and using the current routing plans and technology will not significantly relieve the problem. The overriding problem that would remain is the extended bus service would not yield competitive travel times with the automobile. However, a transit system operating in an exclusive guideway/corridor and fed by a local feeder bus system, just like the interstate highway network is fed by arterial and local streets, is needed to meet the transit needs of the Indianapolis metropolitan region.

2.0 NEED FOR THE TRANSPORTATION IMPROVEMENTS

The Indianapolis metropolitan region has encountered considerable increases in congestion over the last couple of decades. Twenty years ago it took about four percent longer to make a trip during the peak period in the Indianapolis metropolitan region than it would when free-flow conditions prevailed, whereas in 2001 it took 26 percent more time to make that peak-period trip, according to the Texas Transportation Institute's (TTI) 2003 Urban Mobility Study (see Table 1). The study shows that time lost to congestion has increased more than tenfold, to the point where congestion in 2001 caused each Indianapolis-area motorist to consume an extra 39 gallons of fuel and to lose 23 hours a year, which together cost each motorist an extra \$446, annually. The Indianapolis metropolitan roadway network was congested for a total of 7.4 hours each day in 2001. Expressed another way, congested travel accounted for 69% of the total vehicle-miles of travel on Indianapolis streets and freeways during peak periods, which is more than double the period of congestion in 1990 (25 percent) and nearly six times what it was in 1982 (11 percent). The extent of Indianapolis' congestion in 2001 ranked it 30th in the US in terms of annual delay, a jump of 23 places since 1990.

Table 1: Indianapolis Statistics from the 2003 Urban Mobility Study

2001 Daily Vehicle-Miles of Travel	31,385,000
2001 Annual Delay (person-hours)	23,231
2001 Amount of Congested Travel	69%
2001 Congestion Cost (\$ million)	\$459
2001 Daily "rush" hours (hours of congestion)	7.4

Continued increases in vehicle miles traveled also exacerbate the problem in the Indianapolis metropolitan region. In 2001, Indianapolis-area motorists drove a total of 31 million miles per day on the area's roads and freeways—a 49 percent increase since just 1990. However, the miles of paved roadway increased by only 13 percent in that same period because adequate right-of-way no longer remains to expand the roadways.

The air quality in central Indiana is a problem. Ozone, which is created when sunlight and warm temperatures mix with hydrocarbons and nitrogen oxides, is the primary culprit. Hancock County reported the highest number of days (27) with poor air quality in the state in 2002, according to data in the U.S. Environmental Protection Agency's "State of the Air: 2003" report. The Noblesville monitor has the highest average of the fourth highest values over the last three years at 93 parts per billion (ppb), according to the Indiana Department of Environmental Management (IDEM). With the pending implementation of the eight-hour standard, the nine-county Indianapolis metropolitan region is expected to become non-compliant in April 2004, subjecting the area to federal sanctions and more restrictive mitigation measures.



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IndyGo has a fleet of 141 regular fixed-route buses, which are used to operate 31 local and six express routes. The agency also has 52 open-door vans used to operate 63 paratransit routes. IndyGo's heaviest ridership routes (Route 8—Washington Street; Route 10—10th Street; and Route 39—East 38th Street) are operated at 15-minute headways during the peak and at 30-minute headways during the off-peak, while the balance of the bus routes generally provide only 30-minute peak and 130-minute off-peak service. Many of the routes do not operate at all on the weekends; those that do have one-hour headways on Saturdays. Only five routes operate on Sunday, and they have two-hour headways.

Transit ridership declined precipitously in the post World War II period from about 85 million trips annually in 1950 to about ten million annually in 1997, when surveys of ridership showed a high percentage of IndyGo riders had no other transportation option, used the bus regularly, and used it for commuting to and from work. A 1991 report estimated that 40 percent of IndyGo's riders are transit-dependent and that 20 percent are elderly or handicapped. Ridership increased to over 11 million annually in both 1999 and 2000. However, ridership declined by 512,335 in the first six months of 2002 when compared with 2001, with 2002 resulting in just over ten million trips. IndyGo's share of state funding is also declining, and IndyGo is expecting a \$1.9 million loss in 2003.

The interstate highway network provides a hub and spoke pattern centered on downtown Indianapolis with a major ring road, I-465, around the region that has facilitated suburban development. Reinvestment in this infrastructure with the Hyperfix project (reconstruction of I-65/I-70 through downtown Indianapolis), and even expansion of the network with the proposed I-69 project, represent a considerable expenditure of federal dollars. However, the available right-of-way to further expand the network to eight, ten, and even 12 lanes is not available without significant displacements.

Housing, industrial, commercial, and office uses have been decentralized to the perimeter of the region. This decentralization has resulted in increasing total vehicle miles of travel for trips between increasingly farther apart home, shopping, and work destinations. In addition, federal tax laws have subsidized suburban housing mortgages, further encouraging an exodus of population from the central core to the edges of the region. The resulting development pattern has helped make the automobile the dominant mode of travel in the Indianapolis metropolitan region and has contributed to the decline of the region's public transit system. These trends have also led to a geographic stratification of the regional economy, isolating many low-income persons from jobs. Similarly, as the population ages, increasing numbers of persons cannot drive, and become cut off from important services and from entertainment opportunities.

The resulting decline in the region's public transit service has decreased the mobility of those who use transit, including both transit dependents and those who prefer to use transit. In addition, the lack of a desirable alternative to the automobile diminishes the region's ability to meet its air quality goals and makes the region vulnerable to energy shortages. Consequently, the region's elected officials are seeking to develop an effective multimodal public transit service that will address the mobility, environmental, energy, and development needs of the community.

3.0 GOALS AND OBJECTIVES

Table 2 below presents the general goals and specific objectives for the regional rapid transit study in the Indianapolis metropolitan region. These goals provide the basis for evaluating the alternatives, and the objectives permit specifically measuring the desirability of each alternative in order to be able to select one or more for detailed analysis and potential implementation.

The underlying goal is to create a multimodal transportation network with frequent, convenient, fast, safe and comfortable service that users can rely on throughout the Indianapolis metropolitan region in order to provide an



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alternative to the automobile. The frequency and duration of service must match users needs and expectations. By developing rapid transit in appropriate corridors and strategically locating stations, transit can become an instrument of sound growth in that it encourages development within areas that place minimal strain on the environment and existing infrastructure. The service should provide good access to downtown and key activity centers, notably the Airport with its new midfield terminal and surrounding job base. The service needs to interface with the new downtown transit center and provide good circulation for the mile-square downtown. Consideration should also be given to tying into the Central Business District (CBD) cultural trail program and to interfacing with the new Clarian people-mover system connecting local hospitals at the northwest edge of downtown. Any new modes that are introduced need to interface with IndyGo's bus network, which will need to be modified to optimize the overall transportation operations. Suburban employment concentrations will also need to be served so that inner ring residents, notably the transit dependent, can make the reverse commute to outlying jobs.



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Table 2: General Goals and Specific Objectives

General Goals	Specific Objectives
Goal No. 1: Maximize Engineering Feasibility and Public Safety	<ul style="list-style-type: none"> • Objective No. 1: Optimize locations and layout of stations and bus stops. • Objective No. 2: Provide adequate operating clearances for vehicles. • Objective No. 3: Minimize potential for rapid transit/automobile and rapid transit/pedestrian collisions. • Objective No. 4: Ensure optimum passenger capacity and comfort.
Goal No. 2: Maximize Community Benefits and Personal Safety	<ul style="list-style-type: none"> • Objective No. 1: Minimize land acquisition and displacements. • Objective No. 2: Maximize potential ridership and ensure personal safety. • Objective No. 3: Minimize visual impacts. • Objective No. 4: Minimize loss of street capacity and parking. • Objective No. 5: Provide new or improved economic development opportunities.
Goal No. 3: Minimize Environmental Impacts	<ul style="list-style-type: none"> • Objective No. 1: Ensure air quality standards are met. • Objective No. 2: Avoid/minimize impacts to wetlands, floodplains, and critical habitats. • Objective No. 3: Minimize operating noise and vibration levels. • Objective No. 4: Avoid/minimize impacts to sensitive land uses. • Objective No. 5: Minimize adverse socioeconomic impacts.
Goal No. 4: Maximize Operational Efficiency	<ul style="list-style-type: none"> • Objective No. 1: Maintain adequate vehicle spacing to minimize travel time and optimize both normal and emergency operations. • Objective No. 2: Provide optimal service speeds and ride comfort. • Objective No. 3: Maximize transit system integration. • Objective No. 4: Ensure reliable operations.
Goal No. 5: Minimize Costs	<ul style="list-style-type: none"> • Objective No. 1: Minimize construction and operating costs. • Objective No. 2: Ensure compatibility with existing, local, state, and federal funding sources. • Objective No. 3: Maximize potential revenue sources. • Objective No. 4: Maximize system value by balancing costs and benefits.