Northwestern Indiana
NRPC
Regional Planning Commission
6100 Southport Road
Portage, Indiana 46368
(219) 763-6060
www.nirpc.org

RESOLUTION 16-15

A RESOLUTION OF THE NORTHWESTERN INDIANA REGIONAL PLANNING COMMISSION FINDING THE 2040 COMPREHENSIVE REGIONAL PLAN COMPANION UPDATE AS AMENDED AND FISCAL YEAR 2016 to 2019 TRANSPORTATION IMPROVEMENT PROGRAM AS AMENDED TO PASS THE CONGESTION MANAGEMENT PROCESS

May 19, 2016

WHEREAS, the citizens of Northwest Indiana require a safe, efficient and effective regional transportation system that maintains and enhances regional mobility and contributes to improving the quality of life in northwest Indiana; and

WHEREAS, Titles 23 and 49 Sections 134 and 5303 respectively of the United States Code legislating Federal Aid Highways and Public Transportation require Metropolitan Planning Organizations in Transportation Management Areas (TMAs) to conduct a Congestion Management Process; and

WHEREAS, Titles 23 and 49 Sections 134 and 5303 respectively of the United States Code define a Transportation Management Area as an area with a population greater than 200,000 people; and

WHEREAS, the Northwestern Indiana Regional Planning Commission is a Metropolitan Planning Organization that conducts transportation planning in Lake Porter, and LaPorte Counties in Indiana that collectively have a population greater than 200,000 people; and

WHEREAS, the Northwestern Indiana Regional Planning Commission, hereafter referred to as "The Commission," being designated the Metropolitan Planning Organization for the Lake, Porter and La Porte County Region, has established a regional, cooperative, and comprehensive planning program to develop the unified planning work program, long-range transportation plan and transportation improvement program; to annually endorse the plans and programs; to facilitate federal transportation funding for the Indiana Department of Transportation, regional communities and transit operators, to provide technical assistance and expertise to regional transportation interests; and to provide a Congestion Management Process pursuant to Titles 23 and 49 Sections 134 and 5303 respectively of the United States Code; and

WHEREAS, the Commission performs the above mentioned activities to satisfy regional requirements under the Fixing America's Surface Transportation (FAST) Act, as

well as other federal, state and local legislation mandating cooperative, comprehensive and continuing regional transportation planning activities; and

WHEREAS, the 2040 Comprehensive Regional Plan Companion Update and Fiscal Year 2016 to 2019 Transportation Improvement Program are the products of a multi-modal, continuous, cooperative, and comprehensive transportation planning process; and

WHEREAS, the implementation of the projects in the 2040 Comprehensive Regional Plan Companion Update as amended and the Fiscal Year 2016 to 2019 Transportation Improvement Program as amended will result in traffic conditions that meet the goals of the Northwestern Indiana Regional Planning Commission's Congestion Management Process; and

WHEREAS, the Commission's Transportation Policy Committee approved the Congestion Management Process on March 15, 2016

NOW, THEREFORE, BE IT RESOLVED that Commission officially finds the Congestion Management Process for the 2040 Comprehensive Regional Plan Companion Update as amended and Fiscal Year 2016 to 2019 Transportation Improvement Program as amended to pass.

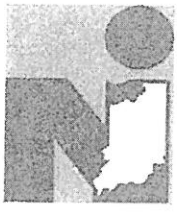
Duly adopted by the Northwestern Indiana Regional Planning Commission this nineteenth day of May 2016.

James G. Ton
Chairman

ATTEST:

Geof R. Benson
Secretary

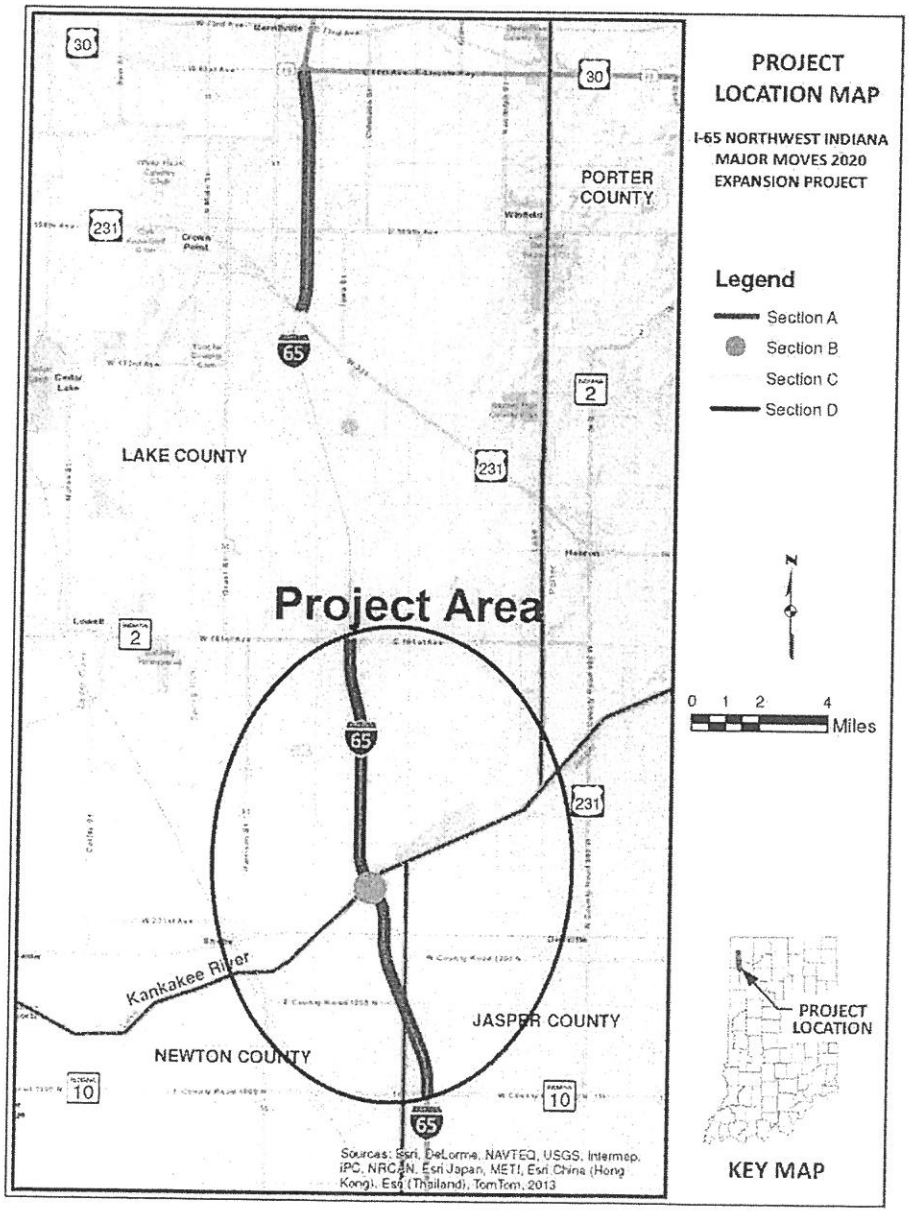
I-65 Added Travel Lanes Project: Congestion Management Process



Prepared by the Northwestern Indiana Regional Planning Commission

Overview of the Project: The Indiana Department of Transportation (INDOT) has proposed amending a project to add travel lanes to I-65 between SR-2 and SR-10 into the NIRPC 2040 Comprehensive Regional Plan (CRP) and FY 2016 to 2019 Transportation Improvement Program (TIP). This is a 10-mile stretch of I-65 between SR-2 in Lake County near Lowell and SR-10 in Jasper County near Roselawn and DeMotte. NIRPC does not normally plan for any territory outside of Lake, Porter, and LaPorte Counties, but for the purposes of demonstrating Air Quality Conformity and for fulfilling the logical termini requirement of 23 CFR 771, NIRPC has added the 5-mile segment of the project between the Kankakee River and SR-10 in Newton and Jasper Counties. A map of the project area is shown below in Figure 1.

Figure 1: Map of the I-65 ATL Project Area



Introduction: In order for NIRPC to approve the inclusion of the I-65 Added Travel Lanes project into the NIRPC 2040 Comprehensive Regional Plan (Companion Update as adopted in 2015) and Fiscal Year 2016 to 2019 Transportation Improvement Program, NIRPC must find the project to pass the Congestion Management Process. For a project to pass the Congestion Management Process, the proposed capacity adding strategy must relieve congestion more than alternative non-capacity adding strategies. NIRPC's Congestion Management Process is a 12-step process outlined in Appendix C of the 2040 Comprehensive Regional Plan:

1. Establish a congestion management subcommittee
2. **Collect Data**
3. Develop Congestion Management Objectives
4. **Identify Area of Application**
5. Define System/Network of Interest
6. Develop Performance Measures
7. **Evaluate growth and development scenarios to identify future congestion problems in the context of the CRP**
8. Institute System Performance Monitoring Plan
9. **Identify/Evaluate Strategies**
10. Incorporate Strategies into the CRP and Transportation Improvement Program (TIP)
11. Implement Selected Strategies/-Manage System
12. Monitor Strategy Effectiveness

Bolded items indicate items that need to be addressed as part of this Congestion Management Process Project Evaluation, as explained in Section XI of Appendix C in the 2040 CRP. Non-bolded items do not need to be addressed in the Project Evaluation because either they have already been addressed (Item 1, 3, 5, and 6) or are actively being addressed as part of the 2040 CRP Plan Implementation (Items 8, 10, 11, and 12). The following describes how the proposed I-65 ATL project Congestion Management Process meets the bolded items.

CMP Process #2: Collect Data: NIRPC collects data routinely as part of its planning process outlined in the Fiscal Years 2015-2016 Unified Planning Work Program found on the NIRPC website at http://nirpc.org/transportation/unified-planning-work-program.aspx. In particular for the Congestion Management Process, NIRPC relies on data from both the NIRPC Travel Demand Model (for data related to vehicle capacities, volume, volume to capacity ratios [V/C], level of service [LOS], and speed) as well as real-time data (vehicle travel times, speeds, and crash rates).

CMP Process #4: Identify Area of Application: Since the proposed I-65 ATL project between SR-2 and SR-10 is a Project Evaluation explained in Section XI of Appendix C of the 2040 CRP, only a specific area of application applies. The area of application for this project is I-65 between SR-2 and SR-10. See Figure 1 for a project area map.

CMP Process #7: Evaluate growth and development scenarios to identify future congestion problems in the context of the CRP: The Project Evaluation for the I-65 ATL project between SR-2 and SR-10 accomplishes this by examining the conditions of congestion in both the existing and projected future no-build scenario. Tables 1 and 2 show the existing 2015 congestion and projected 2040 no-build congestion respectively.

Table 1: Congestion Conditions on Existing I-65 in Project Area in 2015

		Level of Service (LOS)
Project Length (mi)	10.28	
2015 Total Volume to Capacity (V/C) Ratio	0.474	C
2015 AM Volume to Capacity (V/C) Ratio	0.433	C
2015 PM Volume to Capacity (V/C) Ratio	0.460	C
2015 OP Volume to Capacity (V/C) Ratio	0.483	C
2015 % Below Posted Speed	10.9%	A
2015 Crash Rate (crashes per million VMT)	0.89	A
Total Level of Service (LOS)		**B**

Table 2: Projected Congestion Conditions on I-65 Project Area from 2040 CRP in 2040

		Level of Service (LOS)
Project Length (mi)	10.28	
2040 Total Volume to Capacity (V/C) Ratio	0.610	C
2040 AM Volume to Capacity (V/C) Ratio	0.536	C
2040 PM Volume to Capacity (V/C) Ratio	0.576	C
2040 OP Volume to Capacity (V/C) Ratio	0.628	C
2040 % Below Posted Speed	23.6%	D
2040 Crash Rate (crashes per million VMT)	1.45	B
Total Level of Service (LOS)		**C**

Table 1 shows that the Project Area segment of I-65 currently performs at Level of Service B – Reasonably Free Flow. Table 2 shows that if nothing is done in the project area, in 2040 the segment will perform at Level of Service C – Stable Flow. The growth and development assumptions in the projected 2040 no-build scenario in Table 2 have the same growth and development assumptions as in the NIRPC 2040 CRP.

CMP Process #9: Identify/Evaluate Strategies: According to the 2040 CRP Congestion Management Process Project Evaluation, alternative strategies to adding capacity need to be examined in order to conclude that the capacity-adding strategy improves congestion better than the alternative strategies. Alternative strategies are divided into 2 categories: demand management strategies and transportation systems strategies.

There are 4 demand management strategies identified in the 2040 CRP Congestion Management Process: telecommuting, carpooling, school pool, and flextime. In the context of this Project Area, 3 of the 4 strategies, with the exception of school pool because there are no district school busses that use this segment, are considered viable. Altogether, these 3 strategies are assumed to reduce demand for this segment by 4.5%. Table 3 shows projected 2040 congestion on the segment if these 3 demand management strategies are implemented.

Table 3: Projected Congestion Conditions on I-65 Project Area with Demand Management in 2040

		Level of Service (LOS)
Project Length (mi)	10.28	
2040 Total Volume to Capacity (V/C) Ratio	0.575	C
2040 AM Volume to Capacity (V/C) Ratio	0.512	C
2040 PM Volume to Capacity (V/C) Ratio	0.550	C
2040 OP Volume to Capacity (V/C) Ratio	0.599	C
2040 % Below Posted Speed	20.7%	D
2040 Crash Rate (crashes per million VMT)	1.38	B
Total Level of Service (LOS)		**C**

From Table 3, it appears that demand management improvements alone have little effect on congestion compared with the 2040 projected no-build scenario in Table 2.

There are 9 transportation systems strategies identified in the 2040 CRP Congestion Management Process: signal timing, intersection turn lanes, traffic operations improvements, driveway controls, median controls, incident management/Intelligent Transportation Systems (ITS), railroad grade separation, transit, and growth management. Of these 9 strategies, only incident management/ITS is viable for the Project Area because it is already a limited access Interstate Highway with multiregional significance. Implementing the incident management/ITS strategy yields an effective 10 percent capacity increase. Table 4 shows the projected 2040 congestion on the segment if both the demand management strategies and the transportation system strategy are implemented.

Table 4: Projected Congestion Conditions on I-65 Project Area with Demand Management and Transportation System Strategies in 2040

		Level of Service (LOS)
Project Length (mi)	10.28	
2040 Total Volume to Capacity (V/C) Ratio	0.523	C
2040 AM Volume to Capacity (V/C) Ratio	0.466	C
2040 PM Volume to Capacity (V/C) Ratio	0.500	C
2040 OP Volume to Capacity (V/C) Ratio	0.545	C
2040 % Below Posted Speed	19.2%	C
2040 Crash Rate (crashes per million VMT)	1.38	B
Total Level of Service (LOS)		**C**

Compared with Table 3 showing just demand management strategies, Table 4 shows that implementing both demand management strategies and a transportation system strategies does not significantly affect Level of Service on the segment.

After considering both demand management and transportation system strategies, the Congestion Management Process considers the supply adding strategies of building one added travel lane in each direction, increasing the total number of lanes from 4 to 6 for a 50 percent increase in capacity. Table 5 shows the projected 2040 congestion on the segment if both the demand management strategies and the added travel lanes are implemented.

Table 5: Projected Congestion Conditions on I-65 Project Area with Demand Management and Added Travel Lanes Strategies in 2040

		Level of Service (LOS)
Project Length (mi)	10.28	
2040 Total Volume to Capacity (V/C) Ratio	0.386	B
2040 AM Volume to Capacity (V/C) Ratio	0.344	B
2040 PM Volume to Capacity (V/C) Ratio	0.369	B
2040 OP Volume to Capacity (V/C) Ratio	0.402	C
2040 % Below Posted Speed	10.1%	A
2040 Crash Rate (crashes per million VMT)	1.39	B
Total Level of Service (LOS)		**B**

Compared with Tables 3 and 4, it is clear that adding one travel lane in each direction as shown in Table 5 significantly improves performance. Table 5 shows by adding one travel lane in each direction as well as implementing demand management strategies, the corridor is expected to perform at Level of Service B – Reasonably Free Flow.

Finally, the Congestion Management Process considers the effects of implementing all available strategies –demand management, added travel lanes, and transportation system improvements. Table 6 shows the projected congestion conditions in 2040 implementing all of these strategies.

Table 6: Projected Congestion Conditions on I-65 Project Area with Demand Management, Added Travel Lanes, and Transportation System Strategies in 2040

		Level of Service
Project Length (mi)	10.28	
2040 Total Volume to Capacity (V/C) Ratio	0.351	B
2040 AM Volume to Capacity (V/C) Ratio	0.312	B
2040 PM Volume to Capacity (V/C) Ratio	0.336	B
2040 OP Volume to Capacity (V/C) Ratio	0.366	B
2040 % Below Posted Speed	10.1%	A
2040 Crash Rate (crashes per million VMT)	1.39	B
Total Level of Service (LOS)		**B**

Table 6 shows very little change from Table 5 indicating that adding one travel lane in each direction on I-65 between SR-2 and SR-10 has a much greater effect on improving congestion than transportation system strategies. Also, since Table 3 shows very little change from Table 2, it appears that demand management strategies alone have little effect on congestion in the project area. This suggests that the added travel lanes strategy has significantly the greatest effect on improving congestion from the strategies considered in the Congestion Management Process.

In summary, Table 7 shows the strategies that the Congestion Management Process considers and their projected total Levels of Service.

Table 7: Congestion Management Process Strategies and their Projected Levels of Service (LOS)

I-65 Added Travel Lanes Between SR-2 and SR-10	
LOS 2015	B
LOS 2040 No Build or Strategies	C
LOS 2040 with Demand Management	C
LOS 2040 with Demand Management and Transportation System Strategies	C
LOS 2040 with DM and Added Travel Lanes	B
LOS 2040 with Added Travel Lanes, DM and Transportation System Strategies	B

In conclusion, the Congestion Management Process for the I-65 added travel lanes project shows that only the added travel lanes strategy for improving congestion achieves the existing 2015 Level of Service in 2040. Demand management and transportation system strategies alone fail to adequately improve congestion. Therefore, the analysis recommends that the I-65 added travel lanes project pass the NIRPC Congestion Management Process.

Case Study: NIRPC examined a case study of an added travel lanes project similar in type to the proposed I-65 added travel lanes project: a 9-mile added travel lanes project on I-95 in Middlesex County, New Jersey opened to traffic in November 2014. Like the proposed I-65 added travel lanes project, this project added one travel lane in each direction. Also similar to the I-65 project, this project is roughly 50 miles outside of a major city. NIRPC also chose this case study because it has available probe data on travel time both before and after the project opened to traffic. The National Performance Measure Research Data Set (NPMRDS) provides travel time data at 5-minute intervals for all probe-equipped vehicles (i.e. vehicles with cellphones and in-vehicle GPS devices) between July 2013 and December 2015. NIRPC analyzed all available data for this stretch of I-95 between July 2013 and October 2014 as a before added travel lanes scenario, and data between November 2014 and December 2015 as an after added travel lanes scenario. Four key measurements of change between the before added travel lanes and after added travel lanes scenarios are presented in Table 1.

Table 8: Measurements of Change on I-95 in Middlesex County, New Jersey Before and After ATL

Measurement	Before Added Travel Lanes	After Added Travel Lanes	Before to After Change	Before to After Percent Change
Total Travel Time (hours)	115,132	108,525	-6,607	-5.7%
Delayed Hours	18,079	4,842	-13,237	-73.2%
Mean Speed (mph)	56.8	64.8	8.0	14.1%
Median Speed (mph)	65.4	67.0	1.6	2.5%

Source: National Performance Measure Research Data Set (NPMRDS)[1]

[1] Based on NPMRDS Data available for a 9-mile segment of I-95 in Middlesex County, NJ. July 2013 to October 2014 for Before Added Travel Lanes scenario, November 2014 to December 2015 for After Added Travel Lanes scenario. Measurements are from NPMRDS available data and are only a sample size and not

Based on the case study, adding travel lanes to a major Interstate Highway in order to increase capacity by 33 percent (I-65 Added Travel Lanes would be 50 percent) appears to significantly improve congestion across several measures. First, travel time improved by 5.7 percent after the project was opened to traffic. More significantly, delay hours, defined as hours spent below the posted speed limit, decreased dramatically by 73.2 percent. Thirdly, vehicle speeds improved substantially, evidenced by mean vehicle speeds increasing by 14.1 percent and median vehicle speeds increasing by 2.5 percent.

Since the I-65 added travel lanes project is a very similar type of project, NIRPC expects a similar improvement in congestion by adding travel lanes. The effect may even be more substantial given that expanding from four to six travel lanes is a 50 percent expansion in capacity, whereas the I-95 New Jersey project expanded only 33 percent from six to eight lanes.

Conclusion: The I-65 added travel lanes project between SR-2 and SR-10 is recommended to pass the NIRPC Congestion Management Process. Demand management and transportation system strategies alone fail to adequately improve congestion, and only the adding travel lanes alternative achieves a Level of Service in 2040 consistent with existing conditions. Examining the case study of added travel lanes on a similar Interstate Highway project in New Jersey show substantial reduction in congestion after the travel lanes opened to the public. A similar result could reasonably be expected on this I-65 added travel lanes project.

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expanded based on AADT or actual highway usage. Total Travel Time and Delayed Hours were sample weighted to compare After Added Travel Lanes and Before Added Travel Lanes scenarios.