

III. Description of the Region and Definition of Scope:

Description of the Region:

NIRPC is the Metropolitan Planning Organization that conducts transportation planning and programming pursuant to 23 C.F.R. § 450 for the Indiana Portion of the Chicago-Joliet-Naperville IL-IN-WI Metropolitan Statistical Area and the Michigan City-LaPorte Urbanized Area defined by the U.S. Census Bureau. This region is comprised of three counties in Northwest Indiana: Lake, Porter, and LaPorte. The region is known for its primary metal manufacturing, particularly steelmaking, and also increasingly for a viable residential location for Chicago commuters and their families.

The region is rich in transportation assets. An industrial lakefront legacy, commuting routes to and from Chicago, and a bottleneck of freight traffic navigating around the southern tip of Lake Michigan are just a few explanations of demand for a robust transportation system. Spanning the approximately 50-mile east to west and 30-mile north to south region, there are four Interstate Highways, eight US-Route Highways, 16 State Roads, eight railroads, 10 transit operators, 20 airports, and one international seaport. While the population of the region has grown substantially from 668,659 in 1960 to 771,815 in 2010, congestion experienced has grown much more rapidly.

Differentiating this region from the regions of most other Metropolitan Planning Organizations is there is no single dominant city within the region. While Chicago is symbolically the focal city in terms of driving the region's economy, only 25 percent of all work trips in Lake County (the closest Indiana county to Chicago) go to Chicago, and as a whole, 79 percent of work trips within the three-county region stay within the three-county region (2006-2010 American Community Survey). Hammond is the largest of the 41 municipalities in the three counties, but with 80,830 people in 2010 it amounts to a mere 10.5 percent of the region's population. Instead, the region could best be described as a diverse mixture of urban core communities, suburban communities, and rural areas with several small towns breaking up the rural landscape.

Definition of Scope:

This ITS architecture covers stakeholders, elements, services, and projects deemed by the development process described in the previous section as being important for documenting the ITS opportunities in the Northwest Indiana NIRPC region and offering solutions that could fit those opportunities. Many possible stakeholders, elements, services, and projects are not included in this ITS architecture because the ITS architecture should be focused enough to provide meaningful solutions to ITS opportunities that are clearly linked to ITS issues. Many of the ITS entities that are identified in this architecture do in fact interact with entities outside the architecture. Wherever possible, NIRPC has attempted to categorize those ITS entities in the most inclusive manner. For example, the element “Local Emergency Services” element includes Prompt Ambulance, a prevalent ambulance service in the region one might expect to have its own entry, and yet the choice of a more inclusive name allows for other ambulance services, any local fire department, etcetera to be identified in the same element.

The ITS architecture has a 10-year horizon given that in the rapidly changing world of transportation technology and communications, it is difficult to realistically offer solutions more than 10 years into the future. 10 years is also a sufficiently long horizon to plan for ITS solutions that might not yet be through the planning stage and ready for implementation today. This ITS architecture contains three statuses of elements, services, and the information flows between the elements. The “Existing” status indicates that the element already exists, the service has already been deployed, or that the information flows already occur. The “Planned” status indicates that the element has already been planned to be in place, the service has been planned to be deployed, or that the information flows have been planned to occur within the next 10 years. The “Potential” status indicates that in the development process of the architecture as described in the previous section, the element has been identified to potentially be in place, the service could be potentially deployed, or the information flow could potentially occur within the next 10 years.

It is important to note that this ITS architecture has been tailored to NIRPC’s perspective of ITS in the region because NIRPC will be the designated maintainer and should not necessarily be interpreted by all of the stakeholders in the same manner, as each will have a unique role to play in maintaining and implementing the ITS architecture. One of the key requirements that ITS

architecture must address is that all ITS projects using federal funding undergo a Systems Engineering Analysis (23 C.F.R § 940). Since NIRPC will not be the lead project sponsor or engineer on any ITS projects that will be implemented, NIRPC will not be the entity conducting the Systems Engineering Analysis. Nevertheless, NIRPC has a role to explain the requirement of a Systems Engineering Analysis and what will be expected from an ITS project in order for that project to move through the NIRPC programming process to be funded.

Sec 940.11 Project implementation.

- (a) All ITS projects funded with highway trust funds shall be based on a systems engineering analysis.
- (b) The analysis should be on a scale commensurate with the project scope.
- (c) The systems engineering analysis shall include, at a minimum:
 - (1) Identification of portions of the regional ITS architecture being implemented (or if a regional ITS architecture does not exist, the applicable portions of the National ITS Architecture);
 - (2) Identification of participating agencies roles and responsibilities;
 - (3) Requirements definitions;
 - (4) Analysis of alternative system configurations and technology options to meet requirements;
 - (5) Procurement options;
 - (6) Identification of applicable ITS standards and testing procedures; and
 - (7) Procedures and resources necessary for operations and management of the system.

Figure 1: Systems Engineering Analysis Requirements from 23 C.F.R. § 940

Once NIRPC receives a Systems Engineering Analysis by a project sponsor or a project engineer under contract with a project sponsor for an ITS project, NIRPC will update the regional ITS architecture by adding a project ITS architecture for the particular project, and send the information to (and receive feedback from) the project sponsor so that the implementation of the project best accords with the Northwest Indiana Regional ITS Architecture. Further resources about conducting a Systems Engineering Analysis can be found on the FHWA's Office of Operations website at http://ops.fhwa.dot.gov/int_its_deployment/sys_eng.htm.