Improving Business Processes for More Effective TSMO

Work Zone Management Case Study Example

*Michigan DOT: Work Zone Traffic Control Modeling for Construction Staging and Scheduling**

Work zone business processes addressed in this case study:

- Planning processes
- Coordination involving multiple divisions or groups

Michigan Department of Transportation (MDOT) has established processes for using modeling to evaluate the impacts of upcoming work zones and to develop work zone traffic control plan alternatives. Traditionally, long- and short-range planning activities and project-specific work zone planning functions do not intersect; however, in this case, some innovative analysis from the MDOT Planning Division was able to provide valuable input to the group implementing a significant project work zone on Interstate 75 (I-75) through metropolitan Detroit.

MDOT was able to develop network microsimulation models by leveraging an existing model, to analyze the potential impacts of the I-75 Ambassador Bridge Gateway. The model was originally developed as a tool for helping facilitate MDOT project funding decisions for southeast Michigan. MDOT Metro Region Planning repurposed the model and applied it to work zone modeling of the I-75 Ambassador Bridge Gateway Project. This marked the first time that network microsimulation had been used in an operations analysis, as opposed to planning applications. The model also had to consider numerous planned closures of I-75 and surrounding roads both because of the I-75 Ambassador Bridge Gateway Project and other planned construction projects.

Using this tool, MDOT Region Construction and Engineering staff were able to see the work zone's influence on the surrounding network and how different closure and traffic control scenarios would affect mobility on other corridors. As a result, the work zone mobility plan was developed considering impacts beyond the work zone. Model outputs were also used to inform the public outreach and involvement strategy, traffic incident management (TIM) planning, and traveler information program. This change in business processes brought together groups that did not typically collaborate on work zone planning and implementation. It also provided MDOT with delay measures based on project design and construction staging, as well as informed operation processes for other corridors affected by the work zone. Figure 1 shows a business process diagram for Michigan DOT's work zone traffic control modeling for construction staging and scheduling.

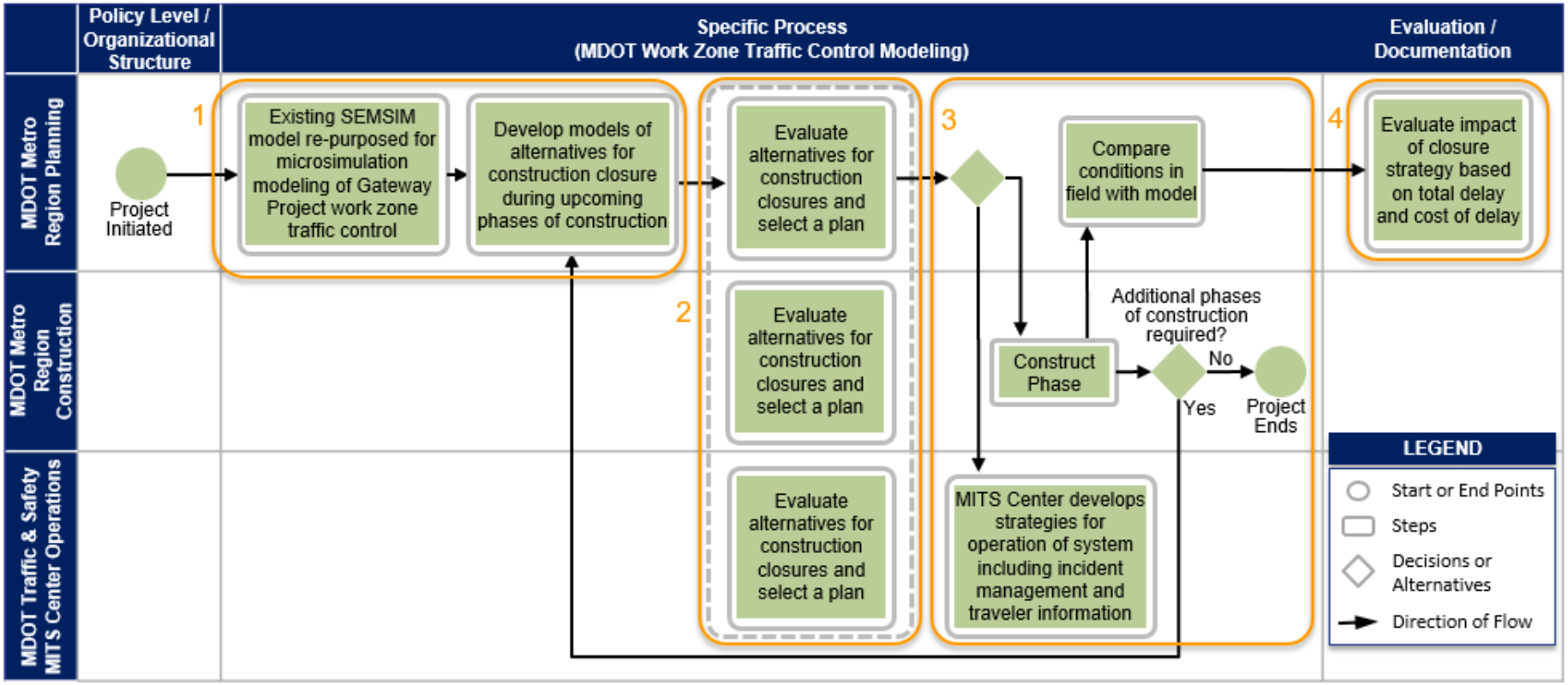

Figure 1. Business Process Diagram of Michigan DOT Work Zone Traffic Control Modeling for Construction Staging and Scheduling*

*Sources:

1) *Improving Business Processes for More Effective Transportation Systems Management and Operations,* Primer, 2016. www.ops.fhwa.dot.gov/publications/fhwahop16018/fhwahop16018.pdf

2) *E-tool for Business Processes to Improve Travel Time Reliability*, Final Report, 2014. www.fhwa.dot.gov/goshrp2/Content/Documents/Factsheets/SHRP2_L34_Final_Report1401.pdf