

detailed impacts analysis is required during the subsequent stages of project development. As proposed, States would be required to document the results of the work zone impacts analysis, the project options, the work zone design strategies, and mitigation measures identified during the process.

In § 630.1012(b)(1)(i) we propose to encourage States to establish a team that would include representatives of the project development stages to discuss, evaluate and document work zone issues, and take responsibility for the development of the project design and work zone mitigation strategies. The size and constitution of the multidisciplinary team and the level of involvement required may vary according to the anticipated work zone impacts. As proposed, we suggest that non-State personnel and affected parties may also be included in this team as appropriate. Such non-State personnel and affected parties may include other transportation agencies, such as counties, cities, local municipalities, Metropolitan Planning Organizations (MPOs), transit providers, police and other emergency response agencies, and representatives of affected businesses and residences.

In § 630.1012(b)(1)(ii) we propose language that states that the impacts analysis would be a systematic process that may require the use of appropriate analytical tools, depending on the degree of detail required for the analysis. Such tools would include transportation modeling and/or simulation software. We also propose that the impacts analysis consist of three main activities that are explained as follows:

In § 630.1012(b)(1)(ii)(A) we propose to include a requirement for States to understand the project, traffic and travel characteristics, and identify the work zone impacts of the project (including impacts of multiple projects at the corridor and network levels, as appropriate).

States may begin by fully understanding the project, traffic and travel characteristics and needs early on in project planning. Based on this understanding the work zone impacts and the parties affected by the work zone can be better identified. States may then develop an overall project design and impacts mitigation strategy. Based on the level of understanding gained from the early analysis, States may decide upon the level of detail that is required for analyzing the work zone impacts of alternative project options and design strategies, and developing the most appropriate mitigation

measures. Project, travel, and traffic characteristics may include:

- Traffic demand and volumes, seasonal and temporal variations in demand (hourly, daily, weekly), occurrence of special events, percentages of different vehicular volumes (cars, trucks, buses), type of travel (commuter or tourist), freight corridor, transit corridor, business issues, and other such similar characteristics; and

- State policy requirements on impacts analysis and mitigation requirements for the specific project type and/or regional requirements on work zone impacts mitigation and management.

The work zone impacts of the project may include consideration of the following:

- Impacts of the project at both the corridor and network levels to include parallel corridors, alternate routes, the transportation network, and other modes of transportation, impacts of other work zones in the vicinity of the project, either at the corridor level or the network level;

- Impacts on nearby transportation infrastructure, such as, key intersections and interchanges, railroad crossings, public transit junctions, and other junctions in the transportation network;

- Impacts on evacuation routes in the vicinity of critical transportation or other infrastructure;

- Impacts on affected public properties, including parks, recreational facilities, fire stations, police stations, and hospitals; and

- Impacts of the project on affected private properties, including businesses and residences.

In § 630.1012(b)(1)(ii)(B) we propose to add language that discusses the development and evaluation of alternative project options including design, procurement, and construction strategies that minimize the work zone impacts of the project.

This activity would constitute the development of alternative project options and the evaluation of the respective work zone impacts, so as to mitigate and manage the impacts to the best extent possible. The number of alternative project options and design strategies and the level of detail of the analysis of the work zone impacts would depend on the State's understanding of the individual project needs and the anticipated severity of work zone impacts due to the project. Examples of alternative project options would include design, procurement, and construction strategies such as:

- Temporal alternatives for work performance such as season, month, day

of week (weekend vs. weekday), and time of day (night time vs. day, off-peak vs. peak);

- Alternative lane closure strategies such as full-closure, partial closure, cross-overs, multiple lane closure, single lane closure; and impact of alternative traffic management strategies on lane-closure decisions;

- Alternative design solutions that address the durability and economy of maintenance of the roadway;

- Alternative design solutions and strategies that impact decision making on Right of Way (ROW) acquisition;

- Alternative construction staging plans, and construction techniques and methodologies (e.g., accelerated construction techniques) that may have varying types and severity of work zone impacts; and

- Alternative contracting methodologies such as low-bid, design-build, A+B bidding, and incentive/disincentive contracting.

In § 630.1012(b)(1)(ii)(C) we propose to add language that would address the development of transportation management recommendations that mitigate the work zone impacts of the project for the chosen project option, including traffic control, transportation operations and safety, and public information and outreach strategies.

As a final activity in the impacts analysis, this process would develop appropriate transportation management recommendations that would mitigate the work zone impacts of the project. Such transportation management recommendations would include traffic control requirements, transportation operations and safety requirements, and public information and outreach requirements. These requirements would be grouped and documented in the TMP, which is explained in the following paragraphs.

Traffic control requirements would include recommendations on strategies to safely and efficiently handle traffic flow through the actual work zone itself. Examples of traffic control requirements would include recommendations on lane closure widths, work zone and work area configuration, tapers, and the choice and positioning of traffic control and safety devices.

Examples of transportation operations recommendations would include the following:

- The deployment of Intelligent Transportation Systems (ITS) technologies for work zone traffic monitoring and management;

- Provision of real-time traveler information to the public, including information provision on Web sites;