More than 30,000 people are killed in crashes every year on the U.S. road system. This tragic loss of life costs the American economy well over $1 billion annually. Since 1998, federal legislation has required statewide and metropolitan transportation planning processes to address safety, and subsequent legislation, including the Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012, strengthened the role of safety in the planning process.

Nevertheless, the full integration of safety into the traditional transportation planning process has taken considerable time and effort, and the work is far from complete. National Cooperative Highway Research Program (NCHRP) Report 546, Incorporating Safety into Long-Range Transportation Planning, published in 2006, provided a point of departure, describing a basic process for safety integration.1

Phase 1 of NCHRP Project 8-76, Institutionalizing Safety in the Transportation Planning Processes: Techniques, Tactics, and Strategies, produced a framework for safety integration, published in 2011, with a focus on strategies for incorporating safety into every step of the planning process.2 Figure 1 (page 31) depicts the transportation safety planning (TSP) framework.

Phase 2, Transportation Safety Planning Framework: Implementation, Testing, and Evaluation, is near completion and focuses on testing the TSP framework. Cambridge Systematics is working with seven states to understand how they consider safety in the planning process; what they see as the challenges to safety integration; and how they can move forward with safety integration in their unique planning environments. A guidebook, sharing the results of the Phase 2 research, will be available in early 2015.

1 www.trb.org/Main/Blurbs/156716.aspx.
2 http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP08-76_Phase1-FR.pdf.
Research Methodology

To develop the TSP framework in Phase 1, the research team designed and implemented an approach for identifying tactics, tools, techniques, and strategies for institutionalizing safety in the traditional transportation planning process. The research included a literature review, practitioner outreach surveys to identify candidate agencies, 45 telephone interviews with agencies involved in transportation safety planning, in-person interviews in three states at the forefront of safety and planning integration, and a comprehensive review and input by an expert panel.

In Phase 2, researchers tested the framework to confirm its usefulness and validity in real-world settings. Transportation and safety planners from Louisiana, Maine, Arkansas, Nevada, Florida, Vermont, and Oregon participated in the research and developed action plans to implement the TSP framework; this helped the research team understand the opportunities and challenges within each planning task.

Seven Principles

The intent of the framework is to provide transportation planners at metropolitan planning organizations (MPOs) and state departments of transportation (DOTs) with ideas, strategies, and techniques for addressing safety or considering it in a more comprehensive and explicit manner. Although the concept of transportation safety planning is not new, the strategies and actions identified by the peer and lead states to incorporate safety throughout the planning process are innovative. Approaches to implementing the seven principles are presented below.

1. Establish multidisciplinary coordination with transportation and safety stakeholders.

The transportation planning process is a cooperative effort, designed to engage agencies, elected officials, operators, system users, citizens, and interested stakeholders in decisions about transportation policies, strategies, and investments. One of the first steps in developing a transportation plan, therefore, is to identify a cross section of individuals with some level of technical or policy-oriented knowledge of the subject matter. Safety experts and modal experts who address safety in their jobs can make key contributions to the consideration of safety in planning documents.

FIGURE 1 Framework for integrating safety in the transportation planning process. (LRTP = long-range transportation plan; TIP = transportation improvement program; S/TIP = statewide and metropolitan transportation improvement program.)
Some of the opportunities to accomplish this include establishing a transportation safety committee; creating an ad hoc safety committee to meet during an update of the long-range transportation plan or during project selection; appointing safety representatives to established committees, such as a technical advisory committee or a bicycles-and-pedestrians committee; and identifying and including safety experts in discrete planning activities, such as corridor plans.

2. Incorporate safety into the vision, goals, and objectives.

Incorporating safety in the vision statement, goals, and objectives can lead to identifying and selecting safer transportation programs and projects. The vision sets the initial stage for prioritizing safety; the goals formalize and make the commitment prominent in the plan; and the objectives provide the goals with a structure and a focus on precise needs.

Safety goals and objectives in transportation plans can be identified or refined early in a planning process through a combination of sources: public involvement, multidisciplinary input, knowledge from MPO and state DOT staff, crash data, and reviews of other planning documents. MPOs and state DOTs, in particular, have recognized the value of coordinating the goals and objectives of state strategic highway safety plans (SHSPs) with transportation plans. Furthermore, MAP-21 requires this coordination.

3. Develop safety performance measures and targets.

Performance measures can track progress toward the vision, goals, and objectives in a plan and can serve as a basis for making investment decisions. A target is the numerical goal set by an agency. MAP-21 requires state DOTs and MPOs to track four safety performance measures, including the number and rate (per 100,000 vehicle miles of travel) of fatalities and serious injuries. Identifying and tracking measures require data; as a result, many state DOTs and MPOs are working together to identify consistent performance measures and to discuss available data, data collection, data access, and data analysis.

4. Collect and analyze crash data.

Data collection and analysis inform regional trends and challenges, which later are used to identify goals, objectives, policies, programs, and projects. The analysis focuses on understanding how a transportation system and its components function and consequently how improvements will alter the system’s performance. Improving safety requires identifying unsafe locations, road characteristics, community features, modes, and behaviors. Data frequently needed to understand transportation safety issues include the total number of crashes, the crash frequency, the crash rates, the crash densities along roadways and intersections, roadway geometry, and the contributing crash factors.
5. Make safety a decision factor.
Prioritization is the process for evaluating and selecting individual transportation projects for inclusion in the transportation improvement program. DOTs and MPOs may use prioritization to allocate funds for safety-specific projects or to identify safety criteria to enhance the prioritization of safety in all transportation projects. The goals established in the long-range transportation plan serve in ranking, scoring, and selecting transportation projects, complemented by technical considerations.

Safety therefore should be a goal in the long-range transportation plan, with supporting objectives and policies. Technical criteria such as crash rates, crash severity, and crash totals should be identified to compare and score the safety of projects effectively. Key to success is collaborating with partner agencies early in the planning process to ensure that future projects include the appropriate safety elements when designed and constructed.

6. Monitor and evaluate transportation safety.
Monitoring and evaluation can occur at the network, corridor, goal, or project level to ensure programs and projects are on track and are implemented appropriately; to identify opportunities for course corrections to improve performance; and to provide feedback for improvements in the planning and programming process. Safety performance measures provide a reliable method for detecting and correcting problems, by allowing MPOs and state DOTs to monitor and evaluate the effectiveness of implementation and the safety impacts of improvements. At a minimum, states and MPOs should monitor the four performance measures required by MAP-21.

Other opportunities to approach and conduct monitoring and evaluation include creating a plan for monitoring and evaluation early in the planning process, to understand data availability, performance measures, and monitoring and evaluation responsibilities; building a tracking tool, such as an Excel spreadsheet, to simplify the tracking process; sharing the results with elected officials and stakeholders, possibly as an annual report; and using the results of before-and-after studies or road safety audits to inform future project and program selection.

7. Include safety in planning programs and documents.
Many assume that the SHSP process will identify transportation safety goals, strategies, policies, objectives, and projects, but the SHSP is a strategic planning document, aimed at addressing the most critical, near-term safety issues. Several opportunities are available to address additional transportation safety issues outside the SHSP and to consider longer-term safety for motorized and nonmotorized users. One opportunity is to include a safety chapter in the long-range transportation plan as a guide for local agencies in considering safety in the context of transportation projects. Other opportunities include considering safety in stand-alone or modal plans to focus on specific issues, such as freight, bicycles and pedestrians, complete streets, transit, and corridors.

Next Steps
Every day, commuters expect their trips will be safe, whether by car, truck, public transportation, sidewalk, or bicycle. Although the general public makes this assumption, transportation planners cannot. To ensure safe transportation for all road users, planners should apply the seven steps: collaborate with safety professionals; identify goals and objectives; establish performance measures; identify available data and gaps; establish safety as a decision factor in setting priorities; monitor the safety benefits; and include safety in all planning activities.

MAP-21 requires state departments of transportation and metropolitan planning organizations to track performance measures, including road safety data.