

Transportation Planning Capacity Building Program

Implementing the Strategic Highway Safety Plan

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Institute of Transportation Engineers 2006 Technical Conference and Exhibit

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Host Agency: Institute of Transportation Engineers

Participants: John R. Baxter, Federal Highway Administration
Michael D. Meyer, Georgia Institute of Technology
Ned N. Levine, Houston-Galveston Area Commission
Steve Eagen, New Mexico Department of Transportation
Attendees list found in Appendix A

I. Summary

The following report summarizes the results of two technical sessions sponsored by the Federal Highway Administration Office of Planning, Environment and Realty. The purpose of the meeting was to provide an opportunity for transportation professionals attending the 2006 international technical conference of the Institute of Transportation Engineers (ITE) to learn about the new federal requirement for a strategic highway safety plans (SHSP) and to exchange experiences they have had with incorporating safety into the transportation planning and decision making process. Attendees consisted primarily of state and local traffic engineers and planners.

The meeting was divided into two sessions. The first session focused on understanding the basics of safety planning and of the requirements for the SHSP. A white paper prepared by Dr. Michael Meyer served as the reference for the discussion that occurred during this session. John Baxter of the Federal Highway Administration responded to Dr. Meyer's white paper as well as provided FHWA's perspective on what will be necessary to develop an effective SHSP. Dr. Ned Levine and Steve Eagen reacted to the white paper as well, and provided a metropolitan planning organization (MPO) and state department of transportation (DOT) perspective on linking safety and transportation planning. The second session was a small group discussion focusing on the issues raised in the first session. This was an opportunity for individuals to ask specific questions concerning any aspect of developing the SHSP that was of interest to them.

II. Presentations

The following section provides the key concepts of the presentations that were part of the opening session.

A. **Implementing the Strategic Highway Safety Plan: A White Paper**

Dr. Michael D. Meyer – Georgia Institute of Technology

Dr. Meyer presented a white paper on implementing the strategic highway safety plan that was prepared for discussion purposes at this Conference. This white paper suggested that of all the new planning requirements from SAFETEA-LU, including the requirement for states to produce and implement an SHSP, will most likely have a far-reaching effect on transportation investment priorities. The primary purpose of the white paper, which was based on the interim FHWA guidance “Strategic Highway Safety Plans: A Champion’s Guide to Saving Lives” [<http://safety.fhwa.dot.gov/safetealu/shsppreview.htm>], was to identify key characteristics of the safety planning process that would result in an effective plan. The FHWA guidance suggests that the collaborative process of developing an SHSP is perhaps the most important part of developing a plan that successfully targets the most cost effective investment. Although the interim guidance acknowledges that every state’s process for developing an SHSP will likely be different, it does suggest some activities that will likely be part of a successful effort. These include:

- Gain leadership support and initiative
- Identify a champion
- Initiate the development process
- Gather and analyze data
- Establish a working Group
- Bring safety partners together
- Identify key emphasis areas
- Form task groups
- Identity key emphasis areas
- Establish performance based goals
- Identify strategies and countermeasures
- Determine priorities
- Bring safety partners together

This bulleted list provides what some might consider a standard approach to any planning effort. One could take this list and separate it into those activities that pertain to the technical approach to developing the SHSP and those that provide the institutional support for the effort. Table 1 shows how these activities fall into these two categories.

With respect to the technical analysis activities, these items should generally not provide a serious challenge to those preparing an SHSP. Although it is not uncommon for concerns to be raised with the quality, timeliness, accuracy, and availability of good data for safety analysis. It is suggested that one can still develop a strong SHSP with the data that are available, especially if the data resources of all safety partners can be integrated into a comprehensive perspective on the safety problems facing the state. Where data are limited in scope, timeliness, etc., a part of the plan should be devoted to recommendations for improving data collection and management.

Table 1: Technical and institutional activities in developing a strategic highway safety plan

Technical Analysis Activities	Institutional Support Activities
<ul style="list-style-type: none"> • Initiate the development process • Gather data • Analyze data • Adopt a strategic goal • Identify key emphasis areas • Identify key emphasis area performance-based goals • Identify strategies and countermeasures • Determine priorities for implementation • Write the SHSP 	<ul style="list-style-type: none"> • Gain leadership support and initiative • Identify a champion • Establish a working group • Bring safety partners together • Form task groups

Adopting a collaborative strategic safety goal should not be that difficult, although one should amend this activity to include thinking about the safety elements of other strategic goals (such as congestion relief, mobility enhancement, etc.). Perhaps the greatest challenge on the technical analysis side in the above table is “determining priorities for implementation,” because this activity presumes that we know how effective different strategies will be in reducing fatalities and injuries, and thus we can determine which strategies should receive priority. This assumption is not a good one. Though the analysis of before and after data for road improvements can provide analysts with a good idea of the crash reduction potential of certain types of investment strategies, it is more difficult when looking at behavioral modification strategies. Too many other factors can influence the cause-effect relationship needed to establish the crash reduction potential for such strategies. Thus, determining the relative investment among different safety emphasis areas might be one of the most difficult and challenging tasks of the technical process. As states continue developing and implementing SHSPs, they should carefully examine the impact of their investment strategies so that we can “grow” the knowledge base on the benefits of individual strategies and programs.

Dr. Meyer suggested that although there may be some technical challenges, the much greater challenge facing the development of an SHSP will likely fall in the institutional side of Table 1. There are several key institutional challenges:

1. Given that SAFETEA-LU requires state DOT’s to develop the SHSP after consultation with a wide range of stakeholders (e.g., highway safety representatives of the governor, MPOs, representatives of major modes of transportation, etc.), it is not clear where the leadership and champion for safety will come from. Hopefully, the state DOT will be the champion and provide the needed leadership, but this provides potential institutional challenges with those groups that have been doing safety planning for many years. The obvious solution is to get the governor to be the champion...after all, the state agencies work for the governor.

2. Establishing a safety working group should be one of the first steps in a SHSP process. If important safety stakeholders are not at the table, this effort could lack the necessary comprehensiveness to reflect fully the total safety picture for the state. Many years ago, in research examining the implementation of the federal transportation system management (TSM) policy, Dr. Meyer developed a three-step model for explaining why some regions were successful in developing a TSM process that met federal guidelines, whereas others were not. The first step in this model was “defining turf.” This means defining which agencies were going to do what, who was going to take the lead and what responsibilities all the agencies have with respect to developing the TSM element. In some cases, regions were not able to come to agreement on the turf issue, and thus were unable to evolve to the next step, which was “identifying the process.” This step, in essence, helped define what the process was going to be in developing the plan. What were the technical steps? What was the schedule for developing the plan? What type of information was to be produced and how would it be used? Similar to above, in some cases, regions were not able to evolve to the third and final step, which was “dealing with issues of substance.” This step involved determining the priorities for cost effective investment. This final step could not be reached without dealing with the previous two.
3. Bringing safety partners together is similar in nature to #2 above, although all safety partners do not have to be on a working group. The success of a state’s SHSP will depend on the willingness of the safety partners to buy into the plan’s overall directions and investment priorities. After all, the state DOT is not likely to be the implementer for all of the strategies in the plan. Bringing the safety partners into the process is one way of opening a dialogue and hopefully obtaining a commitment to implement the SHSP.

Given the importance of the institutional component of developing an SHSP, Dr. Meyer presented some guidelines that were developed in a research project on effective collaborations. The guidelines are in the form of a self assessment by answering questions for different steps in the collaboration process. Appendix B presents these self assessment questions.

Dr. Meyer concluded his presentation by noting that the best approach toward successful development of an SHSP is for those responsible to examine the collaborative process they are establishing with respect to these self assessment questions. By examining the SHSP planning process from this perspective, the state DOT will be able to anticipate the needs and desires of important safety partners, and hopefully develop a plan that everyone considers the state’s blueprint for improved safety on the transportation system.

B. New Mexico’s Comprehensive Transportation Safety Plan

Steve Eagen -- New Mexico Department of Transportation

Mr. Eagen presented an overview of the New Mexico Comprehensive Transportation Safety Plan. He emphasized that collaboration among the many different transportation and safety-related organizations and groups is essential to achieve the ultimate result, which is a reduction in traffic injuries and fatalities. As part of the plan development process, New Mexico DOT staff reviewed all state plans, programs and strategies that were scattered among federal, state, and local agencies that had any potential linkage to safety. The New Mexico plan is considered to be a continuous working document, one that through collaboration with safety partners will be updated to reflect the latest safety challenges facing the state.

The New Mexico plan also serves as a useful tool to communicate among the highway-related programs and project development teams in the state DOT. One of the objectives of the plan development process at the outset was to share data and data collection resources with other units in the agency, as well as with other safety stakeholders.

A safety conscious planning process served as the basic foundation for the development of the safety plan. This process was created in full partnership with safety stakeholders. Several key characteristics of this process merit special note:

- Crash data were used to prepare technical analyses that helped define the critical safety issues in the state
- The 4E's—engineering, enforcement, education and emergency services--plus management and operations issues were the focus of initial efforts to identify countermeasure strategies
- The safety needs of all public roads in the state were considered
- Collaboration occurred with internal NMDOT stakeholders, the state's MPOs, local governments, tribal nations, transit agencies, the Governor's Representative for Highway Safety, Division of Motor Carriers, law enforcement agencies, and the Division of Motor Vehicles. The effort was intended to be all inclusive.

An important characteristic of the safety analysis was that it was data driven. The sources of data included: crash data, enforcement data, roadway location data, exposure data, and concerns from elected/appointed officials and the public. New Mexico DOT's analysis efforts also included road safety audits/assessments, research, problem identification, and hazard analysis. Comprehensive safety-oriented goals, objectives and performance measures were defined for the planning effort. Mr. Eagen stated that those involved with plan development considered the process to be very pro-active.

The safety stakeholders who participated in the process know that the plan's recommendations will mean costs to each participating agency, and that each will share the risks associated with an aggressive policy toward improving the safety record in New Mexico. A key challenge for New Mexico and for other states will be to figure out how to integrate the Strategic Highway Safety Plan with the other planning processes, including the State Motor Carrier Safety Plan, Highway Safety Improvement Plan, the Section 402 planning process, alcohol and impaired driver plans, the state transportation improvement program (STIP) and MPO transportation improvement programs (TIPs), the Department of Motor Vehicle's plan and the state police enforcement plans. There needs to be close linkage between all of these individual plans and the Long Range Transportation Plan for the state.

C. The Houston-Galveston Area Council's Safety Program

Dr. Ned N. Levine, H-GAC, Coordinator of the Regional Safety Council

The Houston-Galveston Area Council (H-GAC) is recognized as having one of the most advanced metropolitan safety programs in the country. Dr. Levine noted that safety planning is a data-driven process. Crash records provide legal documentation of a crash; provide detailed crash patterns; and are used for annual reports. The crash information system used by H-GAC is based on spatial records, analytical tools and algorithms linked to geographic information system (GIS) data bases. Eventually, the goal is to integrate with the regional incident management system. The crash information system provides:

- Need analysis reports
- Decision support
- Hot spot analysis (for example, the number of crashes by type)
- Crash risk analysis
- Spatial modeling—forecasting planning future interventions
- Spatial selection: 250,000 crashes between 1999 and 2001
- Locations of fatal crashes
- Simple statistics such as a standard deviation ellipse.
- Crash spillover effects.

The success of the safety program rests with the willingness of jurisdictions to commit to solving the problem. Projects are chosen at locations where problems can be solved.

The H-GAC launched a regional safety council in February, 2006 to help structure the actions of local governments and to foster cooperation. Even though H-GAC has been involved with safety planning for many years, they are still facing some complex institutional challenges. For example, coordination among police agencies, the state DOT and emergency medical service providers can be greatly improved. Thus, special efforts are being made to have the medical community involved in the safety council. H-GAC has also found that some of the most serious crashes are being caused by repeat offenders, thus they are reaching out to the judiciary and legal professions as well.

The council has created a committee structure that will make specific recommendations for consideration by the full H-GAC policy board and incorporated into the region's annual Safety Report. Among some of the actions being considered by the council are targeting freight safety as a key regional goal, and more fully developing regional and local community safety information systems.

D. Strategic Highway Safety Plans: Lessons Learned and Next Steps

John R. Baxter, FHWA Office of Safety

SAFETEA-LU requires state DOTs to develop a strategic highway safety plan (SHSP) for their state, in consultation with a number of stakeholders. The SHSP is to be approved by the Governor or a responsible state agency. This requirement of SAFETEA-LU is an important policy statement, sending the strong message that safety must be addressed at a statewide level, with each state's safety partners working together to establish goals, assess challenge areas, develop strategies, and leverage resources and expertise to implement the strategies that will most positively impact safety. The requirement of a SHSP is more about building and maintaining partnerships than it is about following a process. It is about strong leadership to define and address a major public health issue facing our country—the loss of over 42,000 Americans each year on our roadways. It is also about the need for making informed, strategic decisions based on current and accurate crash data.

While SAFETEA-LU establishes for the first time a requirement for a SHSP, many states were beginning to develop strategic (also know as comprehensive) plans prior to SAFETEA-LU. For example, the states of Missouri and Minnesota have developed plans through extensive stakeholder outreach. These plans identify specific strategies to address the state's safety goals, and involved partnering with stakeholders representing all of the "E's" of safety. Other states have developed safety plans focused on state DOT strategy areas. For example Florida, Georgia,

and Mississippi each have developed plans to address safety strategies that can be pursued through the DOT's resources. These plans are now being expanded to address the stakeholder outreach requirements of SAFETEA-LU.

In November 2005, the Transportation Research Board, in partnership with the National Cooperative Highway Research Program, the American Association of State Highway and Transportation Officials, and the Governor's Highway Safety Association, sponsored a national Peer Exchange to allow states to learn from each other about how they have developed and implemented Strategic Highway Safety Plans. This forum was conducted approximately three months after the passage of SAFETEA-LU, and approximately one month after the U.S. DOT issued its draft guidance on the development of Strategic Highway Safety Plans. The forum allowed participants the opportunity to understand technical and institutional issues each state had faced, or anticipated facing, and potential solutions and best practices to address these challenges. The Peer Exchange also allowed participants to provide feedback to the U.S. DOT on the draft SHSP guidance, and to ask questions on preliminary policy interpretations of the safety portions of the legislation.

Many of the common elements of a successful safety program have been incorporated into the U.S. DOT guidance document for the development of SHSPs. Key foundational aspects of successful programs include: senior leadership awareness of the issue, and support for addressing the issue; having a champion who can assure the partners engage and that the plan is not only developed, but also implemented; having timely and accurate data from which to make sound decisions; and, having a mechanism to assess the strategies, evaluate the overall success of the program, and make adjustments as necessary.

The FHWA is also developing guidance on the relationship of the SHSP process with the overall transportation planning process. It is important that safety be addressed in the context of a state's overall transportation program, to assure decision makers understand the significance of the issue with respect to other program needs. In addition to mainstreaming safety into the Federal-aid program at the state level, it is important to assure safety efforts at the metropolitan planning organization (MPO) level, as well as safety efforts for other locally owned roads are supported. An example of safety being advanced at the MPO level is the Houston-Galveston Area Council's (H-GAC) recent creation of a Regional Safety Council. This Regional Council will develop a safety plan with four emphasis areas, and will advance recommendations to the MPO's Policy Council for potential funding. For more information, visit www.h-gac.com/safety. Other examples of MPO safety initiatives include the Maricopa Association of Governments (MAG) in Arizona (<http://www.mag.maricopa.gov/detail.cms?item=2226>), and the Southeast Michigan Council of Governments, found at the following website. (<http://www.semcog.org/TranPlan/TrafficSafety/index.htm>).

The majority of states are currently pursuing the development of SHSPs. The SHSP process provides the opportunity to broaden ownership of the state's safety challenge—beyond traditional partners, and to assure safety is recognized, addressed, and sustained as an important transportation and public health issue. It will be important to assure these efforts are supported through a safety champion, that strategies emerge based on sound data, and that effective strategies are implemented to reduce the number of fatalities and serious injuries on the nation's roads.

Mr. Baxter agreed with Dr. Meyer that the Strategic Highway Safety Plan more than anything else will have a far reaching effect on transportation investment priorities. We need to truly understand the relationship between the Strategic Highway Safety Plan and existing planning and

programming processes including metropolitan transportation plans, the statewide long range plans, the STIP and TIP processes, HSIP, commercial vehicle programs, and other programs in the broader context.

III. Discussion

After the presentations, the audience asked questions and made observations concerning the linkage among safety, transportation planning and decision making. In addition, a separate session was held after the first one to allow for small group discussion.

Comment: There was a general consensus that safety deserves more weight in the planning and investment decision making process.

Discussion: This already happens in the safety programs established by the federal and state governments, but there is a need for safety to be more fully engrained into the general transportation planning process. This means from the very beginning of the process when goals are established to the end of the process when projects are being selected for the STIP or TIP.

Comment: A concern was expressed that a state's strategic highway safety plan (SHSP) would be developed in isolation of all the other safety-related efforts underway in a typical state.

Discussion: As was emphasized by the presenters, the SHSP must be developed in a collaborative fashion, with many different stakeholders involved and examining a wide range of safety issues. This collaboration should occur not only between transportation and safety stakeholders, but also among different levels of government. Thus, the state's metropolitan planning organizations and local governments should be given the opportunity to participate in the plan development process.

Comment: A question was asked concerning the limitations that poor quality data place on effective safety planning. Several of the speakers had mentioned that safety planning was a "data-driven" process. What happens if the data are not very good?

Discussion: Data are clearly a critical element of the analysis that serves as the foundation for safety planning. For many years, the quality and timeliness of crash data were lacking, constraining the ability of safety and transportation planners to understand what was happening on the road network. Major improvements in data collection and management have been occurring all over the country. The advent of geographic information systems (GISs) and global positioning systems (GPSs) has provided much more effective and efficient ways of handling data. Many states are now requiring common police crash reporting forms so that data are consistent from one part of the state to another. Some states are using new communications technologies to provide crash information within a few days of the crash having occurred. These and other improvements in data management should promote a more effective data-driven safety analysis process in future years. Data will always be an issue; safety analysis should not wait until every single data item has been calculated and itemized.

Comment: One participant observed what he felt was a singular focus of the SHSP on road fatalities, with minor attention given to non-fatality crashes, and very little attention given to pedestrian/bicycle crashes.

Discussion: The SHSP can focus on a variety of safety issues facing a state. Certainly, non-fatality crashes should be a very important concern of the SHSP process. Pedestrian and bicycle crashes are also an important issue, especially in metropolitan areas. The SHSP could

examine such crashes if the state and the safety stakeholders decide this is something that is important to include in the effort.

Comment: It seems that most of the successful efforts at integrating safety into the transportation planning process, and for that matter, even developing a stand-alone safety plan needs a “champion” who will guide the process through the many institutional “minefields” associated with multi-agency and multi-jurisdictional planning and decision making. How do you find such a “champion” or do they naturally rise to the top?

Discussion: Safety champions can come from many different sources. In some cases, it has been an elected official who has decided that road safety should be the most important focus of his or her attention. In a few cases, a governor or secretary of transportation has championed the cause of safety. In other cases, the champion for safety has come from within the agencies, usually planners or engineers in mid-level management positions who have a passion for improving road safety. These safety champions have been very active in conducting the analyses that show the severity of the safety problem facing a region or state. They have been very active in helping to establish the institutional structure for conducting safety planning. And they have been instrumental in garnering political support for the safety campaign. The existence of such a safety champion indeed makes the process much more successful.

Comment: What exactly is the Federal Highway Administration looking for in the SHSP? In other words, what do we need to do to get approval?

Discussion: This is really the wrong question. The intent of the law requiring the development of a SHSP was to create a process by which states and regions can effectively address the most important safety challenges they are facing. So, the question should not be, what do we have to do to “get by.” Rather, the question you should be asking yourselves is, what should we be doing as a state or region to reduce crashes? The SHSP is a strategy document that simply outlines your answer to this question.

Comment: What types of training tools or guidance would be useful to transportation and safety officials for improving professional capacity in developing the SHSP and conducting safety-oriented planning in general?

Discussion: The next year is going to be a critical year with respect to how states develop their SHSP’s. Many will be looking at other states to see what they have done and in some cases probably trying to replicate best practice. It would be worthwhile to have a website or hold national peer meetings where such best practice is highlighted. Exchange of information among those who are actually doing the work is always a useful source of information.

Once final guidance is issued by the U.S. DOT, it will be important to hold regional meetings that explain what the guidance says. Such meetings could be held in conjunction with peer exchanges suggested above. It is important in all of this outreach that a multimodal perspective be adopted for transportation safety, so it might be useful to include the Federal Transit Administration in some of these meetings (even though the SHSP is primarily a road plan).

IV. Summary

This meeting provided a good overview of the expectations associated with the development of a states’ strategic highway safety plan. Both technical and institutional issues must be addressed in most cases during the development process. Best case examples, from states such as Minnesota, Washington, Wisconsin and Florida, and from metropolitan areas such as Houston, Phoenix, Kansas City, and Detroit, provide useful benchmarks against which new efforts can be compared.

As noted by several participants, the institutional component of comprehensive safety planning is probably the most challenging. In those cases where safety and transportation planning have occurred in a coordinated fashion, the safety and transportation agencies had established strong working relationships and usually some forum (such as a working group or committee) where interactions could take place. In addition, the existence of a “safety champion” was an important ingredient to moving the safety planning process to more effective and successful levels.

This meeting showed that there are still many questions among transportation professionals on what the SHSP process should consist of. Instead of responding to the federal requirement by determining what is necessary to minimally satisfy rules, the participants agreed that the SHSP process should be a meaningful effort that creates a long-standing approach to improving safety in a state or region. The SHSP document itself is simply a snapshot in time of what a state wants to do to improve transportation safety. This document must evolve along with the planning process to reflect changing needs and the development of new countermeasures. Establishing the SHSP process as a continually evolving approach to safety is probably the most significant challenge facing the safety and transportation professions.

Appendix A: Participants

Barkho, Sam	New York City Department of Transportation
Barrett, Leon	Salt Lake County Department of Transportation
Baxter, John	Federal Highway Administration
Beaubien, Richard	HRC, Inc.
Berman, Seth	New York City Department of Transportation
Beswy, David	Edwards and Kelsey, Inc.
Campbell, Harry	Lee County Department of Transportation (FL)
Canby, Anne	Surface Transportation Policy Project (STPP)
Eagen, Steve	New Mexico Department of Transportation
Eck, Ronald	West Virginia University
Eurek, Erin	Texas A&M University
Galloway, Don	Sarasota County, FL
Gayle, Steven	Binghamton Metropolitan Transportation Study
Geedipaly, Srinivas,	Texas Transportation Institute
Harkey, David	University of North Carolina Highway Safety Research Center
Hayes, Jeff	Drive Safely, Inc.
Herrington, Ron	Lexington-Fayette Urban County Government
Hilton, Elizabeth	Texas Department of Transportation
Kaseko, Mohammed	University of Nevada-Las Vegas
Levine, Ned	Houston-Galveston Area Council
Lewis, Keith	Stantec, Inc.
Lynch, Dan	TEI, Inc.
Manjarrez, Matthew	Boster, Kobayashi & Assocs.
Meyer, Michael	Georgia Institute of Technology
Moore, Margaret	Texas Department of Transportation
Mounce, John	Texas Transportation Institute
Oyen, Ross	ADA County Highway District (ID)
Ranck, Fred	Federal Highway Administration
Saucier, Erin	Texas A&M University
Smadi, Ayman	North Dakota State University
Stensrud, Rachael	Texas A&M University
Thomas, Gary	Texas Transportation Institute
Thomason, Tracy	Nevada Department of Transportation
Vermillion, Debra	Texas Department of Transportation
West, Bryon	Barrier Systems, Inc.
Ye, Zhirni	Texas A&M University

Appendix B: Steps for Effective Collaborations

Step 1: Entering or creating a collaboration

- Who are the potential participants in the collaboration? Which ones are critical for success?
- Why would they want to participate? What benefits would they likely experience?
- How will these participants view the challenge being faced, and the likely activities of the collaborative effort?
- Are there influential “champions” for the collaboration who can convince others to participate? Or, if you are such a “champion”, are there “co-champions” that can help you?
- If no champions exist, what incentives or rationale can be put in place to encourage the willing participation of key agencies and groups?

Step 2: Identifying and acknowledging common purpose, motivation and needs

- What is the purpose of the collaboration? Has it been clearly stated?
- How will progress be measured? Will this definition of progress be acceptable to those participating in the collaboration?
- Are there language barriers to be overcome among the participants in the collaboration (the first sign of this is a tendency to speak in acronyms)? Do those in the collaboration need to agree on a common set of terms?
- How will success (or failure) affect each participant? Which of the participants will benefit most from success? Or be hurt the most from failure?
- What will each participant need in terms of resources and mutual support to participate effectively in the collaboration?
- What does each participant bring to the collaboration? Is this contribution sufficient to achieve desired goals?
- Do participants trust one another? If not, what is the best way to establish trust among the participants?

Step 3: Establishing ground rules and a decision-making framework

- Who should take the lead in developing a proposed set of ground rules and a decision-making framework? Does this decision-making framework need to be formal, or can it for the time being survive on an ad hoc basis?
- How will the needs and concerns of all the participants be reflected in the decision making process?
- What are the key intermediate and long-term results desired from the collaboration, and how does the decision-making framework lead to these results?
- What are the individual decision-making roles for those involved in the collaboration? (e.g., in some cases, decision-making authority is given to an executive committee while others participate in an advisory capacity)
- Do those participating in the collaboration have the authority to commit their agency or group to carrying out jointly-made decisions?

- Who are the higher levels of authority that might have to be called upon to make decisions in the event of an impasse, that is, who will be the arbiters?

Step 4: Determining who will assume responsibility for collaborative activities

- What are the critical decisions that will have to be made over the life of the collaboration? What type of information will be necessary to support these decisions?
- What staff, financial and information resources are available to make the work program successful? What resources are needed?
- Is the work agenda consistent with the cultural norms of the organizations that are participating? If not, where will opposition to the work program likely arise?
- Who should have what responsibilities for individual work tasks?
- What is the timeframe for accomplishing different parts of the work program? Is this timeframe consistent with the timing of the challenge being faced (e.g., an Olympics transportation program in place by the opening of the Games)?

Step 5: Establishing communication capabilities among those participating in the collaboration

- Who are the target audiences for decision-making or operations information?
- What are the critical pieces of information that need to be obtained for effective coordination?
- Who collects and analyzes the data that form the foundation of this information?
- Are we using consistent formats, terminology, definitions and technology to foster information sharing? If not, how will we develop such a consistent framework?
- Who will take responsibility for the overall communications system? Will it be centralized? Or will it be coordinated centrally, but distributed among collaboration participants?
- How will we fund the purchase and on-going costs of shared information and communications systems? What type of updating strategy (and thus sharing of costs) will be necessary to assure that these systems stay up-to-date?

Step 6: Coordinating activities of partner organizations, with each organization using its own standard procedures

- Is the decision-making structure established early in the collaboration still sufficient to provide the level of coordination needed? If not, what changes should be made?
- What components of the desired outcomes need to be coordinated? Who is responsible for each component?
- What do each of the collaboration partners have to give up (if anything) to provide for coordinated activities?
- Are the standard procedures of partner organizations as they relate to collaboration goals sufficient to assure coordinated outcomes?

- How visible will the ultimate outcomes be to the public? Does such visibility add additional pressure on the collaboration for overall success? Or make the chance of failure less acceptable?
- What feedback mechanisms will be used to make sure coordination is occurring? Will these activities lead to the desired outcomes?
- What decision-making structure is in place to make changes to the coordination strategy if it is not producing the desired outcome?

Step 7: Coordinating activities of partner organizations, with mutually agreed upon standard practices established by the collaboration

- Is the decision-making structure established early in the collaboration still sufficient to provide the level of coordination needed? If not, what changes should be made?
- With respect to the collaboration goal, what decisions have to be made when?
- What are the current organizational procedures for making these decisions?
- Are there elements to the collaborative strategy that require common procedures or activities on the part of those participating?
- To what extent will the adoption of common procedures be opposed by those participating in the collaboration? What incentives could be provided to support this change?
- To what extent should these procedures be adopted simply by the collaboration, or also by each participating organization through their own procedure adoption process?
- What decision-making structure is in place to make changes to the coordination strategy if it is not producing the desired outcome?

Step 8: Maintaining the momentum: Coordinating activities through shared funding, management and accountability

- Is the decision-making structure established early in the collaboration still sufficient to provide the level of coordination needed? If not, what changes should be made?
- Is a shared management and accountability arrangement enabled by legislation or administrative rule? If so, what are the requirements of this enabling legislation? If not, should it be?
- How are the important decisions going to be made in a shared management structure? Who will broker disagreements? Who will arbitrate competing priorities?
- Will this decision-making structure likely change under different demands and contexts? If so, how will such changes occur? And who is responsible for initiating such change?
- If something goes wrong, who will likely receive the first call? Who will receive the last call?
- Will any costs of the collaboration have to be jointly funded? If so, what is the most equitable allocation of these costs?
- What organizational mechanisms or structures are in place to support shared management activities? Where are there gaps between the need for such structures and their being in

place? If needs exist, how will you design and implement the tools for accomplishing a joint management structure?

- How is accountability for joint decision making going to be accomplished? What are the feedback mechanisms between outcomes and the decision-making structure?

Step 9: Supporting and nurturing the level of collaboration that has resulted

- What have been the benefits of the collaboration to date for each of the participants? Do the participants understand or at least perceive these benefits?
- What actions or activities can be undertaken to reinforce such perception of benefits?
- Are benefits still worth the cost of time, dollars and staff?
- Are the costs of the collaboration equitably distributed among participants?
- How can a reward or incentive structure be established for collaboration participants to recognize the important role they are playing?
- How can the information exchange and personal contacts be maintained so that they can provide the foundation for other collaborative efforts?
- When new organizations or staff members join the collaboration, how can they be educated on the collaborative nature of the activities?
- How are the benefits of collaboration to key organizations communicated better to decision makers, the media, and to the general public?
- How is the collaboration going to be evaluated over time so that improvements can be made, and benefits can continue to accrue to participating organizations?
- Through such feedback, how can we make the collaboration more efficient and effective?