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Research Report
KTC-00-7

A RECOMMENDED MASTER PLAN FOR THE KENTUCKY TRANSPORTATION CABINET TO BUILD A PARTNERSHIP WITH THE PUBLIC

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in cooperation with

Kentucky Transportation Cabinet
Commonwealth of Kentucky
and
The Federal Highway Administration
U.S. Department of Transportation

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Mr. Jose M. Sepulveda
Division Administrator
Federal Highway Administration
330 West Broadway
Frankfort, KY 40602

Dear Mr. Sepulveda:

Subject: **Implementation Statement for Research Study KYSPR-98-185,** ***Determination of Methods to Better Address Public Concerns in Project Development***

Kentucky Transportation Center (KTC) researchers and Cabinet personnel of the Study Advisory Committee have cooperatively identified an extensive list of actions for the Cabinet to consider that promote public involvement in the project development process. KTC researchers have developed these actions into a cohesive master plan for review and consideration by the Cabinet.

As you know, the Cabinet, under Secretary Codell's leadership, has made significant progress towards providing highways that are more in harmony with communities and the natural environment while still addressing safety and capacity. Kentucky's leadership in the area of context-sensitive design is just one example of this commitment. The recommend master plan developed under this study is intended to promote CSD and foster a partnership with the public.

Cabinet officials will conduct a concerted review of the master plan; compare it to their current (and improved) practices and implement component actions, and associated actions formulated within the Cabinet. The Cabinet desires to achieve timely enactment of changes proposed in the recommended master plan.

Sincerely,

Daryl Greer, P.E.
Study Advisory Committee Chairman

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16. Abstract

Public involvement with proposed projects is necessary to facilitate their timely implementation by state highway agencies. New procedures are necessary to involve the public in the project development process and adequately address their concerns. Kentucky Transportation Center (KTC) researchers and Kentucky Transportation Cabinet Study Advisory Committee members cooperated to identify a set of recommended actions to be considered for implementation by the Cabinet. That work consisted of a series of "internal" reviews of problems and proposed solutions. That was supplemented by external reviews and interviews conducted by KTC researchers to identify "best practices" of other transportation agencies related to promoting public involvement and enhancing their public image.

The recommended master plan is comprised of four **Categories for Improvement**, with twelve *Principal Initiatives* (major goals) that are to be initiated by up to four *Key Action Steps*. The Master Plan is to be implemented in a relatively short three-year time frame. It is intended to support the Cabinet's adoption of context-sensitive design, to enhance the Cabinet's ability to involve the public and other stakeholders and to bring the Cabinet to a new level of environmental sensitivity and action.

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The Study Advisory Committee Members were: Daryl Greer (Study Advisory Chairman), Pam Beckley, Philipia Boleyn, Brad Hamlin, A.L. Perkins, Woody Simmons and Jim Wilson of the Kentucky Transportation Cabinet and Bill Cress of Hinkle Contracting Corporation, Randy Palmer of Palmer Engineering and Robert Farley of the Federal Highway Administration. Focus group participants who assisted in identifying actions for the Master Plan were Larry Chaney, Kenneth Cox, Charlotte Faeth, Larry Irish, John Mettille and Carl Jenkins of the Cabinet and Peter Beaty of the Jessamine County Board Of Education, Dean Blake of the Plantmix Industry of Kentucky, Jenny Brockman of the Bluegrass Area Development District and Evan Wisniewski of the Federal Highway Administration.

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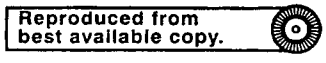

EXECUTIVE SUMMARY

Background

Public interest and involvement in roadway projects is growing nationwide. Neglecting to work with the public can have a detrimental impact on project delivery for state highway agencies (SHAs). Local groups have become quite sophisticated in voicing their views and when necessary using the full force of the legal system to halt project development. The range and depth of environmental interest has expanded over the past decade encompassing issues from community lifestyle impacts to endangered species. Many SHAs are actively working to address the public's desire for a more meaningful say in what projects are enacted and how they should be designed and constructed.

The purpose of this study is to recommend a series of approaches, techniques, and new methods—as a master plan for creating a productive partnership between the Kentucky Transportation Cabinet and the public. Among its many benefits, partnering with the public in the project development process will produce better roadway designs and potentially shorten the total time for project implementation. The recommended methods and practices in the master plan dovetail and strengthen the Cabinet's context-sensitive design (CSD) initiative to build roadways in harmony with communities and the natural environment.

Work Performed on the Study

To enhance the Cabinet's interaction with the public, the study had three main objectives: 1) to elicit improvement ideas from the Cabinet's study advisory committee (SAC); 2) to discover the 'best practices' of other transportation agencies and 3) to formulate a recommended master plan for improved interaction. The SAC was formed into focus groups and its membership expanded beyond the Cabinet (and its internal disciplines/perspectives) in order to obtain a broader range of improvement ideas. A thorough review of the CSD principles and practice was conducted to assure support of this major initiative. A literature review of 'public involvement' was conducted to facilitate the work of the focus groups and study team. In addition, transportation agencies and public interest groups were surveyed to develop a better understanding of the opportunities for improvement.

Structure of the Recommended Master Plan

The final product of this study is a recommended master plan that is comprised of four major Categories for Improvement: 1) Policy and Procedures; 2) Communication; 3) Cooperative Interaction and 4) Education and Training. Each category has a set of Principal Initiatives (or major goals) that list key action steps that should be implemented to fully enact the master plan. The master plan (see Table 1) is further defined by -- time phasing, special resources, products/results, benefits and guidance commentary. A work breakdown structure is provided in Figure 9 that indicates the activities required to

manage this improvement program. The recommended master plan calls for focused strategic improvement -- in Cabinet policy and procedure, in internal and external communication, in cooperative project interaction and relationships, and in education of both the public and Cabinet personnel working with the public. Those efforts are seen as essential for Cabinet to create a partnership with the public.

Principle Initiatives of the Master Plan

The twelve **Principal Initiatives** of the recommended master plan are:

1. **Improve responsiveness and expand commitment to the public**
2. **Re-image the Cabinet comprehensively based on real change and successes**
3. **Expedite highway construction and traffic control**
4. **Develop a new two-way communication system for the public**
5. **Redefine public meeting processes with attention to purpose and content**
6. **Better communicate project purpose and need**
7. **Improve public involvement in the project development process**
8. **Fully embrace the principles of 'context-sensitive design' in the project development process**
9. **Establish a proactive stance toward environmental enhancement at every opportunity**
10. **Develop an aggressive public education program focusing on highway safety and capacity**
11. **Dramatically improve the basic customer relations, communication, and meeting facilitation skills of appropriate staff**
12. **Develop advanced skills in facilitation technology including conflict resolution for those on project development teams**

Achieving these initiatives is to be accomplished by completing defined tasks, termed *Key Action Steps*. Each **Principal Initiative** is comprised of three or more *Key Action Steps*. For example, to **'Improve public involvement in the project development process'** the master plan recommends three *Key Action Steps*:

1. *Charge the project development team with responsibility for all project related public involvement;*
2. *Create advisory committees of local residents and officials on all potentially controversial projects; and*
3. *Solicit more input from a broader spectrum of the public through meetings, surveys and other devices.*

The recommended master plan contains a total of 41 ***Key Action Steps***.

Implementing the Recommended Master Plan

The recommended master plan has been formulated to provide a high velocity of significant change within the Cabinet. If the Cabinet makes a concerted effort, the plan can be fully implemented over a three-year period. That effort will require a major investment in terms of both personnel time and financial resources. Key to that effort will be the full support of upper Cabinet management including empowerment of agents of change working in the Cabinet.

Some Key Action Steps can be carried out with a directive (memorandum) while others will require budgetary programming. Still others will require some study and discussion to determine the best possible implementation strategy. Plans don't implement themselves – and in many cases it is not the plan that falls short as much as it is the lack of timely and persistent implementation of the plan. In order to facilitate successful implementation the study recommends several project management techniques be employed including: creation of an oversight task force; installation of a progress reporting process; and utilization of continuous improvement techniques.

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Chapter 1: Public Involvement and Highway Project Development

Introduction

The public now desires a greater voice in the actions of government agencies that impact both the environment and their communities. When public concerns are not addressed by government agencies, those concerns fester into grievances that eventually translate into active opposition. In today's world, that opposition is organized, vocal and effective. Unresponsiveness to public concerns has prompted public actions blocking or delaying vital projects. Such actions have impaired the Kentucky Transportation Cabinet's ability to develop new highway projects, to efficiently fulfill its mandated mission, and to effectively serve its customers, the citizens of Kentucky. Also, it has led to public confrontations that have cast the Cabinet as a government bureaucracy (in the worst sense).

The Cabinet's recent circumstances are typical of those facing other state highway agencies (SHAs). Moreover, public concerns are not limited to proposed highway projects, but extend nationwide to a broad range of activities and projects including those of federal, state and local governments. Many government agencies are working diligently to remedy this situation by developing effective procedures that will foster public confidence in: 1) their integrity, 2) the benefits of their recommended projects and 3) the effectiveness of their initiatives to limit adverse social and environmental consequences.

Figure 1. Public Demonstrating Concern for a Proposed Highway at a Pre-Scoping Meeting.

The Cabinet's attempts to reconstruct the Paris Pike (US 27 and 68 between Lexington and Paris) over the past 26 years serve as a nationally prominent example of the challenges facing SHAs. Additional significant actions may be required to engage the public and to develop projects that increase or maximize public acceptance while addressing agency responsibilities. Going to great lengths in this regard, the Cabinet has

been able to proceed with the reconstruction of Paris Pike. The critical action was not the unique features this new road contains, but rather the vigorous efforts of Cabinet officials to interact with the impacted parties and to effectively respond to their concerns.

SHA efforts to address public concerns are complicated by an evolving public mindset and the emergence of new environmental issues. In Kentucky, there is a need for enhancing the transportation infrastructure, which must be addressed as part of the Cabinet's mission. The dilemma posed by potential new public concerns and the public's need for better highways is discussed in Appendix I.

Study Background

The growth of public's desire for input about new highway projects led Cabinet officials to realize that past efforts to garner support for highway projects were insufficient. In recent years, Cabinet officials have sought new means to improve the agency's relations with all elements of the public and thereby enable the Cabinet to better carry out its mission.

In 1997, the Cabinet initiated a two-year study (with Federal participation), KYSPR-98-185, to investigate opportunities for improving the situation with the Kentucky Transportation Center (KTC) at the University of Kentucky. The principle tasks for the study team were: 1) to review public concerns for highway projects and 2) to identify potential actions that the Cabinet could adopt to improve project delivery. A Study Advisory Committee (SAC) was created consisting of representatives from the Cabinet, Federal Highway Administration (FHWA), the construction and consulting industries, and local planning organizations. The committee was charged with providing guidance to the study team and with general study oversight.

Concurrent with this research effort, Cabinet officials initiated a series of internal actions significantly impacting the highway project development process (the state government-wide "Empower Kentucky" initiative). The Cabinet's Divisions of Planning, Design, Construction, and Environmental Analysis adopted more proactive practices to improve environmental compliance and to promote public involvement. The capstone to all these initiatives was the Cabinet's decision, under the leadership of Transportation Secretary Codell, to fully adopt the principles and practices of context-sensitive design (CSD). CSD is an emerging national practice being considered by SHAs nationwide. It entails increased public involvement in the project decision-making process and a commitment to provide highway projects that are environmentally sound, community conforming, and economically feasible, while adequately addressing transportation needs.

As a result of those initiatives, the Cabinet is currently experiencing profound internal changes. At a remarkable pace, many of those Cabinet initiatives are being developed and implemented. Neither the SAC nor the study team envisioned those changes at the onset of this study.

Not only has the Cabinet taken action to adopt CSD, but at Secretary Codell's direction, it has also committed to achieve a position of national prominence among SHAs in becoming more responsive to the public interest in providing new transportation facilities. Cabinet officials are engaged in this effort to the point of reinventing the agency's internal culture! It has been difficult for the study team to keep abreast of the Cabinet's rapidly evolving changes – both implemented and planned. Therefore, it is likely that some of the recommendations contained herein duplicate the Cabinet's current or forthcoming initiatives.

This unanticipated, but positive, turn of events has had a major impact on the objectives of this study. Originally, those were intended to provide direction (the "What") that the Cabinet should adopt to address public concerns and improve project delivery. The Cabinet has chosen what the study team considers both the proper and best approach to address those issues effectively. As a consequence, this report will primarily focus on a specific set of actions that the Cabinet can adopt (the "How to's") to best implement CSD and to enhance its relations with the citizens of Kentucky.

Developing a Partnership with the Public

The central thrust of this report is to provide the Cabinet with methods for better relating to, and working with, the public. Indeed, there is an opportunity for the Cabinet to create a meaningful, lasting partnership with the public.

Both parties can offer significant contributions to provide a better transportation infrastructure. The Cabinet provides its mission, traffic, safety and engineering skills, a heightened understanding and sensitivity to environmental issues and a new commitment to context-sensitive design of roads. The public and major stakeholders provide knowledge of local conditions, concerns, community values, environmental sensitivities, and transportation requirements. Meaningful public involvement can assist the Cabinet in identifying project purpose and need and viable project alternatives.

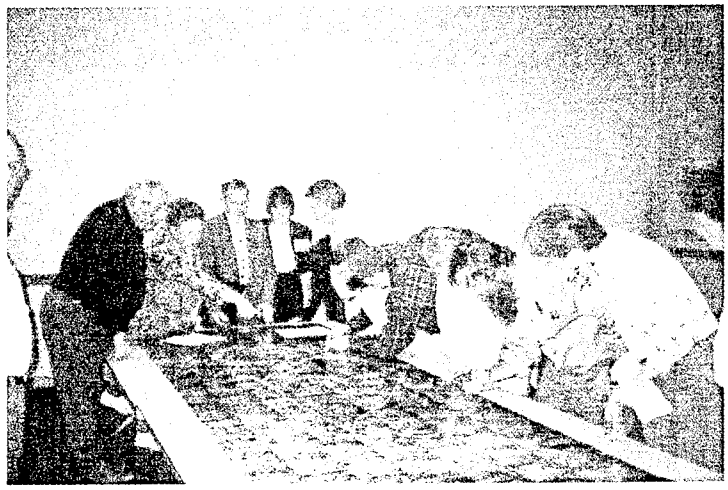


Figure 2. Public Interacting with Cabinet Officials to Review the Location of a Proposed Project.

While the Cabinet has the final decision on what will be built, it must be mindful of and responsive to public and stakeholder input in order to maintain its commitment to this partnership. This puts the burden on the Cabinet to seek innovative transportation solutions for providing facilities that are pleasing to a majority of the public while addressing transportation needs. Conversely, it requires that the public better understand the technology of roadway safety and capacity. Both parties must work diligently to develop mutually satisfactory projects. They must communicate ideas and understand and appreciate each other's viewpoints. This can only result in a win-win outcome, which will provide the greatest benefits for the most people affected by a project.

The Cabinet should initiate and foster this partnership. Currently, it is undertaking actions comprising a substantial portion of this proposed initiative. Beyond that reside the needs to better communicate with the public at all interfaces, to present a fact-based image of being more responsive to the public, to educate the public on transportation issues and, of course, to inform the public and stakeholders about the Cabinet's desire to create this partnership. This will require an effort beyond enhancing project development and instituting context-sensitive design.

Anything that detracts from a positive image handicaps the Cabinet's subsequent efforts to successfully engage the public. In many cases, the Cabinet's "face" to the public is where construction work is being performed. Many persons may consider that experience a reflection of the Cabinet's concern for the public. Cabinet officials working with the study team on this study readily understood the importance of this matter. Consequently, they incorporated construction-related traffic management issues in their deliberations. Other SHAs are becoming attuned to this public sentiment and are taking significant actions to minimize motorist inconvenience and delays in work zones. Their practices in this regard were also investigated in this study.

Chapter 2: Specific Issues and Priority Concerns (Study Purpose and Design)

Study Design

While preparing the study work plan; the study team conducted preliminary reviews of the issue of public involvement on highway projects on a national scale and the Cabinet's existing efforts to address the situation. It was apparent that public concerns about transportation and other government projects was widespread and that many government agencies had significant experience in accommodating it. Those reviews helped direct the focus of the work plan (1). Its goals were to:

- Identify policies used by the Cabinet and other SHAs to address public concerns
- Determine the reasons for, and extent of, public concern both in Kentucky and nationwide
- Recommend additional procedures and tools that can be used to build public involvement
- Develop a master plan that would incorporate the recommended procedures, guidelines, and tools in a coherent program to promote public involvement and to generate public support.

In preparing the work plan, the study team did not envision the widespread changes the Cabinet would institute, especially in adopting CSD, to engage the public and produce projects in better harmony with community values. The Secretary and Cabinet officials committed to that action beginning in 1998. KTC attempts to address Cabinet actions were complicated by the agency's evolution of a raft of significant policy changes to supplement and support CSD. However, CSD has been studied as a policy of great importance and the study team became thoroughly familiar with it in preparing a workshop on the subject for the Cabinet and the FHWA. While that work was outside the funded work of this study, it falls within study goals. It is discussed in detail in Chapter 5 and is addressed in the master plan in Chapter 6.

Study Tasks Performed Under the Work Plan

The study work plan process is described in the flowchart shown in Figure 3. The major work on the study was accomplished in five main tasks: 1) a preliminary review of public

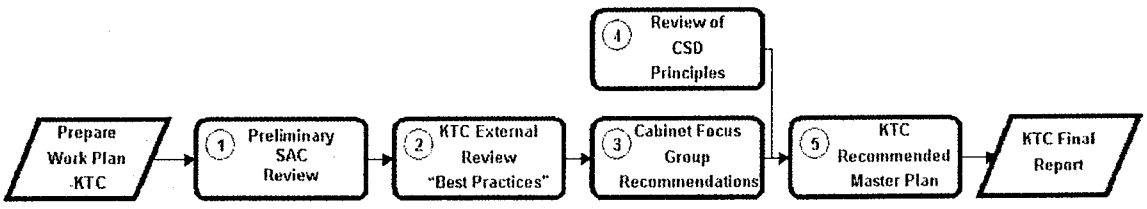


Figure 3. Study Work Plan Process Showing Major Tasks.

concerns impacting the Cabinet (as perceived by the SAC members), 2) a study team review of public involvement/agency measures external to Kentucky ("best practices"), 3) a focused review of internal and in-state issues by Cabinet focus groups, 4) a review of CSD principles, and 5) study team development of the recommended master plan.

Study Advisory Committee Preliminary Review

A study advisory committee (SAC) was formed for oversight and guidance. For this study, the SAC was comprised of a diverse group drawn primarily from the professional and administrative ranks of the Cabinet including representatives from the Divisions of Construction, Design, Environmental Analysis, Right-of -Way, Planning, and Public Affairs. Non-Cabinet SAC members included an engineering consultant, a highway construction contractor, and a FHWA representative. To a large part, they represented the diverse range of technical backgrounds that are employed in traditional highway project development. The SAC membership and those of its expanded focus groups are listed in Appendix II.

The study team took advantage of the range of perspectives offered by the SAC members by intimately involving them in the conduct of the work plan and by having them assist in identifying many of the proposed actions that would comprise the recommended master plan.

At the initial meeting with the SAC in July, 1997, the study team elicited a first round of group input covering the Cabinet's: 1) perceived strengths and weaknesses in working with the public; 2) recognized types/sources of concerns regarding projects; and 3) SAC members' expectations for the project

The SAC members were asked to identify sources of public concerns about highway projects and typical public concerns (sources of issues). Four basic sources were identified: individual property owners; neighborhood groups; environmental groups; and business firms/groups.

SAC members provided their opinions as to key public concerns. Those were:

- Any changes in peoples' lives (or lifestyle)
- Proximity--it's okay somewhere else, but not in my back yard (NIMBY)
- Loss of green/open space
- Traffic delays
- Property devaluation
- Loss of business (especially bypasses)
- Justification of tax dollar investment
- Withheld (or lack of) information

The preliminary SAC review provided significant guidance to the study team in executing the work plan. It identified some major issues to be addressed in the study team

"external review" and in the focus group deliberations. The review also provided insight as to how those tasks should be conducted. Additionally, it provided a perspective of the Cabinet's then-current situation regarding engaging the public and addressing public concerns.

Study Team External Reviews

In this task, the study team reviewed information sources external to the Cabinet, primarily outside of Kentucky. Guidance on key issues to be investigated came from the preliminary SAC review. The review task consisted of an in-depth literature search and review (including the Internet) and follow-up telephone surveys with officials of other transportation agencies and representatives of local advocacy groups. The literature and Internet searches were conducted to determine:

- Critical public concerns (national issues) impacting highway projects
- Composition of concerned groups
- Transportation agencies with effective practices to promote project support
- Details concerning those practices (i.e. "best practices")

The supplementary telephone interviews were conducted with officials of other transportation agencies to obtain further information about their actions and to request agency materials outlining those procedures and policies. The telephone interviews were conducted with local representatives of advocacy groups to identify local issues (e.g. *Bluegrass Tomorrow*).

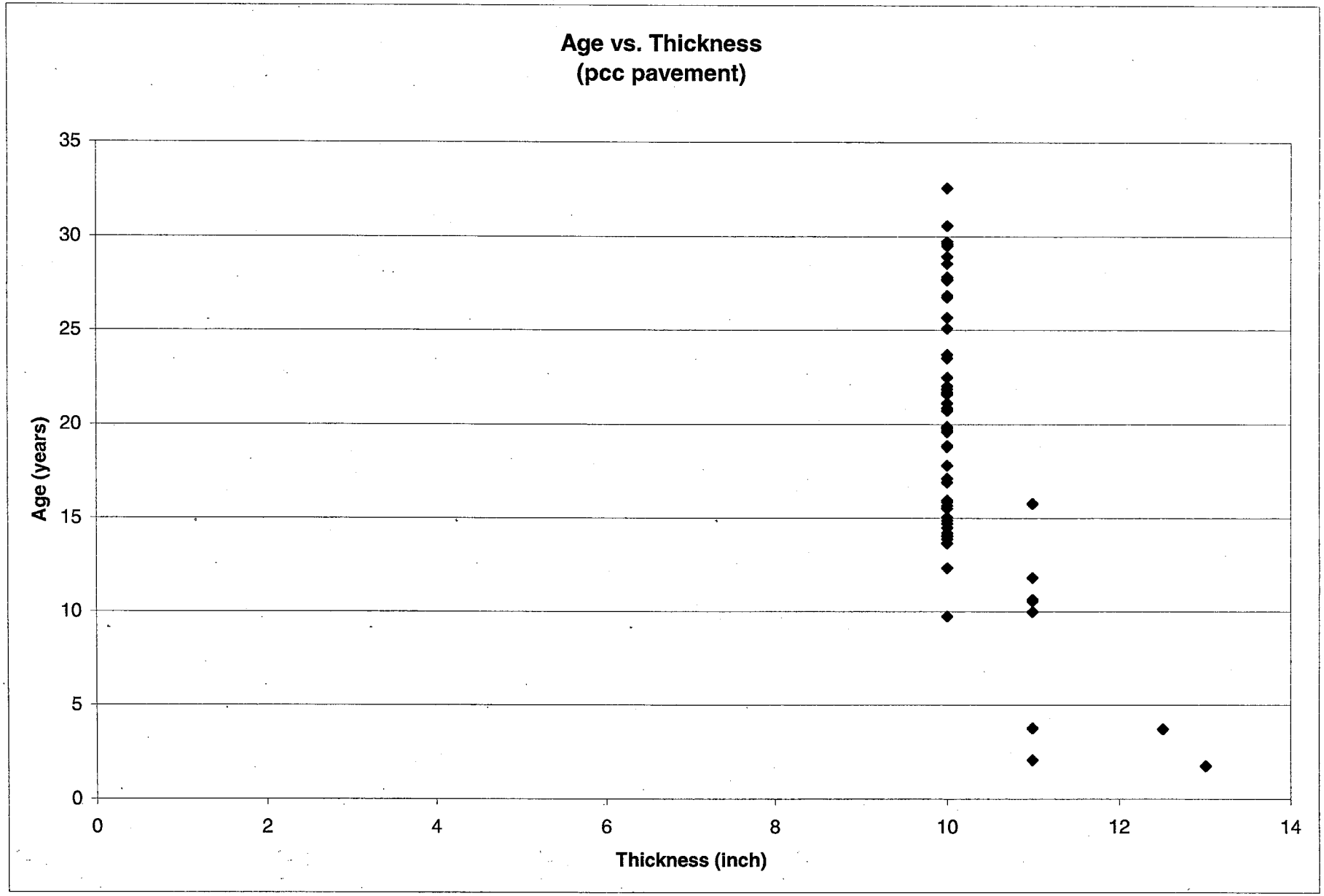
The findings of the initial literature reviews and interviews were summarized and provided to the SAC (and focus groups working on the next part of the study). The external reviews continued thereafter, throughout the course of the study. That work was to identify additional actions being implemented by transportation and other government agencies that had proved successful in addressing contentious issues and better engaging the public. The final output of that effort was a listing of some "best practices" that were incorporated into the recommended master plan. A detailed review of the "best practices" identified in this part of the study is described in Chapter 3 below.

Focus Group Activities

The next task consisted of an inward look at the Cabinet based upon its then-current circumstances regarding public and the policies the Cabinet had in place. As previously noted, the study team relied on the experience, knowledge and expertise of SAC members who were working in the Cabinet on project development and other parties closely involved with it.

While the SAC represented a broad range of experience and represented the major project-development functions, SAC members determined that additional participants were needed to effectively review all issues. The SAC elected to create three focus groups addressing Cabinet planning, policies and construction. Additional persons both

Age vs. Thickness
(ac pavement)
Age (years)
Thickness (inch)
0
2
4
6
8
10
12
14
16
18
0
5
10
15
20
25
Original Surface
1st Rehab.
2nd Rehab.


Age vs. Thickness
(pcc pavement)
Age (years)
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
Thickness (inch)

within and outside of the Cabinet were recruited to serve as focus group members. They participated in several meetings to identify critical issues in their respective categories and identify recommended actions for the Cabinet to adopt to address them. After those meetings, the SAC and focus groups met to: review the resulting recommendations, eliminate duplication, and agree on thrust and content of the recommendations. The resulting recommendations of the focus groups are provided in Chapter 4 below.

Context-Sensitive Design Review

The study team conducted extensive reviews of CSD in the preparation of the aforementioned workshop for the Cabinet. That work provided the background material on CSD contained in this report. During the presentation of the initial workshops, the study team obtained recommendations from workshop attendees for additional training to support the Cabinet's CSD initiative. A review of CSD and those recommendations are provided in Chapter 5 below.

Master Plan Development

The study team used the "best practices" identified in the external review and the focus group recommendations to create the primary product of this study, the recommended master plan for implementing needed changes within the Cabinet. The Cabinet's commitment to CSD also had a major impact on the master plan content. Other KTC views, especially on change management, are reflected in the master plan. It is described and explained in Chapter 6 below.

Chapter 3: Study Team External Review and Best Practices

Nationwide, most SHAs and other transportations agencies have been striving to seek and to implement new methodologies. As a consequence, those agencies have enacted a variety of practices and approaches that have histories of successful deployment. Most of the "best practices" provided in this chapter were obtained from the literature review related to SHA practices and from interviews of officials of other SHAs. The literature review also focused on concerns such as how to best provide information to all interest groups and when and how to employ balanced negotiation procedures (Appendix III).

The study team also attended public meetings related to the reconstruction of US 68 in Jessamine County and the development of I-66 between London and Somerset. The study team gained insights into public meeting processes including the benefits of using citizen advisory committees and the negotiations that are required to develop a design solution that meets various historic and aesthetic concerns. Materials regarding the successful environmental protection and reconstruction of Paris Pike were reviewed and discussed with members of the project team.

The best practices identified over the course of the external review have been grouped in four categories:

- Expediting the project development process;
- Demonstrating environmental sensitivity;
- Improving construction practices; and
- Creating a culture of public contact.

While significant work was expended in determining these best practices, the list is not exhaustive. It represents a "snapshot" in time and since that work was completed, other candidate actions continue to emerge. In follow-on efforts by Cabinet personnel to advance the initiatives proposed in this report, it would be beneficial to periodically seek additional best practices from other SHAs and related transportation agencies.

The best practices are included by reference in the recommended master plan provided in Chapter 6. They can be considered for adoption either singly or in combination.

Best Practices for Expediting the Project Development Process

A major problem facing all SHAs is the excessive time required to complete the pre-construction phase of a highway project. Much of that time is necessarily devoted to developing permitting documents and to receiving approvals from regulatory agencies. Frequently, however, unforeseen environmental issues crop up late in the process, requiring the project development team to redo much of its work. Some method of "front-loading" environmental assessments may do much to eliminate the need for subsequent revisions during project development.

The Florida Department of Transportation (FDOT) has integrated its transportation and environmental planning. Staff involvement overlaps in the three initial stages of project development: planning, preliminary engineering and environmental assessment, and design (2). Representatives of the pertinent FDOT divisions work together on each stage to ensure continuity and teamwork. Addressing environmental considerations early in the project development process reduces the possibility for rework resulting from environmental oversights.

The Iowa Department of Transportation (Iowa DOT) project development process has also has been revised shifting environmental investigations and impact identification to an earlier stage in the Iowa DOT project development process. The new Iowa DOT project development process also uses project management teams. In a 1999 interview, an Iowa DOT official stated that his agency was considering incorporation of environmental specialists into those teams (3).

Section 11309 of the Transportation Equity Act for the 21st Century, TEA-21, incorporated a new initiative termed "Environmental Streamlining" to develop and implement coordinated environmental review processes for highway projects. Under that initiative, Congress directed the FHWA to interface with Federal resource agencies to develop new approaches for reducing the time required for permitting approvals by implementing more efficient planning and environmental review processes. The FHWA is currently working with those agencies (and pilot SHAs) to develop guidelines that would accelerate the permit approval process. A key part of that initiative is to involve resource agencies early in the project development process and to continue to involve them as the project proceeds.

Currently, many resource agencies lack the manpower to provide the level of cooperation necessary for environmental streamlining. At least one SHA, the Pennsylvania Department of Transportation (PennDOT), is providing "resource sharing" (financial support) to a resource agency for personnel working on their projects (4). This provides sufficient resource personnel to review permit applications in a timely manner. Currently, FDOT is working with the FHWA as a pilot state for environmental streamlining (5). The general goals established by FDOT and its applicable resource agencies are:

- Early coordination and review;
- Concurrent reviews;
- Integration of land use, transportation and environmental issues; and
- One stop permitting, including federal and state agencies.

Those groups working together have concluded that integration is vital for survival!

Public involvement in the project decisionmaking process (especially participation by project opponents) compels extensive negotiations on many issues. Such negotiations will be vital for obtaining mutually acceptable projects. Adversarial negotiation practices are not desired for public involvement. The negotiation philosophy articulated by Fisher,

Ury, and Patton provides a negotiation procedure that limits the potential for adversarial or dogmatic stances and promotes "win-win" solutions (6). That philosophy emphasizes the use of "principled" negotiation (in which the negotiators look for shared principles first) in lieu of the more traditional (and adversarial) "positional" negotiation (in which the negotiation begins with a statement of positions to be vigorously defended).

Typically, the supporters of transportation improvements tend to be "less organized" than concerned groups. The latter are usually more active and vocal. To maintain a position of neutrality, the Cabinet abstains from working directly with project supporters. However, this should not prevent the Cabinet from providing appropriate information to all interests. Stein states that a comprehensive community relations program must involve two campaigns: one aimed at opponents, the other at supporters (7). Supporters should be motivated to take affirmative steps to communicate their endorsements of a project at public meetings as well as to elected officials. Providing information regarding the potential benefits (safety, capacity, linkage and access) of a new or reconstructed road is a duty.

Those with concerns sometimes give the impression that a majority of the public opposes a project when, in reality, the opposite may be true. One method for determining the extent of concern is opinion surveying. Another is to systematically communicate with the various groups that are likely to contain supporters. Contact with groups organized at the community and state level can ensure a balanced expression of public opinion. This could promote the increased attendance of supporters at meetings and hearings. Supporters can be provided with general technical information about transportation planning, road design issues, and the Cabinet's environmental efforts.

From observations of the US 68 project public meetings, discussions with professionals who conduct meetings, and review of the literature on meetings, the study team identified potential improvements for public meetings (8). Meetings should be held to identify public concerns. However, they should not become not be allowed to become unlimited forums for special interest groups to press their agendas. Cabinet officials could place more emphasis on providing a thorough and graphic presentation of the purpose and need statement (the "why" for a project). They could avoid a focus on "**what the agency is going to do**" that gives the impression that project decisions have been made and that public concerns and suggestions will not be accommodated. Participatory decision-making needs to be incorporated in project development to generate lasting public support throughout the project development process (9). Supporters need to be involved in public meetings to help promote highway safety and capacity improvements.

Those factors point to the need for well-planned/well-conducted meetings. It would be beneficial to set a public meeting agenda and strictly adhere to it in order to promote project progress. Well-organized, well-run meetings help generate agreement on projects. If project alternatives have been properly studied prior to a meeting it will be difficult for persons/groups to criticize a recommended project. When they are able to make projects look bad, in effect, the agency looks bad for proposing them.

The study team obtained additional recommendations for public meeting improvements the literature review and interviews with officials of other SHAs and stakeholders. Those include:

- Avoid using technical terms the public cannot understand. Communicate to the public in layman's language (e.g. use English units – not metrics)
- Before meetings, prepare to address a variety of likely concerns. Make extensive use of graphics and photographs
- Provide advisory committee members with sufficient information prior to public meetings, so members can better answer the public's questions
- Prepare transportation displays (e.g. on transportation safety and road design) to help the public better understand transportation technology related to a recommended project
- Provide displays explaining alternatives such as mass transit (both problems and opportunities)
- Provide the public with written documentation presenting the Cabinet's appraisal of a recommended project and its benefits (i.e. purpose and need)
- Use planned agendas to set the structure and tone for public meetings (10,11)

Best Practice No. 1 – Work on Projects in Teams (FDOT, Iowa DOT and KYTC)

Best Practice No. 2 – Develop Environmental Streamlining Procedures (PennDOT, FDOT and FHWA)

Best Practice No. 3 – Provide Training in Negotiating with the Public (KTC)

Best Practice No. 4 – Solicit Support from Project Proponents (SAC & Focus Groups)

Best Practice No. 5 – Focus on Upgrading the Public Meeting Process (SAC and Focus Groups)

Some anticipated benefits of these best practices are:

- *Cabinet officials will be able to identify the public's (and other stakeholders') environmental concerns early in the project development process*
- *Early utilization of CSD principles will enable the Cabinet to avoid or minimize public conflicts on environmental issues*
- *Early involvement of resource agencies will prevent misunderstandings and validate Cabinet actions to the public*
- *Cabinet officials will be able to engage the public and those concerned interest groups without generating an adversarial focus*
- *The Cabinet will have a greater likelihood of deriving projects that satisfy all parties*
- *Support at public meetings on recommended projects can temper concerns*

- *Properly informed supporters can counter poorly founded general arguments against new or reconstructed roads*
- *Persons who would benefit from a road should express their support to the media and the public*
- *Improved public meetings will help build a positive relationship with the public and improved methods of providing information will better support the more appropriate alternatives*
- *Public meetings are an integral part of CSD. Improved public meetings will enhance the Cabinet's commitment to that philosophy*

Best Practices for Demonstrating Environmental Sensitivity

Agencies can enact policies and procedures that underscore their commitment to environmental sensitivity to the public. Some could reduce adverse environmental impacts associated with highway construction. In the stipulated conditions of contracts, some SHAs impose damages on contactors for any unforeseen environmental impairments resulting from their actions and make them agree to mitigate the impacts. In addition, the agencies can require contractors to post bonds to ensure compliance with environmental regulations and permit requirements.

On the I-70 Glenwood Canyon project, Colorado DOT placed monetary values on individual trees along the route and paid the contractor those sums for avoiding tree removal (12). Several sources advocate that SHAs take additional measures to ensure that new highways are more compatible with the character of their surroundings (13-15). That is a major principle of CSD described in Chapter 6 below. One approach for achieving context-sensitivity (and allaying related public concerns) involves establishing project advisory committees incorporating public stakeholders (both those with environmental concerns and those wanting transportation enhancements). Advisory committees can provide valuable input on environmental requirements for a project and provide feedback on the suitability of project development options.

Roadside beautification programs, such as planting flowers along interstate medians and rights-of-way, can be federally funded. The North Carolina DOT is recognized as a leader in flower planting along roadways. Each year North Carolina spends $950,000 to plant 300 additional acres of wildflowers along its highways (16). Passonneau refers to this as attending to the "edges" of roadways (e.g. walls, landscaping, trees (17)).

Sometimes, SHAs are reluctant to use environmental enhancements on projects unless the public specifically requests them. That reluctance stems from their desire to conserve funds for needed construction projects. However, some SHAs have application forms for enhancement projects on their websites (e.g. Ohio DOT).

As an alternative to costly single project enhancements, some SHAs employ wider use of low-cost beautification methods such as planting wildflowers and native plants. Low-cost beautification efforts can be used on a variety of projects other than interstate routes. On

new projects, contractors can be required to place vegetation and warranty plants for a reasonable period.

Agencies have obtained good publicity by: seeking donations for roadside beautification, encouraging public participation in plantings (e.g. boy scouts and other civic groups), selling wildflower-theme license plates (and using the proceeds to purchase seeds) and providing wildflower alerts. The latter inform those wishing to view the flowers that they are in bloom.

SHAs can apply many other types of aesthetic treatments to roadways without significantly increasing project costs. Designers (and consultants) could be provided with guidelines for identifying those opportunities and using them to design projects that will demonstrate environmental consciousness.

Some SHAs post a statement on their commitment to historic preservation or provide an entire section on the website devoted to environmentally sensitive work. The Florida Department of Transportation's Environmental Management Office has a very effective website (18).

Best Practice No. 6 – Employ Contract Provisions that Promote Environmentally Sensitive Construction (Colorado DOT)

Best Practice No. 7 – Seek Low-Cost Aesthetic Treatments with Public Involvement (North Carolina DOT and other SHAs, SAC and Focus Groups)

Best Practice No. 8 – Guide Designers to Provide More Aesthetic Highway Designs (SAC and Focus Groups)

Best Practice No. 9 – Use the Website to Provide a Complete Overview of Environmental Sensitivity (FDOT, SAC and Focus Groups)

Some anticipated benefits of these best practices are:

- *Using advisory groups composed of a cross-section of stakeholders will better ensure context-sensitivity and reduce opposition to new projects*
- *Engaging the public in highway beautification efforts will aid in promoting projects and will enhance the Cabinet's image as being environmentally sensitive*
- *More widespread use of aesthetic treatments will derive projects more in harmony with public sentiments*
- *An effective website will better inform the public of the Cabinet's significant environmental efforts*
- *Cabinet officials can use the website as a resource reference in public meetings*

Best Practices for Improving Construction Practices in Work Zones

Work zone traffic congestion and back-ups are a major source of public complaints. Several SHAs are creating coherent work zone programs, some project specific – others statewide policies to reduce public inconvenience and the resulting antipathy to their agencies.

The Hawaii DOT has deployed a broad package of policies to ease traffic congestion for a major interstate widening project (19). Extensive efforts are made to shield the public from construction related disturbances, as much of it must be performed at night adjacent to highly populated areas. Similarly, the City of Phoenix, AZ developed a comprehensive construction traffic management initiative, the *Phoenix LISTens* program (20). Another municipality, the City of Santa Clara, CA employs an integrated approach as a matter of policy (21). The FHWA has made work-zone traffic congestion an issue of concern for federally funded projects. It has created a website which identifies many "best practices" used by other SHAs to limit user inconveniences (22).

In expanding Route 22, PennDOT created an effective traffic management program. It used many of the aforementioned elements and added variable message signs directing drivers to alternate routes. PennDOT generated community cooperation by informing local citizens quickly and accurately of construction delays and other related problems. In addition to TV, radio, newspapers and message signs, it used a frequently accessed website to inform the public about that project (23).

The Indiana Department of Transportation (IDOT) is currently conducting a major widening on a 10-mile stretch of I-65 just north of Kentucky. The project, termed *Revive 65*, uses a variety of tools in addition to a website including: 1) "Hoosier Helpers", INDOT employees in vans who cruise the construction zone to quickly help motorists in emergency situations, 2) an interactive sensor-video camera system, *TRIMARC*, used to monitor traffic flow along the project, 3) variable message signs, which are deployed in conjunction with the *TRIMARC* system to convey up-to-date information to motorists, 4) a highway advisory radio for detailed information along the project route, and 5) fixed signs indicating detour routes. In addition, IDOT officials conduct periodic meetings with citizens and business owners near the construction zone to provide updates, answer questions and hear public concerns.

Motorists are displeased when they are delayed due to lane closures and the construction-impacted lanes are sitting – apparently idle. When this is due to some construction issue, it would be most beneficial to post signs explaining why the contractor was not actively working. Students at Purdue University created a humorous message to convey IDOT's concern for the public's inconvenience as it traveled through such a construction zone. Motorists responded favorably to the signs. Even when traffic congestion could not be eased, the public appeared to appreciate IDOT's communication effort and expression of concern.

Another best practice is to use contracting requirements to reduce construction delays. The Cabinet has used incentives-disincentives and lane-rentals to minimize traffic disruptions along major routes. A prominent example of this is the rapid re-decking of the Brent Spence Bridge on I-75 between Covington and Cincinnati, OH. Another example is the Louisiana Department of Transportation and Development's (LaDOTD) incentive/ disincentive contract to widen I-10 in Baton Rouge. The contractor on that project moved nearly a year ahead of schedule. Another approach is to require contractors to work continuously (evenings and weekends) to expedite project completion and minimize delays during peak traffic hours.

New and innovative materials can be used to help fast-track construction. Rapid-placement or curing materials can reduce the amount of time contractors need to spend in closed lanes. This includes quick setting concrete used in pavements and on bridge decks. A new procedure "rapid-deployment painting" has been used on several projects for the Ohio Department of Transportation (ODOT) and the Pennsylvania Turnpike Authority. That method utilizes special access vehicles and coatings systems that allow the painting of overpass bridges at nighttime, during off-peak traffic periods. The design of vehicles and rapid-drying characteristics of the coatings allow the complete painting of a four-lane overpass bridge in two or three evenings. This procedure is rapidly evolving and at least four additional SHAs expect to conduct experimental bridge painting projects using "rapid-deployment" painting on some 20 new projects.

Computer-based visualization/simulation technologies may prove beneficial in identification of project-specific traffic control procedures that reduce construction delays for motorists. Those technologies can be used to help analyze the construction phasing of large/complicated projects and the impacts of those phases on traffic. The use of graphic technologies would help convince landowners and businesses that recommended projects will not constitute undue impediments during construction.

Best Practice No. 10 – Formally Adopt a Comprehensive Traffic Control Policy with the Objectives of Minimizing Both Inconveniences to Neighboring Residences and Businesses and Traffic Congestion (Hawaii-DOT and other SHAs and municipalities, SAC and Focus Groups)

Best Practice No. 11 – Make Greater Use of Variable Message Signs and Other Related Traffic-Control Technologies and Fully Integrate Them Into Construction Traffic Control Plans to Limit Delays to Motorists and to Keep Them Informed (PennDOT, IDOT and other SHAs, SAC and Focus Groups)

Best Practice No. 12 – Make Greater Use of Contract Requirements that: 1) Limit/Penalize Contractor Disruption of Traffic, 2) Reward/Penalize Contractors for Early/Late Project Completion and 3) Require Contractor Work During Off-Hours and Weekends (LaDOTD and other SHAs, SAC and Focus Groups)

Best Practice No. 13 – Specify Rapid-Placement Materials and Fast-Track Construction Methods to Limit the Time Contractors Need to Complete Projects (ODOT and other SHAs, SAC and Focus Groups)

Best Practice No. 14 – Adopt and Routinely Use Graphic Technologies to Determine Optimum Traffic Control Procedures and to Convey the Traffic Impacts of Construction Phasing to the Public (KTC)

Some anticipated benefits of these best practices are:

- *Public opinion of the Cabinet will be enhanced by increased efforts to mitigate traffic delays and public inconveniences*
- *Locals living near recommended projects will be less resistant of them if the locals are confident that the Cabinet will take steps to limit unfavorable project impacts during construction*
- *Motorists will better understand the reasons for delays*
- *Locals living near recommended projects will be less resistant of them if locals are confident that the Cabinet will take steps to limit unfavorable project impacts during construction*
- *The Cabinet will be better equipped to allay public concerns about traffic impacts during construction*
- *The use of advanced technologies will increase the public's confidence in the Cabinet's concern about their welfare*

Best Practices for Creating a Culture of Public Contact and Communication

Public concerns about to transportation projects are usually heightened by poor or inadequate communication. In the past, SHAs have not provided sufficient communication with the public (i.e. during all stages of a project). With the increased focus on public involvement with transportation projects, that situation is changing. SHAs are working to improve public communication and to change their organizational culture. The Kansas Department of Transportation (KDOT) established a program to improve the communications skills of its employees. The main focus of that initiative is to teach employees to be ambassadors to the public. KDOT requires all employees to attend "Organizational Overview Training" on interacting with the public. KDOT has a toll free number for the public and a "Customer's Bill of Rights." (24)

FDOT employs a comprehensive public information program concerning transportation issues. FDOT has one (or more) information officers in each of their seven district offices. Total staffing, information officers and clerical support, at the district level vary from 2-6 persons. They are coordinated from the FDOT Central Offices, which directs statewide tasks and activities, video production, an Internet site with traveler's information, coordination of major events, oversight of the districts, and various transportation policy and news activities.

The FDOT district offices undertake a wide range of tasks and responsibilities including: 1) directing public information meetings at a job site, 2) composing newsletters and fact sheets, 3) conducting door-to-door visits, 4) distributing business access signs, 4) coordinating and placing advertising in radio, TV and other media, 5) writing traffic watch columns, 6) sending mass mailings to interested groups, 7) giving public education speeches to schools and community groups, 8) conducting safety fairs, 9) speaking on TV and radio talk shows, and 10) engaging in similar tasks to inform the public (25).

Those programs typically require the employment of specialists in communications and training, but they appear not to pose significant costs compared to the benefits they provide. The Washington State Department of Transportation's (WSDOT) Ombudsman Program, for instance, only required the equivalent of one additional full-time employee. The ombudsman's office takes complaints (or suggestions for improvements) from the public and either investigates them or refers them to appropriate agencies and officials. (26).

Some SHAs now have ready-made programs for dealing with the specific concerns and needs of individual groups impacted by a project. The Wisconsin Department of Transportation (WIDOT) has an award-winning program to help local businessmen deal with road construction adjacent to their businesses. Called "In This Together", it consists of a video and manual that offer suggestions for thriving economically during road construction. (27).

Best Practice No. 15 – Train All Employees to Address the Public (KDOT)

Best Practice No. 16 – Establish Positions in the Districts and the Central Office to Deal with the Public and Develop Supporting Materials to Aid in Addressing Construction-Related (and General) Public Concerns (KDOT, WSDOT, WIDOT, the SAC, and Focus Groups)

Some anticipated benefits of these best practices are:

- *Cabinet employees will be better able to assist the public*
- *Improved Cabinet/public interaction will create a more positive public image of the Cabinet*
- *The public can more readily communicate their concerns to the Cabinet*
- *The Cabinet can better address public concerns*
- *The public will be more informed concerning traffic issues*
- *The public will gain a more positive image of the Cabinet's concern for public welfare*

Chapter 4: Focus Group Recommendations

Focus Group Formation and Tasks

As previously noted, the SAC created three focus groups reviewing the Cabinet's activities in the areas of planning, policies and construction. Focus group participants were provided with initial summaries of best practices outside Kentucky to exemplify the types of actions that could be implemented to address concerns about projects and to engage the public.

Each group participated in several meetings to define problems, the then-current situation (Cabinet "policy" or approach) and potential solutions. Focus group deliberations were generally lively with significant discussion about issues/actions that needed to be addressed.

Many issues and potential actions were discussed in the focus group meetings. After the focus groups prepared their recommendations, they were submitted to the study team for compilation and consolidation. The SAC and focus members met collectively in mid-1999 to review the list of recommendations and make final adjustments. The resulting focus group recommendations are listed below.

Summary of Focus Group Recommendations

The recommendations provided by the focus groups are provided below and to a large extent are incorporated in the recommended master plan presented in Chapter 6.

1.0 Develop and adopt a new communication system for delivering and receiving information to improve communication with the public.

- *Better utilize the existing traffic information network*
- *Designate a person as a liaison on projects in each district*
- *Create a mechanism for public input/feedback before, during, and after construction*
- *Encourage adequately planned traffic control measures at construction sites*
- *Provide adequate lead time to plan traffic control on rehabilitation projects*

2.0 Build more public involvement into the project development process for all projects.

- *Create advisory committees of local residents and officials on all potentially controversial projects*
- *Charge the project team with responsibility for all public involvement (provide training)*
- *Develop uniform procedures and methods for assembling/distributing information to the public before a meeting/hearing*

3.0 Standardize the public meeting process and agendas and establish a training program for those holding public meetings and in frequent contact with the public for project development and construction.

- *Develop an improved process for public meetings including a typical agenda with a list of potential topics to be covered and suggested media technology*
- *Develop a system for improved documentation to record issues raised by the public and the Cabinet's responses to them*
- *Develop a training program to enhance communication and meeting management skills (periodically reinforce with customer service training)*
- *Start public meetings with a thorough presentation of project purpose and need and train appropriate personnel in 'best practices' for public presentations*
- *Systematically train Cabinet representatives in public speaking, conflict avoidance, consensus building, and other related public interaction skills*

4.0 Seek to gain public support for projects by more effectively communicating purpose and need for the project to the public.

- *Elicit more input from a broader spectrum of the public through more informational meetings, opinion surveys, and other devices*
- *Assign public relation "experts" to the districts with specific duties for communicating with the local public*
- *Better identify the concerns of impacted landowners early in the project development process and be available to answer their questions*
- *Better inform interested parties by providing more information to all relevant organizations and citizens groups concerning the recommended project*
- *Solicit early public official endorsement of the project and encourage them to communicate with and facilitate organization of supporters*

5.0 Take a more proactive approach to public education at all appropriate levels.

- *Better articulate project's purpose and need to the public with a wide range of resources and devices (graphs, pictures, models, computer visualization, etc.)*
- *Better publicize the various environmental and historic preservation programs and activities of the Cabinet*
- *Build a proactive "public education culture" by recognizing and rewarding employees for public information and involvement activities*
- *Develop materials for improved public information and education on the planning process and project development (brochures, displays, videos, etc.)*
- *Devise a policy on visualization--specifying types best suited for different situations including both internal and external use*

6.0 Develop a systematic program to inform the public of the Cabinet's responsiveness to public concerns and its commitment to environmental awareness.

- *Create a ombudsman's office and advertise its existence*
- *Establish a better system for handling complaints from citizens*
- *Charge environmental coordinators to work more intensively with local groups*
- *Establish a comprehensive program which promotes the Cabinet as friendly to the environment (find new ways to communicate with the public)*
- *Set aside an appropriate percentage of funds for measures to enhance the environment on all projects*
- *Train all Cabinet employees in public contact techniques (re: Kansas DOT)*
- *Team with the public relations staff to more effectively communicate the Cabinet's success stories (use before and after pictures)*

7.0 Eliminate/reduce construction delays related to land acquisition and utilities.

- *Settle right-of-way and utility issues before construction (if at all possible) -- avoid letting jobs before Cabinet is ready to begin construction*

8.0 Reduce construction-related delays for motorists.

- *More contractor input/involvement in the development and constructability review with regard to traffic control*
- *Expand practice of contractor/agency partnering on projects beyond those federally funded projects requiring partnering*
- *Provide contractors with quicker decisions on field issues related to construction (prompt decisions regarding changes involving the field engineer)*

9.0 Complete road projects as quickly as possible to reduce motorist inconvenience.

- *Encourage fast-track construction in design and bidding phases and encourage faster work with incentives/disincentives*
- *Encourage (insist upon) accelerated construction techniques and materials (study the use of new techniques/equipment designed to expedite the construction process)*
- *Meet with contractors' associations to discuss fast-track construction techniques and materials before sending a project out for bid*
- *Pay more attention to life-cycle costs and the purchase of more durable materials in project design*

10.0 Cancel a project when the public is clearly opposed to it.

- *Be proactive in defining all reasonable issues and concerns*
- *Thoroughly document, explain, and publicize the purpose and need for the project*
- *Show as much flexibility as possible in meeting and mitigating objections*
- *Be prepared to abandon the project in deference to the will of the public*

Comments on Focus Group Recommendations

Some overlap exists between some of the actions comprising the focus group recommendations. Nevertheless, that work provides the core goals contained in the recommended master plan. The study team has attempted to eliminate apparent duplications in the master plan by providing additional actions and by assigning them more precise descriptions.

Chapter 5: Project Development and Context-Sensitive Design

Project Development before Context-Sensitive Design

In the 1960s, the typical highway project development process used by SHAs on Federally funded projects appeared as shown in the following figure.

Figure 4. 1960s FHWA/SHA Project Development Process.

This represents the traditional 5-step process that was initiated for projects placed in the SHA 6-year plan. It began with planning and then proceeded through location (also termed preliminary design), design (or final design), right of way and construction. Typically, SHAs were functionally organized along those process steps with separate divisions addressing each step (with the exception of preliminary and final design steps that were typically assigned to the SHA design division.) The processes were conducted in a sequential fashion with minimal interaction between divisions. Project actions were completed in each respective division (that operated as a "functional silo") and their products were "thrown over the wall" to be further developed by the next division. At that time, there was little SHA focus on environmental issues, except on a reactive basis. Opportunities for public involvement were typically limited to two meetings, one during location, and the other during final design.

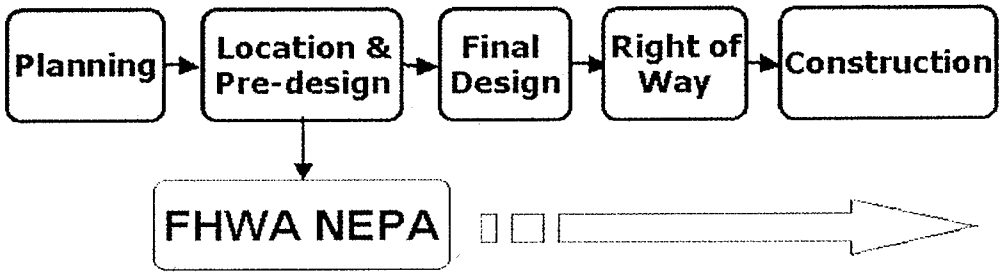


Figure 5. FHWA/SHA Project Development Process Incorporating NEPA.

In the years following the enactment of NEPA, the FHWA worked to better define its requirements and to ensure that the intent of NEPA was implemented. SHAs added environmental divisions that addressed NEPA as an adjunct process that began in location and ended in right of way (Figure 5). The FHWA issued a series of directives and guidance documents that more completely defined necessary NEPA actions and encouraged partnering SHAs to more fully comply with them. As SHAs found themselves increasingly unable to proceed with needed projects, they became more receptive to FHWA efforts to engage the public and develop projects that were mutually

acceptable. To that end, the Cabinet took an important step and fully committed to adopting and implementing the practice alternatively known as "context-sensitive design", "flexible design" or "thinking beyond the pavement".

The Emergence of Context-Sensitive Design

CSD is a term used to describe the approach to designing a transportation project that incorporates consideration of the area it will traverse, the people who will live about it, and those who will use it. CSD considers purpose and need, safety, and mobility. But it also includes the preservation of scenic, esthetic, historic, environmental, and other community values.

It requires that highway planners and designers better evaluate those latter criteria before determining the purpose, location, and design of a highway. To do that effectively, the public and other stakeholders must be engaged to identify community desires, needs and concerns. There must also be willingness to seek adjustments to the roadway capacity and other factors to provide a facility that not only addresses transportation needs, but also conforms to the community and the environment it traverses. Under CSD, planners and designers do not need to provide theoretically "optimum" transportation facilities. Flexibility is encouraged in applying national road-building guidelines. The "fit" of a road in its environs then becomes as important as the road itself.

The principles of CSD are not new. But, in the past, they were applied on a piecemeal basis. An early example of implementation of some of the principles of CSD is the Blue Ridge Parkway, a long, scenic road that runs from Shenandoah National Park in Virginia to the Great Smokey Mountains State Park in North Carolina and Tennessee. Built as a WPA project in the 1930s, it is an outstanding example of context sensitive design in terms of its integration into the terrain and its esthetic treatment of many roadway components such as guardrails and drains. Like later examples of CSD, it was intended to complement rather than conflict with the environment. Its recent recognition as an All-American Road underscores the success of its designers in meeting that goal.

An early example of the Cabinet's use of CSD principles occurred in the 1960s. The Cabinet's recommended widening of US 431(Fredrica Street) in Owensboro, KY threatened the world's largest sassafras tree shown in Figure 6. In response to public sentiment supporting retention of the tree, the Cabinet realigned the road to avoid it, thereby preserving a cherished community landmark.

CSD calls for flexibility in the design process and sensitivity to public desires as well as commitment to environmental protection. It generally does not require design exceptions or the development of new guidelines for highway projects. In fact, CSD does not depart from the American Association of State Highway and Transportation Officials (AASHTO) design guidelines, contained in *A Policy on Geometric Design of Highways and Streets ("the Green Book")* and the AASHTO *Roadside Design Guide*. It merely calls for more flexible and appropriate use of them. The *"Green Book"* presents ranges of values and suggests that the higher values be used where social, economic, and environmental impacts are not critical.

The *"Green Book"* (and its past versions) provides guidance to designers with sufficient flexibility to allow environmentally sensitive designs. But for many years, designers have clung to using it as a "standard" emphasizing optimum safety and capacity values on

Figure 6. Historic Tree Preserved in Owensboro, Kentucky.

every project. Arguably, the practice of using the highest design guidelines was (and remains) suitable for the interstate system. But even today, interstate routes are built to accommodate critical environmental impacts (i.e. the I-70 Glenwood Canyon project in Colorado). There is a need for change in the attitudes of highway engineers who must now focus on a broader set of values to design new projects.

The Recent History of Context-Sensitive Design

In the 1990s, Federal Highway Administration recognized that highway planning and design practices could be altered to accommodate public concerns. Some SHAs had developed/adopted/employed those practices, at least on controversial projects with great success. However, the range of practices and their application varied greatly among the DOTs. In an effort to promote the wider more consistent use of those practices, the FHWA prepared a guidance document *Flexibility in Highway Design* in 1997.

To further that initiative and to develop CSD into a coherent practice, the FHWA jointly sponsored a conference along with the Maryland State Highway Administration, and AASHTO: "Thinking Beyond the Pavement: A National Workshop on Integrating Highway Development with Communities and the Environment." It was held at the University of Maryland in May 1998. Many SHA representatives and a variety of stakeholders (e.g. environmentalists) attended the Conference. They reached agreement on three major issues. The first was a consensus on the need for CSD and the 7 qualities that lead to design excellence in line with community values:

- Satisfy purpose and need-consensus of stakeholders
- Safety for users and community
- Project in harmony with community
- Project achieves level of excellence in people's minds
- Efficient and effective use of resources
- Minimal disruption to community
- Lasting value to community

The second consensus identified 8 characteristics to yield excellence:

- Communication is open, early and continuous
- Multi-disciplinary team formed early with public involvement
- Full range of stakeholders in the scoping phase
- Highway development process tailored to circumstances
- Commitment to process secured
- Public involvement process tailored to project
- Understanding of landscape, community, and resources before design
- Full range of communication tools employed

The third consensus was the recognition of 3 barriers to CSD:

- Rigid segmentation of responsibility during project development
- Failure to consider a full range of design alternatives
- Lack of communication between stakeholders and agency

AASHTO agreed to adopt the FHWA *Flexibility in Highway Design* manual after incorporating additional information related to safety and liability issues. SHAs were asked to seek state policy/statute changes that conform to 23 USC 109, which would promote the wider use of CSD. They were also asked to review policies, organizational structure, provide staff training and employ tools to promote CSD. Regulatory agencies, advocacy groups, researchers, academia, and professional organizations were also provided with recommendations to facilitate the implementation of CSD.

The new project development process being adopted by the Cabinet is represented by Figure 7 below. The FHWA NEPA process is extended from the early stages of planning (e.g. pre-scoping) through operations (maintenance). In the new project development process, personnel from impacted divisions work together in a team throughout project development process.

Early and continuous involvement of resource agencies and stakeholders is also specified by Cabinet policy. Those changes are essential features of CSD and are necessary for its successful application. In the words of Eugene Cleckley, director of the FHWA Southern Region, "Context-sensitive design is necessary to integrate NEPA with project development." To further the Cabinet's environmental commitments (natural and human), the Cabinet will adhere to NEPA principles even for wholly state-funded

projects. In the past, SHAs have sometimes attempted to avoid NEPA reviews of environmentally controversial projects by resorting to fund them with state monies.

The Promise of Context-Sensitive Design

CSD has the potential to greatly reduce public opposition to future projects. It should also increase public confidence in the Cabinet and trust concerning its proposed actions. Moreover, it will lead to better highways that are more compatible with their environs and that represent the pinnacle of public works. Kentucky is a scenic state and such roads

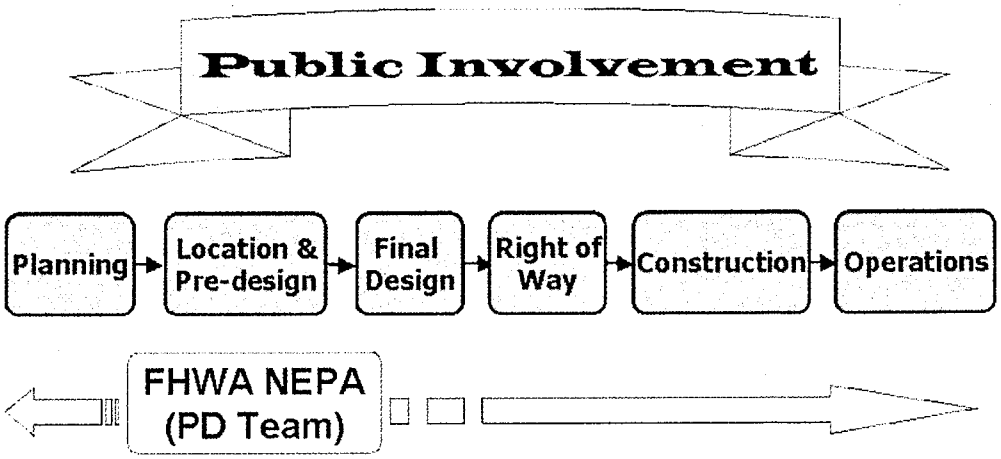


Figure 7. The New FHWA/Cabinet Project Development Process.

will do much to further the public's awareness of that beauty while not detracting from it.

To the Cabinet's benefit, CSD will not only improve the quality of roads, but it will reduce the time needed for project development. Under the current process that CSD will replace, much time is lost in dealing with public disputes and any ensuing legal actions. Also, it will expedite the planning, location and design phases of project development by identifying environmental issues early and by providing the Cabinet's design engineers with a mechanism for addressing them in a manner that will avoid public outcry. This will enhance the Cabinet's programming efforts and, over time, lead to more efficient project development.

Cabinet Needs Related to Implementing Context-Sensitive Design

During the initial series of KTC workshops on CSD, the study team asked attendees to suggest future training to improve the Cabinet's implementation of CSD. The responses were:

- Training on making formal presentations to the public
- Guidance on conducting public meetings/preparing meeting agendas
- Training on public speaking
- Training on negotiation skills/dealing with the public at meetings

- Training on specific CSD techniques/guidance on their use

Time will be required for grasping these new principles and employing them. The effectiveness of training will depend upon its content and intensity. The CSD training participant responses are compatible with focus group recommended actions (Chapter 4) and are included in the recommended master plan (Chapter 6).

Figure 8. Relocated Dry-Laid Stone Fence on Paris Pike, Kentucky

Chapter 6: The Recommended Master Plan for Reducing Public Opposition

Concepts for Change

The recommended master plan presented in this chapter is entirely related to change. Instituting change, be it organizational or cultural, takes leadership and leadership constitutes the centerpiece of the effort. The commissioning of this study, along with the Empower Kentucky improvements and the Cabinet's CSD initiative, are clear signs that the Cabinet is seeking to institute specific changes. This study puts particular focus on changing (improving) the Cabinet's interface with the public on issues related (directly or indirectly) to highway project development. The desired outcome of this change is for the Cabinet to build a partnership with the public on all proposed projects.

Some authorities contend that achieving organizational change simply requires: attitude (*wanting to change*); knowledge (*knowing what to change*); and skill *(knowing how and when to change*) (28). Kentucky Transportation Center researchers have received recognition for outstanding contributions from the USDOT, FHWA and state transportation-related agencies in the Southeast and Great Lakes regions toward enacting organizational change. They have identified five criteria as being necessary for successful change in the public sector. These are:

1. The recognition of a need for change;
2. An agreed upon set of guiding principles (or goals) for change;
3. An executive/organizational environment that supports change;
4. Appropriate tools, techniques and/or technologies that facilitate the change; and
5. A sound and accepted action program to implement change.

Figure 9. below portrays the relationship between the five criteria for change, change leadership, and the Four **Categories for Improvement** employed in the recommended master plan.

The three general "guiding principles" or study goals for the master plan were to improve the Cabinet's: 1) interaction with the public; 2) road construction practices; and 3) public image. The SAC and focus groups generally agreed upon those. They were addressed in the best practices and, to some extent, are fundamental to the principles of CSD.

Change management, or creating an organizational environment that promotes change is a major effort affecting most large governmental agencies and private businesses. Certainly, Secretary Codell and other Cabinet officials have worked diligently to create an atmosphere within the Cabinet that promotes CSD. This same diligence will be required of Cabinet officials to implement the changes recommended under this study. Appendix IV provides some additional insight about leadership for change management. That appendix provides some thoughts about addressing change systematically, the need to expand the core leadership and expected obstacles.

Toward a Partnership with the Public

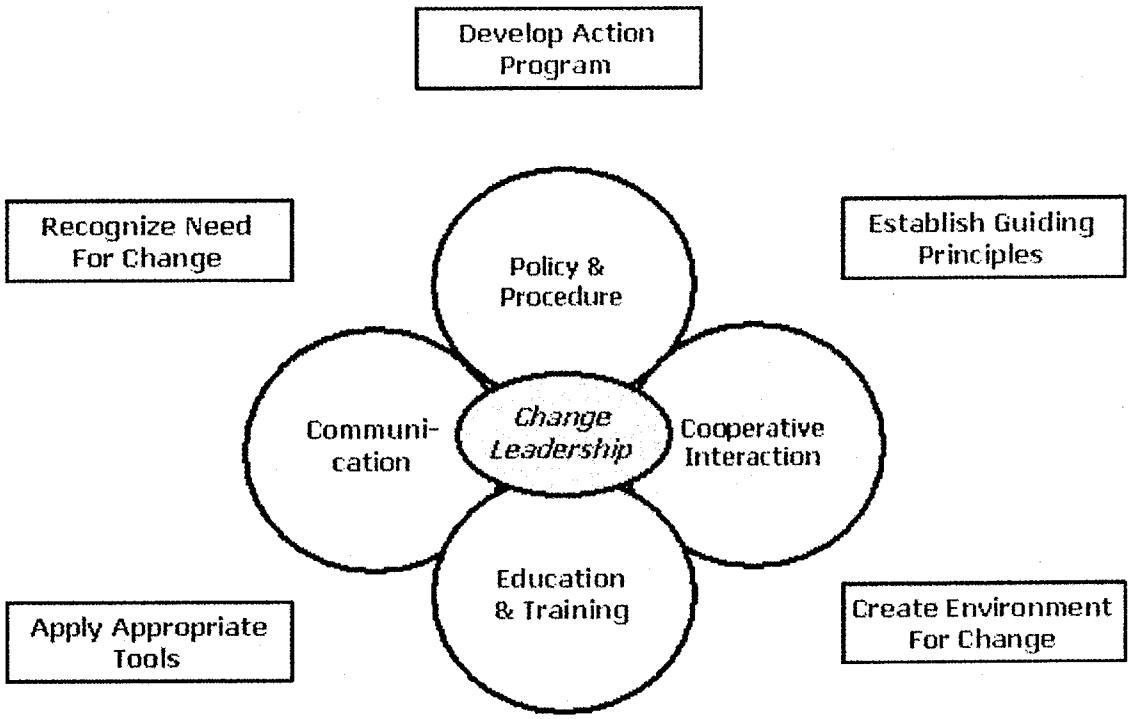


Figure 9. Overall Structure or Architecture of the Recommended Master Plan.

The recommended master plan is the major product of this study. It is intended to be a road map for change to better engage the public. It describes some tools, techniques and/or technologies that will facilitate change. It contains a phased schedule for action implementation. The following sections discuss considerations taken in formulating the master plan; present it in detail; and enumerate attendant steps relative to implementation.

Considerations in Formulation of the Recommended Master Plan

Once the findings of the focus groups and the KTC external literature reviews and interviews (e.g. best practices) were completed, the study team began to compile a list of tasks/actions for the Cabinet to consider for addressing public concerns. Concurrent with that activity, the study team became familiar with CSD while preparing the previously noted workshop for the Cabinet. The workshops provided valuable opportunities for the study team to survey the attendees about critical training needs to further the Cabinet's implementation of CSD. Those findings better defined training needs identified by the focus groups and the best practices review.

After the list of recommendations focusing on goals or guiding principles was prepared, it was organized into a master plan for official review and consideration. The study team was aware that the master plan had to accommodate additional objectives. Cabinet officials desire a rapid transition to CSD. Their goal is to create an organizational culture

in which their employees become more customer-focused and responsive. Cabinet officials also seek additional improvements in the Cabinet's project development process. The master plan addresses those desires.

The Cabinet must build a reputation that conveys the reality of being genuinely concerned, capable and compliant (with community values and the environment). Some of the recommended actions provided in the following master plan are related to enhancing the Cabinet's image. An improved public image will greatly boost the Cabinet's efforts to program new projects by finding a more receptive populace.

Master Plan Structure

The master plan for creating a partnership with the public is provided below in outline form. The **Four Categories for Improvement** are "Policy & Procedure", "Communication", "Cooperative Interaction", and "Education & Training". The Categories are selected headings that indicate the strategic focus areas of the plan. They allow Cabinet officials to organize change teams for managing change implementation efforts and for determining which sub-elements (or additional Cabinet-identified elements) should be implemented. Within each of those categories resides a set of three recommended ***Principal Initiatives*** that define major objectives (changes) to be achieved, and, under those, listings of *Key Action Steps*. The *Key Action Steps* are specific Cabinet actions required to achieve those objectives.

The recommended master plan contains 41 *Key Action Steps* some of which are interrelated. Each *Key Action Step* is "packaged" in terms of Phasing, Special Resources, Products/Results, Benefits and Guidance. It is also presented at the end of this Chapter in Table 1 that provides a complete picture of its components, phasing, resources and references as to similar actions taken by others (i.e. best practices). The best practices can be valuable resources in seeking to better define the activities to be performed in the *Key Action Steps*. A Work Breakout Structure is provided in Figure 9 indicating the coordination of project management and the implementation of the master plan components.

Other considerations exist beyond the recommended master plan:

- Charge one employee or task force with overall implementation oversight of the recommended master plan using a project-management approach incorporating fixed goals, timelines, manpower requirements and costs.

- Formally announce the Cabinet's intention to form a partnership with the public, both to the media and throughout state government. (The Cabinet has already taken concrete steps to engage the public. It is now committed to changing its internal culture. What is needed is the public announcement of this significant commitment to provide public awareness and thereby establish expectations of Cabinet conduct in the eyes of the public.)

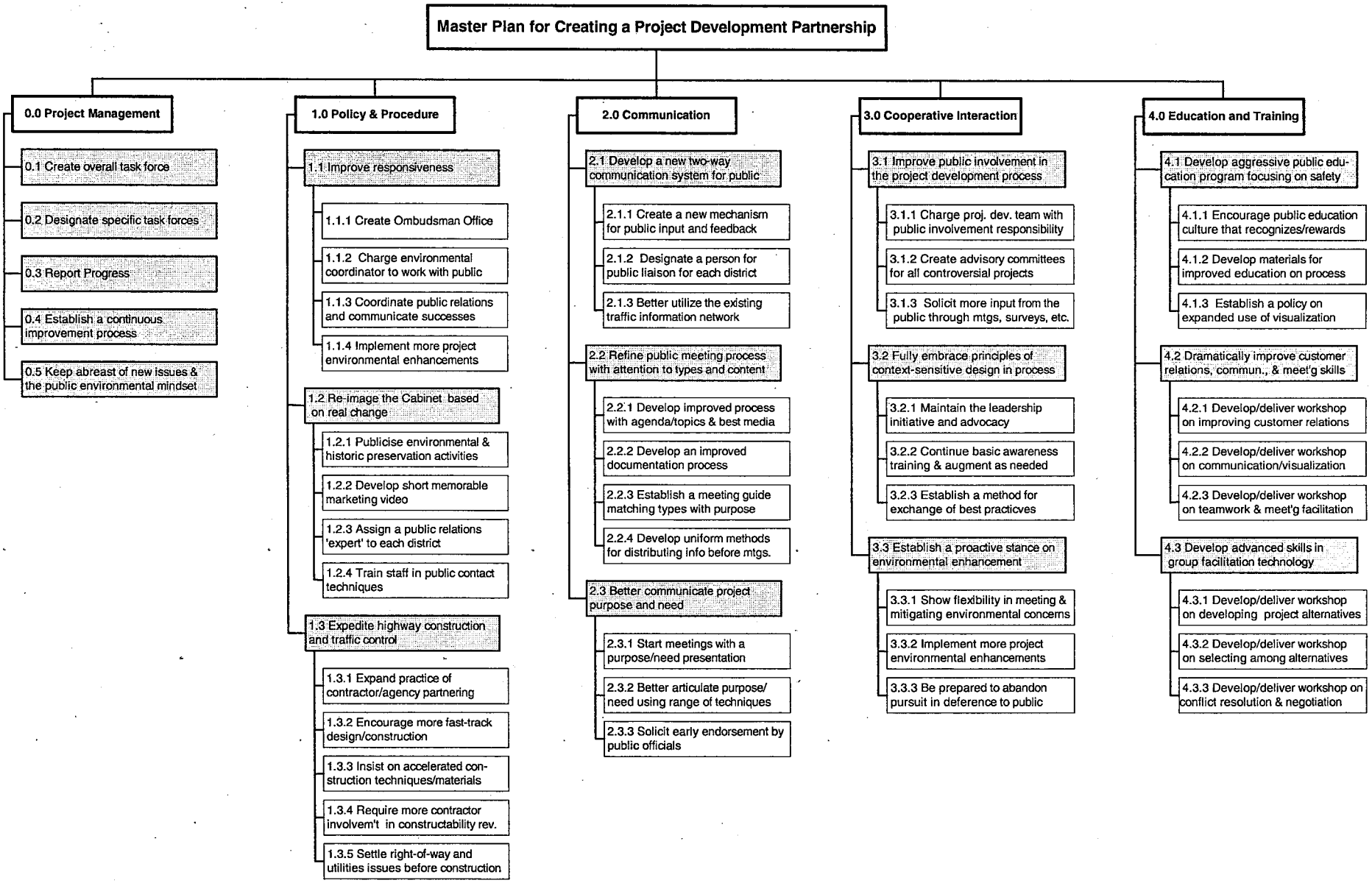


Figure 9. Recommended Master Plan Work Breakdown Structure

- Seek additional initiatives to build upon its partnership with the public once the recommended master plan is in the process of being implemented.

- Follow through with the recommended master plan by monitoring public satisfaction, continuous improvement, benchmarking, and report carding to improve and build upon initial efforts.

- Keep abreast of new issues and changes in the public mindset. Those should be addressed within the CSD philosophy.

Phasing

The study team developed the recommended master plan with the intent that is should be fully implemented in a three-year period. A greater duration was considered inappropriate for such strategic initiatives. Beyond that time, the Cabinet should enact follow-on initiatives building on what was achieved during implementation of the master plan (and any related Cabinet initiatives). The three-year duration for the master plan is necessary to conduct essential internal studies/investigations to further define specific tasks within certain *Key Action Steps* and to properly sequence them.

Each *Key Action Step* has been assigned a suggested start time phase based on three categories—actions occurring in Year 1 (Phase I), actions occurring in Year 2 (Phase II) and actions occurring in Year 3 (Phase III). The reasons for the phasing are as follows:

- Phase I— *Key Action Steps* occurring in this phase will generally require little additional investigation or study. These steps are relatively easy to implement (e.g. "low hanging fruit") and/or they are prerequisites to succeeding *Key Action Steps* specified in a later phase.
- Phase II— Most *Key Action Steps* undertaken in this phase will require further study or investigation before implementation. Others depend upon *Key Action Steps* conducted in the previous phase.
- Phase III— *Key Action Steps* initiated in this phase build upon previous *Key Action Steps* (including those entailing study and investigation). Upon their completion, the recommended master plan will be fully implemented.

The phasing of the *Key Action Steps* for each of the **Categories for Improvement** is provided in Table 1 under the column heading "Phasing".

Special Resources

This component provides required resources usually in terms of estimates of special/added costs anticipated to enact each *Key Action Step*. Those costs are direct costs for training development, delivery of workshops and other training, operating expenses and employment of new personnel. Where recurring costs are anticipated, in terms of hiring new personnel, those are so identified. Costs not included relate to salaries of Cabinet personnel taking the training and any related travel costs. For some *Key Action*

Steps those costs will be considerable. In some cases, a *Key Action Step's* associated cost is either low (relatively insignificant) or simply unknown since further study and/or task force work is required to define the work required. The implementation options (e.g. education and training) for some *Key Action Steps* have a wide range of potential costs that must be evaluated by management relative to the potential benefits. The estimated costs for some of those options are provided where reasonable estimates could be made. The special resource information for the *Key Action Steps* of each of the **Categories for Improvement** is provided in Table 1 under the column heading "Special Resources".

Products/Results

Some outcomes of implementing the *Key Action Steps* will be tangible products (e.g. video, pamphlets). In several instances, the Cabinet has options for determining the product(s) it desires. The creation of a task force may be required to study the *Key Action Step* and select an appropriate product. Other outcomes (results) are less tangible, but still substantive. Those outcomes are typically improved procedures (or better-implemented ones), desired project features or enhanced capabilities of Cabinet and consultant personnel. Many of those results will be self-sustaining after their enactment, while the products may need periodic revisions or replacement with more effective materials/delivery methods. The Products/Results information for the *Key Action Steps* of each of the **Categories for Improvement** is provided in Table 1 under the column heading "Products/Results".

Benefits

The *Key Action Steps* provide products/results, which provide specific/general benefits to the Cabinet. Benefits are the anticipated gains accrued by the Cabinet from implementing the *Key Action Steps*. Benefits provide Cabinet Officials tasked with reviewing the recommended Master plan with the "bottom lines" on *Key Action Steps*, information critical for determining which *Key Action Steps* to implement. Benefits can also be useful for better determining implementation phasing and for relating *Key Action Steps* in different **Categories for Improvement**. The benefits for the *Key Action Steps* of each of the **Categories for Improvement** are provided in Table 1 under the column heading "Benefits".

Guidance

The study team has provided additional commentary in Table 1 under the column heading "Guidance". Those comments are included to assist Cabinet officials in implementing the recommended master plan. Where best practices apply, the pertinent transportation agency is identified. Where *Key Action Steps* can be implemented by issuance of Cabinet policy memorandums or directives, the phrase "guidance memorandum" is provided.

Guidance on *Key Action Steps* requiring further study is indicated by the comment "needs further study" and the need for a review task force is indicated where appropriate. When

a task force (several knowledgeable individuals from the Cabinet) is recommended, the group should be assigned a *Key Action Step* with instructions to conduct needed studies or investigations and provide a specific set of recommendations on how to implement the tasks by a specific date compatible within the appropriate time frame. Other commentary is provided where necessary.

Conclusions

The recommended master plan can provide the significant level of change necessary to create and sustain the proposed Cabinet partnership with the public. It incorporates carefully considered concepts both internal and external to the Cabinet and in many instances suggested activities are being successfully employed by other transportation agencies throughout the U.S.

What is innovative about the recommended master plan is that it implements needed changes in a coherent, coordinated manner (rather than piecemeal – no other SHA has attempted this approach) and seeks to achieve a high velocity of change – completion in a relatively short 3-year timeframe.

The recommended master plan constitutes a set of interacting and mutually supportive (synergistic) actions. It facilitates CSD and will provide an improved public environment that would promote its success. If a significant number of those actions are properly enacted and implemented, they should create the critical momentum to drive CSD and improve project delivery at the pace desired by Cabinet officials.

There may exist a "tipping point" relationship where a number of major actions do not achieve significant results unless or until they are supplemented by a number of actions of less perceived importance (29). As that type of relationship is difficult to anticipate, especially when it involves public attitudes and perceptions, the study team suggest that Cabinet officials carefully consider all recommended changes including those perceived as being of minor benefit as one of them may constitute the tipping point for achieving a new partnership with the public.

The Cabinet has made major staffing and financial commitments to adopt CSD, yet more work is needed. The recommended master plan encompasses much of that "more" and extends beyond what the Cabinet can achieve by having CSD serve as a stand-alone initiative. Historically, large-scale changes in agencies have fared poorly when not properly supported by management (in terms of commitments both in resources and in empowerment with those delegated to enact change). The changes contained in the recommended master plan are significant and so will be the Cabinet's resource outlay to implement it. It is crucial that a commitment to implement the master plan be accompanied by a commitment by Cabinet officials to provide necessary support.

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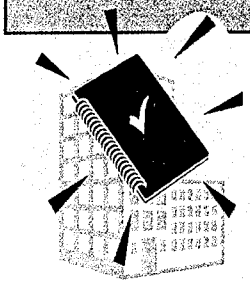
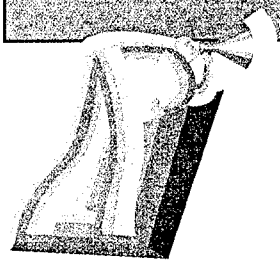
Table 1. Master Plan for Creating a Project Development Partnership

	Principle Initiatives	Key Action Steps
1.0 Policy and Procedure 	1.1 Improve responsiveness and expand commitment to the public	1.1.1 Create an Ombudsman Office in the Cabinet 1.1.2 Charge environ. coordinators to work closely with public 1.1.3 Coordinate public relations and communicate successes 1.1.4 Implement more project environmental enhancements
	1.2 Re-image the Cabinet comprehensively based on real change and successes	1.2.1 Publicize environmental & historic preservation activities 1.2.2 Develop a short memorable marketing video (process/examples) 1.2.3 Assign a public relations 'expert' to each district to work with public/ groups 1.2.4 Train staff in public contact techniques
	1.3 Expedite highway construction and traffic control	1.3.1 Expand practice of contractor/ agency partnering on projects 1.3.2 Encourage more fast-track design/construction (provide incentives) 1.3.3 Insist upon accelerated construction techniques/materials 1.3.4 Require more contractor involvement in constructability review—especially traffic control 1.3.5 Settle right-of-way and utilities issues before construction begins
2.0 Communication 	2.1 Develop a new two-way communication system for the public	2.1.1 Create a new mechanism for public input and feedback before, during and after construction 2.1.2 Designate a person for public liaison on projects in each district 2.1.3 Better utilize the existing traffic information network
	2.2 Refine the public meeting process with attention to purpose and content	2.2.1 Develop improved process for public meetings with typical agenda/ topic and best presentation media 2.2.2 Develop an improved documentation process for recording public meetings 2.2.3 Establish a meeting typology guide that matches meeting types with purpose 2.2.4 Develop uniform methods/ procedures for assembling/ distributing information to the public before a meeting/hearing
	2.3 Better communicate project purpose and need	2.3.1 Start public meetings with a thorough project purpose and need presentation 2.3.2 Better articulate purpose and need using a wide range of resources/ techniques 2.3.3 Solicit early endorsement by public officials and encourage their communication with the public

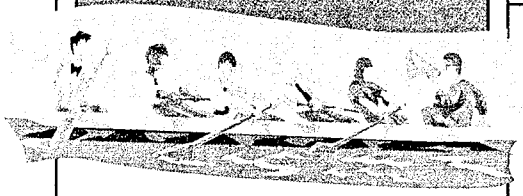
Phasing	Special Resources	Products/Results
1.1.1 Phase II	1.1.1 Personnel/Operating Funds ($150-300,000 annually)	1.1.1 New resource to address public complaints, inquiries, etc.
1.1.2 Phase I	1.1.2 Unknown	1.1.2 Expanded contact with public
1.1.3 Phase I	1.1.3 Unknown	1.1.3 Proactive public relations campaign
1.1.4 Phase III	1.1.4 A percentage of construction costs or special pool using state funds	1.1.4 More environmental enhancements
1.2.1 Phase I	1.2.1 None	1.2.1 Component of proactive public relations campaign
1.2.2 Phase II	1.2.2 $25,000-35,000	1.2.2 Video program
1.2.3 Phase III	1.2.3 Personnel/Operating Funds ($960,000 annually)	1.2.3 Deployment of professional methods/ marketing/communication throughout Cabinet
1.2.4 Phase I	1.2.4 Unknown, but significant	1.2.4 Workshop
1.3.1 Phase I	1.3.1 Insignificant	1.3.1 Increased cooperation between Cabinet and contractors
1.3.2 Phase I	1.3.2 Unknown	1.3.2 Reduced construction time
1.3.3 Phase II	1.3.3 Unknown	1.3.3 Reduced construction time
1.3.4 Phase I	1.3.4 Unknown	1.3.4 Improved construction management and traffic control
1.3.5 Phase II	1.3.5 Unknown	1.3.5 Reduced project/construction delays
2.1.1 Phase II/III	2.1.1 Unknown	2.1.1 Greater public input on concerns about proposed projects
2.1.2 Phase II	2.1.2 NA	2.2.2 Cabinet representative to interact with public on construction issues
2.1.3 Phase I	2.1.3 NA	2.1.3 Better distribution of traffic information
2.2.1 Phase I	2.2.1 Unknown	2.2.1 Effective meetings
2.2.2 Phase II	2.2.2 Unknown	2.2.2 Better documentation of public input
2.2.3 Phase II	2.2.3 Unknown	2.2.3 Aids Cabinet personnel in matching meeting agenda with situation
2.2.4 Phase II	2.2.4 Unknown	2.2.4 Greater dissemination of information to public
2.3.1 Phase I	2.3.1 NA	2.3.1 Better public understanding of purpose and need for projects
2.3.2 Phase II	2.3.2 Unknown	2.3.2 Better public understanding of purpose and need for projects
2.3.3 Phase I	2.3.3 NA	2.3.3 Indication of benefit of projects to communities

Benefits	Guidance
1.1.1 Improved customer service and more responsive public image for Cabinet 1.1.2 Better Cabinet interfacing with the public 1.1.3 Improved public image of the Cabinet 1.1.4 Better project more in harmony with communities and the natural environment	1.1.1 Washington State DOT Ombudsman's Office (best practice no. 16) 1.1.2 Guidance memorandum to district environmental coordinators suggested (best practice no. 16) 1.1.3 Active ongoing internal communication needed between design and PR (best practice no. 16) 1.1.4 Some study needed to determine resource allocation and policies (best practice nos. 6,7)
1.2.1 Better public awareness of Cabinet environmental activities 1.2.2 Marketing tool for public information usable in many circumstances 1.2.3 Improved public acceptance of Cabinet proposals 1.2.4 Better customer relations	1.2.1 Keep it simple: fact sheets, flyer, web site (best practice no. 9) 1.2.2 Need to develop concept, content, and produce professionally 1.2.3 Some review needed to determine work description/program (best practice no. 16) 1.2.4 This training is recommended for all Cabinet personnel. See Kansas DOT training program (best practice no. 15)
1.3.1 Better project coordination and reduction in motorist delays 1.3.2 Reduced motorists aggravation and enhanced expression of Cabinet public concern 1.3.3 See 1.3.2 1.3.4 Improved work zone safety and reduced motorist delays 1.3.5 Reduction in public concerns due to better construction traffic management	1.3.1 Guidance memorandum (best practice nos. 10,11) 1.3.2 Suggest an industry/Cabinet task force effort (best practice no. 12) 1.3.3 Options need study (best practice no. 13) 1.3.4 Guidance memorandum/Cooperation with Contractor's association's (best practice no. 10) 1.3.5 Explore all possibilities for improvement/Establish a review task force to interact with utilities and review current laws
2.1.1 Reduced public aggravation arising from projects 2.1.2 Better Cabinet communication with public and effective troubleshooting 2.1.3 Reduced traffic congestion and better use of alternative routes	2.1.1 Needs in-depth study (best practice no. 10) 2.1.2 Guidance memorandum/training? (best practice no. 16) 2.1.3 Explore possibilities for improvement
2.2.1 Improved Cabinet decisionmaking on projects 2.2.2 Reduction of litigation and elimination misunderstandings with public 2.2.3 Improved project development 2.2.4 See 2.2.3	2.2.1 Guidance memorandum/training? (best practice no. 5) 2.2.2 Investigate requirements/Guidance memorandum 2.2.3 Needs study, expands 2.2.1 2.2.4 Investigate requirements/Guidance memorandum (best practice no. 5)
2.3.1 Greater public support for projects 2.3.2 Better public perception of project value 2.3.3 Enhanced consensus for projects and elimination of misconceptions	2.3.1 Guidance memorandum 2.3.2 Establish a review task force/Guidance memorandum/training? (best practice no. 14) 2.3.3 Guidance memorandum (best practice no. 5)

Worksheet: Plan for Creating a Project Development Partnership

Benefits	Guidance

Table 4 (Cont'd) Master Plan for Creating a Project Development Partnership

	Principle Initiatives	Key Action Steps
3.0 Cooperative Interaction 	3.1 Improve public involvement in the project development process	3.1.1 Charge the project development team with responsibility for all project related public involvement 3.1.2 Create advisory committees of local residents and officials on all potentially controversial projects 3.1.3 Solicit more input from a broader spectrum of the public through meetings, surveys, and other devices
	3.2 Fully embrace the principles of "context-sensitive design" in the Cabinet's project development process	3.2.1 Maintain the leadership initiative and advocacy that has been established 3.2.2 Continue the basic awareness training and augment with specialized training as needed 3.2.3 Establish a method for exchange of best practices and successes
	3.3 Establish a proactive stance toward environmental enhancement at every opportunity	3.3.1 Show as much flexibility as possible in meeting and mitigating specific environmental concerns 3.3.2 Implement more project environmental enhancements (also 1.1.4) 3.3.3 Be prepared to gracefully abandon pursuit of a project in deference to the will of the public
4.0 Education & Training	4.1 Develop an aggressive public education program focusing on highway safety and capacity	4.1.1 Encourage a 'public education culture' by recognizing and rewarding those who pursue public information/ involvement activities 4.1.2 Develop materials for improved public information and education on the project development process 4.1.3 Establish a policy on expanded use of visualization (types & best use)
	4.2 Dramatically improve the basic customer relations, communication, and meeting facilitation skills of appropriate staff	4.2.1 Develop/deliver a short course workshop on improving customer relations 4.2.2 Develop/deliver a short course workshop on communication skills including visualization 4.2.3 Develop/deliver a short course workshop on teamwork and meeting facilitation skills
	4.3 Develop advanced skills in facilitation technology including conflict resolution for those on project development teams	4.3.1 Develop/deliver a short course workshop on developing and organizing ideas (project alternatives) 4.3.2 Develop/deliver a short course workshop on action planning and selecting among alternatives 4.3.3 Develop/deliver a short course workshop on conflict resolution and negotiation procedures

Phasing	Special Resources	Products/Results
3.1.1 Phase I	3.1.1 NA	3.1.1 Public involvement plan for all projects
3.1.2 Phase I	3.1.2 Unknown	3.1.2 Increased public participation/input
3.1.3 Phase I	3.1.3 Unknown	3.1.3 Better Cabinet understanding of public opinion on specific projects
3.2.1 Phase I	3.2.1 NA	3.2.1 Ensures complete implementation of CSD throughout Cabinet and its use on all projects
3.2.2 Phase I/II	3.2.2 (Basic funding committed)/ Additional training costs unknown	3.2.2 Relevant Cabinet and consultant personnel properly versed in CSD principles and practices
3.2.3 Phase II	3.2.3 NA	3.2.3 Necessary for continuous improvement of CSD practice by the Cabinet
3.3.1 Phase I	3.3.1 Unknown	3.3.1 Reduced project impacts on environmentally sensitive sites
3.3.2 Phase II/III	3.3.2 Unknown	3.3.2 Widespread use of environmental enhancements
3.3.3 Phase I	3.3.3 Unknown	3.3.3 Eliminates controversy and failed projects
4.1.1 Phase II	4.1.1 NA	4.1.1 Active participation by Cabinet personnel in public outreach to schools/civic organizations
4.1.2 Phase II	4.1.2 $25,000—50,000	4.1.2 May include flyer, kiosk, and/or video
4.1.3 Phase II	4.1.3 NA	4.1.3 Study needed... Guidance memo
4.2.1 Phase I	4.2.1 *Options available range from choosing a pre-packaged course to custom developing a course. Generally, the per person cost of using a quality pre-packaged course (Dale Carnegie, Disney, ICA, etc.) will be high (registration, travel, & lodging). A special short course (1 1/2 days) can be developed that assures content compatibility for approximately $15,000 and delivered locally for a registration fee of about $150 per person by a college or university.*	4.2.1 *A review task force could develop a program with the best mix of pre-packaged and specially developed short course workshops. Existing training delivery units, within the Cabinet and at state universities, could be effectively utilized. Whether pre-packaged or specially developed these short courses should provide a high measure of hands-on individual/group activity and clearly relate to the transportation mission. Special arrangements with the well known high quality course providers (possibly through a college/university) should be explored for some of the topics.*
4.2.2 Phase II	4.2.2	4.2.2
4.2.3 Phase II	4.2.3	4.2.3
4.3.1 Phase I	4.3.1	4.3.1
4.3.2 Phase II/III	4.3.2	4.3.2
4.3.3 Phase II/III	4.3.3	4.3.3

Benefits	Guidance
3.1.1 More effective public involvement in projects 3.1.2 Minimization of public opposition to projects 3.1.3 Better Cabinet decisions involving projects	3.1.1 Guidance memorandum (completed by Cabinet/best practice no. 16) 3.1.2 Guidance memorandum/Training? (best practice no. 4) 3.1.3 Guidance memorandum/Establish review task force to identify additional Cabinet requirements
3.2.1 Timely, appropriate implementation of CSD resulting in better projects and enhanced project delivery 3.2.2 Better employment of CSD on all Cabinet projects 3.2.3 Maintenance of leadership vanguard	3.2.1 Refer to guidance in Appendix II/Training? (best practice no. 1) 3.2.2 Develop multi-year training program (consider review task force, see 4.0/best practice no. 8) 3.2.3 Establish review task force to identify additional Cabinet requirements
3.3.1 More project support from concerned citizens and advocacy groups 3.3.2 Improved projects in harmony with communities and the natural environment 3.3.3 Validation of the Cabinet's commitment to	3.3.1 Guidance memorandum/Training? (best practice no. 2) 3.3.2 See 1.1.4 3.3.3 Guidance memorandum (best practice nos. 6,7)
4.1.1 Better public image of Cabinet and understanding of Cabinet's mission 4.1.2 Improved public understanding of road issues and Cabinet's position about projects 4.1.3 Study needed... Guidance memo	4.1.1 Establish review task force (best practice no. 16) 4.1.2 Investigate options/Establish review task force (best practice no. 16) 4.1.3 In-depth study needed/Guidance memorandum (best practice no. 14)
4.2.1 Enhanced customer focus by Cabinet personnel and better public relations 4.2.2 Improved communication by Cabinet representatives at public meetings 4.2.3 Improved teamwork by Cabinet personnel and on projects	4.2.1 4.2.2 4.2.3
4.3.1 Better Cabinet conformance to NEPA and improved projects 4.3.2 Improved projects that generate public support 4.3.3 Better negotiation skills for Cabinet personnel and reduced public opposition	4.3.1 4.3.2 4.3.3

A review task force could develop a program with the best mix of pre-packaged and specially developed short course workshops. Existing training delivery units, within the Cabinet and at state universities, could be effectively utilized. Whether pre-packaged or specially developed these short courses should provide a high measure of hands-on individual/group activity and clearly relate to the transportation mission. Special arrangements with the well known high quality course providers (possibly through a college/university) should be explored for some of the topics. (best practice nos. 3,15)

Appendix I

Emerging Issues

Changes in social attitudes and practices provide the stimulus for much of the public concern about highway development in Kentucky and across the nation. In many areas, the public has become better informed, more organized and more involved and litigious. New perspectives and attitudes have reshaped the public's mindset. Clearly, the public is sincere in its beliefs and dedicated to providing a better environment for themselves and their descendants. Many of the current conundrums associated with new highway projects are repercussions of this evolution. Environmental issues are being re-thought and re-defined producing a new focus on highway development and requiring additional accommodations by SHAs. Those new issues are providing additional public concerns and potential sources of conflict between the public and the Cabinet.

At the same time, there are growing transportation demands/needs that the existing highway infrastructure in Kentucky cannot accommodate. Those demands/needs are being generated by the economic development and lifestyles of Kentuckians. It is the obligation of the Cabinet to provided the needed infrastructure that many of those same Kentuckians are concerned about. Obviously, there is the opportunity for accommodation between the concerns of the public, their transportation needs and the mandated mission of the Cabinet. Understanding public concerns and vital interests is the basis for establishing a positive working relationship in the future. Each party must recognize the contributions that the other can provide to achieve excellence in highway development.

New Public Attitudes

A major change in public attitudes relates to increased public awareness and interest in the details of governmental decisions (1). The best explanation for this (on a worldwide basis) is that the citizens of the advanced industrial countries have experienced a transformation in their basic values. Where they once stressed economic growth and material progress to the virtual exclusion of all else, they now highly value the environment, aesthetics and other quality-of-life concerns.

This transformation constitutes a culture shift from materialist to "post-materialist" values, a shift associated with another aspect of social change. The public is more informed and better educated. More Americans than ever have some college education. Those factors contribute to the public's increasing demand that they be allowed to participate in the decisions that shape their environment and communities. The public is reluctant to trust bureaucratic agencies to make the right decision. Now that more Americans have the experience, information and education to participate in the decisions that shape their lives, more of them are asserting, as a matter of right, that their voices be heard. When they do participate, they bring new, sophisticated skills and values to the bargaining table.

Public activism began in the 1950s and increased in intensity through the 1970s. Now, it is a permanent feature of the social landscape. Local groups of activists have emerged in every region of the country with the goal of playing a more prominent role in government decisions shaping their communities. This has produced a struggle between the supporters of economic development and the defenders of environmental and aesthetic values (along with those wishing to preserve the *status quo*). Although this struggle is more intense in some areas than in others, it is being played out in both urban and rural communities across the US. The supporters of sound development (i.e. an increase in capability – highway capacity and safety) have been unable to differentiate themselves from the negative image of unbridled growth (2).

Emerging Environmental Issues

Natural and human environmental issues are commonly the source of public concerns and, in the past, a source of contention between government agencies and the public. SHAs now undertake extensive investigations and deliberations to identify actions that will place them in compliance with environmental laws, policies and regulations. Environmental factors are now the major source of delays to SHA efforts to implement proposed projects. The public is generally unaware of the significant actions SHAs take to prevent or limit environmental impacts on proposed projects.

The environmental landscape is not static; significant changes are currently underway that will radically impact project development in the foreseeable future. The focus of SHA officials must now be shifting to address those emerging issues that will soon be the sources of public attention and debate.

A significant change in public values resulted from the emergence of the modern U.S. environmental movement in the 1960s. In the decades that have followed, the movement has gained widespread public attention and support. Environmentalism was an outgrowth of the conservation movement of the 19th century (3). Where conservation was concerned with preserving natural resources, environmentalism focused on man's (often unintentional) depredations to nature, the resulting pollution and its unfavorable consequences on humanity. As with the earlier conservation movement, the environmental movement is human-centered with the notions that:

- Environmental quality should be maintained to enhance the quality of human life
- Natural resources should be used productively
- Waste and pollution should be prevented
- Nature should be preserved for habitation of mankind and valued species
- The wilderness should be safeguarded as a source of beauty and renewal (4)

In the 1960s and beyond, federal and state governments responded to those public concerns by enacting a variety of new environmental laws. Those laws created new federal and state oversight agencies (e.g. the U.S. Environmental Protection Agency and the Kentucky Natural Resources and Environmental Protection Cabinet) charged with promulgating and enforcing environmental regulations. Congress passed the most far-

reaching environmental law - one affecting all federally funded highway projects -- the National Environmental Policy Act of 1969 (NEPA). That law states, " *...all agencies of the Federal Government shall...utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and environmental design arts in planning and decision-making which may have an impact man's environment.*" NEPA is impacting many actions that have Federal agency funding and/or oversight.

Local individuals and groups have objected to certain government actions (e.g. building roads, waste disposal facilities, prisons) for many years. This resistance is typically termed "NIMBY" or *Not-In-My-Backyard.* Until more recent times, the usual sources of concerns were landowners and businessmen directly affected by recommended projects. Now, communities have become more aware of the potential negative impacts of roads and the "*Backyard*" has expanded to include a larger number of people who have expressed concerns about proposed projects.

The 1970s gave rise to a new public perspective on environmental issues that resulted in a shift from environmentalism to ecologism. Where environmentalism is human-focused, the ecologism movement is ecocentric (or biocentric) with a world-encompassing belief that ecosystems, all species, and all life on earth are important. This movement criticizes the human focus of environmentalism. It imposes moral constraints on humanity in valuing its existence compared to that of other forms of life. Among the goals of ecologism are:

- A worldwide reduction in the human population to benefit both human and nonhuman life
- A limitation on human consumption and production to satisfy vital needs
- A focus on human life quality rather than standard of living
- A commitment to global sustainability
- A deep commitment to implement necessary changes (op. cit. 4).

Ecologism represents a global, systematic perspective of issues that environmentalism considered on a piecemeal basis. It views the environment on a synergistic, systematic basis asserting that human actions and environmental problems have large-scale, irreversible consequences (e.g. genetically modified food, global warming, overpopulation). Both government and the public are addressing some of the tenets of ecologism as a matter of policy and as public concerns.

The rise of ecologism resulted in environmental radicalism and promoted environmental activism over the past 30 years (i.e. *Greenpeace* and *Friends of the Earth International*). Traditional environmental groups such as the *Sierra Club* have adopted ecological stances on some issues. The ecologism movement presses for environmental sustainability and, in general, opposes growth yielding "NIABY" or *Not-In-Anyone's-Backyard.* Where the environmental movement focused blame for environmental problems on industries, growth and modern lifestyles, ecologism has sought more significant modifications in human activities seeking to halt human-induced environmental change.

The growth of public activism related to natural environmental issues has broadened to include those of the human environment (also termed "the built and social environment"). In 1982, a predominantly black community in Warren, North Carolina protested the siting of a hazardous waste disposal facility. That protest led to studies that showed government projects and actions had disproportionately high and adverse impacts on minorities and low-income populations. The outgrowth of those findings was the "Environmental Justice" movement that forced government agencies to consider environmental impacts of recommended projects on the entire populace (i.e. community impacts). Now minorities, Native American tribes and the poor have become more cognizant of their rights and are insistent on receiving equitable treatment in the project decision-making process.

Other human environmental issues such as preservation of farmland, historic and cultural artifacts and buildings, and public/government lands have become priorities along with natural environmental issues such as endangered species, forests, wetlands and streams. Other recent issues such as preserving the character and sustainability of communities must also be addressed by government agencies in proposing new actions.

A common thread currently connecting the ecologism, civil rights, historic and lifestyle preservationist, and other social movements has been a sentiment against unhindered growth (and creation of infrastructures that support it). Nationwide, some communities have begun rejecting both private and government projects aimed at providing growth-promoting infrastructures (e.g. roads, subdivisions, shopping centers, power plants, and waste- treatment or disposal facilities). On some projects, local groups now partner with national groups – "NIMBY" fused with "NIABY". The main focus target of the anti-growth advocates has been unhindered urban growth (sprawl). The primary tool promoted to prevent sprawl is termed "Smart Growth" or "New Urbanism".

New Groups, Resources, and Tactics

The concern about new roads by persons whose land is taken or is adjacent to them is a regular occurrence. It can be expected to remain as strong as ever. What is new is the emergence of various environmentalist-, historic and lifestyle preservationist-, and anti-sprawl groups, who are eager to support local citizen (who have now become organized). These groups are quite willing to use various environmental laws in litigation actions to achieve their objectives (which they have a perfect right to do), and they are also adept at organizing rallies and protests. Landowners who could be impacted by recommended highway projects sometimes attempt to gain support by representing personal concerns as public issues (e.g. by seeking to have their properties deemed to be of cultural or historic value).

Environmental groups, like the *Sierra Club* and *Friends of the Earth*, are very influential in most political arenas. They have scientists, economists, and lawyers on their staffs. Working with similar organizations in Europe and Asia, technologically advanced and sophisticated, they use the Internet to relay information and tactical innovations to their

supporters around the globe. As a result, they generate informational and organizational resources that local groups can use in their campaigns (see the text box below).

Although some of their goals may differ, environmentalists, preservationists and anti-sprawl activists are committed to some common principles of ecologism. In promoting smart growth, they espouse the use of dense housing development, preferably in the urban core (i.e. "infill development"). Those groups tend to oppose all new highway projects, believing that new roads facilitate access to more remote suburbs.

Issue Stances and Information Assets Provided by the Sierra Club

The *Sierra Club* states in its urban environment policy that it seeks the conservation of open spaces. Among its goals are: "*preservation of hills, coasts, wetlands, other outlying natural areas and agricultural lands by zoning, curbing suburban highway development, control of municipal services and other devices to eliminate "leap-frog" sprawl.*" It seeks government policies that promote "infill" development and commercial development on unused or under-used land within city boundaries and already served with streets, water, sewer and other public services (5). Broadly, its transportation policy encourages systems that *encourage land uses that minimize travel requirements* (6). It claims that, "*...studies show that increasing road capacity only leads to more traffic and more sprawl.*" (7). It further states that, "*The highways that are built to sustain these suburbs add to our pollution and energy problems, and increase our dependence on an automobile way of life that is unhealthy, anti-social and unsustainable*" (8).

A review of the *Sierra Club* website illustrates the sophisticated advice and support available to local groups trying to stop new highways and housing developments. It

Working together those groups have had some successes in altering land use patterns. Several states—among them Oregon, Florida, New Jersey, and Georgia--have promoted high-density growth based upon smart-growth strategies, as they encourage more central city townhouses and multi-family developments on infill. Anti-sprawl groups are now a potent political force in many regions of the U.S. (10).

The emergence of smart growth has not been without its share of reverses and controversies. In several communities, smart growth regulations have resulted in higher community development costs. That has resulted in revisions of local land-use regulations in some cases. As the environmentalism movement generated opposition from industry, the ecologism movement, in promoting smart growth, has generated opposition in the form of property-rights advocates who argue that private landowners should have the right to economically exploit their properties, as they desire.

The Dilemma of Traffic Growth on Kentucky Highways

Kentucky is growing and modernizing. Growth has many sources, but one of the most important is a surge in the number of new households. The Kentucky State Data Center at

the University of Louisville estimates that the number of households in Kentucky will increase by 445,000 between 1990 and 2020 (11). This is an increase of 32 percent, which outpaces the expected 17 percent increase in population growth. This disparity in household growth is explained by more people living alone and by fewer living together as married couples. The projected growth in households is an extrapolation of a pronounced trend. In 1990, there 1,380,000 households; in 1996 there were 1,478,000, an increase of 7.1 percent in only six years (12).

Economic development has been spurred by other sources. Kentucky has profited from the shift in automobile manufacturing to the South and lower Midwest. Unlike many other states, Kentucky has seen a significant increase in manufacturing employment over the past decade. Much of that growth is linked to the availability of an improved highway infrastructure built over the past 40-50 years. This has contributed to a rise in average income, which in turn, has increased the demand for suburban housing construction.

All of those trends point to greater traffic volumes on Kentucky roads. Clearly, the existing roadway infrastructure cannot support the current and anticipated expansion in economic development and subsequent traffic (13). This congestion is further exacerbated by the fact that the population in the established urban areas, as well as much of the population elsewhere in the United States, is suburbanizing. This decentralization has contributed to an upsurge in traffic, as people drive longer distances to work and shop.

Congestion and decentralization are not the only sources of Kentucky's transportation challenges. Many roads are inadequate for their current traffic volumes. Most of these highways were not designed for the types and volumes of modern commercial vehicles they are required to carry. By all scientific and engineering criteria, Kentucky (along with the other states) needs improved highway infrastructure for reasons of driver and pedestrian safety, as well as for commerce and congestion reduction. Anticipated future growth in Kentucky will only intensify the need for new or improved roads.

Prosperity and growth have not occurred in all communities throughout the state. Unemployment statistics vary widely between counties. One reason for that disparity is the lack of suitable transportation links to the more inaccessible portions of Kentucky. New roads are needed to provide a more balanced economy throughout the state.

Seemingly, Kentuckians are being asked to make "guns or butter" choices between better transportation to support their needs and desired standard of living and the preservation of communities and lifestyles and, perhaps as some contend, the environment. A middle ground may exist where all interests can be reasonably served. Certainly, much discussion, debate and negotiation are needed to define that middle ground which will vary on each proposed transportation project depending on the parties engaged. What is certain is that mutual cooperation, trust and respect are needed to reach that middle ground, as well as a great deal of patience and effort.

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Appendix II

Study Advisory Committee and Focus Group Participants

Study Advisory Committee Participation

Kentucky Transportation Cabinet Participants:
- Daryl Greer – Division of Planning (Committee Chairman)
- Pam Beckley – Division of Environmental Analysis
- Philipia Boleyn – Division of Public Affairs
- Brad Hamlin – Division of Construction
- A.L. Perkins – District Seven
- Woody Simmons – Division of Right of Way and Utilities
- Jim Wilson – Division of Planning

Non-Cabinet Participants:
- Bill Cress – Hinkle Contracting Corporation
- Robert Farley – Federal Highway Administration
- Randy Palmer – Palmer Engineering

Policy Focus Group Participation

Kentucky Transportation Cabinet Participants:
- Philipia Boleyn – Division of Public Affairs
- Larry Chaney – District Five
- Daryl Greer – Division of Planning
- Woody Simmons – Division of Right of Way and Utilities

Non-Cabinet Participants:
- Peter Beaty – Jessamine County Board Of Education
- Jenny Brockman – Bluegrass Area Development District

Planning Focus Group Participation

Kentucky Transportation Cabinet Participants:
- Pam Beckley – Division of Environmental Analysis
- John Mettille – Division of Environmental Analysis
- A.L. Perkins – District Seven
- Jim Wilson – Division of Planning
- Ricky Young – Division of Highway Design

Non-Cabinet Participants:
- Randy Palmer – Palmer Engineering
- Evan Wisniewski – Federal Highway Administration

Construction Focus Group Participation

Kentucky Transportation Cabinet Participants:

Kenneth Cox – District Three
Charlotte Faeth – District Five
Brad Hamlin – Division of Construction
Larry Irish – Division of Traffic

Non-Cabinet Participants:

Dean Blake – Plantmix Industry of Kentucky
Bill Cress – Hinkle Construction
Robert Farley – Federal Highway Administration

Appendix III

Annotated Bibliography

Baldassare, M., Hassol, J., Hoffman, W., and Kanarek, A., "Possible Planning Roles for Regional Government" Journal of the American Planning Association (1996), 62:17-28.

> Planning directors strongly favor a role for regional governments in "system maintenance" (transit, solid waste, water, health, streets and roads), but not in lifestyle (police, education, parks). They saw regulation of growth and land use as a local issue (i.e. a lifestyle issue). However, they did see regional government as having a superior role in planning for the future, which implies that people may accept growth planning as legitimately regional when it is connected with the future.

Cohn, L. and Harris, R., "Improving Public Response to Sensitive Transportation Projects" Journal of Transportation Engineering (1988), vol. 114, no. 4, July.

> In this article the authors list a number of techniques for communicating more effectively with the public on sensitive transportation projects. Their focus is public relations with some stress on holding better meetings.

Crewe, P., "Outer Loop Must be Blocked" Lexington Herald-Leader, March 23, 1998, p. A8.

> This article was written by an environmental activist who is against the first leg of the outer loop in Jessamine County. His primary reason for opposition is the "suburban sprawl" associated with new roads. He calls the Nicholasville connector a "developer's road" and predicts that new roads create traffic rather than decreasing it.

Cunningham, L., Christiensen, K., Dunn, D., Gonzalez, E. and Hirsch, M., "Recommendations for Developing Customer Focus in Statewide Transportation Planning Process" Transportation Research Record 1552.

> After Congressed passed ISTEA of 1991, information management and long-range planning in transportation required proficiency in involving the public in the entire transportation planning process.
>
> This study used the results of a large survey and a number of small focus groups in Colorado of citizens and CDOT officials to make recommendations for public involvement. To enhance public involvement it recommended the following:
>
> (1) Broaden the mission and process with a continuous proactive structure of public involvement in the statewide transportation planning process. This entails recognizing the

concerns of new stakeholders, many of which concerns are not directly related to construction issues.

(2) Strengthen involvement in project development, from seeking advance support for projects and programs to support for modifications.

(3) Charge one unit of the DOT with responsibility for coordinating the public involvement activities of all agency units.

(4) Train a wide range of personnel in techniques of public involvement. They must be taught to value input from customers.

(5) Structure public involvement so that each planning region assesses the public's definition of planning issues and establishes priorities and evaluation standards for each project based on the needs, wants and perceptions of the public in each region.

(6) Identify target markets for each transportation initiative.

(7) Implement an aggressive marketing strategy that incorporates the marketing mix to inform the public of DOT objectives, plans, priorities, etc. This could entail advertising, direct mail, trade shows, and public relations.

(8) Use systematic market research strategies: surveys, focus groups, town meetings etc to gather public input.

(9) Establish a high profile pubic involvement team, consisting of community and special interest leaders and DOT staff to communicate the vision for the future transportation system.

(10) Evaluate the involvement strategies being used by other states.

(11) Use new technologies to gather and access information.

(12) Form partnerships with the business community, especially to grasp a system perspective for an entire region.

(12) Address the transportation problems of the disabled and elderly.

(13) Include bicyclists.

(14) Attend to desires of those who use public transportation.

Dunphy, R. and Kimberly F., "Transportation, Congestion, and Density: New Insights" Transportation Research Record 1552 .

With data from the 1990 National Personal Transportation Survey, the authors find, as expected, that people in larger, more congested areas drive less and use public transport more than their counterparts in suburban and rural areas. However, they also find that there are differences in the household characteristics of people living at different densities—characteristics that also determine the amount of driving. Higher density areas have smaller families with fewer children per household and drive fewer miles per household. Residents of higher density communities appear to have lower travel needs. Doubling residential density cuts driving by only10-15 percent.

Fisher, R. and Ury, W. with Patton, B., Getting to Yes, Penguin Books, New York, NY, 1991.

This book explains the concept of negotiating based on interests as opposed to positional negotiating. It is considered an excellent book on dispute resolution and negotiation.

"Bridge Deck Repairs: Time is of the Essence" Focus, USDOT/ Federal Highway Administration, Sept. 1998.

This article describes a new technology of the Strategic Highway Research Program that allows bridge deck overlays in just eight hours. The product in question is a very early strength (VES) latex-modified PCC overlay, which provides the same benefits as a conventional overlay, but uses a concrete mix that is designed to cure very quickly. "Although the materials for VES overlays are more expensive, the cost is more than offset by the savings on traffic control and work zone safety measures." According to Virginia DOT, when these costs are factored in, a fast-curing VES overlay costs approximately $115 per square meter ($96, per square yd.) for labor and materials, compared with the $156 per square meter ($130 per square yd.) it costs to place a conventional PCC overlay.

Gesing, C., "Faster, Better, Cheaper: Streamline Concurrent Corridor Studies" GIS World, Inc. http://www.gw.geoplace.com, 1998.

The author recommends GIS technology when assessing alternative corridors and alignments. GIS can take numerous factors into account—environmental as well as geographic and topographical. High quality graphics make it easier to communicate with the public. This helps the public see that all information was taken into account and objectively evaluated.

Godschalk, D. R., Parham, D. Porter, D. Potapchuk, W. and Schukraft, S., Pulling Together: A Planning Development Consensus-Building Manual, Wash. D.C.: The Urban Land Institute, 1994.

Informing government and business leaders about consensus-building benefits and techniques is the purpose of this manual. The manual brings together the key ideas and techniques from three fields: alternative dispute resolution, citizen participation, and meeting management.

The authors summarize the conventional approach to planning and decision-making as "plan-announce-defend-implement." Planners concentrate on selling the work to the public and defending it from criticism. In a defensive posture they use such tactics as:

- Do not tell the opposition about important meetings
- Pack the meeting place with supporters
- Appoint an advisory committee with supportive members.
- Limit the distribution of data, background information, staff analysis and blame it on a tight budget
- Create several unacceptable alternatives to make yours look best
- Limit the opposition's time to organize by forcing quick decisions

These tactics provoke distrust, antagonism, and a crisis, an outcome all the more likely under conditions of uncertainty, little time, narrowed options and high stakes.

Today local leaders face a difficult situation. Citizens demand better, more efficient and responsive government, but conventional planning and decision-making processes seem ineffective. To be sure, informal consensus-building and negotiation skills prove inadequate. More formal means are needed.

The authors recommend Collaborative Processes in which people work with, not against each other. "Opponents and interested parties are brought together to build a common understanding of a situation, develop and test ideas, and design pragmatic solutions." Much effort is put into the design of the process to ensure fairness and openness of participation. The collaborative process has these characteristics: participation is inclusive; a common sense of purpose and a common definition of the problem are developed; participants educate each other and inform each other, multiple options are identified and tested; decisions are by consensus, participants share in the implementation of solutions.

Negotiations should be interest-based not position based.

Parties are more likely to collaborate in a negotiation when failure has costs—increased conflict, litigation, time delays, and worsened community relations.

Designing the Process

Form an initiating committee to design the process. It negotiates the forum for negotiation. The committee has the following responsibilities: issues clarification, matters of representation, and process planning. The substantive matters are left to the working group that does the actual negotiating. A third party mediator or facilitator may be needed especially in complex cases, cases with many parties, and contentious cases.

Four Process Models for Generating Consensus

1. Committee/ task group (subcommittees) model
2. Negotiating team model
3. Large conference/task group model
4. Task group and public input model

To build consensus and solve problems:

1. Create a basic level of predictability by making explicit the process and operating procedures.

2. Clarify why the process is needed, the resolution or product required, what the group will do, how the decision will be made, the schedule, and who will get or act on the final product.

3. Develop a shared understanding of the problem. Mutual education or joint fact-finding is the first step in the problem-solving/decision-making process.

4. Discuss and clearly define the problem. Put it in writing. "The statement must define the common concerns of the parties and present a problem that is manageable within the group's time and resource constraints." (p. 64)

5. Generate a broad list of potential solutions or options. Just list them. Do not criticize them at this stage. Postpone discussion of political, technical, or financial consequences.

6. Establishes decision-making criteria. These can usually be classified into three groups—technical, political and value-based criteria. "The final list of criteria should generally reflect the common interests of the group." (p. 68)

7. Seeks a consensus on a package of solutions. "Parties may reach agreement in a number of ways, by combining or synthesizing options, through compromise or trade, or by agreeing to drop particularly controversial items from the agenda."(p. 69) The key is to find a package on which all can agree.

8. Use the criteria to evaluate the options.

9. Develop an implementation plan with budget and schedule. Designate a group to monitor progress.

Gattis, J.L. and Stover, V., "Planning Decisions and Public Attitudes About Roadway Construction" Transportation Research Record 1237.

This study concerns attitudes toward changing traffic flows on frontage roads from two-way to one-way. People and businesses near the frontage road objected to the change to one-way, a change motivated by a desire to increase safety. The study, a survey of attitudes, had five key findings:

(1) Business, developers and real estate people were much more opposed to one-way frontage roads than were politicians, planners, etc.
(2) The opponents of conversion were more vocal.
(3) Business tended to place more emphasis on ease of access to a site.
(4) The public tends not to understand traffic flow issues as much as it understands safety issues.
(5) Business people tend to site their business based on ease of access; so let people know that a road may be deemed one-way, even when it is two-way (i.e., let them know that a frontage road that is two-way may be changed to one-way).

Godfrey, S., "Survey of Practice Is Music to Designer's Ears" Texas Transportation Institute (1992).

This article looked at design features that made noise abatement walls more attractive to residents in a community. The author recommended eliciting the participation of local people in the selection of the design for noise abatement walls. Public participation in the design process has proven to be an effective method for ensuring that the best design is implemented for both sides of the highway environment.

Graham, J. and Shalkowski, J., "Opening up southwestern Pennsylvania's Transportation Planning Process" Transportation Builder, November 1995, pp. 20-22.

The authors discuss the cooperation between various groups and governments that is helping to develop the Mon Valley in the Pittsburgh area. They note that to qualify for funds under ISTEA, project developers are obliged to seek out diverse interests and engage them in a collective decision-making process. In their estimate the Penn. Turnpike Commission was able to realize about $70 million in savings by following the ISTEA and National Environmental Policy Act processes, forming public sector partnerships and securing approvals quickly.

The partnering process by the Commission included surveys, public meetings, hearings, and workshops. It formed committees of business leaders, local officials, transportation agencies, and interested citizens. Help was sought from

state agencies and consultants. The Commission teamed up with the region's metropolitan planning organization in carrying out technical studies. Its success was due to participation of business sector representatives, public agencies, private contractors, potential equity partners, and interested citizens.

Hathaway, J. and Wormser, L., "Working with New Partners: Transportation Decisions with the Public" Transportation Research Record 1559.

The authors offer a review of methods for involving the public in decision-making, and stress the importance of inclusiveness, early involvement, and accessible information. They review the use of task forces, committees, public forums, workshops, dispute resolution, public education, opinion polls, competitions, and technical support. They do not necessarily advocate any one approach over another.

Henley, L., "Reducing Construction Impacts: Phoenix LISTens" Public Works, Sept. 1990.

Henley recommends that cities follow the LIST program created by Phoenix to handle the traffic problems associated with road construction. LIST is an acronym for Lessening Inconvenience in Street Travel. It had these elements: (1) Improved planning and scheduling of construction projects by coordinating pipeline and paving through better information on delays to interested parties; (2) Getting better advance information to the public and more public involvement in design and construction; (3) Increasing construction contractor involvement; (4) Incentives for shorter construction durations; and (4) Creation of a community information program.

When a design was 30 percent finished, a workshop was held to generate citizen input while there was still time to modify items such as alignment, drainage, traffic signals and landscaping. A second meeting was held prior to construction to introduce the contractor and inspection personnel, discuss the construction schedule and phasing and other problems.

A variety of signs and newsletters are used to alert the public. The contractor hosts the second meeting and the contractor is held to a schedule. The use of liquidated damages and incentives has been expanded to encourage use of all available working hours.

A "Citizen's Advocate" was hired. This person coordinated information, took complaints, ran a 24-hour hotline, and arranged public meetings.

Huffman, G., "More Than a Public Hearing" Civil Engineering, August 1990, pp. 62-63.

Huffman argues that an effective program of public involvement is much more than a mandated public hearing. It is a continuing process with many elements.

The first step is to incorporate probable positive and negative public reactions into the request for proposal. It is necessary to address such issues as informing the public of all relevant issues and to identify all public concerns. The public should have access to consultants. Alternatives are to be presented to the public. Seek out special interest groups and listen to their concerns. Before the public hearing, there should be an informal public workshop or series of workshops where the public can review all the engineering, environmental, and community impact findings, see comparisons of alternatives and discuss them on a one-on-one basis with the client/consultant team. "The best public hearing is one where all of the issues have been heard and addressed in prior meetings with all agencies and special-interest groups" (p. 63).

Huffman also recommends the use of computer graphic imaging, periodic news releases newsletters or other mailings. He also recommends that the contractor's responsibilities for public involvement be defined.

Ison, S., "Acceptable Road Pricing: A Three Step Process" Transportation Research Forum (1995), 37, pp.125-139.

This article looks at the obstacles to public acceptance of charging people to use roads. It could reduce road congestion, but the public is usually opposed. The author suggests that the public must be convinced it is needed for environmental reasons and that the money generated will be used to compensate those who cannot afford to pay or to build alternative modes of public transportation. Road pricing must have a simple technology, be perceived as fair, provide useful revenues that do not disappear into the general fund. It must be actively sold with public education campaigns and benefits provided in a package.

Johnson, T., and Hendricks, M., "Worth a Thousand Words" Transportation Builder (1996), pp.16-18.

The authors state that computer design imaging of projects can expedite and facilitate both public and DOT acceptance of a new project. It makes it easier to analyze aesthetic and environmental impacts of a project and thus deal with objections and shortcomings. This example of its use was on US 12 in Wisconsin.

Kelly, J. P. and Robles, R., "North Central Expressway, Dallas: Case Study of Enhancement" Transportation Research Record 1419.

This is a report on the application of the 1991 Intermodal Surface Transportation Efficiency Act. The reconstruction of a Dallas highway entailed many of the enhancement elements listed in the act (e.g. pedestrian and bicycle facilities, landscaping and other scenic beautification, preservation of rail corridors for bicycle trails, archaeological planning and research.) The expressway offers a

case study of a new environmentally sensitive "enhancement-inclusive" design approach and illustrates methods used to solicit public input into the final design.

To elicit public involvement, an amenities task force was set up and a design symposium held. The architectural planners evaluated reaction and comments received at the symposium. Subsequently, the 10-mile corridor was divided into six geographic areas. The Texas DOT then held meetings with interested persons in each area, during which architectural consultants led the exchange of ideas and concepts. The authors recommend that conceptual design and architectural input must have sufficient lead-time to develop the range of optional ideas that may be placed on the table. Then additional time is needed for soliciting public input regarding the magnitude of enhancements and the specific designs favored. At all times attention should be paid to the fit between the design of the highway and the transportation needs of the people in the specific urban neighborhood in which it resides.

Khisty, C. J., "Citizen Participation Using a Soft Systems Perspective" Transportation Research Record 1400.

This article is about effective citizens' participation in transportation planning through a system used to tackle ill-structured problem situations in planning. A soft system methodology, formulated by researchers at the university of Lancaster, United Kingdom, is described and this methodology is applied in a case study to demonstrate how it can be used in citizens' participation as applied to transportation planning. This methodology has proved to be effective and easy to use.

Khisty, C. J., "Operationalizing Concepts of Equity for Public Project Investments" Transportation Research Record 1559.

This article helps managers determine who the beneficiaries are, or should be, from a given project. It reviews the most common definitions of equity as the other half of efficiency, and Cost-Benefit Analyses. As an example, a proposed bus system is evaluated under a variety of equity definitions.

Kincaid, J., "State and Local Attitudes on Relations in Highway Policy." Transportation Quarterly, April 1989 v. 43, pp. 53-167.

This is a survey of town and township directors, municipal league directors, county association directors, regional association directors, and of state legislators in four key groups—minority and majority leaders, members of the fiscal or appropriation committees, members of transportation committees, and members of local government committees. Kincaid found that state notification to and consultation with local officials occurs regularly. But active local participation in the planning of state and federally funded roads occurs somewhat less frequent. Towns seem to have the least say.

Larsen, J., "Develop Your Own In House Public-Relations Program" ITE Journal, January 1991.

Larsen asserts that improved public relations efforts can educate the public and policymakers about traffic engineering activities, policies, requirements, and laws. He relates the experience of Camarillo, California and the public education component of its traffic management plan. They relied on the local paper to reach the public. The result was improved relations with the public.

Minnesota's District/Area Transportation Partnership Process, Minnesota DOT, 1995.

This is the executive summary of a report on The Minnesota Department of Transportation's District/Area Transportation Partnership (ATP) Process. Minnesota created eight districts and had them conduct a transportation investment process designed to develop the state Transportation improvement program.

The districts built upon the various regional transportation planning processes already in place, such as those of the regional development commissions (RDC) and metropolitan planning organizations. The district/ATP process is an unfinished public involvement experiment in the integration of technical ranking criteria with community-based values. The districts rank priorities. The ATP process is a transfer of information and a decentralization of decision-making authority to eight councils of transportation stakeholders. The ATPs recommend the distribution of over $340 million annually in federal funds. They also recommend which projects will be programmed and where.

McLeod, D. S., "Integrating Transportation and Environmental Planning: Extending Applicability of Corridor and Sub-Area Studies and Decisions on Design Concept and Scope" Transportation Research Record 1552.

FHWA and FTA proposed a combined process for integrating transportation planning and environmental planning into a continuous decision-making process. This article looks at Florida's attempt to integrate the two.

It is expected that integrating transportation and environmental planning will lead to better transportation planning and a more efficient production process. The combined process works like this. Instead of staffs working in three totally distinct phases—planning, preliminary engineering, and design—staff involvement overlaps. Planning has the lead role through a decision on design concept and scope. However, preliminary engineering and environmental staffs play a major role in that phase and design staffs also participate. (Other units such as transit operator, bicycle and pedestrian coordinators, traffic engineering and right of way would also play important roles.)

Preliminary engineering and environmental staffs take the lead in the preliminary engineering phase through location and design acceptance (NEPA approval). However, planning staff still plays a large role in that phase, addressing issues that arise and insuring that prior decisions on design concept and scope are being incorporated. Design staff plays a larger role as location and design alternatives are considered.

During the design phase the design staff takes the lead in developing project design plans. Planning's involvement becomes small, limited to insuring project design concept and scope are being implemented. Preliminary engineering and environmental staff remain active providing detailed input to the design team.

A major feature then of the process is a continuous team approach. Even in the planning stage a representative of design should be involved, although at a minimum. Similarly, a planning representative should be involved in the design phase at a minimum amount. Overall, preliminary engineering staff would play the largest continuous role throughout these phases.

A major assumption is this—by keeping these staffs active throughout the development of a project, the effective application of earlier work at earlier stages is greatly enhanced. So at the later phases people see their desires incorporated and therefore requests to redo work will be greatly reduced.

Public Involvement Handbook, Montana: Montana Department of Transportation, Public Involvement Unit, 1996.

This handbook gives a step-by-step account on how to develop a plan to involve the public and help with participation from all factors involved. The handbook suggests that there are four levels of involvement (Level A, Level B, Level C and Level D.) The Handbook states:

1. These are only suggestions (the actual plan may include a combination of many different things);
2. It's important we don't under-react and fail to anticipate the needs for public involvement and information;
3. The plan should remain flexible; and
4. This is not intended to be a fail-safe process (changes are bound to be necessary on some projects).

--Pages 3-11 of this handbook deal with the public involvement plan, including details on developing the plan, responsibilities and key levels of development.
--Pages 11-28 of this handbook deal with detailed steps and responsibilities. Some headlines under this category include: advisory committees, interdisciplinary teams, and person contacts with landowners.
--Pages 28-32 of this handbook deal with meeting and hearing formats.

--Pages 32-48 of this handbook deal with examples of the guidelines that were given throughout the beginning of the handbook, as well as charts and environmental policy acts.

National Cooperative Highway Research Program Report #364: Public Outreach Handbook for Departments of Transportation, National Research Council, Transportation Research Board, Washington, D.C., 1994.

This 37-page report contains a wealth of information for any public agency that anticipates long-term interaction with a varied clientele. Specific items addressed are:

1. A program for DOT to design its own Strategic Communications Plan.
2. Sample scenarios where the plan is applied, such as environmental issues, image issues, and construction disruption.

O'Brien, D., "The West Side Highway Reconstruction Story" Public Works, January 1997, pp. 28-30.

New York accepted a redesigned West Side highway that preserved the character of the West Side. The new design had trees and bike and pedestrian paths. It was designed in consultation with citizen groups. O'Brien concludes the open design process, which brought this major urban project to reality, is a model for other states and cities choosing a more interactive approach to gaining community support for highway projects.

Passonneau, J., "Aesthetics and Other Community Values in the Design of Roads" Transportation Research Record 1549.

It is the thesis of this author that opposition to road building can be overcome in some instances with more attention to aesthetics—the fit between the highway and the physical and social landscape through which it passes. He argues that parkways have been successful in fitting roads to their surroundings and in minimizing the areas of concrete. And have done so without sacrificing safety. He recommends that design take into account the conservation of scenic, historic, and cultural resources, as well as community values. Well-designed streets and roads have two characteristics: they handle traffic efficiently and they fit nicely into their surroundings. The fit between a street or a road and the land around it depends to a considerable extent on the design of its edges (e.g. walls, landscaping, trees.)

He praises parkways for these features: grass shoulders, clear zones—distances of 10-15 feet from edge of pavement to nearest fixed object. Drainage arranged so that the edge of the road blends into the surrounding landforms. Swales, not ditches, provide for runoff. They also have wide rights of way for landscaping, berms to protect neighborhoods, and a landscaped median.

Passonneau argues that whenever possible it is advisable to negotiate aesthetic issues with citizens. In an advisory, citizen representatives should be present during consultant selection and should review highway design in progress.

Petree, J., "Constructing a Dallas Highway" Transportation Builder, January 1996, pp. 10-15.

This article is about the rebuilding of a complex urban highway (U.S. 75 in Dallas). During construction six lanes of traffic were kept open, which required detailed coordination of the project. "Once a month contractors working on other segments of the North Central Expressway, representatives from the community, the TXDOT, and other interested parties met for discussions on the progress of the program" (p. 15).

Prendergast, J., "Pioneer Highway" Civil Engineering, July 1993.

This article describes the construction of twelve miles of I-70 in an environmentally sensitive canyon on the Colorado River. It was constructed to impact as little as possible the natural environment of the canyon. A citizen's advisory committee approved all design concepts before final design, and remained involved after construction began. Damages were imposed on builders for destruction of vegetation. Rock sculpting designed by a landscape architect was used during blasting to preserve a natural effect. Trees and grasses were planted and new wetlands were created for replacement mitigation.

Noyes, P. B., "Designing the Right Process for Involving the Public" Moving Forward In a Scaled- Back World, (Resource Papers for the 1996 ITE International Conference, Dana Point, CA.) ITE Washington, D.C. 1996, pp. 152-156.

This article is about getting the general public more involved in public project planning and implementation. It offers a few important guidelines for developing a productive and effective public process to enhance, rather than detract from, the planning effort:

1. Make it outcome driven
2. Identify stakeholders
3. Encourage participation
4. Select an appropriate format
5. Choose the right facilitator

Noyes defines an effective public participation process as consisting of the following steps: Defining the problem, Designing the Decision Making Structure, Generating Alternatives, Developing an Action Plan, Measuring Success, and Anticipating Roadblocks. The article is full of advice and observations, the most salient being that *the age of the 'benevolent' engineer has gone and we have entered an age of 'process engineer'.*

Rahman, M. Radwan, E., Upchurch, J. and Kuby, M., "Modeling Spatial Impacts of Siting a NIMBY Facility" Transportation Research Record 1359.

This is a study of the sources of public opposition to the siting of a solid waste management facility. Specifically, it looked at the spatial distribution of the impact of a solid waste facility on the public's perception of property values. The primary hypothesis was that the negative attitudes that people have toward solid waste management facilities decay with increasing distance from the facilities. The authors found that the public's primary concern was the potential impact on residential property values. Other perceived effects such as quality of life, traffic accidents, and relocation, did not seem to have a major effect on people. But even those at a great distance from the facility feared a damaging effect on property values.

Smith, W.R., "In the Public Eye" AASHTO Quarterly, April 1992, pp. 10-11.

This article is about letting the public "get on your back to keep them out of your way." It gives suggestions on how to turn the complaints into positive action to keep the project on track, on time and to keep the public and political acceptance of future projects. Based on the results of a survey, the Hawaii department of transportation told the contractor that it could only close lanes between 9:00 A.M. and 3:00 P.M., Monday thru Friday.

The DOT also created a task force of public officials and private citizens to review the traffic management plans. Bi-monthly newsletters were sent to residents likely to use the highway. It provided updates on the project; tips for driving in construction areas and a map and answers to frequently asked questions. DOT also had a 24-hour phone line with information on lane closures as well as a hotline.

Tarricone, P., "Howdy, Partner" Civil Engineering, March 1992.

Article recommends that the combativeness be taken out of client-contractor relations with partnering, which is based on dispute avoidance and claims prevention, rather than dispute resolution. Cooperation is structured into the process.

Five steps or aspects of partnering presented: (1) In the initial contact with potential bidders, the owner informs all that partnering will be used; (2) After the contract is awarded a workshop is held between the owner and contractor and a charter or mission statement is written, it includes such goals as quality, environmental standards, safety and engineering value; (3) The parties then agree that disputes will be carried up to (escalation) the appropriate level so they can be resolved quickly; (4) They also agree to joint project evaluation in which evaluation is a cooperative effort, conventional evaluation is a one-way street; and

(5) The top executives are involved in partnering, they must be committed to it for it to work.

The key assumption is that with partnering the parties most knowledgeable about construction—not the lawyers—should resolve points of contention; and do so before they require expensive arbitration, mediation, or dispute review boards.

Unsworth, D., "Redefining Public Involvement" Journal of Management in Engineering, July-August 1994, pp. 13-15.

The author is public-affairs bureau chief for Montana DOT. In this article he describes Montana's approach to public participation. He recommends putting more emphasis on personal contacts and informal meetings in homes, coffee shops etc., especially in the infancy of a project. Staff can more readily anticipate problems. He also recommends easy-to-understand letters and articles to simplify and improve communications. Also, he recommends that staff meet with people as soon as problems emerge; don't wait for official hearings. "Actively seek out those individuals, groups and agencies that may be concerned about or opposed to a project."

Williams, M. K. and Marshall, A.M., "Managing Corridor Development" Center for Transportation Research, University of South Florida, 1996.

This handbook deals with corridor management as well as access management. It addresses the dynamic interaction between transportation and land use management. Land for future roads is set aside. Corridor management encompasses right of way preservation, advance acquisition and access management techniques. It involves the application of corridor management to: prevent or minimize development within the right of way of a planned transportation facility or improvement; acquire right of way well in advance of construction need, and preserve the safety and efficiency of existing facilities through access management.

Corridor management promotes orderly development of a transportation network to serve land development. This helps to assure that transportation facilities will be adequate to serve existing and planned development, thereby maintaining concurrency as required. Access management is a process for providing access to land development, while preserving traffic flow on surrounding roadways in terms of safety, capacity, and speed.

Corridor management can benefit communities, taxpayers, and property owners by: (1) reducing property damage and displacement of homes and businesses; (2) minimizing environmental, social, and economic impacts of the corridor; (3) preventing foreclosure of desirable locations; (4) permitting orderly project development; and (5) reducing the costs of transportation facilities.

There are several barriers to corridor management, among them—funding constraints, political conflicts with opposed citizens, legal uncertainty, rising right-of-way costs, uncertain future alignment, and development requests.

The authors provide a toolbox of communications ideas, materials, and tips, including a review of audio-visual materials, how to work with the media, and how to work with the public.

Appendix IV

Notes on Leadership for Change

1. In a 1995 Harvard Business Review article, "Leading Change: Why Transformation Efforts Fail" John Kotter, an expert on executive leadership, identified eight steps associated with successful change efforts in organizations. Kotter contends that organizations, which for one reason or another, fail to follow these steps frequently find that change is either temporary or minor.

- The first step is to establish a sense of urgency. Every effort must be made to convince employees at all levels that the status quo is not acceptable.

- The second step is to form a guiding coalition with enough power and authority to lead the change effort. This coalition must be strategically located and sufficiently vested with authority to make needed decisions. A guiding coalition can solve the tendency of change efforts to stagnate over time, because it is a way to establish accountability. The coalition is accountable to top management for the success of the program. In turn, the staffs of the various departments in an organization are accountable to the coalition. This allows coordination of the various pieces of the program and ensures sufficient support. The basic insight that calls for a guiding coalition is this: Effective change is more likely when a specific group is responsible and the buck cannot be passed.

- The third step is to create an easily communicated vision of the change, as well as of the related strategies for achieving the vision. A straightforward and quickly grasped vision is an asset, because before people can be induced to change their behavior, they need to fully comprehend how the recommended change contributes to the overall mission of the organization.

- The fourth step is to exploit every possible vehicle for communicating the vision and the desired changes in organizational practice. This requires, of course, that top managers and the members of the guiding coalition take every opportunity to model the vision.

The next four steps are less concerned with attitudes than with the practical challenge of putting the desired change into effect.

- The fifth step requires the identification and elimination of obstacles to change. Subordinates need to be empowered to take risks and change old practices.

- The sixth step is to establish short-term goals, which can be reached as milestones of change. These are to be celebrated and employees rewarded for their accomplishments.

- The seventh step is to remain on course by periodically reinvigorating the process with new projects, themes and change agents. This may entail hiring new employees who are committed to the vision. The key issue is to avoid backsliding by periodically re-energizing the employees.

- The eighth step is institutionalizing the new approaches to make the changes part of an enduring organizational culture.

It is top management's responsibility to ensure that the eight steps are taken. Change is not easily accomplished and management must work diligently at maintaining commitment and clarity of purpose. It has become clear that lack of success is not so much the lack of good plans, but rather the lack of consistent and persistent management of a plan's implementation. For change to be complete the vision must inform the daily activities of all ranks of the organization. That employees have internalized the vision and taken it to heart cannot be taken for granted.

2. The recent work of Peter Senge (a recognized leader in organizational management based at MIT) and his collaborators suggest that any large organization has many leaders--"because there are many people at many levels in the hierarchy who play critical roles." Senge has defined three types of leaders who interact within a large organization:

1) local unit leaders;
2) internal network leaders; and of course,
3) executive leaders.

The local unit leaders actually must understand the change and be able to 'experiment' or test the new idea or approach. In all of their case study work none of Senge's researchers has seen successful change "without the enthusiastic participation of effective internal networkers" be they formal or informal. Finally, effective executive leadership is even more necessary today "because the changes that institutions confront are long-term and deep."

In all likelihood some members of the organization undergoing a change effort will push back or challenge change initiatives. So change agents should be prepared for such statements as:

- We don't have time for this stuff!
- We have no help!
- This stuff isn't relevant!
- They're not walking the talk!
- This stuff is a !!?#*?! waste of time!
- This stuff isn't working!
- They don't understand!
- Who's in charge of this stuff?
- We keep reinventing the wheel!
- Where are we going with this stuff!

While there's no guarantee that the Cabinet will encounter all of these challenges to change—Senge suggests that leaders will likely encounter others that they have not yet identified!

References

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