NYUWagner
rudin center
for transportation policy & management

Context Sensitive Solutions in Large Central Cities

Allison L. C. de Cerreño, Ph.D., and Isabella Pierson

Elliot G. Sander, Director
Allison L. C. de Cerreño, Co-Director

February 2004

Rudin Center for Transportation Policy & Management
NYU Robert F. Wagner Graduate School of Public Service
4 Washington Square North New York, NY 10003
www.nyu.edu/wagner/rudincenter

ABOUT THE RUDIN CENTER FOR TRANSPORTATION POLICY & MANAGEMENT

Established in 1996 at New York University's Robert F. Wagner Graduate School of Public Service, and named in September 2000 in recognition of a generous gift to NYU in support of the Center, the Rudin Center for Transportation Policy and Management is currently led by Elliot (Lee) G. Sander, Director, and Allison L. C. de Cerreño, Ph.D., Co-Director.

The mission of the Rudin Center for Transportation Policy and Management is to encourage innovative thinking and action in transportation management and policy.

With a team of Visiting Scholars drawn from both the transportation and academic communities, the Rudin Center conducts research and conferences, provides education and training, and promotes and supports key policy networks in the field of transportation policy and management. A number of publications are produced each year, based on the research, conferences, and training carried out by the Rudin Center.

EXECUTIVE SUMMARY

On June 19 – June 20, 2003, the NYU Wagner Rudin Center for Transportation Policy and Management hosted a peer-to-peer exchange session, funded by the Federal Highway Administration (FHWA) and supported by the National Association of City Transportation Officials (NACTO), on context sensitive design/solutions (CSD/S) in large central cities.[1] Participants at the session were drawn from departments of transportation or public works in 9 major cities (Baltimore, Boston, Chicago, Detroit, Los Angeles, Miami, Minneapolis, New York City, and Philadelphia) and 3 states (Illinois, Maryland, and New York). Representatives also attended from American Association of State and Highway Transportation Officials (AASHTO), Association of Metropolitan Planning Organizations (AMPO), and FHWA.

Goals of the Session

The decision to hold a peer-to-peer exchange session on context sensitive design/solutions (CSD/S) was made in conjunction with the NACTO cities and FHWA. Representatives from the NACTO cities agreed that understanding CSD/S and sharing lessons learned and best practices is important for large central cities and that because of their unique role in the nation's economy and society, there is something fundamentally different about large central cities that renders illustrations from less urbanized areas insufficient. However, a quick literature review showed that most of the published examples of CSD/S are from smaller cities or suburban or rural areas. Further, the few disseminated findings dealing with large urbanized areas (e.g. Route 9A in New York City), tend to focus on State-led projects rather than City-led initiatives.

The goal of the session was to lay a foundation for dealing with the state of the practice and processes related to context sensitive solutions, and to identify specific examples that could be used as benchmarks for lessons learned and best practices. Examples were drawn from the following cities:

- Boston – American Legion Highway Reconstruction Project
- Los Angeles – Santa Monica Boulevard Transit Parkway Project
- Minneapolis – I-35W Lake Street Access Project
- New York City – Herald Square
- Philadelphia – Germantown Avenue Bridge

Each example illustrates some elements of CSD/S more than others, but together they provide a baseline for understanding how large cities are coping with the myriad issues related to CSD/S and why a more concerted effort is needed in understanding and implementing CSD/S.

Defining the Problem

Many large central cities have expressed difficulty in implementing CSD/S. Several factors were identified by participants in the peer-to-peer session, including competing interests, fiscal constraints, institutional inertia, lack of contextual definition, legal concerns, organizational culture and personalities, and sometimes politics. With respect to factors specific to the transportation industry, first and foremost perhaps is the cultural factor. AASHTO's Green Book, which serves as a *guide* for design standards, is still often utilized by individual practitioners to support rigid standards in a culture focused primarily on vehicle mobility, throughput, and safety rather than on how to best integrate these important aspects of transportation with features that support and shape communities. Related to this is the tendency of agencies to pose CSD/S as a means for "balancing" safety and aesthetics, in other words a zero-sum-

[1] There are a number of definitions of CSD/S. According to FHWA, for example, context sensitive design (CSD) is "a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility." The New York State Department of Transportation defines context sensitive solutions as "a philosophy wherein safe transportation solutions are designed in harmony with the community." Regardless of how it is defined, CSD/S incorporates a focus on public involvement and an inclusive planning process.

game where safety loses if CSD/S wins. Thus, the reluctance to avoid exceptions is built into the industry's culture and the way in which it defines the context. Understanding at what point obstacles occur is critical. Although the Green Book leaves room for flexibility, many state department of transportation manuals add rigidity to the process.

Another aspect of the problem relates directly to tort liability. Tort claims have been rising for the past thirty years and the professional literature recommends that engineers/designers document their rational justifications for making decisions. This process is often aided by the existence of other examples where guidelines were found to be inappropriate to the context and so variations in design were used. However, very few formal examples of CSD/S implementation in large cities have been published.

Such examples are important since large central cities are distinct in the following ways:

- *Population size.* Large central cities have considerably larger populations as well as higher population densities than other areas of the country;
- *Government structures and complexities.* Large central city bureaucracies with large staffs and numerous specialties have organizational frameworks as large in complexity as those of most states;
- *Multimodal systems.* These cities must deal with multimodal transportation networks which are more extensive than any other location in the country, and which often operate twenty-four hours a day, seven days a week;
- *Antiquated urban design.* Many of the nation's large central cities are built on antiquated grids from the eighteenth and nineteenth centuries (or even earlier – e.g. downtown Boston) which constrain them when transportation modifications and/or improvements are sought;
- *International gateways and security.* Large central cities are critical international gateways for people and goods. As such, they have in recent years also become clear security targets, and must increasingly be prepared on a daily basis to react as first responders. (This issue is likely to become a topic of increased concern as homeland security efforts proceed.)

To be fair, some smaller cities and suburban and possibly rural areas share some of these features. Many Main Streets, for example, are also built on antiquated grids and some smaller cities have multimodal systems. However, even in these cases where some qualitative features are similar, quantitatively large cities differ greatly. Thus, CSD/S examples from smaller cities, suburban or rural areas are often not applicable to the large central cities.

Next Steps and Tools

The following areas for action were identified to aid large central cities in effectively planning and implementing projects with CSD/S in mind.

1. ***Raising Awareness.*** The peer-to-peer session laid the foundation for a **compendium of examples** of CSD/S implementation in large central cities. However, many more are needed. More importantly, the cities suggested that such examples should be disseminated as quickly as possible so that engineers involved with projects in their respective cities have access to documented cases where CSD/S have been successfully applied. The most effective way to do this is likely via a web site.[2]

   For the past four years, the New York State Department of Transportation has been **promoting the practice** by awarding its Excellence in Engineering - Context Sensitive Solutions Award in recognition of a project that exemplifies the spirit and success of Context Sensitive Solutions in

[2]At the time the peer-to-peer session was held, Project for Public Spaces, Inc. was exploring the possibility of building a national website focused on CSS. Shortly after the session, FHWA and the National Park Service contracted PPS to develop such a website and recommended that NACTO be represented on the working group along with the contracting parties, AASHTO, the Institute of Transportation Engineers (ITE), and the Federal Transit Administration (FTA). David Burwell, formerly of the Surface Transportation Policy Project (STPP) is leading this effort.

New York State.[3] The cities expressed that more positive reinforcement for implementing CSD/S would help to increase its use and were interested in learning more about the NYSDOT awards.

2. ***Building Professional/Organizational Capacity.*** Specific types of **training** are necessary for successfully planning and implementing CSD/S. Among them, cities would like to see expanded course offerings including but not limited to the subjects of:

    - creating public spaces;
    - developing effective teams that cross disciplines;
    - generating public participation;
    - resolving conflict; and,
    - documenting appropriately to avoid liability.

    After the 1998 Maryland workshop, five states were selected for pilot projects. The central cities would like to see a similar set of ***demonstration projects*** in which the central cities take the lead.

3. ***Process Improvements.*** Several cities have instituted **time limits on the exception process**. Agreement on timely responses from the State on variances helps streamline the process and avoids the difficulties commonly experienced by many cities which find themselves waiting for months at a time.

    Some cities already have "**delegated authority**" or "**self certification**," which allow a city to certify that it is meeting state and/or federal requirements rather than having to go through the state-federal process. Those cities without these mechanisms were interested in the process undertaken to put them in place.

4. ***Research and Innovation.*** To provide a more accurate assessment of real **liability risks and settlements**, the cities requested that information be gathered and disseminated regarding how many suits are brought each year, how many make it to court, how many are settled out of court, and of those that make it to court, how may result in awards to the plaintiffs. (One participant pointed out that the Transportation Research Board is currently working on such a project.)

    Several of the cities were frustrated by the need to apply for multiple variances on projects even where the need to follow CSD/S principles and allow for flexibility is understood. The **development of urban design standards** that take into account the antiquated grids and built environments with which these cities must deal, might help to avoid a number of these variance requests and streamline the process while further developing the CSD/S definition and applicability as well.

    Finally, several cities expressed interest in finding a **role for MPOs to play** in helping manage the dynamics of CSD/S.

[3] New York State Department of Transportation, Context Sensitive Solutions, Online, Accessed 12/19/03, http://www.dot.state.ny.us/design/css/css.html

TABLE OF CONTENTS

INTRODUCTION

On June 19 – June 20, 2003, the NYU Wagner Rudin Center for Transportation Policy and Management hosted a peer-to-peer exchange session, funded by the Federal Highway Administration (FHWA) and supported by the National Association of City Transportation Officials (NACTO)[4], on context sensitive design/solutions (CSD/S)[5] in large central cities. Participants at the session were drawn from departments of transportation or public works in 9 major cities (Baltimore, Boston, Chicago, Detroit, Los Angeles, Miami, Minneapolis, New York City, and Philadelphia) and 3 states (Illinois, Maryland, and New York). Representatives also attended from American Association of State and Highway Transportation Officials (AASHTO), Association of Metropolitan Planning Organizations (AMPO), and FHWA.

The goal of the session was to lay a foundation for dealing with the state of the practice and processes related to context sensitive solutions, and to identify specific examples that could be used as benchmarks for lessons learned and best practices. Presentations were provided from four perspectives:

- National initiatives, which were discussed by representatives from FHWA and AASHTO;
- State initiatives, which were touched upon, particularly those being undertaken by the New York State Department of Transportation (NYSDOT);
- How the issue is being addressed regionally by members of AMPO; and,
- The experiences of the large central cities.

The following pages summarize the discussion and conclusions drawn during the 1½-day event.

Background to the Session

The decision to hold a peer-to-peer exchange session on context sensitive design/solutions (CSD/S) was made in conjunction with the NACTO cities and FHWA. Representatives from the NACTO cities agreed that understanding CSD/S and sharing lessons learned and best practices is important for large central cities and that because of their unique role in the nation's economy and society, there is something fundamentally different about large central cities that renders illustrations from less urbanized areas insufficient. However, a quick literature review showed that most of the published examples of CSD/S are from smaller cities or suburban or rural areas. Further, the few disseminated findings dealing with large urbanized areas (e.g. Route 9A in New York City), tend to focus on State-led projects rather than City-led initiatives.

A Brief History and Some Definitions

There are a number of definitions of CSD/S. According to FHWA, for example, context sensitive design (CSD) is "a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility."[6] The New York State Department of Transportation defines context sensitive solutions as "a philosophy wherein safe transportation solutions are designed in harmony with the community."[7] However defined, CSD/S incorporates a focus on public involvement and an inclusive planning process.

CSD/S has its roots in the 1969 National Environmental Policy Act (NEPA) which required that agencies

[4] NACTO cities at that time included Atlanta, Baltimore, Boston, Chicago, Detroit, Houston, Los Angeles, New York, Philadelphia. Seattle has since become a NACTO Member as well.
[5] The terminology used when describing CSD or CSS is still being shaped. Some locales interchange them and others have specifically shifted from CSD to CSS in recognition of a focus on outcomes as well as process. In other words, rather than focusing on new designs, they focus on finding a solution, which involves more than just designing. This report will utilize Context Sensitive Design/Solutions (CSD/S) to encompass the various expressions of the concept.
[6] U.S. DOT, Federal Highway Administration, "Context Sensitive Design/Thinking Beyond the Pavement," Online, Accessed 8/18/03, http://www.fhwa.dot.gov/csd/index.htm.
[7] New York State Department of Transportation, "Context Sensitive Solutions," Online, Accessed 8/18/03, http://dotweb1.dot.state.ny.us/design/css/kypntpub.html.

engaged in projects utilizing federal monies must undergo an analysis of the projects' impacts on natural and human resources. NEPA included language aimed at protecting historic, scenic, and cultural resources. In following years, additional legislation was passed to strengthen this commitment to the natural environment. In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) provided funding for the effort through the transportation enhancements program. Four years later, in 1995, Congress passed the National Highway System Designation Act which supported applications for design standard modifications when intended to preserve historic and scenic resources.

In 1997, the Federal Highway Administration published *Flexibility in Highway Design*, a landmark document which encouraged highway designers to "expand their consideration in applying the Green Book criteria."[8] In other words, *Flexibility in Highway Design* urged designers and engineers to view the Green Book as a *guide* for highway and street design specifications, rather than the last word in design.

One year later, in May 1998, the Maryland Department of Transportation's State Highway Administration held a seminal conference, *Thinking Beyond the Pavement: National Workshop on Integrating Highway Development with Communities and the Environment while Maintaining Safety and Performance*.[9] Co-sponsored by AASHTO and FHWA, the workshop laid the foundation for much of the current thinking on CSD/S. After the workshop, five pilot states were selected – Connecticut, Kentucky, Maryland, Minnesota, and Utah – to implement a CSD/S approach based on the findings from the Maryland workshop, and to share their experiences with their regional neighbors.

Elements of CSD/S

According to Harold Peaks at the June session, Team Leader of the Project Development Team at FHWA, CSD/S can be thought of as a tool for engineering, planning, environmental concerns, and designing. Those interested in implementing CSD/S have a number of sources to draw upon, including the Green Book, *Flexibility in Highway Design* and related publications, as well as state and city standards. At base, CSD/S is multidisciplinary approach which requires thinking beyond the box, listening, and creativity.

Peaks and other participants at the session identified a number of elements that must be considered when implementing CSD/S:

- *Project definition.* Effective projects take into consideration the physical character of the area in which the project is being implemented, as well as safety and mobility, the various modes used or potentially used in that area, historic and scenic characteristics, and environmental quality.
- *Team building.* Effective CSD/S teams are made up of experts with diverse skills including but not limited to highway planners, engineers, landscape architects, historians, archeologists, transit planners, and community representatives.
- *Resource identification.* Effective projects take into account financial resources, along with staff experience, and staffing levels. (While such identification is important for all projects, different types of resources may come into play when integrating CSD/S.)
- *Public/community involvement.* Stakeholder participation is central to CSD/S and may help in developing the project definition as well as in determining the necessary makeup of the team.
- *Exception processes and legal considerations.* How can the decision making process be best documented to allow for flexibility when needed?

When institutionalized, CSD/S can provide an effective means for integrating communities and transportation design by fostering a collaborative approach to creative problem-solving.

---

[8] U.S. DOT, Federal Highway Administration (FHWA), *Flexibility in Highway Design* (Washington, DC: FHWA, 1997), Publication Number FHWA-PD-97-062, p. vii. The "Green Book" is formally titled, *A Policy on the Geometric Design of Highways and Streets*.

[9] For a summary of the workshop findings, see "Thinking Beyond the Pavement," Online, Accessed 8/18/03, http://www.sha.state.md.us/events/oce/thinkingbeyondpavement/tbtp.pdf.

LARGE CITIES AND CONTEXT SENSITIVE DESIGN/SOLUTIONS

Prior to the June peer-to-peer session, a number of discussions were held with the NACTO cities and with state and federal representatives to help define the problem. Interestingly, when speaking about CSD/S, the cities focused on different aspects of the issue. Some NACTO cities spoke of CSD/S as primarily centered around stakeholder involvement when implementing projects, while others bemoaned the lack of design flexibility in practice, providing examples of projects during which variance after variance was necessary. Other groups, in particular the Project for Public Spaces, Inc. (PPS) and New York State Department of Transportation (NYSDOT) spoke in broader terms, referring to the need to "create place" and how to generate a vision in which transportation is part of the fabric of a community rather than just a means for moving goods and people.

Defining the Problem

With all these different perspectives, one of the first items tackled during the June session was defining the problem – just what is the difficulty for cities in implementing CSD/S. David Seglin, Coordinating Planner II at the Chicago Department of Transportation (CDOT), pointed out a fundamental problem. While many CSD/S examples focus on natural, historic, or aesthetic features, central cities must implement CSD/S within a densely built urban environment. Too often, even though flexibility is said to exist, the focus is on rigid standards that seek to enhance vehicle mobility, throughput, and safety without always taking into account other community concerns, and recognizing that there are many ways to achieve safety. As a result of this focus, many cities find themselves applying for multiple variances on every project, leading to significant time delays and increased costs. One such example of variances leading to an extreme cost increase was offered by John Tomczyk, Project Director at CDOT, and while perhaps an extreme example, it is by no means an exception to the rule. The Milwaukee Avenue example is an indicator of the difficulty city agencies face in putting the idea of design flexibility into practice.

The Difficulties Cities Face

Milwaukee Avenue is a diagonal arterial in Chicago, Illinois, with two travel lanes, a parking lane, sidewalks, and intense land use on each side. A project that involved resurfacing and reconstruction of a 10-mile portion of the roadway, sidewalk and curb renewal, lighting upgrades, and viaduct clearance provisions required 97 variances, almost half of which were needed on corner radii so that sidewalks were not eliminated and building corners not "chopped off." An additional $6 million in costs was accrued because of the delays associated with obtaining those variances.

The frustrations faced by cities in dealing with the exception process were repeatedly described. Gwen Perlman, CFO and Assistant Commissioner, Financial and Management Analysis at NYC DOT, noted that there is a belief that when Federal aid is used, the oversight and paper work needed slows the process and makes it more difficult to implement CSD/S; Federal aid can add 1-4 additional years to that timeline. As a result, New York City avoids utilizing Federal aid on many projects; it also avoids using such aid in the design process and for change orders. Of course, as other participants pointed out, with Federal aid only representing 20% of New York City's transportation budget, this is a luxury it can afford, but many other cities cannot.

Why is this the case? Several factors were noted by participants in the peer-to-peer session, including competing interests, fiscal constraints, institutional inertia, lack of contextual definition, legal concerns, organizational culture and personalities, and sometimes politics. With respect to factors specific to the transportation industry, first and foremost perhaps is the cultural factor. The Green Book, which should serve as a *guide*, is still often utilized to support rigid standards in a culture focused primarily on vehicle mobility and throughput rather than on how transportation supports and shapes a community. People forget that every trip begins and ends with someone walking. Indeed, Seglin stated, "in Chicago, our *sidewalks* should be considered major arterials."

A related facet of the problem, according to Kris Hoellen, AASHTO's Director of Environmental Programs, is the tendency of agencies to pose CSD/S as a means for "balancing" safety and aesthetics, in other

words a zero-sum-game where safety loses if CSD/S wins. Thus, the reluctance to avoid exceptions is built into the industry's culture and the way in which it defines the context – who, for example, would want to be seen as having traded off safety to make something look better? However, this need not be the case if one can think in terms of bringing community and aesthetic concerns to bear while maintaining the greatest possible levels of safety.

Another element leading to the difficulty in implementing CSD/S in large cities relates directly to concerns about dealing with tort liability and documentation. According to FHWA, "tort claims against highway agencies have steadily risen since the early 1970s...."[10] Thus, the professional literature recommends that engineers/designers document their rationale and justification for making decisions. This process is often aided by the existence of other examples where standards were modified. However, therein lays the third problem for large central cities. Very few formal examples of CSD/S implementation in large cities have been published.

Finally, related to defining the problem is understanding at what point such obstacles occur. As several participants pointed out, although the Green Book is flexible, many state department of transportation manuals add rigidity to the process.

Once the multiple elements of the problem had been defined, participants turned to the question of why a special focus is needed for CSD/S in large central cities. Many of the problems outlined affect all transportation agencies and projects, whether centered in rural areas, suburban locales, or in cities. However, there are a number of ways in which large cities are different and may need either different solutions or modified solutions.

Distinctive Features of Large Central Cities

Perhaps the most obvious difference between the large central cities and their smaller counterparts is their sheer size of population as well as their population densities. With a population of over 8 million, New York City is larger than several U.S. states. Similarly, Los Angeles (3.7 million) and Chicago (2.9 million) have larger populations than Rhode Island (1.0 million), Delaware (0.8 million), Montana (0.9 million) and Oklahoma (3.5 million) combined. Even Boston, which is among the smaller of the NACTO central cities with a population of only 0.6 million, is larger than Wyoming (0.5 million). In terms of density, the numbers are also significantly higher in the large urban areas, with population densities as high as 26,403/mi^2 (New York City) and 12,166/mi^2 (Boston).[11] And, of course, these numbers only represent the people *living* in these cities. Each day, hundreds of thousands more commute into these central cities for work, not to mention the tourists.

As a result of the size and density of these cities, many of them have had to develop organizational frameworks, with large staffs and numerous specialties, that are as large in complexity as those of most states. Thus, the second difference identified during the peer-to-peer session is the human capital – both in terms of numbers and, more importantly, in terms of the expertise of their engineers, planners, architects – that these cities bring to bear in transportation.

A third area of difference is the multimodal nature of transportation in large central cities. Where smaller regions may not even have access to public transportation, these cities must deal with highways, rail, air, and marine facilities on a daily basis, making sure that both people and good are moving seamlessly throughout their networks. Further, these transportation networks are substantially more extensive than they are in smaller cities, suburban, or rural locales. And, in some cases, these networks function on a 24/7 schedule which one would be hard pressed to find anywhere but in a central city.

Fourth and fifth are elements which, when combined with the factors above, make the large central city experience unique. The built urban environment is the fourth area of difference and something of particular import for older central cities. Many of the nation's large cities are built on eighteenth- and nineteenth-century grids with little that can be done, short of razing hundreds of buildings and totally restructuring the

[10] U.S. DOT, FHWA, *Flexibility in Highway Design*.
[11] All figures here from www.census.gov. Population density is defined as the number of individuals per square mile.

cities, to bring their roadways up to today's standards. While the problems associated with the built urban environment result from an historical situation, the fifth element is derived from more modern times. Large central cities have always been gateways to the nation, both for people and goods. In recent years, however, precisely because they are gateways, they have also become security targets, and are likely to play more of a role in first response than any of their smaller counterparts around the country.

Some Initial Examples

As was noted earlier, one of the goals of the June 2003 session was to begin compiling examples of CSD/S implementation in large central cities. Four cities – Boston, Los Angeles, Minneapolis, and Philadelphia – presented specific case studies, while New York City also provided a tour. Summaries of each of these cases are provided in the following paragraphs. Each example should be considered in relation to the FHWA definition of CSD which includes a collaborative and interdisciplinary approach involving stakeholders, designing a transportation facility that fits its physical setting while preserving key resources and while maintaining safety and mobility.

Each project described in the following pages adheres to some elements of this definition more than others. The Boston example shows a case in which the crux of the project was an inter-governmental and interdisciplinary approach to develop a facility that fit the physical setting, while the Philadelphia case revolves around the involvement of all stakeholders to preserve aesthetic, environmental and cultural resources around the site. The Herald Square project, led by the NYC Department of Transportation, exemplifies the successful redesign of a complex intersection in the heart of Manhattan, where two avenues run in opposing directions and intersect amidst multiple transit and commercial uses.

Together these examples provide some base lines for understanding how large cities are dealing with the myriad issues related to CSD/S. As a group, they also help highlight why a more concerted effort is needed in understanding and implementing CSD/S in large central cities.

Boston: American Legion Highway Reconstruction Project
John DeBenedictis, P.E., Director of Traffic Management and Engineering, Boston Transportation Department

Project Team:
- Boston Transportation Department; Boston Public Works Department; Boston Parks Department; Massachusetts Highway Department

Status:
- Project initiation August 1999; 25% percent design complete

Objective(s):
- improve safety
- reduce travel speed
- improve level of service (LOS)
- improve pedestrian accessibility
- increase parking
- improve lighting and drainage

Historically, Boston's experience with roadway projects has been one of continuously and consistently needing to obtain variances to carry out federally-funded projects. The process of obtaining these variances has been known to drag out projects over many years, inflating design and construction costs to the extent that projects are almost prohibitively expensive to complete. Indeed, as John DeBenedictis, Director of Traffic Management and Engineering for Boston's Transportation Department, pointed out, when design variance is the norm, one has to question the standard.

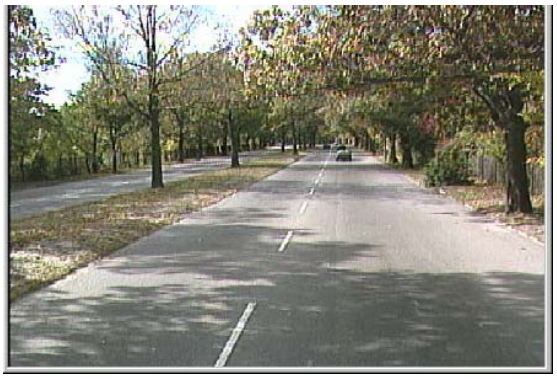
The American Legion Highway is an urban minor arterial of about 3 miles in length. It is a four lane cross-section (two lanes in each direction) with a median island and parking along some sections. Its adjacent land uses are parkland, residential, and commercial space, including independent stores and larger shopping plazas – all of which are disconnected from each other and have been designed for automobile traffic, thus discouraging pedestrians and bicyclists.

The reconstruction project affects the Highway between Cummins Highway and Blue Hill Avenue to the north. Among the primary objectives identified by the City of Boston were the following: improved vehicular and pedestrian safety through reduced travel speeds; improved level of service (LOS) through the use of additional turn lanes, interconnect signals, etc.; improved pedestrian accessibility; increased

parking in commercial and residential areas; and improved lighting and drainage. All of these objectives were to be achieved against the backdrop of maintaining a Parkway 'feel' through the preservation of trees and other foliage.

However, as with most roadway projects in Boston, State standards tend to be out of step with Boston's physical design characteristics and needs. One Massachusetts Highway Department design standards in particular, the requirement for a four foot paved inside shoulder adjacent to a median, proved to be a great obstacle for the American Legion Highway project. The four foot width could not be met if the project were to reduce speeds, and include a bike lane and sidewalk of appropriate widths. Furthermore, a four foot inside shoulder would cut into the center median resulting in a loss of trees, an impact the Boston Parks Department wanted to minimize. Oftentimes, progress resolving design issues like this is slow, and as has been the case in this project, the result is a delayed project schedule.

It became clear to the Boston Transportation Department that as the scope of the project was becoming more complex, the Massachusetts Highway Department, including its District and Central offices, as well as the Boston Parks Department would need to be effectively involved in order to get things done. The community was also incorporated and their needs addressed through several design meetings.



American Legion Highway

As a solution, the Boston Transportation Department came up with the idea of breaking the project into three different cross sections based on the surrounding land use – residential, commercial, and parkway – so that each section would be designed appropriate to its context. The first section ran from Cummins Highway to Canterbury Street and from Walk Hill Street to Franklin Avenue. The second section ran from Canterbury Street to Walk Hill Street, and the third section ran from Franklin Hill Avenue to Blue Hill Avenue. In order to create a roadway that would accommodate a shared bike/vehicle lane and sufficient sidewalk width while reducing speeds and keeping the median wide enough to minimize the loss of trees, the City of Boston proposed the use of a shoulder narrower than specified by the State design requirements. The City conducted speed volume, vehicle classification, and safety studies to justify a two foot shoulder design and a ten-inch curb reveal despite the State design requirements for a four-foot shoulder and six-inch curb. Reducing the total pavement width of the roadway was cited as a means for slowing speeds, while vehicle classification counts and crash data supported the need for a ten-inch curb that would reduce the risk of vehicles jumping the median. A formal variance report was submitted to the Massachusetts Highway Department by the City's design consultant. Parking along the roadway was included only in those sections where the adjacent land use required it.

Once the State and City documented the basis for context sensitive design standards and needs through an agreement on the cross-sectional design approach, at least in principle, they were able to get the project back on schedule. The Boston Transportation Department now sees the end design as a likely win-win situation that will satisfy the City and the State. As a result of so many projects bumping up against design variance issues like this, Governor Mitt Romney unveiled ***Communities First –*** an initiative "to give communities more flexibility and input in designing local road and bridge projects, helping to preserve the character of cities and towns and cutting through bureaucratic red tape imposed by the state." To implement this new policy, the State Highway Design Manual is currently under review for revision to incorporate the principles of ***Communities First*** and to incorporate more collaboration with local leaders in the highway design process. The American Legion Highway Reconstruction Project is an example of the kind of project that could greatly benefit from a flexible design approach from the outset.

Among the lessons learned, DeBenedictis noted the following:

- It is essential that all stakeholder agencies are involved from the beginning, including those that at first appear to only play a secondary role.

- All agencies should participate in a site visit early in the design process.
- Clear objectives must be stated early and often.
- Agreements must always be in writing so that project elements are not lost with turnover.

Los Angeles: Santa Monica Boulevard Transit Parkway Project
Glen Ogura, Principal Transportation Engineer, Los Angeles Department of Transportation

Project Team:
- Los Angeles Department of Public Works and DOT; Metropolitan Transportation Authority (MTA)

Duration:
- 2.5 years ongoing construction; expected completion in August 2005

Objective(s):
- combine "Big" and "Little" Santa Monica Boulevards into one roadway
- remove the old railroad right-of-way
- improve the aesthetic and commercial environment

In the case of the Santa Monica Boulevard Transit Parkway Project in Los Angeles the main CSD/S obstacle emerged in the form of efficiently incorporating community concerns. The Project consists of the reconstruction and reconfiguration of 2.5 miles of the Santa Monica Boulevard between Freeway 405 and the Beverly Hills City Limit. Lined with commercial uses and residential apartment buildings, with lower density residential communities extending behind, the Boulevard is a corridor heavily traveled by private vehicles and bus transit. Prior to the Transit Parkway Project, Santa Monica Boulevard consisted of "Big" and "Little" Santa Monica Boulevards – two parallel roadways separated by an abandoned railroad right-of-way. The Boulevard was characterized by the unused tracks running down the mostly dirt center median where remnants of retaining walls and over crossings stood alongside stored vehicles, some paved areas for parking, unsightly billboards, awkward grade differentials, and weeds.

A long history existed around Santa Monica Boulevard and the desire to reconfigure it. For over twenty years there had been a community movement to improve the Boulevard by easing congestion and enhancing the local environment, a history initially unknown to the agencies leading the Parkway Project.

Avenue of the Stars – Before

Avenue of the Stars – After

This movement had become more focused in the past seven years, with two distinct groups emerging, the residential community and the business community, each with its own perspective. Against this backdrop and with the community concerns in mind, the multi-modal Metropolitan Transportation Authority (MTA), in collaboration with the City of Los Angeles, decided to embark upon the Transit Parkway Project. The project took off after the acquisition of the railroad right-of-way by the MTA with $68.4M in funding from the Federal Highway Administration (FHWA), the MTA, the State of California, the City and County of Los Angeles.

The Los Angeles Department of Transportation worked with several branches within the Department of Public Works including, the Bureaus of Engineering, Street Services, Street Lighting, Contract Administration, and Public Affairs. A "City Team" represented by all the project entities and additionally, the 5th Council District, worked closely with both community groups on a quarterly basis over the period of

two years to get up to speed on the history of the community movement, identify current concerns and other issues. As construction began in March 2003, the frequency of these sessions was increased to every month.

Among the concerns voiced, the residential community was particularly worried that, with the elimination of the center median along with its parking, traffic would enter the north-south adjacent streets to park. The commercial community was more concerned with the length of construction and the loss of business during that period when it would be difficult for customers to reach shops. However, they too wanted to see some parking reintroduced so motorists would continue to shop in the stores and eat in the restaurants. Other stakeholders did not want parking replaced along the median, and in the end some parking was relocated to one lot and several frontage rows. (The potential for double-use of the parking lot for customers during the day and residents at night is being explored.)

The final design that has emerged is a combination of all the stakeholders' interests, and one that gives serious consideration to the community concerns for aesthetics and improved mobility. The Project will combine "Big" and "Little" Santa Monica Boulevards into one roadway with three east and westbound lanes. (The City initially wanted four vehicle lanes in each direction. However, after discussions with the residential and business stakeholders, it was agreed to have three lanes and add a bicycle lane in each direction.) Intersections will be repaved with a light color to differentiate them from the one-way traffic lanes, the traffic signal system will be upgraded, and bus priority features and carpool lanes will be added at the 405 Freeway on ramps. The aesthetics of the Boulevard will be improved by landscaping the median and planting 1,000 new trees, adding street furniture enhancements, and over time, all the power poles along the Boulevard will be removed. A "River of Words" will be inscribed in the sidewalk at various locations encouraging pedestrians to "stroll" rather than rush down the Boulevard's walkways lined with stores.

Minneapolis: I-35W Lake Street Access Project
Jon Wertjes, Assistant Director, Transportation & Parking Services, Minneapolis Department of Public Works

Project Team:
- Minnesota DOT; Hennepin County; City of Minneapolis

Duration:
- Pre-Design 1999-2003; Pre-Construction 2004-2005; Construction 2005-2009

Objective(s):
- improve accessibility
- support revitalization and economic vitality
- enhance visual appearance while minimizing negative impacts
- provide safe movement of vehicles and pedestrians
- upgrade opportunities for expanded transit service
- enhance the sense of community

Since construction of this major artery in the 1960s, the I-35W freeway has been viewed by the public as a dividing line that cuts through Minneapolis. Lake Street, which crosses and provides partial access to I-35W, is a major regional east-west thoroughfare and commercial arterial that might have served as a better connection between the divided residential neighborhoods on either side of I-35W. However, because of the Lake Street design, it has acted instead as an additional barrier. Thus, the I-35W Lake Street Access Project began as a highway improvement project with the goal of providing better access between I-35W and Lake Street.

The public agencies, with support of a public-private partnership, formed a Project Advisory Committee (PAC) to represent the community and assist in project development. The PAC, consisting of business, institutions and neighborhoods, spearheaded the project with three primary directives: social justice, economic development, and environmental quality. These directives translated into a series of goals for the I-35W Lake Street project, specifically: improved accessibility, revitalization and economic vitality, enhancement of visual appearance while minimizing negative impacts, improved safety for vehicles, pedestrians and transit users, and finally, enhancement of the sense of community. The project also grew in breadth to accommodate freeway needs through redesign of several additional interchanges on either side of Lake Street.

The PAC met monthly and stressed the need for an inclusive, intelligent, and creative design process that would be respectful of all the stakeholders' concepts and concerns, while employing analytical rigor and varied experience. It became clear to the project executors that an interdisciplinary team would be required to adequately address the new directives and so brought on landscape architects, architects, and a photographer to supplement the project engineers. A reciprocal learning process developed in which the community introduced the project team to broad conceptualization of the project components while the project team educated the public on public agency process and trustworthiness, modal issues, and technical and design aspects. While the pre-construction process took twice the time, the public agencies understood the public education process to be essential.

The community asked that certain objectives be considered while reaching for their goals:

- remain within the existing right-of-way;
- reconnect the neighborhoods on both sides of the freeway;
- direct thru traffic away from neighborhood streets;
- allow for alternative modes;
- variances for freeways and streets;
- mitigation of impacts;
- enhance and create sustainable infrastructure.

Feasibility for these public objectives, while reasonable, could not be guaranteed until several other issues had been resolved including potential trade-offs that would push beyond the right-of-way, accommodation of future transit and freeway needs, the short and long term effects of variances, the capital costs, and the source of funding for operations and maintenances. From the perspective of the Department of Public Works, the goal of creating sustainable infrastructure (flexible infrastructure that allows for anticipated but unfunded future needs, and that can be operated and maintained with a realistic amount of resources) was consistent with considering future needs.

The Community Gateway:
38th Street Bridge & Transit Station

The joint project team and PAC developed a series of recommendations that adhered to five basic themes:

- street character;
- commercial gateway;
- community gateway;
- variances; and,
- historic district mitigation.

Street character would be created by focusing traffic appropriate to a specific roadway and its surroundings. This would be accomplished by developing ideal intersections that accounted for traffic direction, thru-lanes, turn lanes, parking lanes, and traffic control, by adding urban amenities and prototypical design enhancements, and finally by changing access to Lake Street.

With respect to the other themes, the development of a Lake Street Bridge would serve towards creating a commercial gateway by providing a needed flyover, a location for a transit station, and the aesthetics of a gateway. The commercial gateway would also rely on the development of a recognizable identity for Lake Street. The community gateway concept consisted of neighborhood identity, reduction of noise and air pollution, improved safety through reduced crash severity and frequency and improved pedestrian crossings, as well as new traffic patterns including freeway ramp traffic to a new street and an ellipse-

about interchange that also served as a bridge over the freeway and transit station. Variances pertaining to shoulder widths, snow storage, curves, a left-hand entrance ramp weave, access retention, and removal of parking ultimately made the design acceptable to the community without negatively affecting safety. Finally, involvement from the State Historic Preservation Office was key to the 2nd Avenue historic district mitigation which involved reducing the street's scale to approximate its original width and returning it to a local circulation street by separating it from the freeway exit ramp and frontage road traffic with a median and landscaping.

From the I-35W experience, the public agencies learned valuable lessons about incorporating the public and alternative modes in its projects. Among those identified:

- An inclusive, intelligent and creative process will help the public achieve its directive and goals;
- Public involvement around design is a worthwhile challenge – the public adds reality checks and good ideas to the process, but it takes skill to keep the public engaged and focused on progress rather than stalling the project;
- Both formal and informal processes of inclusion have positive and negative aspects as it provides for an open planning process but can extend the time frame;
- Because the extent of powers given by a public agency to any public committee with which it works varies from state to state, a public agency must understand and clearly articulate the extent of the powers given to any public committee with which it works;
- Expert knowledge, from professionals as well as the public, is essential to transportation planning.
- By acknowledging and responding to the public's goals, transportation projects will be supported by the public;
- A balance must be reached between short-term and long-term needs in terms of potential for expanding transit and High Occupancy Vehicle (HOV) capacity as well as immediate capital efforts versus future operation and maintenance needs.

Philadelphia: Germantown Avenue Bridge
Joseph Syrnick, Chief Engineer & Surveyor, City of Philadelphia, Department of Streets

Project Team:
- Philadelphia Department of Streets; Pennsylvania DOT; FHWA

Duration:
- 12 years for pre-construction; 1 year for construction

Objective(s):
- improve safety
- mitigate effects of flooding
- improve aesthetics
- historic preservation

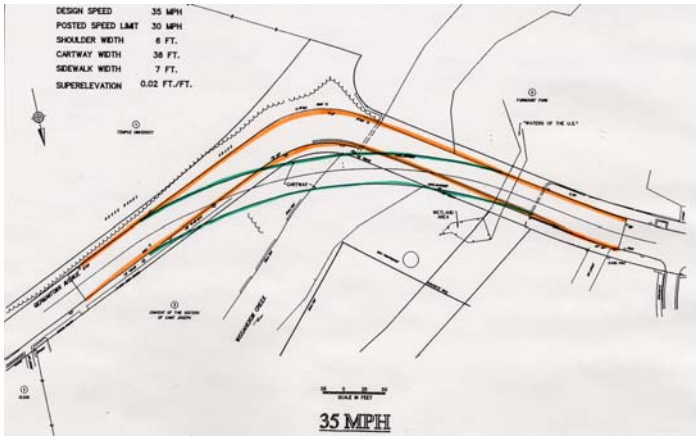
Crossing the Wissahcikon Creek in the Northwest section of Philadelphia, the Germantown Avenue Bridge was a nine-span bridge built in 1920 on an alignment set in 1729. Sited in an historic district of the upscale Chestnut Hill neighborhood, the bridge served as the primary link to Chestnut Hill College, located just West of the bridge, as well as a vital link in the region's transportation network. The Creek normally passed under the first three or four spans, but during floods (which are frequent in that area) water passed through all nine spans. The project was initially aimed at improving safety by smoothing a severe curve at the eastern end of the bridge that had been a factor in numerous accidents and to improve the flow of the river to mitigate flooding by reducing the number of spans.

The bridge had been programmed for what was thought to be a "routine" replacement in the early 1990s. Funding for the $1 billion project was split between Federal-aid Highway (80%), State (15%), and City (5%) funds. In March 1993, while plans were being discussed, the southern sidewalk collapsed, and transportation managers thought this would only speed up efforts at replacing the bridge. However, upon hearing the plans, residents quickly voiced concerns over three key areas: speed, aesthetics, and historical/ archeological preservation.[12] To deal with each of the concerns, a team was amassed to study

[12] Beyond the community concerns, Chestnut Hill College also expressed apprehension over the project, in particular how their southern driveway would be affected by the proposed structural changes. The solution was to widen the entrance and relocate one of their entry pillars and the College remained a steadfast advocate of the project throughout its pre-construction and construction phases.

and reach solutions to both the community and City concerns. The team consisted of bridge engineers, highway planners, architects, landscape architects, planners, and historical preservation planners.

On the first point, Green Book criteria suggested a speed of 45 miles per hour (mph) and the City was already considering reducing that to 35-40 mph. However, the Community was worried that smoothing the curve would actually increase vehicle speeds. In response to the protests, the City and Pennsylvania DOT petitioned FHWA to allow the design speed to be lowered from 40 mph to 35 mph, with a posted speed of 30 miles per hour. To further calm traffic, several design modifications were made, including incorporating a median and bike paths on either side by eliminating one vehicle lane and reducing the remaining two by one foot.



Mitigation of Speed Concerns

While the speed reduction satisfied concerns related to vehicle traffic, it did not allay the other community worries. On the aesthetics, the community liked the way the old bridge looked, even if it was less than efficient. They asked that portions of the original piers remain as a reminder of the old bridge. In fact, the community brought in their own expert who said that he could devise a means for keeping the bridge and piers. Nevertheless, in February 1997, deep cracks were found in one of the piers and the "expert" backed out, leaving the community and DOTs to work with each other. Recognizing the community's preferences, City and DOT engineers determined that a portion of the northernmost pier could remain without negatively affecting the water flow under the structure. The City further agreed to provide several enhancements, including an independent wooden pedestrian walkway to serve users of the adjacent Fairmount Park, landscaping and erosion protection on the stream banks, and ornamental lighting.

Stream Flow Improvements

Finally, the historical/archeological concerns revolved around a suspected paper mill. While it turned out that there was no mill, the archeological study did reveal the presence of an historical house – the Old Paul House – and over 14,000 artifacts. The City agreed to place a plaque adjacent to the bridge as a reminder of the history of the crossing.

In the end, and in part because the stakeholder participation began later than in retrospect would have been preferred, the pre-construction phase of the project spanned 12 years, during which the community continuously raised questions that needed to be studied, evaluated and responded to, while in contrast the construction itself only one. Looking back, several lessons were identified, including:

- Success depends upon how levels of government work together, and personalities are important.
- A comprehensive understanding of the context is critical and should be based in an interdisciplinary approach that includes those familiar with the physical and cultural territory of the site.
- Considering flexible design to meet stakeholder needs when prudent and possible proved to be a valuable part of the process.
- Clarify and make known to all stakeholders why CSD/S is warranted.

- Compromises on safety are inadvisable, though compromises in operations may be worthwhile.
- In order to maintain trust with the stakeholders, and when working with other agencies, it is important to appear to the public as a united front and to avoid changing position in the face of agency regulations and guidelines due to political pressure.
- Avoiding delays in the long-run means meeting with the community early on, especially those opposed to the project, to address feasible compromises and solutions.
- Recognize that CSS may sometimes cost more to implement, but accept it as the cost of doing the project right.

New York City: Herald Square
Gerard Soffian, Director, Division of Signs & Markings, NYC DOT

Project Team:
- New York City DOT; Community Board 5

Duration:
- 3 years

Objective(s):
- improve pedestrian safety
- clarify complex six-leg intersection
- provide crosswalks for the continuation of each sidewalk
- add footage to crowded sidewalks
- improve bicycle lanes
- minimize impact on traffic flow

Located at the nexus of Broadway, Sixth Avenue, and West 34th Street in the heart of Manhattan, as well as next to a transit hub, Herald Square is a center for retail, entertainment, and tourist activity. In 1998, Broadway, the southbound roadway, consisted of 4 lanes at West 35th Street, paring down to 2 lanes at West 32nd Street, and a bike lane. Close to 900 vehicles per hour traveled at only 5.1 mph. Sixth Avenue, the northbound roadway, consisted of 4 lanes at West 32nd Street and 4 lanes at West 35th Street, also with a bike lane. Traveling on this stretch during weekday peak hours were 1,835 vehicles per hour at an average rate of 5.5 mph.

The sidewalks prior to 2000 on Broadway and Sixth Avenues were 17-20 feet wide. Cross-street sidewalks were 13-15 feet, and West 34th Street's sidewalk was 23 feet wide. The number of pedestrians utilizing the West 34th Street/Broadway/Sixth Avenue area ranged from just over 3,000 in the mornings to over 5,000 on Saturday mid-day, with an additional 3,500 pedestrians on Broadway at Macy's during the morning and almost 6,000 in the evenings.

In Fall 2000, New York City DOT began a test to determine if a new design would work to improve pedestrian safety and the walking environment. It eliminated a contra-flow turn lane around Herald Center between West 33rd and 34th Streets. A previous safety test had reversed West 33rd Street to eastbound away form the intersection between Broadway and Park Avenue. This test returned it to the typical westbound direction of odd numbered streets, but forced vehicles to turn left south onto Broadway with an asphalt pedestrian refuge island between Sixth Avenue and Broadway. This allowed a new crosswalk to be installed on the north side of West 33rd Street's intersections with both Broadway and Sixth Avenue. The new curblines that added sidewalk space and neckdowns used either raised asphalt with plastic curbing or thermoplastic striping. The striping was reinforced by flexible delineators and plastic planters. The existing fence located between West 33rd and 34th Streets was relocated into the roadbed behind plastic curbing and striping. This created two new pedestrian plazas that were enhanced with flower-filled planters that also discouraged peddlers from taking over. Bicycle lanes were brought up to current standards and, where vehicle traffic merged in front of Macy's, flexible delineators were installed to further define the bicycle lane.

Corner Extension

This project had a long history originating from a time when closing Broadway completely for one block was being considered. NYCDOT tackled the design and a consultant was charged with conducting a

traffic analysis. As this was CMAQ funded, air quality analysis was also required. Community Board 5,[13] the local Board representing the interests of the Community District in which Herald Square is located, was very involved in review of each design alternative. While Community Boards tend to represent concerns of the general community and mostly that of residents, the business community was also important. The two key players were the 34th Street Partnership Business Improvement District (BID) and Macy's. Winning support of the business representatives involved personal, informal meetings initiated by the Director of Pedestrian Projects visiting their offices. The key participant from Macy's had doubts that traffic flow could be modified in any way, especially in front of Macy's.

Pedestrian and Bike Lane Improvements

The BID wanted to see major improvements, but when it came to the test, it needed some encouragement to assume the burdensome responsibility of keeping dozens of planters watered and replanted regularly with seasonal plants. Fortunately, the BID has done a superb job and the landscaping contributed enormously to the popularity and success of the test. (They would like to see permanent construction take place so their maintenance burden can be lessened.)

The following findings resulted from the test:

- Sixth Avenue – overall, there was an improvement in vehicle traffic flow during the peak periods analyzed; pedestrians made use of the additional space and volumes increased; the left-turning vehicles onto West 33rd Street conflicted with the through movement of the dedicated bike lane.
- Broadway – as anticipated, congestion increased approaching West 34th Street during all periods as a result of the reduction in travel lanes and changes in signal timing that favored Sixth Avenue as the primary corridor; the flow on Broadway was affected by spillback onto West 32nd Street that was hindered by legal curbside parking; the bus often has difficulty maneuvering in front of Macy's when merging back into traffic.
- West 34th Street – eastbound flow was relatively uncongested during all periods; westbound remained congested in the mornings, but no longer during other periods.

Recommendations based on the test experience will consider reorganizing the bus stop and the taxi stand in front of Macy's to provide a transition for the bus to enter traffic prior to West 34th Street. Also, consideration will be given to placing the bicycle lane out-board of the left-turn bay to eliminate the conflict on Sixth Avenue. No standing restrictions are under consideration for a segment of the curb to allow Broadway turning vehicles to enter West 32nd Street more easily. Further measures as a result of these findings include implementing "grid-lock box" signing and striping at West 32nd Street and adjusting signals at West 30th and 31st Streets. Minor signal modifications are under consideration to improve the Broadway approach to West 34th Street as well.

[13] There are 59 Community Boards in the five boroughs of New York City each representing a Community District. Community Boards are autonomous City agencies responsible for considering the needs and welfare of its district including service delivery, land use and long-range planning, city budget processes and community advocacy.

FEDERAL AND STATE PERSPECTIVES AND EFFORTS ON CSD/S IN LARGE CENTRAL CITIES

From the perspective of AASHTO and FHWA, CSD/S should not be difficult to implement. CSD/S is a key area of emphasis for AASHTO, which is training staff to better understand the parameters of flexibility. AASHTO is also examining organizational structures and procedures in an effort to help streamline the process. According to Harold Peaks, FHWA views its role as a "helper," not a "director" of this process. As such, it plays a role in policy guidance, technical assistance to State DOTs, outreach and training, and development of a CSS "game plan." As part of this game plan, for example, FHWA is partnering with AASHTO, to train all states in how to better understand the parameters of flexibility and implement CSD/S. It is helping develop criteria and potential university curricula, and is encouraging States through the FHWA divisions. Working together with PPS, FHWA is helping develop a national website to provide better information access on CSD/S, and partnering with Institute of Transportation Engineers (ITE). FHWA is also developing guidance for CSD/S in urban environments.

State Initiatives – The NYSDOT Example

Several States have already made changes and are working with cities to help streamline this process and make it not only more efficient, but more effective. According to Vincent Barone, Assistant Division Administrator in the FHWA New York Division, for example, New York State's Department of Transportation has put together a team to implement CSD/S and help make it central to the Department's overall philosophy. The group meets twice a month and FHWA's New York Division Staff serves on it, providing technical assistance and information, and helping to develop training.

Every NYSDOT project must now include a public involvement plan. Already in place around the State is staff training that includes an overview of CSD/S and public involvement, as well as mini-courses on placemaking, conflict resolution, how to deal with legal issues, and integrated decision making. In addition, a Public Involvement Manual is being developed. NYSDOT's CSS team also sponsors an annual Excellence in Engineering – Context Sensitive Solutions Award that recognizes projects that have excelled in three areas: technical content, public involvement, and environmental improvement.

Among the future FHWA activities highlighted for action in New York State were the following:

- Additional training and course development for a one-day workshop on public involvement for the metropolitan planning organizations;
- Development of a summary of CSD/S lessons learned and best practices in the State;
- Development of guidance on integrating planning and environmental study projects in the State;
- Evaluation of the safety impacts of CSD/S applications.

In addition, the NYSDOT is undertaking the development of CSS performance measures. The work is being funded by FHWA and FHWA Division staff serve on the technical working group. Finally, NYSDOT is in the midst of a major transformation of the entire agency. As part of that transformation, CSD/S will be integrated more formally into everything that it does and eventually the way its staff thinks.

Philip Clark, Director of the Design Division at NYSDOT, added that during the last decade, NYSDOT has developed an excellent working relationship with FHWA's New York Division, which has helped in making such changes possible. For States where such relationships do not exist, it is much more difficult.

NEXT STEPS

Four areas were identified for action – Raising Awareness, Building Professional/Organizational Capacity, Process Improvement, and Research and Innovation – and the participants in the peer-to-peer exchange session on CSD/S identified short-, medium-, and long-term steps that could aid large central cities in effectively planning and implementing projects with CSD/S in mind.

Short-Term Steps

Chief among the short-term actions that could be taken, according to the participants in the session, was dissemination of information so that city practitioners can be better informed of peer experiences and new developments in the practice.

- ***Process Improvements***

    - ***Delegated Authority*** and ***Self Certification***. Among the participating cities, Minneapolis already has "delegated authority" and Philadelphia has applied for "self certification," both of which allow the City to certify that it is meeting state and/or federal requirements rather than having to go through the state-federal process. Other cities requested more information to facilitate a better understanding of "delegated authority" and "self-certification" and determine how best to work with their respective state's officials to implement them. As was pointed out earlier, State DOTs sometimes have more stringent regulations than does FHWA.

    - ***Review Process Timeline***. Several cities experienced extended project timelines while waiting for responses to requested project modifications from other agencies. Baltimore and Maryland addressed this obstacle by instituting limits on the exception process by requiring that the State respond to queries regarding exceptions within 35 days. This helps to provide certainty within the process and avoids the difficulties described by cities like Chicago where the exception process can drag on for months at a time. Cities would like more information disseminated on how municipalities can work together with states to create and apply time limits in dealing with the exception process. In particular, who determines the time limits, how they were developed, and how well they function.

- ***Research and Innovation***

    - ***MPOs and CSD/S***. Several cities expressed interest in the way regional MPOs could play a role in helping manage the dynamics of CSD/S, for example by providing a forum where cities and states can discuss and exchange ideas about project objectives and design.

Medium-Term Steps

Medium-term steps identified are also primarily oriented around information dissemination on critical issues, but require some research and development of data and/or literature prior to dissemination. Among them:

- ***Research and Innovation***

    - ***Liability and Settlements***. Tort liability is a key concern when discussing CSD/S. Yet, information on actual liability is difficult to come by since many cases are settled out of court, precisely because of fears that it will be costly to win even when the cases seem clear cut. To provide a more accurate assessment of the real liability risks, the cities requested that information be gathered and disseminated regarding how many suits are brought each year, how many make it to court, how many are settled out of court, and of

those that make it to court, how may result in awards to the plaintiffs. One participant pointed out that the Transportation Research Board is currently working on such a project.[14]

- ***Building Professional/Organizational Capacity***

    - ***Training***. Specific types of training are necessary for successfully planning and implementing CSD/S. Among them, cities would like to see expanded course offerings similar to those already being held for NYSDOT, including but not limited to:
        - creating public spaces;
        - developing effective teams that cross disciplines;
        - generating public participation;
        - resolving conflict; and,
        - documenting appropriately to avoid liability.

- ***Raising Awareness***

    - ***Compendium of Examples and Internet Venue***. The peer-to-peer session laid the foundation for a compendium of examples of CSD/S implementation in large central cities. However, many more are needed. More importantly, the cities suggested that such examples should be disseminated as quickly as possible so that engineers involved with projects in their respective cities have access to documented cases where CSD/S have been successfully applied. The most effective way to do this is likely via a web site.

    - ***Promoting the Practice***. The cities were very interested in NYSDOT's Excellence in Engineering – Context Sensitive Solutions Awards. For the past four years, the New York State Department of Transportation has been giving special recognition to a project that exemplifies the spirit and success of Context Sensitive Solutions in New York State. The cities expressed that more positive reinforcement for implementing CSD/S would help to increase its use and were interested in learning more about the NYSDOT awards.

Long-Term Steps

Finally, several longer-term steps were identified, which would require joint effort by the cities, states, and the federal government.

- ***Building Professional/Organizational Capacity***

    - ***Demonstration Projects***. After the Maryland workshop in 1998, 5 states were selected for pilot projects. The central cities would like to see a similar set of pilot projects in which the central cities take the lead.

- ***Research and Innovation***

    - ***Development of Urban Design Standards***. Several of the cities were frustrated by the need to apply for multiple variances on projects even where the need to follow CSD/S principles and allow for flexibility is understood. Specific urban design standards, that take into account the antiquated grids and built environments with which these cities must deal, might help to avoid a number of these variance requests and streamline the process while further developing the CSD/S definition and applicability as well.

[14] The report noted was published after the peer-to-peer exchange in New York. See Michael E. Kerchensky, Gary L. Gittlings, and Luther J. McNeal, *Development and Evaluation of a National Data-Management System for Highway Tort Claims*, NCHRP Web Document 57 (Project 11-7), August 2003, http://gulliver.trb.org/publications/nchrp/nchrp_w57.pdf.

A Concluding Note

At the time the peer-to-peer session was held, Project for Public Spaces, Inc. was exploring the possibility of building a national website focused on CSS. Shortly after the session, FHWA and the National Park Service contracted PPS to develop such a website and recommended that NACTO be represented on the working group along with the contracting parties, AASHTO, the Institute of Transportation Engineers (ITE), and the Federal Transit Administration (FTA). David Burwell, formerly of the Surface Transportation Policy Project (STPP) is leading this effort.

To facilitate the implementation of CSD/S, it is important for public agencies, private, and civic organizations to support similar joint efforts aimed at: a) deepening the understanding of the practice – its challenges and benefits; and, b) educating those who grapple with how to design, operate and maintain our transportation infrastructure.

REFERENCES

American Association of State Highway and Transportation Officials (AASHTO). *A Policy on Geometric Design of Highways and Streets, 1994*. Washington, DC: AASHTO, 1995.

Maryland Department of Transportation. State Highway Administration (SHA). *When Main Street is a State Highway: Blending Function, Beauty and Identity*. A Handbook for Communities and Designers. Maryland: SHA, c. 2000.

_____. *Thinking Beyond the Pavement: A Conference Summary.* Available online. *http://www.sha.state.md.us/events/oce/thinkingbeyondpavement/tbtp.pdf.*

New York State Department of Transportation (NYSDOT). *Context Sensitive Solutions program page online,* http://www.dot.state.ny.us/design/css/css.html.

Project for Public Spaces, Inc. (PPS). *How to Turn a Place Around: A Handbook for Creating Successful Public Spaces*. New York City: PPS, 2000.

_____. *How Transportation and Community Partnerships are Shaping America – Part II: Streets and Roads*. New York: PPS, 2000.

Transportation Research Board (TRB). National Cooperative Highway Research Program. *A Guide to Best Practices for Achieving Context Sensitive Solutions, Report 480*. Washington, DC: TRB, 2002.

U.S. Department of Transportation. Federal Highway Administration (FHWA). *Flexibility in Highway Design*. Washington, DC: FHWA, 1997. FHWA-PD-97-062.

In addition to the above resources, the following web sites are also useful.

Kerchensky, Michael E., Gary L. Gittings, and Luther J. McNeal. *Development and Evaluation of a National Data-Management System for Highway Tort Claims*. NCHRP Web Document 57 (Project 11-7). August 2003. http://gulliver.trb.org/publications/nchrp/nchrp_w57.pdf.

Maryland Department of Transportation. SHA. *Context Sensitive Design: Thinking Beyond the Pavement*. http://www.sha.state.md.us/events/oce/thinkingbeyondpavement/thinking.asp.

Project for Public Spaces. www.pps.org.

U.S. Department of Transportation. FHWA. Context Sensitive Design: Thinking Beyond the Pavement. http://www.fhwa.dot.gov/csd/index.htm.

LIST OF PARTICIPANTS

Frances Banerjee
President, Banerjee & Associates

Vincent Barone
Assistant Division Administrator, FHWA-NY Region

Philip Clark
Director, Design Division, NYSDOT

Allison L. C. de Cerreño
Co-Director, NYU Wagner Rudin Center for Transportation Policy & Management

Andrea D'Amato
Commissioner, Boston Department of Transportation

John DeBenedictis
Director of Traffic Management and Engineering, Boston Department of Transportation

Evans Doleyres, P.E.
Assistant Commissioner, Infrastructure Division, Construction Bureau, Department of Design and Construction, NYCDOT

Miguel d'Escoto
Commissioner, City of Chicago Department of Transportation

Wilson Fernandez
Transportation System Manager, Miami-Dade Metropolitan Planning Organization

Dennis German
Chief, Community Design Division, Maryland State Highway Administration

Claryce Gibbons-Allen
Director, Detroit Department of Transportation

David Harris
Deputy Director, Office of Policy, Technology & Management Analysis, NYCDOT

Kris Hoellen
Director of Environmental Programs, AASHTO

Jay Jaber
Assistant Commissioner, Office of Construction Mitigation and Coordination, NYCDOT

David Kuehn
Community Planner, USDOT-FHWA

Robert D. Laravie
Manager, Landscape Architecture/ Environmental Analysis Unit, NYSDOT-Region 11

Mike Moss
Policy Advisor to the Secretary, Illinois Department of Transportation

Yun P. Ng, P.E.
Assistant Commissioner, Infrastructure Division, Design/Research & Development Bureau, Department of Design and Construction, NYCDDC

Al Novak
Deputy Chief Engineer, Division of Bridges, Specialty Engineering and Construction Bureau, NYCDOT

Glenn Ogura
Principal Transportation Engineer, Los Angeles Department of Transportation

Harold Peaks
Team Leader, Project Development Team, Office of Project Development & Environmental Review, USDOT-FHWA

Gwen Perlman
CFO, Assistant Commissioner, Financial & Management Analysis, NYCDOT

Isabella Pierson
Assistant Research Scientist, Rudin Center for Transportation Policy & Management

Elliot Sander
Director, NYU Wagner Rudin Center for Transportation Policy & Management

Mark Seaman
Project Manager, NYU Wagner Rudin Center for Transportation Policy & Management

David Seglin
Coordinating Planner II, Legislative and Policy Analyst, Chicago Department of Transportation

Gerard Soffian, P.E.
Director, Division of Signs & Markings, NYCDOT

Joseph R. Syrnick
Chief Engineer & Surveyor, City of Philadelphia Department of Streets

Alex Taft
Executive Director, Association of MPOs

Anne-Marie Turner
Chief, Highway Design and Construction, NYCDOT

John Tomczyk
Project Director, Chicago Department of Transportation

Charles Ukegbu
Executive Director of Policy, Technology & Management Analysis, Division of Support Services, NYCDOT

Iris Weinshall
Commissioner, NYCDOT

Jon Wertjes
Assistant Director, Transportation and Parking Services, City of Minneapolis

Craig Whitaker
Adjunct Professor, NYU Wagner Graduate School of Public Service

Khalil Zaied
Engineering Supervisor, Highway Design Division, Baltimore City Department of Transportation