

Designing for All Users
Technical Session Summary Notes
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Summary: This session explored a central issue facing transportation engineers and managers in the post-Interstate construction era: “Who are our customers (users) and what outcomes do they seek from our transportation systems—including all modes?” A second issue addressed was how design principles are evolving, especially how the terms “context sensitive design” (CSD) and “context sensitive solutions” (CSS) affect or change traditional transportation design principles when the goal is to design for all users.

Gary Toth of New Jersey DOT presented the state’s New Jersey Future in Transportation (NJFIT) program which attempts to apply CSS principles, not only to all levels of government, but to all forms of planning and design—including community design through master plans and site plans. Toth said such community-based planning was a core value of transportation planners when they were first asked to help “get America out of the mud” and that NJFIT is an attempt to “get back to our roots” as community planners. This includes a paradigm shift to planning that reduces, rather than simply accommodates, growth in travel demand. **Effie Stallsmith**, Community Planner for the Federal Transit Administration (FTA) focused on connectivity as the key to designing for all users. She traced the gradual separation of modes in transportation planning and said that CSS is an attempt to get the modes back together again as one integrated system. She also focused on making the transportation and land use connection, particularly around transit stations, where planning for mixed uses and bicycle/walking connections is essential to increased ridership and system financial success. **David Burwell** of Project for Public Spaces focused on CSS as planning, not only for all users, but also for all uses—community activities that use road and transit facilities as community gathering places. He noted that transportation facilities are a form of public space just as are public parks, civic squares, public markets and public buildings. He traced how transportation space has traditionally served other community goals besides mobility and access—community festivals, political rallies, outdoor markets, protest marches, etc. and suggested that CSS incorporate an understanding of transportation as public community space and that planners design and manage transportation facilities accordingly.

Detailed Presentation Summaries

Gary Toth, Director, Project Planning and Development, New Jersey Department of Transportation *NJFIT: Future in Transportation: Back to Our Roots?*

Mr. Toth described his 30-year history as an engineer in the New Jersey DOT where the conventional wisdom upon his arrival was that the “safety and mobility of the traveling public are paramount” and the default solution of building roads “wider, straighter and faster” was rarely questioned. In such a context the needs of other roads users—those other than the motoring public—were treated as an afterthought, if at all. However, pressures such as regulatory changes (particularly enactment of the National Environmental Policy Act—NEPA), community resistance, flat funding sources and the fact that simply accommodating traffic demand was not solving congestion problems, caused NJDOT to gradually consider a different approach. The importance of connectivity as a planning goal was recognized in 1990 in a paper by Kulash, Anglin and Marks called “Hierarchical and Connected Land Systems,” which demonstrated that connected street networks increase trip choices, provide more direct routes, reduce congestion and support community goals.

In 1991 the passage of the federal ISTEA legislation reflected these thoughts by promoting more flexible design and more funding for connectivity between modes. The state DOTs then took the lead in promoting more flexible design through sponsorship of the first “Thinking Beyond the Pavement” conference in 1998 and NJDOT formally adopted Context Sensitive Design (CSD) as agency policy in 2001. Now CSD has evolved into Context Sensitive Solutions (CSS), which focuses on extending flexibility and innovation beyond project design to corridor, planning and even program processes. NJFIT (New Jersey Future in Transportation), which seeks to engage transportation and community land use planners in joint efforts to reduce growth in travel demand and to design community-based transportation solutions, is a CSS implementation strategy.

While the journey to adoption of CSS principles was a long one, the concept is not a new idea. Mr. Toth provided an historical overview of transportation planning since the first Federal-Aid Road Act of 1916. He pointed out that roads were initially designed to support adjacent land uses, to conform to desirable frontage requirements for businesses, to provide more direct routes for pedestrian travel, and to improve the public health through better streets, storm water control, access to transit lines, etc. However, the new American love affair with the automobile gradually institutionalized the public road building machinery which was most dramatically memorialized in the concept of the Interstate Highway System (first proposed by President Franklin Roosevelt, not President Dwight Eisenhower). Transportation leaders such as Herbert Fairbank and Thomas MacDonald recognized the importance of connecting transportation and land use through support for transit and well as strategic placement of expressways and access points to avoid the danger of “expanded suburban ribbon” development. However, the standardization of highway design and the institutionalization of highway planning led to the unintended consequences that MacDonald and Fairbank predicted. Soon the idea of “build, mitigate, and build more” became the mindset, not only of transportation planners, but the general public as well. Mr. Toth cited Fred Kent, President of Project for Public Spaces, who observed that we had become “a nation of traffic engineers.”

Mr. Toth ended with an analogy between transportation planning and health care planning, noting the new focus in health care on prevention of disease as well as its

treatment. Under this new approach the health care industry attempts to (1) alter the behavior of its customers, (2) prevent the onset of health problems, and (3) reduce the cost of their (health care) services to a manageable level. He recommended that that transportation community adopt the same approach. Where the new health care intervention involves diet and exercise, the analogous transportation intervention involves community and land use planning. That is why NJDOT calls its new program NJFIT.

Effie Stallsmith, Community Planner and Paul Marx, Economist, FTA: *Designing for All Modes: It Starts with the Neighborhood.*

Ms. Stallsmith also focused on the historical trend towards the gradual separation in the planning and management of different modes of travel. She highlighted the equity impacts of this development as the modes became unconnected and did not serve the needs of all travelers. She also pointed out that, as the separation of modes increased, the quality of life for everybody diminished.

The shift back to transit, and to thinking of transportation as the entire, multi-modal transportation system, came in a USDOT publication in 1990 entitled *Moving America: New Directions, New Opportunities*. These ideas were reflected in the Intermodal Surface Transportation Efficacy Act (ISTEA), enacted in 1991, which provided funding flexibility between modes and introduced a variety of intermodal planning requirements. It was also the first transportation law that required planning to connect transportation to land use. FTA responded in 1994 by launching its “Livable Communities” initiative that pointed out the importance of transit in serving all aspects of everyday life such as the need for access to shopping, education, recreation, medical needs, and public services. Since transit services connect to, and often travels on, the road system, transit is in fact a part of the road system. This has lead to a much closer relationship between the highway and transit modes within USDOT, as well as with a host of transportation NGOs.

The key principle in the Livable Communities initiative is *achieving multiple goals with everything that you do*. There are three ways which FTA is promoting this principle. First, it is promoting **Joint Development**, which is where transit agencies and developers conduct joint planning for, and contribute resources to, land developments adjacent to public transportation that accommodate the needs of the community as well as the transit user. This means thinking about, and planning for, the needs of the transit user and the community together in these areas. For example, mixed use development around transit stations, and the provision for transit-users of such services as day care centers and senior service centers in proximity of stations, is a way to serve both transportation and community needs. SAFETEA-LU also expanded the eligibility of intercity bus and intercity rail transit stations and terminals for capital funding and for joint development. Finally, transit authorities, as the owner and operator of transit facilities and adjacent land may enter into joint development agreements on these lands in a manner that serves both community and transit goals.

Transit has also jumped on the bandwagon of **Context Sensitive Solutions (CSS)**. In the transit context, CSS means (1) addressing transportation needs of its users, (2) being an

asset to the community, and (3) being compatible with the human and natural environment. By focusing on the needs of the community transit also serves its four-part goals for mission success (1) running the system on time, (2) carrying people where they need to go, (3) increasing the base of transit riders, and (4) minimizing the cost of service wherever possible. Ms. Stallsmith highlighted the “Hop, Skip, Jump” system in Boulder, Colorado which, by segmenting the needs of different types of riders into three different types of bus service, managed to increase ridership by 40% in one year, route by route.

Finally, FTA is also focusing on the LEED green building rating system established by the U.S. Green Building Council and its extension to green neighborhood design or LEED-ND. While the LEED-ND rating system is not yet in place, it does seek to promote transit by designing neighborhoods that “reduce vehicle miles traveled and build communities where jobs and services are accessible by foot or public transit.” However, to achieve this goal transit agencies must be ready to participate as partners in achieving the LEED-ND goals.

David Burwell, Vice-President for Transportation Programs, Project for Public Spaces *The New Asset Management: Designing Streets as Public Spaces.*

Mr. Burwell’s presentation addressed new measures of performance under Context Sensitive Solutions (CSS) principles. This includes encouraging transportation planners and facility managers to move from an exclusive focus on facility planning and design to an expanded focus on (1) transportation system design and, even more broadly, (2) community planning and design. This also requires a new idea of asset management, one which focuses on managing transportation assets for community outcomes, not simply keeping our transportation system in good repair.

In this expanded planning context transportation planners will find themselves planning not only for all **transportation users**, but also for an expanded variety of **transportation uses**. Transportation facilities (roads, streets, parking lots, transit station areas) are another form of public space—in most cities comprising almost 50% of all land surface—and are often used as general public gathering areas. This requires *continuous and active management* of these facilities for community as well as transportation outcomes, a significant challenge for the transportation profession which is focused primarily on managing traffic operations.

Mr. Burwell traced the history of asset management. The traditional definition of asset management referred to the condition and durability of transportation materials and structures as evaluated in the periodic *Condition and Performance Report* issued by the Federal Highway Administration. This is an important metric of asset performance, especially in light of new infrastructure assessment rules issued by the General Accounting Standards Board (GASB). Newer notions of asset management encompass an expanded focus on systems performance, evaluating how transportation is operating as an integrated, inter-modal system. The third wave of asset management goes beyond a focus on the transportation system itself to evaluate how well transportation is managed to serve a variety of community and societal outcomes such as public health, clean air and

climate change, social integration, smart growth, energy efficiency and other “livable community” objectives.

Managing, and evaluating, transportation assets against their performance in furthering these non-transportation goals is implied in Gary Toth’s focus on integrated transportation and land use planning and Effie Stallsmith’s introduction of LEED-NG as a new measure of performance for transit assets. It is also the accepted definition of asset management as defined by the Australian Road Council which, in 1997, adopted the following definition of asset management:

Asset management may be defined as a comprehensive and structured approach to the long-term management of assets as tools for the efficient and effective delivery of community benefits. The emphasis is on the assets being a means to an end, not an end in themselves.

If “community benefits” are the ultimate measure of performance of transportation assets, then CSS must incorporate such benefits in its planning objectives. Mobility and access are two such community benefits, but not the only ones. In establishing these performance measurements, Mr. Burwell suggested that geography is important. The value balance between transportation and community outcomes changes according to geography. For example, in a rural environment the value assigned to speed may be higher from a community benefit standpoint—homes and jobs tend to be farther apart. In an urban environment a greater community benefit may be assigned to exchange—the ability of people to gain easy access to goods and services, not speed. In measuring transportation facility performance as public spaces, metrics such as comfort, utility, safety and connectivity matter. As transportation planners begin to focus on community outcomes as their ultimate measure of performance, not only will they play a critical role in creating great public spaces and great communities, they will also gain a happier and more appreciative customer base.

Questions and Roundtable Discussion

Questions from the audience focused on how to convince the general public that transportation should be planned to accommodate the needs of all users when they are most insistent that congestion relief and higher travel speeds be the goal. Gary Toth suggested the use of visualization tools that show the difference between places designed for speed and places designed for community benefits—people almost always pick the more community friendly design. He also suggested simply going away for a while and letting the community think about how land use decisions in the community affect congestion. Unless the community is willing to deal with the land use issue, there is little a state DOT can do to relieve traffic congestion. Another approach is simply to spend more transportation dollars on engaging the public in the planning process, and even to fund local land use planning efforts.

The roundtable discussion focused on how to move beyond congestion relief as a measure of success. It is hard to measure social (people) aspects of successful design.

Quality of life, another well-used phrase, is also hard to measure and incorporate into design criteria. Finally, people have different opinions, so there is no standard way of measuring success or what successful design would look like.

The new **ITE/CNU/FHWA report “Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities”** was discussed as a possible way of measuring success of transportation projects in a community context. The suggestion was made that design principles were helpful as guidelines, but the only way to effectively measure design success is in the context of a particular community, especially whether the customer is satisfied with the ultimate design solution. Ft. Collins, Colorado was mentioned as having good design criteria that may be useful to other communities of similar size and geography. **New functional classification systems** were another approach that might help. Present functional classification systems focus on the transportation purpose of the road when a classification that is more tailored to adjacent land uses may be more appropriate. For example, New York DOT has a pilot program for dividing streets into traffic, living, and residential categories, with different design elements for each.

Putting transportation in a secondary position to land use was also suggested, described as LU1TR2 (Land use first, transportation second). However, this does not always represent the interests of the broader community. In Las Vegas the developers make all the land use decisions and the usual result is a land use pattern that cannot be sustained by efficient transportation systems. Texas, where driving fast is part of community culture, is another example of the difficulty in determining the appropriate design solution in the context of community values. Putting all the power in local hands may not necessarily achieve the best outcome from a transportation or land use perspective. In these circumstances defining the boundaries of the “community” (street, neighborhood, community etc.) may be the most challenging aspect of the design process.

Other examples of community based performance measures suggested in the session included:

- Increased bicycling and pedestrian activity in the community
- Increased street life generally, including street fairs, open-air restaurants, social activities etc.
- How many people know their neighbors? The number of social contacts and friends people claim to have in the study area of a local transportation improvement can be objectively measured and used as one criterion of success.
- Are people healthy?—does the system encourage physical activity? Studies have been conducted indicating that people are more fit and have fewer illnesses in neighborhoods that have a high degree of mixed land uses and where walking and bicycling is designed into the transportation system.
- Increased physical connectivity. New Jersey DOT has an RFP out for a project with a purpose and need to actually lower level of service (LOS) for a road, but which will reconnect a town to its waterfront and give people a reason to live there, not just drive through.

The role of ITE in defining success was also discussed. The general sentiment was that, although ITE itself can not by itself define design success, it can promote a process that encourages the development of public and community partnerships that can do so. ITE has also been very helpful in improving the trip generation model to allow it to measure pedestrian and bicycling trips as well as motor vehicle trips.

Ideas for further research: While most of the discussion was on how to define successful community outcomes for transportation, some areas for further research were also identified, including:

- Block size.** How does block size relate to traffic, speed, use of alternative modes (walking and bicycling) etc.? Is there an ideal block size for various geographies?
- Measures for community outcomes.** What are some ideas for such measurements? Are there examples where they have been identified, adopted and used? What is the experience in this regard? Case studies could be important.
- School systems.** The implications for school siting have not been studied from a transportation angle. Strategies for allowing students to walk to school should be a transportation research topic.
- Is TRB making any effort to collect data on transportation projects that lower vehicle performance (LOS) but improve community performance? What types of data would be collected for such research? As Albert Einstein said “not everything that can be counted, counts, and not everything that counts can be counted.”

In conclusion, there was general agreement that communities need help identifying performance measures for the outcomes they want. One fruitful area of research may be to develop a list of commonly-expressed community values and then develop datasets that can objectively measure performance in support of these values.

