

Status of Prospectus Update

The following document is a draft of “Part One” of the updated CDTC Prospectus, describing the underlying CDTC planning approach.

Part Two is an expanded version of the MPO Agreement and Committee Practices and will be finished after action on those two items.

Part Three will be a brief description of CDTC’s planning commitments (ongoing and recurring planning efforts), potential new areas of activity (operations, etc.), and financial prospects.

The suggested schedule for completion is:

November –	Planning Committee action on MPO Agreement Planning Committee action on Committee Practices Review of Part One begins
December –	Policy Board action on MPO Agreement Policy Board action on Committee Practices
January –	Review of Part Two and Three begins
February –	Planning Committee action on Prospectus
March –	Policy Board action on Prospectus

OUTLINE OF OCTOBER 2009

The Capital District Transportation Committee

Planning Approach, Organizational Structure, and Planning Agenda (Prospectus)

VOLUME 1

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Planning Approach:

An Intention to Succeed

Introduction

CDTC is the collaborative forum for transportation planning...

...that finds its success through the cooperation of all its members...

...by transforming the perspective on transportation planning to one that is holistic, equitable, sober and value-driven.

According to federal transportation law, every urbanized area with a population of 50,000 or greater must have a designated Metropolitan Planning Organization (MPO) that represents the state and local governments in the area. The Capital District Transportation Committee (CDTC) is the MPO for the Capital District. As such, the CDTC serves as a forum for making decisions about highway and transit improvements in the area. Some decisions have immediate impact, others have to do with plans for 10, 15 or 25 years in the future. Cornerstones of the MPO responsibilities are the development of unified planning work program (UPWP), a regional transportation plan (RTP), approval of federally-funded highway and transit projects through a "Transportation Improvement Program" (TIP), and determining conformity of its plans and programs with the State Implementation Plan for Air Quality.

Since passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, CDTC has enjoyed enhanced responsibility as a regional institution. Through the cooperation of all its members -- particularly of the New York State Department of Transportation and the Capital District Transportation Authority -- the CDTC forum has been used to resolve major transportation policy issues and set funding priorities in the Capital District to a degree not experienced by most other MPOs in the nation. The Transportation Equity Act for the 21st Century (TEA-21) passed in 1998 and the Safe and Efficient Transportation Equity Act -- A Legacy for Users (SAFETEA-LU) passed in 2005 reaffirmed this role.

CDTC attempts to go far beyond the role of a traditional MPO -- that of a technically-competent staff supporting a forum serving as an honest broker of federal transportation funds. CDTC has established sufficient credibility in the regional community to serve as a strong catalyst for transforming the generally-held perspective on transportation to one that is holistic (viewing transportation within its context), equitable (dispensing with jurisdictional or modal distinctions in identifying wise actions), sober (confronting the conflict between vision and budget constraints) and value-driven (acknowledging that decisions are made based on public policy and community priorities, not just upon quantified traveler benefit). In the Capital District, this arguably-healthier perspective has, in turn, enabled CDTC to pur-

sue innovative practices and a broader agenda than most MPOs enjoy.

CDTC has taken efforts to enhance its credibility by extending the depth and breadth of its processes and pioneering with integrated land use – transportation planning efforts at the local level.

CDTC has also taken efforts to enhance the credibility of its decisions through major, successful efforts to engage "stakeholders" and other interested parties in the planning process. The New Visions effort was initiated in 1994 with the creative use of multiple task forces to address fundamental and potentially-controversial subjects. While that original effort received continued national attention for the depth and breadth of issues addressed in a technically-sound, participatory process, the New Visions process has continued for over 15 years, extending, expanding and refining CDTC's plans and policies.

The Community and Transportation Linkage Planning Program established in 2000 to help implement the New Visions plan has likewise received national attention. Its characteristics of integrated land use – transportation and local – regional planning, achievable recommendations and extensive coverage (54 study areas in 30 separate municipalities in eight years) have no parallel in the nation.

CDTC's dynamic policy board membership now includes 19 elected officials and local government appointees working alongside representatives of six regional planning and transportation providers.

Unlike many MPOs, CDTC maintains a dynamic membership structure and a flexible agenda. In recent years, CDTC expanded its policy board to afford permanent status to any municipality with a population exceeding 50,000 (effectively providing membership to the region's second-largest municipality, the town of Colonie). Upon notification that the Saratoga Springs Urbanized Area exceeded the threshold for MPO requirements based on 2000 Census data, CDTC received confirmation that CDTC will fulfill that mission for the newly qualified urbanized area. That confirmation was relatively straightforward; CDTC has included the city of Saratoga Springs as a full voting member since 1965 and covered the entirety of the new urbanized area within the defined CDTC "metropolitan area boundary" for planning and programming since passage of ISTEA.

The dynamic structure has also allowed CDTC to extend participation at the Planning Committee table to nine towns in addition to the eight cities and four counties traditionally serving on the committee. Voting policy board membership now includes transit, thruway, port, airport and regional planning bodies in addition to the state department of transportation – an inclusiveness with few parallels.

"There are significant risks associated with metropolitan planning processes. The presence of cooperative transportation decision-making processes provides a unique institution in every metropolitan area for comprehensive assessments of system-level options. It also provides for public accountability. Failure to successfully engage in meaningful, informed decision-making on issues ranging from urban form to the availability of modal alternatives exposes a metropolitan area to risks of significant inefficiencies and inequities which can be expected to be compounded by future events, both those foreseen and unforeseen. MPOs must be leaders in the areas of form, funding and policy.

"... a shared, dynamic regional vision is a more effective instrument of public policy than a traditional transportation facilities plan. "Visionary leadership" is identified as one of the greatest contributions the MPO institution can provide to the metropolitan area. Visionary leadership allows short-term, local decisions to be consistent with long-term, strategic goals."

A finding and one recommendation from the national "Colloquy on the Coming Transformation of Travel" conducted by the New York State Metropolitan Planning Organization (NYSMPO) and the Federal Highway Administration (FHWA) in 2005. See http://www.nysmpo.org/colloquy_travel.html

As global events unfold in unanticipated ways, CDTC's responsive planning agenda is vital to maintaining relevance in the MPO process. Recent examples include CDTC's multiple joint efforts with the Capital District Transportation Authority (resulting in, among other things, the NY 5 land use and transportation plan and Bus Rapid Transit implementation); assuming a unique role as a partner with the US Department of Energy, staffing and supporting the Capital District's Clean Communities Coalition; integrating alternative futures into mainstream regional planning; collaborating with the Center for Economic Growth, the Capital District Regional Planning Commission and the State University of New York at Albany on a comprehensive analysis of the fiscal impacts of alternative scenarios; and establishing both a diesel hybrid electric program for CDTA and a diesel fleet retrofit program for other fleets.

The adoption of CDTC's New Visions 2030 plan reaffirms the principled and aspirational foundation on which CDTC has found its success. It also raises the bar for the planning and implementation process by adding several additional principles and a raft of recommendations ranging from continuing its innovative approach to "big ticket" initiatives to implementing more ambitious public participation techniques. The New Visions 2030 effort also demonstrated the benefits of exploring the full cost of alternative land use and growth scenarios.

New Visions 2030 provides a strong platform from which to clarify roles, relationships, structure and process at CDTC for the coming years. Additionally, New Visions 2030 provides the basis to clarify both planning commitments and potential new avenues of MPO activity for the coming years.

Maintaining Relevance

The MPO concept faces many challenges

"MPOs cited many challenges in our survey and interviews, primarily related to funding and staffing, authority, and technical capacity. About 85 percent of all MPOs responding to our survey cited the lack of transportation planning funding as a challenge to transportation planning. About half of our survey respondents stated that the lack of flexibility for using federal planning funds inhibits them from conducting comprehensive transportation planning."

"Staffing constraints, such as limited number of staff and lack of trained staff, also impact MPOs' ability to conduct transportation planning. Finally, according to our survey and interviews, some MPOs lack the technical capacity and data necessary to conduct the type of complex transportation modeling required to meet their planning needs."

Excerpt from the Highlights of the congressionally-requested US Government Accountability Office report, "METROPOLITAN PLANNING ORGANIZATIONS: Options Exist to Enhance Transportation Planning Capacity and Increase Federal Oversight", USGAO, September 2009.

Introduction

Transportation planning in the United States is an unusual animal when viewed from the institutional context of general purpose government. General purpose local governments are designed for making home rule decisions regarding provision of services (sewer, water, police, fire, etc.), and are relied upon but less well-suited to implementing master plans that assure maintenance or development of a desired community character. State governments are generally successful in providing a legal framework for local decisions, in providing broad tax revenues to support public infrastructure and services, and in building and maintaining major highway systems, but again are rarely oriented to using these responsibilities to assure a healthy pattern of development of particular communities.

The combination of generally strong local home rule (in relation to zoning, development approvals, and similar actions) and heavy dependence upon the state to fund or provide for transportation systems puts transportation planning activities in a potential limbo -- independent actions by local government and state government can easily be at odds with each other. Transportation plans must therefore be developed in close cooperation with multiple communities and those who develop those communities on the one hand and also be responsive to larger state needs, objectives and limitations on the other.

Within this institutional context, cooperative urban transportation processes (through Metropolitan Planning Organizations -- MPOs) have been developed and refined (with varying degrees of success) in response primarily to *federal* law. In this situation -- with federal law providing the requirement for something that is primarily for state and local benefit -- the extent of success achieved by any particular urban transportation planning organization can be judged from not from its ability to meet the letter of the federal requirements (which it must do in order to remain in existence) but in its relevancy to both real and perceived issues of its participants. Success cannot be viewed in terms of meeting federal mandates for transportation plans and programs but in terms of whether state and local general purpose govern-

ments value the products of the urban transportation planning process and make decisions outside the process that help advance the objectives of the process. In other words, a rubber-stamped endorsement of a state highway project by an MPO is a far less important measurement of the success of that MPO than the voluntary use of the MPO forum by the state highway agency to get state, local and private actors together to develop an equitable cost allocation for improvement of the same state highway, for example. A local government's participation in the MPO process merely to assure it gets its fair share of the federal highway pot is less important than that government's participation in crafting an objective project evaluation process for use in MPO project selection.

Prescription for a Successful Process

An MPO of any size, whether representing a single-city, single-county urbanized area of barely 50,000 residents or a major metropolis, will achieve the kind of voluntary participation in and reliance upon the MPO process by its participants if the MPO process is considered relevant by the participants. To achieve relevancy, the following short list of activities must be part of the continuing prospectus of any MPO or other transportation planning group. For several decades, CDTC has tried to follow this prescription.

1. Scan the planning environment.

Urban transportation planning does not occur in a vacuum. The planner must be constantly aware of current *issues*: What is the current budgetary climate at federal, state and local levels? Are residents and local governments hostile to development or do they seek economic growth with open arms? What are the local perceptions of congestion -- that it is non-existent, manageable, or totally unacceptable? How do local governments perceive the state -- as a pain or a panacea? How is transit service provided -- as a public service with an eye of operating deficits or as an integral part of the transportation system?

The planner must also be sensitive to the *actors* affecting transportation decisions. How are decisions made at the state highway agency and at the transit agency? At the city and county? In the key towns? Who are the important individuals and what are their strengths, weaknesses and biases? What are their "hot buttons", their taboos? What are the lines beyond which one had better not

The federal law is not enough.

"For MPOs to have clout, they need clear authority. Yet participants express concern that the statutory federal authority given to MPOs also represents a problem, in that the federal requirements for long-range plans and Transportation Improvement Programs (and related air quality conformity exercises) "consume" the attention of many MPOs. For an MPO to be fully effective, its objective must go beyond merely fulfilling federal requirements."

A finding from the national "Colloquy on the Coming Transformation of Travel" conducted by the New York State Metropolitan Planning Organization (NYSMPO) and the Federal Highway Administration (FHWA) in 2005. See http://www.nysmpo.org/colloquy_travel.html

cross? What are their perceptions of planning and their openness to other opinions and expertise? Who are the principal developers in the community and how cooperative are they regarding transportation investment? Who are the primary traffic consultants in the area and what are their strengths and weaknesses? How can these significant actors be plugged into the cooperative planning process?

The planner must be knowledgeable about the range of existing *processes* that directly or indirectly affect the transportation planning environment. How are capital projects advanced through the state highway agency? How does the transit agency consider service requests or forecast financial conditions five years into the future? How are site impact reviews treated by local government or by the state -- are they required and, if so, under what conditions and who is charged with the review and approval? Are the expectations of local government that developers should pay for all transportation improvements or do they expect the state to fix problems when they get bad enough? Do local governments perform comprehensive planning? Are there meaningful local master plans or do municipal zoning ordinances serve as a default plan? How are environmental issues treated -- as considerations integral to a project or as impediments to be overcome? Who is involved in such environmental review and with what degree of clout? How can the transportation planning process best interact with these processes?

The planner must keep track of *events*. Who is proposing what kind of development where and how likely is it that transportation implications will be handled adequately? When will the decision be made and what are the opportunities for involvement? What funding initiatives are being prepared for the state legislature? Who is taking the lead and how will these initiatives be received? How is activity changing in the community or metropolitan area -- slowly, swiftly, or in reverse? What corporate activity are local or state officials seeking to attract to or retain in the community? How soon will Census data be available? What is the status of regional solid waste planning and who is involved for whom the experience will serve as an introduction to regional planning -- either good or bad?

Not all MPOs are well connected to the public pulse.

"In particular, 79 percent of survey respondents stated that they have difficulty obtaining the public participation needed to meet their [federal] transportation planning requirements. A few MPOs we interviewed stated that it was difficult to generate public participation in the planning process, in part because few people actually understand what an MPO is or what it does."

Excerpt from the congressionally-requested US Government Accountability Office report, "METROPOLITAN PLANNING ORGANIZATIONS: Options Exist to Enhance Transportation Planning Capacity and Increase Federal Oversight", USGAO, September 2009.

2. Recognize Reality.

First, it must be consciously acknowledged that neither the lone transportation planner in a small county planning department nor the large MPO staff in a major metropolis is able to control all the decisions that affect the transportation system. The transportation planner or MPO staff is typically no more than the tail on the dog of the city, county or state highway agency. It is not realistic to expect that an MPO staff of four will be able to tell a state highway agency of 5,000 how to spend its budget or that it will be able to tell a local government that they cannot approve a shopping center proposal because of potential congestion five or ten years away.

Second, the perceptions of residents and governmental participants in the transportation planning process must be acknowledged as real. The transportation planner cannot afford to alienate his or her constituency by demeaning the beliefs of the constituency. It is very easy to win an argument that, for example, a monorail on the expressway would not be an effective solution to congestion; however, if the argument is won by belittling or shouting down the idea, then the battle may have been won at the cost of the war. The war for voluntary solicitation of the transportation planner's or MPO's input requires that the views of each participant be respected.

Third, the transportation planner must keep a close watch on objective reality. While perceptions of participants should be respected, the involvement of the transportation planner will be sought out on a regular basis only if the planner can provide some "value added" to the discussion. ("Yes, I agree that congestion on the expressway is worsening. But if you look at these numbers, I think you'll find that our conditions are better than those of other areas our size. We should collectively be doing our planning now, however, because our forecasts show peak hour level-of-service "F" within ten years. ")

3. Find the "Holes" in the Planning Process.

With a sensitive appreciation of the issues, actors, processes and events and a large dose of reality-checking, the urban transportation planner must seek opportunities to provide value to the decision-making process. The ultimate objective of hole-seeking is to stake a claim to a piece of the action that is largely unclaimed. Specifically, this activity requires an inventory of data and analytical procedures that exist in the urban area and an identification of important data elements and analytical procedures that are missing. It should be expected that the missing elements far outweigh those for which agencies have mastered. The planner must then choose certain holes to fill, given knowledge of the environment. (Will an initiative to collect local pavement condition data be well received, or would time be better spent developing a procedure to develop arterial standards be of greater value? What information is missing from the current decision-making equation?) While holding tightly to powers, few decision-makers would knowingly refuse credible information presented in a non-threatening manner the value of planning is more readily accepted when viewed as enhanced knowledge than when it is perceived as a requirement, impractical philosophy or central government control. Plugging data and procedural holes clearly emphasizes the role of the planner as one interested in assisting the existing decision processes, rather than someone who simply wants to take over.

The hole-filling approach is clearly directed at providing a service valued by the constituency as opposed to forcing conformity to the planner's notion of how an activity should be carried out and who should do it. The MPO might arguably be the logical agency to maintain a regional traffic simulation model, but if an adequate one is maintained by the state highway agency, the MPO should seek an alternative activity through which to demonstrate credibility.

This approach consciously steers away from efforts that would be seen as duplicating or competing with activities of others. The planner chooses to accept (at least for the time being) somewhat weak data and weak procedures of other agencies and units of government in order to plug clear holes.

4. Stay ahead of needs.

The "hole-filling" approach also encourages initiative into new subject areas with the possibility of significant influence. To the extent that initiative is taken to address issues that have not been addressed by others, the opportunity exists to pre-empt or at least influence later efforts by others. For example, initiative taken by an MPO to provide procedures for comparing highway and transit projects (in the absence of state guidance) might provide a starting point for a later effort by the state to develop just such procedures. If done well enough, the local effort might just serve as a statewide standard.

The value of the planner or planning agency can be significantly enhanced by being prepared ahead of time for data, procedures or recommendations. The appropriate time to develop a prioritized list of highway capacity projects is *before* the state legislature passes the funding initiative to support a construction program, for example. The appropriate time to identify procedures for programming flexible federal highway/transit funds is *before* the federal legislation is passed. If the issue is raised before the need, the issue can be addressed in more legitimate fashion, establishing a balanced and objective approach to what otherwise might devolve into political wrangling.

5. Develop Technical and Political Credibility.

Establishing relevance of a planning process and entrée into important decision-making forums requires credibility. Pursuing activities that fill data and procedural holes is a vehicle for rapidly demonstrating technical competence and political savvy. Developing a track record of competence and good judgment through such activities prepares the way for influence in other, more sensitive areas. For example, one may establish credibility through annual surveys of household travel behavior. The successful completion of the surveys, interpretation of their results and broad dissemination of reports may go a long way toward creating a generally-accepted reputation for sound technical judgment and presentation skills. That reputation may provide influence in other areas as additional opportunities arise. The planner or agency that successfully conducts annual travel surveys may be easily accepted by all parties as the individual or agency to identify local trip generation rates for site impact studies; the planner or agency that successfully maintains data on congestion trends may be easily accepted as the individual or agency to identify

system-level traffic issues surrounding a major development proposal.

6. Seek influence, not control.

This is essentially a statement of confidence mixed with humility. "We have information that should be considered and good ideas that should be heard, but certainly there are other views, as well." As the tail on the dog, the transportation planner or MPO staff should accept the lack of absolute power and aim for influencing decisions toward a more informed, objective, balanced, forward-looking orientation. There is much to be gained by a transportation planner or MPO that can provide a credible and impartial bridge between parochial attitudes of different agencies or communities in conflict. The decisions of those agencies or local governments will benefit from the information and perspectives of the planner or MPO, even if no authority is transferred to the planner or MPO.

7. Appreciate incremental movement in the right direction.

Planning and development practice in the United States does not foster the creation of anything close to an ideal transportation system or urban structure. Many views of what might be desirable and efficient as an urban form or what might represent a cost-effective transportation system are thwarted by such realities as market economics, resistance to taxes, and the inappropriateness (and illegality) of property taking without compensation. Thus, while it might be "correct" to ensure improvement of transportation infrastructure concurrently with development, it may not be possible to fully achieve such a goal. While it might be "correct" to price transportation at its full social cost, the electorate may not permit such an experiment.

The transportation planner or staff should encourage movement toward actions and policies that represent better balance, efficiency, equity, protection of resources and similar objectives but not be disappointed at limited success. In fact, partial successes should be applauded as stepping stones to greater successes in the future.

8. Maintain working relationships.

There are many instances in which the transportation planner might disagree significantly with the opinion or action of another participant in the planning process. Within the urban transportation planning process, it is vital to maintain willing and eager participation. A reluctant, secretive or suspicious state participant in an MPO process will contribute little to a cooperative spirit. A town supervisor who is hostile to the MPO because "all the money goes to the state, anyway" is not going to be helpful in resolving mutual issues. A planning board chairman who believes that a transportation planner is merely going to give him a hard time over a development's traffic impacts is unlikely to voluntarily seek that planner's advice on the project.

"MPO stature within the local community is directly related to effectiveness of working relationships between the MPO staff and MPO participants. Given that the MPO staff size is comparable to the "tail" on the larger "dog" of state and local governments and transportation authorities, strong working relationships between the MPO and its partners are inherent in successful planning processes. Only when the partners share ownership of the MPO process and seek value added through the process can the MPO expect to be seen as a vital decision-making forum distinct from the individual member agencies and able to go beyond the institutional constraints of those agencies. When successful, MPOs enjoy broad local support. "

A finding from the national "Colloquy on the Coming Transformation of Travel" conducted by the New York State Metropolitan Planning Organization (NYSMPO) and the Federal Highway Administration (FHWA) in 2005. See http://www.nysmpo.org/colloquy_travel.html

In order to make cooperative decisions at the MPO table, there must be willing participants at the table. This requires restraint on the part of the MPO and its staff, exercising discretion before taking a firm stand on an issue that might be divisive. In some cases, this may mean sacrificing an issue for the sake of the relationship. In others, it merely implies the use of tact in discussing differences, protecting a sense of mutual trust and respect while resolving the issue.

The elements listed above are significant but are not sufficient by themselves to produce success. Capable staff are required to carry out these elements and all the technical and policy work associated with them. Assumed in all of the above is that each element is done well -- the environmental scan, the pursuit of activities to fill "holes", the effort to develop and maintain relationships. The outline simply provides a proven method to establish the value of transportation planning, develop credibility and foster willing participation of key actors.

Further, each item in the outline represents a continuing effort. The planning environment is constantly changing; new personalities assume new responsibilities, new laws amend existing processes, new issues provide new challenges to communities. At the same time, success in one technical activity opens the door to work in another area, offering the unavoidable choice of demonstrating competence once again or allowing one's reputation to tarnish and influence diminish. Success in these activities, however, will secure a recognition of relevancy and value for the planning process.

A Healthy Organizational Culture

The importance of organizational culture

The need for a carefully-nurtured, constructive organizational culture is evident in even a cursory examination of both successful and unsuccessful organizations – public or private, small or large. Those which both foster and achieve buy-in and initiative from participants (Southwest Airlines, for example) consistently outperform those that operate from a traditional, hierarchical top-down, span-of-control, employer-employee mindset. Is Southwest's success attributed to its lack of assigned seats or to its corporate culture of "we're all in this together and we're going to make it work"?

Close observers of the auto industry have clearly predicted the hard times currently being experienced by firms such as GM and Chrysler, but not Honda or Toyota – solely on the basis of corporate culture, not product quality or price.

The need for such a culture in public governance is made more critical by the sheer breadth and depth of public policy issues confronting the state's chief executive in the 21st century. Each and every subject area facing the state today is confronted with a longer list of specific policy issues than ever before, nearly all shaded with conflicting objectives, fewer resources and greater expectations from a wider range of stakeholders than in the past. The only way to engage with and make progress on this enormous set of complex subjects is to engage the entire apparatus of government in articulating the vision and to empower a wider array of players with the authority and responsibility to create, explore and persevere on multiple fronts simultaneously.

The "PACHO" language to describe successful organizational culture

There are many ways of framing successful management or organizational styles. The following represents one particular set of terms. The terminology describes the elements of a dynamic, productive and entrepreneurial organization (or for that matter, of a dynamic, productive and entrepreneurial individual, family,

business, organization or public agency (or entire executive branch of government). The acronym for this approach is PACHO, based on the characteristics of the organizational culture: Principled, Aspirational, Celebratory, Holistic and Organic.

Whether or not any the five terms in the PACHO acronym are incorporated into the corporate language of successful organizations, these organizations invariably display these characteristics. Language is important, but clearly secondary to the attitudes described by the language. A successful organization may not use the term "principled", "aspirational", "celebratory", "holistic" or "organic", but *without exception* it is principled, aspirational, celebratory, holistic and organic. Recognizing and embracing these characteristics as the norm can be argued to be the recipe for success of any entity.

Principled The culture of an organization is defined by its underlying set of beliefs and intentions, whether formally stated or not. In a staff setting, this set will be conveyed to new staff and customers or clients by the statements and actions of existing staff. Similarly, in the boardroom, new board members inevitably fit into and adopt the set of goals, beliefs and intentions of the existing board.

It is helpful to formally articulate the principles that define the organization. First, this makes it clear to all parties just "what is what". For example, stating that, "We strive to satisfy every customer, regardless of profit" sets the tone for a retail establishment and gives a new sales representative a quick understanding of the intentions of the firm. Second, formal principles keep an organization or firm well-grounded. Having stated, well-known principles helps avoid choices or actions that are at odds with the principles.

Of course, as is true with parents and children, stated principles are only useful if the actions of the organization or firm's leaders reflect the principles. It must be "do as I say *and* do" if stated principles are to be effective. The consistency between intentions and actions is what makes an organizational culture "principled" rather than simply one with stated principles.¹

¹ In the case of the Capital District Transportation Committee, a total of 31 planning and investment principles have been articulated and formally adopted by the board over a period of nearly 15 years. The formality of adoption has served many times to help avoid taking actions that would have been expedient but mostly likely would have resulted in damage to the credibility of the organization.

The following narrative was first articulated nearly twenty-five years ago in CDTC's Prospectus document. A careful observer will recognize that CDTC's organizational culture has allowed for diligence and faithfulness to this approach.

Two words summarize well the approach that CDTC has attempted to bring to transportation issues in the Capital District: "stewardship", and "vision". These characteristics of CDTC's successful cooperative planning process are equally essential to meeting the challenges of the coming years.

STEWARDSHIP refers to the responsibility of CDTC (collectively) and its members (individually) to care for that which has been entrusted to them. Transportation planning in coming years should insist upon proper stewardship of the following:

- 1. Existing transportation facilities and services.*
- 2. Public resources.*
- 3. Personal resources*
- 4. The human, natural, and built environment.*

VISION refers to the responsibility of CDTC to look to the long-range future of the area and make sure that the transportation system works then as well as now. If the planning process neglects the need to consider the future then it is no more than a "caretaker" process, merely preserving what already exists.

Transportation planning must insist upon a clear, creative vision of the following:

- 1. Goals of the Capital District's residents, businesses, and communities.*
- 2. Possible problems to be averted.*
- 3. Innovative ways to achieve the goals and avert the problems. CDTC and its members must devote conscious effort toward finding opportunities to achieve the quality of life desired. Many of these may be new to the transportation planning process in the Capital District, but may be necessary if the transportation system is to work well in the future.*

Stewardship and vision are important "catchwords" that will continue to describe CDTC's approach to the critical issues in coming years.

Consistency is also a product of a principled approach. A principled organization is likely to have its actions at one time build a foundation for actions at a later time; an organization that operates largely in an ad hoc, crisis mode is not.

Aspirational Aspirations are to an organization's enthusiasm and energy what principles are to its behavior. As with the principles, these can be implicitly conveyed or explicitly stated. Again, it is helpful to state these aspirations. Aspirations pertain both to the organization or firm ("to learn from our peers and try to adopt the best practices", "to become one of the top five in our field" or "to have 95% or better on time performance") and to the results of the organization's or firm's activity ("to reduce the number of children without access to health care by 50% over ten years" or "to make internet access affordable to all"). Conveying both types of aspiration to staff, board members, clients/customers and the general public empowers everyone to seek the highest and best and gives permission for exploration and creativity. An atmosphere infused with a high level of desire for the best results can be considered "aspirational".²

Celebratory It is probably safe to say those that experience the most on-the-job frustration are not necessarily those who have the most difficult jobs. Rather, it is probably experienced by those who feel unappreciated, those who believe they are treated unfairly at work or those who have little respect for the organization or superiors for whom they work.

In addition to addressing this potential problem through clear principles (guiding behavior) and aspirations (providing enthusiasm), it is necessary to celebrate successes and accomplishments. While it may seem counter-productive, intentional celebrating may be particularly necessary in an organization or firm that is *principled and aspirational*. In such an organization or firm, satisfaction is not found in getting to go home early for a weekend, but in "making a difference" or "doing the right thing". With high standards comes a daily reminder of falling short of lofty goals. Board members and staff in these settings need constant reminders of their many successes and accomplishments. When successes are cited and praised, it is

² In CDTC's case, the staff has encouraged policy makers to embrace the highest aspirations of federal law that underpin transportation planning – seeking to fulfill the spirit as well as the letter of the law. The organization's culture supports individual initiative and creative approaches to move the organization's practices closer to the ideal.

inevitable that board or staff will recognize that these successes are remarkable (relative to the accomplishment of peer organizations or firms) and meaningful (in terms of actual benefit). Celebrating provides a sense of value and meaning to board or staff that reinforces a commitment to the principles, re-energizes aspirations, helps retain the best staff and prepares the organization or firm to respond quickly and successfully to new challenges.

As used in this context, “celebrating” does not mean artificial celebrations such as honoring an employee of the month (and by so doing, devaluing the contributions made by all other employees) but rather citing, publicizing, praising the accomplishments of both the organization and the crediting those who made it happen. If the celebration is focused on both the organization (what we have done) and the individual (what he or she did to make it happen), then all the staff or board can share in the praise and positive feeling. Celebrating success borders on boasting, but is fully justified. Without this self-praise, staff or board members begin to take all their successes for granted and focus instead on areas in which the organization or firm falls short.

Holistic Successful organizations move beyond the narrow confines of their particular subject matter and embrace a culture that fits that subject matter into the broader context. This is not to be confused with trying to do everything for everybody. Excessive diversification is likely to damage the core business and dilution of resources to cover too wide a spectrum of services most likely means doing a poor job of things across the board.

Rather, a holistic approach recognizes that the organization’s or firm’s activities are meaningful and beneficial only if they are integrated with related subjects. Educational services, for example, must be viewed in the context of social settings, physical health and homelife, for instance. Land use planning must be conducted with full integration of traffic and transit issues. Banks must make their lending decisions in the context of their community’s or region’s economic and social needs. All organizations and firms must understand the local context in which they operate and participate in it.³

³ CDTC recognizes that its transportation investment decisions require the context of community planning and private sector investment. As a result, it has funded over 60 integrated community-transportation studies jointly with municipalities. It also has completed an economic analysis of the excess educational, sewer, water and transportation cost of suburban sprawl jointly with the State University and the private Center for Economic Growth. As a result, CDTC’s activity is fully integrated into the fabric of the region.

A holistic approach also contributes to adaptability and creativity, as staff members remain acutely aware of opportunities to better use the firm's products or services to improve the quality of life of customers and clients or to improve the overall condition of the community.

Organic An organic entity is one that can be easily viewed from the outside as adapting and growing in a living – rather than mechanical – method. While traditional business models may steer firms toward strict organization charts and hierarchies, these are mechanical devices with a very limiting effect on the organization's success.

An organic culture is one in which every member's function is well understood at any time, but which could change easily depending on need. It is one that is more likely to employ task-specific work teams than rigid chains-of-command. It is one that is quite open to the emergence of leadership and the assumption of responsibility by the most unlikely staff members.

Like a plant in a field, an organic organizational culture allows an organization or firm to respond to light and food, growing in the direction in which it receives the greatest response. Instead of mechanically stating an objective such as, "within five years we will add five branch dealerships and represent all major car manufacturers", an organic culture would leave the door open to growing, adapting, contracting or modifying *as call for by need, opportunity and demonstrated competence*. An organization that successfully becomes principled, aspirational, celebratory and holistic is the most likely organization to establish the confidence and external credibility to succeed in responding to new opportunities that present themselves.

Seeing Transportation in its Context

A holistic approach requires that transportation facilities and services be considered in a broader context. This is a tall order. Transportation professionals are not dealing with a subject (transportation) that has only marginal impacts on other aspects of life. Rather, transportation professionals work with a subject that has substantial influence over much of the social, environmental, economic and political agenda of modern life.

Transportation's context can be framed in various ways. One framework is outlined below, focusing on five aspects of the context: community structure and regional form; environmental sustainability; quality of life and personal expression; public health; and economic productivity and competitiveness.

Community Structure and Regional Form

The dominant transportation mode is recognized as a primary (if not the primary) factor in determining the shape of communities. The oldest civilizations formed villages, towns and cities according to a pedestrian scale. Horse-drawn carts and carriages expanded spatial dimensions somewhat over the centuries, but it took the streetcar in the late 19th and early 20th centuries to provide substantial suburban development. The current physical form of metropolitan America is acknowledged to derive from the attributes and availability of the automobile and truck.

Numerous critiques of current urban form cite loss of a sense of place and community identity, proliferation of isolated development, racial separation and other ills and associate community and regional form with transportation patterns – and the transportation investments made to accommodate them.

"Of the 1400 communities I have walked, I have not found one where designing for the car has made it a successful place. Indeed, the most successful villages, towns and cities in America are those designed before the car

was invented, and where the least tinkering has been done since.”⁴ (Dan Burden, Walkable Communities, Inc.)

The form, modal orientation, and operational details of the transportation have an inarguably profound effect on community structure and regional form.

Environmental Sustainability

Concerns for global climate change and dependence upon finite, non-renewable energy sources are also highly correlated with transportation form and travel behavior.

“As of 2001 carbon dioxide concentrations have increased 31% over their levels in the year 1750. These levels are now higher than they have been in the last 420,000 years (IPCC, 2001). Transportation and the use of petroleum-based fuels is responsible for approximately 33% of these emissions as of 2000; this makes it non-sustainable.”⁵

While estimates of the remaining stock of petroleum from conventional and non-conventional sources vary, motorized transportation's near-exclusive dependence upon non-renewable energy sources also means that current forms of transportation are non-sustainable.

The form, modal orientation, and operational details of the transportation system have an inarguably profound effect on global environmental sustainability.

Quality of Life and Personal Expression

Transportation facilities and services have a substantial influence on personal quality of life and expression. Researchers have found that personal travel time budgets remain rela-

⁴ Dan Burden as quoted in Project for Public Spaces web site, www.pps.org.

⁵ Black, William R. "Sustainable Transport: Meanings and Implementation", background paper prepared for Transportation Research Board conference on "Introducing Sustainability into Transportation Planning", July 2004. Reference to CO2 concentrations quoted by Black from IPCC (Intergovernmental Panel on Climate Change), *Third Assessment Report, Summary for Policymakers*, February 19, 2001. Working Group I.

tively constant at roughly 1.1 hours per day, regardless of income or community structure.⁶ This implies that transportation modal attributes – notably speed and cost – provide primarily for substitution effects. That is, faster or cheaper travel provided by motor vehicles and highways permits households throughout the world to gain other quality of life benefits (such as access to a better job, a bigger house or larger lot, better schools or lower taxes) while maintaining a relatively constant time budget.

On the other hand, noise, congestion, air quality and other negative attributes of an auto- and truck-dominated transportation system offset some or much of the quality of life benefits that these modes provide. Residential quality, for example, is said to suffer from the presence of as little as 1,000 vehicles per day on a residential street.

Transportation also consumes between 15% and 22% of household budgets in the US, ranging between \$5,000 and \$9,000 annually per household – predominantly for the purchase and operation of household cars and light trucks.⁷ Combined with the fact that the primary “face” that individuals show in public is that of their vehicles, our consumerist culture translates the high level of financial commitment for vehicles into a primary outlet for personal expression and discretionary spending. Our form of mobility also has an effect on other lifestyle choices – the nature and location of recreational activities; the range and location of social, spiritual and civic responsibilities; the ease of job changes, household relocation, and more.

The form, modal orientation, and operational details of the transportation system thus have an inarguably profound quality of life and personal expression.

Public Health

Put simply, daily transportation is among the most dangerous activities in which individuals engage. Worldwide, motorized transport is estimated to be responsible for one million deaths and 70 million injuries per year. In the United States, crashes represent over 40% of all deaths from “unintentional

⁶ Schafer, Andreas, and David Victor. “The Past and Future of Global Mobility”, *Scientific American*. October 1997.

⁷ Surface Transportation Policy Project. “Driven to Spend”, March 2000.

injuries", constituting the leading cause death of Americans under 35 years of age.⁸

Some nations have adopted aggressive objectives and have reduced serious injuries and fatalities sharply. In March of 2004 the U.S. set a national target of a 33% reduction in fatalities in the next four years. Significant safety-related improvements in transportation planning, facility design, and more significantly, in law enforcement and traffic operations will be needed to achieve this result.

The nation's sedentary lifestyle, abetted by the decline in community-level activities and related walking, is also associated with severe public health risks. While the cause and effect of health problems from obesity are not as clearly tied to transportation and urban form as is transportation's relationship to injuries and fatalities, even a probable contributing relationship is significant. "Nearly one-third of all adults (59 million people) are classified as obese; and the health, social and economic costs of obesity in the US are enormous and still mounting. Obesity adds \$93 billion/year to the cost of healthcare in the US. Many of these costs come from the disease burden of obesity."⁹

The form, modal orientation, and operational details of the transportation system thus have an inarguably profound impact on public health.

Economic Productivity and Competitiveness

An inextricable relationship between transportation and economic activity is undeniable. Competitive transportation access is a necessary factor for economic growth. Firms use improvements in speed or cost to create a cost advantage in the manufacture and provision of goods and services, and in a market society a cost advantage produces growth.

Freight movement is a considerable aspect of the overall transportation system, with large trucks constituting over 30% of traffic volumes on greater than 20% of all Interstate facilities, for example, and truck traffic forecast to double

⁸ US Centers for Disease Control. *National Vital Statistics Report, Vol. 50, No. 16*, September 16, 2002.

⁹ University of North Carolina at Chapel Hill, Center for Environmental Health and Susceptibility.

over the next 20 years.¹⁰ The scale of freight transportation is also immense, with the cost of for-hire and in-house transportation services in the US exceeding \$450 B per year.

The relationship of transportation and economic activity in the early part of the 21st century is as critical an issue as ever, but cause and effect are less clearly understood in relation to transportation facility and service improvements (or degradations) being made today. This is partly due to a shift to an information-based economy less dependent on physical access to the supply of raw materials or to consumer markets. It is also due to the contrast between the order-of-magnitude transportation efficiency gains achieved in the era of railroad expansion or the period of Interstate highway construction and the more modest gains achieved today.

What is known is that *reliability* is an increasingly critical component of the overall cost equation due to a shift in manufacturing to just-in-time delivery and the high level of competition among package delivery services in the area of guaranteed delivery times.

The form, modal orientation, and operational details of the transportation system have an inarguably profound impact on economic productivity and competitiveness.

Public Attitudes Regarding a Holistic Approach

Available public opinion survey results point to a picture that is not consistent with a narrowly-defined transportation planning process focusing primarily on capital projects and accommodation of fixed estimates of long-range future travel demand. Americans tend to value freedom, options, and access to information, and adjust behavior continuously. Traditional capital planning processes are less likely to produce candidate actions that fit those values than more integrated approaches that balance transportation service with community enhancement, operational improvements with physical changes, provision of modal alternatives with improving highway levels-of-service.

¹⁰ Federal Highway Administration. *Status of the Nation's Highways, Bridges and Transit: 2002 Conditions and Performance Report. Report to Congress*, 2003.

Consider just a few indicators of public attitudes:

In the 2001 National Household Travel Survey (NHTS), about as many people consider *not knowing about traffic tie-ups or road construction* “very much of a problem” or a “severe problem” as those whose consider *highway congestion* very much of a problem or a severe problem. These numbers are similar to those who consider *rough pavement or potholes* very much of a problem or a severe problem.¹¹ This suggests that the public assigns comparable importance to maintenance-, operational- and capital-oriented issues.

A November 2004 statewide survey by the Public Policy Institute of California (PPIC) indicates that, while 59% of Californians find *traffic congestion on freeways and major roads* a big problem, 77% are somewhat or very satisfied with their commute to work. 89% are somewhat or very satisfied with their *neighborhood*, and 70% say that, all things being equal, they would choose to live in a single-family detached home “*even if it means you need to drive a car to commute and travel locally.*” This suggests that, even when confronting regional problems they believe are large, the great majority of the public are satisfied with the choices and trade-offs they make – a reasonable balance is sufficient for satisfaction, not full achievement of mutually-exclusive objectives.

An October 2004 survey in the Albany NY metropolitan area conducted by the Siena Research Institute of Siena College found that 71% of residents are satisfied with the *quality of life offered by the community in which they live*; only 39% experienced *traffic congestion lasting more than 15 minutes over the previous two weeks*; while 41% do not feel that *speed limits are adequately enforced in their area*. The same survey indicated that 68% disagreed that it is up to *private developers, not citizens or government, to determine the type of developments and growth that takes place*. This suggests that the public fully expects its governmental agencies to effectively carry out land use planning and control, traffic speed management, and improve the availability of modal options.

¹¹ US Department of Transportation, 2001 National Household Transportation Survey, as cited by New York State Department of Transportation. “Satisfaction and Quality of Travel for NYS Residents”, unpublished presentation, 2004.

Similar to Californians, these Upstate New York residents are satisfied with their own choices and tradeoffs.

The gist of this information is the Americans live, work and play in an integrated environment. They express concerns over broad societal conditions (such as congestion or housing prices), but make personal choices that accommodate for costs, the presence or lack of options, qualitative benefits and other factors to achieve what they view to be a satisfactory life.

Clearly, this public attitude is not consistent with an insular transportation planning process focused primarily on levels-of-service or on alternatives analyses aimed at accommodating a fixed estimate of future travel activity. The demands on the transportation system of our society and economy are dynamic, complex and integrated; a holistic and integrated transportation planning process is the only logical match to such demands.

Describing a Holistic Approach

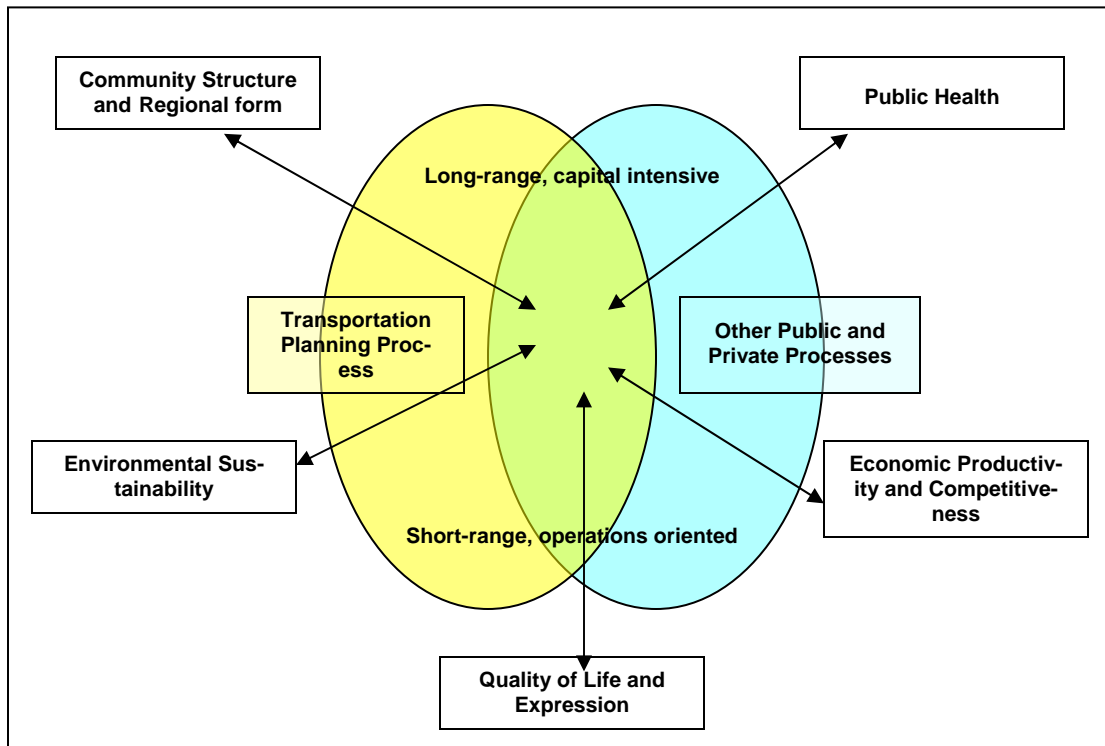
To help describe a practical approach to an integrated and holistic transportation planning process, Figure 1 lays out the five dimensions of the transportation planning context. The integrated nature of the process is represented by the intersecting circles: one oval for the formal transportation planning process and another representing other public and private planning, development and service processes. The overlapping area represents subjects and decisions made in the transportation planning process with a full consideration of activities underway beyond the transportation planning table; and subjects considered and decisions made in other processes that are fully knowledgeable and integrated with transportation planning activities.

An example of a subject in the overlap area would be adoption by multiple municipalities of a regional development compact. The initial discussion of the value of such a compact could occur at the Metropolitan Planning Organization table, at a private sector economic growth organization, or at an environmental advocacy group. In a holistic planning process, the discussion would be informed by the perspectives of multiple parties, each contributing to the evaluation

of the concept's merit, refining its details and citing potential implementation paths and barriers. Such a process provides the best chance for plans and services to reflect broadly-held community values. The collective ownership of the products of these discussions provides for a high likelihood of successful implementation.

Figure 1.

Representation of a Holistic Transportation Planning Process



The limitations of attempting to reduce the various complex relationships into a simple diagram such as Figure 1 are obvious. In a truly integrative environment, all five facets of the context are overlapping and inter-related. The figure does highlight the compelling logic of an integrated approach; for instance, what exactly would be the appropriate content of the area exclusive to the transportation planning process? What operational or capital decisions would be made in the transportation planning process that are not concerns to others – businesses, residents, law enforcement agencies, environmental advocates? Perhaps a more accurate presentation of a holistic or integrated transportation planning process is

one in which the vast majority of the area is in the overlap area, and little activity is found outside the overlap.

Characteristics of a Holistic Transportation Planning Process

A holistic or integrated transportation planning process embraces the knowledge that transportation facilities and services have a profound effect on community structure and regional form; on quality of life and expression; on environmental sustainability; on public health; and on economic productivity and competitiveness. In addition, a holistic or integrated transportation planning process will invariably reflect the following:

1. Inclusion of a wide range of participants and perspectives in the transportation planning process.
2. Participation of transportation planning professionals in other processes ranging from other transportation activities (traffic operations, highway design, etc.) to economic development, tourism, public health, and local land use planning.
3. A blurring of boundaries between planning and operations, between planning and design, between transportation and land use planning, between transportation system providers and users, between transportation system providers and public safety agencies.
4. Continual monitoring both of transportation system performance and of overall regional economic, social and environmental conditions.
5. Recognition of the need to evaluate potential actions from the perspective of qualitative as well as quantitative measures of performance.
6. A willingness to establish additional performance measures as new relationships between transportation actions and other conditions are identified.
7. Acknowledgment that the transportation decision process involves clarifying community values and balancing competing objectives – not pursuing the correct engineering “solution”.
8. Repeated refinement of transportation system objectives to reflect emerging community values and priorities.

9. Pursuit of new ways in which transportation facility and service modifications can help achieve emerging community objectives.
10. Recognition that most transportation decisions are societal choices that are informed by subjective as well as objective rationales.¹²
11. Continual expansion of the range of subjects included in the overlap area between transportation planning and other disciplines.

¹² For instance, a metropolitan area may fervently pursue a major rail transit program as much for subjective reasons – as a public statement of community values and desired outcomes – as for objective measures of expected air quality improvement or cost per passenger served.

Addressing an Artificial Dilemma in Transportation Planning

Transportation professionals find themselves in a transition -- and in a bit of a quandry. The transition relates to a steadily-growing recognition of the often-unquantifiable impacts of transportation systems on social fabric, community integrity, jobs access, "quality of life" and similar concerns. This recognition has fueled a shift in societal expectations of greater integration of transportation with broader community systems. The quandry derives from the transportation profession's traditional processes, which have developed around the use of a limited range of quantifiable criteria and a rule-based orientation that is often separated from consideration of other community systems.

For many decades (or longer), these professionals have followed an approach that, in most cases, treats the design and provision of transportation systems as a technical process -- largely a corollary engineering science to that practiced in the design of physical structures. That is, if empirical tests and the laws of physics are deterministic in designing of a bridge to handle a specific live load, then it is logical that traffic data and travel forecasts must be highly deterministic regarding the scale and design details of facilities and services. Ten, twenty or thirty-year forecasts of the number of left turning vehicles at an intersection approach commonly have served as the primary determinants for the need for a dedicated left turn lane or two in highway projects, for example. Estimates of shifts in modal use have provided the primary basis for technical support for or judgment against rail transit construction. Plans for greatly expanded freeway systems in urban areas throughout the nation (beyond those built in the Interstate era) were based a belief of the inevitability of gridlock and the unacceptability of its presence. Roads are frequently rebuilt using standards set at design speeds primarily selected to accommodate the current speed of the 85th percentile motorist. Each of these decision processes primarily uses numeric values in a rule-based process to determine the investment or design outcome. Other, "sub-standard" treatments are often accepted only if the desired treatment is physically constrained.

In the current era of community participation, context sensitivity and complex project objectives, this engineering construct of the transportation profession's approach to facility and service choices leaves professionals in a highly vulnerable situation. On one hand, their traditional approaches may appear to others as insensitive and antiquated. On the other hand, transportation professionals have difficulty relinquishing the notion that the traditional process is scientific and produces the "correct" treatment. ***As a result, professionals may have the perception that they are faced with a dilemma: they can either remain true to their education and training and follow the numbers or they can submit to community preferences for decision outcomes that seem sub-standard or unjustified.*** This is a predicament, appearing to pit objectivity against subjectivity in a right vs. wrong model.

However, the dilemma experienced by the transportation professional is largely artificial and unnecessary. For as logical as the engineering construct appears on the surface, the logic falls apart as a basis for decision-making when examined carefully. Under close scrutiny, it is apparent that there is little difference between the numbers-oriented aspects of transportation decisions and the value-oriented aspects. They both reflect implicit social values and priorities; they both are based on modest understanding of the dynamics of travel and other societal activities. The engineering construct merely creates an artificially-high prominence for travel forecasts and traditional design treatments that they do not typically warrant.

The underpinnings of the engineering construct fall apart for the following reasons.

First, placing great value on forecasts of travel behavior and traditional standards implies a grasp of the dynamics of travel behavior that the profession does not come close to possessing.

Second, even if the transportation profession could gain an understanding of such dynamics, would it ever be reasonable to treat ten, twenty, or thirty-year travel forecasts as definitive? Forecasts are dependent upon unpredictable factors related to the state of global peace; the nature of the global

economy and international trade; the state of the family and household stability (fertility rates, labor force participation, household formation); the effects of new vehicle, fuel and communications technology; the incidence and magnitude of international and domestic migration; scientific understanding and public values towards global climate change, and similar profound factors. In the light of this uncertainty, can transportation professionals ever use travel forecasts as definitive? Indicative, certainly. Definitive, no.

Third, a fixation on travel demand numbers and traditional design templates overlooks the necessary interaction among competing objectives and interests. In the real world, society does not provide sufficient financial resources to address all facility or service "needs" in ways that fully accommodate travel forecasts and completely adhere to design standards. The real world (as reflected in the economic practices of our own households) requires complex tradeoffs among many sub-optimal actions in order for the outcome of the entire set of decisions to be successful. A practice of pursuing full accommodation of forecast demand or complete adherence to design standards on one facility will cost society the ability to address a greater range of needs and desires. For example, the marginal cost of the second left turn lane to address future travel demand at intersection X may be the inability to entertain any work to address current congestion problems at intersection Y.

Treatment of transportation facility and service design primarily as numeric or rule-based engineering exercises rather than as societal decisions among competing sub-optimal alternatives seriously discounts the legitimate role of other considerations and performance measures in choosing appropriate actions. Why should acceptable traffic level of service, desirable lane widths and safe runoff areas be treated as "standards" during project design (often regardless of cost or articulation of marginal benefits) while other features such as landscaping, access management, transit accommodations or convenient pedestrian crossings are frequently considered simply as nice add-ons to be achieved if space and money permits?

CDTC's Approach to Addressing the Dilemma

The dilemma faced by the transportation professional is largely artificial and unnecessary. Transportation facilities and services are indeed essential, integral to society and reflective of societal values and aspirations. The transportation profession should not feel threatened by the notion that there are many demands on and often-competing expectations of the transportation system. Such a situation is simply a validation of the important role the professional plays.

The key to eliminating the angst is to drop the engineering construct of the bulk of the transportation decision-making processes. Understand that while designing a bridge to handle a certain load is a true engineering process, the majority of transportation decisions are not engineering in nature. Most decisions simply reflect a natural process of sorting out objectives and making tradeoffs, with all of these objectives and tradeoffs loaded with value judgements. The professional's job is not to define the "correct" choice, but to articulate the tradeoffs, ensure that facts are respected, and facilitate an informed public decision process.

Specific changes to the transportation profession's approach can allow his or her knowledge and experience to fit more comfortably with a constantly shifting set of societal expectations. A few of the changes embraced by CDTC are to:

1. **Recognize that investments in transportation facilities, services and operations are a matter of choice, rather than a question of finding the "right answer."** CDTC encourages planners and engineers to dispense with the black-and-white notion of building facilities with enough lanes to provide adequate levels-of-service over the entire physical life of the structure, for example. Instead, planners should follow a shades-of-gray philosophy of "what makes sense", scaling investments to the physical context, system function, funding availability and priority of competing needs. The transportation system will not collapse if a project is over- or under-scaled; travelers will adjust behavior to conform to whatever scale is provided.
2. **Admit that transportation investment decisions are value-laden.** If the public indeed is able to adjust to the system provided, then that adjustment itself is a primary out-

come of a transportation facility or service change. Transportation actions are therefore more constructively seen from their role in shaping demand and urban form than from their traditional function as mere accommodations of anticipated external demands. Transportation investments affect land use patterns, sense of place, economic interactions and travel behavior. This admission should lead to careful, public articulation of values and desired outcomes. While transportation professionals have scrupulously avoided policies that could be accused of reflecting "social engineering", we must recognize that all transport investments and policies represent social engineering -- each action encourages one kind of behavior and discourages another. This admission should also lead to *early* investment in facilities and services that contribute to desired outcomes and *deferral* of investments that are largely an accommodation or mitigation of undesirable outcomes.

3. **Elevate customer and taxpayer perceptions as key determinants of the appropriate choices to make.** For example, while traffic level of service receives significant attention in many transportation planning efforts, surveys often indicate that travel time reliability and predictability are valued more highly by personal and commercial travelers than is level of service. Further, aren't local newspapers more likely to publish many more complaints about potholes than for traffic congestion? Major highway and transit construction programs are often subjected to voter referenda, but does the transportation profession have any other clear understanding for public support for current investment and design outcomes?

If, in fact, there is a need to select among competing sub-optimal alternatives in transportation decisions, is it not logical to elevate taxpayer and customer preferences to the stature currently enjoyed by standards and rules?

4. **Seek a better understanding of travel dynamics.** The need for objective information is ever more present in a decision process that is explicitly value-driven. In order to make intelligent tradeoffs, there must be solid information. This calls for substantial research into critical subjects such as correlations among facility design, site design, travel speed and volume; the effectiveness of management and operation techniques in maintaining system reliability; the characteristics of street design that contribute to positive "quality of life"

contributions; the nature of land use changes resulting from highway and transit investments; and travel behavior in a saturated highway system.

5. **Hedge bets by articulating viable and plausible alternative futures.** Recognition of uncertainty in predicting the future should lead planners and policy makers to a new perspective on investment. It leads to less evaluation of static performance (which is the best investment to meet 2030 travel demand?) and more on dynamic change (which one provides an immediate benefit and can be adapted to meet a range of future requirements?). It leads to greater preservation of future options through corridor preservation and modular construction and less scaling of construction to meet long-range forecasts. It also leads to restraint in making large public investments to fit particular transportation paradigms that are subject to radical change (such as freight movement, in which modal choice can swing dramatically in response to relatively small changes in technology or fuel cost).

The construct that results from these actions combines aspects of political science and the social sciences with the transportation profession's quantitative skills to meet the challenges of society's current demands on the transportation system. The revised approach is more complex than the traditional engineering construct, but is more likely to be professionally satisfying. It is also more likely to allow the transportation system to successfully fulfill its critical role in society.

The Power of Principles

Consistency in CDTC's continuing planning process has been established through the adoption of a set of "Planning and Investment Principles" in conjunction with adoption of the long-range regional transportation plan, New Visions. The principles first emerged from the work of nine subject-specific task forces¹³. The innovative approach to the use of task forces included the encouragement of each task force to direct staff and consultant exploration of critical material. Direction to the task forces was clear: identify the issues, explore options and report products to the public and CDTC's decision-making structure (Planning Committee and Policy Board). Task forces were instructed to produce draft recommendations *if they believed that such recommendations are likely to be viewed as the appropriate, consensus position of CDTC members and the general public*. If no such consensus appears obvious, the task forces were asked to carefully articulate the choices facing CDTC and the region as a whole.

Through this work, the nine task forces contributed 25 statements of principle. After public review, CDTC confirmed that these statements indeed represent the appropriate consensus position of CDTC and the general public. From that time (March 1997), these principles have served as the continuing reference point to which the staff, Planning Committee and Policy Board turn when confronted with difficult challenges.¹⁴

With subsequent revisions and extensions of the New Visions plan, task forces and working groups have contributed additional draft principles later confirmed by CDTC as policy. At present, CDTC operates on a foundation of 31 Planning and Investment Principles and a commitment to ensure that all CDTC actions are consistent with these principles.

The power of a commitment to well-vetted, broadly-held principles is substantial. It provides not just a foundation but a "backbone" to the organization to withstand pressures to simply be expedient. It also anchors the organization's credibility and contributes to its stature in the regional community.

¹³ The first New Visions effort (1993-1997) used task forces in the following areas: Infrastructure, Goods Movement, Bike & Pedestrian Transportation, Transit Futures, Demographics and Land Use, Special Transportation Needs, Arterial Management and Expressway Management.

¹⁴ One example of the use of these principles can be seen in CDTC's response to the 2009 federal stimulus program. The package of projects identified for the use of stimulus funds was carefully constructed to respect the adopted principles, such as being jurisdiction-blind, intermodal, and focused on system preservation.

CDTC'S 31 ADOPTED PLANNING & INVESTMENT PRINCIPLES

The following is a list of the principles adopted in CDTC's New Visions 2030 Regional Transportation Plan. CDTC attempts to respect these principles in all its actions.

PRESERVE AND MANAGE

Improve System Performance

- 1) CDTC is committed to the maintenance, repair and renewal of the existing highway and bridge system in a cost-effective manner that protects and enhances rideability, public safety and accessibility.
- 2) Funding for appropriate repair and renewal will be based on the function and condition of the facility -- not ownership.
- 3) Encouraging bicycle and pedestrian travel is a socially, economically and environmentally responsible approach to improving the performance of our transportation system.
- 4) In addition to supporting desired land settlement patterns, transit service helps meet multiple regional objectives in the Capital Region.
 - Transit contributes to congestion management, air quality and energy savings;
 - Transit offers an alternative travel mode, reducing auto dependence; and
 - Transit provides essential mobility for those who do not operate a private vehicle.
- 5) Improve the safety of the regional transportation system by creating a traveling environment that is consistent with the community context and provides a reasonable range of risk for all users of the system.
- 6) Transportation planning and implementation in the Capital Region includes examination of security issues and incorporation of security actions that: protect lives and coordinate the use of resources and manpower through established plans and protocols; provide services during and after disaster emergencies to aid citizens and reduce human suffering resulting from a disaster; and provide for recovery and redevelopment after disaster emergencies.
- 7) The needs of the older driver will be considered as transportation facilities are maintained and rehabilitated.
- 8) Increased efficiency in current vehicles/programs is preferable to fleet expansion to provide for special transportation needs.

Manage Congestion

- 9) Management of demand is preferable to accommodation of single-occupant vehicle demand growth.
- 10) Cost-effective operational actions are preferable to physical highway capacity expansion.
- 11) Capital projects designed to provide significant physical highway capacity expansion are appropriate congestion management actions only under certain conditions.
- 12) Significant physical highway capacity additions carried out in the context of major infrastructure renewal are appropriate only under certain conditions.
- 13) Incident management is essential to effective congestion management.
- 14) Any major highway expansion considered by CDTC will include a management approach.
- 15) In project development and design, other performance measures, such as pedestrian, bicycle and transit access, community quality of life, and safety will be considered along with congestion measures.
- 16) The New York State Department of Transportation guidelines for roundabouts will be used for all CDTC federal aid projects that involve intersection improvements.

Protect Our Investment

- 17) Managing traffic flows on the Capital Region expressway and arterial system is critical for both economic and social reasons.
- 18) Major capital projects must have a plan for operating budgets for the life of the project.
- 19) Maintaining the health and improving the efficiency of the existing freight facilities in the region through public/private partnerships is a high priority.

CDTC'S 31 ADOPTED PLANNING & INVESTMENT PRINCIPLES

DEVELOP THE REGION'S POTENTIAL

Build Upon our Strengths

- 20) The transportation system of the Capital Region is an important part of the region's attractiveness.
- 21) Transportation investments will help preserve and enhance the Capital Region's existing urban form, infrastructure, and quality of place.

Use Transportation Investment as a Tool

- 22) Transit facilities and services can be an essential element of the social, economic and cultural fabric if supportive policies and investments are in place.
- 23) Neighborhood-based local planning efforts are important to the success of an overall regional plan that emphasizes livable communities.

LINK TRANSPORTATION AND LAND USE

- 24) Land use management is critical to the protection of transportation system investment.
- 25) Design of street layout and location of complementary uses creates a pedestrian scale and provides increased accessibility without compromising the attractiveness of development.

Link Transportation Investments to Land Use Planning

- 26) Transportation investments will encourage residential and commercial development to locate within an Urban Service Area defined for the Capital Region.
- 27) Environmental stewardship is one of CDTC's emerging roles and is crucial to the success of and quality of life in this region. Transportation investments must improve or preserve the region's cultural and natural environment.
- 28) Transportation investments will not encourage development in environmentally sensitive areas and will help to preserve rural character.
- 29) Arterial management guidelines will be flexible enough to deal with the Capital Region's various roadway types and the specific land use patterns surrounding them

PLAN AND BUILD FOR ALL MODES

- 30) CDTC's planning efforts will be comprehensive enough to encompass all modes, including air, water, freight, intercity and local transit, pedestrian and bicycle.
- 31) Possible bicycle/pedestrian-related improvements will be considered from the perspective of developing a system -- not just based on whether a particular facility is currently used.

Integrating Transportation and Land Use

Overview

The size of the federal transportation program and the collective responsibility of the MPO members in directing these funds represent a significant opportunity to foster integration of land use and transportation planning -- but the MPO must be engaged in these issues and members must be prepared to use MPO clout in encouraging linkages.

A series of initiatives by CDTC has been successful in meeting this challenge. While this effort must be considered a "work in progress", the initiatives have had the cumulative effect of putting the land use - transportation relationship on the table for discussion more often in the Capital District than in many other urban areas. These initiatives have included a number of sequential steps spanning more than two decades:

1. Adding suburban towns (on a rotating basis) to the MPO policy structure. (beginning in 1976) Adopting a policy of permanent membership for all municipalities with population greater than 50,000. (2003)
2. Shifting the focus of the long range regional plan from new highways to localized solutions to critical problems. (beginning in 1981)
3. Assuming the lead role in traffic modeling. (beginning in 1987)
4. Offering communities a lead role in addressing existing traffic problems and the traffic impacts of cumulative development through a shared-cost "Cooperative Transportation Plan" concept. (beginning in 1988)
5. Developing a regional policy on public-private shared highway financing responsibilities. (1989)
6. Offering communities technical assistance in reviewing routine site impact studies and assessing traffic mitigation fees. (beginning in 1991)
7. Establishing Transportation Improvement Program (TIP) and screening criteria and Congestion Management System (CMS)

principles that require land use management as a pre-requisite to highway widening. (1992)

8. Assigning priority use of federal funds to implementing the projects and programs identified in the cooperative transportation plans. (beginning in 1993)
10. Participating in design committees to assure context sensitive design, community design, access management and transit consideration in resulting roadways. (beginning in 1994)
11. Engaging town, county and city officials along with business leaders, freight providers, transit providers, environmental advocates and the general public in a simultaneous, fundamental assessment of policies affecting all aspects of the transportation and land use systems. (1994- 1996)
12. In the course of the assessment, developing new technical tools for identifying land use / transportation conflicts, the full cost of social and environmental impacts and raising their profile in decision making. (1995)
13. Developing an access management, bicycle and pedestrian training program for local communities. (1995)
14. Through the resulting New Visions regional transportation plan, elevating "community compatibility" projects to a status in the plan comparable to that of infrastructure repair or congestion relief. (1997)
15. Through the plan, setting policy to design future facilities to meet desired -- not trend -- travel forecasts. (1997)
16. Implementing the plan through earmarking federal capital funds in the TIP for "community compatibility" improvements as an important element of the regional transportation plan. (beginning in 1997)
17. Further earmarking federal planning funds (including capital funds converted to planning usage) for transportation / land use "linkage" planning efforts. (beginning in 1999)
18. Completing the land use / market study of the key rail corridor and adopting a streetscape and Bus Rapid Transit plan for the corridor. (2001) Jointly refining the BRT plan with CDTA (2005)

19. Initiating the next generation long-range planning effort to review recent history and address unresolved issues including regional settlement patterns and "smart growth". (2001-2006)
20. Working with several partners, including the Capital District Regional Planning Commission, Capital District Transportation Authority, Center for Economic Growth and New York State Department of Transportation on principles, strategies, analyses and other initiatives that complement and help advance CDTC's actions.

The following provides further elaboration on these initiatives. While no two MPOs face identical challenges and opportunities, one or more of the CDTC initiatives may have similar benefit to other regions in moving land use and transportation considerations toward integration.

Step 1. Flexible Policy Structure (starting in 1976)

CDTC was created in 1964 in the mode of other upstate New York transportation planning groups with local government representation limited to counties and cities. In 1976, CDTC revised its policy structure to add two rotating positions for direct representation of towns and villages. Over the years, these positions have been increasingly reserved for suburban towns. A one-year period as an alternate and a one-year period as member allow the two positions to involve four key town leaders in the MPO policy structure at any time. Over a period of a few years, nearly all of the fifteen or more towns experiencing development pressure have a direct presence at the MPO table.

The effect of this (particularly relative to other MPOs in larger urban areas of New York) is a greater awareness and appreciation of the MPO and its responsibility by suburban communities experiencing development pressure and grappling with arterial management difficulties.

In 2003, CDTC adopted a new policy to provide permanent membership to any municipality over 50,000 in population.

This immediately resulted in adding the town of Colonie, with a population of 80,000, to CDTC's policy board.

To complement the expanded role of local government, CDTC has also expanded the membership of key transportation agencies over the years. The New York State Department of Transportation, New York State Thruway Authority, Capital District Transportation Authority, Albany County Airport Authority and the Albany Port District Commission have full membership rights on the CDTC. This has allowed CDTC's policy structure to reflect well the intended role of regional transportation forum intended in federal law.

Step 2. Shifted Regional Transportation Plan Focus (embraced in 1981)

CDTC's first generation regional plan completed in 1971 provided a major highway element and transit element. The highway element was composed primarily of bypasses and other new expressways and surface arterials. Many of these projects proved to be infeasible, having been evaluated primarily on the basis of their contribution to the overall transportation system -- not on the basis of their acceptability to the community.

In 1981, the regional transportation plan was thoroughly revised. The new plan set priorities among twenty-four corridors and areas containing traffic congestion, high accident rates, physical deterioration or land use pressures. The new plan stated that no specific recommendation would be placed on the regional plan until after a localized study was completed.

The result of this action was to shift attention from the state (what is the state proposing for our community?) to the community (what do we want to see happen?) in a cooperative process for finding acceptable solutions.¹⁵

¹⁵ Later, CDTC's Congestion Management System (CMS) set relative priorities for traffic analysis among various corridors and areas based on 1990 and projected 2000 levels of congestion. The emphasis on local solutions remained, however, even after the CMS was established.

Step 3. Assuming the Modeling Function (1987 decision)

While the location of the transportation model does not appear to be central to a discussion of land use policy, CDTC's choice in 1987 to establish its own modeling capabilities was significant in meeting the land use challenge. Shortly after CDTC's decision was made, NYSDOT shut down its own modeling procedures. From that point, CDTC became the source of official traffic forecasts and modeling guidance. Today, CDTC contracts with NYSDOT using Surface Transportation Program funds to provide forecasts to NYSDOT designers, developers and consultants for various highway and site development projects.

Further, CDTC's investment in data collection for model calibration improved its technical credibility in the eyes of local government. At the point that a model became available through the MPO, local government interest in exploring land use / transportation issues cooperatively with CDTC staff increased significantly.

Step 4. Cooperative Transportation Plans (1988-1995)

Perhaps the most significant integration initiative taken by CDTC was to position the local plans needed to implement CDTC's approach to regional planning as an opportunity for local government. Beginning in 1988, CDTC began entering into contractual agreements with individual communities at the request of the community. The scope of the work is mutually determined to both address local concerns and advance regional system planning. Transportation modeling and alternatives assessment are performed by CDTC staff. Basic land use information and definition of future land use scenarios are provided by the community. The prime "client" is the town planning board.

Costs of the "Cooperative Transportation Plans" varied with the scope and ranged from approximately \$30,000 to close to \$80,000. The community's share of the cost also varied, depending upon the issues. Communities have committed as little as \$8,000 and as much as \$40,000 in support of CDTC staff work.

From 1988 through the mid-1990's, CDTC contracted for work in seven communities. While these efforts were scheduled in response to community interest, they parallel regional priorities well. The studies, combined with traditional corridor studies performed by CDTC and NYSDOT without a contractual relationship with the municipality, covered all of the ten most congested corridors in the metropolitan area.

These studies have, to varying degrees, resolved long-standing issues regarding the desirability of highway widenings in these communities. They have also raised and begun the discussion toward resolving issues of access management, appropriate levels of "build out" and equitable levels of financial contributions to be required of developers to mitigate traffic impacts. Requirements for demand management and supplemental transit service have also derived from these efforts.

This type of effort has been superseded in large measure in recent years by CDTC's Community and Transportation Linkage Planning Program (see step 17 below). The key difference between the Community Transportation Plans of the early 1990's and the Linkage studies is the greater emphasis of the Linkage studies on *community land use actions* as opposed to *transit or highway plans*. The Linkage program was built on the back of the Community Transportation Plan concept and has allowed CDTC to have substantial engagement with critical land use issues in the region.

Step 5. Public-Private Financing Policy (adopted in 1989 and maintained since)

In February 1989, the New York State Department of Transportation issued a policy on public-private highway financing. For the first time, the state indicated that it would expect contributions from municipalities for highway improvements on state highways necessitated by cumulative local development. Prior to this point, only large-scale developments that individually triggered improvements would be required to pay for or carry out highway work.

Seizing the opening offered by NYSDOT, CDTC worked with local governments and the business community and adopted its "Public - Private Highway Financing Policy" in September,

1989.¹⁶ The policy provides alternative approaches (focussing either on new development or all development in a corridor) to carefully associate trip impacts from individual properties with the costs of accommodating cumulative growth.

These formulas have been applied to development projects both on and off the state system in several communities and serve as the underpinning of shared cost (combined federal aid - mitigation fee) projects included in CDTC's transportation improvement program. Transportation mitigation assessments exceeding \$8,000,000 have been assigned by the town of Colonie to development in the airport area. These funds have combined with county, state and federal funds to complete approximately \$30,000,000 in highway improvements.

In addition, a portion of the transportation mitigation funds in the airport area are provided annually to the Capital District Transportation Authority to support transit shuttle services.

Step 6. Provision of Technical Assistance (beginning in 1991)

CDTC has long been responsive to community concerns, and has programmed staff time for "provision of services" on call. This commitment was redoubled in the late 1980's after development of regional modeling capabilities. CDTC currently offers technical assistance to all communities in the review of site impacts of development projects.

This service is used to varying degrees by communities; Albany County and the town of Colonie are the most active and they contractually supplement CDTC's federal funding with \$30,000-\$60,000 annually in county and town funds to carry out this activity. These funds are used to review projects, calculate mitigation fees and recommend specific actions to require of developers that advance system plans. Fees collected for the TIP projects in the airport area are identified by CDTC staff as part of this contractual effort.

In the context of administering site review and identifying mitigation fees, the CDTC staff also identifies access management actions that can be taken by developers. In many

¹⁶ Additional detail is provided in CDTC's "Procedures for Public-Private Highway Financing in the Capital District", 1989.

cases, driveway consolidations and partial provisions of service roads can be used to reduce the mitigation bill.

Step 7. ISTEA-era TIP Screening Criteria (adopted in 1992)

In 1992, CDTC revised its Transportation Improvement Program (TIP) project evaluation process to reflect considerations of the Intermodal Surface Transportation Efficiency Act (ISTEA). The process developed in conjunction with environmental groups and other interested parties provides three stages of TIP development -- screening, merit evaluation and programming. The merit evaluation process is a refinement of historic CDTC objective and subjective evaluation of projects across a broad range of issues (impacts on travel cost, mode choice, accident cost, pavement condition, air quality, etc.). Programming is performed by using "fact sheets" for each candidate project and consciously attempting to select the "best" projects while balancing funding commitments by geographic area, mode and project type.

With respect to advancing land use planning objectives, the screening criteria provide the greatest leverage in the process. Largely because of CDTC's success with communities in addressing high-priority corridors with integrated land use - transportation studies, CDTC's participants were willing to establish the requirement for land use management as a prerequisite for highway work. Essentially, for any air quality "non-exempt" highway project (linear widenings, highway construction on new alignment) to be evaluated, there must be a commitment to land use management from the community.

Specifically, CDTC's screening process includes several "consistency" requirements that must be met.¹⁷ They are:

1. All projects must be consistent with the regional transportation plan.
2. All projects must be consistent with or complementary with the facility in the adjacent jurisdiction if the project is near or crosses a municipal boundary.

¹⁷ Complete discussion of CDTC's TIP evaluation process can be found in CDTC's *Transportation Improvement Program, 1999-2004*, May 1999.

3. Fixed capacity improvements are required to be linked to local land use management. *(Capacity projects designed primarily to serve through traffic or strategic statewide concerns are not addressed by this requirement.)*
4. All projects must be consistent with community desires as documented in local land use plans or other policy documents, at public meetings, or through other means.

The fact that most of the candidate highway projects considered during the 1993-98 five year TIP update were derived from CDTC's local studies made the land use management requirement easy to put in place. Once in place, the policy has been continued as additional leverage with communities to encourage comprehensive planning -- *CDTC will not entertain highway capacity projects without land use planning and access management commitments.*

Step 8. ISTEA-era TIP Funding Priority (programming process since 1993)

The preceding steps positioned CDTC to make good on its commitments to integrate land use and transportation planning. Cooperative studies having taken place in high priority corridors, projects in these corridors passed the screen of land use management. The merit evaluation confirmed their benefits and cost-effectiveness.

As a result, the increased federal funding authorizations from ISTEA and the project selection flexibility provided to MPOs through ISTEA were used in large part to implement CDTC's regional plan. Major commitments were made to regional initiatives, including expressway surveillance, arterial signal coordination, transit signal prioritization, park-and-ride lot construction and travel demand management.

Of critical importance to these decisions was the trust level reflected at the CDTC table. The cooperative planning efforts and the strong NYSDOT participation in collaborative planning allowed CDTC members to work cooperatively to program all new federal funds. CDTC's influence was not limited to Surface Transportation Program (STP) or Congestion Mitigation / Air Quality (CMAQ) funds alone. Around the MPO table, projects from all quarters (including NYSDOT) were examined and all federal funds (including National Highway System,

bridge and interstate categories) were used to fund the highest priority projects. Without this cooperative atmosphere and the ISTEA funding flexibility, it may not have been possible to convert very many local plans into TIP projects.

Step 10. Design Committees (beginning in 1994)

In some, but not all cases, NYSDOT has authorized design committees composed of NYSDOT and CDTC staff, design consultants and local communities to direct the alternatives evaluation and design of key projects. The basis for using a committee approach is the origin of many of these projects in the cooperative CDTC-local plans completed prior to the projects being added to the TIP.

Access of the MPO staff and local government to the design process has led to innovative land use - transportation integration features. Examples of the design committee influence on project design include such features in the recent airport area projects as: more community-compatible (lower) design speed; boulevard configuration; reduced intersection radii to improve pedestrian friendliness; spatial separation of bike and pedestrian facilities from the vehicular alignment; agreement with local property owners for parking lot connections; consideration of pedestrian access routes to transit service; prohibition of curb cuts and consolidation of intersections; and participation of property owners in selection of the preferred alignment.

Step 11. Initial "New Visions" Planning (1994- 1996)

The 1993 TIP effort established a multi-year capital program for the Capital District. It also provided the Capital District the opportunity to step back from incremental decisions to examine more fundamental choices -- where is the region heading? -- what is the area's attitude toward accommodation of single occupant vehicle (SOV) travel? -- what is the future of the older urban areas? -- how will continued suburbanization influence quality of life?

These "big picture" issues could not be addressed adequately in the context of TIP development alone or even in the con-

text of a cooperative land use and transportation plan for a single community or travel corridor. For this reason, CDTC launched a major effort to engage in dialogue and technical analysis of "visions" for the metropolitan area.

Initiated in June 1993, the effort dominated CDTC's planning agenda for several years. The effort made use of nine separate task forces, each focussing on a specific subject. These subjects were: demographics, technology and development patterns; transit futures; urban issues; arterial management; expressway management; bicycle and pedestrian travel; infrastructure renewal; special transportation needs; and, goods movement and freight issues. Over 100 individuals from state and local government, transportation providers and user groups, environmental and community groups and universities engaged in task force work for several years.

Some characteristics of the New Visions effort were unique, particularly the simultaneous nature of the exploration of multiple policy issues. The task forces shared a common charge: first, to articulate current and null future conditions; second, to identify issues needing attention; third, to suggest actions. The task forces directed CDTC staff effort, consultants and NYSDOT effort to address issues. Rarely have such a wide array of issues been addressed simultaneously to the depth to which CDTC and its task forces plunged. The simultaneous exploration of a wide range of issues in depth made the subject of *opportunity cost* a central feature of the thought process -- actions were selected in a given subject area not because they were the "best alternative" to address that subject, but because the action fit nicely into a reasonable set of actions to address all subjects.

During the effort, CDTC issued an extensive series of technical reports ranging from detailed 20-year pavement and bridge reconstruction needs on the entire highway system to paratransit requirements for an aging society, from arterial / land use conflicts to a regional Intelligent Transportation System (ITS) plan. Studies addressed opportunities and costs for fixed guideway (rail) transit and explored long-range operational challenges on the freeway system.

The process included public conferences, the publication of a workbook and worksheets for the public to engage in policy debates, and a one-year public review period of preliminary results before the plan was drafted. After such extensive and

intensive examination of issues, policies and priorities, CDTC had broad support in adopting its New Visions plan in March 1997.

The New Visions plan resulted in MPO adoption of 25 principles stating a basic approach to the integration of transportation into the economy and community, ten strategies, 43 actions and a 17-element budget plan.¹⁸ Of particular relevance to CDTC's commitment to transportation and land use integration are the following additional principles adopted in New Visions:

- Principles making a commitment to urban revitalization as a transportation policy
- Principles recognizing the need for improved local planning to achieve regional transportation objectives
- Principles affirming a commitment to multi-modal transportation systems with competitive modal options
- Principles acknowledging the role of transit in supporting desired land use patterns

Step 12. New Technical Tools (used since 1995)

The New Visions effort provided the time and necessity to find or invent tools to help with the public dialogue. Several tools were used by CDTC that have a direct bearing on the overall effort to integrate land use and transportation decisions. These include:

1. Use of "full cost accounting" to identify the total societal cost of various policy choices. Full cost accounting includes a more complete articulation of the social and environmental costs and benefits of the provision and use of the transportation system than found in typical economic analyses. An example of non-traditional cost elements included in the full accounting is the cost to society to provide parking spaces on street, in commercial lots or in private garages. Incorporation of such a cost in the "full cost" of the system allows estimation of the savings in such expenses resulting from major transit system investment or pricing alternatives.¹⁹

¹⁸ Further details of the New Visions Plan can be found in *New Visions 2021*, published by CDTC in October 2000.

¹⁹ Complete documentation of the full cost accounting approach used by CDTC is included in *Estimated Marginal Monetary Costs of Travel in the Capital District: Transportation Policy Analysis Based on Incremental Cost and Performance*, CDTC, April 1995.

2. Agreement on a comprehensive set of performance measures for consideration of alternative actions. In addition to economic cost, additional core measures (appropriate for all actions) and supplemental measures (specific to subject) were used to articulate the impact of the wide range of actions being considered in the New Visions effort. Two "level of compatibility" (LOC) measures helped identify and predict arterials with conflicts between the highway system and adjacent land use. Scaled from A to F in a manner paralleling level of service, LOC measures were used by the New Visions arterial management task force to elevate the importance of access management in the regional plan.

Traffic-land use core performance measures are calculated in the following way:

Residential Use-Traffic Conflict Index: This index reflects the relationship between the amount of traffic an arterial segment carries relative to the distance separating its residential driveways. It is calculated by dividing average weekday traffic demand by the average distance between driveways along a section of highway.

Arterial-Land Access Conflict Index: This index reflects the relationship between the amount of traffic an arterial segment carries relative to the distance separating its commercial driveways. It is calculated by dividing average weekday volume by the average distance between commercial driveways.

(The level of compatibility thresholds are shown in Table 2.)

**TABLE 2
LEVEL-OF-COMPATIBILITY THRESHOLDS
AND CORRESPONDING DESCRIPTIONS**

Residential Use-Traffic Conflict	Conflict Index	Level-of-Compatibility
No conflict - no residential use or no traffic	0 - 4.9	A
Little residential use or modest traffic	5 - 9.9	B
Both traffic and residential use noticeable; a concern	10 -24.9	C
Significant conflict between traffic and residential use	25 -49.9	D
Continued residential use may be unsatisfactory	50 -99.9	E
Continued residential use may not be possible	100 +	F

Arterial-Land Access Conflict	Conflict Index	Level-of-Compatibility
Arterial function not affected by access	0 - 9.9	A
Aware of turning traffic, but not an issue	10 -19.9	B
Access traffic noticeable; a concern	20 -49.9	C
Frequent conflict between access and through traffic	50 -99.9	D
Persistent conflict between access and through traffic	100 -199.9	E
Either access or through movement not functional	200 +	F

3. Development of a land use pivot model. Calibrated against historic local development relationships the model considered the interaction among property taxes, availability of sewer and water infrastructure, the amount of developable land, highway accessibility and community "intangibles" in predicting future development. The model was used in the New Visions effort primarily to adjust existing forecasts of development to reflect the impacts of various highway, transit, land use or pricing options. Its primary benefit was in placing the proper perspective on the transportation - land use relationships in the Capital District.

The model led to conclusions that the actions at CDTC's disposal over the next 20 years are not likely to significantly influence the location of development on a regional scale. However, they may be able to influence community form, local transportation - land use interaction and quality of life. As a result, quality of life and system management issues gained status in policy discussions.

4. Identification of the safety cost of poor access management. CDTC staff explored the correlation of crash history with

driveway spacing and LOC measures. This effort led to the estimation of an \$89 million dollar annual savings potential from implementation of arterial management policies, simply by reducing the annual societal cost of midblock crashes by 26%.

5. Publication of an access management policy as part of the New Visions plan. The arterial management task force developed several technical tools for ongoing use in promoting arterial management. These included publication of driveway spacing standards for commercial corridors, signal spacing standards, and standards for maximum acceptable traffic volumes for residential and arterial streets. The tools have been used in subsequent years to assist municipalities consider impacts of development proposals on traffic flow and community quality of life.²⁰

Step 13. Access Management and Bicycle/Pedestrian Training (beginning 1995)

A direct product of the New Visions arterial management task force was CDTC's publication of an arterial management training program in 1995. Additionally, CDTC staff developed a local community training program for bicycle and pedestrian issues. In the years that have passed, the CDTC staff has conducted training programs in several local municipalities, sharing both the issues raised in the New Visions effort and arterial management and site design concepts to address the issues.

²⁰ Full discussion of CDTC's arterial management plan and evaluation of land use - highway compatibility can be found in "Development of an Arterial Corridor Management Transportation Strategy for the Capital District Region" prepared by CDTC's Arterial Corridor Management Task Force and CDTC staff; principal authors David P. Jukins and Anne B. Benware, CDTC, December 1995.

Step 14. New Visions Product: Policy on Traffic Forecasts for Facility Design (adopted 1997)

In the New Visions plan, CDTC estimated that the region could not achieve goals for social, environmental and economic costs, access and mobility and travel safety without moderating the forecast growth in vehicle travel. As policy, CDTC lowered the projected 2015 travel levels by about 15% to target levels that could be accommodated while improving goal attainment. Through this approach, CDTC placed great importance on improved site and community design, improved pedestrian and bicycle accommodations, and substitution of communication technology for travel. Success in these areas would be required to accomplish the necessary dampening in vehicle travel growth and resources would be required to achieve such levels of success.

Since the adoption of New Visions, CDTC staff has supplied future traffic forecasts for planning and design purposes that reflect the dampened growth trend. This approach, combined with CDTC's policy for risk assessment (sensitivity analysis) of traffic forecasts in highway design and NYSDOT commitment to context sensitive design has been significant in shifting highway project design toward a role of helping create desired community outcomes.

Step 15. New Visions Product: Priority for Community Compatibility Projects (programming process beginning 1997)

The comprehensive nature of the New Visions effort and the use of tools that provided a level playing field for consideration of all issues had an impact on the final plan. In the fiscally-constrained adopted plan, there are seventeen budget elements each with an assigned annual funding level. The seventeen elements and the established funding levels are shown in Table 3.

The list of budget elements includes traditional project categories such as bridge repair, transit capital and transit service. But the list also provides budgetary status to non-traditional elements such as Intelligent Transportation System investments, "community compatibility" and economic development projects and others. The plan's budget accommo-

dates the fact that there are many objectives of the transportation system and the long-range plan, and that steady progress is desired in all aspects of the plan. The result of this approach is to make room for project proposals other than those that address infrastructure, capacity or transit. In the new plan, there is budgetary room set aside for projects that focus, for example, on safety or on delivery access.

Table 3. New Visions 2030 Finance Plan
Regional Transportation Plan Budget by Element

			<i>previous</i>	<i>new</i>	
		Current Invest-ment Lev-els	New Vi-sions 2025 Full Imple-menta-tion	New Visions 2030 Full Im-plement ation	Update Ap-proach
REGIONAL PROGRAMS²¹					
1	Intermodal Facilities	31.900	41.095	41.600	new esti-mate
2	Transit Infrastructure	12.000	11.491	16.807	new esti-mate
3	Transit Service	60.000	41.860	63.000	inflate @ 50%
4	ITS (Technology) and Traffic Infra-structure	6.300	12.790	15.250	derived from WG B, TIP discussions
5	ITS (Technology) and Traffic Opera-tions				
6	Highway Rehab, Reconstruction and Redesign -- Priority Network	55.000	87.805	148.500	new esti-mate from models and WG B dis-cussions
7	Highway Rehabilitation & Reconstruction – Other	12.500	15.250	20.730	
8	Bridge Rehab & Reconstruction	55.100	82.100	89.100	new esti-mate from models
9	Highway and Bridge Maintenance	191.000	174.300	217.875	inflate @ 25%
10	Strategic Highway and Bridge Ac-tions -- CMS-based (capacity)	17.400	10.277	8.939	updated pro-jects, ad-justed bal-ance ²²
11	Strategic Highway and Bridge Ac-tions – Economic Development /Community Compatibility	9.500	8.712	12.286	
12	Supplemental Goods Movement Accommodations	14.800	3.665	5.130	inflate @ 40%
13	Supplemental Bike & Pedestrian Accommodations		2.618	3.670	inflate @ 40%
14	Supplemental Access Management Actions		0.500	0.700	inflate @ 40%
15	Supplemental Safety Actions		3.800	5.300	inflate @ 40%
16	Demand Management	0.500	1.600	2.000	inflate @ 25%
17	Integrated Planning & Outreach	2.600	3.610	4.500	inflate @ 25%
SUBTOTAL		468.600	501.473	655.387	

²¹ All values are in millions of 2007\$, annually over 25 years, 2006-2030.

²² Note that \$260 M of the 25-year budget of \$610 M in these two programs is assigned to “major projects” on the current TIP. Additionally, the cost of the I-90 Phase 2 connector is estimated at over \$100 M. If funded from the budget in this table, only 40% of the 25-year budget would remain for new capacity, economic development and community compatibility projects.

Step 16. New Visions Product: Earmarked TIP funds (programming process beginning in 1997)

More impressive than the nature of the New Visions long-range budget was the commitment of the CDTC members to reflect that budget in the TIP. In 1997, working with all categories of federal highway and transit funding, CDTC identified \$90 M that was available for new projects. Collectively, CDTC members assigned the funding to project in three steps. First, approximately \$50 M was earmarked to those budget categories in the New Visions plan that were under-represented by projects on the existing TIP. This directed funds primarily to bridge, pavement, transit and community compatibility categories. Congestion relief (being over-represented in the existing TIP) was assigned no new money. The second step involved selecting additional projects totaling \$30 M solely on project merit -- calculated using a revised evaluation method that included the New Visions full cost accounting and other performance measures. Finally, a small amount of funding was reserved to assign to projects identified after public review of the draft TIP.

The net result of this three-step approach and its linkage to the New Visions budget was the funding of an unprecedented number of "community compatibility" projects. These include several with a direct relationship to arterial management objectives, such as two projects to build small industrial access roads (with full access control) to move heavy trucks out of urban neighborhoods.

This approach proved successful in moving the TIP much closer to reflecting the budget distribution in the New Visions plan. The logic of the approach was so compelling that, in the most recent TIP update (for a new 2003-08 TIP), CDTC repeated the exercise. Again, project categories under-represented in the TIP were given funding earmarks out of the \$80 M available; those over-represented were given no funding. As in 1997, this approach led CDTC to add no new highway congestion relief projects. Instead, the emphasis was on infrastructure repair, ITS and bike / pedestrian projects.

Step 17. "Linkage" Planning Efforts (annual program beginning 2000)

As a result of the New Visions budget entry calling for "integrated planning and outreach", CDTC restructured its planning program to set aside a larger portion of funds for integrated transportation and land use planning at the community level. Annually now, CDTC solicits new land use and transportation integration ideas from all units of local government and private non-profit entities in the area. Approximately \$100,000 of staff time and \$300,000 of consultant assistance are earmarked to respond to local initiatives each year. This funding represents about 30% of CDTC's work program. Much like many of the other initiatives listed above, CDTC leverages its federal resources and responsibilities to engage local communities in efforts that advance both local initiatives and regional policies.

Access management, local sidewalk and bike plans, site design guidelines, cumulative development assessment, commercial revitalization in older urban areas, suburban "downtown" creation, transit oriented design "catalyst" studies and similar study efforts are examples of Linkage studies. For studies less than \$50,000 in size, CDTC administers consultant contracts on behalf of the community, while allowing the community to establish the broad objectives and scope of the work.

This program has been very successful. Through the use of CDTC's federal planning resources in support of Linkage studies and use of capital funds (STP), CDTC has committed to 50 local studies sponsored by 28 different entities in the past six years. In aggregate, the studies total over \$3,000,000 in land use - related planning effort, including over \$500,000 in local funds leveraged by the availability of CDTC's financial assistance. Capital funds have also been used to support this approach. The effort represents perhaps the most extensive regional-local, land use – transportation planning program in the nation.

For 2006-07, a portion of the Linkage program was reserved for applications solely for inter-municipal planning efforts. A study of land use and transportation for US 20 in Western Guilderland and Princetown was funded using the reserve.

Step 18. The Land Use / Market Study for the NY5 Corridor (1998-2001) and BRT Planning (2002-present)

A major accomplishment for CDTC with respect to transportation / land use integration was the completion of the NY 5 Land Use and Transportation Concepts Study in 2001. This \$250,000 CMAQ-funded study was not a traditional transportation corridor study. Rather, it drew from the full cost accounting results of the New Visions exploration of rail options for the region.

The New Visions conclusion had been that a light rail line covering the 16.5 mile NY 5 corridor between Albany and Schenectady could be justified -- if land use in the corridor could be focused and increased in scale. The study focused on two primary questions: will the market support increased activity in the corridor? and, do the communities on the corridor desire intense, transit-oriented development?

Through heavy public involvement and the use of visualizations and surveys, community vision was determined. In parallel, the market question was explored. The result of the study was for CDTC to adopt a \$200 M, 20-year plan for streetscaping, Bus Rapid Transit, bike and pedestrian improvements and site re-design along the corridor. Rail transit was set aside due to limited development potential of the corridor and lack of interest in corridor intensification by the communities.

By approaching the question in this manner, CDTC avoided unnecessary technical work considering a rail alternative for the corridor while simultaneously helping five municipalities form a vision for the corridor. Each of the five municipalities endorsed the land use and transportation concepts plan by resolution. Approximately \$50 M in implementation of the plan will be completed by 2010, including signal coordination, transit signal prioritization, advanced transit information systems, streetscaping, access management improvements and pavement rehab.

A BRT Design Study was conducted jointly by CDTA and CDTC in 2004-05, producing recommendations for BRT station location and service design. Engineering will follow in 2006.

Step 19. New Visions 2030 Planning Effort: A New Regional Consensus (2001 – present)

In October 2000, CDTC adopted its New Visions 2021 plan with full endorsement of all principles, strategies and actions from the 1997 New Visions document. Stakeholders expressed strong support for the direction taken in the 1997 plan and recommitted to its full implementation. Again in August 2004, CDTC reaffirmed the principles, strategies and actions through adoption of the New Visions 2025 plan.

The current CDTC long-range plan effort is its New Visions 2030 exercise. While not intended to be as extensive as the original New Visions process, the 2030 exercise builds from the experience gained in the region implementing the New Visions plan over the past decade. In addition, it extends CDTC's planning horizon into the uncharted territory of the second quarter of the 21st century. The detailed outline of issues being addressed in the 2030 exercise includes the following headings: (1) long-range "big picture" and "big ticket" questions about the region's highway and transit systems; (2) demographics and technology; and (3) settlement patterns and local community development; and (4) budget issues.

The overwhelming cost of providing adequate freeway and arterial levels-of-service to the year 2030 using standard highway capacity approaches is a central issue to be addressed. It is expected that the New Visions plan's broad principles, CDTC's history of transportation - land use integration, a heightened sense of urgency and the central role of quality of life subjects in the MPO discussions will all contribute to innovation in the new plan.

Quality of life in particular has shot to the top of the regional agenda. CDTC established a Quality Region Task Force in concert with the Capital District Regional Planning Commission to address issues of regional settlement patterns and the decision-making capabilities of local government. In this effort, the Quality Region Task Force is working cooperatively with several other regional initiatives seeking to address concerns about economic health, urban revitalization, smart suburban growth and inner-city neighborhood empowerment. These initiatives include ARISE (A Regional Enterprise to Support Empowerment) which is working to establish "community

audits" of workforce demand, supply and training and is encouraging CDRPC to establish a citizens' planning academy; the Center for Economic Growth which is trying to thread together an 11-county near-term regional strategy for economic growth and urban revitalization; and the Business - Higher Education Roundtable of area CEO's and university presidents which has authored white papers on land use and transportation.

CDTC's long history and well-developed policies on transportation and land use integration positioned the MPO to be a central player and primary resource to these several regional initiatives. As a result, a consensus emerged in 2003 around the following regional aspirations:

1. All regional groups reflect a belief that there is a need for some degree of economic growth in the region in order to sustain and enhance the region's quality of life. Along with nurturing heritage tourism and retaining current industry, growth in the high tech sector offers opportunities to the region for developing a local economy with a range of career-type jobs.
3. All the initiatives acknowledge the critical need for vital urban centers and seek to revitalize the region's older urban areas through economic development investment.
4. All the initiatives recognize that much of the region's growth will occur in suburban areas, and seek to have that growth help construct communities that are stronger and better than what was there before, while retaining the character of the community that brought the residents there.
5. All the initiatives seek to have growth benefit all the region's residents through adequate access to jobs, education and training.
6. Regarding transportation, all have expressed a desire to find ways to prevent serious loss of the highway mobility that is part of the region's quality of life. All have articulated a desire to use public transportation, walkable communities and alternate modes to the maximum degree feasible to assure access and travel options.

This set of aspiration resonates with public officials, environmental advocates, urban advocates, business and education

leaders and the general public. CDTC has lately becoming referring to the five points as the “regional plan”.

Step 20. Coordinated Actions by Other Partners (2004- present)

With the backdrop of CDTC’s explicit efforts for integration of land use and transportation, several recent activities highlight the impact of these efforts:

CDRPC’s Strategic Plan (2004): The Capital District Regional Planning Commission completed a new Strategic Plan in 2004. In the plan, CDRPC acknowledges CDTC’s lead role in regional land use efforts. In answer to the question, *“What is our role in the development of a regional land use development plan?”*, CDRPC concluded that, *“Our primary role is as a partner with the Capital District Transportation Committee (CDTC).”*

“CDTC must maintain a long-range regional transportation plan as a guide to planning and implementation decisions. The plan must address social, economic and environmental factors and the inter-relationship of transportation and land use... We no longer have a mandate to develop a regional plan as suggested in the purpose statement for the CDRPC included in the 1967 4-County agreement.”

CDTA’s Transit Service Principles (2005): The Capital District Transportation Authority is currently completing a new regional Transit Development Plan. As part of the effort, CDTA has adopted a series of principles, building off of CDTC’s adopted Planning and Investment Principles. Among these, CDTA embraces the CDTC transit – land use policy goals, adopting a new service policy that *“prioritizes service offerings and provides special consideration to communities that provide a transit supportive environment (land use policies, zoning considerations, park and ride arrangements, etc.)”*

Center for Economic Growth (CEG) Regional Development Compact (2005): As part of its “Regional Development Strategy”, the private sector Center for Economic Growth crafted a Regional Development Compact with its local government council in 2004. After accepting some edits from CDTC and CDRPC staff, the compact is currently being promoted to municipalities by CEG. The compact seeks municipal adoption of a commitment to comprehensive planning, transportation –

land use integration, recognition of the need for vital urban centers, respect for agricultural and open space, and the need for training of planning officials. Approximately a dozen municipalities have adopted the compact as of the end of 2005.

NYS DOT's Strategies (2005): As part of its Statewide Transportation Master Plan, the New York State Department of Transportation has identified nine implementation strategies. One is "*to increase the compatibility between existing and desired land uses and transportation.*" It is expected that NYS DOT will increase its support for and engagement in CDTC's land use – transportation integration efforts as a result of its embracing this strategy. Through CDTC's initiatives, NYS DOT Region 1 is arguably already more thoroughly engaged in local land use planning than any other state DOT regional office in the nation.

Joint Fiscal Analysis of Alternative Growth and Development Scenarios (2006): Building from the alternative growth and development scenarios articulated by CDTC and CDRPC as part of the Quality Region Task Force's Working Group A effort, an augmented analysis will take place in 2006. Funded by CEG, the joint effort of CDTC, CDRPC and the State University of New York at Albany's Urban and Regional Planning Program will seek to quantify the fiscal costs (for both maintaining state of good repair and for expanding to meet new demand) for each of four growth and land use scenarios. Costs will be estimated for public safety, schools, sewer, water and communication utilities. CDTC will identify representative costs for highway and transit systems in each scenario in a manner that is consistent with adopted principles.

CONCLUSIONS

In an incremental nature over more than two decades, the Capital District Transportation Committee has built upon previous achievements to entertain new ideas. Many of these achievements and ideas have focused on the objective of integrating land use and transportation decisions. Each initiative has reinforced CDTC's stature in the community and increased its opportunity to influence the outcome of community-shaping events.

Today, CDTC is a Metropolitan Planning Organization enjoying a high degree of respect and trust in the eyes of its members and the public at large. It has achieved this stature as a result of a central feature of its initiatives; that is, all initiatives have at their core the desire to use the MPO process to help build stronger communities. It is through this approach that transportation system objectives such as travel demand, ITS, access management, and public-private financing have gained acceptance in the Capital District. None of the initiatives have been perceived as policies that were being imposed upon local governments.

Certainly, measured against an ideal yardstick of impact on the majority of land use decisions or the provision of access control on every arterial, CDTC's successes have been modest. Not all communities or developers have bought in to the concepts advocated through CDTC's process. But perhaps the greatest significance of CDTC's initiatives is that there has been measurable success of the MPO working solely with the tools of good will, technical ability and the leverage of federal transportation law. The region's planning agenda, economic development agenda and transit and highway capital program all reflect this success. No state growth management policy, no local compact has forced compliance. Viewed from this perspective, CDTC's initiatives hold promise for any MPO in the nation that can replicate CDTC's incremental success in building trust and credibility.

Exploring The Future

Historical Perspective

Metropolitan transportation planning was established as a distinct discipline nationwide through the impact of the major urban transportation studies of the 1950's. The use of high speed computers and comprehensive systems analysis was innovative and ground-breaking. For the first time, whole highway and transit system plans could be evaluated as a unit, rather than in individual elements. Objectivity was instilled in the process by a commitment to find the "best" plan in terms of minimizing total system costs – the sum of annualized construction, operation and user costs, including the value of travelers' time.

By the time that Congress mandated the "3C" process --- continuing, comprehensive and cooperative – with the federal Highway act of 1962, the discipline was fairly standardized. Each metro area in the US received pretty much the same treatment as every other area, involving detailed land use and census data gathering, aggregation of travel data by "traffic analysis zone", creation of computerized highway (and sometimes, transit) networks of nodes and links, and forecasts of future (20 or 25-year) demographics and travel demand. A myriad of network options portrayed as abstract links and nodes was evaluated to find the best combination of new or improved facilities to minimize total system costs.

The first CDTC plan was developed in this manner, with a Major Highway Plan outlined in 1969 and a full plan adopted in 1971. It included recommendations to complete the then-active set of highway projects (ranging from the "free" I-90 through Rensselaer County to I-687 connecting Exit 5 on I-90 to I-87 and the Albany County Airport. It also called for substantial additions to the highway system and the construction of a number of park-and-ride lots in an effort to double transit use.

In sum, the plan called for nearly \$400 M of new or expanded facilities (about \$3 B in today's dollars) to provide a system that minimized total system costs for 1990.

Unfortunately, the ink was not even dry on these plans when the assumptions underlying the plans were proven wrong.

Surprisingly, a 2009 USGAO report reflects the transportation planning discipline's continued belief that past planning failures are primarily due to lack of effort (not to poor assumptions and a misplaced focus on computer models). GAO's two most important recommendations buy into this notion:

"The quality of MPOs' computerized travel demand models and the data used to support the process is often insufficient or unreliable. As planning organizations, one of the important functions of MPOs is the ability to forecast and analyze an increasingly complex and growing set of environmental, transportation, and social trends. Thus if MPOs are not able to keep pace with the increasing complexity of this task, their contribution to transportation planning may be compromised. However, on a cautionary note, effective forecasting requires both quality computer models and accurate data, such that investing in one without improving the other may waste resources. DOT's July 2009 18-month extension proposal calls for additional resources for the collection and analysis of data on transportation goals to help build transportation planning capacity. Adopting TRB's [Transportation Research Board's] modeling and data gathering recommendations is an example of how the additional resources could be invested.

"Finally, because the oversight mechanisms for MPOs are focused on process, rather than outcomes, it is unclear what impact regional transportation planning is having on transportation outcomes. Despite over 30 years of a federally mandated and funded transportation planning process and billions spent on roads, bridges, and transit projects, there is not enough information for policymakers to determine whether the planning process is addressing critical transportation challenges facing the United States. However, shifting to a more performance-based oversight approach will require legislative changes."

Excerpt from the congressionally-requested US Government Accountability Office report, "METROPOLITAN PLANNING ORGANIZATIONS: Options Exist to Enhance Transportation Planning Capacity and Increase Federal

- The environmental movement (embodied in the National Environmental Policy Act of 1969) raised the status of environmental impacts as factors that not only alter the design details of a project but very well may lead to its cancellation.
- Funding for implementation of presumably cost-efficient transportation systems fell drastically short of expectations.
- Errors in the forecasts of "external" factors such as population growth and land use change revealed serious flaws in the planners' assumptions that future travel demand could be precisely predicted and planned for to the "nth" degree.

CDTC quickly acknowledged the failure of these assumptions and modified its regional plans by 1980. As outlined in Chapter 7, the CDTC process puts a heavy emphasis on strong policy development at the regional level coupled with problem solving integrated with local land use planning.

The Errors of Previous Projections

Essentially, the planners in the 1960's followed a simple philosophy: "What changes we see occurring today we expect to continue for the next 30 years. What is not obvious we will assume will not change." At its heart, this philosophy of trend projections cannot be criticized. For the Capital District of New York, many things are unchanged. The Hudson is still in the same location it was in 1965. Albany is still the state capital. General Electric is still building turbines in Schenectady. Saratoga County has seen a lot of growth. All of these statements were accurately anticipated from the simple planning philosophy stated above.

While the planning philosophy is reasonably sound, the application of it to factors influencing travel in the 1990's was not. The failure can be found in the superficial nature of the planners' examination of their underlying assumptions. Planners did not explore beneath the surface of what was obvious. Had they done so, they might have uncovered additional factors that proved to have a major impact on society and transportation. A brief outline of correct and incorrect assumptions about stability and change highlights the weakness of the application.

Reasonably correct assumptions

Continued population growth.
Suburban orientation of much of new development.
Continued stability of personal mode choice being based on time, out-of-pocket cost and convenience.
Stability in average trip length (in time) of personal trips.
Low gasoline prices in the 1990's.
Household income growth, leading to greater vehicle ownership and trip making.

Factors totally misunderstood or missed entirely

Increased prevalence of one and two-person households and single-parent households.
Increased participation of teenagers in the labor force.
Increased participation of adult women in the labor force and the effect of two-worker households on travel.
Two severe shocks to the gasoline supply (1973-74 and 1979-80)
Effects of vehicle technology on travel dynamics (higher speeds at higher vehicle densities).
Severe curtailment of the traditional manufacturing base.
The relative shift of population to the southern and western sections of the US from the North (dampening local population growth rates)
Globalization of the economy, US international military dominance and collapse of European communism
Growth of the computer industry and its effects on the economy and national settlement patterns.
Collapse of downtown business districts as regional retail centers.
Emergence of road rage, aggressive driving and other reactions to congestion and time constraints.
Noticeable public support in many metro areas for high cost rail transit systems.
Lack of support for significant increases in highway funding, even during periods of economic expansion.
The environmental movement, extent of environmental regulations and NIMBY attitudes
Negative reaction to the urban renewal and urban highway construction of the 1950's and 1960's and efforts to undo their effects.
Lack of public support for completion of the next generation of freeways after the Interstate system
The ability to charge developers for traffic impacts under certain circumstances.
The dominance of suburb to suburb (rather than suburb-to-city) commutation on metropolitan travel patterns.
The emergence of e-commerce, cell phones, telecommuting and other technological advances.

This brief list indicates that the shortcomings of the transportation planning exercises of the 1960's lie in the limited exploration by the planners of changes that were occurring before

the planners' eyes, but were not treated in the planning process. In the Capital Region of New York, Colonie Center and other regional malls were well established by the late 1960's and the fragility of downtown business areas was well understood, but these phenomena were not fully captured in forecasts. Similarly, the environmental movement was gaining momentum before the Capital District's metropolitan planning process was even established but was not considered seriously in forecasts. A more careful examination of current happenings could have led planners to get a better -- although never perfect -- handle on the travel dynamics of the 1990's.

The fault for the limited examination of travel factors at the time may be placed at the feet of those who in good faith institutionalized and standardized the transportation planning process at the time. The "four-step" forecasting process and a new generation of computers allowed planners in every metro area in the nation in the 1960's to test the effectiveness of a wide range of (usually highway) facilities against future demand. Unintentionally, the capability of testing scores of alternative *system* designs led planners to severely constrain the range of future *demand* conditions, typically to a single set, in order to manage the testing process.

Limiting the range of alternative assumptions about the economy, travel behavior and land use to a single, simple set had the effect of excluding any real examination of the dynamics of change occurring in these factors. *This flawed approach remains central to metropolitan transportation planning across the nation, as reflected in the USGAO's 2009 report (see above sidebar).*

The planners' desire to evaluate scores of alternatives similarly led to a restriction in the criteria used to evaluate performance -- limited generally to user costs, accident costs, time costs and construction costs alone.

The unfortunate result was a significant overemphasis in resulting plans on large-scale construction of highway facilities that later proved to be unaffordable, undoable and generally unwanted by the community. In the Capital District, very few of the new ideas included in the first generation regional transportation plan (largely the major highways plan of 1969) have been pursued seriously, much less implemented. The major projects which have been undertaken in the past 30

years have been largely those which could be described as "pipeline" projects -- projects that were in various stages of implementation -- prior to 1969.²³

Even later forecasts have proven to have hit-or-miss successes. David T. Hartgen, in the New York State Department of Transportation's (NYSDOT) Preliminary Research Report 185, "What Will Happen to Travel in the Next 20 Years?", was on target for some items and off the mark on others.

"Factors Influencing Travel, 1980-2000"		
David T. Hartgen, NYSDOT PRR 185, August 1980		
Factor	Forecast Change	Right or Wrong in Hindsight?
Car efficiency	80% gain	generally correct, although much of gain was exchanged for higher performance
Gasoline price	Double in real terms	wrong; dropped 25% in real terms
NY State Population	8% growth	slightly high (6%)
Overall travel increase	45%	slightly low (60%)
Gasoline usage	decline 10 to 20%	wrong; virtually no reduction
Energy shutoffs	periodic shortfalls	wrong
Inflation	8-12% avg. thru '95	wrong; 3-4% avg.
Women in work force	modest increase	correct
Unemployment	Higher than historic	wrong
No. of households	steady growth	correct
Urban patterns	increasing ruralization	correct
Auto ownership	increasing saturation, use	correct

How Can We Avoid Repeating Past Mistakes?: Rules of Thumb

It is simply not possible to avoid mistakes in forecasting conditions 30 years out. It is not the purpose of this chapter to attempt to make such forecasts. It is possible, however, to get a better handle on possible future conditions and on acceptable transportation system responses by paying close attention to the two statements above. The planning process, if it focuses its data gathering and technical evaluation on these

²³ This is not to say that planners' handle on changing events improved noticeably in the 1970's and 1980's. The Capital District Transportation Committee's second-generation regional transportation plan adopted in 1981 reflected the severely constrained fiscal environment of the day by formally discouraging "big thinking", embracing a "what we have is all that we'll ever have" mentality. This approach was practical but missed the shift in public attitude that increased discretionary funding for at least some big projects in the 1990's. Similarly, planners' forecasts of energy costs in the early 1980's assumed that costs would continue to skyrocket; forecasts of \$12 per gallon gasoline by 2000 were included in some studies at the time.

two statements, can drive wise decisions on the use of scarce resources and better achieve long-range societal goals.

This chapter provides CDTC's desire to articulate a disciplined logic with which to approach the task of both forecasting future conditions and articulating public policy choices.

There are two statements that can help guide work on 30-year forecasts of future conditions affecting travel demand and supply. They are:

1. **Most aspects of travel supply and demand relationships will be stable over the thirty year period.**
2. **A few aspects of travel supply and demand will experience fundamental paradigm shifts that will change the relationships.**

Paradigm shifts were a favorite topic of Tom Larson when he served as FHWA administrator in the early 1990's. Essentially, he stressed that paradigms:

- are models or patterns through which to interpret and process facts;**
- provide sets of rules that allow conclusions and point to action;**
- influence our interpretation and even recognition of data;**
- are necessary;**
- but bias our judgment despite best attempts at openness and objectivity.**

Today, we can look back to the 1960's and understand that the factors adequately anticipated in the planners' predictions of the 1990's (the "reasonably correct assumptions" above) were those that fit statement #1. Those phenomena which were misunderstood or missed entirely are explained by statement #2 -- those which were subject to paradigm shifts that changed the relationships. For example, there is no way in which to explain the shift (decline) that occurred between the 1950's and 1990's regarding societal acceptance of major highway system expansion other than as a paradigm shift.

While we cannot fully anticipate all paradigm shifts, we may be able to structure our approach to the consideration of upcoming change. To help with this discipline, two useful corollary statements can be developed by revising the two statements above.

1. **Travel supply and demand relationships will be stable over the thirty-year period when understood at a core level.**
2. **Fundamental paradigm shifts that change travel relationships can be explained by other stable relationships.**

To illustrate the meaning of these corollary statements, consider a simple example. In the 1950's, one could state that *"The car that dominates automobile sales is the full-size Chevrolet. In a rare year, Ford may edge Chevrolet out."* This statement was true for decades. Today, the most popular car in annual sales is typically the Honda Accord, Toyota Camry or Ford Taurus. But by far, the highest selling vehicle model is Ford's full-sized pickup truck.

At first glance, this represents a striking paradigm shift -- away from traditional American auto models to foreign brands and light trucks. But if the phenomena of the 1950's could have been stated at a level closer to the *core* of the relationship, the statement would be as true in the 1990's as it was in the 1950's. Such a statement might have been, *"Sales of new vehicles for private use are greatly influenced by the characteristics of affordability, value, public acceptance and accessibility to sales and service. Firms that convey such characteristics to the consumer public through advertising, extensive dealer networks, reliability and word-of-mouth will continue to see their models near the top of annual sales lists."* This stable relationship explains the apparent paradigm shift away from the "truism" of Ford and Chevy dominance.

Parallels in the field of travel demand forecasting are many. For example, household travel behavior appears to have changed dramatically since the 1960's. But examined at a core level, households' responses to travel needs have changed very little. What has changed is household income, family structure, the number of household members in the work force, settlement patterns and the cost and availability

of transportation options. After completing its household travel survey in 1983, the Capital District Transportation Committee compared travel behavior in 1965 with that of 1983. On the surface, average household trip making had increased by 30%. However, when the effects of household size, number of workers, income and vehicle ownership were removed, underlying behavior had changed by only 4% over 18 years. Thus it was more the superficial paradigms and relationships that had changed, but the core relationships proved durable.

In the same manner, goods movement appears to have changed dramatically over the past 30 years, with much greater dependence today upon air cargo and next-day truck delivery. Examined more carefully, however, the increase in freight activity and shift in modes merely reflects changes in technology and economic considerations. The fundamental paradigm remains intact: goods movement is derived from the form and scale of the economy, and modes and firms prosper to the extent that they balance time, cost and reliability to the meet the shipper's needs.

Thus, it is likely that over the next 30 years many superficial paradigms (for example, the Institute of Transportation Engineers' (ITE) empirical estimates of likely vehicle trips generated at single family detached homes) will change dramatically while underlying travel behavior and choice change little. The challenge is to accurately articulate the stable relationships to set the stage for exploring the societal factors that will affect the more superficial relationships.

The following statements are posited as stable relationships that can be reasonably assumed will remain stable over the next 20 to 30 years. These statements (for the purposes of planning: "truths") are formulated around relationships closer to the core level than planners tend to operate. These statements should be adequate to accommodate and even anticipate social and behavioral changes, and therefore assist in getting a handle on 2030 conditions. These "truths" are those which appear to be supported by data over a long period of time. By forming predictions of future conditions and of the effectiveness of future transportation responses from the basis of these "truths", planners today can avoid many of the pitfalls that befell their 1960's colleagues by reducing the effect of unanticipated paradigm shifts.

Here are a little more than a dozen "truths" to undergird the 30-year travel demand forecasting and travel supply planning processes. These "truths" are intended to describe paradigms that are close to the core -- in other words, paradigms that are unlikely to change in the next 30 years.

1. **Travel demand can be understood best through an understanding of the necessary and discretionary activities of individuals and requirements of businesses.**

Travel is a derived need and occurs solely to accomplish other goals -- holding a job, obtaining medical care, going to school or church, etc. An individual will be generally willing to defer or eliminate any particular trip if the goal for that trip changes ("Let's eat in tonight.") or if it becomes more attractive to achieve the goal in other ways ("I'll order the new slacks on the Internet rather than going to the mall.") Commercial travel is directly related to the nature of the global economy, location of manufacturing, forms of distribution and levels of consumerism. It too is a derived activity. Even pleasure driving achieves a recreational and relaxational goal. The amount of pleasure driving will be influenced by the amount of time and financial resources allotted to recreation and by the available alternative recreational activities.

Careful exploration of possible societal changes -- immigration, aging of the population, family activity patterns, recreational opportunities, single parent households, shared stay-at-home parenting patterns -- is essential to understanding future travel requirements. Similarly, careful exploration of shifts in manufacturing and retail activities, market penetration of e-commerce, growth in discretionary income, anticipated "niche marketing" of motor vehicles and similar economic changes is essential to understanding future travel requirements.

2. **Technological advances are continuous and have the tendency to increase productivity, not to decrease effort.**

Whether it is robotic manufacturing processes or the microwave in the kitchen, technology continually makes it possible to achieve more with less human effort. History has shown that the human effort saved is more often put into other efforts rather than rest. What time we no longer need to spend standing along an assembly line or cooking dinner we use on other activities. The typical American household of 1900 spent much of day and evening and a large part of the weekend engaged in productive activities (earning a living, cooking, cleaning, sewing, studying, etc.). The typical Ameri-

can household of 2000 also spends much of the day and evening and a large part of the weekend engaged in productive ("have to") activities (earning a living through multiple wage earners, cooking, cleaning, shopping, studying, running errands, exploring the Internet, exercising.) Technology has not reduced the level of activity, merely shifted the type of activity.

New activities made possible by technology tend to be more flexible and less regular in terms of time of day and location than those activities they replace. Future technological gains can be expected to generate other new, flexible activities to replace older, more predictable activities. This has an implication for complexity in future travel patterns and a diminished emphasis on peak hour commutation in system design. The same is true for goods movement; improved technology will likely result in greater goods movement, allowing large-scale trade volumes from the farthest reaches of the globe, fostering "distributed manufacturing sites" and facilitating greater consumption of goods worldwide.

3. **On an even more basic level, technological improvements lead to compensatory behavior.** Cruise control does not merely provide convenience, it allows drivers to reduce the attention they pay to operating speed and focus more attention on selecting a CD to insert into the player, for example. Cars with short braking distances and good handling characteristics do not merely add to travel safety, but allow drivers to drive at higher speeds at higher densities while maintaining a certain *perceived* level of safety. Similarly, gains in fuel efficiency over the past 20 years have largely been exchanged for higher vehicle performance. In other words, gains in one area provided by technological advances are partially sacrificed to obtain gains in another area.

Thus, it is wise to temper expectations of future windfall gains from advanced vehicle guidance systems, in-vehicle traveler information systems, hybrid electric vehicles or the construction of new roads or transit systems. Much of the direct gain provided by these advanced technologies will be exchanged for other benefits.

4. **Technological advances are American society's preferred method of accommodating transportation energy and air quality challenges.** Technology has allowed for a dramatic reduction in total vehicle emissions in the US over the past twenty years despite steady increases in travel. Similarly, continuous improvements in the fuel efficiencies of

vehicles has allowed manufacturers to meet federal fuel efficiency standards while average vehicle size has continued to grow to meet market demands.

Any future, lasting limitations to fuel supply -- or serious political commitments to reducing CO₂ emissions -- can be expected to be pursued in the US primarily through technology. Accepting this truth means recognizing that neither diminishing petroleum reserves nor global climate change concerns are likely to force to major shifts in the travel dynamics of the US.

5. **Technology is most easily embraced if it requires little change to established personal behavior and can be introduced to some people or firms and spread to others.** Anti-lock braking systems, cruise control, rack-and-pinion steering, air bags and other features were first introduced in high-end models and then extended to virtually the entire fleet as costs came down. Electronic tolling has gained acceptance by being optional, allowing market penetration to grow slowly. Similarly, global positioning and tracking devices have entered the travel environment primarily through package delivery firms such as UPS and FedEx. From there, the technology will migrate to other businesses, to high-end personal vehicles and eventually to most of the fleet.

As a result, an automated highway system of the General Motors' 1939 World's Fair display is not likely to emerge full-blown through a major public sector investment. But steady advances in collision avoidance systems, vehicle guidance systems and the like very well could lead to incremental creation of virtual automated systems. These would be highways that, through modest investment in reference markers by the public sector and more significant investment by vehicle owners, control is never fully relinquished by the driver, but on-board electronics keep the vehicle in its lane and a safe distance from other vehicles while maintaining a high rate of speed. Further improvements in vehicle safety can also be anticipated, even if the precise technological mechanisms cannot be known today.

6. **Transportation conditions in current high demand locations can be expected to remain congested in future peak periods and during traffic "incidents", regardless of what actions are taken in the interim. From a different perspective, the transportation system is likely to offer some excess of supply for a considerable portion**

of the day. The paradigm of compensating behavior contributes to this paradigm. That is, there is no ability of the public sector to address congested conditions by building such large amounts additional capacity or improving technology sufficiently that it satisfies (a) existing demand, (b) future growth in demand, (c) latent demand that would manifest itself if congestion were reduced and (d) other compensatory behavior such as increased densities. This truth applies to congested New York City subways and to congested Los Angeles freeways. In the Capital District of New York, work by CDTC and NYSDOT Region 1 in 1995 concluded that no feasible amount of highway widening would produce uncongested traffic conditions on the Northway in 2015. The flip side of the coin is that even in the most congested locations, there are and will continue to be parts of the day or week during which supply is ample and travel conditions relatively easy. This too applies to New York City subways, LA freeways and the Northway.

Because of this "truth", transportation planners need to rethink the necessity of highway expansions and consider such actions more discretionary in nature. Consideration of expansion of highways and transit systems can and should be pursued less as solutions to problems (because the problems may not disappear) and more as creation of new opportunities.

A corollary is that actions pursued as problem solutions may introduce new problems. The virtual automated highway described under #5 above may prove to increase hourly lane capacities on freeways during normal conditions but add to the fragility of flow and the magnitude of traffic tie-ups during incidents. (It is unlikely that on-board technology will be able to maintain a flow of 3,000 vehicles per hour on a freeway during a snowstorm.)

7. **Personal and commercial travel behavior accounts for congestion through an equilibrium process that will prevent gridlock.** The transportation planning and engineering profession has not fully acknowledged this durable truth. Traffic flows on congested streets in Manhattan and on the congested expressways of LA in a sluggish fashion today – but in a manner quite comparable to that ten and twenty years ago. Congestion may have spread to a larger portion of the highway system, but congestion has not increased in already-congested facilities at the rate of overall activity or travel growth. In the Capital District, recent traffic counts on an important arterial (New Karner Road in the Pine Bush area

of Albany) show comparable (albeit congested) peak-period traffic volumes to those of ten and fifteen years ago. This is despite millions of square feet of new retail and commercial space constructed in the Pine Bush over that period of time and few alternative routes to and from the new activity centers.

Commercial travel fits into this equilibrium process, as well. Long-distance truck drivers frequently schedule breaks to coincide with metropolitan rush hours and resume driving when the worst traffic is past. Package delivery firms budget extra time and vehicles for deliveries in congested locations, focusing less on the absolute cost of such adjustments as on their relative advantage or disadvantage when compared to their competition. As a result, congestion proves to be less of an issue to commercial traffic than one might otherwise expect.

Exploration of this curious dynamic is imperative. The standard forecasting practice may overstate future traffic congestion (and lead to overstating the economic benefits of highway expansion) by not fully incorporating this equilibrium.

8. **Whether travel speeds increase or decrease over time, there is a limit to the amount of time an individual or household is willing to spend daily in travel.** While the distribution of the curve of willingness is broad (some people have a low tolerance for time in travel, others a high tolerance), the curve appears to be reasonably consistent over time and from location to location. For commutation, Census journey-to-work information reports only a 5% increase in the median trip length in the US work trips between 1980 and 1990 despite double and triple-digit increases in urban peak hour congestion over the same period.

Even as continued increases and discretionary income and technological advances permit Americans to pursue new and additional activities, there is likely to be a natural limitation to the amount of additional time spent in travel. Americans are unlikely to pursue (for any long period) new activities at times and locations that force their total time in travel to exceed an internal comfort level. This contributes toward the equilibrium process that accommodates the differences between congested areas and uncongested areas.

Similarly, with work hour restrictions on long-distance truckers, operational or locational adjustments will be made to accommodate travel speed changes.

9. **Private sector land use actions are a primary means of accommodating changes in travel speeds in the United States.** The locations of jobs, housing, retail and other activities have shifted significantly over the past 30 years. This has not been primarily due to the need for space; the aggregate buildout capacity of available undeveloped land and redevelopment sites in an area such as the Capital District continues to exceed the expected level of development by a factor of five, ten or twenty to one. Rather, locations have shifted to maintain mobility and accessibility (keeping household or commercial travel time budgets within acceptable bounds) while responding to perceived and real market forces. During periods of transportation system expansion, many individuals trade in travel time savings for "more house" and the expectation of better schools in the suburbs. During periods of limited system expansion and rapid growth in congestion, jobs have moved out to suburbs as well. The new mix of origins and destinations of trips has maintained travel time budgets roughly consistent over time despite the changing travel environment. In many ways, this statement is a corollary to statement #3 -- land use change is one of the compensatory results of transportation technological change.

This "truth" has many implications for metropolitan transportation planning. First, it implies that all investment that improves travel time (whether it is highway capacity, a new rail line, traffic signal interconnection or effective incident management) is likely to have a land use spreading effect. It also implies that the lack of transportation system investment to maintain travel times also contributes to land use spreading. Public options that might be expected to constrain land use spreading are largely limited to those which enhance the market attractiveness of already-urban environments while not enhancing the attractiveness of undeveloped outlying areas. Examples would be brownfield redevelopment in a very accessible urban area; improvement of urban (rather than radial, commuter) transit services; streetscaping investments and zoning changes and incentives to create mixed-use urban neighborhoods.

10. **Unlike their European counterparts, Americans are willing to tolerate a considerable degree of travel inconvenience in exchange for personal freedom and limits to governmental control and taxation.** While there will be grouching and displeasure over poor bus frequency or conges-

tion on an expressway, American society does not tend to expect or demand that government solve a transportation problem simply because one exists – at least not to the degree that European societies do.

It is part of the American philosophy and temperament to hold a limited view of the role of government while insisting upon maximum personal latitude. Americans are therefore much more likely to find answers to transportation predicaments on their own and be comfortable with their choices than to call for public sector intervention. This dynamic plays a great role in the equilibrium process discussed above. It also implies that government actions that curtail personal freedom and choice to achieve transportation system objectives will not be received warmly.

11. **Further, Americans have proven unwilling to indefinitely provide support (public acceptance or public financing) for any purpose unless a compelling argument is made regarding the need, unless success is viewed as likely, and unless the cost of deferring the program is believed to be great.**²⁴ Transportation program initiatives that have been funded at the federal, state, metropolitan or local levels generally meet these three criteria. Those that do not meet the criteria join many other desirable notions -- universal health care, expanded urban parks, free college tuition and similar concepts -- in a large "needed but no funds available" list.²⁵ Similarly, there are many potential programs to achieve broader societal goals that are not costly monetarily but would restrict personal freedoms or "take away" current benefits. These also fail the public acceptance tests of urgency and likely success in all but extreme (wartime) circumstances. In this category would fall conversion of general-purpose highway lanes to high occupancy vehicle use (a "take away" program) and downtown parking prohibition (personal freedom limitation).

Transportation planners should test potential policies and investment strategies against these criteria.

²⁴ Exceptions clearly exist. Taxing or funding decisions made without much public debate do not necessarily meet these criteria. However, the long-term history of taxing and government programs indicates that programs that do not gain and maintain public support eventually lose meaningful access to public funds. Those that do have public support are continued throughout the ups and downs of taxing cycles.

²⁵ It is common for the public to support many concepts that it is not willing to fund directly. In the transportation arena as in many others, this leads to efforts to secure special appropriations from a higher level of government for projects the community, county, metro area or state is unwilling to fund itself.

12. **For this reason, pricing mechanisms to regulate travel demand will not be accepted unless certain specific circumstances emerge.** If the public largely accepts the notion of global climate change and its relationship to CO₂ emissions and believes that the potential for technology to provide CO₂ reductions is tapped out, it may accept the imposition of a gasoline surcharge or carbon tax sufficient to dampen travel levels. However, should technology catch up to the perceived need or should the tax prove ineffective, public support would disappear much as it did for the 55-mph speed limit.

Similarly, congestion pricing mechanisms to regulate demand would be likely to achieve public support only if they are viewed as urgent, effective, unavoidable and unobtrusive of government into personal life.²⁶

13. **The public will support reasonable and necessary costs to address problems that rise to a level believed to be serious by most people.** As an example, short of economic, political or natural crises, American society will not tolerate indefinitely widespread evidence of crumbling roads, dilapidated bridges or obsolete subway cars. Support may be cyclical, but a compelling argument for the need, expectation of success and concern about the cost of deferral will repeatedly lead to the provision of funds for necessary repair costs. The same cannot be said for all other transportation program initiatives unless and until a sense of urgency or crisis emerges.

On this basis, the transportation profession would be well advised to downplay its estimates of transportation "need", if need is defined as elimination of all physical and functional deficiencies in the nations road, bridge and transit systems. Public support for complete elimination of deficiencies will not be found, making the "need" estimate ring hollow and self-serving. Instead, presentation of "need" based upon public (customer) expectations may be more valuable in advancing the policy debate on transportation programs and funding levels.

14. **Those programs that find public support do not necessarily provide direct benefits to all individuals.** Public transportation continues to enjoy broad attitudinal and tax support across the country 35 years after the first federal transit act. Public libraries are maintained in most communi-

²⁶ On the basis of these criteria, it is a tall challenge to move from a HOT lane concept (variable congestion tolling on a new, added lane of an expressway) to charging a congestion price to all highways.

ties. This is despite the fact that a majority of Americans do not ride transit (or visit public libraries) even once during a typical year. Broad support can be attributed to the belief that such services do provide an indirect benefit to the larger community.

This aspect of transportation policy is largely absent from discussions of alternative actions. For example, transit investment is typically supported based on arguments of ridership, cost effectiveness and congestion relief. In reality, most transit systems carry a small portion of total travelers, are quite expensive and (due to the equilibrium process) are unable to affect congestion levels. Despite this, many are considered successes within the community and are highlighted as significant community assets. They are considered successes not because of their ridership levels, cost recovery ratios or congestion relief; rather they are considered successes because they provide a legitimate travel alternative and contribute to the substance of urban life -- much as other civic institutions and facilities. Transportation professionals must recognize the notion of transportation facilities and services' legitimacy as part of the mix of features of a civilized culture.

Conclusions

If the statements above can be accepted as durable truths -- as core paradigms unlikely to change in the next thirty years -- then what?

1. **Recognize that investments in transportation facilities and services are a matter of choice, rather than a question of finding the "right answer."** Planners should dispense with the black-and-white notion of designing intersections based on forecasts of peak hour left turn movements for the year 2030, for example. Instead, planners should follow a shades-of-gray philosophy of "what makes sense", scaling investments to the physical context and system function. Travelers will accommodate whatever choice is made.
2. **Admit that transportation investment decisions are value-laden.** Given the public's ability to adapt to any transportation service improvement or degradation, it is obvious that transportation investments change land use, economic and travel outcomes. This admission should lead to careful, public articulation of values and desired outcomes. While some policies have been attacked as "social engineering", we must recognize that all transport investments and

While the planning process remains entrenched in its ways, there is some movement in national efforts to reform the approach.

"To that end, visioning efforts should also incorporate scenario development as a means of incorporating the concept of uncertainty. Traditional MPO exercises settle on a certain set of future population, employment, household and vehicle ownership forecasts before evaluating alternative transportation system designs. Typically, future land use patterns are a given before the transportation analysis begins. Further, the wide range of items that are inarguably exogenous to the MPO process are nearly universally excluded from consideration in current MPO planning. Colloquy participants recommend that scenario development be part of regional visioning exercises and that the scenarios engage not only in the interaction between transportation system designs and alternative metropolitan growth scenarios but also in the flexibility of the transportation / land use system to respond to a variety of outcomes in the exogenous variables."

A finding from the national "Colloquy on the Coming Transformation of Travel" conducted by the New York State Metropolitan Planning Organization (NYSMPO) and the Federal Highway Administration (FHWA) in 2005. See http://www.nysmpo.org/colloquy_travel.html

policies are social engineering -- each action encourages one kind of behavior and discourages another. This admission should also lead to early investment in facilities and services that contribute to desired outcomes and deferral of investments that are largely an accommodation or mitigation of undesirable outcomes.

3. **Elevate customer and taxpayer perceptions as key determinants of the appropriate choices to make.** Far too frequently, engineering rules and limited measures of effectiveness are applied in making public policy choices about transportation. For example, traffic level of service receives an inordinate amount of focus in system plans, despite the fact that surveys tend to indicate that travel time reliability and predictability are valued more heavily by personal and commercial travelers than level of service. Similarly, policy planners should pay greater attention to taxpayer desire and willingness to invest in transit services (if present) and not obsess over a limited number of performance measures in making choices about transit investment.
4. **To the extent possible, explore the likely changes to the more superficial paradigms and factors (such as SUV popularity; the market penetration of telecommuting; the nature of the global economy; the need to travel to a major regional mall to see a movie; patterns of immigration and inter-regional migration; residential, commercial and retail building styles; work hours and telecommuting options) that are candidates for subtle -- even radical -- change over the next 30 years.** Which paradigms are those which will change? Can we see the handwriting on the wall already?
5. **Hedge bets by articulating viable and plausible alternative futures that are consistent with the durable truths posited above.** Recognition of uncertainty in predicting the future should lead planners and policy makers to a new perspective on investment. It should lead to less evaluation of static performance (which is the best investment to meet 2030 travel demand?) and more on dynamic change (which one provides an immediate benefit and can be adapted to meet a range of future requirements?). It should lead to greater preservation of future options through corridor preservation and modular construction and less scaling of construction to meet long-range forecasts. It should also lead to restraint in making large public investments to fit particular transportation paradigms that are subject to radical change (such as freight movement, in which modal choice can swing

dramatically in response to relatively small changes in technology or fuel cost).

Getting a handle on technological and societal changes in this manner has the potential to significantly change the long-range planning and investment dynamic for the better. Making the change will require a substantial shift in current practices. Such practices include highway design practice (should we really be building roads to accommodate the 85th percentile speed, regardless of context or established speed limits?), public/private infrastructure partnership approaches (can we amend the public process to be timely to private sector needs?), performance evaluation (why don't we consider other factors with the same importance as level-of-service?), alternatives evaluation structures (is there a benefit in an alternative fitting multiple alternative scenarios) and forecasting processes (can we be intelligent and foresighted in integrating demographic and technological changes into our travel demand predictions?).

The resulting planning and research agenda is substantial.