

# Innovations in Sustainability

## Capital District Transportation Committee Albany, New York

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The Capital District Transportation Committee (CDTC) is the designated Metropolitan Planning Organization (MPO) for the four-county area that includes both the Albany and Saratoga Springs NY urbanized areas. The current population of the area is approximately 800,000, and the US Census Bureau estimates place current growth rates at approximately ½ percent per year.

For many years the staff, members and other participants in the CDTC process have nurtured a collaborative and integrative planning environment. This environment has fostered many innovative policies and practices that allow this medium-sized MPO to make a more significant contribution to aspects of “sustainability” than traditional practices permit.<sup>1</sup> The following list is a brief introduction to these policies and practices. Some are modest, others extensive. It is important to note that the range of innovations at this one MPO suggests that similar innovations are possible and are occurring to some degree at a number of MPOs throughout the nation.

Items are organized by the primary relationship of the innovative approach to themes of *governance and policy; visioning and inclusion; or planning and implementation tools*. Applicability of an approach to multiple themes is common and the grouping is not precise.

### Governance and Policy

- **Dynamic membership structure:** Policy board membership is not static, but has grown as necessary over time to reflect suburban growth and a multi-modal scope. Membership now includes four counties, eight cities, one large town, two rotating positions for 63 other towns and villages, the state DOT, transit operator, airport authority, Thruway authority, port commission and regional planning commission.
- **Adequate jurisdiction over TIP:** NHS, all forms of STP (urban, small urban, rural, safety and flexible pots) and CMAQ funds are viewed essentially as a single competitive pool for state and local highway and transit initiatives. This provides a meaningful amount of programming authority for collaborative decisions at the MPO table -- approximately \$300 M over five years.<sup>2</sup> In contrast, urban (attributable) STP funds – often the sole fund source at the discretion of an MPO – amount to less than \$25 M of this total.
- **Strict connection between plan and TIP:** The long-range plan defines twenty-year average allocations of funding for 17 categories of capital or operations (ranging from highway maintenance to inter-modal facility construction). During a TIP update, funds are earmarked to under-represented categories to ensure that the TIP project mix reflects the long-range plan’s balance.
- **Policy-based traffic forecasting:** Traffic forecasts used in planning and project development activities reflect the MPO’s 20-year *target* level of traffic. Target levels assume success over time in reducing the growth in vehicle miles of travel (from the trend) through improvements in street design, community structure and regional

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<sup>1</sup> Sustainability issues can be defined as consideration of long-range settlement patterns, petroleum consumption, greenhouse gas emissions, ecosystem impact, air quality, social equity, economic health and fiscal viability in addition to traditional considerations of mobility and accessibility, cost, safety, security and exposure to congestion.

<sup>2</sup> Project commitments are determined prior to assigning particular fund source labels to individual projects. Ensuring a sufficient magnitude of CMAQ-eligible projects is not difficult, due to the emphasis of the MPO’s plan on transit, demand management, technology and similar actions.

settlement patterns. Projects are thus designed for compatibility not with trend traffic forecasts, but with planned – sustainable – traffic levels.

- **Careful definition of system preservation needs:** In the long-range plan, “system preservation” is defined as the cost over time of maintaining average physical condition of the area’s transportation facilities in roughly the base (1995) condition. Actions that change features or functionality (widening shoulders, installing turn lanes or constructing sidewalks, for example) are not considered basic system preservation expenses, but rather are considered discretionary expenses that compete for funding with other discretionary improvements.
- **Steady progress policy:** The MPO maintains a policy that seeks comparable progress toward system goals in all 17 categories of investment, at all funding levels. That is, at any expected funding level there is some level of funding for discretionary improvements; these funds must be assigned to a comparable degree to all initiatives.
- **Congestion management principles:** The MPO follows adopted Congestion Management System principles that insist upon demand management prior to consideration of highway capacity projects, and insist upon local land use management agreements as a pre-requisite to capacity work.
- **Public-private highway financing policies:** The MPO maintains a strong policy that differentiates public responsibility from private responsibility for highway plans that mitigate and accommodate local development. Between 1990 and 2010, total mitigation fees assessed in the rapidly-growing area around the region’s airport will total \$15 million as part of a public-private highway, transit and travel demand management (TDM) plan.
- **Inclusion of local land use planning support as a financial element of the long-range plan:** Improved local planning and decision-making is identified as a critical element of the plan and is relied upon for significant dampening of trends in traffic growth. Planning support is one of seventeen explicit budget elements of the long-range transportation plan.
- **Site impact assessment contractual arrangement:** MPO staff provides site impact review assistance on request to municipalities; in one town, an ongoing contractual relationship gives the MPO staff responsibility to review proposals and identify appropriate mitigation fees.
- **MPO staff administration of local consultant studies.** For most local land use – transportation studies funded through the MPO, the MPO staff crafts the study scope in collaboration with the community; guides a project steering committee; and reviews and oversees consultant activity. This both accelerates the contract process and ensures MPO authority over scope and products. The community contributes cash and assumes ownership of local implications. Typical outcome is the refinement of the community plan, zoning and regulation and a conceptual transportation improvement plan for the area that is consistent with regional policy.
- **Streamlined process for consultant selection.** The MPO staff develops detailed scopes of services before soliciting consultant interest and publishes a “request for expressions of interest” (REI) instead of an RFP to minimize the amount of up-front consultant effort.
- **“Fair access” policy for consultant selection.** The innovative nature of the MPO’s planning effort and the use of the REI process generates significant interest from the consultant community. The MPO follows a “fair access” policy that provides work to a wide range of firms whenever there is not a compelling reason to select a particular firm. Nearly 20 different firms have been contracted in the past few years, broadening the region’s exposure to creative consulting firms.
- **Leadership in regional ITS planning.** The MPO took the lead in identifying the potential of Intelligent Transportation System (ITS) initiatives for the region, and established a long-range ITS system plan as part of the regional transportation plan nearly a decade ago that has guided implementation activities to date.
- **Incorporation of management and operations:** The regional plan embraces both capital and operations. Maintaining and increasing funding for ITS system operations is one of the 17 budget categories in the plan. Effective incident management is a central principle of the adopted Congestion Management System. TIP funding has provided for the construction of a multi-jurisdictional transportation management center; deployment of portable and overhead variable message signs, highway advisory radio, ongoing operation of the center; support for incident management and roadside assistance, transit signal priority treatment in one 16-mile prototype corridor and other actions. Planning effort is currently seeking to quantify recurring and non-recurring delay separately to inform capital and operating plans for the next long-range plan.
- **Elevation of community compatibility measures.** Traditional focus on delay and level-of-service (LOS) is balanced by the MPO’s elevation of comparable measures for community compatibility. “Level of compatibility”

measures ranging from A to F are used at the system level and at the project development level to elevate the importance of reducing conflict between residential land use and through traffic, and between commercial access and through traffic.

- **“Jurisdiction-blind” funding policies.** An adopted MPO principle states that funding will be based on function and need without regard to ownership. This has helped increase access to federal funding for urban areas, creating a better balance in overall condition and amenities between state-owned and city-owned streets.
- **Priority treatment of urban revitalization needs.** Revitalization of existing urban areas is critical to achieve the desired outcome of the regional transportation plan. One of the 17 budget categories in the plan is “economic development / community compatibility”. This set of resources and the jurisdiction-blind funding policies have steered considerable resources to reconstructing and redesigning urban streets explicitly to facilitate economic revival.
- **Focus on “excess” delay rather than level-of-service and on corridor conditions rather than location-specific delay.** Regional priorities for congestion mitigation reflect measures and forecasts of excess delay – defined as the amount of person time above and beyond the LOS “E” threshold. (That is, at the LOS “E” threshold, excess delay is zero.) Further, regional congestion priorities are assessed based on the magnitude and severity of excess delay when aggregated over a corridor.
- **Support for risk assessment or tradeoff analysis in project design.** State DOT design processes generally direct designers to provide adequate LOS through the design year whenever feasible. The MPO has adopted a principle urging a common sense tradeoff analysis whenever capacity additions are considered in the context of an infrastructure replacement project. This principle recognizes funding limitations and the relatively low regional priority for building capacity today for congestion that is not anticipated to appear for ten or twenty years.
- **Integration of the toll operator into system planning efforts.** The addition of the Thruway authority to the MPO membership has helped bring the authority’s system plans to the MPO table and has helped bring the MPO’s perspective on congestion management and the system potential of electronic tolling (beyond the Thruway) to the attention of the authority.
- **Collaborative relationship with the transit authority:** The MPO’s role in system planning is reflected by the MPO serving as the primary forum for exploration of rail, BRT and other substantial transit policies. The role is enhanced by co-management with the transit authority of consultant studies to implement system planning recommendations (such as BRT system design).
- **Contractual arrangement with the regional comprehensive planning agency.** The MPO is nominally a transportation-only agency. In practice, the MPO embraces economic, environmental, social and land use issues. It also contracts with the four-county comprehensive planning agency and funds that agency’s work in demographic data and forecasts and in regional land use policy discussions. The relationship is more successful than that found in many joint MPO-comprehensive planning agencies.
- **Priority network focus.** The plan defines priority networks for freight, transit, bicycle-pedestrian and ITS actions. Evaluation of TIP candidates filters candidates both by overall merit and by priority network status. Funded projects are thus not only good projects, but important contributions to implementation of the plan.
- **Avoidance of premature project commitments.** The plan does not include a twenty-year list of projects. The plan maintains room in its twenty-year budget for regionally-significant projects, but identifies only those that have resulted from a detailed, locally-based planning effort or major investment study receiving MPO concurrence. For air quality planning purposes, the uncommitted budgets are assigned to “representative” projects to permit long-range conformity analysis. The representative projects have no formal status on the plan.
- **Articulation of policy regarding an aging society and special needs transportation.** A separate task force was used in development of the long-range plan to put forward actions to respond to aging-in-place suburban issues and coordination of special transportation services. A regional transportation brokerage was then established with federal funds through TIP action with a mission to integrate Medicaid transportation services as a first step towards a general purpose brokerage system to extend non-traditional transit services to suburban areas. The brokerage is now in its sixth year of operation (still focused on Medicaid services).

## Visioning and Inclusion

- **Use of a vision statement:** The focal point of the regional plan is a narrative description of the desired end states for transportation, land use and quality of life, articulated from the vantage point of a typical household in the future. The narrative reflects the consensus vision emerging from inclusive discussions.
- **Use of goals and objectives reflecting sustainability.** Regional goals are non-traditional, and reflect a broad perspective – improve overall service quality; enhance quality of life; reduce per-capita resource requirements; reduce per-capita accident costs; build strong urban, suburban and rural communities; knit communities into a cohesive region; and support social and economic interactions that support growth while enhancing the natural, built and human environments. Achieving these goals will produce a reduction in greenhouse gas emissions.
- **Use of outcome-oriented or “backcasting” policy development.** The long-range plan was derived from a technical effort that documented that affordable and feasible transportation actions would fall short of achieving the desired goals. This led to elevation of the role of land use initiatives to bridge the gap.
- **Extensive use of inclusive task forces and working groups.** Initiated in response to ISTEA requirements, CDTC has used numerous inclusive task forces and working groups. Currently there are eight such regional groups with a diverse membership.<sup>3</sup> Task forces and working groups are commissioned to help the staff carefully and comprehensively articulate policy options and issues for broad regional dialogue – not to make policy decisions.
- **Collaborative efforts with the regional urban “empowerment” group.** A regional group exists, devoted to empowering traditionally-underrepresented urban population groups. The MPO has partnered with this group and has financially underwritten the group’s regional summit on smart growth, thereby gaining access to the participation and perspective of interests that typically do not engage with the transportation planning process.
- **Collaborative efforts with the region’s business and higher education organizations.** The MPO also collaborates with and helps inform the discussions of several business and university forums. The MPO chair and director participate in a regional “cabinet” that includes leaders of other regional organizations.
- **Explicit consideration of social equity.** The MPO reviews its activities to ensure that there is there adequate access to the process from all population groups and geographic areas; that the outcome of the process is equitable; and that impacts of plans and programs are fairly distributed. As a result of this attention, a 2004 report found that 65% of bicycle and pedestrian improvements, 54% of highway and bridge rehab and streetscape projects, and 83% of transportation – land use compatibility planning efforts serve identified areas of low income and minority population. Further, the single large transit corridor improvement in the plan and TIP is located along an urban corridor with a 25% transit-dependent population.
- **Scenario evaluation.** The MPO has repeatedly explored alternative future scenarios to aid in policy development. The current effort is exploring the issues surrounding a range of growth (no growth through fast growth) and settlement pattern (traditional vs. trend) conditions through 2030.
- **Emphasis on parallel regional analyses to capture “opportunity cost”.** To the extent possible, the MPO attempts to evaluate large-scale, expensive policy questions in the context of all other issues facing the region. A reasonable, balanced, financially-feasible set of choices is viewed to be much more likely when all subjects are on the table simultaneously, than when the subjects are considered sequentially (such as in a major investment study). This leads to the recognition of the opportunity cost of an expensive initiative in one mode or one location in restricting the region’s ability to make progress across all fronts.

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<sup>3</sup> The regional groups are in addition to the more than thirty steering committees and community outreach programs that have been established specific to land use – transportation linkage studies.

## Planning and Implementation Tools

- **Contractual involvement in project development:** The MPO staff serves as the sole source in the region for traffic forecasts and diversion analyses for project development work, using STP funds under contract with the state.
- **Habitat protection.** For one key project on the plan and TIP, the MPO required ecosystem sustainability analysis prior to initiating project development or any formal environmental process. The result of the study led to down scoping the project and a modification of the plan and TIP prior to project development.
- **Exploration of travel behavior equilibria and lack of gridlock.** The MPO staff has examined the factors that describe why gridlock has not developed over 15 years in a rapidly-growing, already-congested corridor.
- **Use of “full cost analysis”.** For major system questions (such as rail transit considerations), the MPO employs a full cost analysis that identifies monetary costs for traditional and non-traditional user, societal and environmental impacts. These impacts include the costs of global climate change, water quality, parking requirements, vibration and other factors. These factors are also used in project evaluation of candidate TIP projects when applicable.
- **Non-traditional perspective on travel time:** The full-cost analysis differentiates between commercial time spent in travel (which represents a monetary expense) and personal time spent in travel (which is not a true monetary expense). Personal time saved or lost is considered an intermediate good which is traded for other goods through land use change and other equilibration methods. Regional goals focus on congestion exposure, economic impacts of congestion on businesses, and representative travel times rather than aggregate measures of travel time.
- **Calculation of safety benefits of TIP candidates.** The MPO staff employs GIS-based crash histories to produce or approximate project-level safety benefit calculations of all TIP candidate projects as part of merit evaluation.
- **A “spot” improvement program for bike/ped actions, using federal funds.** To implement recommendations of its plan, the MPO has established an ongoing spot improvement program to fund small, cost-effective actions to improve bicyclist or pedestrian safety and convenience. With the cooperation of the state DOT in streamlining the federal aid process, the program has funded 19 projects totaling \$600,000 in two rounds; a third round of projects will be defined in 2004.
- **Supplemental support for bike and pedestrian projects.** Supplemental bicyclist and pedestrian investments are one of the 17 budget categories in the plan. In addition to a spot improvement program, the MPO’s initiatives have included TIP funding for bike/ped projects (at a scale roughly double that funded separately through the “Enhancement” program) and a local second-chance Enhancement program, that funded additional projects not selected in the statewide competition.
- **Link-level calculation of pollutant emissions.** For nearly 15 years, the MPO staff has calculated emission rates at the link level through an innovative relationship with the state DOT. The state DOT maintains a current USEPA MOBILE emissions model, and provides the MPO staff with updated emission rates specific to the metropolitan area by year, functional classification and operating speed. These rates are incorporated into a post-processor at the MPO level.
- **Calculation of greenhouse gas emissions.** In response to the state’s recent energy plan calling for greenhouse gas emissions reductions, the MPO’s post processor was amended to produce greenhouse gas emissions specific to year, functional classification and operating speed.
- **Articulation of market segment considerations.** The MPO’s travel task force assisted the staff in articulating the concept of travel market groups. This concept elevates the consideration of the transportation system’s overall adequacy to meet the needs of six market segments. These six market groups are the retired elderly (dependent and independent), working households with dependents (couples and singles) and working households without dependents (couples and singles). The travel needs of each market group are described, highlighting the diversity of travel between and within each group. Low income households, the mobility impaired and non-drivers received additional attention in the material.
- **Exploration of long-range travel behavioral changes.** The MPO task force activities include exploration of the impact on travel behavior of technology, demographic, societal and land use changes over the next thirty years.
- **Time-series measurement of public attitudes.** The MPO contracts with a university research center for an annual survey of public perceptions of highway quality, transit quality, exposure and impact of congestion on

location and travel decisions, the effect of transit accessibility on location and travel decisions and other factors. Attitudes are assessed for trends, internal correlations and correlations with objective performance indicators.

- **Provision of professional development services to local government.** The MPO staff hosts regular internet and conference-call based professional development seminars sponsored by the American Planning Association and other groups. A typical two-hour real-time planning workshop will draw 15 or more local planners, far exceeding the exposure likely through a formal multi-day training program.
- **Funding for land use planning:** Approximately 30% of the MPO's FHWA PL funding is devoted to local land use planning and transportation integration through the "Community and Transportation Linkage Planning Program". Since 2000, 41 projects totaling over \$2 M have been advanced in 25 separate municipalities, with subjects ranging from urban revitalization to suburban smart growth issues, from parking management to trail development. Local adoption and implementation has followed most of the studies. MPO requirements that projects must derive from local plans before they are eligible for TIP consideration reinforces the interest in the Linkage program.
- **Use of a voluntary Regional Development Compact in obtaining municipal commitments to responsible growth policies.** The strong cooperation between public and private regional development entities has led to a Regional Development Compact authored collaboratively and promoted primarily by the private entity to local municipalities. The compact, adopted at the local level by individual municipalities, commits to comprehensive planning and implementation that includes training of local officials; cooperative and inclusive processes; respect for community character, historic and natural resources; protection of open space and a focus on infill development and use of existing infrastructure and facilities. Combined with strong regional policies and the Linkage planning program, the private-sector-initiated Regional Development Compact constitutes the core of a new model of regional planning that respects the reality of home rule.
- **Incorporation of public health considerations into project evaluation.** The MPO incorporates the monetary benefits of improved public health from physical activity as one quantified benefit of proposed TIP candidates, based on the expected bicycle and pedestrian usage.
- **Calculation of "life cycle" benefit of rehabilitating highway facilities.** Typically, MPOs find it difficult to quantify the merits of rehabilitating or replacing pavement or bridges in kind. This MPO models the systemwide difference in user costs and other factors between having the facility in good condition and having the facility in nearly impassable condition (or for bridges, having the bridge closed). The systemwide impacts are pro-rated based on the number of years of extended life provided by the project (compared to the total facility life).
- **Use of team approaches to project development.** As a prototype, the MPO staff has participated with municipalities and the state DOT in a collaborative steering committee on some key projects to ensure a continuous and iterative relationship between the plan's principles and TIP funding and scope agreements on one hand and design alternatives on the other.
- **Pooled research projects with other NYS MPOs.** NY MPOs are unique in agreeing to the use of a portion of FHWA PL and FTA Section 5303 planning funds on joint projects. This MPO currently administers several pooled fund projects including documentation of integrated transportation and land use case studies across NY; and a planned national experts retreat on factors influencing long-range forecasts of travel behavior.
- **Joint efforts on demand management pilot programs.** Travel demand management is a central element of the plan, and appears as one of the 17 budget categories in the plan. Numerous TDM initiatives have been jointly administered by the MPO staff and the transit authority, including a web-based carpool matching program, free transfers between public and private transit services, guaranteed ride home program for transit users and carpoolers, a cash subsidy for transit passes through public employee unions, a cash subsidy toward public or private transit services as part of a state agency relocation and a six-month cash subsidy toward public or private transit services to encourage downtown employers to establish commuter programs.
- **Use of federal funds for intermodal facilities and access improvements.** Intermodal facilities appear as one of the 17 budget categories in the plan. Federal highway funds have been used to reconstruct the access road to the port; implement access improvements to the regional airport; and construct Amtrak stations and access roads to them, and develop plans for tandem trailer lots.
- **Local government training in bike/ped and access management concepts.** The MPO has facilitated numerous audits of bicycle and pedestrian accommodations in local communities and developed training materials in access management.

- **Land use modeling.** For scenario testing, the MPO staff has developed a land use pivot model calibrated locally to estimate land use impacts of policy actions. The marginal amount of households over time allocated to zones is adjusted based on the locations of employment, travel times, and the residential development strength.<sup>4</sup> The marginal amount of employment is allocated to zones based on the locations of households and other employment and travel times.
- **Advanced traffic and transit modeling.** For many years, the MPO has employed a staff-enhanced version of TMODEL2 that incorporates more sensitive treatment of intersection capacity and delay than is typical; and permits extensive post-processing for user costs, emissions and environmental impacts. For rail transit purposes, a detailed mode choice model with park-and-ride market features has been used.
- **Approach to goods movement modeling.** An industry-based goods movement task force recommended against modeling freight movements, arguing that the freight industry is too dynamic for a MPO model to accurately capture. Instead, the MPO has focused on identifying and prioritizing vulnerable (non-redundant) or sub-standard highway corridors and on participating in terminal, intermodal and trade corridor planning efforts.
- **Collection and use of intersection-specific data and analysis.** Nearly 15 years ago, the MPO staff collected detailed intersection configuration, turn movement and signal cycle detail for the 400 busiest intersections in the region. Capacity and delay analyses for these intersections identified both operational and capital actions to address delay. The analyses also fed the calibration of sensitive intersection modeling at the regional level. In recent years, staff has updated data and expanded the data set to include pedestrian accommodations and usage.
- **Locally-determined trip generation rates.** The MPO staff has collected extensive field information on site-based trip generation rates to permit a significant refinement in site impact assessment from the use of nationwide averages. Local rates are used whenever possible in site impact assessment.
- **Modeling of bicycle facility market strength.** The regional traffic model has been modified to produce a version that estimates the relative bicycling demand for candidate bicycle accommodation projects.
- **Pavement condition measurement.** The MPO staff has regularly assessed pavement conditions on the federal-aid system (every two years) and across the locally-classified roads and streets (every four years). Pavement condition trends are a consideration in plan and TIP development; pavement inventory information is used in TIP candidate merit analysis.
- **Forecasting pavement conditions.** The MPO staff extended the state DOT's short-range pavement condition prediction model into a long-range model sensitive to alternative repair strategies and differing deterioration rates by highway class and pavement type. The model is used to develop the plan's budget estimate for pavement rehabilitation and reconstruction.

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<sup>4</sup> Residential strength of a zone is defined as the amount of additional units that can be accommodated on "developable" land at acceptable densities; the ratio of median price of owner-occupied housing in the zone to the regional median; the ratio of property taxes per \$1,000 of full value assessment in the zone to the regional mean; and the number of households in the beginning year.