



**C**ongestion



**M**anagement



**S**ystem

*for Northeastern Illinois*

**CHICAGO AREA TRANSPORTATION STUDY**

300 WEST ADAMS STREET  
CHICAGO ILLINOIS 60606

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*CATS was formed in 1955 to develop the first comprehensive long-range transportation plan for the northeastern Illinois region. Since then the CATS Policy Committee has been designated by the governor of Illinois and northeastern Illinois local officials as the metropolitan planning organization (MPO) for the region.*

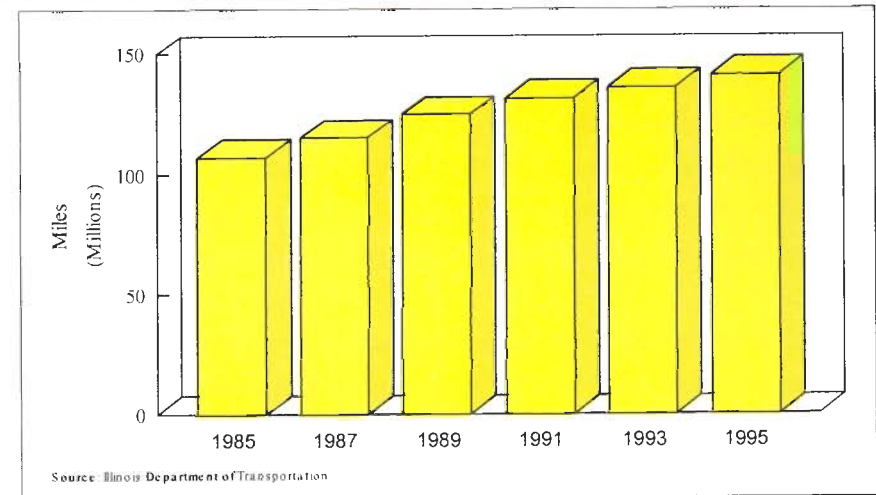
## CONGESTION MANAGEMENT SYSTEM FOR NORTHEASTERN ILLINOIS

**“An hour and ten minutes from Route 53 to the post office.”**

Congestion. A word that drivers dread hearing. Not only is it a personal inconvenience, but it creates a drag on the economy's efficiency and adds to air pollution. It is a problem in Chicago and across the nation. Chart 1 shows that the total average miles driven per day have increased significantly over the last ten years. During the same time period, the miles of roadway have increased at a much slower rate. The Congestion Management System (CMS) is designed to lessen the impacts of congestion by giving policy makers the information they need to make investment decisions that will increase the efficiency and effectiveness of the transportation system.

Chart 1.

Average Daily Vehicle Miles Traveled in the Chicago Area, 1985-1995



### WHY A CONGESTION MANAGEMENT SYSTEM?

The Intermodal Surface Transportation Efficiency Act of 1991 (commonly referred to as ISTEA [pronounced “ice-tea”]) requires that congestion relief be considered in the selection of transportation improvement projects and that all urbanized areas with populations in excess of 200,000 develop and implement a CMS. The CMS, in turn, requires that all reasonable alternatives be identified and evaluated for their ability to alleviate congestion and enhance mobility. Furthermore, when the addition of general purpose traffic lanes is determined to be the appropriate solution for a particular corridor, the CMS requires that appropriate demand and operational management strategies also be implemented to increase the efficiency of the corridor and extend the life of the improvement.

The CMS for northeastern Illinois is administered by the Chicago Area Transportation Study (CATS) and is guided by three goals:

- Lessen congestion on the region's transportation network through multimodal solutions with priority given to alternatives to adding traffic lanes.
- Improve the traveling public's mobility and accessibility to goods and services through multimodal choices, especially for the elderly, disabled and economically disadvantaged.
- Improve the movement of goods on multiple modes and access to origins and destinations through consideration of multimodal solutions.

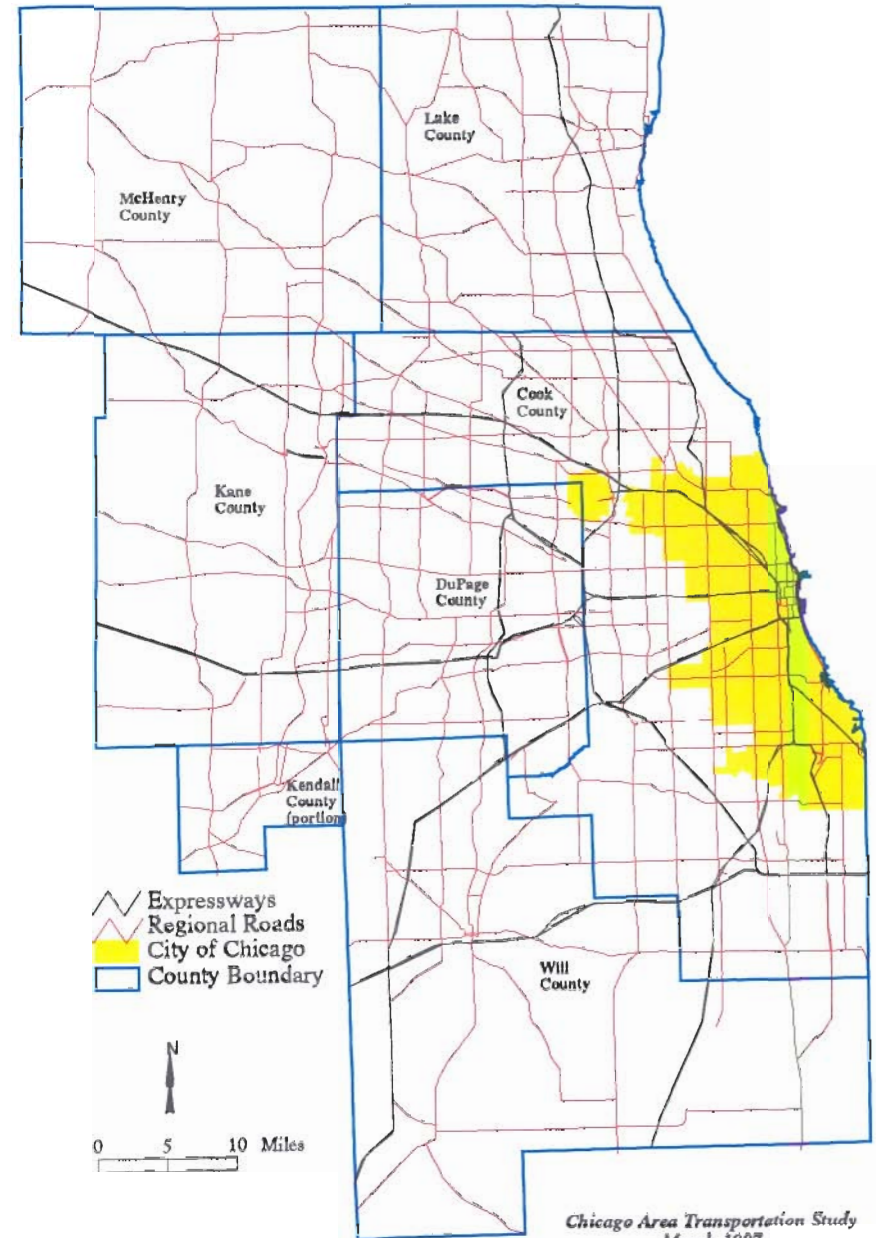
### **CMS COMPONENTS**

To meet its goals the CMS needs to include methods to monitor and evaluate the performance of the transportation system, ways to identify alternatives to building additional traffic lanes or to enhance the effectiveness of facilities, the means to assess and implement cost-effective actions through project selection and the ability to evaluate the effectiveness of strategies after they are implemented.

**System Monitoring and Performance Evaluation.** System monitoring provides the information necessary to identify existing and potential problems, identify potential solutions, and evaluate the effectiveness of these solutions. A monitoring program has been established which includes the definition of a monitoring network and the establishment of performance measures. The roadway network being monitored includes all expressways, tollways and regionally important roads and is displayed in Map 1. The monitoring program also covers area transit systems.

**Map 1.**

## **CMS MONITORING NETWORK**



*Chicago Area Transportation Study  
March 1997*

The CMS will use a number of existing activities to monitor the performance of the transportation network. These activities include:

- CATS travel time runs
- Illinois Department of Transportation (IDOT) expressway surveillance
- CATS simulation models
- Strategic Regional Arterial (SRA) activities
- Information from CATS committees
- Transit agency monitoring programs
- IDOT's Illinois Roadway Information System

In addition to the above activities, the CMS will attempt to integrate the following additional data sources into the process:

- IDOT's Signal Coordination and Timing (SCAT) Program
- Intelligent Transportation Systems (ITS)
- Council of Mayors Perceived Sites of Congestion Surveys
- Illinois State Toll Highway Authority traffic data

Information from these activities and data sources will be used to determine the performance level of the region's transportation system. To provide a well-rounded picture of transportation performance, a set of performance measures were selected covering congestion, accessibility and transit. The performance measures selected for the northeastern Illinois CMS are:

- Travel Time and Travel Speed
- Volume-to-Capacity Ratio
- Density of Expressway Traffic
- Intersection Level of Service
- Duration of Time Delay at Congested Conditions
- Percentage of Truck Traffic
- Percentage of Households and Employment within "X" Miles of a Bus Route
- Percentage of Households and Employment within "X" Miles of a Rail Station
- Percentage of Households and Employment within "X" Miles of an Expressway Interchange
- Transit System Measures
- Modal Shares
- Person Throughput
- Vehicle Occupancy
- Incident Measures

The results of the performance measure assessment will be published and made available to decision-makers in a periodic report identifying the performance of and deficiencies in the transportation network.

**Consideration of Alternative Strategies.** A key intent of the CMS is considering alternatives to adding traffic lanes for relieving congestion and enhancing mobility. Some examples of these alternatives are shown in Table 1. Several steps have been taken to promote the use of these alternative strategies. Examples of this include the Operation GreenLight program, the SRA program, and the SCAT program. The Regional Transportation Plan (RTP) and numerous sub-regional and corridor studies also reflect the importance that the region places on alternative strategies. To enhance this effort, a number of additional activities have been or will be implemented.

#### *Interim Congestion Management System*

The interim CMS for northeastern Illinois has been in place since October 1993. It includes a discussion of regional demand and operational management strategies (Table 1) and makes a commitment to review the viability of all reasonable alternatives to projects that require the addition of traffic lanes (add-lanes projects).

#### *CMS Alternatives Review Guidelines*

The CMS Alternatives Review Guidelines published in 1995 provide background for project planners on the requirements related to the consideration of alternatives and outline a suggested process for conducting a CMS alternatives review. The guidelines also identify "reasonable" alternatives to adding general purpose traffic lanes.

#### *Travel Demand Reduction (TDR) Report*

As part of the interim CMS, CATS and IDOT developed a procedure for identifying and evaluating TDR strategies for application with add-lanes projects. These strategies are intended to improve the efficiency of the transportation system by reducing the number of automobile trips. Examples of TDR strategies include expansion of transit services, employer-oriented rideshare programs, improved pedestrian and bicycle access, and employee parking management programs. Under the TDR program, reviews and site-screenings of add-lanes projects are performed to identify opportunities for applying TDR strategies in project corridors. The resulting TDR reports are incorporated into the CMS or environmental assessment documents for the project.

**Table 1.**

<b>Examples of Demand and Operational Management Strategies</b>		
Rideshare Matching	Telecommuting	Traffic Signal Coordination
Vanpool/Carpool Marketing	Staggered Work Hours	Traffic Signal Retiming
High Occupancy Vehicle Lanes	Park-and-Ride Facilities	Transit Subsidies
Lane Widening	Bus Lanes	Electronic Toll Collection
Adding Turn Lanes	Expansion of Transit Routes	Increased Parking Fees
Turning Restrictions	Increased Transit Service	Emergency Traffic Patrols
Parking Management	Bicycle/Pedestrian Paths	Land Use Policies/Regulations
Transit-Friendly Design	Bicycle Lanes	Access Management
Guaranteed Ride Home Programs	Truck Restrictions	Commercial Vehicle Improvements
Channelization	Ramp Metering	Intelligent Transportation Systems
	Transportation Management Associations	

*Congestion Mitigation Handbook*

To assist in the analysis of alternative strategies, a Congestion Mitigation Handbook has been developed as a resource for project planners. It provides guidelines on identifying and analyzing strategies and on conducting post-implementation evaluations. The handbook includes an overview of alternative strategies, detailed descriptions of individual strategies, a description of the TDR program, and a discussion of approaches for evaluating strategies after they are implemented.

*Corridor Screening Studies*

As resources allow, CATS will lead selected corridor screening studies. The purpose of these studies will be to identify those congestion mitigation strategies that appear most reasonable for the particular location. While these studies will be advisory in nature, project planners may use the results to define alternatives that will be examined in greater detail as part of subsequent studies. Corridors to be examined will be selected based upon a combination of performance monitoring results and knowledge derived from other studies.

**Project Selection.** The project selection or programming process builds upon numerous activities including long range transportation planning, ITS deployment planning, project generation, and program integration, review and approval and leads to the development of the region’s Transportation Improvement Program (TIP). To ensure that congestion management strategies are appropriately considered in the project selection process, congestion relief should remain a factor within this process and the implementation schedule, implementation responsibilities and potential funding sources must be defined for each proposed congestion mitigation strategy.

The current programming process for northeastern Illinois, in large part, already incorporates these elements. The CMS will document these current efforts and enhance them through a systematic approach to the development and analysis of information.

**Effectiveness Evaluation.** The CMS regulations incorporate a “feedback loop” in the congestion management process. Evaluating the effectiveness of strategies after they have been implemented is necessary to determine if they achieved the desired result. To assist in this effort, a number of additional activities have been or will be implemented.

*CMS Monitoring Program*

The primary effectiveness evaluation element of the northeastern Illinois CMS will be the monitoring program. The information derived from this program will assist in determining whether significant projects or strategies resulted in a change in congestion.

*SRA Monitoring Program*

As part of the continuing implementation of the SRA system, a monitoring program is being designed. This program is intended to sample portions of the SRA system annually and will focus on measuring three specific items: the amount of traffic moved through the system, congestion and efficiency of movement, and safety. These will be examined for a corridor based upon the type of improvement implemented.

## Evaluation Study Guidelines

Criteria have been developed to identify when additional effectiveness evaluations beyond those provided by the monitoring program may be warranted. These criteria include current knowledge of benefits, expected frequency of future implementation, importance of knowing the benefits, and cost of evaluation. At the discretion of project sponsors, these criteria may be used to identify projects for which evaluation would be beneficial. Additionally an annual determination will be made by CATS' CMS Task Force of which transportation improvements, if any, should be evaluated beyond the monitoring process. The Evaluation Study Guidelines also identify tools, methods and performance indicators that may be used to measure the impacts of implemented strategies.

## CMS Evaluation Studies

As part of its CMS activities, CATS, in conjunction with project sponsors, will perform effectiveness evaluations for selected improvements. Such improvements will be of a larger scale and may be determined using the criteria established as part of the Evaluation Study Guidelines.

## Effectiveness Evaluation Library

An inventory of federal, state and local agency information regarding the benefits of various types of strategies will be maintained by CATS. This inventory will be made accessible to those considering implementing various strategies. It will serve as a regional clearinghouse of evaluation information.

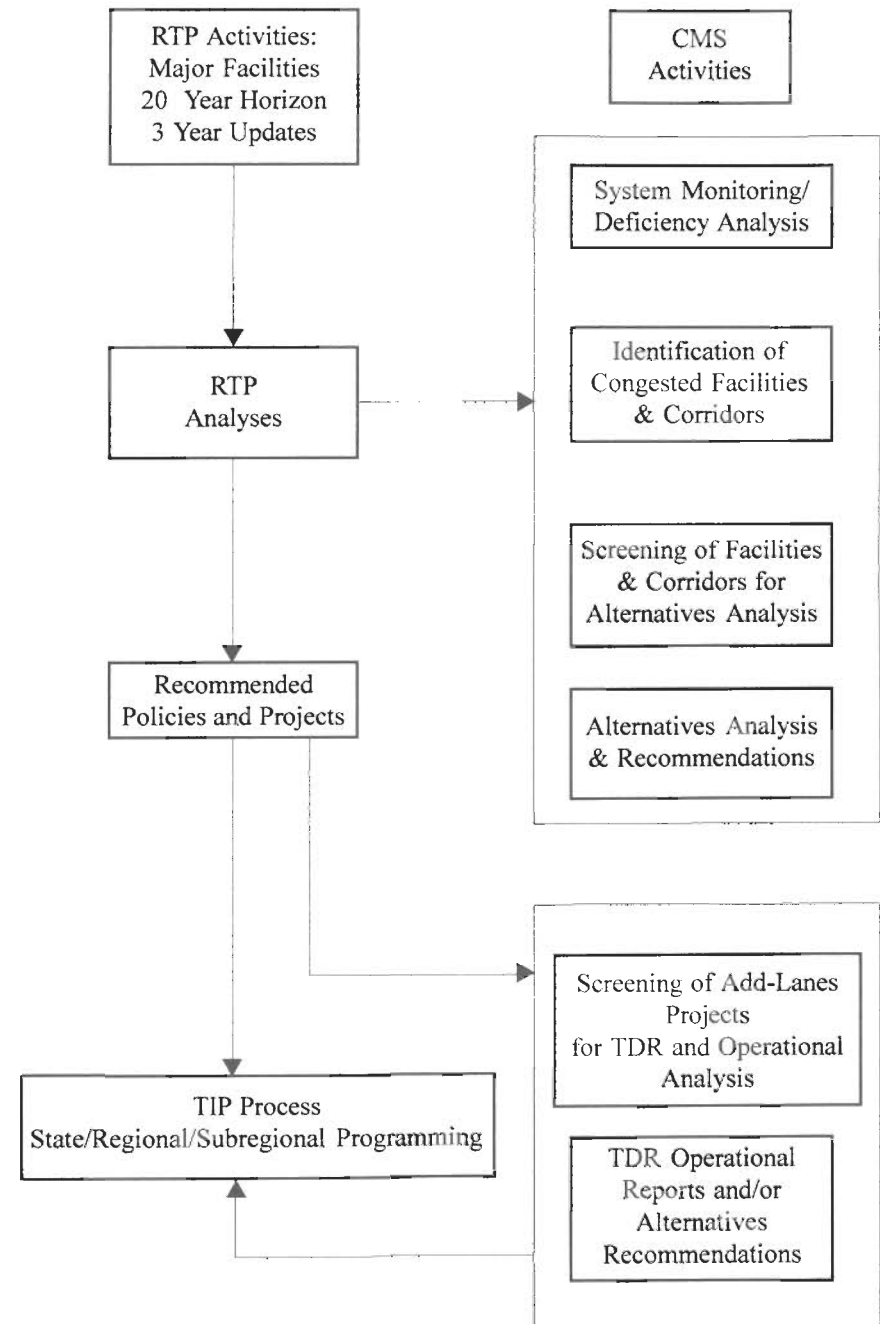
## CMS AND THE REGIONAL TRANSPORTATION PLANNING PROCESS

Several of the activities identified as components of the CMS are currently being accomplished as part of the continuous, comprehensive and cooperative transportation planning process in northeastern Illinois. The CMS will enhance these activities by instituting a systematic approach to the development and analysis of information useful for the RTP, ITS deployment and the TIP.

As shown in Figure 1, CMS activities will focus primarily on the relationship with the RTP and the TIP. Efforts such as data collection and deficiency analyses have always been conducted in support of the development of long range

Figure 1.

## RELATIONSHIP OF CMS TO THE RTP AND TIP



plans. One function of the CMS is to incorporate these actions and expand them into a systematic identification, screening and analysis of congested facilities and corridors. Results of these monitoring, deficiency and alternatives analyses will be used in two primary areas: first as information to feed into the RTP update which is conducted on a three year cycle and second as additional information to be used by various programmers responsible for developing the annual element of the TIP.

The strategy consideration component of the CMS helps to make more informed decisions and provides for better analyses by offering guidance on analyzing strategies and by relating the results of effectiveness evaluations. These activities are crucial to the second direct function of the CMS: examining how TDR activities can enhance and extend the useful life of those projects that include the addition of traffic lanes. These facilities are screened to determine the appropriateness of the facility for conducting an analysis of TDR activities. Information from these analyses is provided to the programmers of the project. This activity of the CMS was an integral part of the interim CMS for northeastern Illinois.

### **A ROLE FOR EVERYONE**

The success of the CMS will require the support of everyone in the region. CATS has primary responsibility for administering the northeastern Illinois CMS; however IDOT, local agencies, and the region's transit agencies also play important roles. As the metropolitan planning organization for northeastern Illinois, the CATS Policy Committee, as well as its implementing agencies, have long recognized that a key ingredient in a successful transportation planning effort is the participation of the public. Through the region's public involvement plan, which includes (but is not limited to) open meetings, public hearings, news letters, presentations by CATS staff and the participation of citizen groups on task forces, the public can make meaningful contributions to the transportation planning process. It will take all of these groups working together to make a successful CMS because it will take the effort of everyone to help reduce congestion.

### **OTHER CONGESTION MANAGEMENT SYSTEM DOCUMENTS**

The **Congestion Management System for Northeastern Illinois Technical Supplement** provides a detailed description of the CMS components and the legislative requirements of the CMS.

The **Congestion Mitigation Handbook** is a resource for project planners that provides guidelines on identifying and analyzing alternative strategies.

**For additional information on the Congestion Management System, the Regional Transportation Plan, the Intelligent Transportation Systems deployment plan or the Transportation Improvement Program, please contact CATS' Communications Division at (312) 793-3460.**

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