Chapter 1
GENERAL

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CHAPTER 1 - GENERAL

1-1.00 INTRODUCTION

1-1.01 Purpose of the Traffic Engineering Manual

The Traffic Engineering Manual (TEM) is issued and updated by the Minnesota Department of Transportation (Mn/DOT) Office of Traffic, Safety, and Technology (OTST). The purpose of the TEM is to establish uniform guidelines and procedures, primarily for use by personnel at Mn/DOT. Counties, cities, and local units of government will also find this manual useful when striving for uniformity in traffic engineering throughout the state of Minnesota. Uniform application of guidelines and procedures aids the road user in recognizing and understanding the various traffic control devices used throughout the United States. It aids road users, police officers, and traffic courts by giving everyone the same interpretation and guidance. It aids public highway and traffic officials through economy in manufacture, installation, maintenance, and administration. The TEM is to be used as a day-to-day operations guide and training tool for engineers and technicians associated with traffic engineering. It is the intent of this Manual to set forth accepted practices, procedures, and guidelines, chiefly for the sake of uniformity of application, but there is no legal requirement for their use.

1-1.02 Scope of the Manual

1-1.02.01 Relationship to the Minnesota Manual on Uniform Traffic Control Devices.

The Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) sets forth the basic principles, and presents the state and federal standards, which govern the design and usage of traffic control devices on all streets and highways in Minnesota. The TEM complements, but does not duplicate, the MN MUTCD. The MN MUTCD sets forth standards for traffic control devices in Minnesota. Where such standards exist, the TEM merely references the appropriate section of the MN MUTCD. Where the MN MUTCD does not specify warrants or applications, the TEM clarifies the accepted Mn/DOT practice. The TEM also details Mn/DOT traffic engineering guidelines and procedures not included in the MN MUTCD.

1-1.02.02 Relationship to Mn/DOT Policies

The TEM does not include Mn/DOT policies per se, although sections of the Manual reflect existing Mn/DOT policies related to traffic engineering. Formal Mn/DOT policies can be found at http://ihub.policies.

1-1.02.03 Relationship to Other Mn/DOT Manuals

The TEM is one of many manuals which describe guidelines, procedures, specifications, and references for activities of Mn/DOT. The TEM is intended primarily for Mn/DOT's traffic engineers working in the Central Office and the District Offices. It is not a textbook or a design and construction manual, and it is not all-inclusive. Rather, it is a guide for traffic engineers to use in fulfilling their daily duties. Accordingly, where appropriate, references are made to other Mn/DOT manuals which may be useful to the traffic engineering function.

1-1.02.04 Complementary References

Traffic engineers at Mn/DOT should have ready access to the latest editions of the following documents to complement the material presented in the TEM. Additional references, which may also be useful, are listed in each of the individual chapters of this Manual.

1. *Minnesota Manual on Uniform Traffic Control Devices for Streets and Highways (MN MUTCD)*. The MN MUTCD establishes the standards for traffic control devices on all public roads.
2. *Traffic Control Devices Handbook*, - Institute of Transportation Engineers (ITE).
3. *Minnesota Standard Signs Manual*. This Manual has 3 parts and establishes details and specifications for signs, including dimensions, colors, and other requirements.
4. *Highway Capacity Manual* - Transportation Research Board (TRB).
5. *A Policy on Geometric Design of Highways and Streets* - American Association of State Highway and Transportation Officials (AASHTO).
6. *Roadside Design Guide* - AASHTO.
7. *Minnesota Motor Vehicle and Traffic Laws*.
8. *Traffic Engineering Handbook* - ITE. This Handbook provides a comprehensive description of all basic traffic and transportation engineering functions.
9. *Manual of Transportation Engineering Studies* - ITE. This Manual describes basic traffic engineering studies performed by traffic engineers.

1-1.03 Organization of the Manual

There are 13 chapters. These chapters are organized around the basic functions performed by traffic engineers within Mn/DOT.

Chapter	1	General Information
Chapter	2	Traffic Laws
Chapter	3	Freeway Corridor Traffic Management
Chapter	4	Traffic Research
Chapter	5	Data Collection
Chapter	6	Traffic Signs
Chapter	7	Marking and Delineation
Chapter	8	Work Zone Traffic Control
Chapter	9	Traffic Signals
Chapter	10	Lighting
Chapter	11	Collision Analysis
Chapter	12	Tort Claims and Lawsuits
Chapter	13	Miscellaneous Traffic Items

1-1.04 Revisions

The material in the TEM will be continuously subject to revision as the guidelines, procedures, and other information evolve. Changes to the TEM may be preceded by Technical Memorandums which will describe the guideline or procedure that is to be modified, added, or deleted. Technical Memorandums are used for quick distribution of information.

An electronic notification of changes/revisions will be sent to those individuals who have subscribed to an electronic notification list for such updates, changes/revisions, or training planned specific to the Traffic Engineering Manual.

This subscription form can be found at http://www.dot.state.mn.us/trafficeng/otepubl/updates.html

1-2.00 OFFICE OF TRAFFIC, SAFETY, AND TECHNOLOGYS FUNCTIONS

1-2.01 Mn/DOT Organization

Mn/DOT is organized as shown in Figure 1.1. The Office of Traffic, Safety, and Technology (OTST) is part of the Policy, Safety, and Strategic Initiatives Division. OTST's primary emphasis is on setting standards, policies and guidelines, providing training, managing traffic operation activities, and providing technical support.

1-2.02 OTST's Organization

The OTST is divided into three sections as shown in Figure 1.2.

1. Traffic Engineering
   a. Signing
   b. Work Zones, Pavement Markings, and Product Evaluation
   c. Traffic Safety
   d. Traffic Standards, Tort Claims, and Training
2. Intelligent Transportation Systems (ITS)
   a. ITS Project Management and Research
   b. Electrical Systems
   c. Administrative Support
3. Traffic Operations (Regional Transportation Management Center)
   a. Freeway Systems Operations
   b. Incident Management
   c. MnPass (I-394 electronic toll collection system)

1-2.03 Functions and Responsibilities

The OTST provides leadership, expertise, and education in the operations and safety programs, and the development, use, and maintenance of traffic control devices in order to create a safe and efficient highway system in Minnesota. All the Traffic Engineering units act as liaisons between the Districts and the Federal Highway Administration, and provide technical expertise to the Districts and the Office of State Aid concerning traffic operations.The sections and their functions are as follows:

1. Signing
   a. Provide technical expertise for highway signing and quality assurances for plan preparation, specifications, and estimates.
   b. Develop and maintain standards, guidelines, concepts, and applications for signs.
   c. Evaluate materials, equipment, and methods to be incorporated into signing projects.
   d. Ensure that signing projects conform to Mn/DOT policy, the MN MUTCD, the TEM, and other applicable standards.
   e. Support statewide sign design and sign management software.
   f. Analyze the relationships between geometrics, driver expectancy, traffic flow, standardization, and operations.
   g. Develop and implement statewide signing training.
   h. Administer the TEO Signing/Pavement Marking Committee.
2. Work Zones, Pavement Markings, and Product Evaluation
   a. Provide technical expertise for temporary traffic controls, pavement marking needs, and provide quality assurances for plan preparation, specifications, and estimates.
   b. Develop and maintain standards, guidelines, concepts, and applications for pavement marking and temporary traffic controls.
   c. Ensure that pavement marking projects conform to Mn/DOT policy, The MN MUTCD, the TEM, and other applicable standards.
   d. Develop a statewide pavement marking plan and performance measures, and support the central striping business.
   e. Establish and maintain models for pavement marking life cycles.
   f. Develop and maintain pavement marking material and installation specifications and requirements.
   g. Evaluate materials, equipment, and methods to be incorporated into pavement marking projects.
   h. Perform temporary traffic control reviews.
   i. Coordinate all new traffic control and safety product evaluations, and establish a reporting system.
   j. Coordinate new products with traffic engineering research efforts, evaluation, and approvals.
   k. Provide data on active and closed new product evaluations and act as a liaison with Contract Administration and Maintenance Operations.
   l. Administer the statewide Work Zone Safety Committee and TEO Temporary Traffic Control Committee.

3. Traffic Safety
   a. Provide leadership and expertise on traffic safety issues.
   b. Administer the Highway Safety Improvement Program (HSIP).
   c. Coordinate and administer speed authorizations and the Speed Monitoring Program.
   d. Manage the Transportation Information System (TIS) crash data, and conduct training for the districts and local agencies.
   e. Conduct safety audits as required.
   f. Develop and implement Minnesota's Strategic Highway Safety Plan, working closely with the Department of Public Safety, Minnesota State Patrol, and other safety partners.
   g. Propose needed traffic safety research projects and act as the technical liaison to these projects.
   h. Interact with other states and research groups in order to exchange information and assist in practical safety research.
   i. Administer the TEO Safety Committee.
4. Traffic Standards, Tort Claims, and Training
   a. Direct and coordinate state and Mn/DOT traffic engineering policy.
   b. Coordinate and administer the Minnesota Committee on Uniform Traffic Control Devices.
   c. Prepare, coordinate, and administer standards, specifications, and technical memoranda.
   d. Arrange for publication and distribution of various traffic engineering manuals and provide expertise on their interpretation.
   e. Identify and prioritize statewide traffic engineering training needs, procure services as required, and assist with course development.
   f. Represent Mn/DOT interests in the defense against claims and lawsuit.
   g. Evaluate claims, negotiate and approve settlements, and develop Mn/DOT policies and practices regarding tort liability settlement decisions.
   h. Administer the TEO Education/Training Committee.
5. Intelligent Transportation Systems (ITS) Project Management and Research
   a. Support the research activities in the areas of traffic engineering, traffic safety, and operations.
   b. Plan and administer funding for ITS research, development, and operational testing.
   c. Manage ITS research, development, and operational test projects.
   d. Provide a full range of administrative services to all OTST staff as well as the the Traffic Engineering Organization.
   e. Provide technical, funding, planning, and contractual expertise to the Districts, Office of State Aid, cities, counties, and consultants concerning ITS.
   f. Maintenance of greater Minnesota ITS field devices.
   g. Administer the TEO Intelligent Transportation Systems Committee.

6. Electrical Systems
   a. Provide technical expertise to the Districts, Office of State Aid, cities, counties, and consultants concerning traffic signal and roadway lighting design, operation, construction, and the contract process.
   b. Provide quality assurance for plan preparation and specifications.
   c. Evaluate materials, equipment, and methods to be incorporated into signal and lighting projects.
   d. Research new traffic equipment and software technology for lighting and signal systems and design.
   e. Develop concepts, standards, and applications for lights and signals.
   f. Ensure that signal and lighting projects conform to Mn/DOT policy, the TEM, and other applicable standards.
   g. Provide electrical maintenance for traffic signals and lighting.
   h. Provide dispatching for locating Mn/DOT underground facilities as part of the Gopher State One Call system.
   i. Perform locates of Mn/DOT underground facilities within the Metro District.
   j. Provide training in traffic signal and roadway lighting design and traffic signal operations.
   k. Administer the TEO Lighting and Signals Committees.
7. Freeway Systems Operations
   a. Plan completion, fill-in, and expansion of the freeway management system (FMS), in conjunction with FMS design and integration staff of the Office of Electronic Communication.
   b. Develop and support freeway management software that monitors and controls field equipment (e.g. ramp meters, changeable message signs, and lane control signals).
   c. Provide real-time traffic and incident information.
   d. Furnish traveler information to the general public and local information service providers.
   e. Provide motorists with a safer, more reliable, and less congested trip on Metro area roadways.
   f. Provide support and technical assistance to the Metro district construction forces and other Mn/DOT units regarding FMS issues.
   g. Integrate freeway operations with other road agencies operating arterial street traffic signal systems.
   h. In conjunction with the Office of Homeland Security and Emergency Management, develop and be prepared to administer evacuation of the Metro area in case of catastrophic disaster.
8. Incident Management
   a. Manage the Freeway Incident Response Safety Teams (FIRST).
   b. Lead Mn/DOT's incident management cooperative effort with the State Patrol, municipal law enforcement, municipal fire departments, Mn/DOT Maintenance, and private tow companies.
   c. Provide expertise in the area of incident response.
   d. Develop incident management plans for major construction projects on Metro freeways.
   e. Manage Mn/DOT's special freeway operations projects to supplement the current freeway management system.

9. MnPASS
   a. Maximize capacity in the I-394 corridor, and make better use of the capacity in the HOV lane.
   b. Develop, coordinate, and implement strategies and work plans for the Mn PASS program.
   c. Administer partnership agreements with law enforcement agencies providing additional enforcement in the corridor.
   d. Oversee the administration and execution of the I-394 MnPASS express lanes capital and operating contracts.

1-2.04 Delegation of Authority

In addition to the responsibilities of the State Traffic Engineer which are carried out by the various units of the OTST, the State Traffic Engineer is delegated very specific authority and responsibility from the Commissioner of Mn/DOT for providing traffic control devices on the trunk highway system. In addition, some authority is further delegated to the District Traffic Engineers. The general levels of authority and responsibility are described in the following sections:

1. Orders approved by the District Traffic Engineer
   a. For standard traffic signs and markings which are in accordance with the MN MUTCD, the District Traffic Engineer may issue a District Traffic Work Order, Form 29187 (Form 1.A).
   b. Files are kept in the District Traffic Office.
2. Speed limit authorization by the Office of Traffic, Safety, and Operations.
   a. The OTST authorizes speed limits for streets described in MS 169.14, Subd. 5 and 8.
   b. For speed zoning on local streets, roads, bridges, and temporary speed limits in construction zones, an engineering and traffic investigation with recommended speed limits shall be submitted to OTST on Form 1.B for approval.
   c. For trunk highways described in MS 169.14, Subd. 4, the OTST also authorizes all speed limits. Form 1.C should be prepared and submitted to OTST for approval.

1-3.00 DISTRICT TRAFFIC ENGINEERING FUNCTION

1-3.01 General Function of the District Traffic Engineering Staff

The function of the District is primarily to implement policies and preferred practices, contact and advise local governmental agencies, manage day-to-day operational problems in the field, provide feedback to Central Office on policies and practices, advise District staff, perform field investigations, collect data, supervise signing and striping operations as assigned within the District, and perform numerous studies.

Within the organization of Mn/DOT many important traffic engineering functions are carried out by the District Traffic Engineer (DTE) and staff. While each District has a slightly different organization, the functions performed by the DTE's and their staffs are essentially the same.

1-3.02 Specific Functions Performed by the District Traffic Engineering Staff

The specific functions performed by the District Traffic Engineering Staff are as follows:

1. Collect, analyze, and use data as part of various studies of traffic volumes, crashes, and special programs.
2. Lead the preparation of the Intersection Control Evaluation report.
3. Design coordination.
   a. Review preliminary and construction road plans from a traffic engineering perspective.
   b. Obtain and administer all work authorities needed by and/or assigned to the traffic office.
   c. Review all comprehensive plans, plats, and proposed developments.
   d. Obtain local approvals of traffic engineering projects where needed.
   e. Review proposed design standards and provide feedback.
4. Safety design.
   a. Develop District Safety Improvement Program, including contract and maintenance work.
   b. Investigate safety issues and develop safety project proposals.
   c. Review entrance permits.
   d. Make recommendations to designers.
   e. Prepare design study reports for safety projects, if requested.
   f. Prepare portions of large study reports relating to crashes, traffic volume, present operation, etc.
   g. Assist in the development of guardrail improvement programs.
   h. Review and assist local safety programs.
   i. Provide capacity analysis of present roadways, intersections, etc.
   j. Provide District support of traffic-oriented research programs.
   k. Provide a before and after evaluation of past projects.
   l. Manage the District Transportation Information System (TIS) and crash files.
   m. Facilitate District tort claim responses.
5. Signal design.
   a. Design and prepare traffic signal plans.
   b. Prepare traffic signal special provisions.
   c. Develop, administer, and process signal agreements with local governmental agencies in conjunction with the Office of Technical Support.
   d. Prepare and approve intersection control evaluations, which replaces the signal justification report.
   e. Assist in the determination and preparation of signal installation and operation programs.
   f. Investigate and recommend signal system concepts on trunk highways and local roads.

6. Lighting design.
   a. Develop, administer, and process lighting agreements and exhibits with local agencies and utility companies in conjunction with the Office of Technical Support.
   b. Prepare and process exhibits for lighting systems.
   c. Design and prepare lighting plans.
   d. Prepare lighting special provisions.
   e. Prepare lighting study reports.
   f. Review lighting permits submitted by local municipalities and utility companies.
   g. Determine the source of power obtained from the utility company.
7. Signal and lighting construction.
   a. Supervise contracts and provide inspection for assigned signal and lighting projects as directed by the District Engineer.
   b. Assist in the inspection of signal and lighting contracts assigned to others.
   c. Assist local governments in the inspection of signal and lighting projects.
   d. Originate traffic engineering requests for state furnished equipment.
   e. Update the Automated Facilities Management System (AFMS).
8. Signal and lighting operations.
   a. Investigate and prepare replies to questions pertaining to signal and lighting operations.
   b. Supervise lighting procedures.
   c. Time all signals, and develop and maintain a systematic review of the operation of all signal systems, including railroad emergency preemption.
   d. Coordinate activities with the appropriate Electrical Services Unit (ESU).
   e. Provide inventory of signal and lighting equipment in the field for maintenance by the appropriate ESU.
   f. Assist in minor troubleshooting of signals as requested by the appropriate ESU.
   g. Provide liaison with power companies for repairs where Mn/DOT furnishes lane closures.
   h. Provide routine surveillance patrols to determine all lighting outages within the District. This includes all roadway lighting and sign lighting.
   i. Locate underground facilities in response to requests from Gopher State One Call.
   j. Write simple lighting and signal agreements.

9. Signing operations.
   a. Investigate and reply to complaints relative to signing.
   b. Investigate and prepare District Traffic Work Orders for needed signs.
   c Administer special signing projects such as signing for resorts, campgrounds, corporate limits, specific service signs, etc.
   d. Prepare layouts for routine sign maintenance programs.
   e. Assist in the formulation of signing standards and policies.
   f. Design and/or review designs of contract signing, layouts, and plans.
10. Construction coordination.
   a. Prepare Traffic Control Orders which cover traffic control devices used for construction operations.
   b. Coordinate sign crew activities in the field.
   c. Determine with the project engineer the construction staging required for designs, and prepare the Traffic Control Plan for the project.
   d. Assist in the preparation of time and traffic provisions.
   e. Assist in the layout and installation of contract signing.
   f. Assist in the preparation of public information for construction work.
11. Speed zoning and special studies.
   a. Prepare speed limit studies and manage the District speed limit authorization process.
   b. Investigate complaints and systematically review all speed zoning on the trunk highway system.
   c. Maintain the reference post system.
   d. Collect data for determining speed trends and influences.
   e. Conduct investigations and provide reports for school safety programs.
   f. Conduct investigations and provide reports for railroad crossing programs.
12. Pavement marking operations.
   a. Maintain appropriate pavement markings on all highways and interstates.
   b. Oversee construction and maintenance activities related to pavement marking.
   c. Make and report handheld retroreflectometer readings to the pavement marking unit to be added to the inventory data base.
   d. Provide daily work planning and supervision for latex pavement marking.
13. Oversee the design, construction, maintenance, and operation of District ITS systems which may include cameras, electronic signs, vehicle detection, and communications networks.
14. Assist in the issuance of permits for parades and events.
15. Respond to numerous public and legislative concerns and requests.

1-4.00 TRAFFIC ENGINEERING ORGANIZATION (TEO)

1-4.01 Introduction

To provide a forum for the sharing of new ideas, experiences, and the opportunity to discuss general traffic engineering topics of mutual interest, the TEO was established to better address the traffic engineering challenges of the present and the future. These challenges include the need to:

1. Remain innovative in an era in which standardization is increasingly emphasized.
2. Maintain flexibility while working under today's budget constraints.
3. Maximize the utilization of existing corridors for increasing traffic volumes.
4. Take the initiative on matters affecting traffic safety and engineering within Mn/DOT.

1-4.02 Purpose

Deliberate and active pursuit of the following purposes of the TEO will produce effective cooperation within Mn/DOT and other agencies and will provide better service to the motoring public.

1. Provide leadership and promote uniformity in traffic engineering practices and policies within Mn/DOT.
2. Play a cooperative role in addressing traffic engineering topics that affect the Districts.
3. Communicate, obtain information, and exchange ideas with other traffic engineers, Mn/DOT groups, other agencies, and outside groups and organizations; and become aware of and act on issues affecting Mn/DOT.
4. Make recommendations for the implementation of solutions to traffic problems of a department wide nature.
5. Stay abreast of new technology and methods and promote the implementation of new technology in daily practice.
6. Continue the relationships with the District staffs and assist them in solving problems affecting District operations.
7. Provide leadership to identify, design, and deliver continuing education courses for traffic engineering professionals.

1-4.03 Structure and Procedures

Mn/DOT has adopted a general organizational philosophy of decentralization. With regard to the Districts the role of the OTST in the Central Office is to provide leadership, education, standards and policies, technical expertise, and support. The District Traffic Engineering Offices are largely responsible for direct public and agency contact on specific issues as well as program delivery and traffic operations in the field.

In order to maintain efficiency in the working relationships between the Central and District Traffic Offices, Mn/DOT has adopted the formal TEO described below.

1. Organization

   a. Membership consists of the Director, Assistant State Traffic Engineers, and Functional Area Supervisors from OTST, District Traffic Engineers (DTE's), Geometrics Engineer in the Office of Technical Support, and the FHWA Safety and Traffic Operations Engineers. Others may be invited by TEO members to attend and participate in the meetings.

   b. Responsibilities are to:

      1) Provide overall direction and guidance to Mn/DOT on traffic policy, operation, and uniformity.

      2) Adopt formal positions of the Organization.

      3) Initiate action on items needing work.

      4) React to items in which input from the entire TEO is desired.

      5) Annually, at the last meeting of the year, elect by majority vote of the DTE's the new DTE representative to serve on the Executive Committee.

   c. Meetings are to be held semi-annually or as determined by the Executive Committee or a majority of the TEO membership.

   d. At any meeting there are two officers, the Chair and the Recorder. Chair duties are assumed by the DTE serving as the Executive Committee Vice-Chair. The Chair serves for the entire calendar year. Recorder duties will be assigned to the host office member by the Director of OTST.

   e. Organization meeting Chair duties are to:

      1) Arrange TEO meeting times and facilities with the Executive Committee. Facilities are currently being arranged by the host office.

      2) Govern the activities at the Organization meeting.

   f. TEO recorder duties are to:

      1) Request agenda items, prepare agenda in consultation with the Director of OTST, and distribute the agenda for the meeting. The person responsible for these duties is the Office and Administrative Specialist of OTST.

      2) Prepare a list of future TEO meeting dates, Standing Committee memberships, current bylaws, and any additional attachments members would like to add, and send them to all TEO members. The person

      responsible for these duties is the OTST Office and Administrative Specialist.

      3) Take appropriate notes and distribute them in final form to the mailing list as soon as possible after the meeting. Action items indicating who is responsible for follow-up are to be highlighted in the notes. These duties are the responsibility of the host office.

      The agenda is to be organized by subject, rather than by person.

2. Executive Committee:

a. Membership consists of the Director of OTST, the three DTEs elected by all the DTE representatives, and the traffic electrical systems engineer. If a member is unavailable, an alternate should attend in their place.

b. Responsibilities are to:

1) Be the contact body for the Organization.

2) Coordinate and direct the working activities of the Organization.

3) Assist the Director of OTST in recommending policy to Mn/DOT staff.

4) Assist the Chair in arranging the meetings.

5) Identify and present to the Committee those items in which input and direction are required.

6) Make decisions on behalf of the TEO for matters not deemed controversial enough to warrant TEO consideration.

7) Establish appropriate Ad Hoc committees.

8) Periodically review the operating procedures of each Standing Committee, Ad Hoc committee, and Sub-committees to "fine tune" them as needed.

9) Evaluate and approve scientific equipment requests for traffic engineering uses.

10) Speak for the Committee.

11) At the last meeting of each year seek the desires of the other TEO members regarding Standing Committee assignments, and then make all the appointments for the coming calendar year. The Executive Committee will resolve all assignment conflicts by majority vote.

c. The Director of OTST will serve as the Chair of the Executive Committee. A DTE will serve as the Vice-chair. The responsibilities of the Chair are to:

1) Call meetings of the Executive Committee as needed.

2) Obtain progress reports from each of the committees prior to Executive Committee and TEO meetings, and report on the progress at those meetings.

3) Organize the agenda at all Executive Committee meetings.

4) Serve as the initial principal contact of the Organization for other people or groups.

d. At the last meeting of each year the DTE's as a group elect one DTE to serve on the Executive Committee for a three year term. After the first year, the elected DTE will serve as the TEO meeting Vice-chair for a year, and then during the third year serve as the Chair for the TEO meetings and as the Executive Committee Vice-chair. Any vacancies that occur during the year will be filled on an interim basis by majority vote of the remaining Executive Committee members.

e. A member of the Executive Committee, or one of the OTST Assistant State Traffic Engineers serves as the TEO contact with the Operation Managers Group (OMG), the Construction Managers Group (CMG), the Pre-Construction Managers Group (PCMG), the Office of Technical Support, and the District Operation Division's staff.

3. TEO Standing Committees

   a. The TEO has eight Standing Committees.

      1) Executive

      2) Education/Training

      3) ITS

      4) Lighting

      5) Safety

      6) Signals

      7) Signing/Pavement Marking

      8) Temporary Traffic Control

   b. Responsibilities of the Standing Committees are:

      1) Review, evaluate, and report to the Executive Committee on matters that had been referred to it.

      2) Identify issues and provide recommendations to the Executive Committee for consideration.

      3) Act as a resource group by serving on other Mn/DOT committees or task forces at the request of the Executive Committee.

      4) Assist other Standing Committees when issues overlap.

   c. Each Standing Committee shall consist of at least one member from OTST, two DTE's, and additional members as deemed appropriate.

   d. A member of TEO appointed by the Executive Committee will serve as Chair for each calendar year period. Normally, this person will be the OTST functional area engineer.

   e. The Standing Committee Chair will be responsible for:

      1) Organizing the work of the Committee.

      2) Keeping the Executive Committee informed on activities.

      3) Ensuring that Committee work is well documented.

   f. Appointments to the Standing Committees and Officer positions will be made by the Executive Committee elected to serve that year. Appointments will be made in January and individual desires will be accommodated as much as possible

4. Ad Hoc Committees

   a. Ad Hoc committees will be established by the Executive Committee or Standing Committees as necessary.

   b. Membership will consist of a Chair and at least two other people with appropriate backgrounds (within or outside of Mn/DOT).

   c. Responsibilities for each Ad Hoc Committee will be determined by the requesting authority.

   d. The requesting authority will disband the Ad Hoc Committee when it's charge is completed.

5. Sub-Committees

   a. Any Standing Committee or Ad Hoc Committee may establish one or more Sub-committees to assist in carrying out its responsibilities.

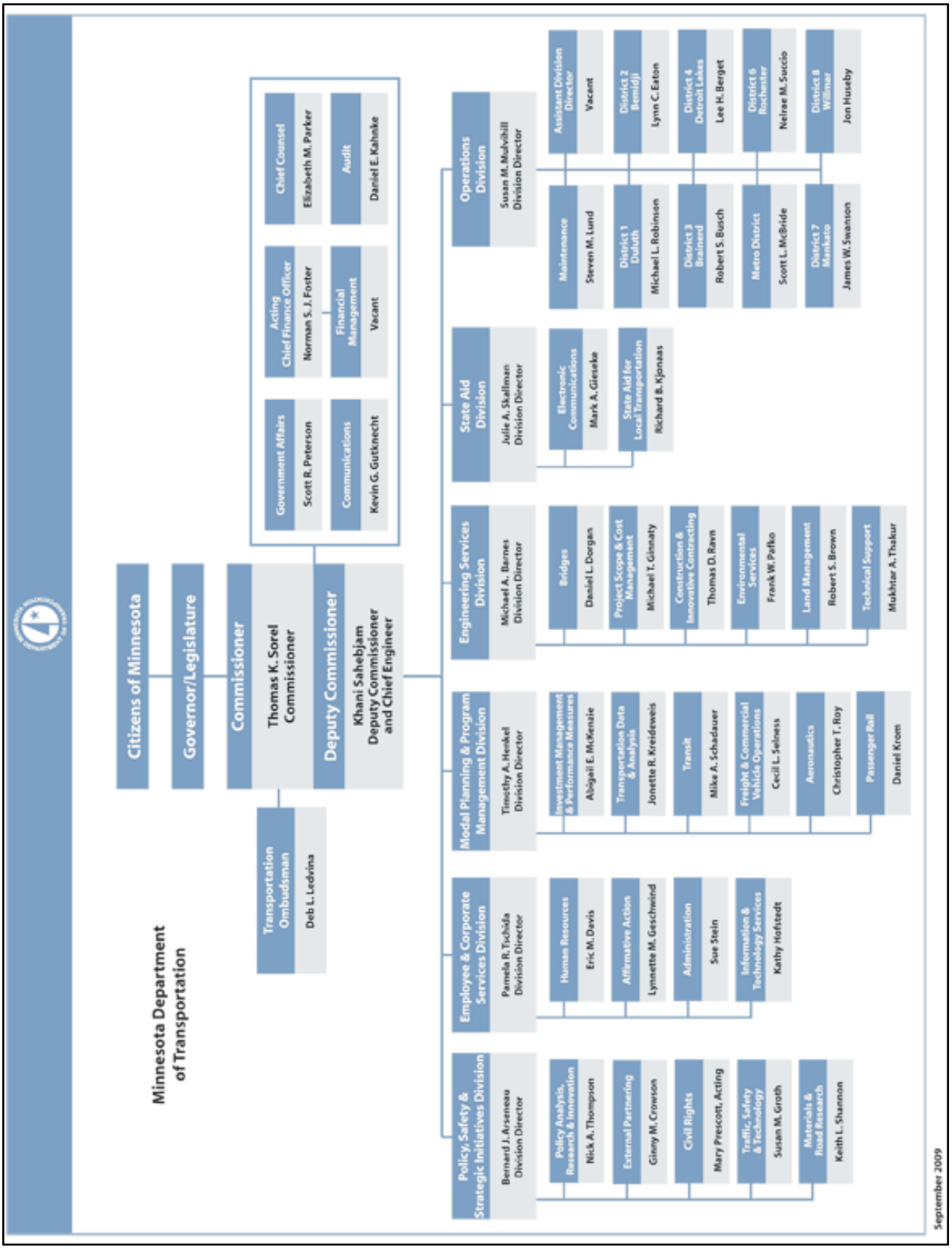
   b. Sub-committees will serve at the discretion of the Committee Chair.

1-4.04 Documentation

It is imperative that work done and decisions made within the TEO are well documented. The Executive, Standing, Ad Hoc, and Sub-committee Chairs are responsible for keeping accurate written documentation of their activities.

The Director of OTST will maintain a journal documenting all TEO group activities each calendar year. This journal will serve as the official record of the TEO's activities. The Director will write, or cause to have written, an executive summary of the journal, and will distribute the executive summary to appropriate Mn/DOT staff.

The Director of OTST will incorporate all issues resolved by the TEO into the Minnesota Traffic Engineering Manual (TEM), or the Minnesota Manual on Uniform Traffic Control Devices (Mn MUTCD), as appropriate. The Director will also include the documentation of the TEO contained herein in Chapter 1 of the Minnesota TEM.



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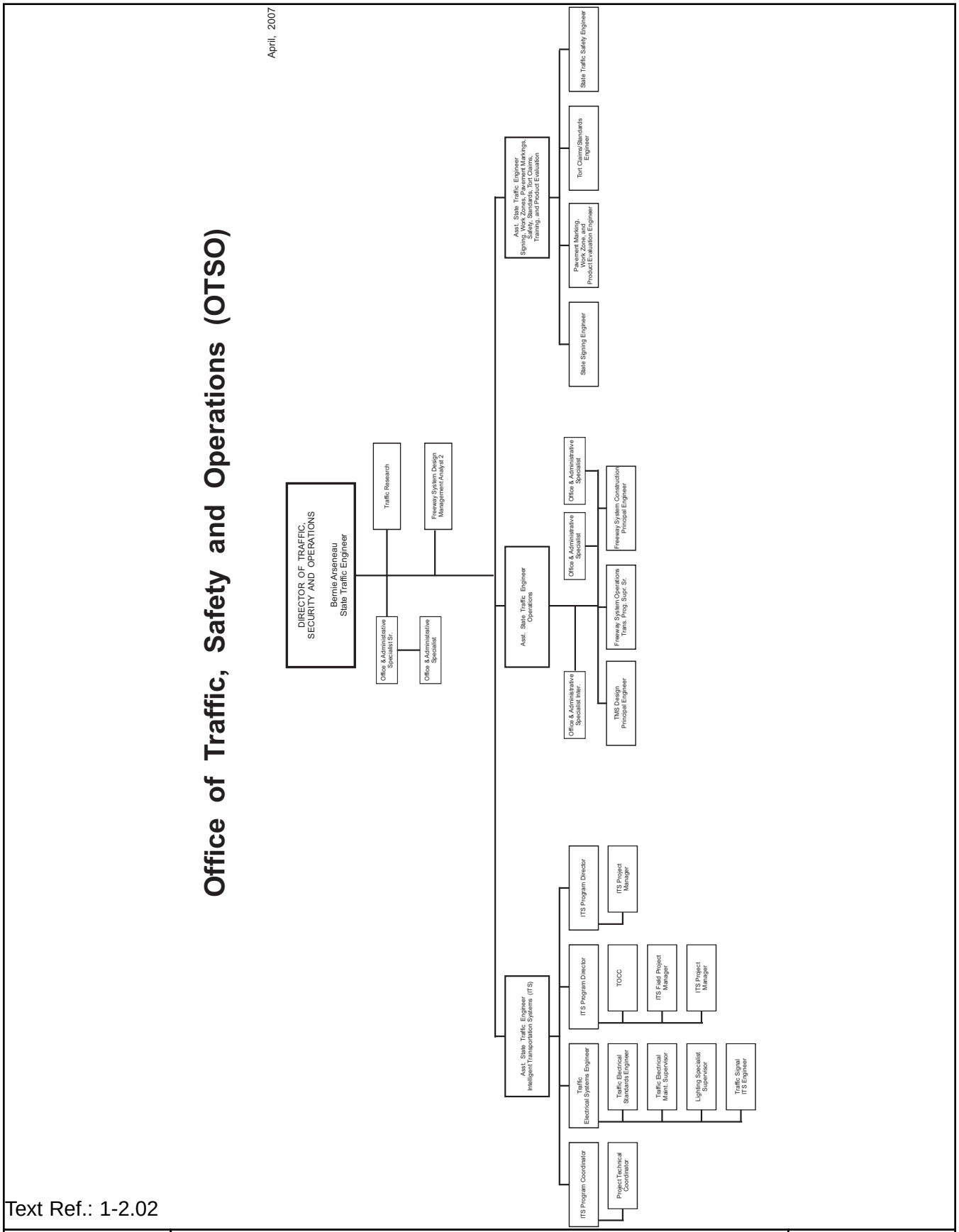
October 31, 2009	MINNESOTA DEPARTMENT OF TRANSPORTATION ORGANIZATION	FIGURE 1.1



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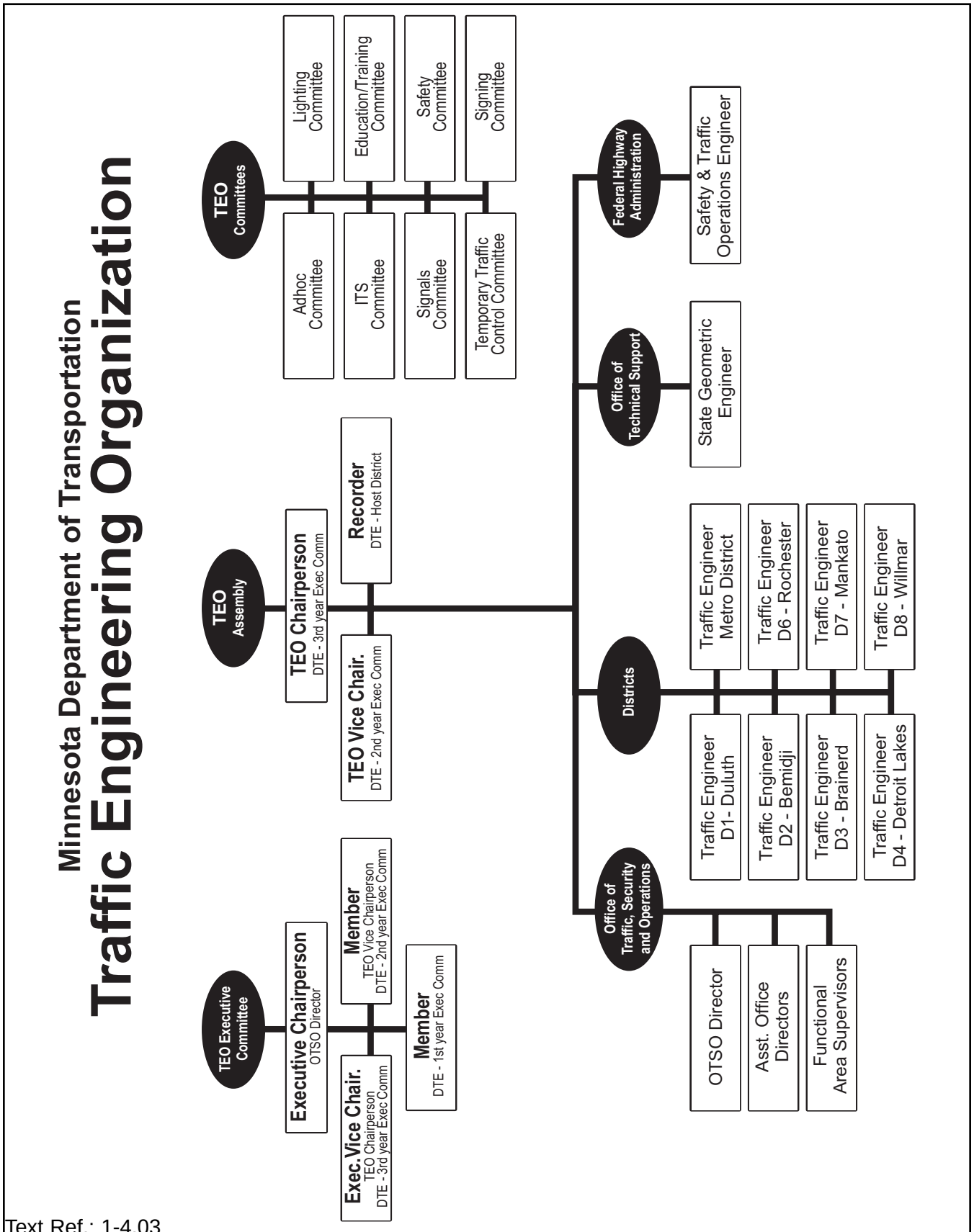
July, 2007	**OFFICE OF TRAFFIC, SAFETY, AND OPERATIONS (OTST)**	FIGURE **1.2**



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July, 2007	**Mn/DOT TRAFFIC ENGINEERING ORGANIZATION**	FIGURE **1.3**

Mn/DOT 29187 (12/78)

DISTRICT TRAFFIC WORK ORDER

County _____ Date _____
T.H. No. _____ Dist. No. _____
Control Section _____ Order No. _____
Location _____

To _____
Make the (permanent/temporary) changes in traffic controls as follows:

_____
District/Division Traffic Engineer
Date work completed _____ Signed by: _____

White and Pink -- Work Unit
(Return White to DTE upon completion or work)
Orange -- Project Engineer or Project Supervisor
Blue -- District Traffic Engineer

Text Ref.: 1-2.04

July, 2007	**DISTRICT TRAFFIC WORK ORDER**	FORM **1.A**

Mn/DOT 29213 (12/78)

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

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LOCAL STREET OR HIGHWAY SPEED LIMIT AUTHORIZATION

Road Authority	Date
Road Name or number	
Termini of Zone: From	
To	Date of Request

As authorized in Minnesota Statutes 169.14,it is hereby ordered that the following speed limits are approved and shall be put into effect on the described roadway or sections thereof.

(filled out by District staff)

Please Sign → Here	Signature of Traffic Engineer

(1) White original -- Road Authority
(1) Pink -- Central Office Traffic
(1) Blue -- District Traffic Engineer

For Road Authority use only

Date traffic control devices changed implementing this authorization

Month-Day-Year	Signature	Title

Text Ref.: 1-2.04

July, 2007	**LOCAL STREET OR HIGHWAY SPEED LIMIT AUTHORIZATION FORM**	FORM **1.C**

Mn/DOT 29212 (12/78)

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

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TRUNK HIGHWAY SPEED LIMIT AUTHORIZATION

Control Section	Date
T.H. No.	Order No.
County	Dist. No.
Location	

As authorized in Minnesota Statutes 169.14,it is hereby ordered that the following speed limits are approved and shall be put into effect on the described roadway or sections thereof.

(filled out by District staff)

Please Sign → Here	Signature of Traffic Engineer

Date traffic control devices changed implementing this authorization

Month - Day - Year	Signature	Title

(1) White -- District Traffic Engineer
(1) Pink -- Central Office Traffic

NOTE: Reference Points (RP) shown are for state reference system only.

Text Ref.: 1-2.04

July, 2007	**TRUNK HIGHWAY SPEED LIMIT AUTHORIZATION FORM**	FORM **1.D**