

GENERAL INFORMATION

5-892.000

5-892.001 MAPS OF MINNESOTA

A. See Fig. A 5-892.001, Fig. B 5-892.001 and Fig. C 5-892.001.

5-892.002 SYSTEMS DEFINITIONS

STATE AID SYSTEMS

County State Aid Highway - C.S.A.H. - A road or street established and designated under county jurisdiction in accordance with Minnesota Statutes Chapter 162.

- Municipal State Aid Street - M.S.A.S. - A street within a city or village having a population of 5,000 or more, established and designated under municipal jurisdiction in accordance with Minnesota Statutes Chapter 162.

OTHER SYSTEMS

County Road - Co. Rd. - A road established and designated under the sole authority of the county board.

Township Road - Twp. Rd. - A road established by and under the authority of the town board, or reverted to township jurisdiction by the county board.

City Street - City St. - Any street under the jurisdiction of a municipality not otherwise designated as a Trunk Highway, State Aid Street/Highway or County Highway.

FUNCTIONAL CLASSIFICATION PLAN

A plan by which highways and streets are grouped in classes according to the character of service they are intended to provide.

RURAL SYSTEM DEFINITIONS

Principal Arterials Serve corridor movements having trip lengths and travel density characteristics indicative of statewide or interstate travel. Also serve all urbanized areas and a large majority of the small-urban areas with over 25,000 population.

Minor Arterials Link cities, larger towns, and other traffic generators, such as major resort areas. Consistent with population density, space minor arterials so that all developed areas of the state are within a reasonable distance of an arterial highway.

Major Collectors These routes: (1) provide service to the larger towns not served by higher systems and other traffic generation of equivalent intra-county importance such as consolidated schools and county parks; (2) link these places with nearby large towns or cities or with arterials; and (3) serve important intra county travel corridors.

Minor Collectors At intervals consistent with population density these routes collect traffic from local roads and bring all developed areas within a reasonable distance to a collector road and provide service to the remaining small communities.

Local Serve primarily to provide access to adjacent land. Includes all roads not classified as arterial or collectors.

URBAN SYSTEM DEFINITIONS

Principal Arterials Serves major centers of activity within metropolitan areas, corridors of highest traffic volume and longest trip desires, and provides continuity to the rural arterial system. In larger urban areas, they provide service for major movements within the urbanized area itself, in addition to serving rurally oriented traffic.

OVERVIEW OF STATE AID OPERATIONS

5-892.100

5-892.101 COUNTY STATE AID HIGHWAY SYSTEM

The 1957 Legislature, in response to a constitutional amendment passed during the November 1956 election, authorized the establishment of a County State Aid Highway system not to exceed 30,000 miles notwithstanding trunk highway turnback mileage. Recently, the 30,000 mile restriction was eliminated. Designation of the system was made in accordance with Rules and Regulations for State Aid Operations under Chapter 943, Laws of 1957. (The State Aid Rules are now identified as Minnesota Rules, Chapter 8820.)

SYSTEMS: DESIGNATIONS-ADDITIONS, REVISIONS AND REVOCATIONS

Any change to the County State Aid Highway system which is contemplated must first be presented to the District State Aid Engineer for review and comment and then, if appropriate, the request will be forwarded to the State Aid Division office for preliminary approval along with a copy of Form TP 30758 (Fig E 5-892.101)

Upon receipt of preliminary approval a resolution for designation (County - Fig. A 5-892.101) detailing the proposed changes shall be submitted by the county board to the State Aid Division office and formal designation will be by official order of the Commissioner of Transportation (Mn/DOT).

Any addition, revision, or revocation of the County State Aid Highway system within the corporate limits of a municipality must be approved by resolution of the governing body of the municipality. See concurring resolution by municipality (New designation - Fig. B 5-892.101), concurring resolution by municipality. (Revised designation -

Fig. C 5-892.101), resolution for revocation (County - Fig. D 5-892.101).

If circumstances require the revocation of a route that had State Aid monies expended for its improvement, then an adjustment will be imposed that will require an evaluation by the District State Aid Engineer as to the value of the remaining life of the improvements that were made. The adjustment will be made on the next authorized construction contract by withholding the value determined.

Former trunk highways turned back after July 1, 1965 that have been designated as State Aid routes may not be revoked and the mileage designated elsewhere. That mileage was authorized over and above the County's established allotment of State Aid mileage and, if the former trunk highway does not meet the criteria for State Aid designation anymore, then that mileage will be relinquished. (See MN Rules 8820)

SYSTEMS LIMITATIONS

The county state aid mileage allowable in each county was determined in 1957 and no increase in size is permitted without approval of the county screening board except for trunk highways (turnbacks) that revert back to local jurisdiction and become part of the State Aid system, and former Municipal State Aid Streets in Municipalities which have fallen below 5,000 population.

5-892.110 MUNICIPAL STATE AID STREET SYSTEM

In the same manner as the County State Aid Highway system, the 1957 Legislature authorized the establishment of a Municipal State Aid Street system in cities with 5,000 population or more. Designation of the system was made in accordance with Rules and Regulations for State Aid Operations

under Chapter 943 Laws of 1957. (The rules are now identified as Minnesota Rules, Chapter 8820.)

**SYSTEMS: DESIGNATIONS-ADDITIONS,
REVISIONS AND
REVOCATIONS**

Any change to the Municipal State Aid Street system which is contemplated must first be presented to the District State Aid Engineer for review and comment, and then, if appropriate, submittal of the request to the State Aid Division office for preliminary approval.

Upon receipt of preliminary approval, a resolution for either designation (City - Fig. A 5-892.101) or revocation (City - Fig. D 5-892.101) detailing the proposed changes shall be submitted by the governing body of the city to the State Aid Division office and formal designation will be by official order of the Commissioner of Transportation.

If circumstances require the revocation of a route that had State Aid monies expended for its improvement, then an adjustment will be imposed that will require an evaluation by the District State Aid Engineer as to the value of the remaining life of the improvements that were made. The adjustment will be made on the next authorized construction project by withholding the value determined. Former trunk highways (turned back after July 1, 1965) and County Highways (turned back on or after May 11, 1994) that have been designated as Municipal State Aid routes may not be revoked and to re-designate that mileage elsewhere if that mileage is considered to be above the City's 20% allowable authorized mileage. When the turnback mileage is absorbed into the city's normally authorized mileage total, the turnback mileage may be treated as normally designated State Aid mileage.

SYSTEM LIMITATIONS

The Minnesota Legislature has determined the maximum mileage available for designation as Municipal State Aid Streets

shall be 20% of the total miles of city streets and county roads within the jurisdiction of the city. The only exception is to accommodate trunk highways and county highways that revert back to local jurisdiction and become part of the Municipal State Aid Street system.

5-892.120 ALLOTMENTS

**STATE AID: COUNTIES AND URBAN
MUNICIPALITIES**

Allocation of State Aid monies to the counties and urban municipalities is made on the basis of a legislative formula (see M.S. 162.07 and 162.13).

Fifty percent of the monies are allocated according to a needs study as described under 5-892.800.

The remaining fifty percent, allocated to the counties, is divided according to the legislative formula. Ten percent equally, ten percent based on vehicle registration, and thirty percent based on County State Aid lane miles. The remaining fifty percent, allocated to the urban municipalities, is divided based on population.

FEDERAL-AID

Federal-aid funds are distributed by the Area Transportation Partnership (ATP) formed in each of the Mn/DOT construction districts. Each district's ATP establishes its own procedures for soliciting, prioritizing, and selecting projects to receive Federal-aid funds. For areas within a Metropolitan Planning Organization (MPO), projects must be approved by the MPO.

Projects approved by the MPO's and ATP's are gathered to create a Statewide Transportation Improvement Plan (STIP) and submitted for approval by the Federal Highway Administration. Only projects on the approved STIP can receive Federal-aid funds.

5-892.130 FEDERAL-AID PROJECT AGENCY AGREEMENTS

Minnesota Statutes, Section 161.36 permits the Commissioner of Transportation (Mn/DOT) to act for a County or Urban Municipality in carrying out the County's or Urban Municipality's Federal-aid construction program. The Commissioner must first be given documented authority to do so by action of county boards or city councils. The following is a summary of documents which require action by county boards or city councils prior to action by the Commissioner of Transportation for the County or Urban Municipality.

The Agency Agreement is the contract between the Commissioner of Transportation (Mn/DOT) and the County or Urban Municipality which sets up the terms and conditions under which Federal-aid funds are made available to construct approved projects. It provides that the Commissioner shall act as agent for the County or Urban Municipality in regard to all things relative to the project. An agreement, once executed, remains in effect from year to year unless a revision is required, in which case a new agreement is sent out for execution. A current Agency Agreement must be on file in the State Aid Division office prior to advertising for bids for a Federal-aid construction project.

SAMPLE FORMS

Agency Agreement . . Fig. A (1-7) 5-892.130

REQUIRED RESOLUTIONS

Resolution to authorize Agency Agreement
..... Fig. B 5-892.130

5-892.140 PLAN APPROVAL PROCEDURE

Every construction project that utilizes State-aid or Federal-aid monies in the financing of the project must have a State Aid project number assigned. This project number is

obtained by providing the State Aid Division office with the State Aid route number, termini, length and type of work (See Fig. D 5-892.210 Request for State Aid Projects).

On Federal-aid projects when the project development approvals are complete (refer to the State Aid Project Development Manual), construction plans may be submitted to the District State Aid Engineer for review and recommendation and right-of-way acquisition may begin (See 5-892.300, B,1 Timing of Right-of-Way Acquisition). State Aid plans may be submitted to the District State Aid Engineer when ready for approval. The DSAE has authority to approve most types of State Aid funded plans for the State Aid Engineer. The DSAE may also decide to send the plan to the State Aid Division Office for workload reasons, if unfamiliar with certain items or as otherwise desired. Plans generally are reviewed on a first-come first-served basis. It is therefore advisable to allow sufficient time for review by the State Aid Division office. Minnesota Rule 8820.2800 requires the approval of the plan by the State Aid Engineer prior to award of the contract.

Before any Federal-aid project is approved for advertising, a Right-of-Way Certificate Number 1 (Form 30750) or 1A (Form 30749) must be on file in the State Aid Division office as well as Utility Relocations (Certification Form 30723), Data for Special Provisions (Form 30133), a detailed Traffic Control Plan (see 5-892.231), and an Erosion Control Plan (see 5-892.232).

SAMPLE FORMS

Right-of-Way Certificate No. 1
..... Fig. I (1) 5-892.300

Right-of-Way Certificate No. 1A
..... Fig. I (2) 5-892.300

Right-of-Way Certificate No. 2
..... Fig. J 5-892.300

Utility Relocations Fig. A 5-892.245

Data for Special Provisions
..... Fig. A (1-4) 5-892.253

standards, and accepted engineering practices.

**5-892.141 SCHEDULE OF PROCEDURE:
STATE AID (S.A.P.) PROJECTS**

The procedure for processing a State Aid project (S.A.P.) from preparation of plans to completion of construction are as follows:

d. Approves plans and authorizes local engineer to proceed to letting.

e. Approves Force Account Agreement after review by MnDOT's Estimating Unit.

A. PLANS

6. Local engineer performs the following:

1. Project number obtained from the State Aid Division office. (See Fig. D 5-892.210 Request for State Aid Projects).

a. If by force account method:

2. Plans are prepared under the supervision of the local engineer or under agreement with a consultant or another public agency.

(1) Local engineer performs force account work with local forces, railroad forces, etc. at agreed upon unit prices.

3. Local engineer submits plans, engineer's estimate, Plan Review Sheet (Fig. A 5-892.200), a Force Account Agreement if applicable (Form 30720, Fig. A (1-2) 5-892.246), a Material Inspection Request if desired (Fig. A (1-2) 5-892.243), and all required documentation to the District State Aid Engineer for review.

(2) Local engineer submits estimates for payment as work progresses.

4. Data submitted is reviewed by the District State Aid Engineer and, if acceptable, submitted to the State Aid Division office for final review and approval. (Or for particular types of work, may be approved by the District State Aid Engineer.)

b. If by contract method:

5. State Aid Division plan review staff performs the following:

(1) Prepares special provisions (5-892.253).

a. Prepares Project Approval Record Sheet.

(2) Prepares proposal (see 5-892.290).

b. Checks project designation and description.

(3) Schedules letting date.

c. Checks plans for adherence to Minnesota Rules, Chapter 8820, and conformity to MnDot specifications, design

(4) Prepares advertisement for bids and advertises.

(5) Governing body opens bids and awards contract.

(6) Local engineer submits Report of State Aid Contract (Form 30172) along with abstract of bids (no form) and special provisions to District State Aid Engineer (see 5-892.401). The State Aid Division office will release 95% of the accepted bid price upon approval of these documents.

B. CONSTRUCTION

1. Local engineer performs the following:

a. Hold pre-construction conference with contractors and affected utility owners. (Send District State Aid Engineer copy of meeting notice.)

b. Supervise construction, surveying, and provide adequate inspection. Construction inspection shall be performed by Certified Technicians. Field tests shall be performed in accordance with MnDOT's Schedule of Material Control.

c. Report starting, completion, and any intermediate dates (Form 2119) to District State Aid Engineer (see 5-892.405).

d. Review contractor payrolls to ensure compliance with State Prevailing Wage Rate (see 5-892.405).

e. Submit Weekly Construction Diary (Form 2120) to District State Aid Engineer (see 5-892.405).

f. Submit required EEO documentation to Mn/DOT EEO Office.

g. Submit all Change Orders (Form 21840) and Supplemental Agreements to District State Aid Engineer for approval prior to the work being performed.

h. Prepare Report of Partial/Final Estimate (Form 30734- See Fig. A 5-892.431) and itemized final estimate on Contract Projects and Force Account Projects (see 5-892.431). Liquidated damages shall be considered, if appropriate (see 5-892.433).

i. Submit documentation of construction engineering costs if reimbursement is requested.

j. Submit Certificate of Performance upon final acceptance of project (see 5-892.432).

(FOR MORE DETAILS SEE SECTION 5-892.400.)

2. MnDOT staff performs the following:

a. District State Aid Engineer inspects progress during construction and, upon completion, recommends final acceptance and final payment to State Aid Division office.

b. State Aid Division office pays balance of project (Form TP-00064-01) and construction engineering if requested, then completes records.

C. BRIDGE REPLACEMENT PROGRAM

Following is the procedure for establishing a project under the Bridge Replacement Programs funded by the Minnesota State Transportation Fund or Town Bridge Fund.

1. Local engineer determines a program for bridge construction or replacement by the following:

a. Hold a public meeting (counties invite municipalities under 5,000 population, and townships).

b. Invite local historical societies to identify historical bridges.

c. Pass a City or County resolution prioritizing programs of bridge replacement in the format required by State Aid. A new resolution must be passed if bridges are added to the program.

2. Complete Mn/DOT Form 30809 "Application for Bridge Funds" (see Fig. A 5-892.226).

A project number should be obtained by calling the State Aid Division office at (612) 296-9876. To obtain a new bridge or culvert number call the Bridge Management Office at (612) 582-1196. The resolution date must be shown on the form.

3. The following items should be addressed and must accompany the application:

a. How effective will the project be in eliminating a deficiency in the transportation system?

b. How many persons are affected by the deficiency?

c. What is the economic feasibility?

d. What will be the effect on optimum land use and other concerns of State and regional planning?

e. Are there other funds available and, if so, what are they?

f. Has consideration been given for proper operation and maintenance after construction?

4. An index map showing the location of the proposed project should be submitted with the application.

5. Submit the above documents in duplicate to the District State Aid Engineer for review; upon recommendation of approval, one copy will be forwarded to the State Aid Division office.

6. Plans are prepared and project constructed according to the procedure for State Aid projects.

5-892.142 SCHEDULE OF PROCEDURE: FEDERAL AID (S.P.) PROJECTS

The procedures for processing a Federal-aid (S.P.) project from preparation of reports to completion of construction are as follows:

A. PROJECT DEVELOPMENT

1. The local engineer prepares the appropriate Project Development Report (PDR) for approval. Refer to the State Aid Project Development Manual for more information.

2. After approval of the Study Report or Project Memorandum, the local engineer prepares final plans and acquires right-of-way if needed.

B. PLANS

1. Prepared under the supervision of the local engineer.

2. The local engineer submits the Plans in final form with Plan Review Sheet, Engineer's Estimate, Supporting Data for Special Provisions (Form 30133), Right-of-Way Certificates 1 or 1A (Form Nos. 30750 or 30749), Utility Relocations (Form 30723), Force Account Agreement (Form No. 30720), if applicable, etc., to the District State Aid Engineer.

3. Plan is reviewed by the District State Aid Engineer and submitted to the Office of State Aid for final review and approval.

4. The State Aid Division office performs the following:

a. Checks project designation and description.

b. Prepares Project Approval Routing Sheet.

c. Checks for Agency Agreement and other needed documents.

d. Checks plans for conformity to specifications, design standards, accepted engineering practices, and project documentation.

e. Approves plan.

f. Schedules actual letting date after consultation with the local engineer.

g. Prepares special provisions from supporting data (Form 30133) submitted by the local engineer.

h. Prepares proposal, engineer's estimate and the advertisement for bids.

i. Advertise concurrently with local publication (copy of ad submitted to local road authority).

NOTE: The operations listed under PLANS will be performed in collaboration with the Bridge Section for portions of Federal-aid projects involving bridge construction.

C. AUTHORIZATION OF AWARD

State Aid Engineer performs the following:

1. Authorizes award. NOTE: Letting and Award is discussed in 5-892.401.

D. CONSTRUCTION (See 5-892.450)

1. Local engineer performs the following:

a. Requires the contractor to post the following forms and posters on a prominently located bulletin board on or adjacent to the project:

(1) Notice to Workers (Mn/DOT Form No. 02126-02).

(2) Notice of Nondiscrimination in Employment (Mn/DOT Form No. 17244).

(3) Wage Rate Information (Form FHWA-1495).

(4) Fraud poster (Form FHWA-1022).

(5) Federal and State prevailing wage rates (from the contract proposal).

(6) Equal Employment Opportunity Is The Law poster.

b. Report starting and completion dates and any intermediate suspension or resumption of work or the change of construction status form (Form 02119-02).

c. Supervise construction staking and sampling/testing required for materials inspection and control on the project.

Complete the reporting forms relating to each inspection activity and distribute as indicated on forms. Retain all testing and sampling results for the project record.

d. Maintain CARS System Item Record Account (IRA) for all pay items.

e. Complete a weekly construction diary (Form 02120-02) with contract working day data and promptly distribute as indicated on the form. Send a copy to the District State Aid Engineer.

f. Submit sub-letting requests (Form 21834), supplemental agreements (Form 2134) and change orders (Form 21840-02) to the District State Aid Engineer for approval prior to performing any work.

g. Prepare and submit partial estimates to the District State Aid Engineer for payment processing.

h. Submit monthly and annual equal employment opportunity forms, if applicable, as directed by the Equal Employment Opportunity Office.

i. Submit request for additional encumbrance or un-encumbrance of funds based on the following criteria and procedures:

The usual conditions requiring the encumbrance of funds are the following:

(1) Anticipated Overrun of Contract Items. When the certified value of work completed on a partial estimate voucher is equal to 80 percent of the total encumbrances of the contract and any supplemental agreements, the Project Engineer shall review all pay items in the Contract and supplemental agreements (within each group on the pay voucher) for overruns and underruns, and then estimate the final amount of each pay item. If the estimate indicates that the amount encumbered is inadequate to make final payment to the Contractor, the Project

Engineer shall follow the procedures outlined in Section m. below.

(2) Supplemental Agreements.

Funds for supplemental agreements are encumbered by group number by the Mn/DOT Contract Administration Office at the time the supplemental agreement is approved in the Contract Administration Office. When the Project Engineer transmits a supplemental agreement for approval he shall provide documentation to ensure the proper distribution of encumbered funds for that supplemental agreement. Subsequent requests for encumbrance of funds to cover overruns under an approved supplemental agreement shall follow the procedures outlined in Section k. below.

(3) Change Orders. Additional funds are not automatically encumbered by a change order as they are for a supplemental agreement; therefore, the Project Engineer shall request the encumbrance of additional funds for change orders following the procedures outlined in Section i.(1) above.

j. When the contract work is completed or nearly completed, the Project Engineer shall review the final quantities and determine the amount, if any, of excess encumbered funds. The request for unencumbrance of any excess funds shall follow the procedures outlined in Section k. below.

k. When projects are funded in part with local funds (that is, not from Federal-aid and/or State Aid sources), the Project Engineer shall submit or cause to be submitted a city or county warrant (for deposit with the Commissioner of Transportation) for the amount of any local funds over the original contract amount of local funds, at the same time as the request for encumbrance as indicated in Section i.(1) above. The need for deposit of any additional local funds shall be taken into account when supplemental agreements or change orders are prepared which involve

items paid for wholly or in part with local funds.

The warrant as described above shall be made payable to the Commissioner of Transportation and transmitted to Minnesota Department of Transportation, , 395 John Ireland Blvd., Mail Stop 215, St. Paul, Minnesota 55155, Attention Cash Accounting.

Along with the warrant, the Project Engineer shall submit a memorandum stating the project number for which the funds are intended and that the deposit is to be made into the Agency Account. If there is more than one project number, the memorandum shall also include a split showing the funds by project number for each project covered by the deposit.

Mention of the separate transmittal of the warrant shall be made in the request for additional encumbrance of funds as indicated in Section i. above.

l. Procedures. In cases i.(1), i.(3), and k. above, the following procedures shall be followed:

(1) The request for additional encumbrance or un-encumbrance shall be submitted by the Project Engineer to the appropriate District State Aid Engineer in memorandum form with supporting documentation as required.

When requesting encumbrance of additional funds, the Project Engineer shall clearly state the reasons for the need for additional encumbrance. If several major overrun items occur, a cost breakdown shall be given for each item along with the amount to be encumbered for minor items which do not require a separate breakdown. See Mn/DOT Contract Administration Manual.

When requesting un-encumbrance of excess funds, the Project Engineer shall furnish documentation to clearly show how the amount of excess funds was determined.

(2) The District State Aid Engineer will acknowledge receipt of the memorandum, will review the request, and if approved, transmit it to the State Aid Accountant.

(3) The State Aid Accountant will prepare the appropriate encumbrance documents and distribute them.

(4) The State Aid Accountant will notify the Project Engineer, the District State Aid Engineer, and the Mn/DOT Contract Administration Engineer (c/o Estimate Section Supervisor) by copy of the approved Form No. FI-00022-05 (4/87), "Request For Encumbrance".

(5) Contract Administration will update the Contract Administration Record System (CARS) with the new encumbrance amount.

NOTE: No work by the Contractor, in addition to the Contract, shall be authorized by the Project Engineer prior to receipt of notice of encumbrance of funds necessary for that work.

m. Check for wage rate payment compliance as required by the contract.

(1) The Contractor shall submit Form 21658 to the local engineer.

n. Submits final project documentation to the District State Aid Engineer including the following information:

(1) Final estimate. Do not forget to adjust for liquidated damages if appropriate

(2) Withholding tax affidavit (Form 134).

(3) Supervisor's documentation check list (Form 2103).

(4) Final documentation submittal (Form 2139).

(5) Statement of Materials and Labor Used (Form FHWA 47).

(6) Letter explaining overruns and underruns. (Add the District State Aid Engineer's signature block to the letter for approval.) Overruns and underruns letter only required if the Project is in the Federal Acceptance Program (F.A.P.).

(7) On Minnesota Road Plan (MPR) projects submit Form FHWA 1446C

(8) Justification for construction engineering costs to be submitted, if claimed.

o. Mn/DOT performs the following:

(1) District State Aid Engineer or his designee inspects the work, recommends action, files reports.

(2) The Office of Construction and Contract Administration processes partial estimates, schedules payments and obtains Federal reimbursement.

(3) The Office of Construction and Contract Administration checks Final Estimate and prepares Final Voucher.

(4) Director of Operations Division makes final acceptance.

p. Federal Highway Administration (FHWA):

(1) Makes final project inspection.

(2) Approves project for final payment. NOTE: For projects covered under the Minnesota Transportation Plan the District State Aid Engineer will perform the final inspection rather than FHWA.

SAMPLE FORMS

Supporting Data for Special Provisions (Form 30133)

..... Fig. A (1-3) 5-892.253

Right-of-Way Certificates 1 and 1A
(Form 30750, 30749)
..... Fig. I (1-2) 5-892.300

Right-of-Way Certificate 2
(Form 30751) Fig. J 5-892.300

Utility Relocations (Form 30723)
..... Fig. A 5-892.245

Final Inspection of Federal Aid Project (Form
FHWA 1446-C)
..... Fig. A 5-892.430

See Contract Administration Manual for
samples of other required forms and more
detailed information.

Minor Arterial Provide for traffic of a more land access orientation. Service should be more of an intra-community nature. The system includes urban connections to rural major collector roads.

Collector The collector system serves to distribute traffic from the arterial to their destination, which may be on a local or collector street. Conversely, the collector street "collects" traffic from the local streets and channels it into the arterial system. The collector system serves both land access and local traffic movement within the various neighborhoods and areas.

Local Comprised of all facilities not on one of the higher systems. It serves primarily to provide direct access to abutting land and access to the higher order systems.

FEDERAL AID SYSTEM

National Highway System - N.H.S. - This is a system of highways of national importance, identified by the State of Minnesota and approved by Congress. The National Highway System consists predominately of Interstate highways and specifically designated Minnesota Trunk Highways classified as principal arterials.

Federal-aid Highways All rural highways functionally classified as a major collector or higher, and all urban streets classified as collectors or higher are eligible to receive Federal-aid funds. Functional classification shall be as shown on the approved County or City map.

Federal Aid Secondary - F.A.S. - A system of rural roads that are functionally classified as major collectors and were jointly selected by the appropriate local officials and the Minnesota Department of Transportation and approved by the Federal Highway Administration. This system is no longer used to determine where Federal-aid funds can be spent, but is retained for reporting purposes for FHWA.

Federal Aid Urban - F.A.U. - A system within each urban area consisting of Trunk Highways, County State Aid Highways, Municipal State Aid Streets or city streets that are functionally classified as arterial or collectors and were selected by the appropriate local officials with concurrence by the Minnesota Department of Transportation and approved by the Federal Highway Administration. This system is no longer used to determine where Federal-aid funds can be spent, but is retained for reporting purposes for FHWA.

Forest Highway - F.H. - A route located within the boundaries of national forests and jointly selected by local officials, the Minnesota Department of Transportation and the U.S. Forest Service, subject to the approval of the Federal Highway Administration.

9.1 METRIC TON ROUTE SYSTEM

In order for a highway or street to legally carry 9.1 metric ton traffic, it must be designated as a 9.1 metric ton route described in statute as the 9.1 metric ton Route System. Minnesota Statute 169.832 gives the Commissioner of Transportation the authority to designate routes, with the approval of the local road authority.

By statute (Section 169.825, Subd. 10), all routes not designated shall have a gross vehicle weight limit of 33 239 kg (8.2 tons), unless otherwise posted.

Springtime restrictions may be posted by the local road authority. If a roadway is not posted and is not a designated 9.1 metric ton route, then Section 169.87 restricts all non-concrete surfaced roadways to a springtime limit of 4.5 tons

To designate a 9.1 metric ton route, the procedures listed below must be followed:

A. Designation must not cause any undue hazard to traffic safety, and the roadway must have the structural capacity and be able to carry the expected volumes of traffic.

Evidence must be provided demonstrating the structural capacity of the roadway. This is usually done by non-destructive testing of the pavement after construction. Written certification by the local engineer is also acceptable evidence.

B. A request to designate must be made to the Commissioner of Transportation. The request must be accompanied by a county board or city council resolution and the pavement strength data described above.

C. The request should be sent to:

Mn/DOT Admin. Truck Center
1110 Centre Pointe Curve
Mendota Heights, MN 55118

D. The truck center will review the request, and if satisfactory, will issue a commissioner's order designating the route. The route may be undesignated at any time at the request of the local road authority.

E. State Aid personnel can assist with the request if desired; however, State Aid involvement is not mandatory.

5-892.003 LIST OF COUNTIES

No	County	County Seat	District	No	County	County Seat	District
1	Aitkin	Aitkin	3	45	Marshall	Warren	2
2	Anoka	Anoka	Met-W	46	Martin	Fairmont	7
3	Becker	Detroit Lakes	4	47	Meeker	Litchfield	8
4	Beltrami	Bemidji	2	48	Mille Lacs	Milaca	3
5	Benton	Foley	3	49	Morrison	Little Falls	3
6	Big Stone	Ortonville	4	50	Mower	Austin	6
7	Blue Earth	Mankato	7	51	Murray	Slayton	8
8	Brown	New Ulm	7	52	Nicollet	St. Peter	7
9	Carlton	Carlton	1	53	Nobles	Worthington	7
10	Carver	Chaska	Met-W	54	Norman	Ada	2
11	Cass	Walker	3	55	Olmsted	Rochester	6
12	Chippewa	Montevideo	8	56	Otter Tail	Fergus Falls	4
13	Chisago	Center City	Met-E	57	Pennington	Thief River Falls	2
14	Clay	Moorhead	4	58	Pine	Pine City	1
15	Clearwater	Bagley	2	59	Pipestone	Pipestone	8
16	Cook	Grand Marais	1	60	Polk	Crookston	2
17	Cottonwood	Windom	7	61	Pope	Glenwood	4
18	Crow Wing	Brainerd	3	62	Ramsey	St. Paul	Met-E
19	Dakota	Hastings	Met-E	63	Red Lake	Red Lake Falls	2
20	Dodge	Mantorville	6	64	Redwood	Redwood Falls	8
21	Douglas	Alexandria	4	65	Renville	Olivia	8
22	Faribault	Blue Earth	7	66	Rice	Faribault	6
23	Fillmore	Preston	6	67	Rock	Luverne	7
24	Freeborn	Albert Lea	6	68	Roseau	Roseau	2
25	Goodhue	Red Wing	6	69	St. Louis	Duluth	1
26	Grant	Elbow Lake	4	70	Scott	Shakopee	Met-W
27	Hennepin	Minneapolis	Met-W	71	Sherburne	Elk River	3
28	Houston	Caledonia	6	72	Sibley	Gaylord	7
29	Hubbard	Park Rapids	2	73	Stearns	St. Cloud	3
30	Isanti	Cambridge	3	74	Steele	Owatonna	6
31	Itasca	Grand Rapids	1	75	Stevens	Morris	4
32	Jackson	Jackson	7	76	Swift	Benson	4
33	Kanabec	Mora	3	77	Todd	Long Prairie	3
34	Kandiyohi	Willmar	8	78	Traverse	Wheaton	4
35	Kittson	Hallock	2	79	Wabasha	Wabasha	6
36	Koochiching	Int'l Falls	1	80	Wadena	Wadena	3
37	Lac Qui Parle	Madison	8	81	Waseca	Waseca	7
38	Lake	Two Harbors	1	82	Washington	Stillwater	Met-E
39	Lake of the Woods	Baudette	2	83	Watsonwan	St. James	7
40	LeSueur	LeCenter	7	84	Wilkin	Breckenridge	4
41	Lincoln	Ivanhoe	8	85	Winona	Winona	6
42	Lyon	Marshall	8	86	Wright	Buffalo	3
43	McLeod	Glencoe	8	87	Yellow Medicine	Granite Falls	8
44	Mahnomen	Mahnomen	4				

5-892.004 LIST OF MUNICIPALITIES

No	Municipality	County	District	No	Municipality	County	District
101	Albert Lea	24	6	189	Maple Grove	27	Metro-W
102	Alexandria	21	4	138	Maplewood	62	Metro-E
198	Andover	2	Metro-W	139	Marshall	42	8
103	Anoka	2	Metro-W	140	Mendota Heights	19	Metro-E
186	Apple Valley	19	Metro-E	141	Minneapolis	27	Metro-W
187	Arden Hills	62	Metro-E	142	Minnetonka	27	Metro-W
104	Austin	50	6	143	Montevideo	12	8
105	Bemidji	4	2	222	Monticello	86	3
106	Blaine	2	Metro-W	144	Moorhead	14	4
107	Bloomington	27	Metro-W	190	Morris	75	4
108	Brainerd	18	3	145	Mound	27	Metro-W
109	Brooklyn Center	27	Metro-W	146	Mounds View	62	Metro-E
110	Brooklyn Park	27	Metro-W	147	New Brighton	62	Metro-E
213	Buffalo	86	3	182	New Hope	27	Metro-W
179	Burnsville	19	Metro-E	148	New Ulm	8	7
218	Cambridge	30	3	225	North Branch	13	Metro-E
193	Champlin	27	Metro-W	150	North Mankato	52	7
194	Chanhausen	10	Metro-W	151	North St. Paul	62	Metro-E
196	Chaska	10	Metro-W	149	Northfield	66	6
111	Chisholm	69	1	185	Oakdale	82	Metro-E
112	Cloquet	9	1	223	Oak Grove	2	Metro-W
113	Columbia Heights	2	Metro-W	152	Orono	27	Metro-W
114	Coon Rapids	2	Metro-W	217	Otsego	86	3
215	Corcoran	27	Metro-W	153	Owatonna	74	6
180	Cottage Grove	82	Metro-E	155	Plymouth	27	Metro-W
115	Crookston	60	2	201	Prior Lake	70	Metro-W
116	Crystal	27	Metro-W	199	Ramsey	2	Metro-W
229	Dayton	27	Metro-W	156	Red Wing	25	6
117	Detroit Lakes	3	4	207	Redwood Falls	64	8
118	Duluth	69	1	157	Richfield	27	Metro-W
195	Eagan	19	Metro-E	158	Robbinsdale	27	Metro-W
203	East Bethel	2	Metro-W	159	Rochester	55	6
119	East Grand Forks	60	2	208	Rosemount	19	Metro-E
181	Eden Prairie	27	Metro-W	160	Roseville	62	Metro-E
120	Edina	27	Metro-W	220	Sartell	73	3
204	Elk River	71	3	191	Sauk Rapids	5	3
123	Fairmont	46	7	211	Savage	70	Metro-W
124	Falcon Heights	62	Metro-E	166	Shakopee	70	Metro-W
125	Faribault	66	6	167	Shoreview	62	Metro-E
212	Farmington	19	Metro-E	216	Shorewood	27	Metro-W
126	Fergus Falls	56	4	168	South St. Paul	19	Metro-E
214	Forest Lake	82	Metro-E	183	Spring Lake Park	2	Metro-W
127	Fridley	2	Metro-W	228	Stewartville	55	6
226	Glencoe	43	8	169	Stillwater	82	Metro-E
128	Golden Valley	27	Metro-W	161	St. Anthony	27,62	Metro-W
129	Grand Rapids	31	1	162	St. Cloud	5,71,73	3
197	Ham Lake	2	Metro-W	163	St. Louis Park	27	Metro-W
130	Hastings	19	Metro-E	227	St. Michael	86	3
202	Hermantown	69	1	164	St. Paul	62	Metro-E
131	Hibbing	69	1	184	St. Paul Park	82	9
132	Hopkins	27	Metro-W	165	St. Peter	52	7
224	Hugo	82	Metro-E	170	Thief River Falls	57	2
133	Hutchinson	43	8	209	Vadnais Heights	62	Metro-E
134	International Falls	36	1	171	Virginia	69	1
178	Inver Grove Hhts	19	Metro-E	221	Waite Park	73	3
206	Lake Elmo	82	Metro-E	172	Waseca	81	7
188	Lakeville	19	Metro-E	173	West St. Paul	19	Metro-E
210	Lino Lakes	2	Metro-W	174	White Bear Lake	62	Metro-E
135	Litchfield	47	8	175	Willmar	34	8
200	Little Canada	62	Metro-E	176	Winona	85	6
136	Little Falls	49	3	192	Woodbury	82	Metro-E
219	Mahtomedi	82	Metro-E	177	Worthington	53	7
137	Mankato	7	7				

5-892.005 ORGANIZATION CHART
STATE AID SECTION

See Fig. A 5-892.005.

5-892.006 OFFICIAL NEWSPAPER

Each County and MSAS City must designate an official newspaper which will carry all official notices for the County or MSAS City. The official newspaper should be designated by the County Board or City Council at the January meeting.

5-892.007 ENGINEERING AND TECHNICAL SERVICES

Minnesota Statutes 161.39, Subd. 1 through 6, authorizes the Commissioner of Transportation to provide technical and engineering advice, assistance, and supervision to any County or Municipality. The extent that these services can be given will depend on the availability of qualified Minnesota Department of Transportation personnel.

An agreement authorizing the Engineer to request engineering and technical assistance should be adopted by the Board or Council and placed on file in the State Aid Division office. This agreement is in a form which remains in force unless canceled by either party upon 60 days written notice.

State inspection of materials is a requirement on all Federal-aid projects and is provided for in the Agency Agreement. No such inspection will be provided on State-aid projects except where specifically requested by the County or City Engineer.

All requests for service should be made by letter.

FORMS

Technical and Engineering Assistance Agreement Fig. A (1-3) 5-892.

PLANS AND PROPOSALS

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State aid and federal aid projects can be approved for construction only after submittal of suitable plans. In the preparation of plans, it is suggested that the appropriate Mn/DOT manuals be referred to for guidance.

Plans for state aid funded construction should be submitted to the District State Aid Engineer, allowing sufficient time for the District State Aid Engineer and State Aid office staff to make an adequate review prior to first advertisement for bids. Plans for federal aid projects must be submitted to the State Aid office for processing well in advance of the desired letting date. In the case of specially funded federal projects, FHWA approval of the PS&E must be obtained by the State Aid office prior to authorizing advertisement for bids. Only plans approved by the State Aid Engineer prior to opening of bids are eligible for state aid funding.

5-892.210 BASIC PLAN REQUIREMENTS

A. GENERAL

1. The State Aid Plan Review Checklist, Fig. A 5-892.210, shall be submitted with the plan.
2. Plans may be prepared in either English or metric units (see Fig B 5-892.210 for Metric/English Conversions).
3. Original plan sheets shall be on material capable of making clear, legible prints and shall be of a uniform standard size (11" x 17" or 8.5" x 11"). Plans sheets exceeding these dimensions must be trimmed to size prior to submittal. All full-size plans must be cleanly drafted on good material capable of providing sharp prints at ½ size reduction. All plans are preferred to be submitted on bond paper for easier reproduction. Since plans are microfilmed, plans provided must be clear and legible.
4. All project numbers, identified as S.P. or S.A.P. shall be shown in the lower right hand corner of all sheets. To obtain project numbers, use "Request For State Aid Project Numbers", Fig. C 5-892.210. Show federal project numbers in the upper right hand corner of the title sheet only.
5. Scales on full-size plans shall be bar graph type, which will maintain accuracy when reduction occurs during the printing process.
6. Existing and/or proposed alignment and grades shall be shown or provided as applicable for plans designed to a Rules Standards with a design speed requirement, except where the alignment and grade have previously been approved as a state aid or federal aid project.
7. Lettering shall be uniformly inked. Full size plans shall not use lettering smaller than Leroy 120 capitals so as to maintain legibility on reduced copies. To maintain legibility, plans submitted on 11" x 17" to 8.5" x 11" will not be reduced.
8. Limit the use of adhesive "stick-up" on final plans because of the frequency with which this material peels off during normal handling.
9. Show Conventional Symbols on Title Sheet and hold to them throughout the plan (see Fig. D 5-892.210). Symbols may be included elsewhere in the plan as legends shown on appropriate sheets.
10. Training materials covering basic transportation design principles are available for loan from the DSAE.

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- B. TITLE SHEET (see Fig. E(1) 5-892.210).

1. Description Block (a separate one for each project) shall include:

a. Type of work proposed in the plan, e.g., grading, aggregate base, bituminous surfacing, storm sewer construction, etc.;

b. Identification of Roadway: name of roadway, system type (C.S.A.H., M.S.A.S., TH, TWP RD, CR, etc.) and designated route number within the system;

c. Associated project numbers;

d. Geographic description of the project termini: name or number of project road, distance and direction from major intersecting highways and towns (example: Smith Road (CSAH 22) from 300 feet west of CSAH 33 to the intersection of MSAH 44 in the City of Wabasha); and

e. Length of each project in feet and miles. Indicate gross length, bridge lengths, exceptions, and net lengths. Show footage to the nearest foot, and mileage to the third decimal plan. All previously constructed bridges are considered exceptions.

f. Carry footage to the nearest foot and mileage to the third decimal place. All bridges are considered exceptions if previously constructed.

2. Index maps shall clearly portray the project location and shall include:

a. All project numbers and stationing at the beginning and end of each project;

b. Distance and direction to at least one incorporated municipality;

c. A list of equations for each project, if applicable;

d. Stationing and length in feet of temporary connections and exceptions for each project;

e. In-place **and** proposed bridge number(s), stationing, and length in feet of each bridge; and

f. Section, township, and range.

NOTE: If a scale is shown, use a bar graph that will change when plan is changed by reduction process.

3. Index of Plan Sheets. Title sheet shall be sheet number 1. Sheets shall be numbered consecutively.

4. Specification reference (latest edition of Mn/DOT Standard Specifications for Construction including any supplemental specifications).

5. A Design Designation Block for each project shall be shown, identifying pertinent information used in basis of project design or required by standards, including:

a. Project Design Speed and any exceptions to the design speed shown in stationing (not to be confused with posted speed). Note stationing of stop conditions;

b. Present and Projected (20 Year) Average Daily Traffic (use current year for Present ADT);

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c. Structural Design Strength, Soil Factor or R-value used in the basis of design; include ESAL factors if R-value is used to determine pavement design (see 5-892.211 DESIGN STANDARDS for staged construction policy);

d. 20 Year Projected Heavy Commercial Average Daily Traffic (HCADT).

6. Standard signature and Engineer's Certification blocks shall use language as approved for State aid plans - see Fig. H & H(I). The Engineer's Certification block is required on each engineering plan sheet except cross-sections and unmodified standard plan sheets. Include only the signature blocks required signatures applicable to this project; i.e., if a plan does not include bridge-structure construction, do not list a signature block for the State Bridge Engineer. Culvert structures do not require signature by the State Bridge Engineer.

C. Estimate and Typical Section Sheet(s)

1. The Estimate Sheet(s) shall follow the Title Sheet, with project specific construction, funding and quantity information, including:

a. List of Estimated Quantities, using separate columns to identify and separate construction quantities by proposed funding type; i.e., separate columns shall be shown for each: project number, proposed funding type, including project Number*, Bridge Number (separate each structure), Storm Sewer, Landscaping (work subject to the 5% Rule), Non-Participating, etc.; see Fig. E (2-4) 5-892.210.

NOTE: *Also separate in columns, by project number, quantities for CSAH Rural and CSAH Municipal work. All non-participating quantities shall be grouped;

b. Numbers and wording of items shown identical with those listed in the current Standard Specifications (and pay item description listing maintained by Mn/DOT Central Office); call State Aid office if any questions arise);

c. Equipment rental items shall be explained with adequate notes; it is not permissible to provide equipment rental items for emergencies;

d. Subnotes to base and surfacing items indicating quantities to be used for entrances and road approaches; note also the number of entrances and approaches;

e. Subnotes to clarify, explain, or specify information relative to a pay item as necessary (all items listed in the Statement of Estimated Quantities must be referred to elsewhere in the plans by notes, tabulation, sketch, detail, etc.);

f. Statement of estimated topsoil quantities for information purposes; and

g. Basis of estimated quantities.

2. List of current Standard Plates applicable to project.

3. Typical sections adequately describing proposed work (see Fig. E (5-7) 5-892.210):

a. Rounded ditch bottoms and tops of backslopes on grading sections (except in rock cuts) are desirable;

b. Grading width, including cross-slope, recovery area, and in-slope ratio.

c. Pavement width, shoulder width, traffic lane widths, face-of-curb to face-of-curb widths,

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parking lane width, reaction distance, depths of surfacing and base materials, and pavement and shoulder cross-slopes;

d. Recovery area width and inslope ratio as specified in the standards. Note that where curb and gutter may be used for drainage purposes within a portion of rural highway, the rural design recovery area width must be maintained throughout the project's logical termini;

- e. Exact point representing profile grade;
- f. Topsoil requirements;
- g. Future typical section, if applicable or required (see 5-892.211 DESIGN STANDARDS for staged construction policy);
- h. Adequate information so that the quantities of each type of construction can be accurately computed and constructed; and
- i. Applicable soils recommendation notes.

4. Use of "R" soils values as a basis for pavement design is encouraged to provide a more economical and appropriate pavement design structure, and shall be used in the design of all 10 ton pavement structures. Procedures, sample calculations, and values for "R" based pavement designs may be found in the Mn/DOT Geotechnical and Pavement Manual. See sections 4-4.03 and 5-3.05. To insure proper application of this design method, the following criteria shall apply:

a. The "R" value shall be derived from soils tests conducted by professional soils engineering laboratories or from non-destructive testing methods such as the FWD. Where textural or AASHTO soil type classifications can be definitely determined from prior experience in the area, an "assumed" "R" value may be assigned for the project by the Mn/DOT District Materials and/or Soils Engineer. A copy of the design "R" value recommendation shall be submitted with the plans; and

b. Refer to the Geotechnical and Pavement Manual, Section 4-4.0, to compute a "Design Lane One-Way ESAL Factor" to be used in conjunction with the project R-Value recommendation to determine an appropriate structural design; a copy of the calculations shall be submitted with the plans.

5. Structural pavement designs based on the Soil Factor value shall be calculated in accordance with the "FLEXIBLE PAVEMENT DESIGN USING SOIL FACTORS" chart (see Fig. F 5-892.210).

6. For guidance in determining surfacing depth on low-volume aggregate-surfaced roadways, refer to Fig. G 5-892.210.

D. PLAN AND PROFILE SHEETS (see Fig. E(9) 5-892.210).

Provide a vertical and horizontal layout of the project, including the following:

- 1. Use a bar graph which will not require crowding of topography and notes.
- 2. Show all section corners, land ties, etc. Provide at least one land tie per two miles of roadway.
- 3. All pertinent topography.
- 4. Show construction limits.

5. Show existing and proposed right of way (permanent, temporary, and maintenance easements). All construction limits for state aid eligible work must be within right of way.

6. All existing utilities, either aerial or underground. Projects involving federal aid funds shall include a "Public Utilities" chart if applicable.

- 7. Location of both in-place and proposed drainage structures showing :

- a. Invert elevations (both inlet and outlet) for cross culverts, cattle passes, sewers, and subsurface drains;
- b. Direction of flow;
- c. End bevel of structural plate culverts;
- d. Class of RC pipe and gauge of metal pipe if other than standard;
- e. Class of bedding for RC pipe if other than standard;
- f. The pertinent hydraulic information shall be shown for all drainage structures with a 48" or greater equivalent diameter. For information required on the plan, refer to Fig. B 5-892.225 "A Hydraulic Flood Analysis". Required information for bridge structures shall be shown on Standard Bridge Survey Sheets whenever possible. The required information for centerline culvert installations with diameters less than 10 feet may be shown on the Plan/Profile sheets.
- g. Unless bicycles are specifically excluded from a roadway, all catch basin castings shall be "bicycle safe", such as casting No. 814 shown in Mn/DOT Standard Plate 4152.

8. Grading balances which support the quantities shown on the cross sections and statement of estimated quantities.

9. Sources of selected material, locations of designated borrow pits, and balances showing where selected material or borrow material is to be placed.

10. All pertinent information concerning railroads adjacent to or crossing the project, including distances from highway, stationing, angles of intersection, grades, track elevation, appropriate construction details at the crossing, etc.

11. All pertinent information on in-place and proposed bridge structures, including bridge number, type, length, and width measured face-to-face of curb.

12. Stationing of corporate limits of municipalities.

13. Stationing of equations, exceptions, and temporary connections.

14. Elevation tie to Sea Level Datum (U.S.C. & G.S.).

15. Indicate the direction of flow of all drainage with arrows. This includes areas where there is natural drainage and areas where drainage structures are not required.

16. Indicate present and proposed right-of-way with conventional symbols and widths in feet. Show slope easements with conventional symbols and widths in feet.

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17. All removal and construction items shall be shown in note or tabulation form (culverts, storm sewer, clearing and grubbing, sodding, etc.).

18. All construction items not covered by Mn/DOT Standard Plates shall be detailed on appropriate plan sheets.

19. A "North" arrow on each plan and profile sheet.

20. On projects involving federal funds, proprietary references may be made. Three proprietary names and the phrase "or approved equal" is desired.

21. Include superelevation rate with curve data.

22. All plans for concrete pavement shall include "panel layouts details" for the proposed pavement.

23. Wherever possible, the Recovery Area as shown in the State Aid Operations Rules shall be provided in lieu of guardrail. Where the Recovery Area cannot be attained, guardrail shall be placed in accordance with the Mn/DOT Road Design Manual and other applicable criteria. Guardrail shall have passed current crash testing requirements. Where guardrail at bridges is required, it shall be in accordance with Standard Plans Manual 5-297.601.

24. Roadway intersections will be designed at 90 degrees or as close as practical, and shall provide adequate sight distance. Right and/or left turn lanes shall be provided where traffic volumes warrant. Where an intersection is controlled by a stop sign or signal, a flattened landing area of at least 50 feet in length or as long as necessary for predicted vehicle storage length shall be constructed to provide for vehicle traction during icy conditions.

E. CROSS SECTION SHEETS (see Fig. E (10) 5-892.210)

Stationing and elevations shall be given at each crosssection. Crosssections shall be provided as necessary to perform accurate quantity calculation and illustrate the following:

1. Subcuts, swamp excavation lines, anticipated subsidence lines, etc. (excavation and subsidence lines shall be substantiated with boring and sounding information on supplemental or additional sheets not to be reproduced as a part of the plans furnished to the contractor).

2. Cross culverts, cattle passes, and subsurface drains. This gives a better picture of the planned drainage and provides an opportunity to check the structure for strength classification.

3. Road approaches and entrances where culverts are necessary. This is an aid in determining the culvert strength classifications and adequacy of drainage.

4. Side slope ratios.

5. Cross section sheets shall include sub-station excavation and embankment quantities.

6. Right-of way lines, permanent easement, and temporary easement lines shall be identified as such.

F. BORROW PITS

1. Gravel Pit Designations. All pits shall be designated as either "Mandatory Source" or "Possible Source". In preparing plans which involve aggregate pits, sources of aggregates should be shown as "possible" sources so far as practicable instead of "mandatory" sources.

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2. When borrow pits are designated, the plans shall show the following:

a. Location of pit in relation to project, to land ties, or to crossroads;

b. Existing haul roads;

c. Deadhaul distance to a point on the project; and

d. Cross sections or typical section of pit indicating approximate grading limits and stripping requirements. The quantities and disposition of stripping should be indicated in the plans whether or not direct payment will be made for this part of the work.

5-892.211 DESIGN STANDARDS

Geometric Design Standards as adopted in the Department of Transportation State Aid Operations Rules Chapter 8820 shall apply on state aid and federal aid construction projects. The current "Minnesota Transportation Plan Agreement" with FHWA applies to federal aid projects.

Where the State Aid Operations Rules or this Manual do not contain specific requirements for a particular roadway feature, the Mn/DOT Road Design Manual should be followed. If the Road Design Manual does not adequately address a particular topic, then the guidance in "A Policy On Geometric Design Of Highway And Streets", published by the American Association of State Highway and Transportation Officials (AASHTO) should be followed.

1. For information regarding design of driveways, see MnDOT's Road Design Manual Table 5-2.09A and Figure 5-2.09A. Standard Plate 9000C may be referred to for approach and entrance guidance.

2. See Figs. A(1) 5-892.211 and A(2) 5-892.211 for superelevation rates for high and low speed roadways, and Fig. A(3) 5-892.211 for safe speeds on low speed urban streets.

3. See Fig. B(1&2) 5-892.211 for minimum lengths of crest and sag vertical curve charts. These charts are developed from AASHTO's "A Policy on Geometric Design of Highways and Streets" ("greenbook"). In certain restricted conditions, the "greenbook" allows reduced curve lengths. When using reduced curve lengths, provide documentation of the design to the District State Aid Engineer prior to final design.

4. Staged Construction: Rules may require 9 or 10 ton paved roadways while many agencies stage the construction of projects over a few years. In this case, the "future" paved typical section must be included in the grading plan, along with the dates for placement of the bituminous surface, which must be within 2 years of completion of the grading.

A second scenario is the placement of the bituminous surface over two consecutive construction seasons with the final wearing course completed during the second season. In this case submit either a single plan showing the complete 9 ton or 10 ton paving with provisions for placing the final surface the following year under the same contract, or, two plans simultaneously, one showing construction without the final wearing course and the other showing the construction of the final wearing course. At the time of plan approval where two separate plans are approved, the agency's five year capital improvement plan must be submitted showing the final surfacing project in the year following the completion of initial surfacing.

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Another common practice for constructing large projects with limited annual funding is to grade the project in stages over a few years, and then placing the final surfacing over the entire roadway after the grading is complete. In this case, plans for each stage may be approved separately, but at the time of the plan approval of the initial stage, the agency's five year capital improvement plan must include all subsequent stages, including the final surfacing project. The "future" paved typical section must be included in the grading plans along with the dates for placement of the bituminous surface, which must be within 2 years of completion of the grading of the final stage.

For CSAH and MSAS bridge projects, the surfacing and structural design strength requirements do apply, even if the rest of the roadway is not paved or does not meet structural strength requirements. An administrative variance will be processed to exclude non-state aid system bridge projects from the surfacing and structural design strength requirements.

5-892.212 VARIANCES

A. GENERAL REQUIREMENTS

1. Where a local unit of government feels that a variance from Minnesota Rules for State Aid Operations Chapter 8820 is justified, they shall submit a written request in the form of a resolution, passed by the pertinent political subdivision, to the Commissioner of the Minnesota Department of Transportation. As required in State Aid Operations Rules, Chapter 8820.3300, the resolution shall identify the project by locale and termini, shall cite the specific rule or standard from which the variance is requested and describe the modification proposed.

2. The following shall be submitted as supplemental data with the written request:

- a. An index map showing the project location and limits;
- b. Where applicable, a typical section showing the in-place and proposed section, or plan and profile view showing present and proposed alignment;
- c. Reasons for the request.
- d. The economic, social, safety, and environmental impacts which may result if the requested variance is granted or denied;
- e. The effectiveness of the project in eliminating an existing and projected deficiency in the transportation system;
- f. The effect on adjacent lands;
- g. The number of persons affected; and
- h. The safety considerations as they apply to pedestrians, bicyclists, motoring public, and fire, police, and emergency units.

3. A "Notice Of Request" will be prepared for publication in the State Register, requesting comments from interested parties for a period of twenty days. A "Notice Of Request" will not be submitted for publication in the State Register until a certified copy of the resolution is received in the State Aid office; however, the publication of Notice must occur prior to consideration before a scheduled appearance before a Variance Advisory Committee.

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4. The Commissioner will convene a duly appointed Variance Advisory Committee to act upon the variance requests received as of March 1, June 1, September 1, and December 1. The Committee, after considering testimony and all other required pertinent information (see Design Element Variance Justification Checklist, Fig. A 5-892.212), will recommend to the Commissioner approval or denial of the request

5. If no objections are received during the required 20-day waiting period, a letter of approval along with any conditions on the approval will be drafted for the signature of the State Aid Engineer. The local agency will be notified in writing of the approval, or denial, of the variance request. Approval of the variance may be conditioned upon receipt of a resolution passed by the local unit of government which indemnifies, saves, and holds harmless the State of Minnesota and its agents and employees of and from all claims, demands, actions, or causes of action arising out of or by reason of the granting of the variance. The recipient of the variance shall further agree to defend at its sole cost and expense any action or proceeding begun for asserting any claim of whatever character arising as a result of the granting of the variance.

6. A note shall be shown on the plan title sheet explaining that a variance was granted. For example: "A variance to Minnesota Rules 8820.9920 dated March 1999 was granted by the Commissioner of

Transportation on August 29 2000, to allow a 30 mph vertical curve in lieu of the required minimum 40 mph between station 100+00 and station 225+00.” The letter from the Commissioner granting the variance provides the relevant information.

7. No variance request will be denied without the opportunity to be heard before a regular scheduled Variance Advisory Committee meeting.

8. For additional information, refer to State Aid Operations Rules, Chapter 8820.3300, adopted pursuant to Minnesota Statutes 161 and 162.

B. ADMINISTRATIVE VARIANCE APPROVAL

Administrative variance approval refers to the approval of a variance request by the Commissioner of Transportation, without the prior recommendation of a Variance Advisory Committee.

For purpose of this policy, the duties of the Commissioner shall be performed by the State Aid Operations Engineer, except for final approval, which shall be performed by the State Aid Engineer.

All variances shall be requested by the same required procedure outlined in 5-892.212 VARIANCES, A. GENERAL above. The State Aid Operations Engineer shall review each request and, after consultation with the District State Aid Engineer, shall determine if the variance request fits within the scope to receive administrative approval.

Administratively approved variances will be processed as they are received, and need not follow the quarterly schedule of the Variance Advisory Committee meetings.

All variances granted administratively will be brought before the next scheduled Variance Advisory Committee meeting. The Variance Advisory Committee may not revoke approval of a variance once it is granted; however, they may express a desire to make recommendations on similar requests in the future.

1. Types of variances that *may* receive administrative approval are:

a. Variances to procedure that have a consistent precedent of being recommended for approval by Variance Advisory Committees;

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b. Variances for temporary, program-wide needs due to federal or state regulation or other source not within the control of the local engineer or the Department;

c. Variances to design standards which have a consistent precedent of being recommended for approval based on comparison of required substantiating request information and with convincing evidence of significant impact or hardship if the variance is not granted;

d. Variances to design standards, for which a design exception request has been approved by the Federal aid Project Development Engineer.

5-892.213 PLAN APPROVAL

All plans utilizing state aid funds are required to be approved by the State Aid Engineer prior to the ***opening of bids***. State Aid Operations Rules, Chapter 8820.2800 Subp. 2, states “Only those projects for which final plans are approved by the State Aid Engineer before opening bids for a contract or approving a force account agreement are eligible for state aid construction funds, except as provided in Subpart 8.” (Subpart 8 addresses Certified Acceptance Projects only).

Any local public agency opening bids prior to approval of the plans by State Aid staff must submit a request for a variance from State Aid Operations Rules along with an accompanying resolution from the governing body, in order to receive state aid funds for the project.

Plans are reviewed by the State Aid office and its representatives in the Districts to achieve the following objectives:

A. Ensure that the plans comply with the State Aid Operations Rules. The State Aid Operations Rules provide specific instruction for the design of and payment for state aid projects. Plan reviewers will check plans to ensure the minimum design standards are met, that only eligible items are reimbursed, and that the Rules are adhered to in all respects.

B. Establish a reasonable level of uniformity throughout the State. Uniformity should be addressed both in terms of uniformity of design features, and uniformity of plan appearance. Uniformity will be measured by comparison to Mn/DOT design practices, unless specific State Aid practices have evolved.

C. Encourage the use of the highest practical level of design standards. Plan reviewers will encourage the use of "desirable" rather than "minimum" standards, and good engineering and design practices.

A Certified Acceptance process exists which authorizes qualified cities and counties to internally review state aid plans which replaces plan approval by the State Aid Engineer. Contact your DSAE for further information.

Special care should be taken with Cooperative Agreement projects to obtain the State Aid Engineer's plan approval. It should not be assumed that MnDOT staff will know that the plan must be approved by the State Aid Engineer to be eligible for State Aid funding. It is the city or county engineer's responsibility to assure that the plan is submitted to the District State Aid Engineer for approval.

5-892.214 ELIGIBILITY

The extent of state aid participation on special items is limited as follows:

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A. Lighting:

1. The cost of roadway lighting at locations where accidents are likely to occur or are otherwise hazardous is an eligible expense if that lighting is intended for four or more lanes (complete cost eligible), is intended for lighting intersections, is a cost incidental to the necessary revision or relocation of existing lighting facilities on reconstruction projects, or is within a city.

2. For the funding of additional locations, lighting expenses are eligible only to the extent that the county or urban municipality has furnished traffic information or other needed data to support its request.

3. Ornamental light poles will be 100 percent eligible for state aid funds only if the ornamental pole is required by an adopted city or county policy (County Board or City Council resolution required). In the absence of such a policy, ornamental poles will be treated as a landscaping item according to Section 5-892.214 H.

B. Signals. The extent of state aid participation in signal installations must be determined by the proportion of the number of approaching routes under the jurisdiction of the county or urban municipality to the total number of approaching routes involved at each installation. When at least one approach is eligible for state aid participation for a county or urban municipality, then all other approaches under the same jurisdiction are also eligible.

C. Right-of-Way. The cost of lands and properties required for right-of-way to accommodate the design

width of the street or highway as governed by the State Aid Rules standards, including necessary width for recovery area and sidewalks or bicycle paths, is considered an eligible expense. This cost includes relocation and moving costs as provided by law and includes damages to other lands if reasonably justified to the satisfaction of the Commissioner.

Costs incurred by the county or urban municipality for title searches and costs associated with condemnation proceedings are also an eligible expense. Receipts from the rental or sale of excess properties paid for with state aid funds must be placed in the local agency's Road and Bridge Account to be used on the next state aid project constructed.

D. Sidewalks and Bike Paths. Payment for sidewalks and bicycle paths must be made when requested by urban municipalities, but only if the sidewalk or bicycle path is located within the permanent right-of-way of a state aid eligible route or within an easement generally parallel with a state aid route. County State Aid Construction funds may be spent on bicycle paths as a match to federal aid funds or on paths that are both a part of an adopted bicycle path plan and are located within the permanent right-of-way of a state aid route or within an easement generally parallel with a state aid route.

E. Low Volume Roadway Pavement. The use of state aid construction funds to finance the initial surfacing of rural roadways with flexible or rigid pavement materials is limited to the following cost participation:

<u>Projected ADT(a)</u>	<u>Participation</u>
80 and Over	100 percent
50 to 79	75 percent
0 to 49	(b)

(a) If the next traffic count scheduled by Mn/DOT shows an increase in traffic, the percentage participation on an approved project must be adjusted to reflect the revised projected ADT if the county requests reimbursement at the increased percentage rate; and

(b) Payment will be made up to the cost of a standard designed aggregate surface.

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F. Landscaping. The extent of state aid fund participation in landscaping is limited to five percent of the total construction allocation in any calendar year. Landscaping includes, but is not limited to:

1. Items such as trees when exceeding two-to-one replacement, shrubs, ground covers, and mulch; and

2. retaining walls, fences, and other landscaping appurtenances when only decorative in function.

The extent of participation also includes excess costs for functional but ornamental fences and railings, brick pavers, aesthetic surface treatments, and internally lit street signs. Excess cost is the cost in excess of a functional, standard item. Seeding, with mulch and fertilizer, and sodding are considered normal grading items.

G. Mailboxes. The decision to replace supports or allow to remain in place rests with the local authority. Guidance may be found in the AASHTO Roadside Design Guide and the Mn/DOT Road Design Manual. Essentially, the benefit of replacing the non-conforming supports should be weighed against the cost of replacement and the existence of other roadside hazards not being corrected.

1. Replacement mailbox supports shall be in conformance with the provisions of Chapter 8818 of the Minnesota Rules.

2. Mailbox supports are an eligible state aid expense, but mailboxes are not. The decision on whether or not to charge owners is left to the local agency. County-wide mailbox support replacement projects are acceptable.

3. Local agencies should work closely with the local postmaster whenever mailboxes will be relocated or replaced.

H. Storm Sewer. Plans containing items for storm sewer construction must be reviewed by the State Hydraulics Engineer and the State Hydraulics Engineer's recommendations obtained concerning compliance with adopted state aid storm sewer design requirements and the proportionate share chargeable to the state aid system unless the scope of work is limited to catch basins and leads. These recommendations along with those of the District State Aid Engineer must be considered in determining the maximum state aid participation in this work. See 5-892.600 for approved sharing factors and design guidance.

SPECIFIC PLAN REQUIREMENTS**5-892.220****5-892.221 RIGHT OF WAY PLANS**

To obtain state aid funds for right-of-way costs prior to acquisition, a plan must be submitted to the State Aid office for review and approval. Right-of-way payments may be based on the grading plan, or where right-of-way payments are requested before a grading plan is submitted, a separate right-of-way plan may be submitted. This plan shall show the alignment, grades, typical section, and proposed right-of-way limits.

Plans for which right-of-way payment will be requested shall be accompanied by an Engineer's Estimate of Right-of-Way Cost. No plan approval or payment for right-of-way will be made without the Estimate.

The minimum widths of right-of-way for state aid routes must be at least 60 feet within cities and 66 feet in rural areas, except that the right-of-way may be less for routes that are within a city, that were constructed before November 11, 1995, and that can be reconstructed to new construction standards within the previously existing right-of-way. Before construction, the governing body shall acquire control of the additional widths of right-of-way as may be necessary to properly maintain the ditch section, drainage structures, and recovery area. Permanent easements for highway purposes are considered to be right-of-way for the purposes of State Aid Rules standards.

5-892.222 TRAFFIC SIGNAL PLANS

The electrical portion of traffic signals may be designed and certified by a master electrician licensed in the State of Minnesota, by an electrical engineer registered in the State of Minnesota, or by other persons adequately familiar with traffic signal design.

Plans will be reviewed as follows:

Submit plans and signal warrants to the District State Aid Engineer. The District State Aid Engineer will review the plans and signal warrants and may forward to the District Traffic Engineer for technical review. However, plans having traffic signal work at trunk highways must be reviewed and approved by the District Traffic Engineer.

Advance submittal of the signal warrants to the District State Aid Engineer will expedite approval. For federal aid projects, signal warrants shall be in the form of a Signal Justification Report. See Chapter 9 of the Minnesota Traffic Engineering Manual for content requirements. The Signal Justification Report must be approved by the District State Aid Engineer.

5-892.223 RECONDITIONING PLANS

Reconditioning includes resurfacing, replacement, or rehabilitation of the pavement structure to extend the life of the roadway and effectively address critical safety and operations needs through minor improvements to the existing facility. Reconditioning projects generally utilize the existing horizontal and vertical alignment, may entail minor widening or geometric improvement, and normally require little or no additional right-of-way. Replacement or rehabilitation of the pavement structure does not include significant subgrade correction. Reconditioning may include changes in vertical or horizontal alignment involving no more than 20 percent of the length of the project. Work does not normally extend beyond the existing ditch bottom.

Plans must be designed to the appropriate reconditioning standard. Basic information to be included is as shown in the "General Plan Requirements" section. These plans must be prepared to the same level of quality and show the same information as new construction plans. Care should be exercised that lettering does not become so crowded as to make reading the plan difficult. Alignment, grades, and typical section of existing road, if not on file in the State Aid office, must be submitted with the plans unless the highway was previously built to standards of State Aid Rules or State standards or is a Trunk Highway Turnback project.

5-892.225 BRIDGE PLANS

Plans for all bridge construction, reconstruction, or rehabilitation projects shall be approved by the State Bridge Engineer prior to the approval by the State Aid Engineer.

"Bridge reconstruction" means the replacement of an existing bridge with a completely new bridge. "Bridge rehabilitation" means (1) the partial reconstruction of an existing bridge to meet current design criteria and construction standards or (2) a project that fixes the deterioration in the structure or improves the geometrics or load-carrying capacity, but may not necessarily provide improvement to meet new design standards.

A. BRIDGE SURVEYS

A bridge field survey, including soil borings, will be required for all bridges including culverts with 10 feet or more total horizontal waterway opening, which are classified as bridges.

In order to assure that all required information for a bridge survey is obtained, the field engineer shall prepare bridge survey sheets similar to that shown on the accompanying sample survey sheet Fig. A (1-2) 5-892.225 in accordance with the following instructions:

1. Show on contracted profile:

a. Present and proposed profile grades of roadway for at least 500 feet on each side of the proposed centerline of bridge, and also the profile of natural surface of ground on centerline only. If the roadway is anticipated to be inundated by the floods with a frequency of less than or equal to 500 years, then the roadway profile should include the sag point. Show curve data for vertical curves, if any. Profiles should be plotted as a projection from the Plat.

b. Present and proposed grades of bridge floor and elevation of bottom of old bridge superstructure;

c. State whether profile grade shown is subgrade or top of finished grade. If subgrade is shown, the vertical distance from subgrade to finished grade shall be shown;

d. In the case of grade separation of two highways, both the profile of the upper and lower grade shall be shown, the bridge grade being in the contracted profile space provided;

e. In the case of a grade separation between a railroad and a highway, the grade of the railroad track should be shown for a distance of at least 600 feet on each side of the centerline of the highway. If the railroad passes under the proposed highway, the elevation of tops of rails shall be shown. If the proposed highway passes under the railroad, elevations of bases of rails shall be shown. The height of rail should also be noted; and

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f. High and low water states. Give normal high water and extreme high and low water levels. If possible, give extreme high water elevations immediately upstream and downstream from the in-place structure and at other locations farther upstream and downstream to facilitate computation of high water

flow gradient. High water elevations of the same date at nearby bridges should also be shown. State date of water levels and frequency of recurrence if possible.

2. Show on plat:

a. New highway alignment in horizontal position, so that the tangent alignment for the contracted profile will be a direct projection above it. Show "North" arrow;

b. Course of stream above and below bridge site within the limits of the plat area, and include channel change termini;

When the limited area of the plat is too small to include, or clearly show the intentions of a channel improvement project, then the channel work shall be detailed on a separate sheet (see instructions under data for evaluation of flood hazards);

c. Direction of flow and location of points where flood waters are likely to scour, if any;

d. Location of existing and proposed highways, shoulder widths of same and the stationing along centerline. Give the bearing of the proposed centerline of highway. Show field ties necessary to establish line. If the railroad or proposed highway is on a horizontal curve, show curve data. Show existing and proposed right-of-way limits;

e. Description of present bridge. Specify the type of structure, number and lengths of spans, width of roadbed between curbs and total length. Specify the type of substructure units with brief description of each and state the condition of both substructure and superstructure. When there is a possibility of incorporating any portion of the present bridge into the new proposed construction or widening of the present bridge, the above information, together with a sketch showing location of the present bridge with respect to the new centerline with all pertinent structural dimensions shown, shall be included on a separate sheet if necessary;

f. Location of adjacent railroad or highway bridges. If within 300 feet of proposed centerline, ends of bridge shall be tied into said centerline by station and offset distances. Lengths of spans and locations of substructure units shall be shown;

g. Recommended change of channel, if any, with stations, alignment data and cross section of proposed channel;

h. Name of stream stating whether it is a river, creek, drainage ditch, ravine, dry run, etc. Show direction of flow; and

i. Small sketch of four sections; show course of stream, present and proposed location of highways, railroads, limits of towns or villages and the location of the proposed bridge. Indicate in place and proposed bridge replacement sites with arrow(s). Show all roads in the four sections. Show section, township and range numbers for the four sections.

3. Typical sections and pertinent data should show:

a. If a channel change is contemplated, a profile of the ground line along the centerline of the channel change and grade of the flow line of the proposed channel shall be shown. A channel cross section shall be shown for both upstream and downstream of the structure;

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b. Profile grade of adjacent railroad or highway with elevation of bottom of superstructure of existing or proposed bridges. If within 300 feet of proposed bridge, show cross section of the stream bed under the centerline of structure with dotted line;

c. Typical highway section planned for roadway adjacent to proposed bridge; showing pitch of subgrade, future pavement cross section and point(s) where profile grade is established on the typical cross section.

4. Show on engineer's location observation at bridge site:

a. ITEM NO. 1. It is important that this item be filled in, because the size and kind (or complete absence) of driftwood and debris may determine whether it will be necessary to provide a single span, or whether a series of spans with piers will be adequate. Anticipated ice conditions should always be mentioned, any instability of existing banks should be described, and the kind of soil in the banks noted (such as loam, sand, gravel, clay, etc.);

b. ITEM NO. 2. Should be filled out in detail in accordance with instructions given. Be sure to include the net extreme high water cross-sectional waterway area and the total cross-sectional waterway area in square feet. Use same extreme high water occurrence at a proposed site;

c. ITEM NO. 3. Record visible evidence and consult local residents. Information regarding high water stages must be obtained from more than one person, if possible, in order to verify the high water elevations;

d. ITEM NO. 4. Record the apparent stream velocity at the time of the survey; and

e. ITEM NO. 5. If a temporary bypass during construction is proposed, the engineer in charge of the survey should study the site in regard to providing for traffic during construction of the bridge and make a preliminary recommendation for location, type and waterway requirement.

B. HYDRAULIC FLOOD ANALYSIS AND RISK ASSESSMENT

All plans shall show the magnitude and frequency of former floods, the pertinent water surface elevations for the design flood and similar data for the maximum flood of record for all bridges and culverts with a diameter of 10 feet or greater equivalent.

The hydraulic capacity of the structure and any provision for overflow shall be based on a "Hydraulic Flood Analysis" (see Fig. B 5-892.225) and a "Risk Assessment for Encroachment Design", (Fig. C (1-4) 5-892.225) both prepared and signed by a professional engineer. The Risk Assessment shall be in accordance with the latest directives from the State Hydraulics Engineer. Overflow areas shall be appropriately signed to warn the motoring public. The overflow area shall preferably not be located directly over the structure.

The Hydraulic Analysis shall include the following:

1. The 100 year flood (also called the Base Flood, the flood having a 1.0% chance of being exceeded in any given year) in accordance with the Minnesota Flood Plain Management Act.

2. The Overtopping Flood if less than the Greatest Flood.

3. The Greatest Flood (500 year frequency) if the roadway is not inundated at less than the 500 year frequency flood.

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4. Design Flood.

The following guidelines for preparation of Hydraulic Flood Analysis and Risk Assessment for Encroachment Design should be used to insure that all required information is shown. The Mn/DOT Drainage Manual contains helpful information. The State Hydraulics Engineer or District Hydraulics Engineer may be consulted if there are problems on minor streams and the State Hydraulics Engineer may be consulted on problems of major waterways.

The required information shall be included on the bridge survey sheets, or in the case of a major waterway, additional sheets may be necessary.

C. GUIDELINES FOR PREPARATION OF HYDRAULIC FLOOD ANALYSIS

1. Site Data:

a. Location map: Show proposed highway alignment and reach of river. May be an aerial photo or U.S.G.S. quadrangle map.

b. Vicinity map: Show flood flow pattern, cross sections of stream, location of proposed bridge and relief openings and alignment of piers.

If appropriate, provide a map showing 1 foot to 2 foot contours, stream meanders, vegetation, and man-made improvements. In some cases, cross sections perpendicular to flood flow are acceptable in lieu of the aforementioned map. At least 3 cross sections are desirable; a typical cross section upstream of the crossing, at the crossing, and a typical or constricted cross section downstream. The location of the surveyed cross sections must be designated. The location and number of cross sections should be identified by an individual knowledgeable in the field of hydrology and hydraulics;

c. Existing bridges: Locate existing bridges, including relief or overflow structures, upstream and downstream from the proposed crossing on the vicinity map or location map. Describe fully each bridge, giving: (1) type of bridge, including span lengths and pier orientation; (2) cross section beneath structure, noting stream clearance to superstructure and skew with direction of current during extreme floods; and (3) all available flood history, high water marks and dates of occurrence, nature of flooding including overtopping of approach fills, damages, and sources of information. Compare stream at existing bridge locations with proposed crossing;

d. High Water Elevations: Locate and determine elevations of all available high water marks along stream, giving dates of occurrence. Describe or list critical flood elevations of interest in evaluating possible damage (state datum used);

e. Streambed and bank conditions: Comment on driftwood, ice, nature of streambed, and bank stability;

f. Photographs: Photographs showing existing bridges, past floods, main channel, and flood plain are always helpful in evaluating a location and recording conditions existing before a new bridge is constructed; and

g. Other factors affecting water stage: (1) high water from other streams; (2) reservoirs existing or proposed and approximate date of construction; (3) flood control projects (give status); (4) ties; and (5) other controls.

2. Hydrological analysis:

Site inspection should be made by the engineer preparing hydrological and hydraulic analysis.

- a. List flood records available on river being studied;
- b. Determine drainage area above proposed crossing from available maps;
- c. Compute flood-frequency curve for the site;
- d. Compute a stage-discharge-frequency curve for the site; and
- e. Prepare charts showing distribution of flood flow and velocities for several discharges or stages in the natural channel (without the proposed bridge construction).

D. HYDRAULIC FLOOD ANALYSIS:

1. Bridge waterways:

a. Design floods will be the lesser of the over-topping and 100 year floods. The over-topping floods shall be established predicated on a risk-based assessment of local site conditions. They shall reflect consideration of traffic service, environmental impact, property damage, hazard to human life, and flood plain management criteria. Refer to Fig. C (1-4) 5-892.225 for the guidelines and constraints which may limit the selection of design frequency;

b. Backwater and velocity for the following floods should be computed:

- (1) Design flood;
- (2) Basic flood (100 year); and
- (3) Over-topping or 500 year flood; whichever is smaller;

c. The stage increase generated by the proposed bridge should comply with the requirements set forth by the affected agencies;

d. Estimate scour depth for proposed bridge piers using hydraulic data for the 500 year flood, or the over-topping flood, whichever is smaller; and

e. Show final layout in plan and profile.

(1) List the discharge, stage and frequency for: (a) design flood; (b) basic flood (100 year); and (c) over-topping or 500 year flood, whichever is smaller;

(2) Show maximum pier scour elevation;

f. Comment on:

- (1) Types of alignment of piers;
- (2) Need for spur dikes;
- (3) Channel changes;

(4) Bank protection of rip-rap;

2. Embankment encroachments paralleling flood plains:

- a. Evaluate the effect of encroachment on water stages. Compute water surface profile for waterway;
- b. Tabulate changes in stream velocities;
- c. Evaluate scour and erosion of roadway embankment and river channel; and
- d. Describe bank and channel protection needed for streamflow or wave action from ponded water.

3. Additional helpful information may be obtained by referring to the following publications:

- a. Federal Highway Administration, "Hydraulics of Bridge Waterways", by J. N. Bradley, 1978, available from the Superintendent of Documents, Washington, D.C.;
- b. Federal Highway Administration, "Scour at Bridges", (HEC 18), 1990; and
- c. Federal Highway Administration, "Stream Stability at Highway Structures", (HEC 20), 1991.

Also refer to prepared flood frequency analysis for the stream under study if available.

E. FOUNDATIONS ENGINEER'S RECOMMENDATIONS:

Record recommendations from soil report if available.

1. Vertical Control.

Location, elevation and description of bench mark to be used for construction of proposed bridge. If the datum of bench mark is not U.S. Datum, 1929 Adjustment, it must be tied into a U.S. Bench Mark with equations and proper description to locate and identify such bench mark.

2. Plan and Profile.

a. Show profile of cross section of stream, highway or railroad separation on centerline of proposed bridge (full black line); also profiles parallel to and 20 feet on each side of the centerline (dashed black line 20 feet right and dotted black line 20 feet left). Show sufficient length of profiles so that data is available for possible shift in bridge stationing;

In the case of irregular ground or where a wide roadbed or a double-lane roadbed is contemplated on the bridge, additional profiles 40 feet right and left of centerline shall be shown and clearly identified.

If the ground is so irregular that longitudinal profiles do not show the actual conditions, cross sections at right angles to centerline proposed bridge shall be submitted on a separate sheet or by cross section notes. In the case of grade separations, the cross sections should be at right angles to centerline of the upper highway or railroad.

In the case of grade separations, the profiles of the upper highway or railroad should be shown.

The elevations for the profile should be so arranged that there will be no interference between the plan view and the longitudinal view of the proposed structure when it is drawn in, with space allowed to plot sounding data.

- b. A foundation investigation using split tube borings.

NOTE: On some smaller bridges with low pile loads, the cost of split tube borings may not be justified and ½ inch rod soundings, supplemented with auger or other type borings to identify the type of material encountered, may be taken instead.

For ½ inch diameter rod soundings: In the plan layout show station and distance (about 20 feet out from proposed centerline to all soundings. Take at least two soundings for each pier and abutment. Use standard sounding for each pier and abutment. Use standard sounding equipment with 50 lb. hammer and ½ inch diameter rod. Use 24 inch free fall. Drive to practical refusal if within depth of 50 to 60 feet. 100 blows per foot at depth of about 40 feet may be considered as refusal;

- c. Number of soundings S1, S2, S3, etc., and borings B1, B2, etc.; plot soundings and borings in true elevation position on profile and show what materials are encountered in each boring and at what elevations the various materials are encountered. Show number of blows required for the driving of each foot of rod and final elevation of bottom of each rod To facilitate plotting of soundings, obtain hammer blows between one foot elevations. State size of sounding rod, type and weight of hammer, as well as distance of hammer fall. If deep soundings are encountered, the soundings plotted on the profile may be broken and shown in two parts;

- d. If the standard survey sheet is not large enough do not try to combine the standard survey sheet with a cross section sheet by pasting together. Use a separate sheet of plain cross section paper to complete the Plan and Profile; and

- e. Show location, type and extent of any proposed rip-rap work including right-of-way or permanent easement for this work.

3. General Requirements.

Be sure to date survey in the title block at the lower right-hand corner.

5-892.226 SPECIAL BRIDGE REPLACEMENT PLANS

A. GENERAL

Bridge replacement programs include: Special Bridge Replacement (federal aid), Town Bridge (state aid), Minnesota State Transportation Fund, also known as Fund 29 or Bond Funds(SBB) and Water Retention projects.

The cost of abandoning or replacing deficient bridges with a road or street is eligible for funding with Minnesota State Transportation Fund or Town Bridge Funds where such action is feasible and cost efficient.

Submit an Application for Bridge Funds (Fig A. 5-892.226) to the District State Aid Engineer.

B. DESIGN STANDARDS

Regular State Aid Rules standards apply to all bridge replacement projects. See Section 5-892.225 B for Hydraulic Flood Analysis

C. PLAN CONTENTS

Plans shall be in conformance with the requirements shown elsewhere in this section of the Manual and the following:

1. Estimated quantities shall have separate columns for participating and non-participating items. Culvert structures recommended per hydraulic analysis, culvert excavation, backfilling adjacent to and one foot above the culvert, bedding materials, rip-rap at culvert ends, etc. are eligible for funding. Removing the old structure, embankment construction, roadway surfacing, field laboratories or offices, channel change work, traffic control, etc. are considered approach grading costs and are non-participating. Engineering costs are also non-participating.

2. Any structure not covered by Standard Plates shall be detailed in the plans. All such structures will be checked by the Mn/DOT Bridge Office.

3. The typical section(s) of the approach roadway shall show the existing road, proposed construction in the contract, and any future construction (including proposed surface as required by State Aid Operation Rules). Culvert plans shall include a typical section drawn to scale showing the culvert, embankment slopes, fill height, etc. at the culvert site. Also include a section perpendicular to the culvert showing excavation limits and backfill material. Minimum fill above the top of a culvert is 16 inches for rigid pavement and 20 inches for flexible surfaces. If surfacing is not part of the contract, a note should be added as to how much surfacing is being placed and by whom.

4. The plan view shall show topography (existing roads, waterways, drainage structures and adjacent buildings), proposed roadway alignment, any proposed channel change alignment and construction, new drainage structures, rip-rap, and right-of-way etc. Culverts, aprons, and rip-rap shall be placed on permanent right-of-way or permanent easement.

5. Profile grade (contracted scale) extending at least 500 feet each way from the structure. Additional length may be required in some cases. Profile grade shall show existing ground line, proposed grade line with curve data, any future surfacing, proposed and existing drainage structure, low-water elevation, design high-water elevation, extreme high-water elevation, and any proposed overflow areas. If grading is to be done by others, a note to that effect should be included in the plans.

The approach grading for all Township bridge replacement projects is the responsibility of the County and will be subject to the following special requirements:

The County shall include the approach grading portion of the project within the contract, or the County may allow the Township to assume responsibility for the work. In this case, an agreement between the County and the Township, or a Town Board resolution, will state that the grading must be completed within the same construction season or within 60 days of the completion of the bridge. If the grading is not completed within the specified time, the County will complete the work with their own forces or by contract.

If the approach grading work is not completed in a timely manner by either the Township or the County, the unfinished approach grading work will be included in the contract of the next township bridge replacement project in that County, regardless of the township the next project is in. (Approach grading

work is defined to include the earthwork beyond what is normally considered to be participating, surfacing, and erosion control items, as well as any related safety items.)

6. Any cross sections required to show approach construction.

7. Show typical section and pertinent cross sections for channel change work.

8. Plans which involve a culvert replacement at or near the intersection of roads require a cross-section taken at the end of the proposed culvert rip-rap to clearly indicate that the recovery area standard on the cross road is met.

9. Data from the hydraulic report shall be shown on the plan. Show data for the Design Flood; the "Over-topping Flood" or the Greatest Flood", whichever applies; and the Base Flood (100 year frequency). Standard bridge survey sheets will provide the best format for showing most of the above data.

D. MISCELLANEOUS

Bridge applications for Minnesota State Transportation Fund projects will be submitted by the State Aid office to the Regional Development Commissions for review. Submit an Engineer's Cost Estimate, hereinafter referred to as the "Engineer's Estimate", with separate columns for participating and non-participating items for each project. Funds will not be released for any project receiving Special Bridge Funds until the abstract of bids is received.

E. CERTIFIED TOWN BRIDGE PLANS

Town Bridge projects with eligible costs less than \$20,000 may be certified by the County Engineer, and do not require State Aid staff plan review. For these types of projects, the County Engineer shall estimate the eligible costs using the guidance in Part C. If the County Engineer estimates that the eligible costs will not exceed \$20,000, and the Town Board agrees to be responsible for all other costs, the design and costs need not be approved by the State Aid office, but may be approved and certified solely by the County Engineer.

The County Engineer must submit a letter certifying that the replacement culvert will meet State Aid Rules standards both geometrically and structurally. The certification letter shall include the assigned project number, and shall be submitted to the State Aid Engineer, along with the Engineer's Estimate and a copy of the Board resolution. An approval letter authorizing the use of Town Bridge funds will be issued. The approval must be received prior to opening bids for the contract.

Prior to release of funds, the County shall submit a copy of the bridge plan for State Aid office records. The plan may accompany the Report of State Aid Contract, and both shall be labeled with the assigned project number. All other reporting requirements remain the same.

F. ELIGIBLE GRADING COSTS

On Town Bridge projects where the local share exceeds \$10,000, the County may request Town Bridge funds for those costs over \$10,000.

5-892.227 PARK ROAD ACCOUNT PLANS

A portion of the state aid funds are set aside for the Department of Natural Resources to improve roads serving parks, water accesses, and other recreational facilities.

Plans shall be designed in accordance with the procedures for other state aid funded plans described in this manual and as per State Aid Operations Rules. Projects on township roads or city streets must be processed through the County. Plans must be submitted to the District State Aid Engineer prior to opening bids.

5-892.228 NATURAL PRESERVATION ROUTES

A Natural Preservation Route (NPR) is a roadway, designated under State Aid Operations Rules, Parts 8820.4000 through 8820.4090, that possesses sensitive or unique scenic, environmental, pastoral, or historical characteristics.

In order to become a Natural Preservation Route, a request must be received from the County Board in the form of a resolution. The request must be accompanied by the information required in Minnesota Rules, Part 8820.4020. The request is heard by an Advisory Committee which makes a recommendation to the Commissioner of Transportation. If the Committee recommends approval of the request, the Commissioner may designate the route as a Natural Preservation Route.

Natural Preservation Routes shall be designed in accordance with the standards as set forth in the State Aid Operations Rules. The Rules for Natural Preservation Routes also require the designer to maintain the in-place cross-section and alignment to the greatest extent possible. This may require the introduction of extraordinary design features such as curb and gutter, retaining walls, guardrail, or other measures to limit the impacts on the surrounding environment.

5-892.231 TRAFFIC CONTROL PLAN REQUIREMENTS

A. GENERAL

A Traffic Control Plan (TCP) is required for all federal aid projects and is advisable for all other projects. The TCP shall be a plan for handling traffic through a specific highway or street, work zone or project. The degree of detail in the TCP will depend upon the project complexity and potential traffic interference with construction activity.

1. For all construction projects, attention must be given to traffic control from the early stages of development of the project, through the completion of the actual construction, including the preliminary layout studies, detailed design, and the drafting of the special provisions. Thorough planning should provide a detailed set of guidelines and a checklist for consideration when developing a traffic control plan for each construction project. Careful consideration of the TCP should result in minimizing confusion and delays to motorists and pedestrians including the handicapped, as well as reduce accidents and provide greater safety to the various parties involved in the project.

2. The TCP for base and surfacing, or overlay projects should, as minimum, provide for advance warning signs at the ends of the project as well as for roads crossing the project, signs for lane closures and the signs required by the "Guidelines For Traffic Control Treatment of Longitudinal Joints and Edge Drop-Offs in Work Zones".

3. The TCP for bridge replacement projects, including those utilizing culverts as well as bridge structures, shall include the general features of all TCP's, and shall include a complete, detailed detour route with appropriate signing if traffic is to be maintained over a detour. For special situations, TCP's should include traffic control devices for temporary bypasses and similar types of traffic diversions.

4. The TCP for more complex grading, surfacing, and bridge replacement projects, including those **5-892.231**

projects involving relatively higher volumes of traffic and/or detours, shall consist of a complete, detailed description of the signing required for all stages of construction, and any detour routes needed to maintain traffic.

5. TCP's may provide for traffic control devices to be furnished, installed, maintained and removed by County or City forces in cases where the County or City is staffed and equipped to provide traffic control device installations meeting the requirements of the Minnesota Manual on Uniform Traffic Control Devices, including the Field Manual (most recent edition).

If County or City forces are to provide traffic control, the TCP shall be prepared and certified by the appropriate engineer and shall not be made a part of the construction plan.

6. All other TCP's shall be provided for the contractor to furnish, install, maintain, and remove needed traffic control devices. These TCP's shall be made a part of the construction plan, and shall be located in the plans after the typical section and tabulation sheets.

At a minimum, the traffic control devices shall be paid for as a lump sum under Item No. 2563.601 (Traffic Control).

On more complicated projects, various stages of traffic control may be needed with different numbers and configurations of devices. On these projects, each stage of traffic control shall be paid for as a separate, lump sum Item No. 2563.601 (Traffic Control Stage 1), etc.

Additional 48" x 48" signs, Type I, II, or III barricades, impact barrels, and/or flashers, etc. that may be required due to changing project conditions shall be tabulated on the TCP and will be paid for as separate items by the unit day or each basis of measurement.

5-892.232 EROSION CONTROL PLANS

A Minnesota Pollution Control Agency permit to discharge stormwater from a construction site is required for every plan involving construction that disturbs 5.0 or more acres of land, including disturbed roadbed. This is currently under discussion to be reduced to 1 or 2 acres, check most current regulations. The terms of this permit require that an erosion control plan for both temporary and permanent erosion control be incorporated into the plans and special provisions for the project.

All federal aid projects are required to contain an erosion control plan meeting Mn/DOT standards in order to be approved. This shall include the appropriate special provisions.

For state aid funded plans, compliance with the erosion control permit requirements shall be the responsibility of the local agency. Construction plans submitted to the State Aid office for approval that contain erosion control plans will be checked for accuracy against the tabulations, estimate of quantities, and Engineer's Estimate. It will also be checked for the existence of detail drawings for items not covered by standard plates or plan sheets. The adequacy of the erosion control and prevention measures will not be checked. The designer will be notified if it appears to the reviewer that a plan may be required, but is not included.

Erosion control plans do not need to be in any prescribed format; however, they should indicate the type of temporary and/or permanent erosion control methods (mulching, seeding, bales, check dams, etc.), as well as installation details and locations. This information may be shown on the construction plan sheets, on separate plan sheets, in details or tabulations, or any combination of these methods. Refer to the Minnesota Pollution Control Agency's General Permit for specific plan requirements.

OTHER PROJECT DOCUMENTS**5-892.240****5-892.241 PARKING RESTRICTIONS AND RESOLUTIONS**

All parking shall be parallel to the curb except as provided in paragraph C below. The following parking resolutions for restricted parking will be required for curbed streets.

A. "NO PARKING" AREAS

Parking restrictions and resolutions are required where the proposed street width is not adequate for parallel parking on both sides of the street. For street width standards see State Aid Rules. A resolution passed by the governing body of the municipality designating the parking restriction shall be submitted with the plans to the District State Aid Engineer. Refer to sample resolution Fig. B 5-892.241 for suggested form.

B. "PARALLEL-PARKING-ONLY" AREAS

When an improvement is proposed in an incorporated city where diagonal parking has previously been permitted on the proposed area of improvement, and where the provisions for diagonal parking within the project limits as described in paragraph C below are not met, plan approval will be conditioned on parallel parking.

In this case a resolution adopted by the governing body of the municipality providing for parallel parking only will be required when the plans are submitted to the District State Aid Engineer for review and approval.

Suggested form of Resolution - See Fig. A 5-892.241.

C. "DIAGONAL-PARKING" AREAS

Diagonal parking may be established by cooperative agreement between the local road authority and the Commissioner of Transportation if the street width and traffic volumes meet Standards in State Aid Rules, 8820.9961 and the legal speed limit is 30 mph or less.

The cooperative agreement shall be in the form of a plan; See Fig. C 5-892.241, and shall include the following:

1. A typical state aid plan title sheet;
2. A complete layout of the parking stalls detailed in the plan. All diagonal parking shall be between 45 and 60 degree angles to the curb;
3. A typical plan view insert showing parking angle, stall dimensions, etc. for the project;
4. A list of notes specifying the "No Parking" areas required by statute;
5. Current ADT with year shown;
6. A note reading "The City shall comply with any statute or rule hereafter adopted with respect to parking"; and

7. A signature block for local officials.

Pavement markings for parking stalls shall be completed prior to final acceptance of the project. The plan shall include pay items for the pavement marking or denote how the marking will be accomplished.

Parking provisions shall be as adopted in:

1. State Aid Operations Rules Chapter 8820.9961;
2. Minnesota Statute, Highway Traffic Regulation 169.34 Prohibitions; Stopping and Parking; and
3. Minnesota Statute, Highway Traffic Regulation 169.35 Parking.

5-892.242 ENGINEER'S ESTIMATE

A. GENERAL

The County or City Engineer shall submit a detailed cost estimate, hereinafter the Engineer's Estimate, along with the plans for each state aid or federal aid project. No project will be considered for approval without an Engineer's Estimate. The Engineer's Estimate shall show the Item No., item name, unit of measure, quantity, price per unit, and extension for each item. Non-participating items, landscaping, special bridge funded items, and storm sewer items shall be listed separately on the Engineer's Estimate as well as multiple project items. Use standard pay items whenever possible.

B. FEDERAL AID PROJECTS

State Aid staff will submit the Engineer's Estimate to the Mn/DOT Estimating Section for their review and approval. Revisions, as necessary, will be made to the Engineer's Estimate by the Mn/DOT Estimating Section. After that, a Preliminary Engineer's Estimate is prepared by State Aid staff and distributed to the County or City Engineer, various Mn/DOT offices, and the Federal Highway Administration.

When bid prices of the low bidder exceed the Engineer's Estimate by more than ten percent and it is desired to award the contract, the Engineer must justify the bid prices before the contract can be awarded. Reasonable Engineer's Estimates minimize the need to prepare these justifications. If requested, the Mn/DOT Estimating Section will assist the County or City Engineer in the initial preparation of the Engineer's Estimate.

5-892.243 LAB SERVICES REQUEST

A "Laboratory Testing Services Request" form will be submitted with the project documents accompanying the plan to the District State Aid Engineer. One request form should be used for each contract. All tied projects will be listed on the form (See Fig. A (1) 5-892.243). Instructions for filling out the form are shown on the reverse side of the form (See Fig. A (2) 5-892.243). NOTE: to guarantee consistent service to all agencies, provide a "Laboratory Testing Services Request" form even if no services are desired for the project.

5-892.244 RAILROAD GRADE CROSSINGS

Before any federal aid project that involves a railroad grade crossing within its limits or close to its termini is approved, a Railroad-Highway Crossing Data Sheet (Form 29170; Fig. A 5-892.244; instructions in MnDOT's Traffic Manual 13-5.07) must be submitted to the State Aid office. This should

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be submitted at the time of the Project Path Report or Project Memorandum submittal. Review and recommendations for crossing protection will be obtained from the Mn/DOT Railroad Administration Section by the State Aid office. Recommended crossing protection or dispute resolution must be accomplished

prior to final acceptance of the project by Mn/DOT and/or FHWA.

Before any state aid plan involving a railroad grade crossing within its limits or close to its termini can be approved, the following information must be provided either in a letter or as part of the plan details:

1. The location of the crossing by engineer's stationing or other references;
2. The widths of the existing crossing, roadway, paved surface, and shoulders;
3. The widths of the proposed crossing, roadway, paved surface, and shoulders;
4. The status of any negotiations with the railroad company concerning upgrading or removing the crossing;
5. Details of the construction, if any, at the crossing; and
6. The existence of any parallel railroad tracks and the offset to any railroad grade crossing on public or private road approaches before and after construction.

5-892.245 UTILITY RELOCATIONS

A statement of Utility Relocations (Fig. A 5-892.245) shall be submitted for all federal aid projects. This statement shall be in the State Aid office before the project is advertised.

5-892.246 FORCE ACCOUNT PROJECTS

A. STATE AID PROJECTS

It is recommended that the construction of all state aid projects be done under contract and awarded on the basis of competitive bidding. Force account agreements will be approved only where recommended by the District State Aid Engineer and adequately justified to the satisfaction of the State Aid Engineer.

Engineer's Estimates for force account projects will be checked by the Mn/DOT Estimating Section and costs may be adjusted accordingly.

B. FEDERAL AID PROJECTS

The construction of federal aid projects shall be done by the "contract method" based on competitive bidding unless an affirmative finding is made that construction by the "force account method" (or agreed upon unit prices) is in the public interest.

Construction by County/City forces on federal aid projects will generally be considered as being in the public interest when recommended by Minnesota Department of Transportation with documentation showing that:

1. The character of the work or circumstances surrounding the project make it unsuitable for economical construction by the contract method;

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2. The County/City is adequately organized and equipped to perform the work. Construction by County/City forces is not recommended where it would be necessary for the County/City to purchase construction equipment not required for its normal operations; and

3. The cost is reasonable. Only those projects fully meeting the above requirements and expressly recommended by the District State Aid Engineer for construction by local forces will be approved on this

basis.

C. PROCEDURE

A Request for Approval of State Aid Construction by _____ Forces (Fig. A (1-2) 5-892.246) must be submitted with suitable plans, accompanied by an Engineer's Estimate for review and approval prior to beginning any work.

5-892.247 COUNTY PLAN APPROVAL BY MUNICIPALITY

A. GENERAL

No portion of the County State Aid Highway System along or within the corporate limits of any municipality shall be constructed, reconstructed, or improved, nor the grade thereof changed without the prior approval of the plans (including the alignment, grades, and cross sections) by the governing body of the municipality (dispute resolution statute 162.02, subd. 8a may be requested).

B. STATE AID PROJECTS

Obtaining approval of plans for county state aid projects involving proposed construction of County State Aid Highways along or within the corporate limits of a municipality shall be the responsibility of the County Engineer. This approval shall be in a form similar to Fig. A 5-892.247.

C. FEDERAL AID PROJECTS

The approval form for federal aid projects involving proposed construction on County State Aid Highways along or within the corporate limits of a municipality will be transmitted to the County Engineer by the State Aid office for the necessary action in triplicate by the municipality if the County has not already received municipal approval. See Fig. A 5-892.247.

5-892.250 PROPOSALS

A. STATE AID PROJECTS

Proposals for state aid projects are prepared and distributed by the City or County, with the exception of plans and special provisions designed and let by Mn/DOT as part of a cooperative agreement.

Proposals shall include the Minnesota Department of Labor and Industry "Prevailing Wage Rate" for the county in which the project is located. Special Provisions Division A for State Funded Contract shall also be included in the proposal.

B. FEDERAL AID PROJECTS

Proposals for Federal aid projects where Mn/DOT holds the contract are prepared by the State Aid office. Plans and proposals are distributed to prospective bidders by the Proposals Sales Unit of the

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Minnesota Department of Transportation. Proposals will contain the following:

1. A cover sheet listing project number(s) and location(s), description of work, the date and hour of bid opening, and necessary stipulations;
2. Reference to appropriate governing Specifications;
3. Special Provisions;

4. Special contract provisions required by the Federal government, such as EEO requirements. The latest issue of these provisions will be furnished and inserted by the State Aid office;
5. Special Provisions Division A for federal aid Contracts;
6. Schedule of Prices containing itemized pay quantities for bidding purposes; and
7. A sheet providing for bid totals and signature.

5-892.251 REQUIRED DOCUMENTS AND PERMITS FOR FEDERAL AID PROJECTS

On federal aid projects the following items shall be on file in the State Aid office before the project can be processed to letting:

1. Project shall be included in the approved State Transportation Improvement Program (STIP);
2. Project Development Report (Project Memorandum, Project Path Report, EIS, Environmental Assessment) approved by the FHWA (or by designated State Aid Official);
3. Design Study Report, if necessary, approved by the State Aid office;
4. A Corps of Engineers 404 Permit where required;
5. A DNR permit where required;
6. A Right of Way Certificate, No. 1 or 1A (see Figs. I(1) 5-892.300 and I(2) 5-892.300);
7. Bridge plans approved by the Mn/DOT Bridge Engineer;
8. A letting date selected by the City or County and concurred in by the State Aid office; and
9. Agency Agreement (see Fig. A(1-7 5-892.130).

5-892.252 SPECIFICATIONS

A. STATE AID PROJECTS

The latest approved Mn/DOT "Standard Specifications for Construction and any Supplemental Specifications" shall govern, except as modified by the Special Provisions. A statement to this effect shall be included in the Plans and Proposal and stated on the title sheet of the plan.

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B. FEDERAL AID PROJECTS

The latest approved Mn/DOT "Standard Specifications for Construction and any Supplemental Specifications", together with the latest appropriate "Required Contract Provisions for Federal Aid Construction Contracts" shall govern, except as modified by Special Provisions. A reference statement shall be made to the "Standard Specifications" on the plans and to both the "Standard Specifications" and the "Required Provisions for Federal Aid Contracts" in the proposal.

5-892.253 SPECIAL PROVISIONS

Special provisions are specific clauses setting forth the conditions unique to the project under consideration and concerning the work and materials involved in the contract which are not covered by the Standard Specifications or Supplemental Specifications. These special provisions may be modifications of the Standard Specifications or Supplemental Specifications, or they may be completely new specifications which are not included in the Standard Specifications or Supplemental Specifications.

There is no definite rule or formula for writing special provisions. However, it is essential to become thoroughly familiar with the requirements of a particular specification before attempting to modify it with a special provision. The practice of repeating portions of the Standard Specifications or Supplemental Specifications should be avoided. This practice will make some parts of the Standard Specifications or Supplemental Specifications appear more important than others and may cause confusion.

A. STATE AID PROJECTS

Special provisions for state aid projects shall be prepared by the County or City Engineer. Normally these special provisions need to be submitted to the State Aid office only if the plans include traffic signals, lighting, or bridges.

The following basic requirements should be considered in preparing these special provisions:

1. The special provisions must contain a statement indicating which Standard Specifications apply. This statement is necessary because a special provision, in most cases, modifies a Standard Specification;

2. Prevailing wage rates are mandatory and shall be included. Division A Special Provisions shall also be included;

3. Equal Employment Opportunity Special Provisions are mandatory and shall be included in all contracts over \$100,000;

4. Each special provision which modifies an existing Standard Specification shall contain a reference to that Specification;

5. Provisions for "Railroad's Protective Liability Insurance" and "Work on Railroad Right of Way" will be necessary if the contract requires work on railroad right-of-way outside the limits of the original highway right-of-way. Such provisions shall indicate:

a. The name and address of the railroad affected and the limits of insurance liability (See 1708.2 of the Specifications); and

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b. The number and classification of flagmen, including hourly pay, location of headquarters, expenses, fringe benefits, etc., and the amount of guarantee bond required (See 1708.4 of the Specifications);

6. A provision in regard to liquidated damages will be required if the conditions differ from those specified in 1807 of the Specifications. The absence of a special provision in regard to liquidated damages will automatically make deductions on a per diem basis as provided in 1807 mandatory in the event that all work is not completed within the time specified in the contract;

7. The special provisions must provide for the flow of traffic if through traffic is to be diverted from the project or portions of the project. Traffic conditions may have considerable influence on construction costs; and

8. The special provisions must provide for a time schedule, including starting and completion times or

dates, and intermediate completion times or dates as may be necessary. Circumstances or conditions peculiar to a project may make it desirable to specify a sequence of operations.

B. FEDERAL AID PROJECTS

Special provisions for the federal aid projects will be prepared in the State Aid office. Information for the special provisions shall be submitted on Mn/DOT Form 30133, Data for Special Provisions for Federal Aid Projects, Fig A(1-3) 5-892.253, well in advance of the proposed letting date. Usually data shall be submitted with the plans. It is essential that all information be complete. Lack of sufficient information results in costly delays and extra work.

Special provisions for federal aid projects are basically the same as those for State-aid projects. Statutory provisions control the minimum wage rates paid for labor on all federal aid projects awarded by the Commissioner of the Minnesota Department of Transportation. The minimum wage rates are those established by the U.S. Department of Labor and Minnesota Department of Labor and Industry, for the wage area. The State Aid office will furnish wage rates for proposals prepared in the State Aid office.

5-892.254 ACRONYMS

See Fig. A (1&2) 5-892.254 for a listing of commonly used acronyms.

RIGHT-OF-WAY

5-892.300

I. GENERAL

A. INTRODUCTION AND PURPOSE

The purpose of this section is to provide a brief, easy to use summary on acquiring right-of-way in the State of Minnesota. Minnesota Statutes Sections [117.011](#), [117.51](#), and [117.52](#) require “acquiring authorities” to meet the provisions of federal law titled “[The Uniform Relocation and Real Property Acquisition Policies Act of 1970](#),” as amended (also known as “The Uniform Act” or simply “The Act”), together with those regulations which implement “The Act.” Conformance with applicable federal policies and regulations are therefore required on all city and county acquisitions, regardless of funding sources.

All local government agencies acquiring right-of-way should have available, as a reference, the “Project Development Guide“, prepared and made available by the U.S. Department of Transportation, Federal Highway Administration (FHWA). It contains “The Uniform Act” and 49CFR Part 24 (the Federal regulations which implement “The Act”), together with other guidance on how to acquire right-of-way.

This and other regulatory and guidance materials are available on FHWA's Internet web site at: “<http://www.fhwa.dot.gov/realestate/index.htm>.” This site also contains links to “[The Uniform Act](#)” and to [49CFR Part 24](#), which is the Federal regulation issued to implement “The Act.”

FHWA's "Real Estate Acquisition Guide for Local Public Agencies" (referred to hereafter as the U.S. DOT Guide) is another helpful reference manual. It has been revised and distributed by FHWA, and is also available on that agency's web site for viewing and download.

Relocation Assistance and Benefits are not specifically presented in this manual. Due to the extensive requirements and special knowledge necessary to perform relocation services, it is recommended that agencies without a well-qualified relocation staff contact Mn/DOT regarding the handling of relocation and/or referral to a qualified consultant. The acquiring agency can contact its appropriate Mn/DOT District Land Management/Right-of-Way office, or it may choose to contact Mn/DOT's Office of Land Management directly, through either the Property Management and Relocation Unit at (651) 296-1120, or the Government Real Estate Advisor at (651) 297-4833.

For all projects involving Federal Funds, following the approval of the Project Development Report (Environmental action), but prior to initiation of the right-of-way phase, the local agency should consult with the appropriate Mn/DOT District Right-of-Way/Land Management Engineer concerning qualifications of appraisers and reviewers, appraisal format, relocation assistance, etc. See timing guidance below.

B. NOTIFICATION

On all projects, regardless of funding, the owner shall be notified as soon as feasible of the Agency's interest in acquiring the real property and the basic protections provided to the owner by the Uniform Act and 49CFR Part 24. A sample guide which indicates the basic owners' protections is shown in Figs. A (1), (2), (3), and (4) 5-892.300. If the Agency wishes, it may provide its own documents for this purpose.

This notice can be served either personally or by mail. This notice must indicate the name and phone number of a person who may be contacted to answer questions. (See [49CFR Part 24 Section 24.102\(b\)](#))

C. RECORDS

The Agency shall maintain adequate records of its acquisition and displacement activities in sufficient detail to demonstrate compliance with the regulations. These records shall be retained for at least 3 years after each owner of a property and each person displaced from a property receives the final payment to which he or she is entitled under these regulations. (See [49CFR Part 24 Section 24.9.](#))

D. TIMING OF RIGHT-OF-WAY ACQUISITION

Right-of-way activities other than those necessary to complete environmental action should normally not be initiated until after environmental action has been completed. Exceptions to this policy are for "hardship" and "protective buying." Hardship and protective buying can be undertaken at any time, unless federal funds are to be used in the right-of-way acquisition. If there are federal funds in the right-of-way acquisition, hardships and protective buying cannot be undertaken until:

- a. the project is included in the currently approved STIP;
- b. the acquiring agency has complied with applicable public involvement requirements in [23CFR](#) parts 450 and 771;
- c. FHWA concurrence and authorization to incur an eligible federal expense have been obtained from the Federal-Aid Section of Mn/DOT's State Aid Division.

E. HARDSHIP ACQUISITION

Guidelines for evaluating applications for hardship acquisition and protective buying are found in the Minnesota Department of Transportation Right-of-Way Manual, Section 5-491.121. If these types of acquisitions occur, the acquiring agency must be able to substantiate that those parcels acquired were legitimate hardship or protective buying cases.

For any federal-aid project, the acquisition of hardship and protective buying parcels shall not influence the eventual decisions regarding: (1) the need to construct the project; (2) the selection of a specific alternative, (3) or the required assessment of environmental impacts.

F. 4(F) PROPERTIES

4(f) properties are named from Section 4(f) of the Department of Transportation Act that defines these properties as a publicly owned park, recreation area or wildlife and waterfowl refuge or any significant historic site. 4(f) properties and properties on or eligible for inclusion on historical registers cannot be acquired as hardship or protective buying parcels.

G. ACQUISITION OF LESS THAN FULL FEE INTEREST

Acquisition requirements under State Law and Federal regulations apply to any agency acquisition of real property. This includes permanent and temporary easements, life estates, and leases over 50 years.

H. Acquisition By Private Groups

If a private group is acquiring right-of-way for an enhancement project or for a wetlands bank, the Uniform Act and 49CFR Part 24 apply as follows:

- a. if the group is acting (acquiring) on behalf of the Governmental Agency,
 - Uniform Act and 49CFR Part 24 applies.
- b. if the group is not acting (acquiring) on behalf of the Governmental Agency;
 - (1) Binding offer occurs before Federal approval of environmental document
 - Uniform Act and 49CFR Part 24 do not apply
 - (2) Binding offer occurs after Federal approval of environmental document;
 - (a) Private Group has power of eminent domain
 - Uniform Act and 49CFR Part 24 apply.
 - (b) Private Group does not have power of eminent domain
 - only 49CFR Part 24 Section 24.101(a)(2) applies, requiring the acquiring group to:
 - (i) inform the owner that the group cannot acquire by condemnation, and;
 - (ii) inform the owner of the group's estimate of fair market value.

II. PRE-ACQUISITION

A. GENERAL

Owners, occupants, and other parties of interest shall be determined by a title search and certificate and by a field title investigation. A right-of-way map and parcel sketches must be made. These activities must be completed before appraisals of the individual parcels of a project are begun. The information shall be supplied to the appraiser so that the proper individuals are contacted and the affected properties are correctly identified.

B. APPRAISALS

- a. All appraisals shall be done in writing, dated, signed, and retained. An appraiser with qualifications appropriate for the appraisal problem shall do them.
- b. The owner or representative shall be given the opportunity to accompany the appraiser during the appraiser's inspection of the property.
- c. Any increase or decrease in the market value of real property prior to the date of valuation that is caused by the public improvements for which the property is acquired shall be disregarded in determining the compensation for the property.
- d. If information presented by the owner or a material change in the character or condition of the property indicates the need for new appraisal information, or if a significant delay has occurred since the time of the appraisal(s) of the property, the Agency shall have the appraisal updated or obtain a new appraisal(s). If the latest appraisal information indicates that a change in the purchase offer is warranted, the Agency shall promptly re-establish just compensation and offer a revised amount to the owner in writing.
- e. Notwithstanding any other provision of law, if the Agency requires any interest in real property it shall acquire at least an equal interest in all buildings, structures, or other improvements located upon the real property acquired and which it requires to be removed from the real property or which it determines will be adversely affected by the use to which the real property will be put. This includes any improvement of a tenant who has the right or obligation to remove the improvement at the expiration of the lease. (See 49CFR Part 24 Section 24.105)
- f. Neither the appraiser nor the review appraiser can have any interest in the property being appraised that would conflict with their preparation or review of the appraisal.

C. QUALIFICATIONS OF APPRAISERS

1. Qualification of Staff Appraisers

Staff appraisers must possess the appropriate state appraisal license/certificate. Requirements are set out in Minn Stat. Chapter 82B (1994.) The State of Minnesota Department of Commerce has established license classifications based on education, experience, and examination requirements. The difficulty of the appraisal shall dictate who can appraise. For instance, on the simple widening jobs where there is little or no damage to the remainder, and no taking of substantial improvements, individuals with little appraisal experience may be qualified. For the higher valued takings and those involving substantial damages or the taking of substantial improvements, the above individuals may be qualified if they have previous experience in the type of appraisal involved. If not, it may be necessary to seek the services of fee appraisers.

2. Qualifications of Fee Appraisers

Fee appraisers for local acquiring agencies must possess an appropriate state appraisal license/certificate. Requirements are set out in Minn Stat. Chapter 82B (1994.) The State of Minnesota Department of Commerce has established license classifications based on education, experience, and examination requirements. The acquiring agency shall secure the qualified appraisers for the particular assignment to be performed. It is necessary to secure properly qualified appraisers to do more complex parcels and each appraiser's ability should be evaluated on an individual basis.

D. APPRAISAL REPORT FORMATS

The amount of analysis and documentation necessary to support an opinion of value varies as the complexities of the appraisal problem increases. Therefore, two different appraisal formats are recommended: the uncomplicated acquisition appraisal and the detailed appraisal report.

As many of the acquisitions are simple road widenings, the uncomplicated acquisition appraisal is recommended for use. The detailed appraisal report is required for the higher valued takings and for complex acquisitions where there are questions of highest and best use, severance damages, fixtures and equipment, mineral rights or other problems.

a. Uncomplicated Acquisition Appraisals (See Figs. B(1) and B(2) 5-892.300).

The Uncomplicated Acquisition Appraisal may be used for those acquisitions, which, because of their low value or simplicity, do not require the in-depth analysis and presentation necessary for a detailed "before and after" appraisal. These are simple total takings of low valued land, or partial acquisitions (strip takings). Minor damages are allowed. If the cost to cure method is used, the appraiser should support his/her figures.

The appraisal for this type of acquisition shall contain the following items:

- 1) A statement of the purpose and/or function of the appraisal (stated in certificate of the appraiser (See Fig C 5-892.300)
- 2) The identification of the estate being appraised, such as fee or easement (included on the appraisal form).
- 3) An adequate description of the physical characteristics of the property being appraised and, in the case of a partial acquisition, an adequate description of the remaining property, a statement of the highest and best use, the present use, and a five year sales history of the property.

- 4) In most cases, only the market approach needs to be used in an appraisal. A description of the comparable sales on the appropriate form shall include a description of all relevant physical, legal and economic factors such as the parties to the transaction, the source and method of financing, and a verification by a party involved in the transaction. A sales map showing the location of the comparable sales shall be included. A short explanation of values found for a unit of comparison such as square foot or acre should also be included. (See Comparable Sales forms - Figs. D and E, 5-892.300)
- 5) Cost new less observed depreciation may be used for garages, sheds, fences, or other minor improvements being taken or affected.
- 6) A statement of the value of real property to be acquired and for partial acquisitions, a statement pertaining to the remaining real property (included on the appraisal form).
- 7) The effective date of valuation, the date of the appraisal, and the signature and certification of the appraiser shall be shown on the certificate of the appraiser.
- 8) A parcel sketch or right-of-way map will be included in the material available for review showing the dimension of the property and the part taken.

Many of the above required items are included on the sheets identified as forms for the uncomplicated acquisition appraisal. Appraisers are therefore encouraged to use these forms.

b. Detailed Appraisal Report

The detailed appraisal report is used for complex acquisitions whether of whole or partial acquisitions. The report should consider in depth, where appropriate, such things as the highest and best use, especially when such use is in transition or there will be a change in the highest and best use following the acquisition; severance damages; special benefits; and special purpose properties. Section 202.3, "Recommended Format For Detailed Appraisal Reports", in the Minnesota Department of Transportation Right-of-Way Manual, can be used as a guide in making this type of an appraisal.

The detailed appraisal shall also include the requirements 1 through 8 listed above for Uncomplicated Acquisition Appraisals. The cost and/or income approaches to value should be used as they apply, in addition to the market approach.

In certain instances, the detailed appraisal may include the findings of a specialty report. A specialty report is a study of some aspect of a property that is unique, such as machinery or equipment, mineral rights or forestation, items that do not generally fall within the expertise of a real property appraiser.

The detailed report must contain complete documentation of the data in the report, and the appraiser's value conclusion must be adequately supported.

E. MINIMUM DAMAGE ACQUISITION (MDA)

Agencies may use an alternate acquisition procedure when they determine that the valuation problem is uncomplicated and the fair market value of the acquisition is estimated at \$10,000 or less, based on a review of available data. When these conditions exist, this acquisition procedure, defined as a Minimum Damage Acquisition (MDA), may be invoked at the discretion of the agency. One of the primary benefits of the MDA procedure is that the valuation estimate of the acquisition need not be supported by a formal appraisal.

When an MDA is used for a parcel valuation, someone from the acquiring agency knowledgeable in appraisal principles and real estate valuations may prepare the appropriate report. That individual need not be a state licensed or certified appraiser. However, the Agency may still opt to use a qualified, appropriately licensed staff or fee appraiser.

Valuation estimates greater than the \$10,000 threshold generally do not qualify for the MDA procedure unless the element of damage causing the threshold to be exceeded is an eligible replacement item as described in paragraph (f) below. If the parcel does not qualify for the MDA procedure due to its value estimate, then a written appraisal report must be prepared by a qualified, appropriately licensed staff or fee appraiser, and that appraisal must then be reviewed by a qualified Review Appraiser. (See Parts B. APPRAISALS and F. APPRAISAL REVIEW)

Even though the MDA procedure allows an Agency to waive a formal appraisal report on specific parcels, the Agency must establish and offer an amount it believes represents just compensation for the property to be acquired. When using the MDA procedure, the criteria for appraisals do not apply. Therefore, agencies should provide and retain documented support for the amount(s) offered, which should include sales and/or other market information. A written report and supporting documentation must be included in the project or parcel(s) file(s).

Use of the MDA procedure is entirely optional; acquiring agencies may for various reasons prefer the standard procedure.

2. Preparation

- a. Each valuation report is referred to as, and should be titled, a "Minimum Damage Acquisition" (MDA). (See Sample MDA - Fig. F 5-892.300).
- b. Comparable sales should be used in the valuation process, with a short statement showing how values were arrived at in the preparation of MDAs.
- c. For minor takings on isolated acquisitions (i.e. bridge widening, cattle pass extinguishments, channel change easement), values could be assigned without comparable sales. Contact with real estate agents and/or assessors should be made for value guidance, and then documented.
- d. The individual completing the MDA report(s) should make sure the values assigned are reasonably consistent with values assigned on other MDAs and appraisals on the project.
- e. The \$10,000 threshold can be exceeded by cost to cure items: e.g. fencing; sprinkler system; drain field restoration; etc. Support for these costs should be itemized in the MDA report(s) and documented in the Comparable Sales Book.

- f. Owners should be contacted and offered the opportunity to discuss concerns with the individual preparing the MDA.
3. Approval
 - a. An appraisal review is not required for MDAs. However the acquiring agency must approve them. For the sake of consistency, all MDAs for a specific project should be examined and approved by the same agency officer. Approval actions must occur prior to offers being made. When a schedule of values is developed and used in a Comparable Sales Book, Agency MDA approval could be of the schedule of values rather than of each individual MDA.
4. Offers
 - a. Purchase offers based on MDAs should be made either by: 1) the individual who prepared the MDA, or 2) other acquiring agency staff that possess adequate knowledge of the acquisition, the property in question, the project in general, and the MDA report and comparable sales used in preparing the MDA in order to be able to intelligently discuss the purchase offer.
 - b. To expedite acquisition, acquiring agencies should try to combine duties such as having the same individual do field title interviews, prepare the MDA reports, and make the purchase offers. Ideally, if an approved schedule of values has been prepared, then when owners are contacted and their opportunity to accompany the appraiser or MDA preparer is provided, the MDA can be drafted, the offer conditionally made based on the draft MDA, and the acquisition documents signed all during the one contact.
 - c. In the interest of good public relations, offers should be made as soon as possible after completion of the MDAs.
 - d. MDA reports do not replace the written offer to the owner, but may be used as the summary statement to the owner, itemizing the basis for the offer. (see III. ACQUISITION, B. OFFER)
5. Administrative settlements
 - a. Settlements can be made over the \$10,000 thresholds without obtaining an appraisal.
6. Condemnation
 - a. If an owner refuses to accept an offer based on an MDA and the acquiring agency must file condemnation, then a complete before and after appraisal will be required.
7. Sample
 - a. A sample MDA is shown as Fig. F 5-892.300.

F. APPRAISAL REVIEW

All appraisals and specialty reports must be reviewed to ensure that the estimate of market value is reasonable and adequately supported. Therefore, the acquiring agency shall have an appraisal review process.

An appraisal review in compliance with 49CFR Part 24 is a technical review, performed by an experienced, qualified Review Appraiser who possesses the appropriate state appraisal license/certificate. The appraisal review is intended to be a comprehensive technical examination of the appraisal report, as presented by the appraiser. It is the Review Appraiser's responsibility to determine, among other things, whether the appraisal and appraiser's conclusions are adequately supported, comply with recognized appraisal principles and practices, and comply with the appraiser's contract and/or assignment.

A qualified Review Appraiser shall examine all appraisals to assure that they meet Agency appraisal requirements and shall, prior to certifying an appraisal, seek correction or revision of those that do not. If the Reviewer certifies a value different than the appraised value, his/her reasons must be thoroughly documented.

The Review Appraiser must sign a written statement that identifies appraisals reviewed and explains the basis for the certification. Damages shall be stated.

The Review Appraiser should attach to the appraisal a written review report or review analysis, acknowledged and dated, reporting the scope, analysis, conclusions, and recommendations of the reviewer, including a necessary "Review Appraiser Certification" as required under 49 CFR 24.104(c) and USPAP Standards Rule 3-2(f).

Appraisal review is not required on qualified parcels whose value estimates were documented by virtue of the MDA procedure. (See II. PRE-ACQUISITION; E. MINIMUM DAMAGE ACQUISITION; 2. Approval)

A sample Appraisal Review Analysis (for rural property) is shown as Fig. G 5-892.300. It contains a form of the review appraiser's certification, which must be signed.

G. AGENCY ESTABLISHMENT OF JUST COMPENSATION

Before the initiation of negotiations, the Agency shall establish and approve the amount it believes to be just compensation for the property to be acquired. The approved amount shall not be less than the review appraiser's certification of the fair market value, including damages or benefits to the remaining property. Agency approval must be by Agency personnel having authority to make such approval. The Appraisal Review Analysis (Fig. G 5-892.300) provides a space for the authorized signature approving the value or damage estimate.

H. RELOCATION ASSISTANCE

Title II of the [Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970](#), as amended, and [49CFR Section 24](#) establish and define relocation rights and benefits of persons displaced by land acquisition projects. A displacing Agency shall not propose or request that a displaced person waive his or her rights or entitlements to relocation assistance and benefits provided by the Uniform Act or other federal regulations.

The requirements for implementing Title II of The Uniform Act and the relocation provisions defined in [49CFR Part 24](#) are lengthy and detailed. Therefore, whenever a local agency anticipates that there will be relocation on a project, the Mn/DOT District Land Management/Right-of-Way Office should be contacted for assistance and/or guidance in conducting its relocation program.

I. APPEALS FOR INCIDENTAL AND LITIGATION EXPENSES

A person may file a written appeal with the acquiring agency in any case in which the person believes that the Agency has failed to properly determine the person's eligibility for, or the amount of, a payment required for those expenses incidental to transfer of title to the Agency or certain litigation expenses. All written appeals, regardless of form, shall be considered by the acquiring agency.

The Agency is required to provide an opportunity for the prompt review of appeals in accordance with applicable laws and regulations. The time limit for a person to file an appeal shall be 60 days after the person receives written notification of the Agency's determination on the person's claim.

The appealable items are discussed elsewhere in this chapter, including III ACQUISITION; E. CONDEMNATION AND G. CLOSING. For more details on this subject, refer to [49CFR Part 24 Section 24.10 Appeals](#), and the [FHWA Project Development Guide, Section 3.8 APPEALS](#).

III. ACQUISITION

A ACQUISITION BY OTHER MEANS

1. Donations

It is acceptable for a property owner whose real property is to be acquired for a highway project to make a donation or gift of the property, or a part of it, or of any of the compensation paid for it, to the acquiring agency. See [FHWA Project Development Guide - Section 6 Donations and Credits](#). The owner must be informed of the right to receive just compensation for the property and of the obligation of the Agency to provide him/her with an appraisal of the property.

The documentation of a donation should be done with a "Waiver of Compensation" form, such as shown in Fig. H 5-892.300, Sample Waiver Form.

The property owners may claim the donation as a charitable contribution on their federal income tax return. The Internal Revenue Service regulations exclude certain persons from qualifying as appraisers on deductions in excess of \$5000 claimed as charitable contributions of property. This regulation excludes staff appraisers from making these appraisals for the donor. The services of a qualified fee appraiser may be utilized in such instances provided that the acquiring agency is not the sole client of the fee appraiser.

2. Donations in Exchange for Construction Features

The acquiring agency may accept a property owner's offer to donate property (fee or easement) in exchange for the Agency providing a construction feature to benefit the owner. Examples would be an improved driveway, noise wall, landscaping, etc. When done, the value of property donated should approximate the value of the improvement provided. This should be documented by an appraisal, or MDA where appropriate, and an improvement cost estimate.

3. Plat Dedications

Property that is obtained for a project at the time an owner plats a piece of property is considered to have been acquired through police power and not subject to normal acquisition requirements. Acceptable documentation of this would include:

- a. if the platting process is completed, a copy of the plat sheets showing the property dedicated and the sheet with the dedication statement and the recording number, or
- b. if a plat is not yet approved, a copy of the proposed plat showing land proposed for highway dedication together with a copy of a request from the property owner for Agency approval. In this case, the right to occupy the property must be obtained prior to submitting a Right-of-Way Certificate No. 1.

B. OFFER

Promptly after Agency approval of just compensation, the approved amount must be offered to the owner in writing. Along with this offer, the owner must be given a written summary statement of the basis for the offer. Summary statements must also be given to tenants who own improvements affected by an acquisition. The summary statements shall include:

1. A statement of the amount offered as just compensation. Where there are damages to the remainder, they shall be separately stated. All amounts, other than those allowed for fee takings and permanent easements (including buildings located thereon) are considered to be damages to the remainder. In order to meet this requirement, it is advisable to give to property owners either a copy of the certified appraisal (or approved MDA) or an itemization of amounts allowed.
2. A description of the real property to be acquired and a statement of the interest being acquired.
3. An identification of improvements being acquired. Tenant owned improvements being acquired shall be identified along with the value placed on them.

The above written offer letter and summary statement can be combined into one document. Fig. I (1) and (2) 5-892.300 is a suggested format.

Reasonable efforts must be made to contact owners to discuss the offer and explain the acquisition policies and procedures, including the payment of incidental expenses described in I. GENERAL; B. NOTIFICATION.

C. NEGOTIATION

The negotiator shall not be the person who either appraised the property or served as the review appraiser. If the value of the acquisition was determined by an MDA, then the same person may both perform the valuation and negotiate.

Negotiations shall be conducted without any attempt to coerce the property owner into an agreement. Condemnation as a threat shall be avoided. The property owner shall be given a reasonable period to consider the offer and to obtain advice or assistance if needed. Thirty days is considered a reasonable period.

If an owner retains an improvement, its salvage value must be deducted from the acquisition price of the owner's entire interest.

If a partial acquisition creates an uneconomic remainder, the Agency shall offer to acquire it.

D. SETTLEMENTS

[49CFR Part 24 Section 24.102\(a\)](#) requires that acquiring agencies make a reasonable effort to avoid litigation and acquire right-of-way through negotiations. When it is impossible to acquire at the approved appraised value, it is sometimes appropriate to make settlements.

There are two types of settlements. Administrative Settlements are those made by acquiring officials prior to filing of eminent domain. Legal Settlements are those made by attorneys representing the acquiring authority, made after the filing of a condemnation action.

For both kinds of settlements, the Agency's designated official must give consideration to all pertinent information and prepare written justification stating that the available information supports a particular settlement amount (e.g., appraisals [including the owner's appraisal, if one is available], recent court awards, estimated trial costs, and valuation problems). The extent of written explanation is judgmental, but should be consistent with the situation, circumstances, and monetary amount involved.

E. CONDEMNATION

Condemnation must not be advanced or delayed in order to coerce the owner into agreeing to the price offered.

If any interest in real property is to be acquired by the power of eminent domain, the Agency shall institute formal condemnation proceedings. No Agency shall intentionally make it necessary for an owner to institute legal proceedings to prove the fact of the taking of real property.

An Owners litigation expenses must be reimbursed if: (a) it was ruled the Agency can't acquire; (b) the case was dismissed; or (c) owner brought successful mandamus action.

F. POSSESSION

No person (owner or tenant) lawfully occupying real property shall be required to move from a dwelling, or to move a business or farm operation, without at least 90 days written notice from the Agency of the date by which such move is required. (See [49CFR Part 24 Section 24.203\(c\)](#)).

No owner shall be required to surrender possession of real property before the Agency concerned pays the agreed purchase price, or deposits with the court, for the benefit of the owner, an amount not less than the Agency's approved appraisal of the fair market value of such property, or the amount of the award of compensation in the condemnation proceeding for such property. If a person is displaced from a dwelling, see [49CFR Part 24 Section 24.204\(a\)](#).

When the acquiring agency makes a deposit with the Court in a condemnation action, they should make the owner aware of the owner's right to withdraw the money.

G. CLOSING

When a government agency acquires private property by direct purchase, the owner is entitled to reimbursement of appraisal fees, reasonably incurred, not to exceed \$500. (See [M.S. 117.232 §\(1\)](#))

In eminent domain proceedings the court appointed commissioners may, at their discretion, allow and show separately, in addition to the award of damages, reasonable appraisal fees not to exceed \$500 (See [M.S. 117.085](#)).

The Agency shall inform the owners of the appraisal fee reimbursement procedures in advance of the acquisition.

The Agency may want to require the owner to provide a copy of the appraisal to insure the fee is reasonable.

Federal regulations provide that the acquiring agency will pay certain expenses incidental to the transfer of property such as recording fees, transfer taxes, penalty costs for pre-payment of any pre-existing recorded mortgage, and a pro rata share of prepaid property taxes. (See [49CFR Part 24 Section 24.106.](#))

The state law applicable to the payment of real estate taxes is found in [M.S. 272.02](#) §(4) and [M.S. 272.68](#).§(1). It applies to fee acquisitions; it does not apply when only a highway easement is acquired.

If the "date of acquisition" occurs before July 1, provision must be made for payment of taxes payable in the year of acquisition. If it occurs on July 1 or after, provision should be made for payment of taxes payable in the year of acquisition and for those payable in the following year. "Date of acquisition" is the date the acquiring agency can take legal possession.

It is up to the acquiring agency to determine how much of the tax payable in the year of acquisition must be paid by the owner. Taxes payable in the year following acquisition, if required to be paid, are the responsibility of the acquiring agency.

H. IRS FORM 1099

Following acquisition, it may be necessary for the acquiring agency to send an IRS Form 1099 to property owners. They are required for reportable amounts of \$600 or more. They are not required when the owner is a corporation or a governmental agency.

1. Form 1099-S (Fig.J 5-892.300) is used to indicate amounts paid for real property acquired (fee or permanent easements). This would also include the value of improvements located on fee and permanent easement areas.
2. Form 1099-Misc (Fig.K 5-892.300) is used to indicate rental payments. If any payments made to property owners are considered "rents", including the valuation of temporary (construction) easements, they must be reported in box 1 of this form.
3. Amounts paid for all other items such as severance damages, crop loss, fence allowance, etc., are considered "damages" for which preparation of a 1099 is not required.

If there are multiple owners on a parcel, the acquiring agency should indicate on Form 1099 amounts allocated to each owner based on advice from owners. The allocation would normally be consistent with an owner's interest in the property.

If the "owner" is a partnership, only one 1099 needs to be sent to the partnership. No allocation is required.

For additional information, refer to the IRS publication "Instructions for Use of Form 1099."

I. PROPERTY MANAGEMENT

Property Management is the control and administration of properties acquired for right-of-way until physical construction of the roadway begins.

If the Agency permits an owner or tenant to occupy the real property acquired on a rental basis for a short term or for a period subject to termination by the Agency on short notice, the amount of rent required shall not exceed the fair rental value of the property to a short-term occupier.

IV. RIGHT-OF-WAY CERTIFICATION REQUIREMENTS

A. STATE AID PROJECTS

Right-of-way acquisition for State Aid projects is the responsibility of the city or county. Other than showing right-of-way on grading plans, no documentation is normally required for State Aid approval.

B. FEDERAL-AID PROJECTS

Federal regulations require that before a contract for a Federal-aid project can be authorized, the acquiring agency must furnish suitable evidence that it has acquired the right to occupy and use all right-of-way required for the construction of the project, and that all property owners have been paid. Right-of-way limits shall be shown on grading plans. A "Right-of-Way Certificate No. 1" (Fig. L 5-892.300) or a "Right-of-Way Certificate No. 1-A" (Fig. M 5-892.300), as appropriate for the project, must be on file in the State Aid Division office prior to authorization to advertise for bids.

Note: On staged construction projects where right-of-way is to be acquired and a subsequent stage is to be federally funded, the federal project development process shall be followed at all stages (Environmental Report, Public Hearings, Study Report, etc.)

1. RIGHT-OF-WAY CERTIFICATE NO. 1

The "Right-of-Way Certificate No. 1" covers the following:

- ◆ Acquired property (either by direct purchase or condemnation)
- ◆ Permanent easements (ie: slope easements, ditches)
- ◆ Temporary easements (ie: only encumbers the property during construction)
- ◆ Work covered by permits (one agency working on another agency's road, ie: mill & overlay, work on railroad property--milling up to the tracks)
- ◆ Work covered by agreements (sometimes called a limited use permit--an agency building something on another agency's R/W, ie: a bicycle/pedestrian trail, bus shelters)

The Right-of-Way Certificate No. 1 shall apply as follows:

- ◆ When all right-of-way and material pits have been fully acquired, property owners paid, and the right-of-way either cleared of all structures or structure removal is to be included in the Contract work.
- ◆ When all right-of-way and material pits have not been fully acquired but the right to occupy all parcels has been obtained through condemnation, including legal and physical possession, and certified values have been made available to owners.

It is the City/County's responsibility to make arrangements for the Mn/DOT District R/W Engineer/Land Management Supervisor to have access to, and have adequate time for, the review of the project's right-of-way package including all plats, plans, and acquisition and/or condemnation related documents. The agency shall also attach to the "Right-of-Way Certificate No. 1" a completed and signed "Federal-Aid R/W Certificate #1 Check List", Fig. N 5-892.300 (see also: Mn/DOT R/W Manual Fig. A 5-491.133).

It is the Mn/DOT District R/W Engineer/Land Management Supervisor's responsibility to review the project's right of way documents, including required right-of-way permits, in a timely manner, to certify that the agency has complied with applicable laws and regulations in acquiring the right-of-way, and that it has legal possession and right of entry prior to the approval of the #1 Certificate. If permits are required, it is the District R/W Engineer/Land Management Supervisor's responsibility to be checking for those permits.

See exhibit 5-892-300: "FEDERAL-AID PROJECT RIGHT-OF-WAY DELIVERY"

2. RIGHT-OF-WAY CERTIFICATE NO. 1- A

"Right-of-Way Certificate No. 1- A" (Fig. M 5-892.300) shall apply as follows:

- ◆ When the project is to be constructed within the existing right-of-way and no additional right-of-way or easements are needed.

3. RIGHT-OF-WAY CERTIFICATE NO. 2

The "Right-of-Way Certificate No. 2" (Fig. O 5-892.300) shall apply when legal possession is pending, but right of entry to all property necessary to construct the project has been acquired. When used, the certificate shall recite the number of parcels remaining to be acquired and the probable date by which the right-of-way will be acquired and owners will be paid. This certificate allows processing the plan and approving right of way acquisition, but a #1 Certificate is required for authorization. Use of this certificate will require approval by the State Aid Project Delivery Engineer and the FHWA Realty Officer/Civil Rights Specialist.

When a "Right-of-Way Certificate No. 2" is used, it is necessary that a "Right-of-Way Certificate No. 1" be furnished Mn/DOT prior to first advertising date.

CONSTRUCTION**5-892.400****5-892.401 LETTING AND AWARD OF CONTRACT**

Federal and State Laws and Rules shall be adhered to in the conduct of State-aid and Federal-aid lettings. All wage rate, job posting and EEO requirements should be referred to the Mn/DOT EEO Office.

A. STATE AID PROJECTS

Letting for State-aid projects shall be conducted by the governing body of the County or Municipality, as the case may be.

To request State-aid funds for construction, right-of-way, and project development costs, submit one copy of the "Report of State Aid Contract" and an "Abstract of Bids" to the State Aid Division office through the DSAE after award of contract (see 5-892.402 Report of State Aid Contract; 5-892.403 Engineering Charges; and 5-892.221 Right-of-Way Plans). For projects involving County State Aid Municipal work, a detailed cost split shall be submitted for said municipal work.

For "Minnesota State Transportation Fund" bridge replacement projects, the resolution for the amount of the grant shall show only the amount funded from the Minnesota State Transportation Fund. Do not include any costs being paid from the "Town Bridge" account.

B. FEDERAL-AID PROJECTS

Letting for Federal Aid Projects for which Mn/DOT will hold the contract shall be conducted as follows:

1. Bid openings shall be conducted by the designated representative of the Commissioner of Mn/DOT (usually the District State Aid Engineer) in the City's or County's office.

2. The number of bidders and their names shall not be publicly disclosed until after all bids have been opened and read (see Minn. Stat. 13.37 Subd. 2)

3. The Commissioner's representative shall ascertain that all bids received by the specified hour are collected and considered. Bids shall not be opened prior to the hour specified. Bids received after the hour set for openings shall not be opened but shall be so marked by the County Auditor or Clerk/Administrator and submitted to the Contract Administration Engineer, Mn/DOT (see paragraph 7.).

4. As each bid is opened the Commissioner's representative shall check it for completeness before the dollar amount is publicly read. If it is obvious that only portions of a proposal have been submitted, making the proposal incomplete, then that specific bid should not be read.

Bids that appear questionable due to alterations or erasures, insufficient surety, missing signatures, incomplete unit prices or price extensions, or other technicalities shall be read without public comment as to the apparent irregularity. These irregularities shall be discreetly pointed out to the attention of the County Board or City Council and the Bidder, if present.

5. An Auditor's or Clerk/Administrator's Certificate shall be prepared by the County or City and signed, recommending award to the lowest responsible bidder or rejection of the bids. (see Fig. A or B 5-892.401).

6. Recommendation for award for any contract that exceeds the estimate by more than 10% requires justification of the bid prices before the Contract can be awarded.

7. All submitted bids, including any not read, shall be submitted to Mn/DOT's

Contract Administration Engineer along with a letter of submittal by the Commissioner's representative. In the letter of submittal any irregularities found in the bidders proposals shall be identified.

8. The final determination of bid acceptability will be made by the Contract Administration Engineer and the State Aid Engineer. Notification of award and preparation of contract documents will be made by the Contract Administration Office.

5-892.402 REPORT OF STATE AID CONTRACT

The Report of State Aid Contract (Mn/DOT Form 30172, Fig A. 5-892.402) is a form used for the initial request to the State Aid Division Office to release State-aid funds. The form should be accompanied by an abstract of bids and/or right-of-way and/or project development reimbursement documentation. The documents should be submitted to the State Aid Division Office through the District State Aid Engineer.

The Report of State Aid Contract identifies the contractor, the contractor's bonding company, and the proposed method of funding the project(s).

The Report of State Aid Contract also notifies the State Aid Division Office if reimbursement is going to be requested for right-of-way acquisition and/or project development costs.

A Report of State Aid Contract is not required for Federal-aid projects unless right-of-way acquisition and/or project development and/or construction engineering costs are requested.

5-892.403 ENGINEERING CHARGES

A. PROJECT DEVELOPMENT

Reimbursement for actual project development costs will be based on eligible

construction costs or force account agreement costs (excluding non-participating items). Requests for reimbursement for actual project development costs may be submitted at anytime after the costs have been incurred.

Requests may be submitted with the Report of State Aid Contract (see 5-892.402), Report of Final Estimate (see 5-892.431), or with partial estimates on an approved force account project. Requests for reimbursement and documentation of costs must be submitted through the DSAE. Limitations for project development costs paid before a contract is awarded must be based upon the engineer's estimate of the eligible construction costs.

B. CONSTRUCTION ENGINEERING

Reimbursement for actual construction engineering costs will be based on final contract costs or force account agreement costs excluding non-participating items. Requests for reimbursement for actual construction engineering costs must be submitted through the District State Aid Engineer with the Report of Final Estimate (see 5-892.431) Documentation of costs must be submitted.

C. Reimbursement of project development and construction engineering charges shall be limited to 25 percent of the eligible construction/agreement costs.

The District State Aid Engineer must approve all requests for engineering reimbursement.

5-892.404 NON CONSTRUCTION CHARGES FOR FEDERAL AID PROJECTS

Non-construction (Project development, R/W, Construction Engineering) are eligible for Federal participation if: (1) the engineering charges are specifically identified as a separate item in the State Transportation Improvement Program; and (2) an agreement between the County or City, the Minnesota

Department of Transportation and the Federal Highway Administration has been executed for the specific project (any costs incurred before the agreement is executed are not eligible for reimbursement); and (3) detailed documentation of actual eligible costs incurred are submitted.

Because of the significant time and effort required to prepare these agreements, the use of Federal-aid funds for non-construction activities is not considered to be economical and is strongly discouraged in most cases. Detailed policies for Federal-aid funding have been established by the Area Transportation Partnerships and the DSAE should be contacted for further direction when Federal-aid funds are being considered for non-construction purposes.

Engineering costs on a Federal-aid project that is on a State Aid route can be reimbursed from State Aid funds by following the procedure for State Aid projects.

5-892.405 CONSTRUCTION REPORTS

A. The procedure on Federal-aid projects for reporting and processing changes in construction status, weekly construction diaries, preconstruction conferences, supplemental agreements, materials control, statement of materials and labor, certificate of compliance with labor provisions, partial and final estimate vouchers, final inspection and acceptance, final estimates, and liquidated damages are contained in the Minnesota Department of Transportation's Contract Administration Manual.

Each County and City Engineer should be thoroughly familiar with the requirements contained in the Mn/DOT Contract Administration Manual before undertaking a Federal-aid construction project.

B. CHANGE OF CONSTRUCTION STATUS

The Engineer representing the County or City for both State-aid and Federal-aid projects

shall submit to the District State Aid Engineer notices of starting and completion of work, and such notices of suspension and resumption of work as may be required for each individual contract.

For Federal-aid projects, the Change in Construction Status form shown in the Contract Administration Manual shall be used.

The change in construction status for State Aid projects may be reported on a form similar to that required for Federal-aid projects or it may be reported in a manner or on a form selected by the County or City.

C. WEEKLY CONSTRUCTION DIARY

Progress report of construction work shall be submitted to the District State Aid Engineer each week on the "Weekly Construction Diary" form shown in Fig. A (1-2) 5-892.405. The report should reach the District State Aid Engineer not later than the Tuesday following the week being reported.

The information regarding starting and completion dates and remarks concerning progress of work, etc., shall be substantially the same as that required for shown in the Contract Administration Manual.

D. PRE-CONSTRUCTION CONFERENCE

A meeting between the County or City Engineer and the Contractor's representatives prior to construction operations is very important and should not be neglected. A pre-construction conference will do much to promote a better understanding between the Field Engineer and the Contractor. The DSAE should be notified of the meeting.

One of the primary purposes of this conference is to determine the Contractor's proposed sequence of operations. It is also advisable to review other important aspects of the Contract. The Contractor should be made aware of the respective responsibilities for tests and inspection of all materials, of

any unusual work or conditions, and the requirements for traffic, for safety, for compliance to all laws and regulations, for obtaining permits and licenses, for allowable tolerances (as in slope construction for grading or smoothness in surfacing projects), for intermediate completion dates and resultant liquidated damages, for subcontracting, and other special requirements.

A written record of the conference should be made by the Engineer for the file and a copy of the record should be sent to the District State Aid Engineer.

5-892.406 TECHNICAL CERTIFICATION

Certification of all County, City, and contractor's inspection and testing personnel is required on all State-aid and Federal-aid construction projects. For State-aid projects only, appropriately experienced Registered Engineers may perform inspection or testing without certification. Also for State aid projects only, an appropriately certified inspector may be in charge of or available to several projects at one time in a "chief inspector" capacity for operations relating to their areas of certification.

Mn/DOT will annually provide training courses for County or City personnel who require certification. It is the responsibility of the local government agency to enroll their staff in these courses.

Seasonal or temporary employees who will be performing materials testing must be trained by the Mn/DOT District Independent Assurance Sampler.

The project supervisor shall make certain that all required testing is performed by a certified or provisional tester as described in Mn/DOT's Schedule of Materials Control.

Seasonal or temporary employees who will be performing materials testing must be trained by the Mn/DOT District Independent Assurance Sampler.

For State-aid projects, upon completion of the project, the County or City Engineer shall certify on the Report of Final Estimate form (Fig. A 5-892.431, Mn/DOT form 30734) that all field tests required by the Schedule of Materials Control have been performed by certified or provisional testers.

For Federal-aid projects, a Materials Certification form furnished by Mn/DOT's Materials Engineering Section must be completed and submitted to the Mn/DOT Bituminous Engineer, Concrete Engineer, and/or Grading and Base Engineer as is appropriate for that project.

5-892.407 CONTROL OF MATERIALS FOR FEDERAL-PROJECTS

By executing the Minnesota Department of Transportation Agency Agreement, the City, County or other governmental agency agrees that each contract will be in accordance with plans and special provisions for the project and the latest edition of Standard Specifications for Construction and Supplemental Specifications. Specification 1603 requires the sampling and testing of materials to be in accordance with the "Schedule of Materials Control on State Highway Projects in Minnesota." As the representative of a County, City, or other agency, the Project Engineer has direct responsibility for compliance with the "Schedule for Materials Control." This schedule, which is included in the Contract Proposal, must be strictly adhered to or the Office of Materials will have difficulty certifying the work to the Federal Highway Administration. The Project Engineer should contact the Office of Materials with any questions regarding Plant Inspection or Materials Testing before the work is started.

5-892.408 SHOP DRAWING REVIEW

For many years Mn/DOT has "automatically" provided shop inspection of structural steel for city/county/township bridge projects in which there is Federal-aid funding.

Because of the increasing complexity of bridge welding code requirements, emphasis by FHWA on the importance of welded connection detailing, and the desirability of avoiding changes during the fabrication process, Mn/DOT will review shop detail drawings for all Federal-aid city/county/township bridge projects for which Mn/DOT provides shop inspection.

This policy will help to assure full Federal-aid participation and compliance with Mn/DOT specifications for these projects.

5-892.410 SUPPLEMENTAL AGREEMENTS

A supplemental agreement is a written agreement between the State, City, County or other agency, and the Contractor, operating as a supplement to the Contract, covering correction of omissions, errors, and discrepancies between the plans and the proposal or estimates, or any alterations in the plans, or additional requirements, work, materials, and incidentals required to complete the construction of a project in an acceptable manner and setting forth the basis of compensation, if any.

For State-aid projects, the supplemental agreement should be completely executed before any work contemplated by the agreement is started.

For Federal-aid projects, the supplemental agreement must be approved by Mn/DOT before any work is started. The work called for in supplemental agreements must be necessary to carry out the intent of the improvement contemplated by the Contract.

Supplemental agreements which include extra work for reasons of its desirability rather than its essentiality for the completion of the Contract should not be approved.

Modifying plans after a contract has been awarded, to include additional sidewalk or street surfacing, curb and gutter work, underground drainage, etc., in order to take

advantage of the existing contract prices and availability of construction work being done, is not considered to be essential to carrying out the original contract requirements.

Normal underruns or overruns which usually occur because of unknown conditions or of insufficient plan detail to connect up new work with existing improvements may or may not require a supplemental agreement. If the underrun or overrun quantity of an item is of such proportion that it warrants an adjustment in the basis of payment under the provisions of 1903 of the Specifications and a request is made for such an adjustment, a supplemental agreement therefore should be executed. If a necessary change in plan is required to complete the construction contemplated by the contract, a supplemental agreement is required. In either case, the amount of work is to be determined by the general principle stated above, and limited to that which is considered necessary to carry out the intent of the improvements contemplated by the contract.

Prompt recognition of work considered desirable, but not conforming to the principles herein stated, will frequently permit the County or the Municipality to secure its accomplishment by advertising and letting this work during the time construction activities of the original contract are under way. Usually the original contractor is willing to bid on this additional work at the same prices and can carry out the execution of the new contract concurrently with the original contract.

For Federal-aid projects, supplemental agreements shall be prepared in the form and content shown in the Contract Administration Manual.

Supplemental agreements for State Aid projects may be made on the form specified for Federal-aid projects or on another form selected by the local contracting agency.

5-892.420 PARTIAL PAYMENTS

Partial payments for work on projects shall be made in accordance with the provisions of 1906 of the Specifications, except that such payments in excess of 90% of the value of the completed work will be governed by the applicable Minnesota Statutes.

A. For State-aid projects, it is not necessary to submit a partial estimate voucher to the Department of Transportation prior to making partial payments for work performed by Contract on State Aid projects. Partial payments shall be handled entirely by the local contracting authority.

B. For Federal-aid projects, Partial Estimate Vouchers shall be prepared by the Project Engineer in accordance with Mn/DOT's Contract Administration Manual and submitted to the Contract Administration Office.

5-892.430 FINAL INSPECTION & ACCEPTANCE

Final release of funds for a project is dependent on final inspection and acceptance of the project by the District State Aid Engineer and the determination of the final cost of the project. The District State Aid Engineer will notify the State Aid Division Office in writing of this acceptance.

For Federal-aid projects, the Final Inspection of Federal-aid Project form (Fig. A 5-892.430) shall be completed and submitted with the Final Estimate Voucher.

5-892.431 FINAL ESTIMATES

After the physical operations of completing the construction project are accomplished, the Contractor has a right to expect final settlement for the work at the earliest possible date. The Engineer in charge of the construction project should expedite the

preparation of the final estimate in order to avoid any delay in the final settlement.

Final payment for work on projects shall be made in accordance with the provisions of 1908 of the Specifications.

Much time will be saved in the preparation of final estimates on grading projects if payment for Common Excavation is specified to be made on the basis of planned quantities as provided in 2105.5 of the Specifications.

The final estimate for a State Aid project shall be in the form of a final estimate voucher, showing the entire quantity and value of each and every item of work performed. This estimate voucher shall be sent in turn to the Contractor and District State Aid Engineer for approval and then transmitted to the State Aid Division office.

For State-aid projects, a Report of Final Estimate (Form 30734 see Fig. A 5-892.431), is required to inform the State Aid Division Office of the final amounts requested for contract costs, engineering, and right-of-way. Submit this form to the District State Aid Engineer along with the final estimate voucher.

For Federal-aid projects, the Final Estimate Voucher shall be prepared by the Project Engineer in accordance with Mn/DOT's Contract Administration Manual and submitted to the DSAE for review and inspection.

5-892.432 CERTIFICATE OF PERFORMANCE

Minnesota Statutes 160.17, Subd. 3 provided that final payment shall not be made on any contract for road work by any county or town board until the engineer in charge of the work has certified to the county or town board, as the case may be, that the work has been done and performed according to contract and the certificate shall have been filed in the Office of the County Auditor or Town Clerk.

A. County State Aid and Federal-aid Projects

In order to comply with the above requirement, the County Engineer shall, before payment is made on a County State Aid or Federal-aid project, file a certificate of performance with the County Auditor with a copy to the State Aid Division office in the form shown below:

CERTIFICATE OF PERFORMANCE FORM

County of
Project No.
Name of Contractor
Total Value of Work
Contract No.

I HEREBY CERTIFY to the Board of Commissioners of the above named county, that I have been in charge of the work required by the above described contract, that all of such work has been done and performed, measured by, and in accordance with and pursuant to the items of said contract.

Date County Highway Engineer

If the final estimate voucher contains a similar statement by the engineer in charge of the work, the above Certificate of Performance will not be required.

B. Municipal State Aid Projects

Although the above law applies only to County and Town Road and Federal-aid contracts, it is recommended that the City Engineer submit a certificate patterned after that shown above to the State Aid Division office prior to final payment for Municipal State Aid contract work.

5-892.433 LIQUIDATED DAMAGES

A. Liquidated damages are charges assessed against the Contractor to cover

additional costs incurred by the local agency because of failure of the Contractor to complete the contract work (or portions thereof) within the time(s) specified in the Contract. The costs to the local agency for administration of a highway contract, including engineering, inspection and supervision, will increase as the time occupied by the work is lengthened, and it is therefore important that the work be pressed vigorously for completion.

B. Unless otherwise specified in the Special Provisions, the liquidated damages for failure to complete the work within the contract time will be determined on a per diem basis as set forth in 1807 of the Specifications. Any deviation from the requirements of 1807, including the "Schedule of Deductions" contained therein, shall be indicated in the Special Provisions.

C. Any liquidated damages chargeable to the Contractor must be determined before the final voucher can be completed.

MAINTENANCE

5-892.500

Refer to the Rules for State Aid Operations relative to the Maintenance of County State Aid Highways and Municipal State Aid Streets.

5-892.505 ALLOTMENTS

A. COUNTY STATE AID

Not later than January 25 of each year, the Commissioner shall certify the annual apportionment to each of the eighty-seven counties.

The apportionment sum allocated to each county in accordance with the provisions of the law, will set forth that amount which has been set aside for the Municipal Account to be used exclusively within municipalities of less than 5,000 populations. The remaining portion will be identified as the Regular Account. The normal maintenance allocation to the Municipal Account and the Regular Account will be 40 percent of the total sum within each of the two accounts. The balance of 60 percent in each account will be available for approved construction projects.

The Commissioner may, at the recommendation of the County Screening Board, or upon receipt of a resolution from a County Board, and for good cause shown, increase or decrease a county's maintenance allocation. County Board requests should clearly state the necessity or justification for the requested change.

B. URBAN MUNICIPAL STATE AID

Not later than January 25 of each year, the Commissioner shall certify the annual apportionment to each urban municipality.

The apportionment sum for each urban municipality will consist of two accounts: the

Maintenance Account and the Construction Account.

25 percent of the total allocation, if requested by the Urban Municipality before December 16 preceding the annual allocation, or \$1,500 per mile of improved Municipal State Aid streets, is the minimum allotment for the general maintenance of the approved state-aid system. The Commissioner may modify the minimum allotment to finance the amount needed to pay the interest due on municipal state-aid bonds and to accommodate the screening board resolutions pertaining to Trunk Highway Turnback maintenance allowances.

Those municipalities desiring to receive an amount greater than the established minimum, not to exceed 35 percent of the total allocation, shall file a request with the Commissioner before December 16 preceding the annual allocation and shall agree to file a detailed annual maintenance expenditure report at the end of the year.

C. PAYMENT SCHEDULE

At the earliest practical date after the allotments have been determined, the Commissioner shall release 50 percent of each county's Regular Maintenance Account allotment to the respective counties and 50 percent of the Maintenance Account allotment to each urban municipality.

At the earliest practical date, after the allotments have been determined, the Commissioner shall release 50 percent of a county's Municipal Maintenance Account to those counties that have filed a request for advance payments prior to the annual apportionment.

On or about July 1 of each year, the Commissioner shall release an additional amount from each of the maintenance accounts not to exceed 40 percent of the total maintenance allocation, except that the entire remaining amount may be released to those urban municipalities receiving the minimum maintenance allocation.

The remaining maintenance funds will be released to the counties and urban municipalities upon receipt of their report of actual maintenance expenditures, except those urban municipalities that receive the minimum maintenance allocation will receive their remaining allocation on or about December 15.

Any unobligated balance remaining in the Maintenance Account to the credit of a county or urban municipality, after final settlement has been made for the annual maintenance expenditures, must be transferred to the respective construction account of that county or municipality. Notices of these transfers will be mailed to the Engineer and fiscal officers affected.

5-892.506 REPORTS

A. COUNTY STATE AID

Each county receiving an allotment of State Aid funds for highway maintenance shall file an Annual Maintenance Report with the Commissioner at the end of each year. A portion of the maintenance allotment to each county, as set forth in the Rules, shall be retained by the Commissioner until such Annual Report has been received. See Fig. A 5-892.506 - Annual Maintenance Expenditure Report (suggested format).

Final payment for the annual maintenance expenditures on the State Aid system will be based upon this Annual Maintenance Report but not exceeding the total allotment therefor. Where payments have exceeded the total actual maintenance expenditure, the amount

of the overpayment will be deducted from future construction payments.

B. URBAN-MUNICIPAL STATE AID MAINTENANCE REPORTS

Each urban municipality receiving a maintenance allotment in excess of the specified "minimum amounts" shall submit a detailed annual report of all maintenance expenditures to the Commissioner at the end of the year. See Fig. A 5-892.506 - Annual Maintenance Expenditure Report (suggested format).

Final payment for the annual maintenance expenditures on the State Aid system will be based upon these Annual Maintenance Reports but not exceeding the total allotment therefor. Where payments have exceeded the total actual maintenance expenditure, the amount of the overpayment will be deducted from future construction payments.

5-892.520 MAINTENANCE: FEDERAL-AID ROUTES

As a condition of receipt of Federal funds for the construction, reconstruction, or improvement of certain State Aid Highways, counties and cities have agreed with the Commissioner of Transportation as follows:

1. That it will maintain, at its sole cost and expense, all portions of any project or projects, within its jurisdiction on which Federal funds have been or will be furnished and will keep suitable records thereon;
2. That it will erect those types of control devices and other protective structures on such roads as have the approval of the Commissioner of Transportation; and
3. That it will prevent the erection of or cause the removal of privately owned signs, posters, billboards, roadside stands, and

other private installations within the right-of-way on such roads.

In addition to the review and inspection of the maintenance operations by the District Engineer for this Department, an annual inspection and maintenance rating is also made by the Federal Highway Administration on selected Federal-aid projects. An unsatisfactory maintenance report on any of these projects could disqualify the county or city from any further Federal participation in its construction projects.

5-892.530 ANNUAL BRIDGE INSPECTION

Minnesota Statutes 165.03, Subd. 3 require the bi-annual inspection and inventory of all bridges in the State of Minnesota. The Commissioner of Transportation is responsible for all bridges on the State Trunk Highway System and the Federal Interstate System. The County Highway Engineer is responsible for all county bridges, township bridges, and city bridges within municipalities that do not have a regularly employed city engineer. The city engineer is responsible for all bridges on the City Street System.

The individual in charge of the bridge inspection and inventory for each organizational unit described in subpart 1 must be registered in Minnesota as a professional engineer.

The individual in charge of the inspection team must have one of the following qualifications: be registered in Minnesota as a professional engineer; have a minimum of five years experience in bridge inspection assignments in a responsible capacity and have completed a comprehensive training course based on the Bridge Inspector's Training Manual developed by a joint federal-state task force; have current certification as a Level III or IV Bridge Safety Inspector under the National Society of Professional Engineer's program for National Certification in Engineering Technologies; or, be certified

by the Commissioner of Transportation as a Bridge Safety Inspector.

STAT AUTH: MS s 165.03
HIST: 15 SR 1516

Each municipal authority responsible for inspection and inventory of bridges shall submit either an updated copy of the structure inventory sheet or shall update data for each structure using the PC Bridge computer program for each bridge under its jurisdiction to the Commissioner by February 15 annually (See Fig. A 5-892.530).

Each county authority responsible for inspection and inventory of bridges shall submit updated data for each structure using the PC Bridge computer program by February 15 annually.

Each highway authority responsible for bridge inspection shall certify to the Commissioner that the Annual Bridge Inspection has been completed as required by Minn. Stat. 165.03, Subp. 3 or Minn. Stat. 165.03, Subp. 4 (See Fig. B and C 5-892.530).

Each county and municipal highway authority responsible for bridge inspection shall submit a copy of the Bridge Inspection Report (Form Mn/DOT TP 17108-03) to the Office of Bridges and Structures upon completion of the fourth rating column; every fourth inspection (See Fig. D 5-892.530).

Each inspecting authority shall submit a list of those bridges where the reviewer has recommended that additional action should be taken. The list shall contain the bridge number, a brief description of the recommended action, and a description of why additional action is necessary. The latest inspection report(s) for those affected bridges

must be submitted when an update is made to the Bridge Data Section.

By revision to Minnesota Rule 8810.9400 Subd. 1, "Each bridge must be inspected annually, unless a longer interval, not to exceed two years, is authorized by the Commissioner. The Commissioner's authorization shall be based upon factors such as, but not limited to, condition age, rate of deterioration, redundancy of critical members, traffic characteristics, essential scour susceptibility, and favorable experience with the type of structure." Inspection frequencies exceeding one year are permissible with the authorization of the Commissioner of Transportation. Authority to approve inspection intervals has been delegated to the Office of Bridges and Structures (See Fig. E 5-892.530).

FORMS

Fig. A 5-892.530 Structure Inventory

Fig. B 5-892.530 Certification (County)

Fig. C 5-892.530 Certification (City)

Fig. D 5-892.530 . . . Bridge Inspection Report

Fig. E 5-892.530....Request for Authorization for Two-Year Inspection Interval

5-892.540 SEASONAL LOAD RESTRICTIONS

Cities and counties are authorized by Minnesota statutes, section 169.87, to prohibit vehicles or to impose vehicle weight restrictions on any street or highway under their jurisdiction, whenever a street or highway will be seriously damaged or destroyed unless the use by vehicles is prohibited or the permissible weights of vehicles reduced. Legal vehicles may not be prohibited from state-aid routes for any other reasons. Signs indicating the restrictions must be placed at each end of the portion of street or highway that is affected.

FINANCING

5-892.550

5-892.551 APPORTIONMENTS

State Aid apportionments are made in accordance with the formula established by law. The Commissioner of Transportation notifies each county and urban municipality of their annual maintenance and construction apportionments not later than January 25 of each year (see section 5-892.550).

After maintenance allotments have been made, the remaining balance in each county apportionment is retained for construction projects under the respective County Municipal Account and the County Regular Account. Similarly, after determining the maintenance allotment to each urban municipality, the remainder of each apportionment is retained for construction purposes.

FORMS

Notice of Annual Apportionment CSAH Fund Fig. A 5-892.551

Notice of Annual Apportionment MSAS Fund Fig. B 5-892.551

5-892.555 STATE AID PAYMENTS

A. STATE AID CONTRACTS

Upon receipt of an abstract of bids and a certification as to the execution of a contract and bond, the Commissioner of Transportation will release up to 95 percent of the State Aid portion of the contract from funds available to the county or urban municipality. The remaining percentage of the State Aid share will be retained until the final cost is determined and the project is accepted by the District State Aid Engineer.

Send the abstract of bids (be sure abstract gives date of letting) along with the Report of State Aid Contract Form 30172 (see Fig. A 5-892.402) to the State Aid Division office through the District State Aid Engineer for approval. Failure to do so will result in a delay of payment. When making out Form 30172, indicate source of funds (municipal, regular or bonds), amount of right-of-way costs to be reimbursed, and amount of preliminary engineering costs to be reimbursed. See 5-892.403 for further information on engineering charges.

B. FORCE ACCOUNT AGREEMENTS

On projects approved for construction by local forces, partial estimates will be accepted using the agreed unit prices for determining the value of the completed work. The Commissioner shall release 95 percent of the cost of the current accomplishments as reported in the partial estimates from funds available to the county or urban municipality. The remaining share will be retained until the final cost is determined and the project is accepted by the District State Aid Engineer.

5-892.560 DISASTER ACCOUNT

Each year the Commissioner, pursuant to law, shall set aside from the County State Aid Highway fund an amount equal to 1% of the County apportionment sum to provide for a Disaster Account.

Each year the Commissioner shall set aside from the Municipal State Aid Street fund an amount equal to 2 percent of the municipal apportionment sum to provide for a Disaster Account; except that the total amount of money in said Disaster Account shall never exceed 5 percent of the total funds currently

available for distribution to urban municipalities. The Disaster Accounts shall be used to provide aid to any county or urban municipality encountering floods or other disasters affecting the County State Aid Highway or Municipal State Aid Street systems.

Damage estimates must exceed 10 percent of the county's or urban municipality's current annual State Aid allotment before Disaster Account funds can be utilized.

Any county desiring aid by reason of disaster shall request such aid in writing, after which the Commissioner will appoint a board consisting of two County Engineers or County Commissioners from other counties and one representative of the Commissioner. This Board shall investigate the matter and report its findings and recommendations in writing to the Commissioner.

Any urban municipality desiring aid by reason of disaster shall request such aid in writing, after which the Commissioner will appoint a board consisting of two City Engineers or members of the governing bodies of other Cities having a population of over 5,000 and one representative of the Commissioner. This Board shall investigate the matter and report its findings and recommendations in writing to the Commissioner.

Any disaster appropriation approved by the Commissioner will be promptly paid to the county or urban municipality. The funds so allotted and paid can only be spent for the purpose for which they were authorized and within a reasonable time period specified by the Commissioner. Forthwith upon completion of the work or the expiration of the time specified for doing the work, whichever occurs first, the county or urban municipality shall file a report certifying the extent of the work performed and the total expenditure made therein. If the total allotment was not required or used, the remainder shall be promptly returned to the Commissioner for re-deposit into the County State Aid Highway fund or Municipal State Aid Street fund and apportioned by law.

5-892.561 HARDSHIP TRANSFERS

A. COUNTY

In accordance with law, the Board of County Commissioners may, under certain conditions, request authorization to use part of their State Aid allotment for construction and maintenance of highways not on the State Aid Highway System. In the event of a hardship condition or in the event that all of the County State Aid Highway System is improved to State Aid standards, a portion of the money apportioned, other than the money allocated to the municipal account, may be authorized for use on other roads within the County. If the portion of the County State Aid Highway System lying within cities or villages having a population of less than 5,000 is improved to State Aid standards, a portion of the money credited to the municipal account may be authorized for use on other County highways or other streets lying within such cities or villages.

The County Board shall certify to the Commissioner that either all of its State Aid routes are improved to State Aid standards or that it is experiencing a hardship condition in regard to financing the improvement or maintenance of its local roads. The Commissioner may require fiscal information showing the extent of the financial deficiency.

B. URBAN

In accordance with law an urban municipality may request authorization to use part of its Municipal State Aid allotments for improvement or maintenance of streets not on the State Aid Street System. The governing body shall certify to the Commissioner either that all of its State Aid routes are improved to State Aid standards, or that it is experiencing a hardship condition in regard to financing the improvement or maintenance of its local streets. The Commissioner may require fiscal information showing the extent of the financial deficiency.

C. PAYMENTS

If the requested transfer is approved, the Commissioner, without requiring progress reports and within 30 days, shall authorize either: 1) immediate payment of not less than 50 percent of the total amount authorized, with the balance to be paid within ninety (90) days, or 2) schedule immediate payment of the entire amount authorized if sufficient funds are available.

5-892.562 COUNTY STATE AID FUNDS IN MUNICIPALITIES

The County may use either its Regular or Municipal State Aid Construction funds for any approved construction project, or portion thereof, located within a municipality of less than 5,000 population. State Aid payments on these projects cannot be made, therefore, until notice has been received from the County Engineer as to which of these funds the county wishes to use on the municipal portion of said construction.

In all cases involving work in a municipality under 5,000 population, a split between Rural and Municipal work items is required, not only in the plans, but also on the final estimate for each project.

5-892.563 ADVANCE FINANCING

Approval of State Aid projects by the Commissioner does not imply that State Aid payments will be made in excess of the construction funds available. Any county or urban municipality having currently depleted their currently available funds will not be eligible for reimbursement from future allotments unless a request for advance encumbrance has been approved or the project is completed in a subsequent year and funds are available.

Requests for advance encumbrance must be in the form of a County Board or City Council resolution, similar to Fig. A 5-892.563. The resolutions should be submitted with a Report

of State Aid Contract (see 5-892.555) but, at latest, prior to completion of the project and before the final estimate is submitted.

A. COUNTY

Counties may: (1) use local funds to pay for the project with repayment of the local funds out of subsequent State Aid construction apportionments; (2) advance County Regular Account funds to the County Municipal Account Fund; (3) advance County Regular Account State Aid bond funds to the County Municipal Account; or (4) advance County Municipal Account funds to the County Regular Account Fund, (5) advance from the Construction Account.

When a county requests advancement of County Municipal Account funds to the County Regular Account fund, they are required by law to notify all cities within the county having a population of less than 5,000 of the action. Sending by certified mail a copy of the County Board resolution requesting the advance encumbrance to each city under 5,000 population will fulfill this requirement.

B. URBAN

Cities may make advances from any funds available provided that the advances do not exceed the city's total estimated apportionment for the three years following the advance.

SAMPLE RESOLUTIONS

Advance Encumbrance-Local Funds, County Fig. A 5-892.563

Advance Encumbrance-Regular Account to Municipal Account Fig. B 5-892.563

Advance Encumbrance-State Aid Bonds to Municipal Account Fig. C 5-892.563

Advance Encumbrance-Municipal Account to Regular Account Fig. D 5-892.563

Advance Encumbrance-Local Funds, City Fig. E 5-892.563

Advance Encumbrance-Construction Account Fig. F 5-892.563

Request to Reserve Advanced Funding Fig. G 5-892.563

Advance Encumbrance - General State Aid Funds (County).....Fig. H 5-892.563

Advance Encumbrance - General State aid Funds (City).....Fig. I 5-892.563

5-892.564 COUNTY STATE AID FUNDS TO TOWNSHIPS

Any county having within its boundaries organized town governments may, by resolution, allocate a portion of their County State Aid Highway funds to townships. See Fig. A 5-892.564 for the form of resolution.

A certified copy of the resolution allocating State Aid funds to the townships must be forwarded to the Commissioner of Transportation on or before the second Tuesday of January of each year. Upon receipt of such resolution, the Commissioner shall arrange for the release of the State Aid funds to the county. The County shall distribute the money to the Townships for the construction of Town Roads.

The law also provides that the money needs of Counties making allotments of County State Aid Highway funds to townships shall be subsequently reduced in the amounts necessary to equalize their status with other Counties not making such township allotments.

SAMPLE RESOLUTION

County Aid to Townships . . Fig. A 5-892.564

5-892.565 STATE AID BONDS

Any County or Urban Municipality may issue bonds payable from the appropriate State Aid funds in accordance with law for the purpose of establishing, locating, relocating, constructing, reconstructing, or improving State Aid Streets or Highways. Within 30 days after the issuance of such bonds, the County or Urban Municipality shall certify to the Commissioner of Transportation the amount of the total obligation and the amount of principal and interest that will be required annually to liquidate the bonded debt. This certification should be in the form of a County Board or City Council resolution similar to Fig. A 5-892.565.

The Commissioner will set up a bond account therefor, itemizing the total amount of principal and interest involved, and will annually certify to the Commissioner of Finance the amount needed from the appropriate State Aid construction fund to pay the principal due and the amount needed from the appropriate State Aid maintenance fund to pay the current interest.

For the purposes of initiating the sale of State Aid bonds, it is not necessary to indicate a schedule of proposed projects whereon the State Aid bonds will be used. Subsequent to the sale and issue of bonds, projects financed from the bond funds will be submitted to the State Aid Division in the same manner and form as prescribed for projects financed from State Aid allotments, except the Report of State Aid Contract must show that State Aid bonds will finance the State Aid portion of the contract.

A. COUNTY

The law stipulates the total amount of State Aid bonds a County can sell shall not exceed the total of the preceding two years total State Aid allotments, and the obligation shall be issued in the amounts and on terms such that the amount of principal and interest due in any calendar year on the obligations, including

any similar obligations of the County which are outstanding, shall not exceed 50 percent of the amount of the last annual allotment preceding the bond issue received by the County from the construction account in the County State Aid Highway fund.

B. URBAN

The law stipulates that an Urban Municipality can sell State Aid bonds in the amount and on terms such that the average annual amount of principal and interest due in all subsequent calendar years on bonds sold by the City, including any similar obligations outstanding, shall not exceed 50 percent of the last annual construction allotment preceding the bond issue.

A City may issue general obligation bonds to be purchased by themselves to mature in not more than 5 years from the date of issue. The principal amount in any calendar year, including any prior issue, shall not exceed the total amount of the last annual construction allotment preceding the bond issue.

SAMPLE RESOLUTION

State Aid Bonds Resolution
..... Fig. A 5-892.565

5-892.566 MUNICIPAL STATE AID FUNDS ON T.H. OR C.S.A.H.

The governing body of an Urban Municipality may use a portion of its State Aid funds for improvements within its boundaries on any State Trunk Highway or County State Aid Highway.

Final or partial State Aid reimbursement may be accomplished by submitting: (1) Report of State Aid Contract with Abstract of Bids; (2) Report of Final Estimate; and (3) Invoice or billing from Department of Transportation or County unit involved.

SAMPLE RESOLUTION

Municipal State Aid Funds to T.H. or C.S.A.H. Project Fig. A 5-892.566

5-892.567 STATE PARK PROJECTS

As provided by Law, a portion of the County State Aid Highway fund is set aside and used for the construction, reconstruction, and improvement of County State Aid Highways which provide access to the headquarters or of the principal parking lot located within a State Park and for the reconstruction, improvement, repair and maintenance of county roads, city streets, and town roads that provide access to public lakes, rivers, state parks, and state campgrounds. These funds may be expended for this purpose only on request from the Commissioner of Natural Resources. Projects so selected will be approved by the Commissioner of Transportation in accordance with the procedure established for other State Aid operations.

5-892.568 TURNBACK PROJECTS

Any former Trunk Highway reverted to County or Urban Municipal jurisdiction, and which is part of the County State Aid Highway or Municipal State Aid Street system is eligible for payment from the respective turnback account for all costs as detailed on approved plans. Approval of plans for the initial construction of such projects is limited to a period of 5 years from the date of reversion. Plans for subsequent stages of improvement or for other portions of the same route must be approved within 10 years from the date of reversion to be eligible for Turnback Funds. Each such approved project must be advanced to construction status within one year after the County or City has been notified that sufficient funds are available for construction of the project. Payment for such construction will terminate all eligibility for construction on that section with Turnback

Funds. County Turnback Funds are limited to the repair and restoration of former Trunk Highways; Municipal Turnback Funds can be used for the reconstruction and improvement of former Trunk Highways.

When an approved Turnback project will require funds in excess of the available Turnback Fund balance, the County Board or City Council can, by resolution, request the Commissioner of Transportation to approve financing the project initially from other sources with reimbursement by the Commissioner out of subsequent apportionments to the Turnback Fund in accordance with the terms and conditions specified in the resolution. The total of such advances shall not exceed 40 percent of the last County or Municipal Turnback Allotment. Prior to passing a County or Municipal Turnback resolution, the County or City Engineer should contact the State Aid Division office and obtain preliminary approval of the terms and conditions for reimbursement. Repayments are normally scheduled to be accomplished within a one to five year time period.

The Commissioner's approval of advance funding must be obtained prior to advertising for bids.

Approved Turnback projects will be processed in accordance with the procedure established for other State Aid Operations.

SAMPLE RESOLUTION

Turnback Advance Funding
..... Fig. A 5-892.568

5-892.569 TOWN BRIDGE PROJECTS

The County Town Bridge Account has been established pursuant to law for replacement or reconstruction of town bridges 10 feet or more in length in those counties that have two or more towns. The County Town Bridge funds are annually allocated to eligible counties on the basis of Town Bridge needs.

Payment to the counties is limited to 90 percent of the cost of the bridge.

A town bridge is eligible for replacement or reconstruction if, after all pertinent data supplied by local citizenry, local units of government, the regional development commission, or Metropolitan Council, is reviewed by the County Board and a formal resolution by the County Board is adopted identifying the town bridge(s) to be replaced or reconstructed.

Upon receipt of an Abstract of Bids and Report of State Aid Contract certifying the execution of a contract and bond on an approved Town Bridge project, the Commissioner will release to the County up to 95 percent of the County Town Bridge Account share on the contract. The Commissioner will retain the remaining 5 percent until the final cost is determined and the project is accepted by the District Engineer.

A County Board, by resolution similar to Fig. A 5-892.569, may request the Commissioner approve initially paying for a Town Bridge project from other sources when the cost will exceed the County's Town Bridge Account. The total of such advances cannot exceed 40 percent of the last town bridge apportionment.

Approved Town Bridge projects will be processed in accordance with the procedure established for other State Aid Operations.

SAMPLE RESOLUTION

Town Bridge Advance Funding
..... Fig. A 5-892.569

5-892.575 FEDERAL AID PROJECTS

The Commissioner, under authority of an Agency Agreement executed with the County or City, will release from State Aid funds available to the County or City, 95 percent of the County's or City's share of the entire contract for the immediate transfer in an Agency Account, to be used in paying the County's or City's share of the partial estimates and payments. The Commissioner will retain the remaining percentage until the final cost is determined and the project is accepted by the District Engineer and the Federal Highway Administration.

Where other than State Aid funds are to be used for depositing in the Agency Account, 100 percent of the local governmental share must be deposited in the Agency Account prior to award of the contract.

See 5-892.404 for information on Federal-aid engineering charges.

See Fig. A 5-892.575 for further information on financing of Federal-aid projects.

FUND ENCUMBRANCES FOR CITY/COUNTY FEDERAL-AID PROJECTS

A. Minnesota Statutes 16A.15 Subd. 3, provides that no payment shall be made and no obligation incurred against any fund, allotment, or appropriation unless the Commissioner of Finance first certifies that there is a sufficient encumbered balance in such fund, allotment, or appropriation to make the payment. The Law also states that any officer or employee of the State who knowingly incurs such obligations in violation of this Law is subject to removal from his/her position.

B. Upon official approval of a Federal-aid contract for a City or County (under the Agency Agreement process) the Mn/DOT Contract Administration Engineer will cause funds to be encumbered in the amount of the Contract as awarded, and will also encumber additional funds to cover extra work performed by approved supplemental agreements when such supplemental agreements are processed. The Contract

Administration Engineer does not encumber funds for Change Orders or other overruns when they occur.

C. The Project Engineer (City or County Engineer) shall ensure that the District State Aid Engineer is informed at any time there is, or is likely to be a change order and/or any overrun of the Contract that will require an additional encumbrance of funds. Request for additional encumbrances shall be initiated by the Project Engineer. Upon determination of need, the Project Engineer shall follow the procedures outlined in Section F to request the encumbrance of additional funds.

Funds may be encumbered from several sources for work under a single contract. In order to assure that sufficient funds are encumbered from each source, the Project Engineer shall request encumbrance of sufficient funds to cover charges for each group on the pay voucher. Funds encumbered for one group are not transferable to another group. Funds encumbered for one item within a group which is underrunning may be used to pay for other items within the same group which are overrunning.

The usual conditions requiring the encumbrance of funds are the following:

1. Anticipated Overrun of Contract Items

When the certified value of work completed on a partial estimate voucher is equal to 80 percent of the total encumbrances of the Contract and any supplemental

agreements, the Project Engineer shall review all pay items in the Contract and supplemental agreements (within each group on the pay voucher) for overruns and underruns, and then estimate the final amount of each pay item. If the estimate indicates that the amount encumbered is inadequate to make final payment to the Contractor, the Project Engineer shall follow the procedures outlined in Section F to request an encumbrance of funds sufficient to meet the estimated value of the final estimate for each group. If, after processing a request for encumbrance of additional funds, the Project Engineer determines that the previous request for encumbrance was inadequate, a supplemental request for encumbrance of funds shall be prepared following the procedures outlined in Section F.

2. Supplemental Agreements

Funds for supplemental agreements are encumbered by group number by the Mn/DOT Contract Administration Office at the time the supplemental agreement is approved in the Contract Administration Office.

When the Project Engineer transmits a supplemental agreement for approval he shall provide documentation to ensure the proper distribution of encumbered funds for that supplemental agreement.

Subsequent requests for encumbrance of funds to cover overruns under an approved supplemental agreement shall follow the procedures outlined in Section F.

3. Change Orders

Additional funds are not automatically encumbered by a change order as they are for a supplemental agreement; therefore, the Project Engineer shall request the encumbrance of additional funds for change orders following the procedures outlined in Section F.

D. When the Contract work is completed or nearly completed, the Project Engineer shall

review the final quantities and determine the amount, if any, of excess encumbered funds. The request for un-encumbrance of any excess funds shall follow the procedures outlined in Section F.

E. When projects are funded in part with local funds (that is; not from Federal-aid and/or State Aid sources) the Project Engineer shall submit or cause to be submitted a City or County Warrant for the amount of any local funds over the original contract amount of local funds, at the same time as the request for encumbrance as indicated in Section C above. The need for deposit of any additional local funds shall be taken into account when supplemental agreements or change orders are prepared which involve items paid for wholly or in part with local funds.

The warrant as described above shall be made payable to the Commissioner of Transportation and transmitted to Minnesota Department of Transportation, 395 John Ireland Blvd, Mail Stop 215, St. Paul;

Minnesota 55155, Attention: Cash Accounting.

Along with the warrant, the Project Engineer shall submit a memorandum stating the project number for which the funds are intended and that the deposit is to be made into the Agency Account. If there is more than one project number, the memorandum shall also include a split showing the funds by project number for each project covered by the deposit.

Mention of the separate transmittal of the warrant shall be made in the request for additional encumbrance of funds as indicated in Section C.

F. Procedures:

1. The request for additional encumbrance or un-encumbrance shall be submitted by the Project Engineer to the appropriate District State Aid Engineer in memorandum form with supporting documentation as required.

When requesting encumbrance of additional funds, the Project Engineer shall clearly state the reasons for the need for additional encumbrance. If several major overrun items occur, a cost breakdown shall be given for each item along with the amount to be encumbered for minor items which do not require a separate breakdown. (See Mn/DOT Contract Administration Manual.)

When requesting un-encumbrance of excess funds, the Project Engineer shall furnish documentation to clearly show how the amount of excess funds was determined.

2. The District State Aid Engineer will acknowledge receipt of the memorandum, will review the request, and if approved, transmit it to the State Aid Accountant.

3. The State Aid Accountant will prepare and process the appropriate encumbrance documents.

4. When the additional encumbrance has been processed, the State Aid Accountant will

notify the Project Engineer, the District State Aid Engineer, and the Mn/DOT Contract

Administration Engineer Estimate Section
Supervisor.

5. Contract Administration will update the Contract Administration Advanced Record System (CAARS) with the new encumbrance amount.

NOTE: No work by the Contractor, in addition to the Contract, shall be authorized by the Project Engineer prior to receipt of notice of encumbrance of funds necessary for that work.

G. Definitions:

1. Project Engineer: The County or City Engineer or some other registered engineer delegated the authority to act for the County or City Engineer.

2. Group: A sub-section of the engineer's estimate containing all those items whose funding sources are exactly the same. Also referred to as a category within the Mn/DOT Bid Analysis and Management System (Transport BAMS).

A group is not necessarily a sub-section within the Schedule of Prices in the Proposal.

Groups are a sub-section of the Item Record Account (IRA) within the Mn/DOT Contract Administration Advanced Record System (CAARS).

DRAINAGE

5-892.600

STATE AID PROJECTS

Refer to Drainage Manual 5-294.000 for data as to the design of drainage structures and channels.

5-892.605 STORM SEWER CONSTRUCTION

State Aid Policy

The following policy shall be followed in determining the amounts of State Aid and Federal-aid funds that can be approved for participation when requested in the construction of storm sewers on State Aid and Federal-aid projects.

On Federal-aid projects, the actual Federal-aid participation is usually 80% of the eligible amount (the percentage may vary with the funding type). On combined State Aid and Federal-aid projects, State Aid funds may be used for the difference between participation of State Aid eligible items and Federal-aid participation.

Sufficient data shall be submitted with each plan involving the construction of storm drains to assist in the determination of the sharing ratio, pipe sizing, and allowable credits for existing facilities. The data submitted should include the following:

A. A plat showing:

1. The outline of the drainage area to be served by the proposed system, subdivided into areas tributary to each structure or inlet.

2. Present land uses and estimated future land uses of the areas to be drained; i.e., roads, residential, industrial, commercial, etc;

3. In-place underground utilities; i.e., sanitary and storm sewers, water, gas and steam mains, and electric and telephone cables;

B. A copy of the Engineer's computations and any other information required for checking the design of the storm sewer.

C. An itemized cost estimate of the storm sewer system.

D. One print of the proposed construction plan.

Plan Requirements

A. There should be a separate tabulation in the plan of storm sewer items and their outlet pipes located on State Aid right-of-way for each State Aid route.

B. There should also be a separate tabulation in the plan for all mainline storm sewer items located off of the State Aid right-of-way which drain areas from the State Aid right-of-way for each State Aid route.

Approved Sharing Factors

A. Mainline storm sewer and catch basins and leads located on State Aid right-of-way:

The construction of mainline storm sewer and catch basins and their outlet pipes located on the State Aid System, and catch basin and leads located on intersecting streets immediately adjacent to and serving the State Aid Street, can be approved on the basis of the following equation:

$$\% \text{ Eligible} = 25\% + \{(\text{State Aid R/W Area Drained})/(\text{Total Area Drained})\} \times 100\%$$

Eq.1

F = 1.0 when the adjacent area outside the right-of-way has runoff characteristics similar

to the State Aid Street area. In this case, the adjacent areas will be predominately a closely built-up commercial district, hard-surface parking lots, school yards, and streets.

F = 2.0 where the adjacent area outside the right-of-way is predominately residential. In this case, the adjacent area will be predominately residential with lawns and gardens, but scattered commercial development may be present.

There will be areas which fall between the two cases outlined above. Here, the State Aid area should be multiplied by a factor between 1.0 and 2.0, the exact value to be determined by careful analysis of the area served.

The eligible percentage from Equation 1, for these items, shall not exceed 100%, nor be less than 55%.

Storm sewer systems containing only catch basins and leads shall be approved at 100% of cost.

If the storm sewer system, or elements thereof, do not meet the Standards outlined in this Policy, the State Hydraulic Engineer will recommend replacement of the substandard elements. If the Local Public Agency elects not to replace the substandard elements or system, none of the storm sewer items will be eligible for State Aid funds, and the Local Public Agency will bear the liability.

If a new mainline storm sewer system is connected to an existing mainline storm sewer system and the Local Public Agency is not requesting credit for the existing system, it does not need to meet State Aid standards or be reconstructed. Nonetheless, the Local Public Agency must bear this liability. If, however, the Local Public Agency is seeking credit for the in-place system, see Section B.

The signature of the State Aid Engineer on the plan does not indicate approval of non-participating or substandard storm sewer.

B. Main trunk sewers, outlets, and manholes which carry water from State Aid right-of-way, but are located off of State Aid right-of-way:

When no additional areas are being added to the system after it leaves the right-of-way, the eligibility of these items can be computed using Eq. 1 with a minimum of 55% and a maximum of 100%.

When there are additional areas draining into the system after it leaves the right-of-way, the eligibility of these items can be computed using an average of the percentages as determined using Eq. 1 with a minimum of 25% and a maximum of 100%.

When State Aid storm sewers outlet all or part of the State Aid street drainage into an in-place Local Public Agency storm sewer, a credit may be allowed if requested, subject to verification of hydraulic adequacy of the in-place system. Credit will be based on the ratio of area served. A drainage area map should be submitted showing how much State Aid right-of-way area and Local Public Agency area is flowing into the system. Credits will also be based on age, conditions, and hydraulic adequacy of the in-place facility.

Sizing and Over-sizing

A. The design storm frequency for pavement drainage should be consistent with the frequency selected for other components of the drainage system. In order for it to be meaningful criteria, the design frequency must be tied to a design water spread. Mn/DOT has established criteria for design frequency and water spread as shown in Tab. A 5-892.605.

B. The factor that governs how much water can be tolerated in the curb and gutter section and on the adjacent roadway is known as water spread or the width of the water surface. Water is allowed to spread onto the roadway area within tolerable limits because it is usually not economically feasible to keep it within a narrow gutter width. By setting the allowable water spread,

the designer can keep track of the water spread by calculation, and when the allowable spread is reached, an inlet is proposed to intercept a portion of the flow to keep the water spread from exceeding the allowable. The limits of allowable water spread are specified in the design criteria in Tab. A 5-892.605.

C. It is recommended that the minimum gradient for storm sewer mains provide at least 0.9 meters per second velocity for storm water, at full flow.

D. When a storm sewer system is oversized to accommodate areas outside the natural drainage area of the system, the additional cost of the storm sewer items on the State Aid right-of-way will be paid entirely by the County or City. This over-sizing policy also applies to mainline pipes located off of State Aid right-of-way which carry water from State Aid right-of-way.

F. It is recommended that after a State Aid System has been constructed, no new City/County areas be permitted to be drained into the State Aid System.

G. The Municipality or County must obtain and pay for all easements and construction permits for construction outside the limits of State Aid Streets or other streets, together with all drainage outlet rights where necessary.

Selection of Materials

A. For State Aid storm sewer projects designed, constructed and solely maintained by the County or Municipality, no parts of which serve Trunk Highway right-of-way, the type of pipe used shall be the choice of the County or City Engineer. The material selected should provide a minimum service life of 75 years.

B. For storm sewer projects designed, constructed and solely maintained by a County or Municipality, parts of which serve and are located within Trunk Highway right-of-way and for which the State will share in the cost through a cooperative agreement,

the State will approve the type of pipe to be placed within the Trunk Highway right-of-way.

Maintenance

No payments for sewer maintenance other than the regular State Aid maintenance allotments will be made on State Aid Streets or Highways.

5-892.606 AGRICULTURAL DRAINAGE

A. CONSTRUCTION TILE DRAIN CROSS HIGHWAY

According to Law, if any person desires during construction or reconstruction of a highway to install a tile drain for agricultural benefits in a natural drainage line in lands adjacent to any highway, and if a satisfactory outlet cannot be secured on the upper side of the right of way and the tile line must be projected across the right of way to a suitable outlet, the expense of both material and labor used in installing the tile drain across the roadbed shall be paid from funds available for the roads affected, provided the road authority is notified of the necessity of the tile drain in advance of the construction of the roadbed, so that the drain may be placed and the roadbed constructed in the same operation.

Fig. A 5-892.606 is a suggested form of application and permit to be used in connection with the installation of a tile drain during the construction of a County State Aid Highway. The explanation and requirements of the form follow:

1. The length of drain conduit installed by the County shall be confined to the roadbed and defined as the distance center to center of roadside ditches or the distance between points five feet outside the toe of the embankment slope where roadside ditches are not provided.

2. Approval of this application and subsequent provision of the drainage crossing by the County does not grant permission to enter the highway right of way

and connect a drainage system thereto. Permits for such work shall be issued in accordance with standard procedure prescribed by the County Engineer and subject to all requirements necessary for public safety and protection of the highway.

B. REQUIREMENTS

1. This application shall be filed with the County Engineer of the County in which the proposed drainage crossing is located.

2. The application shall be filed with the County Engineer at least 60 days in advance of advertising for bids for the proposed highway construction.

3. The application shall be accompanied by a drainage plan prepared by a competent drainage engineer showing the lines and grades of the proposed drainage system tributary to the crossing and continuing to an adequate outlet below the highway.

4. Where time will not permit development of a drainage plan prior to construction of the highway the applicant shall submit a report prepared by a competent drainage engineer certifying as to the feasibility of a drainage system for the adjacent lands and recommending the exact location, size and flow line of the proposed drainage crossing.

5. The application shall be accompanied by proof: (a) that permission, in the form of land ownership agreements, easements, permits or other acceptable evidence, has been obtained to extend the drainage system to an outlet below the highway, and (b) that such outlet is hydraulically adequate.

5-892.607 STREAM FLOW INVESTIGATION

The Department of Transportation has entered into an agreement with the U.S. Geological Survey for a long-term study of runoff from small watersheds at various locations along the Trunk Highway System. The object of this study is to obtain

information on the magnitude and frequency of peak discharges. These data will then provide a basis for more accurate sizing of waterway openings for bridges and culverts.

A total of 150 peak-flow gauges were installed during the initial five-year period. These gauges are located at culverts or bridges on the Trunk Highway System or at similar structures on County Roads immediately upstream or downstream of a drainage course which crosses a highway.

Another service available through the Geological Survey during the course of this study covers peak flow determinations for ungauged drainage areas. Thus, if an intense rainfall produces heavy runoff to the highway from a draining area on which no gauge has been installed, the Geological Survey upon request of the Commissioner will undertake surveys and make a peak-flow determination.

If you need to relocate one of the gauging stations because of reconstruction or find one has been damaged or removed, please contact the Hydraulics Engineer of the Minnesota Department of Transportation.

5-892.608 PERMITS FOR CONSTRUCTION OF BRIDGES, CHANNEL CHANGES, AND FILLS INTO LAKES

The construction of bridges or channel changes in public waters or placing of embankments through lakes is considered unlawful without previously obtaining a written permit from the Commissioner of Natural Resources. The Laws of Minnesota require that a permit be obtained from the Commissioner of Natural Resources prior to changing the course, current, or cross section of public waters. No bridge or culvert, public or private, shall be constructed or maintained in or across any public drainage ditch (as determined by the D.N.R.) with less waterway opening than specified in the Drainage Engineer's report, except with the written approval of the Director of the Division of Waters in the Department of

Natural Resources. If the Drainage Engineer's report does not specify the waterway opening, no bridge or culvert, public or private, in or across any public drainage ditch, may be constructed or reconstructed without approval of the dimensions of waterway opening by the Director of the Division of Waters. If the public ditch being bridged or culverted is not a public water, then these approvals must be obtained from the Ditch Authority.

In the construction of projects where bridges, culverts or channel changes are to be built in public waters, where any part of piers or abutments are placed at an elevation below the ordinary high-water elevation, or where the road is to be built into a lake and part of the embankment is placed at an elevation below the ordinary high-water elevation of the lake, a permit from the Department of Natural Resources must be obtained prior to the Award of Contract.

Applications for permits to construct bridges, culverts, channel changes, and embankments on Federal Aid and State Aid projects where public waters or public drainage ditches are affected must be taken care of by the local contracting agency. These applications should be completed and mailed directly to the appropriate Department of Natural Resources Regional Office.

5-892.609 CORPS OF ENGINEERS PERMITS

GENERAL

For construction work involving lakes, streams, or wetlands it is necessary to have a Corps of Engineers permit prior to any work in these lakes, streams, or wetlands.

These permits are in three general categories which are:

1. Section 10, Navigable Waters of the United States;
2. Section 404, practically all other lakes and streams and including wetlands; and

3. federally constructed flood control projects.

A. SECTION 10

Section 10 of the Federal River and Harbors Act of 1899 authorizes the Corps of Engineers to issue permits for construction of any type of structure, other than bridges and causeways, in navigable waters of the United States. Although bridges are excepted under this section, any fill in these waters will require a Section 10 permit from the Corps.

The following are the navigable waterways in the Corps of Engineers St. Paul District located in Minnesota:

1. MISSISSIPPI RIVER BASIN

Mississippi River - Main Stem - rises in Lake Itasca in Clearwater County, Minnesota, and flows generally southerly to the downstream limits of the St. Paul District at Guttenberg, Iowa, km 983.3. Corps of Engineers maintains a 2.7 m navigation channel downstream from the Soo Line Bridge in Minneapolis, 1380.2 km. LIMITS OF NAVIGABILITY - within the St. Paul District, navigable upstream from Guttenberg, Iowa to the outlet of Lake Bemidji, mile 1314.

St. Croix River - rises in central Douglas County, Wisconsin, near Solon Springs, and flows in generally a southerly direction to its junction within the Mississippi River at Prescott, Wisconsin. The Corps of Engineers maintains a 2.7 m channel between Stillwater, Minnesota, and the river's mouth. LIMITS OF NAVIGABILITY - navigable from its mouth upstream to the mouth of the Namekagon River, km 531.1.

Minnesota River and Big Stone Lake - River rises in Big Stone Lake and flows southeasterly and northeasterly to its junction with the Mississippi River at Fort Snelling. The Corps of Engineers maintains a 2.7 m navigation channel from the river's mouth upstream to Savage, Minnesota, km 23.7. LIMITS OF NAVIGABILITY - Big Stone

Lake and the Minnesota River are navigable throughout.

Lake Minnetonka - located in west central Hennepin County, Minnesota, drained by Minnehaha Creek which flows easterly to the Mississippi River at km 1363.9. LIMITS OF NAVIGABILITY - Lake Minnetonka in its entirety and Minnehaha Creek from Gray's Bay downstream to Minnetonka Mills.

2. RED RIVER OF THE NORTH BASIN

Bois de Sioux River and Lake Traverse - located on the Minnesota-South Dakota border. Flows northward to its junction with the Ottertail River, forming the Red River of the North. LIMITS OF NAVIGABILITY - Both Lake Traverse and the Bois de Sioux River are navigable throughout.

Red River of the North - formed by the junction of the Bois de Sioux and Otter Tail Rivers and flows northward into Lake Winnipeg; and forms the boundary between Minnesota and North Dakota. LIMITS OF NAVIGABILITY - navigable throughout within limits of the United States.

Red Lake and Red Lake River - source of the Red Lake River is Red Lake in Central Beltrami County, Minnesota; and the stream flows northwesterly to Thief River Falls, Minnesota and thence through Crookston, Minnesota, to its junction with the Red River of the North at East Grand Forks, Minnesota. LIMITS OF NAVIGABILITY - Upper and Lower Red Lake and Red Lake River navigable throughout.

3. INTERNATIONAL BOUNDARY WATERS

International Boundary Waters between Canada and the United States (Ontario and Minnesota), consisting of a series of interconnected lakes including North Lake, Gunflint Lake, Saganaga Lake, Knife and Birch Lakes, Basswood Lake, Crooked Lake, Iron Lake, Lac La Croix, Crane Lake, Namakon and Kabetogama Lakes and Rainy Lake. LIMITS OF NAVIGABILITY - Those

portions of these lakes within the United States are navigable throughout.

Rainy River - drains a series of lakes and interconnecting streams along the International Boundary extending from North Lake on the east to Rainy Lake on the west, and flows westward into Lake of the Woods. LIMITS OF NAVIGABILITY - navigable throughout within limits of the United States.

Lake of the Woods - located on the Canadian-United States International Boundary, and bounded on the south by Lake of the Woods County, Minnesota; on the north by Kenora District, Ontario; and on the west by the province of Manitoba. LIMITS OF NAVIGABILITY - navigable throughout within the limits of the United States.

Big Fork River - rises in north central Itasca County, Minnesota and flows northward through Koochiching County to its junction with Rainy River at a point approximately 33.8 km west of International Falls, Minnesota. LIMITS OF NAVIGABILITY - navigable throughout.

Little Fork River - rises in St. Louis County, Minnesota, and flows west, northwest and north through Koochiching County to its junction with Rainy River near the village of Pollard, Minnesota. LIMITS OF NAVIGABILITY - navigable throughout.

Lake Vermillion and Vermillion River - Lake Vermillion is located in north central St. Louis County, Minnesota and is drained by the Vermillion River which flows into Crane Lake which empties into Sand Point Lake, a part of the Namakan chain of lakes along the International Boundary. LIMITS OF NAVIGABILITY - Lake Vermillion and Vermillion River navigable throughout.

Kawishiwi River - rises in northwestern Cook County, Minnesota, and flows westerly through a series of lakes and interconnecting streams and thence northerly to its point of discharge into Basswood Lake a part of the International Boundary Waters. LIMITS OF NAVIGABILITY - navigable from its mouth

upstream to and including Pipestone Bay, Fall Lake, Garden Lake, White Iron and Farm Lakes, Birch Lake and the north and south branches of the river.

4. LAKE SUPERIOR BASIN

Lake Superior - western-most of the Great Lakes bounded by the States of Minnesota, Wisconsin, and Michigan and by the Canadian province of Ontario. LIMITS OF NAVIGABILITY - within the limits of the United States, navigable throughout.

St. Louis River - rises on the border of Lake and St. Louis Counties, Minnesota and flows generally southward, discharging into Lake Superior at the Duluth-Superior Harbor. LIMITS OF NAVIGABILITY - from mouth of St. Louis River to mouth of Embarrass River.

Pigeon River - rises in South Lake, and flows easterly into Lake Superior. Forms a part of the Canadian-United States boundary (Minnesota and Ontario). LIMITS OF NAVIGABILITY - navigable throughout within limits of the United States.

B. SECTION 404

Section 404 of the Federal Water Pollution Control Act Amendments of 1972 gives the Corps of Engineers jurisdiction over practically all waters in the United States including small lakes and waters above the headwaters (five cubic meter per second flow) of streams.

1. NATIONWIDE PERMIT

The Corps of Engineers' regulations provide for a nationwide permit system whereby no application at all will be required in many situations. Certain amounts of fill are permitted by the nationwide permit provided certain conditions and practices will be followed regarding the proposed work located in waters or wetlands.

In general, dredge or fill activities are authorized by the nationwide permit concerning: lakes and wetlands of less than 4 hectares in surface area and are either fed

or drained by a river or stream above the headwaters, or are isolated and not part of a tributary system to navigable waters of the United States or interstate waters;

Streams above the headwaters;

NOTE: Headwaters can be defined as the stream above which the median flow is less than .14 cubic meters per second.

The St. Paul District of the Corps of Engineers has determined (for the St. Paul District only) that in the eastern zone of Minnesota, 51.8 square kilometers of drainage area will provide a .14 cubic meter per second flow and in the western zone, 103.6 square kilometers of drainage area will provide a .14 cubic meter per second flow. The line dividing the western and eastern zones is T.H. 15 from Iowa border to Dassel, then west on T.H. 12 to Willmar, then north on T.H. 71 to Blackduck, then north on T.H. 72 to the Canadian border.

Bank stabilization activity (for erosion prevention) of less than 152.40 m in length, and less than an average of one cubic meter per running foot along the bank. This fill material includes rip-rap and filter blanket.

Minor road crossing fills of less than 152.9108 cubic meters below the plane of ordinary high water provided that the crossing is bridged or culverted and that the fill does not extend into wetlands beyond 80.5 meters on either side of the ordinary high water mark. This 152.9108 cubic meter maximum includes any granular bedding or back-fill material.

NOTE: Ordinary high water line can mean the line of the shore established by destruction of vegetation or its inability to grow. Wetlands means those areas that are characterized by the prevalence of vegetation that requires saturated soil conditions for growth and reproduction, including swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats and natural ponds.

All dredge or fill activities authorized by the nationwide permit must satisfy the CONDITIONS and follow the MANAGEMENT PRACTICES listed below:

2. CONDITIONS:

- a. That the discharge will not be located in the proximity of a public water supply intake;
- b. That the discharge will not occur in areas of concentrated shellfish production;
- c. That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species;
- d. That the discharge will not disrupt the movement of those species of aquatic life indigenous to the water body;
- e. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities;
- f. That the fill created by the discharge will be properly maintained to prevent erosion and other non-point sources of pollution; and
- g. That the discharge will not occur in a component of the National Wild and Scenic Rivers System or in a component of a State wild and scenic river system.

3. MANAGEMENT PRACTICES:

- a. Discharges of dredged or fill material into waters of the United States should be avoided or minimized through the use of other practical alternatives;
- b. Discharges in spawning areas during spawning seasons should be avoided;
- c. Discharges should not restrict or impede the movement of aquatic species of indigenous to the waters or the passage of normal or expected high flows or cause the

relocation of the waters (unless the primary purpose of the fill is to impound waters);

- d. If the discharge creates an impoundment water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow, should be minimized;
- e. Discharges in wetlands areas should be avoided;
- f. Heavy equipment working in wetlands should be placed on mats;
- g. Discharges into breeding and nesting areas for migratory waterfowl should be avoided; and
- h. All temporary fills should be removed in their entirety.

C. FEDERALLY CONSTRUCTED FLOOD CONTROL PROJECTS

It is the policy of the Corps of Engineers that no improvement, changes in the features, excavation or construction of any kind within the limits of federal constructed flood control projects be permitted without prior approval by the Corps of Engineers District Engineer.

The following are the waterways within the Corps of Engineers St. Paul District located in Minnesota.

1. RED RIVER OF THE NORTH BASIN

Red Lake River - From river km 248.3 (approximately 8 km downstream from High Landing, Minnesota) to river km 287.8, Clearwater and Pennington Counties, Minnesota. From outlet of Lower Red Lake, km 298.1, to a point 5.3 km downstream, km 303.4, Clearwater County, Minnesota.

Clearwater River - From river km 51.2 (near Plummer, Minnesota) to km 127.3 (2.1 km upstream from south boundary of Red Lake Indian Reservation), Clearwater, Polk and Red Lake Counties, Minnesota.

Sand Hill River - From river km 20.3 (section corner 5.6 km south and 3.2 km east of Climax, Minnesota to river mile 31.4 (.80 km upstream from mouth of Kittleson Creek, about 9.66 km east and 1.6 km south of Beltrami, Minnesota), Beltrami and Polk Counties Minnesota.

Kittelson Creek - From junction with Sand Hill River to 1.6 km upstream therefrom, T. 147 N., R. 45 W., 5th Principal Meridian, Polk County, Minnesota.

Wild Rice River - From river km 43.9 to km 68.9 (about 0.8 km upstream from source of Marsh River), Norman County, Minnesota.

Marsh River - From river km 33.5 (24.5 km upstream of State Highway 75 bridge south of Shelly, Minnesota) to km 72.6 (source of river, east of Ada, Minnesota) Norman County, Minnesota.

Otter Tail River - From km 15.6 (first bridge crossing upstream from Lake Breckenridge) to km 34.0 (3.9 km downstream from State Aid Road No. 1 Bridge), Wilkin County, Minnesota.

Orwell Reservoir, Otter Tail River - Extending northeastward from the dam, in Otter Tail County, Minnesota.

Mustinka River - From 7.6 km upstream from the mouth to km 40.7 (Great Northern Railway Bridge north of Norcross, Minnesota), Grant and Traverse Counties, Minnesota. County Ditch No. 42 - from mouth at Twelve Mile Creek to the junction with Five Mile Creek, Traverse County, Minnesota.

Bois de Sioux River - From White Rock Dam downstream or northward for a distance of 38.6 km, Traverse and Wilkin Counties, Minnesota, Richland County, North Dakota and Roberts County, South Dakota.

Lake Traverse, Minnesota and South Dakota - From km 95.0 at Browns Valley, Minnesota, to km 54.2 at White Rock Dam, Roberts County, South Dakota and Traverse County, Minnesota.

Lost River, Minnesota - From outlet into Clearwater River northeast of Terrebonne, Minnesota, upstream to about river km 74.0, at section line between sec. 27 and 28, T. 150 N., R. 38 W., about 4.8 km north of Gonvick, Minnesota.

2. UPPER MISSISSIPPI RIVER BASIN

Mississippi River - Tow Head Rapids Division Channel, north of Rabbit Lake, Crow Wing County, Minnesota.

Mississippi River - Pine Knoll Diversion Channel in the vicinity of Wakefield Creek, immediately east of the west line of Aitkin County, Minnesota.

Mississippi River - Aitkin Flood Control Diversion Channel including Little Willow River and Wakefield Creek - from downstream end of Pine Knoll Diversion Channel upstream approximately 9.7 km to its inlet on the Mississippi River, Aitkin County, Minnesota.

Mississippi River at St. Paul, Minnesota - Entire length of the flood barrier (levee and flood wall) starting about 30 m landward of Water Street at river el 1352.3, on the right or east bank, and extending downstream to the Highway 56 embankment. Also a section of flood barrier approximately 609.6 m long, parallel to the river downstream from Highway 56 embankment, and thence extending landward about 1524.00 m.

Mississippi River at South St. Paul, Minnesota - Levee and flood control wall on right or west bank parallel to river, between km 1339.3 and 1343 with closing structures at upstream and downstream ends.

Mississippi River at Winona, Minnesota - entire length of the earth levee on the right or west bank, extending from the high ground in the vicinity of Minnesota City downstream to midway between Huff and Harriet Streets river-ward of Second Street.

Big Stone Lake and Whetstone River, Minn. and South Dakota - On Minnesota

River, Grant County, South Dakota, and Big Stone County, Minnesota, consisting of modification of existing dam, construction of bank protection on Whetstone River, and channel improvement on Minnesota River from 4.8 km downstream from outlet control dam.

Mankato and North Mankato, Minnesota River, Minnesota - Nicollet and Blue Earth Counties. Consists of raising existing dikes, building new levees, constructing a flood wall, enlarging existing channels, modifying interior drainage and appurtenant works.

Red River of the North at Oslo, Minnesota - Flood protection by levees and flood walls.

Mississippi River at Elk River, Minnesota - Wright County. Provides for a 1036.3 m riprap-protected levee on the right riverbank along the upstream side of a horseshoe.

The following is a list of Wild and Scenic Rivers in Minnesota (as of April 1978). Any work on these rivers will require a 404 permit. THE NATIONWIDE permit does not apply to these rivers.

The St. Croix River.

The Kettle River (all in Pine County).

The Mississippi River from City of St. Cloud to the City of Anoka.

The North Fork of Crow River (all in Meeker County).

The Minnesota River from Lac Qui Parle dam to City of Franklin.

The Rum River from Mille Lacs Lake to City of Anoka.

D. CORPS OF ENGINEER OFFICE LOCATIONS

The Corps of Engineers have three district offices which have jurisdiction over various portions of Minnesota. These offices should be contacted for information when applying

for Section "10" and Section "404" permits and for approval of proposed work on federally constructed flood control projects. If your proposed work is covered under the nationwide permit, no permit application is needed.

Corps of Engineers
General Regulatory Branch
Room 1129
Post Office and Custom House
St. Paul, MN 55101
(612) 725-7558

District Engineer
U.S. Army Engineer District
6014 USPO and Court House
215 N. 17th Street
Omaha, NE
(402) 221-4133

District Engineer
U.S. Army Engineer District
Clock Tower Building
Rock Island, IL 61201
(309) 788-6361

When making contact with the Corps, be sure to include detailed location maps, project number, and a good description or plans of the proposed construction.

It is assumed that the foregoing Section 10 and Section 404 permit process concerning work in lakes, streams, or wetlands will not involve a major and significant federal action which would require the preparation of an Environmental Impact Statement.

In the infrequent instance of a major or significant federal action, please contact the State Aid Division office for information. Processing of these actions are somewhat more involved and can best be handled on a project by project basis.

E. STORM SEWER

Any storm sewer outlet in public waters will require a D.N.R. permit and a Corps Section 10 or Section 404 permit where applicable.

**F. DIVISION OF STATE AID
REQUIREMENTS**

For any proposed project involving lakes, streams, or wetlands under jurisdiction of the Corps of Engineers using Federal funds, please send to the State Aid Division office either evidence of a Corps permit or a letter signed by the County or City Engineer stating that the proposed project is authorized by the Corps Nationwide Permit. This data must be received in the State Aid Division office prior to setting a construction letting date.

When Federal funds are not involved in a proposed project, it will not be necessary to send this data to the State Aid Division office.

NEEDS STUDY REPORTING MANUAL

5-892.800

5-892.800 NEEDS

GENERAL - COUNTY AND URBAN

Minnesota Statutes, Chapter 162 provides that annually each County and City Engineer must submit all necessary information regarding the needs for their State Aid System to the Commissioner of Transportation. This information is used by the County or Municipal Screening Board in making its recommendations to the Commissioner as to the mileage, lane miles and money needs of each County or the money needs, populations and mileages of each Urban Municipality.

An Urban Municipality is a City having a population of 5,000 or over, based on the latest Federal census, State Demographer's and Metropolitan Council's population estimates or in the case of a new Municipality, the Articles of Incorporation.

The Screening Board directs the Office of State Aid as to the desirable contents of the needs studies within the limits of the Law, and determines the methods or procedures and limitations to be used in the measurement of need. Each engineer is furnished with a current copy of the Screening Board Resolutions.

SCREENING BOARD

COUNTY

A Screening Board, appointed by the Commissioner of Transportation, is composed of one County Engineer from each outstate district, two county engineers from the Metro Division and one county engineer from each urban county (175,000 population and over), shall review all information as to the mileage, lane miles and money needs of the County State Aid Highway system and shall submit to the

Commissioner, on or before the first day of November each year, its findings and recommendations as to each County's mileage, lane miles and money needs.

URBAN MUNICIPALITY

A Screening Board, appointed by the Commissioner of Transportation is composed of one City Engineer from each of the nine Mn/DOT districts and one Engineer from each of the first class cities (100,000 or more population), shall annually review all information as to the money needs of the Municipal State Aid system and shall submit to the Commissioner on or before the first day of November of each year, its recommendations as to each Urban Municipality's money needs.

MONEY NEEDS

A. It should be emphasized that the resulting needs study is maintained for the primary purpose of apportioning State Aid funds and deals with the measurement of needs only. It is not to be taken literally as a guide for actual design or construction of projects.

B. The purpose of this portion of the State Aid Manual is to furnish the County and City Engineers with the means to comply with Minnesota Law.

C. Each County and City Engineer shall report the data required to determine the 25 year money needs estimate of the respective State Aid system. The reporting shall be completed according to this Manual or the client computer training manual and shall be maintained in current status by an annual update to reflect construction changes and/or system revisions.

D. Chapter 162 defines money needs as the estimated total annual costs of constructing the County State Aid Highway system over a

period of 25 years, and the estimated cost of constructing and maintaining the Municipal State Aid Street system over a period of 25 years.

E. The formulas for the distribution of the funds dictate that 50 percent of the monies be allocated according to the money needs of the respective State Aid systems in the Counties and Municipalities.

F. Some of the items requested are not currently approved as needs items for the determination of the money needs apportionment. These items are included in summaries and listings of "Total Needs" but are specifically excluded from the "Apportionment Needs" until such time as the respective Screening Board approves inclusion of said item or items in the "Apportionment Needs".

G. Apportionment money needs of each Urban Municipality are defined as the money needs of the Municipality from which deductions or additions have been made by the Commissioner in response to the recommendations from the Screening Board.

H. The "Total Needs" concept provides the Engineer with an estimate of the total cost of constructing his State Aid system to State Aid standards. It also provides the State Aid Needs Unit with more complete data for use in various summaries, estimates or studies that are required by the Federal Highway Administration, the State Legislature and other State Departments.

Because the methods of measuring needs are constantly undergoing changes, the needs study procedures are not included in this Manual but are described in the individual manuals that are furnished at the time of making the needs studies.

Communications from the Office of State Aid or the District State Aid Engineer inform the Engineer of the time element and the requirements of the needs studies.

ROAD DATA REPORTING INSTRUCTIONS

Each County/City must download data and program updates from the State Aid Office on a yearly basis. The State Aid Office will notify the County/City Engineers when the download is to be performed. The download/update procedure is performed by connecting to the State Aid dial-up server by using the WinFrame Software or Internet. Double click on the icon for the Needs Update. The following screen will have an icon to download and an icon to upload. The needs transfer occurs rather quickly and upon completion will say "Download Complete! " Press any key to continue! Once the download has been done, data should be checked and revisions made. When all changes have been entered into the computer, the updated data should be sent to the District State Aid Engineer's office by selecting the Upload Icon. Again, the transfer will occur quickly and will say "Upload Complete!" The DSAE will review the data and make any further changes by going into the Update CSAH/MSAS Needs Data from the State Aid menu system. Once any necessary revisions are made by the DSAE, he will upload the data to the State Aid Office selecting the upload icon.

Detailed instructions for the program can be requested from the District State Aid Engineer.

5-892.810 COUNTY STATE AID HIGHWAY SYSTEM

A. EXISTING DATA AND IDENTIFICATION

COUNTY NUMBER: County Engineers enter the assigned county number as listed in Figure "A."

CONTROL SECTION: Enter the control section number assigned to the roadway by the Commissioner's Order. CSAH's are further identified by adding "600" to the

number assigned in the Commissioner's Order.

SEGMENT: State Aid roadways must be divided into smaller units called segments when:

1. The existing surface type or surface width changes.
2. The nature of the deficiency of the roadway changes.
3. There is a substantial change in traffic volume (this is especially true when the change would result in a change in construction design).
4. The Federal designation of the road changes.
5. The roadway intersects a municipal boundary or urban boundary.
6. The Functional Classification of the roadway changes.

The segment numbers shall begin with 010 and continue 020, 030, etc., and shall run West to East or South to North. If a segment must be subdivided, a third digit will be used.

Example: Segment 030 should be divided into 030 and 035.

The revision of segment numbering is often caused by partial construction of a segment. Rather than renumber all segments on a State Aid roadway due to the splitting of a single segment, it is preferred to split the segment as indicated.

MUNICIPALITY: If the segment is located inside or on the corporate limits of a municipality, enter the name of the municipality or refer to the list of city names on the Help Screen. If the segment is located in an unincorporated area, leave this entry blank.

ADMINISTRATIVE CLASSIFICATION

1. Indicate the appropriate Federal status by entering one of the following:

- a. Federal Aid Urban
- b. Federal Aid Primary
- c. Federal Aid Secondary
- d. Non-Federal

2. Indicate the appropriate urban area classification by entering one of the following:

- a. Unincorporated Non-Urban: Not inside or on the corporate limits of any municipality and not in a designated urban area.
- b. Unincorporated Urban: Not inside or on the corporate limits of a municipality, but inside an urban area.
- c. Incorporated Non-Urban: Inside or on the corporate limits of a municipality, but not in a designated urban area.
- d. Incorporated Urban: Inside or on the corporate limits of a municipality, and also inside a designated urban area.

The urban definition used for Administrative Classification is that as recommended by the local unit of government or MPO and approved by Mn/DOT and the Federal Highway Administration. The boundary is not necessarily contiguous with a corporate limits nor an urban boundary. It must, however, include as a minimum that area within the urban boundary.

MINOR SYSTEMS: If the segment is on a minor system, enter the proper system from the Help Screen.

FOREST HIGHWAY NUMBER: Enter the Forest Highway Number if the road is on the National Forest Highway System.

SEGMENT LENGTH: Record the length of the segment. Sections on or inside municipal boundaries are to be reported to the nearest hundredth of a mile and sections outside municipal boundaries are to be reported to the nearest tenth of a mile.

SURFACE TYPE: Identify the existing surface type by one of the letters indicated below:

- B-Unimproved
- C-Graded and Drained
- D-Soil Surfaced
- E-Aggregate Surfaced
- F-Surface Treated
- G-Mixed Bituminous
- I-Bituminous Concrete or Sheet Asphalt
- J-Portland Cement Concrete
- K-Brick
- L-Block
- M-Concrete/Bituminous Overlay
- O-Designated Non-Existent
(Help Screen is also available)

The Non-Existent category is to be used where the designated route is not over an existing street.

A multiple type road should be identified by the surface type of the pre-dominant traffic lanes. **EXAMPLE:** The center 24 ft. concrete, 10 ft. bituminous both sides, should be reported as concrete. Use only the types listed above and do not record more than one surface type per segment. A concrete pavement with a bituminous overlay shall be reported as bituminous surface.

SURFACE WIDTH: Report the surface width to the nearest foot. For urban design, the width is inside to inside face of curb.

Rural and sub-urban design surface width should not include shoulders. For a stage construction aggregate surfaced urban design road, list the total width of the aggregate surface.

ROADBED WIDTH: Report the roadbed width to the nearest foot. Rural and sub-urban design roadbed width is surface

width plus total shoulder width. In urban design, the roadbed width and surface width are the same.

RIGHT-OF-WAY WIDTH: Enter the existing right-of-way width to the nearest foot. When the right-of-way varies, report the basic width.

STRUCTURAL CAPACITY (SPRINGTIME RESTRICTION): Enter the structural capacity of the road to the nearest ton. This could be the result of Benkelman Beam Tests or any other accepted method of capacity measurement. If applicable, this would be the springtime load restriction.

YEAR OF LATEST "MAJOR GRADING" AND YEAR OF LATEST SURFACING: Report the appropriate years in the spaces provided. In the Needs Study, the Contract Letting Date is considered the construction year. Do not consider routine maintenance jobs in determining the year involved. Consider major improvements only. If the years are unknown, enter "1900."

NUMBER OF TRAFFIC LANES: Enter the number of traffic lanes that are available for normal use. Do not include lanes that are for peak-hour use only.

NUMBER OF PARKING LANES: On existing urban design segments only enter the number of parking lanes including the lanes used for off peak-hour parking.

LANE DESCRIPTION: Enter the appropriate number to denote whether the roadway is:

1. Not Divided
2. Divided
3. One-Way

EXISTING STORM SEWER MILEAGE: Enter the length of the existing storm sewer to the nearest hundredth of a mile. This length must not exceed the length of the segment involved.

EXISTING TRAFFIC SIGNALS: Report the number of intersections having vehicular traffic control signals. Because of signalized intersections with State Highways or other State Aid Roads, this item is to be reported proportionately to the nearest tenth of an intersection. When a segment break occurs at a signalized intersection, charge ½ (.5) to each segment.

PRESENT CONDITION: If the roadway meets present geometric standards and has the proper load carrying ability, enter as adequate (1). If the roadway is deficient, indicate by entering the proper code from the Help Screen.

TERMINI: Describe the termini of the segment as clearly as possible using the intersection of Trunk Highways, other County State Aid Highways, county roads, city streets, etc. The termini must be described in the same direction as the assignment of segment numbers.

PRESENT TRAFFIC: Record the present average daily traffic as shown on the latest approved traffic map. The highest ADT, consistent with adjoining segments is to be used. If the segment is non-existing, leave this item blank.

YEAR OF COUNT: Record the year the traffic count was taken.

PROJECTION FACTOR: The County Engineer's Screening Board has assigned individual traffic projection factors, as listed in Figure "A" for each county.

If the use of the assigned, or standard factor, does not properly reflect the traffic projection as determined by the county or municipal engineer, the projection factor may be revised, but only with the approval of the District State Aid Engineer.

Leave this item blank when the segment is non-existing.

PROJECTED TRAFFIC: This item is to be reported only if no present traffic figures are

available such as in the case of a non-existing road. If a projected figure is necessary, it should reflect the traffic anticipated in 20 years. Any entry in this area must be concurrred in by the District State Aid Engineer.

B. PROPOSED DATA

PROPOSED DESIGN: Four basic classifications based on the relationship between proposed and existing design are used in the reporting of construction needs on the State Aid Systems.

Using the following criteria, indicate the classification of each segment (Help Screen is available).

NOTE: Non-existing roads are normally limited to a proposed rural or sub-urban design unless justification of a higher design has been presented to the satisfaction of the District State Aid Engineer.

2. Rural - Existing Rural

The first classification consists of those existing rural design roadways that will remain rural design if and when they are reconstructed.

3. Sub-Urban

The second classification includes those existing rural design or non-existing roads that are proposed to be upgraded to an urban design, but restraints prohibit the completion to be accomplished by anything more than stage construction.

The sub-urban design has been created primarily to establish grade lines and to provide additional widths in those areas where sometime in the future, development will take place to such an extent that an urban design will be required. Sub-urban design is a "needs design" only and shouldn't be confused with the actual design, which would show an urban design being built under stage construction. The use of sub-urban design provides for more economical placement of storm sewer and utilities.

4. Urban - Existing Non-Urban

The third classification is to be used when urban design is proposed and the existing design is rural or sub-urban. This urban design may be used where the cultural development is sufficient to warrant its use.

5. Urban - Existing-Urban

The fourth classification provides for the reconstruction of an existing urban design while retaining its urban characteristics.

PROPOSED SURFACE WIDTH: Proposed rural or sub-urban design---- enter the proposed surface width only if it is different than the width listed in the appropriate rural design table consistent with the segment's projected traffic.

Proposed urban design----enter the proposed surface width from face or curb.

Maximum width allowed for both rural and urban design is the width shown in the appropriate rural or urban design table consistent with the projected traffic volume. (See Figs. C and D). Only in extreme or unusual conditions where right-of-way or topographic limitations prevent construction of the appropriate width found in the design table, should a lesser width be reported in the needs. Concurrence by the District State Aid Engineer is required for these substandard widths.

PROPOSED ROADBED WIDTH: Report the proposed width from edge of shoulder for rural and sub-urban design and face of curb for urban design. This width is the same as surface width for urban design. The same limitations apply to roadbed width as are stated for surface width.

NUMBER OF TRAFFIC LANES: Report the number of proposed 12 foot traffic lanes.

NUMBER OF PARKING LANES: Enter this item only if the road is proposed urban design. 10-foot parking lanes are generally used, however, 8 foot lanes are allowable

when approved by the District State Aid Engineer.

LANE DESCRIPTION: Indicate whether the proposed facility is to be not divided, divided, or a one-way facility. A Help Screen is available for proper entries.

In order to qualify as a one-way road or street, another State Aid road or street must be designated for traffic flow in the opposite direction.

SUB-GRADE FACTOR: Enter the appropriate soil factor from the Help Screen indicating the predominant soil classification for the proposed subgrade.

TERRAIN: Enter the specific type of terrain from the Help Screen as it influences the construction of the roadway.

C. GRADING AND GRADING ITEMS

CLASSIFICATION: Indicate the type of grading necessary for the construction of the road segment. See Help Screen.

FEET OF WIDENING: If grade widening is proposed, the number of feet of widening requested is to be entered in this area.

COST/MILE: Enter the cost/mile that was computed using the "Rural or Urban Grading Cost Estimate Sheet" submitted to the District State Aid Engineer.

STORM SEWER: Proposed rural or suburban design segments are not eligible for storm sewer needs. Therefore, no entry in this area will be allowed on these designs. For proposed urban design sections, indicate from the Help Screen the appropriate code for storm sewer requirements. Enter the mileages of complete and/or partial in hundredths of a mile.

Under no condition can the total length of complete storm sewer and/or partial storm sewer exceed the total length of the segment.

Complete storm sewer is to be reported for sections requiring storm sewer where none exists, for sections of existing storm sewer that must be replaced, or for existing combination sanitary and storm sewer that must be separated.

Storm sewer adjustment is to be reported for sections having existing storm sewer that is adequate in size and structure but because of street widening, the catch basins must be moved and the leads extended.

D. BASE

CLASSIFICATION: Indicate the type of base construction needed. Help Screen is available.

FEET OF WIDENING: If the base is to be widened, enter the number of feet of widening here.

TONS PER MILE OF STRENGTHENING: If the existing base is to be strengthened, indicate the tons per mile of each type of base material that is required.

E. SURFACE

CLASSIFICATION: Indicate the type of surfacing required. A Help Screen is available. Because of the 25-year needs study concept, each segment must have a surfacing need, either initial or additional, regardless of the age or condition of the existing surface.

The bridge segment only category is to be used if the entire segment reported is a bridge where roadway needs items would not apply.

SURFACE WIDENING: Indicate if surface widening is proposed. This is used when the existing surface is utilized together with the new widened surface and an additional mat is placed over the old and the widened surface. The feet of surface widening is equal to the proposed surface width minus the existing surface width.

NOTE: Surface widening is limited to those proposed urban design roadways where the existing surface is in good condition and the only deficiency is the width.

F. SHOULDERS

CLASSIFICATION: From the Help Screen, enter the type of shouldering construction required. This item is eligible only on proposed rural or sub-urban design sections.

G. MISCELLANEOUS ITEMS

RIGHT-OF-WAY NEEDED: Indicate whether or not additional R/W is needed on the segment with a "1" (yes) or a "2" (no). On an adequate segment no additional R/W is allowed.

PROPOSED RIGHT-OF-WAY WIDTH: Enter the proposed R/W width required on the segment. If no additional R/W is required or allowed, this width should be the same as the existing R/W width.

CURB AND GUTTER CONSTRUCTION: Only proposed urban design sections are eligible for this item. Enter the number of lineal feet of concrete curb and gutter to be constructed. This number cannot exceed twice the length of the segment, unless the roadway is divided and then it cannot exceed four times the segment length.

H. NEEDS UNIT USE ONLY

NOTE: If you do not wish to enter this data, the needs unit will complete the necessary entries.

FUNCTIONAL CLASSIFICATION: Enter the code that indicates the proper functional classification of the road. Use the Help Screen for a list of codes.

TYPE OF CONSTRUCTION FUNDS: Using the three Help Screens provided, enter the codes which indicate the type of construction funds used on the road. If construction was prior to 1965, leave this field blank.

LATEST YEAR OF STATE AID FUNDS:

Enter the last year State Aid funds were used on this segment.

COMPLEMENTARY MSAS NUMBER: If the segment is on a combination route (CSAH and MSAS), enter the Municipal State Aid Street number.

CSAH WIDTH PORTION: If the road is on a "combination" route, enter the roadway width which is only designated CSAH.

COST AREA: No entry is necessary at the present time.

SELECT DESIGN CONTROL: In unusual circumstances, the Needs Unit may use this field to limit the design of certain roadways. No entry is necessary by the County Engineer.

SPECIAL MESSAGES: Enter the appropriate code from the Help Screen if applicable.

COMMENTS: Enter any comments you feel may be appropriate on this roadway segment.

I. CONFIRMATION

If you wish to confirm all the revisions you have entered on this roadway segment, enter a "Y" for yes. If not, enter an "N" for no. If an "N" is entered here, none of the revisions previously entered on this roadway segment will be made.

5-892.815 STRUCTURE DATA COUNTY REPORTING INSTRUCTIONS

NOTE: Only structures with an existing and/or proposed span length of 10 feet or more are to be reported on these sheets. Smaller structures are considered special drainage and should be reported as part of the grading cost of the road segment.

A. IDENTIFICATION

BRIDGE NUMBER: Enter the bridge number in the space provided. Leave this item blank if you are not certain of the number.

LOCATED AT MILE POINT: Enter the distance, in hundredths of miles, from the beginning of the segment to the structure.

NAME OF STREAM, ROAD OR RAILROAD: Enter the name of the stream, road, or railroad that the structure crosses.

B. EXISTING CONDITIONS

TYPE OF SERVICE: Enter the type of service that the existing structure provides. A Help Screen is provided with the proper codes.

TYPE OF STRUCTURE: Enter the type of existing structure in place using the Help Screen.

NUMBER OF SPANS: Enter the number of existing spans.

STRUCTURE LENGTH: Enter the length to the nearest foot. If the structure is a bridge, the length is measured from backside to backside of abutments.

If the structure is a box culvert or an arch, the length is measured as the length of the barrel.

CURB TO CURB WIDTH: If the structure is a bridge, the width is measured from face of curb to face of curb, to the nearest tenth of a foot.

If the structure is a box culvert, an arch culvert or a pipe culvert and curb width does not apply, report the shoulder to shoulder width of the roadway.

RAILING TO RAILING WIDTH: If the structure is a bridge enter the distance from inside face of railing to inside face of railing to the nearest tenth of a foot.

If the structure is a box culvert, an arch culvert or a pipe culvert and railing width does not apply, report the shoulder to shoulder width of the roadway.

SIDEWALKS: Enter "1" if sidewalk exists on one side or "2" for both sides.

SIDEWALK WIDTH: If sidewalk exists on the bridge, enter the total sidewalk width (in feet).

TRAFFIC LANES: Enter the code that applies to the traffic lanes for the State Aid road involved. A Help Screen is provided. If other is checked be sure to clarify in the comments area.

VERTICAL CLEARANCE: Record the vertical clearance (to tenths of feet) as it affects the vehicular traffic. Leave blank if there are no overhead restrictions.

YEAR BUILT: Enter the year the structure was built (letting date of project). If unknown enter "1900."

PLACEMENT: Indicate if the structure location is square or skew to the centerline of road.

LEGAL LOAD: Enter "1" yes if the structure meets current legal load requirements. If not, enter "2" no.

TONS POSTED: If structure's load capacity is restricted, enter the tons posted for a single-axle vehicle.

PRESENT CONDITION: Using the Help Screen, enter the applicable code.

C. PROPOSED CONSTRUCTION

NOTE: If the existing structure is adequate, leave "Proposed Construction" area blank.

PLACEMENT: Indicate if the structure is to be placed square or skew.

TYPE OF SERVICE: Enter the code from the Help Screen for the type of service that the proposed structure will provide.

TYPE OF STRUCTURE: Enter the code from the Help Screen for the type of structure to be constructed.

TRAFFIC LANES: Enter the code from the Help Screen that applies to the traffic lanes for the State Aid road involved.

TYPE OF WORK: Indicate the proper code from the Help Screen for the proposed type of work. If major reconditioning, explain in comments section.

BRIDGE WIDENING ONLY: If the only proposed construction is bridge widening, enter the feet of widening here.

COMMENTS: Enter any additional comments.

THEN, DEPENDING ON WHAT TYPE OF PROPOSED STRUCTURE IS INDICATED: BRIDGE, BOX CULVERT, OR ARCH, A SCREEN REQUESTING SPECIFIC INFORMATION REGARDING THE NEW STRUCTURE WILL APPEAR BY PRESSING THE ENTER KEY OR THE DOWN ARROW KEY.

MAJOR STRUCTURE DATA - BRIDGE

Enter the "X" distance in the area provided. This is the width of the channel, railroad tracks, or roadway under the proposed structure.

Enter the "Y" distance in the proper area. This distance is that from the point of low steel to:

1. The top of railroad rail - 22 feet minimum.
2. The finished surface of roadway - 16 feet minimum, or
3. The bed of the stream.

NOTE: The reference table for "X" and "Y" distances (Figure B 5-892.820) may be of some assistance to you when these figures are reported.

The proposed length will be computed automatically.

Indicate whether sidewalks are proposed on the bridge (allowed only on proposed urban design sections).

If the proposed bridge is to be a railroad over a highway structure, enter the number of railroad tracks in the space provided.

If the above formula for length computation does not apply to this proposed bridge, enter the proposed length in the area provided.

Some documentation should be provided on the comments line on the previous screen to explain an entry for proposed length.

NEEDS UNIT USE ONLY

The cost determination area will be completed by the CSAH Needs Unit.

BOX CULVERT AND STRUCTURAL LATE ARCH

On proposed rural design sections, enter the size of the culvert or arch, the number of arches proposed, and the "Y" distance (finished roadbed to the floor of the culvert or arch). If the existing structure is to be lengthened, enter the existing barrel length of the structure.

Report the same items for urban design sections, but in addition, because of the varying side slopes, report the proposed length in the case of a new structure or if the present structure is to be lengthened, the length of the extension.

NEEDS UNIT USE ONLY

The cost determination area will be completed by the CSAH Needs Unit.

D. CONFIRMATION

If you wish to make all the revisions you have entered on this structure, enter a "Y" for yes. If not, enter an "N" for no. If an "N" is

entered here, none of the revisions previously entered for this structure will be made.

RAILROAD GRADE CROSSING DATA INSTRUCTIONS

A. IDENTIFICATION

RAILROAD GRADE CROSSING NUMBER: Enter the railroad crossing number assigned by the Railroad and Warehouse Commission. If unknown, leave blank.

LOCATED AT MILE POINT: Report the distance, in hundredths of miles, from the beginning of the segment to the railroad crossing.

B. EXISTING CONDITIONS

NUMBER OF MAINLINE TRACKS: Enter the number of mainline tracks intersecting the roadway at this crossing.

NUMBER OF OTHER TRACKS: Enter the number of branch line, spur, etc. tracks, other than mainline, intersecting the roadway at this crossing.

EXISTING PROTECTION: Using the Help Screen, indicate the number that properly identifies the type of existing protection that is presently at this location.

C. PROPOSED IMPROVEMENT

PROPOSED IMPROVEMENT: From the Help Screen, indicate the type of proposed improvement necessary at this crossing.

DIVIDED COST, TOTAL COST, AND APPORTIONMENT COST: The Needs Unit will complete these sections.

COMMENTS: Enter any additional comments.

D. CONFIRMATION

If you wish to confirm all the revisions you have entered on this railroad crossing, enter

a "Y" for yes. If not, enter an "N" for no. If an "N" is entered here, none of the revisions previously entered for this railroad crossing will be made.

5-892.820 MUNICIPAL STATE AID STREET SYSTEM

A. EXISTING DATA AND IDENTIFICATION

CITY NUMBER: Municipal Engineers enter the assigned numbers of the city as listed in Figure?

CONTROL SECTION: Enter the control section number assigned to the roadway by the Commissioner's Order. (Same as MSAS number.)

SEGMENT: State Aid roadways must be divided into smaller units called segments when:

1. The existing surface type or surface width changes.
2. The nature of the deficiency of the roadway changes.
3. There is a substantial change in traffic volume (this is especially true when the change would result in a change in construction design).
4. The Federal designation of the road changes.
5. The roadway intersects a municipal boundary or urban boundary.

The segment numbers shall begin with 010 and continue 020,030, etc., and shall run West to East or South to North. If a segment must be subdivided, a third digit will be used.

Example: Segment 030 should be divided into 030 and 035.

The revision of segment numbering is often caused by partial construction of a segment.

Rather than renumber all segments on a State Aid roadway due to the splitting of a single segment, it is preferred to split the segment as indicated.

COUNTY NUMBER: Enter the county number in which the municipality is located. Refer to Figure B 5-892.810 or use the F1 key.

ADMINISTRATIVE CLASSIFICATION

1. Indicate the appropriate Federal status by entering one of the following:

- a. Federal Aid Urban
- b. Federal Aid Primary (T.H. only)
- c. Federal Aid Secondary
- d. Non-Federal

2. Indicate the appropriate urban area classification by entering one of the following:

- a. Unincorporated Non-Urban: Not inside or on the corporate limits of any municipality and not in a designated urban area.
- b. Unincorporated Urban: Not inside or on the corporate limits of a municipality, but inside an urban area.
- c. Incorporated Non-Urban: Inside or on the corporate limits of a municipality, but no in a designated urban area.
- d. Incorporated Urban: Inside or on the corporate limits of a municipality, and also inside a designated urban area.

The urban definition used for Administrative Classification is that as recommended by the local unit of government or MPO and approved by Mn/DOT and the Federal Highway Administration. The boundary is not necessarily contiguous with a corporate limits nor an urban census boundary. It must, however, include as a minimum that area within the urban boundary.

MINOR SYSTEMS: If the segment is on a minor system, enter the proper system from the Help Screen.

SEGMENT LENGTH: Record the length of the segment to the nearest hundredth of a mile. Enter one-half of the segment length for streets designated jointly with another municipality.

SURFACE TYPE: Identify the existing surface type by one of the letters indicated below:

- B-Unimproved
- C-Graded and Drained
- D-Soil Surfaced
- E-Aggregate Surfaced
- F-Surface Treated
- G-Mixed Bituminous
- I-Bituminous Concrete or Sheet Asphalt
- J-Portland Cement Concrete
- K-Brick
- L-Block
- M-Concrete with Bituminous
- O-Designated Non-Existent

The Help Screen is also available.

The non-existent category is to be used where the designated route is not over an existing street.

A multiple type road should be identified by the surface type of the pre-dominant traffic lanes. EXAMPLE: The center 7.3 m concrete, 3.05 m bituminous both sides, should be reported as concrete. Use only the types listed above and do not record more than one surface type per segment. A concrete pavement with a bituminous overlay shall be reported as concrete surface.

SURFACE WIDTH: Report the surface width to the nearest foot. For urban design, the width is inside to inside face of curb. Rural and sub-urban design surface width should not include shoulders. For a stage construction aggregate surfaced urban design road, list the total width of the aggregate surface.

ROADBED WIDTH: Report the roadbed width to the nearest foot. Rural and sub-urban design roadbed width is surface width plus total shoulder width. In urban design, the roadbed width and surface width are the same.

RIGHT-OF-WAY WIDTH: Enter the existing Right-of-Way width to the nearest foot. When the Right-of-Way varies, report the basic width.

STRUCTURAL CAPACITY (SPRINGTIME RESTRICTION): Enter on the appropriate line the structural capacity of the road to the nearest ton. This could be the result of Benkelman Beam Tests or any other accepted method of capacity measurement. If applicable, this would be the springtime load restriction.

YEAR OF LATEST "MAJOR GRADING" AND YEAR OF LATEST SURFACING: Report the appropriate years in the spaces provided. In the Needs Study, the Contract Letting Date is considered the construction year. Do not consider routine maintenance jobs in determining the year involved. Consider major improvements only. If the years are unknown, enter "1900."

NUMBER OF TRAFFIC LANES: Enter the number of existing traffic lanes that are available for normal use. Do not include lanes that are for peak-hour use only.

NUMBER OF PARKING LANES: On existing urban design segments only enter the number of parking lanes including the lanes used for off peak-hour parking.

LANE DESCRIPTION: Enter the appropriate number from the Help Screen to denote whether the roadway is:

1. Not Divided
2. Divided
3. One-Way

EXISTING STORM SEWER MILEAGE: Enter the length of the existing storm sewer

to the nearest hundredth of a mile. This length must not exceed the length of the segment involved.

EXISTING TRAFFIC SIGNALS: Report the number of intersections having vehicular traffic control signals. Because of signalized intersections with State Highways or other State Aid Roads, this item is to be reported proportionately to the nearest tenth of an intersection. When a segment break occurs at a signalized intersection, charge $\frac{1}{2}$ (.5) to each segment.

PRESENT CONDITION: If the roadway meets present geometric standards and has the proper load carrying ability and is less than 20 years old, enter as adequate. If the roadway is deficient, indicate by entering the proper code from the Help Screen.

TERMINI: Describe the termini by entering the control segment street name then the segment termini as clearly as possible using the intersection of Trunk Highways, County State Aid Highways, county roads, city streets, etc. The termini must be described in the same direction as the assignment of segment numbers.

PRESENT TRAFFIC: Record the present average daily traffic as shown on the latest approved traffic map. The highest ADT, consistent with adjoining segments is to be used. If the segment is non-existing, leave this item blank.

YEAR OF COUNT: Record the year the traffic count was taken.

PROJECTION FACTOR: A standard projection factor of 1.5 is used for all Municipal State Aid Streets.

If the use of the assigned, or standard factor, does not properly reflect the traffic projection as determined by the Municipal Engineer, the projection factor may be revised, but only with the approval of the

District State Aid Engineer. (Leave this item blank when the segment is non-existing.)

PROJECTED TRAFFIC: This item is to be reported only if no present traffic figures are available such as in the case of a non-existing road. If a projected figure is necessary, it should reflect the traffic anticipated in 20 years. Any entry in this area must be concurrred in by the District State Aid Engineer.

B. PROPOSED DATA

PROPOSED DESIGN: Four basic classifications based on the relationship between proposed and existing design are used in the reporting of construction needs on the State Aid Systems.

Using the following criteria, indicate the classification of the segment by using the Help Screen.

NOTE: Non-existing roads are normally limited to a proposed rural or sub-urban design unless justification of a higher design has been presented to the satisfaction of the District State Aid Engineer.

1. **RURAL-EXISTING RURAL:** This classification consists of those existing rural design roadways that will remain rural design if and when they are reconstructed.

2. **SUB-URBAN:** This classification includes those existing rural design or non-existing roads that are proposed to be upgraded to an urban design, but restraints prohibit the completion to be accomplished by anything more than stage construction. The sub-urban design has been created primarily to establish grade lines and to provide additional widths in those areas where sometime in the future, development will take place to such an extent that an urban design will be required. Sub-urban design is a "needs design" only and shouldn't be confused with the actual design, which would show an urban design being built under stage construction. The use of sub-urban design provides for more

economical placement of storm sewer and utilities.

3. URBAN-EXISTING NON-URBAN:

This classification is to be used when urban design is proposed and the existing design is rural or sub-urban. This urban design may be used where the cultural development is sufficient to warrant its use.

4. URBAN-EXISTING URBAN:

This classification provides for the reconstruction of an existing urban design while retaining its urban characteristics.

PROPOSED SURFACE WIDTH: Proposed rural or sub-urban design—enter the proposed surface width only if it is different than the width listed in the appropriate rural design table consistent with the segment's projected traffic.

Proposed urban design—enter the proposed surface width from face of curb. Maximum width allowed for both rural and urban design is the width shown in the appropriate rural or urban design table consistent with the projected traffic volume (See Figs. C, and D 5-892.810).

PROPOSED ROADBED WIDTH: Enter the proposed width from edge of shoulder for rural and sub-urban design and face of curb for urban design. This width is the same as surface width for urban design. The same limitations apply to roadbed width as are stated for surface width.

NUMBER OF TRAFFIC LANES: Enter the number of proposed traffic lanes.

NUMBER OF PARKING LANES: Enter this item only if the road is proposed urban design. 3.05 m parking lanes are generally used, however, 2.4 m lanes are allowable when approved by the District State Aid Engineer.

LANE DESCRIPTION: Indicate whether the proposed facility is to be not divided, divided, or a one-way facility. Use the F1 Help Screen.

In order to qualify as a one-way road or street, another State Aid road or street must be designated for traffic flow in the opposite direction.

SUB-GRADE FACTOR: Enter the appropriate soil factor for your municipality (See Figure D 5-892.820). Use the F1 Help Screen. Change only if the predominant soil classification is different than the assigned soil type.

TERRAIN: Enter the specific type of terrain as it influences the construction of the roadway. Use the F1 Help Screen for the proper codes.

C. GRADING AND GRADING ITEMS

CLASSIFICATION: Indicate the type of grading necessary for the construction of the road segment. Use the F1 Help Screen for the proper codes.

TOTAL CUBIC YARDS: This item is entered only if minor grading on an urban design section is requested. Enter the total cubic yards of minor excavation involved. Leave blank for all other types of grading.

FEET OF WIDENING: If grade widening is proposed, the number of feet of widening requested is to be entered in this area. Use only if the roadway is less than 20 years old.

COST/MILE: In most cases, when streets are more than 20 years old, complete grading should be used and the cost per mile left blank. When the quantity tables (Figs. C and D 5-892.820) do not apply, compute a quantity and a cost per mile. The cost for excavation included in Screening Board Resolutions should be used to compute the cost per mile.

STORM SEWER: Proposed rural or sub-urban design segments are not eligible for storm sewer needs. Therefore, no entry in this area will be allowed on these designs. Use the F1 Help Screen for the proper codes

For proposed urban design sections, enter the appropriate number to indicate whether the storm sewer requirements are none, complete, partial or a combination of complete and partial. Enter the mileages of complete and/or partial in hundredths of a mile.

Under no condition can the total length of complete storm sewer and/or partial storm sewer exceed the total length of the segment.

Complete storm sewer is to be reported for sections requiring storm sewer where none exists, for sections of existing storm sewer that must be replaced, or for existing combination sanitary and storm sewer that must be separated. Storm sewer adjustment (partial) is to be reported for sections having existing storm sewer that is adequate in size and structure but because of street widening or construction, the catch basins must be moved and the leads extended.

COST OF SPECIAL DRAINAGE: To prevent omission of what could be a substantial amount of needs, the cost of minor drainage structures having an end area of 4.6 square meters or more, up to but not including a major structure having a span of 3.05 m, shall be reported as special drainage items.

Below is an explanation of items which must be reported differently depending on the proposed design of the roadway.

Rural Design

The "Y" depth (distance from finished roadbed to the floor of the culvert or arch) must be reported for any new structure or proposed extension of an existing structure. Also, in the case of extension of an existing structure, the barrel length of the existing culvert or arch must be recorded.

Because of the 4:1 side slopes used for the computation of a rural design structure may not apply, the total length of a proposed structure or the length required for the extension of an existing structure must be reported.

With this minimum of reporting, the State Aid Needs Unit will compute the cost of all special drainage structures. (See Screening Board Resolution.)

CURB AND GUTTER REMOVAL: On proposed urban design segments, report the number of lineal feet of existing concrete curb and gutter that must be removed to reconstruct the street.

SIDEWALK REMOVAL: On proposed urban design segments, report the number of existing square yards of concrete sidewalk that must be removed to construct the segment reported.

CONCRETE PAVEMENT REMOVAL: On proposed urban design segments, enter the number of square yards of concrete pavement that will be removed in constructing the segment reported. Inplace surface type must be coded as an (J) or (M).

CLEARING AND GRUBBING: On proposed urban design segments, enter the number of trees that must be removed or the number of acres (to tenths of an acre) that must be cleared.

D. BASE

CLASSIFICATION: Indicate the type of base construction needed. Use the F1 Help Screen for the proper codes.

FEET OF WIDENING: If the base is to be widened, enter the number of feet of widening here. Use only if the roadway is less than 20 years old.

TONS PER MILE OF STRENGTHENING: If the existing base is to be strengthened, enter the number of tons per mile of each type of base material that is required.

E. SURFACE

CLASSIFICATION: Enter the type of surfacing required. Because of the 25 year needs study concept, each segment must have a surfacing need, either initial or

additional, regardless of the age or condition of the existing surface. Use initial if roadway is more than 20 years old. Use the F1 Help Screen for the proper codes.

The bridge segment only category is to be used if the entire segment reported is a bridge where roadway needs items would not apply.

SURFACE WIDENING: Indicate if surface widening is proposed. This is used when the existing surface is utilized together with the new widened surface and an additional mat is placed over the old and the widened surface. The feet of surface widening is equal to the proposed surface width minus the existing surface width.

NOTE: Surface widening is limited to those proposed urban design roadways where the existing surface is in good condition and the only deficiency is the width. Use only if the roadway is less than 20 years old.

F. SHOULDERS

CLASSIFICATION: From the F1 Help Screen, enter the type of shouldering construction required. This item is eligible only on proposed rural or sub-urban design sections. Use re-shoulder when additional surfacing is indicated.

G. MISCELLANEOUS ITEMS

CURB AND GUTTER CONSTRUCTION: Only proposed urban design sections are eligible for this item. Enter the number of lineal feet of concrete curb and gutter to be constructed. This number cannot exceed twice the length of the segment, unless the roadway is divided and then it cannot exceed four times the segment length.

SIDEWALK CONSTRUCTION: Only proposed urban design sections are eligible for this item. Enter in the number of square yards of concrete sidewalk to be constructed.

TYPE OF ROADSIDE FACILITY: From the F1 Help Screen, enter if a rest area or scenic strip is to be built on this segment.

ESTIMATED COST OF ROADSIDE

FACILITY: If a roadside facility is reported, enter the cost of construction (including engineering and contingencies) in the space provided.

ESTIMATED COST OF ROADSIDE

LANDSCAPING: Enter the cost of any roadside landscaping to be done (including engineering and contingencies).

ESTIMATED COST OF RETAINING WALLS:

Enter the total estimated cost of retaining walls if any will be required in the proposed construction. Concurrence by the District State Aid Engineer is required.

RIGHT-OF-WAY NEEDED: Enter a (1) yes if right-of-way is needed and a (2) no if right-of-way is not needed on the segment. On an adequate segment no additional right-of-way is needed.

PROPOSED RIGHT-OF-WAY WIDTH: Enter the proposed right-of-way width of the segment. If the width varies, report the basic width required.

ESTIMATED COST OF RIGHT-OF-WAY:

Enter the estimated cost of right-of-way, if known, for the segment in the space provided. If the right-of-way cost is not entered, it will be determined by the unit cost per acre recommended by the Municipal Screening Board. After the right-of-way is actually acquired, an adjustment will be made to the 25 year construction needs by annually adding the acquisition cost to the needs for a period of 15 years.

MISCELLANEOUS COST ITEMS NOT

LISTED: Enter the cost of the miscellaneous construction item(s) in the blank provided.

FOR NEEDS UNIT USE ONLY

If you do not wish to enter this data, the needs unit will complete the necessary entries.

FUNCTIONAL CLASSIFICATION: Enter the code for the Federal functional

classification. Use the F1 key for the Help Screen.

TYPE OF CONSTRUCTION FUNDS: Enter the code to indicate the type of funds used for construction. Use the F2 key for the three Help Screens.

LATEST YEAR STATE AID FUNDS: Enter the last two digits of the year that State Aid funds were expended. Use if State Aid funds were indicated in type of construction funds.

COMPLEMENTARY CSAH NUMBER: Enter the County State Aid Highway number if jointly designated with the county.

MSAS WIDTH PORTION: Enter the proposed MSAS needs width outside the County State Aid needs.

SPECIAL MESSAGES: Enter the code that describes the needs restrictions. Use F1 key for codes.

COMMENTS: Enter any comments regarding funding, project numbers, etc.

The computer asks if you wish to confirm all the revisions that you have entered for this roadway segment. Enter a (Y) if all entries are to be saved; a (N) if no entries are to be saved.

5-892.825 MUNICIPAL STRUCTURE DATA INSTRUCTIONS

A. IDENTIFICATION

BRIDGE NUMBER: Enter in the bridge number in the space provided. Leave this item blank if you are not certain of the number.

NOTE: Only structures with a proposed span length of 10 feet or more are to be reported on these sheets. Smaller structures are considered special drainage and should be reported as a grading item on the roadway data.

LOCATED AT MILE POINT: Enter the distance, in hundredths of a mile, from the beginning of the segment to the structure.

FEATURE CROSSED: Enter the name of the stream, road, or railroad that the structure crosses.

B. EXISTING CONDITIONS

TYPE OF SERVICE: Enter the type of service that the existing structure provides. Use the F1 key for codes.

TYPE OF STRUCTURE: Enter the type of in-place existing structure. Use the F1 key for codes.

NUMBER OF SPANS: Enter the number of existing spans.

STRUCTURE LENGTH: Enter the length of the existing structure. If the structure is a bridge, the length is measured from backside to backside of abutments. If the structure is a box culvert, the length is measured as the length of the barrel.

If the structure is a structural plate arch, the length is measured as the barrel length.

Enter all lengths to the nearest foot.

CURB TO CURB WIDTH: If the structure is a bridge, the width is measured from face of curb to face of curb, to the nearest tenth of a foot.

If the structure is a box culvert, an arch culvert or a pipe culvert and curb width does not apply, report the shoulder to shoulder width of the roadway.

RAILING TO RAILING WIDTH: If the structure is a bridge enter the distance from inside face of railing to inside face of railing to the nearest tenth of a foot.

If the structure is a box culvert, an arch culvert or a pipe culvert and railing width does not apply, enter the shoulder to shoulder width of the roadway.

SIDEWALKS: Enter a (1) if sidewalk exists on one side or a (2) if on both sides.

SIDEWALK WIDTH: If sidewalk exists on the bridge, enter the total sidewalk width (in feet).

TRAFFIC LANES: Enter the code that applies to the traffic lanes for the State Aid road involved. If other is entered, be sure to clarify in the comment area. Use the F1 key for codes.

VERTICAL CLEARANCE: Enter the vertical clearance (to tenths of feet) as it affects the vehicular traffic. Leave blank if there are no overhead restrictions.

YEAR BUILT: Enter the year the structure was built; if unknown, enter "1900."

PLACEMENT: Enter if the structure location is (1) square or (2) skew to the centerline of the road.

LEGAL LOAD: Enter a (1) yes if the structure meets current legal load requirements. If not, enter a (2) no.

TONS POSTED: If structure's load capacity is restricted for a single-axle vehicle, enter the tons posted.

PRESENT CONDITION: Enter the applicable code that describes the condition of the existing structure. Use the F1 key for codes.

PROPOSED CONSTRUCTION

NOTE: If the existing structure is adequate, leave "Proposed Construction" area blank.

PLACEMENT: Enter a (1) if the structure is to be placed square or a (2) if the placement is skew to the centerline of road.

TYPE OF SERVICE: Enter the type of service that the proposed structure will provide. Use the F1 key for codes.

TYPE OF STRUCTURE: Enter the code that describes the type of structure to be constructed. Use the F1 key for codes.

TRAFFIC LANES: Enter the code that applies to the traffic lanes for the State Aid road involved. Use the F1 key for codes.

TYPE OF WORK: Enter the code that applies to the work proposed. If the work is to be major reconditioning, explain the nature of the reconditioning in the comments area. Use the F1 key for codes.

BRIDGE WIDENING: Enter the width of the bridge that will be widened. Enter this width to the nearest tenth.

COMMENTS: Enter any comments regarding in-place or proposed data.

Depending on the type of proposed structure; bridge, box culvert, or arch, a screen requesting specific information regarding the new structure will appear by using the enter key or down arrow.

The State Aid Structure Data Screen
*** Needs Unit Use Only ***

Use the F6 key to enter the major structure data screen to compute the length and cost of the structure. In order to get back to the proposed construction screen, press "Escape" and then "Page Up."

Enter the "X" distance in the area provided. This is the width of the channel, railroad tracks, or roadway under the proposed structure.

Enter the "Y" distance in the proper area. This distance is from the point of low steel to:

1. The top of railroad rail - 22 feet minimum.
2. The finished surface of roadway - 16 feet minimum, or
3. The bed of the stream.

NOTE: The reference table for "X" and "Y" distances (Fig. B 5-892.820) may be of some assistance to you when these figures are reported.

The proposed length will be computed automatically if the "X" and "Y" is entered. If the above formula does not apply, enter the proposed length in the space provided to the nearest foot. Some documentation should be provided on the comments line on the previous screen to explain the entry for the proposed length.

Indicate whether sidewalks are proposed on the bridge. Enter a (1) if one sidewalk is required, and a (2) if sidewalk is required on both sides.

If the proposed bridge is to be a railroad over a highway structure, enter the number of railroad tracks in the space provided.

NEEDS UNIT USE ONLY

This area can be completed by the user. If left blank, the State Aid Needs Unit will compute the costs. The widths, length and total costs will be computed automatically except for the cost per square foot, which is to be entered and obtained from the latest Screening Board Resolution.

Enter a (1) if the total and apportionment cost of the bridge is solely the responsibility of the municipality. A (2) if the total cost and apportionment is shared with another municipality.

Adjust apportionment cost when the cost is divided.

TOTAL COST

Use Option (3) railroad data in the update menu to view, revise, and or delete railroad crossings.

See Screening Board resolutions for applicable costs. If the proposed improvement is coded 5 through 8, the F3 key can be used to calculate the total and apportionment railroad crossing cost.

Enter the rubberized material unit price per foot plus the cost of any protective feature.

COMMENTS: Enter any comments relating to the railroad crossing. Confirm the Railroad Crossing Revision with a (Y) yes to save all entries, or a (N) no, not to save any of the entries.

CERTIFICATION OF MILEAGE - M.S.A.S.**5-892.830****5-892.830 GENERAL PROCEDURE STATEMENT**

The State Statute limits the mileage of Municipal State Aid Streets within each Urban Municipality to a total equal to or less than 20 percent of its total improved street mileage of county roads, county road turnbacks and local streets plus trunk highway and county highway turnbacks.

At the request of the Screening Board, the Engineer of each Urban Municipality shall submit a completed "Annual Certification of Mileage," Figure A 5-892.832, on or before January 15 of each year.

The reverse side of the Annual Certification of Mileage form, Figure B 5-892.832, shall be completed to show details of revisions in the State Aid systems for the reported year.

5-892.831 REQUESTS FOR ADDITIONAL MILEAGE

On the basis of the mileage computed on line 18 of the Annual Certification of Mileage form, requests for additional designations may be made to the District State Aid Engineer. These requests shall be made on forms as explained in 5-892.101 and .110.

5-892.832 REPORTING INSTRUCTIONS**A. STATEMENT**

The Annual Certification of Mileage is more than just a statistical report of mileage of the Municipality. It provides the basis for determining the maximum mileage of streets eligible for designation as Municipal State Aid. The certification is made out shortly before the close of the year with status as of December 31 of the reporting year. No

supplemental or "in between" certifications are permitted.

Because this report limits the mileage of designation and consequently, the annual State Aid apportionment, the mileage reported must be classified by all Municipal Engineers in the same specific manner.

All mileage shall be reported as the total distance between terminal points. This distance shall be measured from the centerline of the intersecting street. No deduction is made for intersection duplication. Streets that are on corporate limits shall be included in the Municipality's mileage. If the corporate limit street is common with an adjoining Municipality however, only half of the mileage shall be reported.

B. INSTRUCTIONS FOR ANNUAL CERTIFICATION OF MILEAGE

The mileage of streets shall be classified for each system by the following three construction types.

Column I - NON-EXISTING

List the designated, projected, plotted or proposed mileage of streets that are physically not in existence but which are a matter of record.

Column II - UNIMPROVED

List the mileage of the streets that are unimproved. These streets are maintained to permit bare passability for motor vehicles. The street may have been bladed and minor improvements made, but still does not conform to the requirements of a graded and drained street.

Column III - IMPROVED

Mileage in this column includes any street that has been graded to an established grade line which permits reasonably convenient use by motor vehicles. Such grading shall have provided sufficient drainage, horizontal and transverse, to prevent serious impairment of the road by normal surface water. Surface type is not a criteria for this improved classification, nor is condition.

Each of the designated systems and the residual other streets are reported in lines 1 through 10.

Line 1

This mileage consists of all Trunk Highways within the Municipality. Do not include frontage roads that are included in the total of local streets. Only improved mileage is to be shown in this category.

Line 2

This mileage consists of former Trunk Highways that have reverted to the municipality. The reverted Trunk Highway has been designated as a Municipal State Aid Street. This mileage is above the 20% allowable mileage.

Line 3

This mileage consists of those streets designated as County State Aid Highways. These streets are assumed to be the construction and maintenance responsibility of the County.

Line 4

This mileage consists of former County State Aid Highways reverted to the city as of May 11, 1994 and designated as a Municipal State Aid Street. Include only the mileage of County State Aid Highway Turnbacks that is not considered as an exchange of routes. This mileage is above the 20% allowable mileage.

Line 5

This mileage consists of those streets which have been jointly designated as State Aid streets wherein the County and

Municipality each have designated a limited width portion of the common street. Normally, the County designates the center twenty-four feet and the Municipality the remainder.

Line 6

Total of lines 1 through 5. Mileage that is not applied against the 20% allowable mileage for designation.

Line 7

This mileage consists of those streets designated only as Municipal State Aid Streets. This line should include mileage of County Roads designated as MSAS. DO NOT include those Trunk Highway and County Turnbacks included in line 2, 4 and 8.

Line 8

This mileage consists of former County Roads reverted to the city as of May 11, 1994 and designated as Municipal State Aid Streets. This mileage is above the 20% allowable mileage and is also to be included in line 16.

Line 9

This mileage consists of those streets which have been designated by the County Board as County Roads. DO NOT include those County Roads which have also been designated as Municipal State Aid Streets. Include this mileage in line 7. The total mileage of County roads on corporate limits shall be included in the Municipality's basic street mileage. Mileage which is on the boundary of two adjoining Urban Municipalities shall be considered as one-half mileage.

Line 10

This mileage consists of all remaining local streets which are not included in any of the preceding designated systems. Included in this mileage are Trunk Highway and County State Aid frontage roads that may have been constructed by and/or on the right-of-way of other political divisions. The total mileage of local streets on corporate

limits shall be included in the Municipality's basic street mileage. Mileage which is on the boundary of two adjoining Urban Municipalities shall be considered as one-half mileage.

Line 11

On this line, add Column III, lines 7, 8, 9 and 10 and enter in the appropriate box. To this total add or subtract the total of Column VII, lines 7, 8, 9 and 10. Enter the total sum of Column III and VII in Column XI lines 7, 8, 9, and 10. The total of Column XI line 7, 8, 9, and 10 should be entered on Column XI line 11. This would be the current Total Improved Mileage.

Line 12

This line is the percentage applied against the Municipality's total improved Basic Mileage. This percentage is controlled by the State Statute.

Line 13

On this line, multiply the Total Improved Mileage from Column XI, line 11 by the Percentage Limitation (20%) from line 12 and enter the result on line 13. This is maximum mileage allowed for MSAS designation.

Line 14

On this line, enter the total of Column XII, line 2, 4, 5, 7 & 8. This is the total designated mileage of all Municipal State Aid Streets.

Line 15

On this line, enter any Municipal State Aid one-way streets which were included in Column XII, lines 6 and 7. In order for this mileage to be included as one-half mileage, the Municipality must receive approval from the Municipal Screening Board. Enter the total one-way mileage on the first space, divide it by two and enter this amount on the second space.

Line 16

On this line, add Column XII, line 2, 4 and 8 to obtain the total Trunk Highway and County turnbacks designated as MSAS.

Line 17

Subtract lines 15 and 16 from line 14 and enter the result on this line. This is the total MSAS mileage not considering Trunk Highway and County Highway Turnbacks and one way mileage considered as one-half.

Line 18

Subtract line 17 from line 13 and enter the result on this line. If this is a negative number, the Municipality is over-designated and in violation of the State Statute and Screening Board Resolution governing allowable mileage. If this is under the maximum allowed, the Municipality has mileage available for designation.

Note:

On the reverse side of this form, the Municipality should record any revisions in its County State Aid Highway system, County-Municipal State Aid Street system, and its Municipal State Aid Street system. County Roads that are turned back to the city must be removed from the basic mileage and included in County Road Turnback mileage. Any changes relating to a Trunk Highway Turnback should be recorded in the Trunk Highway section and labeled as Trunk Highway Turnback.

On the reverse side of the Annual Certification of Mileage, locations are provided for noting revisions of County State Aid Highways, County-Municipal State Aid Streets and Municipal State Aid Streets during the current year. Please list the individual revisions that are summarized on the front of the Certification Form, Columns V through VIII.

ANNUAL STATUS REPORTING

5-892.840

5-892.840 GENERAL STATEMENT

Each County Engineer and City Engineer shall, on or before December 31, submit to the Commissioner of Transportation the annual status reports for his local road system or local streets system made current as of December 31.

Data to be reported in this status report are essential to the Department in keeping various map series and statistical data current and also in supplying the essential information on construction activities performed by the County or Urban Municipality for which the Department is required to assemble in annual statistical reports to the Federal Highway Administration.

As these various map series and statistical data are used for reference by many governmental agencies, it is mutually advantageous that they be as accurate and up to date as possible. Therefore, the Department requests the cooperation of the County and City Engineers in furnishing this essential information.

5-892.841 INSTRUCTIONS FOR COUNTY ENGINEERS

The annual status report will consist of delineation of data on two or three map series and updating computer printouts for railroad grade crossing data, prints of which will be furnished prior to the cutoff date for which reports are to be prepared.

The three maps are as follows:

1. County General Highway Map. This is a County map showing road systems, road locations, road surface types and general culture.

2. Municipal Map. This map shows for each County, either on a single sheet or multiple sheets, the corporate limits and existing streets of every incorporated place of less than 5,000 population in the County.

3. Municipal State Aid Street Map. This map shows the corporate boundaries and existing streets by system designations for incorporated places of 5,000 population and over.

NOTE: Map (3) will not apply to Counties for which there are no incorporated places of 5,000 population and over.

The computer printout consists of a listing of all railroad grade crossings in your respective County or Municipality.

At the time of transmittal, the three (or two) map series and the computer printout will be as nearly current as our records indicate. However, the time element may dictate transmittal of maps which are somewhat behind in delineation of pertinent data, or our records may not be complete. We regret that this may be necessary and would appreciate identification by the County Engineer of any inaccuracies or omissions in these data.

5-892.842 INSTRUCTIONS FOR MUNICIPAL ENGINEERS

This Manual should be used for making the annual status reports for Municipalities of 5,000 population and over.

The annual status report will consist of delineation of data on the Municipal State Aid Street Map and computer printout for railroad grade crossing data, prints of which will be furnished prior to the cutoff date for which reports are to be prepared.

The Municipal State Aid Street Map furnished, shows the corporate boundaries and existing streets by system designations.

At the time of transmittal, the street map and the computer printout will be as nearly current as our records indicate. However, the time element may dictate transmittal of maps and data which are somewhat behind in delineation of pertinent data, or our records may not be complete. We regret that this may be necessary and would appreciate identification by the City Engineer of any inaccuracies or omissions in these data.

5-892.843 SPECIFIC INSTRUCTIONS

The most important information requested is the reporting of all data relative to construction performed during the past year. All construction is to be reported, regardless of the source of funds, participating agencies, or manner of performing the work.

Construction completed during the reporting year should be delineated on the map furnished by coloring in green, the location of the construction performed. The limits of the construction should be as accurately plotted as the scale of the map permits. Whenever possible we employ plat maps, construction plans, aerial photography and field survey observations to achieve this accuracy. To this end we largely rely on experts, such as you, as the local map information source. In addition to the accurate plotting, a distance tie should be made from at least one terminus of a project to an important road intersection, either external or internal, with relation to the project. If the project involves some modification of road alignment, the green color band should show, as nearly as possible, the road alignment resulting from the construction.

Along the colored band on County State Aid Highways and County roads, should be shown the length and type of the construction, and the roadway and surface width resulting from the construction. If,

during your maintenance and construction operations, you or members of your crew have noted that construction has taken place on Township Roads, please indicate in green the location on the status map. If you cannot furnish us with the lengths, width and surface information, our field crews will pick up that data on periodic field inspections.

The Department has various sources of information as to system designations, street locations, surface types, boundaries, etc., including the status report covered by this Manual. These sources are not infallible; therefore, it would be desirable for the County or City Engineer to make a cursory review of the map submitted for preparation of the annual status report to detect any obvious errors. If any County State Aid or County Road designations are improperly shown, please indicate change in red and furnish us with a copy of the County Board's Resolutions designating such roads so that our documentation is complete.

Errors discovered in the map and the computer printout should be indicated for correction by showing the correct data in red color.

Errors in road location should be indicated by showing the correct location in red and x-ing out the incorrect location. Errors in surface type should be identified by red pencil note.

Errors in incorporation boundaries should be identified by x-ing out the improper boundary and roughly sketching in the correct boundary.

5-892.844 DEFINITIONS OF GENERAL HIGHWAY CONSTRUCTION TYPES

A. PRIMITIVE ROAD

An unimproved route (on which there is no public maintenance) useable by 4-wheel vehicles and publicly traveled by small numbers of vehicles.

B. UNIMPROVED ROAD

A road using the natural surface and maintained to permit bare passability for motor vehicles, but not conforming to the requirements for a graded and drained earth road. The road may have been bladed and minor improvements may have been made locally.

C. GRADED AND DRAINED EARTH ROAD

A road of natural earth aligned and graded to permit reasonably convenient use by motor vehicles and drained by longitudinal and transverse drainage systems (natural or artificial) sufficiently to prevent serious impairment of the road by normal surface water with or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily and to facilitate immediate traffic service.

D. SOIL-SURFACED ROAD

A road of natural soil, the surface of which has been improved to provide more adequate traffic service by the addition of: (1) a course of mixed soil having A-1 or A-2 characteristics, such as sand-clay, soft shale or topsoil, or (2) an admixture such as bituminous material, portland cement, calcium chloride, sodium chloride or fine granular material (sand or similar material).

E. GRAVEL OR STONE ROAD

A road, the surface of which consists of gravel, broken stone, slag, chert, caliche, iron ore, shale, chat, disintegrated rock or granite, or other similar fragmental material (coarser than sand) with or without sand-clay, bituminous, chemical or portland cement stabilizing admixture or light penetrations of oil or chemical to serve as a dust palliative.

Minnesota Specification 2118, Aggregate Surfacing, falls in this classification.

F. BITUMINOUS SURFACE-TREATED ROAD

An earth road, a soil-surfaced road, or a gravel or stone road to which has been added, by any process, a bituminous surface course with or without a seal coat, the total compacted thickness of which is less than 25.4 mm. Seal coats include those known as chip seals, drag seals, plant-mix seals and rock asphalt seals.

Minnesota Specification 2321, Road-Mixed Bituminous Surface, falls into this classification.

G. MIXED-BITUMINOUS ROAD

A road, the surface course of which is 25.4 mm or more in compacted thickness composed of gravel, stone, sand, or similar material, mixed with bituminous material under partial control as to grading and proportions.

Both Minnesota Specifications 2331, 2340 and 2341, Plant Mixed Bituminous Surface, fall into this classification.

H. BITUMINOUS PENETRATION ROAD

A road, the surface course of which is 25.4 mm or more in compacted thickness composed of gravel, stone, sand, or similar material bound with bituminous material introduced by downward or upward penetration.

I. BITUMINOUS CONCRETE, SHEET ASPHALT OR ROCK ASPHALT ROAD

A road on which has been constructed a surface course 25.4 mm or more in compacted thickness consisting of bituminous concrete or sheet asphalt, prepared in accordance with precise specifications controlling gradation, proportions and consistency of composition, or of rock asphalt. The surface course may consist of combinations of two or more layers such as bottom and top course, or a binder and a wearing course.

Minnesota Specification 2351, Asphaltic Concrete Surface which is not mentioned in the above description is included in this classification.

J. PORTLAND CEMENT CONCRETE ROAD

A road consisting of portland cement concrete with or without a bituminous wearing surface less than 25.4 mm in compacted thickness.

K. BRICK ROAD

A road consisting of paving brick with or without a bituminous wearing surface less than 25.4 mm in compacted thickness.

L. BLOCK ROAD

A road consisting of stone block, wood block, asphalt block or other form of block, except paving brick, with or without bituminous wearing surface less than 25.4 mm in compacted thickness.

M. COMBINATION TYPE ROAD

A road, the wearing course of which consists of two or more individual types each being of such depth as to be classed logically as a part of the traffic bearing road surface rather than as surfaced shoulders.

N. DIVIDED HIGHWAYS

Adjacent roadways carrying traffic in opposite directions and separated by a dividing or non-traffic bearing strip shall be classed as a divided highway and coded as type "N" as per sample.

The individual code for roadway is to be shown under the code letter "N" as per sample.

EXAMPLES

The letter designation indicated for the surface type of a road section should be shown as the numerator of a fraction; the widths of the roadway and surface to be

shown as the denominator, separated by a hyphen.

The first figure to be shown is for: Roadway Width - the width in feet between should or curb lines.

The second figure to be shown is for: Surface Width - that portion of a road which is surfaced to carry traveling vehicles.

EXAMPLES

$$3.5 \frac{C}{24\&0} \cdot 3.5 \text{ miles} \frac{\text{Graded \& Drained Earth}}{24' \text{ grade \& No surface cours}}$$

$$1.2 \frac{G}{32\&24} \cdot 0.5 \frac{\text{Mixed Bituminous}}{32' \text{ grade \& } 24' \text{ surface}}$$

$$0.5 \frac{M}{44\&9\&18\&9} \cdot 0.5 \text{ miles}$$

$$0.7 \frac{N}{36\&24\&26\&20} \cdot 0.7 \text{ miles}$$

Divided Roadway

$$1\text{st Roadway} \frac{\text{Mixed Bituminous}}{36' \text{ grade \& } 24' \text{ surface}}$$

$$2\text{nd Roadway} \frac{\text{Mixed Bituminous}}{26' \text{ grade \& } 20' \text{ surface}}$$

TRAFFIC ESTIMATING-M.S.A.S.**5-892.700****5-892.701 GENERAL**

A. The procedure consists of counting traffic at significant points on the Municipal State-Aid Street System, adjusting the volumes counted for seasonal and daily variations in travel, summarization of the data, and uses of this information.

B For detailed presentation of the procedure, the manual is divided into sections. The sections and identifying numbers are:

5-892.705 Terms and Definitions

5-892.710 Location of Traffic Counting Stations

5-892.715 Counting of Traffic

5-892.725 Adjustment of Volumes Counted

5-892.730 Summarization of Traffic Data

5-892.735 Application of Traffic Data

The Office of Management Data Services (MDS) in Mn/DOT is responsible for the traffic count program, in cooperation with the District Offices and the Office of Land Management.

5-892.702 ESTABLISHING TRAFFIC SEGMENTS

MDS has revised the traffic count program. Municipal State Aid Streets are counted on a four-year cycle and have the discretion to count on a two-year cycle. Revisions in Greater Minnesota were first instituted with the 1994 count year and completed during the 1997 count year. Municipal State Aid Streets in the Seven County area will be revised later. Traffic segments and count

locations are suggested by MDS. They are then reviewed by the municipal engineer and differences are then resolved by discussion of the issues.

Traffic segments are established by analyzing traffic volumes along a roadway. Those contiguous sections of roadway which have similar volumes are grouped together. Breaks in the traffic segments are established when the difference in traffic volumes passes a certain threshold. This threshold varies as the traffic volume varies. A greater percentage of variation is allowed on lower volume roadways while conversely a lesser percentage of variation is allowed on higher volume roadways.

5-892.705 TERMS AND DEFINITIONS

A. The meaning of technical jargon related to traffic counting is relatively important in that the identification of an item invariably identifies how it is determined. The following terms and definitions are used to describe the procedure for this manual:

1. Count Station or Location: The point at which the traffic counter is set to record volumes

2. Coverage Count Station: A location at which a 24- or 48-hour sample count is recorded.

3. Automatic Traffic Recorder (ATR): A location at which a 365-day count is taken to determine the "pattern" of travel or the count fluctuations by month, day, or hour.

4. Average Daily Traffic (ADT): The total volume during a given time period in whole days greater than one day and less than one year divided by the number of days in that time period.

5. Annual Average Daily Traffic (AADT): The traffic volume on a segment of road in one year divided by 365. It represents the average daily volume for a specified year. The term ADT is often used when AADT should actually be used. Consequently, one needs to be careful to use the proper terminology when defining traffic volumes.

6. Pattern of Travel: A traffic pattern shows the relative magnitude of the traffic for a given day, month, or hour compared to the average day, month, or hour at the same control count station.

7. Traffic Segment: A section of roadway where the variation in the traffic volume is insignificant to the degree that one number (traffic volume) can adequately represent the entire section.

5-892.710 LOCATION OF TRAFFIC COUNTING STATIONS

A. One traffic counting station is selected for each and every traffic segment. Consequently, each volume ultimately shown on a traffic map is based on an actual traffic count. Interpolations of traffic volumes are not necessary.

B. The location of the traffic count station on the segment is often arbitrary. Since the traffic volume is quite uniform on a given traffic segment, it does not matter a great deal where the count is taken. However, one prime consideration is whether it is first possible and second practical to set the counter at a given location. Feedback from Mn/DOT district traffic count personnel is an essential part of this process.

C. A map of Mendota Heights, Fig. A 892.710, shows both traffic segments and traffic counting stations.

5-892.715 COUNTING OF TRAFFIC

A. Research has revealed that the volume of traffic passing a specific location will vary

by season of the year, day of week, and hour of day.

B. By defining the pattern of travel, reasonably accurate approximations of average annual daily traffic at other locations on routes having similar characteristics can be made from sample or short period counts.

C. The count locations where patterns of travel are obtained are equipped with ATR's (Automatic Traffic Recorders) that provide information needed to adjust the various sample count volumes to a common base which is average annual daily traffic. The points where short-period counts are made are referred to as coverage stations and they are made on every traffic segment. Conditions for traffic counting at each type of station are presented in the following paragraphs.

1. Automatic Traffic Recorders (ATR's): These are 64 outstate and 81 metro stations which are counted continuously.

2. Coverage Stations: A reasonable degree of accuracy is needed to assure the proper estimating of needs or construction design selection. For example, if a station count is a minus 20 percent in error, a 600 vehicle per day count would be 480 vehicles per day, which, when expanded by the normal factor of 1.5, results in a projected traffic of 720 vehicles per day. Because of this error, needs or construction design would be computed on the basis of design standards for routes serving less than 1,000 vehicles per day rather than the standards for routes serving more than 1,000 vehicles per day. The number of hours or days for which traffic volumes are known increases the probability of obtaining more accurate average daily traffic volumes at a specific location. For example, a sample volume for a 10-day period is likely to produce a more accurate approximation than a sample volume for a few hours or a single day. Thus, the duration of the sample counting period at coverage stations should be determined by the degree of accuracy considered essential. To minimize the errors

inherent in counting to a degree consistent with reasonable cost, the following standards for length of count will be used.

a. The duration of the counting period on coverage stations shall be 48 hours.

b. The traffic counting program is set up to: (1) secure traffic counts which have an acceptable level of accuracy, and (2) to accommodate the preferred work schedule of Monday - Thursday (10 hour days) or Monday - Friday. Traffic is generally quite stable during the week, so that enables the securing of generally reliable counts. The count season runs from April through October. However, some of Mn/DOT's districts take all of their assigned counts within a shorter period of time depending on when staffing is available to take the counts.

c. The coverage counts can be made either with accumulative recorders or with hourly recorders. Hourly counts are preferable as they provide the traffic analyst with the capability to better determine the reliability of questionable counts. (Beginning in 1997, Mn/DOT is upgrading their counters, securing electronic counters which will collect hourly data in electronic form.)

d. The coverage counts can be made with accumulative recorders.

e. With full utilization of a single recorder, 48-hour counts can be made at two coverage count locations each week. The recorder can be set at a coverage station on Monday morning, removed on Wednesday morning at the same hour, then set at a new coverage station on Wednesday and removed 48 hours later on Friday. The volumes counted are entered on the "Short Count Traffic Form". This form is a pre-printed field sheet which has space for entering data for five count locations. The count location number and physical description of the count location have previously been entered into a database. This "Short Count Traffic Form" is output from that database.

5-892.725 ADJUSTMENT OF VOLUMES COUNTED

A. All traffic counts taken by Mn/DOT district personnel are then entered into a database either by personnel in the district or in MDS in the central office.

B. Because seasonal and daily variations in travel exist, the sample volumes counted at coverage stations will not be comparable unless the counts at all coverage stations were made simultaneously. Such a counting program obviously would be too expensive; therefore, an alternate method is provided whereby counts taken at various times are adjusted to obtain a comparable result.

C. Traffic counts recorded at the ATR's are compiled to determine the AADT for each ATR. The Monday - Friday volumes for each month are then compared to the AADT for that site. Seasonal and day of the week adjustment factors are then calculated for each month.

D. The factors needed to adjust sample volumes counted at coverage stations to a common base, which is annual average daily traffic, are developed by the use of computer programs written for that purpose. These factors are derived from traffic count data collected at the ATR's. A three year rolling average is calculated from the ATR's. The resulting factors are then entered into the database where the adjustment of the counts takes place.

5-892.735 APPLICATION OF TRAFFIC DATA

A. The traffic volume map, with AADT displayed for each traffic segment, plays an important role in solving many of the traffic problems encountered by the engineer. (MDS is in the process of preparing a traffic monitoring guide for Mn/DOT. This guide will discuss what is covered here, only in more detail. It will be completed sometime in 1999.)

B. It is found that traffic data is an essential part of the body of facts needed to:

1. Evaluate street use in system planning;
2. Determine improvement priorities;
3. Inform the public as to priorities for construction of specific segments of the system; and
4. Determine capacity and design requirements.
5. Component in computing VMT and other statistics that serve as a basis for aid allocation.