

# Mason County Road Commission

Standards and Specifications

For

Street and Road Construction

Board of County Road Commissioners

Mason County Road Commission



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## I. PURPOSE

The Mason County Road Commission desires to have the highest quality roads possible. The standards set forth in this document are minimum standards for development and construction of county roads which would be accepted by the Road Commission into the Certified Road System.

## II. GENERAL

The Mason County Road Commissioner reserves the right to reject or accept any proposed roadway, which in the Road Commission's sole discretion does not comply with the standards of the Road Commission.

The Owner of the lands, or his agent, shall be required to grade, drain and surface the streets shown on the plat for which the Road Commission is requested to assume jurisdiction. They shall also be required to pay the Road Commission for erecting street signs and traffic signs as required by the Road Commission.

The grading, draining and surfacing shall be done in accordance with the Road Commission's Specifications and Plan Requirements for the improvement of streets.

These published requirements and specifications are subject to revision, without notice, by the Board of County Road Commissioners of Mason County. These standards and specifications are not intended to be used to determine whether any specific roadway is safe and convenient for public travel.

Developers should be cautioned that issuance of a permit from the Road Commission does not relieve the Developer of requirements from other state or local agencies.

## III. DEFINITIONS

**Board / MCRC:** The Board of County Road Commissioners for Mason County, State of Michigan:

**County Engineer/Engineer:** The County Highway Engineer, County Road Commission Manager or any of his/her assistants designated to act for him in carrying out the duties detailed in the Plat Act.

**Proprietor:** Any person, firm, association, partnership, corporation, or combination of any of them, who submits a plat for processing under the Subdivision Control Act or requests the Road Commission to assume jurisdiction and responsibility for ownership, operation and maintenance of any roadway or roadway system.

**Proprietor's Engineer:** The Registered Professional Engineer employed by the proprietor of the plat that prepares plans and supervise construction of the roads, streets and alleys that the Proprietor is requesting the Board to assume jurisdiction thereof.

**Proprietor's Surveyor:** The Registered Professional Land Surveyor employed by the proprietor of the plat that prepares and signs the plat.

**Laboratory:** The testing laboratory of the County, or such other laboratory as may be designated by the Engineer.

**MDOT.:** The Michigan Department of Transportation current issue of the Standard Specifications for Construction. Where specific MDOT materials are quoted in this Standard, the equivalent Standard or the current MDOT Specification shall be used as approved by the County Engineer.

**Land Division Act:** Act 288 of Public Acts of 1967 amended by Act 591 of Public Acts of 1996 and all amendments.

**Condominium Act:** Act 59 of Public Acts of 1978 and all amendments.

**R.O.W. :** Right of Way, or the limits between property lines which the Road Commission has jurisdiction for road purposes.

**AASHTO Low Volume Spec.:** American Association of State Highway and Transportation Officials Guidelines for Geometric Design of Very Low Volume Local Roads.

**Drain Commissioner:** County Drain Commissioner of Mason County

#### **IV. PRELIMINARY ROADWAY PLANS FOR CONSTRUCTION OF UNDEVELOPED ROADWAY**

##### **A. Preliminary Plan for New Roadway Construction**

###### **(1) Preparation of Plans**

In order that a subdivision, condominium plat or proposed roadway may be prepared in conformity with the general highway and street plans of the Road Commission , the Proprietor shall have prepared a preliminary or tentative plan of the entire area intended to be platted.

The preliminary or tentative plan of the area shall be prepared under the direction of a Registered Professional Engineer or Registered Professional Land Surveyor employed by the proprietor. All construction plans, construction supervision and inspection shall be done under the direction of the proprietor's Registered Professional Engineer.

The plan shall be drawn to a scale not smaller than one inch equals two hundred feet (1" = 100'). The plans shall include a location map with reference to the section and part of section in which the parcel is located and the name of the Township. The plan shall show the name of the development, the name of the proposed streets within the development, the name and address of the Proprietor and the name and address of the Professional Engineer and/or Professional Surveyor who prepared the preliminary plan.

The plan shall also show proposed street layout, lot or plat dimensions, governing factors such as adjoining subdivisions, connecting streets, rivers, railroads, cemeteries, parks, natural water courses, county drains, sewers;

outlets for drainage, elevations of the water table at various locations and the date obtained, the toe and top of large slopes, areas designated as needed for runoff water detention or retention, or any other feature, the location of which or the knowledge of its existence, might influence the layout of the plan.

A topographic map with contour intervals of every two feet change in elevation must be submitted with the preliminary plan. United States Geodetic Survey benchmarks must be used on all plats and the particular benchmark used will be clearly labeled and witnessed.

If the Road Commission is being requested to accept jurisdiction of roadways other than those covered by Acts 288 and 591, "Land Division Act" or Act 59, "Condominium Act", similar preliminary plans shall be submitted. The individuals or proprietors who desire the Road Commission to assume roadway jurisdiction shall confer with the County Engineer to ascertain the extent of Preliminary Plans required.

(2) Street Names

A road street name shall not be adopted which may be confused with similarly named streets within the County. New streets which are an extension of or obviously in alignment with existing streets shall bear the name of the existing street: Streets accepted by the County Road Commission will be given names as approved by the Road Commission.

(3) Submission of Preliminary Plans

Three (3) full size copies of the preliminary plans prepared as noted above shall be forwarded to the Road Commission with a letter requesting approval of the plan as submitted. Prior to proceeding with final road and drainage plans, approval of the preliminary plans should be obtained from the governing body.

A copy of the preliminary plat as submitted to the Plat Board shall also be submitted with the preliminary roadway plans.

(4) Approval of Preliminary Plans

The County Road Commission, within 30 days, or as soon as reasonably convenient for the Road Commission, of receipt of the preliminary plan, shall approve the plan(s) and note its approval on one (1) copy. If rejected, the reasons for rejection and requirements for approval shall be given to the Proprietor in writing.

If, after two (2) years a preliminary plan has not proceeded further than preliminary approval, a new preliminary plan must be submitted for approval.

It must be understood that acceptance of a plan, preliminary or final does not mean acceptance of the roadway into the county road system. It simply states that if the roadway is built in accordance with the plan, it may be accepted into the county road system.

## **(B) Types of Roads**

Early in the design process, the type of road to be developed or improved must be determined.

### **(1) Commercial, & Industrial Roads**

These are the major through routes and connectors in the county road system. Automobile traffic and / or truck traffic is typically higher on these types of roads. All Commercial, and Industrial Roads must be designed and constructed to All Season Standards. Design calculations must be provided with preliminary plans.

### **(2) Local & Residential Roads**

These are the local access roads that serve the particular land parcels in the county road system. Automobile traffic and / or truck traffic is typically lower on these types of roads. All season standards are not necessary for this type of roadway; Design calculations must accompany the preliminary plan.

### **(3) Private Roads**

Due to the nature and intended use of the land in certain plats or localities, the Road Commission, may, at their discretion, waive the requirements as to the construction of private streets or roads, provided that such streets or roads are laid out in accordance with the right-of-way widths specified for public streets. In addition, private roads shall be constructed so that ambulances, fire trucks and emergency vehicles can traverse the roadways. Further, a permit shall be required to attach private roads to public roads. Otherwise a private road will be built to the same standards as a public road. Private Roads shall be noted on the Preliminary Plat and Plans and on site with suitable signage.

It should be noted that Private Roads built to county specifications or not, receive no maintenance from Road Commission forces. If after a Private Road is constructed in accordance with these specifications and is requested to

come into the public road system, it must be upgraded to meet the current standards for public roads at the time of the acceptance into the county system.

(C) **Right-of-Way Requirements**

(1) General Requirements

All developments must have access to a public highway. All streets located along section and quarter section lines shall be centered on said lines. The Engineer must approve any exceptions to this practice.

(2) Right of Way Width Requirements

Highway and street dedication widths shall conform to the following requirements:

- (a) All county streets or roads right of ways shall not be less than sixty-six (66) feet in width
- (b) The Road Commission may require Greater widths of right-of-way when considered necessary.
- (c) Half width streets or alleys will be acceptable only when abutting the boundary of a recorded plat on which a half width street or alley has been previously dedicated.
- (d) A ten (10) foot utility easement shall be provided adjacent to the required right-of-way.

(3) Lane Widths

- (a) Typical local roads must have two eleven (11) foot paved travel lanes with five (5) foot shoulders. In areas where a raised edge or curb is desirable, the lane width will be fourteen (14) feet to the back of the curb.
- (b) Typical Commercial, or Industrial Roads must have two twelve (12) foot paved travel lanes with three (3) foot paved shoulders and three (3) foot grass shoulders. In areas where a raised edge or curb is desirable, the lane width will be Seventeen (17) feet to the back of the curb with a (3) foot grass shoulder.
- (c) All dead-end streets or roads shall be provided with a paved cul-de-sac with a minimum radius of fifty (50) feet.



## **(D) Conformity**

The proposed development shall take into consideration the surrounding conditions in the immediate area bordering on the Proprietor's property. No development will be approved if, in the Road Commission's sole discretion, it is laid out in such a way as to place unreasonable restrictions on the future development of adjoining properties. The proprietor shall make arrangements for Outlots to adjoining property as requested by the Road Commission.

Outlots intended for future streets will be dedicated to the public in the same way as other streets in the development.

Dead end streets that are to be constructed with permanent turnarounds shall be designated in accordance to the Road Commission's specifications. Dead end street sections having a length less than eight hundred (800) feet are considered undesirable. Dead end streets which are to be extended in the future may be constructed with a temporary cul-de-sac on a highway easement which will revert to the property owner when the road is extended and the temporary turnaround is no longer required.

When planning the street layout in a development, the Proprietor is reminded that it is of extreme importance that streets which intersect with existing through streets must be so located as to allow adequate and safe sight distances.

The Road Commission suggests that all houses be constructed twenty-four (24) inches above the proposed street elevation where at all possible.

## **V. CONSTRUCTION PLANS AND IMPROVEMENTS**

### **A. Street and Drainage Plans**

After the governing body has approved the preliminary plan, the Proprietor's Engineer may proceed with the preparation of the street and drainage plans for the improvement of the streets. These plans shall show plan, profile, cross-sections, location of drainage facilities and structures, proposed public or private utilities, special details and such other information as may be necessary to complete the work as intended. Two (2) sets of prints of such street and drainage plans shall be submitted to the County Engineer for review. After the plans have been reviewed by the County Engineer, one (1) set of prints will be returned to the Proprietor's Engineer marked with either an approval or with changes required by the County Engineer to be made before approval will be given. If, after two (2) years, construction is not substantially complete, new approvals must be obtained.

## **B. Drainage Easements**

Streets and lots must be provided with adequate drainage, accommodating both surface and subsurface drainage as may be required by the Mason County Road Commission. Leaching basins or ponding within the road right-of-way is not desirable and will not be allowed.

Whenever drainage cannot be obtained within the right-of-way of proposed or existing streets, an easement shall be given by the Proprietor to provide access to an adequate outlet for the drainage system which shall be approved by the County Engineer. The location and width of drainage easements shall be shown on a survey plat to be recorded and shall be marked "Drainage Easement". (Area of the of drainage easement shall be determined by the Proprietor's Engineer and approved by the Road Commission.

The Proprietor shall make the necessary designs to provide that all excess runoff water created by the development shall be contained within the development and directed to an approved outlet. The proprietor shall comply with the water runoff requirements as specified by the Mason County Drain Office.

All drainage easements as required beyond the limits of the roadway right-of-way will be acquired by the Proprietor in the name of the Mason County Drain Commissioner.

In any and all cases, the proprietor shall defend, indemnify, and hold harmless the Mason County Road Commission, the Mason County Drain Office their Board and employees from all claims due to storm water run off from any section of roadway improved by the proprietor.

## **C. - Drainage Structures**

Drainage Structures are to be designed in accordance with the Mason County Road Commission's current specifications (Note: the current issue of the Michigan Department of Transportation Standard Specifications for Road Construction will be used.).

### **(1) Crossroad Culverts and Bridges**

Crossroad culverts and bridges shall be of the size and type approved by the County Engineer. All structures will be designed to accommodate ASHTO HS-20 loading. Culverts shall have a minimum diameter of fifteen (15) inches. In the case of structures over county drains, approval must also be obtained from the County Drain Commissioner.

(2) Driveway Culverts

Where lots in a proposed development abut an existing county road with ditches, the Proprietor will provide culverts for each of the lots fronting the road. The culverts shall be properly sized for sufficient drainage with a minimum length of thirty (30) feet and a minimum diameter of twelve (12) inches conforming to the current issue of the M.D.O.T Standards Specifications for Road Construction.). All culverts shall be placed to the designed grade, alignment and location as shown on the approved street plans and covered with class II material or better and capped with material in-kind with the rest of the driveway.

(3) Storm Sewers

Where storm sewers are to be constructed, the construction plans and profiles shall show the location, type and size along with elevations and proposed grades. A drainage study and the design computations for the proposed storm sewer will be submitted with the construction plans.

The minimum allowable diameter shall be twelve (12) inches and conform to current issue of the M.D.O.T. Standard Specifications for Road Construction for sewer pipe alternates and class based on depth and size.

Standard four (4) foot diameter manholes (the Current Issue of the MDOT Standard Plans) will be required at all changes in alignment, size or grade and shall be spaced not greater than five hundred (500) feet apart. Frames and grates shall be rated heavy duty and conform to the road section in which they are being placed (road section with bituminous valley gutters require M.D.O.T. Cover C). They shall be located to avoid interference with future driveways if possible. All grates shall be bicycle safe and conform to the current issue of the M.D.O.T. Standard Plans and Specifications for Road Construction.

The storm sewer system shall have a positive outlet near or into a natural body of water, stream or established county drain if available. It is preferable to outlet in a low area or wetlands adjacent to a stream or drain, rather than directly into the stream or drain. If none of these outlets are available and if approved by the County Engineer, the outlet may be discharged into an area provided and prepared by the Proprietor to serve as an impoundment area. The extreme high water elevation of the impoundment area shall have at least two (2) feet of freeboard.

(4) Underdrains

In areas where underdrains are necessary to control high water table conditions or to provide roadway subbase drainage, underdrains shall be constructed in accordance with the current issue of the M.D.O.T. Standard Plans for Subgrade Underdrain.

(5) Storm Sewer Accessibility

In commercial and industrial developments, provide storm sewer access to all parcels in the development. Future parking lot and building runoff will not be allowed to discharge onto the street surface or into roadway ditches.

**D.-Soil Erosion**

Soil Erosion and Sedimentation Control shall be shown on all plans for Road Construction. The proprietor shall obtain a permit from the County Enforcing Agency in areas where required. This permit must be approved prior to any approvals by the Road Commission for Road Construction.

Design of Soil Erosion Control Methods must be included and shown on the plans. The adopted Mason County Soil Erosion and Sedimentation Control Operating Procedures (copy available at the Mason County Road Commission), the current issue of the M.D.O.T. Standard Specifications for Road Construction, the current issue of the M.D.O.T. Standard Plans and the current issue of the Department of Natural Resources "Guide Book of Best Management Practices for Michigan Watersheds" shall be used for the design of all Soil Erosion and Sedimentation control structures.

**E. - Public Utilities**

Whenever possible, public utilities should be located outside of the right of way. If not possible the public utilities shall be located as follows. Water mains shall be located at twenty-two (22) feet from centerline on the north or east side of the roadway. Sanitary sewers shall be located on the centerline. Storm sewers shall be located sixteen (16) feet from the centerline on the south or west side of the roadway. Gas, electric, phone, and cable television should be located at least 30 feet from center. Deviation of the above location shall require the approval of the County Engineer.

All underground utilities shall have a minimum 3 foot of cover as measured from the finished ground (post construction) surface.

## **F. - Guard Posts, Guard Rail and Barricades**

Treated guard posts shall be placed as directed by the County Engineer at the ends of stub streets which are provided for future access to adjacent unplatted or undeveloped lands. The County Engineer may also require guardrail and/or barricades at other locations if deemed necessary.

## **G. - Clearing, Removal of Trees, Brush, Roots and Topsoil**

This work shall consist of cutting and disposing of all brush, shrubs, trees and the roots of materials that interfere with the excavation, embankment, clear vision areas, or are otherwise objectionable. This material shall be entirely removed from within the right-of-way of all proposed streets.

All topsoil and materials objectionable for the construction of subbase or grade, within the roadway, shall be removed before grading. Topsoil, free from roots and debris, if classified as fertile, may be used for shoulders, ditches and slopes as needed after the roadway surface is constructed.

## **H. - Street Improvements**

### **(1) General**

Any work to be performed in the existing road right-of-way requires a written permit from the County Engineer. Requirements for obtaining a permit are (A) a certificate showing evidence of insurance covering the contractor with minimum coverage of \$100,000 for property damage and \$200,000/\$500,000 public liability; and (B) Provide a bond in the form of cash, cashier's check certified check or irrevocable bank letter of credit in the amount of 100% of the estimated cost to the Board of County Road Commissioners of Mason County, guaranteeing performance in accordance with the Road Commissions Standards and Specifications. The estimated cost shall be determined by the Road Commissions Engineer. Bond to be released upon acceptance of the project.

The Road Commission and any affected utility shall be notified a minimum of seventy-two (72) hours prior to beginning construction. Contractor's One Number Alert (MISS DIG) may be used for this notification -1-800-482-7171.

### **(2) Typical Street Sections**

For typical commercial, residential, industrial street sections, intersection details, turnarounds, etc, see the Typical Cross-Sections. The County Road

Commissions Engineer reserves the right to add to, and or revise these typical sections at anytime.

(3) Grades and Sight Distance

If at all possible, the maximum grade permitted will be eight (8) percent. Where roadways are 5.0% or greater, concrete curb and gutter or asphalt valley gutter shall be required. The minimum grade will be 0.4 percent for concrete curb sections and 0.8 percent for bituminous valley gutter sections. The minimum stopping sight distance shall be five hundred (500) feet.

Permanent cul-de-sacs shall be constructed on a sufficient grade to insure the minimum grade percent along the flow line of the gutter while maintaining two percent (2%) crown.

(4) Existing Road Clean-up & Upgrades

Adjacent ditches along existing county roads shown on the development shall be cleaned out by the Proprietor to provide adequate drainage before placing driveway culverts.

It may also be required of the developer to perform upgrades on existing County Roads that serve the development.

(4) Material Requirements & Specifications

All Materials used shall meet the Specifications of the Current Issue of the M.D.O.T Standard Specifications for Road Construction

- (a) A bed of sand subbase is required on all subgrades consisting of heavy soils or frost heave material.

Subbase Material Shall meet the M.D.O.T. Specifications for Granular Material Class II Gradation.

Thickness -12" for Local and Residential roads

-Provide design calculations for Commercial, Industrial, and All Season Routes (Minimum 15")

Width - As shown on Typical Cross Sections

- (b) Aggregate Base is required on all roads.

Aggregate Base Course –Shall meet the current issue of the M.D.O.T. Standard Specifications for Road Construction for - 22A Gradation & Physical Requirements-, Minimum 25% crushed, or as approved by the County Engineer.

Thickness - 6" Compacted in Place for Local or Residential roads  
- Provide design calculations for Commercial, Industrial,  
and All Season Routes

Width – minimum 1 foot wider than bituminous surface

(c) HMA (Hot Mix Asphalt) surface is required on all roadway systems to be accepted.

HMA Surface to Meet the current Issue of the M.D.O.T. Standard Specifications for Road Construction.

Residential or Local -HMA Mixture, 13A (or as approved by the County Engineer)  
Applied at 300 #/Sq. Yd. (Approximately 2 3/4") Applied in two (2)  
lifts of 150 #/syd (Leveling and Top Course)

Commercial, and Industrial, - Leveling -  
HMA Mixture, 13A (or as approved by the County Engineer)  
- 165 #/Sq.  
Yd. minimum (Approximately 1.5")

Wearing -HMA Mixture 13A (or as approved by the County  
Engineer)  
165 #/Sq. Yd. minimum (Approximately 1.5")

Asphalt Cement - Penetration Grade PG 58-28 (or as approved by the  
County Engineer)  
Temperature & Seasonal Limitations see MDOT as per referenced section.

(d) Concrete Curb and Gutter – In accordance with the current issue of the  
M.D.O.T. Standard Specifications for Road  
Construction and the current issue of the  
M.D.O.T. Standard Plans for Concrete Curb and  
Gutter and approved by the County Engineer

Rolled Mountable Curb shall be used In an industrial and commercial  
location as directed by County Engineer.

##### (5) Compaction Requirements

The following densities shall be obtained on street construction by standard methods of compaction as per the current issue of the M.D.O.T. Standard Specifications for Road Construction

Embankment 95% of Maximum Unit Weight - Subbase 95% of Maximum Unit Weight , Aggregate Base 98% of Maximum Unit Weight  
Compaction test results are to be submitted with the Proprietors Engineers' Certificate.

(6) Topsoil, Seeding and Mulching

The methods and time of seeding and mulching shall meet the requirements of the current issue of the M.D.O.T. Standard Specifications for Road Construction. All disturbed areas shall be covered with three (3) inches of fertile topsoil. The Board will not accept a road where erosion or sedimentation is evident or final restoration is not complete.

(7) Testing of Materials

Before construction of the street has begun, the Proprietor shall notify the County Engineer of the source of all materials to be used. Testing frequency shall be per MDOT recommendations and/or as directed by the County Engineer.

Testing of materials shall be performed by an independent Laboratory at the expense of the Proprietor. Materials may also be used which are obtained from approved stockpiles which have been tested by either the Board or M.D.O.T.. Certifications showing that HMA (Hot Mix Asphalt) materials and the mixture meet the specifications required shall be submitted with the Proprietor's Engineer's Certificate.

(8) Inspection

Periodic inspections during construction by the County Engineer shall not relieve the Proprietor or the Proprietor's Engineer of any of his obligations. These periodic inspections are to verify the proper construction of the streets in their various stages of construction.

(9) Signs

All street signs and traffic control signs shall be paid for by the Proprietor and erected by the County Road Commission.

(10) Inspection and Administration Fee

The developer shall submit to the Board a fee to cover the costs of engineering reviews and periodic inspections which they perform with each preliminary plat and construction plan.

Schedule of payment shall be as follows:

- (a) Prior to preliminary plan approval
- (b) Plan containing 10 parcels or less - \$300.00  
Plat containing 11 parcels or more \$30.00/lot.
- (c) Prior to approval of construction plans - \$0.35 per lineal foot of street construction.



## **VI. FINAL APPROVAL**

The final plat, condominium roadway or other roadway shall not be accepted until all streets within the development have been completed according to final plans as approved.

All requests for final approval must be accompanied by a written statement bearing the signature and seal of the Proprietor's Engineer certifying that all details of construction have been completed as shown in the final plans. A copy of the final plat and the roadway's centerline description must also be included in the acceptance package. The Engineer and Surveyor shall submit a Engineers/Surveyors Certificate (form available from the Mason County Road Commission) Certifying that all construction has been completed in accordance to these specifications.

A set of permanent reproducible "As Built" plans on Mylar film of all improvements constructed must be also be included in the acceptance package submitted by the Proprietor.

Final approval by the Road Commission shall not relieve the Proprietor of the responsibility to acquire any other permits, federal, state or local, as may be required.

## **VIII. SEASONAL ROAD UPGRADES**

All roads that receive regular year around maintenance that are to be improved must be improved to the requirements of the Standards and Specifications sections of this manual.

In certain situations with ADT less than 200, the minimum width requirements for traveled traffic lanes may be reduced with prior written approval from the Mason County Road Commission.