

THE CORPORATION OF THE TOWNSHIP OF WESTMEATH

BY-LAW 96-22

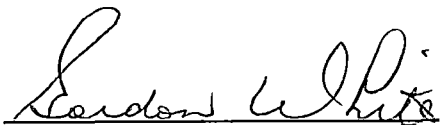
Being a By-Law to establish a policy regarding the Assumption of Roads into the road system for the Township of Westmeath

WHEREAS the Municipal Act, R.S.O. 1990, Section 259 permits the Council to pass by-laws for acquiring or for assuming a highway.

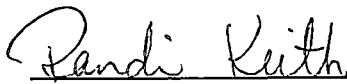
AND WHEREAS the Council for the Township of Westmeath enacts as follows:-

1. That a policy regarding the assumption of private roads into the Township of Westmeath road system as shown on Schedule "A" attached hereto shall form part of this by-law.
2. The set policy in Schedule "A" must be adhered to in its entirety, and that only with the written approval from the Corporation of the Township of Westmeath can changes be made to any part of Schedule "A" attached.
3. This by-law shall be deemed to have come into effect on the day it receives third and final reading.

PASSED and ENACTED this 5 day of June 1996.



Reeve



Clerk

SCHEDULE 'A'

Pages 1 - 22

LIST OF ATTACHMENTS

- | | |
|-------------------|--|
| ATTACHMENT No. 1 | "50 VPD ROADS" - Minimum Standards for Low Volume Roads |
| ATTACHMENT No. 2 | "RURAL ROADS" - Minimum Standards for Roads Having Higher Traffic Volumes (Over 50 VPD, Frontages over 30 metres) |
| ATTACHMENT No. 3 | "URBAN ROADS" - Minimum Standards for Roads Having Higher Traffic Volumes (Over 50 VPD, Frontages less than 30 metres) |
| ATTACHMENT No. 4 | Minimum Standards - Field Inspection Procedures |
| ATTACHMENT No. 5 | Alignment Standards |
| ATTACHMENT No. 6 | Geometric Design Standards for Rural Ontario Roads |
| ATTACHMENT No. 7 | Geometric Design Standards for Undivided Urban Roads in Ontario |
| ATTACHMENT No. 8 | Right-Of-Way Widths |
| ATTACHMENT No. 9 | Minimum Structure Cross-Section Standards for Ontario Roads and Streets |
| ATTACHMENT No. 10 | Surface Type Standards for Rural Ontario Roads |

Attachment No. 1

"50 VPD ROADS" ^{note 7}
MINIMUM STANDARDS FOR LOW VOLUME ROADS
(ESTIMATED TO BE LESS THAN 50 VPD)

| | | |
|-----------------------|---|---|
| Right-Of-Way | Minimum, unless a lesser width is approved by M.M.A. or a delegated approval authority. (In the case of an L.R.B. or S.L.B., right-of-way may be: road allowances or their deviations, reservations for roads, or R.O.W. acquired through owner dedication, purchase or expropriation, or through prescriptive right through the regular spending of public funds on roads.) | 20.0m |
| Clearing | | 12.0m |
| Surface Course | (a) Width (b) Depth (c) Type (d) Stabilization ^{note 8} | 7.5 m (including 1.0m shoulders)' 150mm Granular 'A' or 'M' to OPSS 1010 ^{note 9} or crushed rock to applicable standard. 100% S.P.D. |
| Subbase | (a) Depth (b) Type | To be determined based on anticipated loading and existing soil conditions. ^{note 10} Granular "B" (Types 1 and 11) |
| Ditches | (a) Stormwater Management/ Drainage Studies (b) Minimum Depth ^{note 11} (c) Erosion Protection (d) Drainage (e) Side slopes ^{note 12} | As required by the District Engineer. 500 mm below outer edge of subgrade Suitably vegetated or otherwise protected from erosion Positive to suitable outfall. Maximum 2:1 for earth grading only. |

' In the case of local residential subdivision roads that essentially only accommodates traffic associated with those residing on the street, the municipality can choose a lesser width.

| | | |
|-------------------------------|--|---|
| Culverts | (a) Minimum Diameter | Entrance and Road - 400 mm ^{note 13} |
| | (b) Minimum Cover/Gauge | Must meet all M.T.O. requirements. |
| | (c) Approved Materials | Corrugated steel pipe, concrete or plastic where approved. |
| Geometrics | (a) Vertical/Horizontal Control | As per the Geometric Design Standards For Rural Ontario Roads. (Attachments 5 to 10) |
| | (b) Cul-de-Sac Requirements | As per OPSD 500.01 ^{note 14} |
| Signage/Safety Devices | (a) Unorganized Areas | Only non-regulatory signs and safety devices felt essential to ensuring public safety need be installed at the proponent's expense. |
| | (b) Organized Areas | In order to ensure public safety and protect against liability, regulatory signs, non-regulatory signs, guide rails and safety devices are to be installed appropriately at the proponent's expense. ^{note 15} |
| Bridge | <p>If existing, one-way bridges having a minimum capacity of 10 tonnes may be considered as being adequate.</p> <p>If a new bridge, structure is to be constructed in accordance with the Ontario Highway Bridge Code and the design criteria approved by the District Engineer.</p> | <p>Certification must be undertaken by a qualified professional and all related costs are to be borne by the proponent.</p> <p>Whenever a L.R.B. or S.L.B. is involved, the Regional Structural Section is to perform the inspection and confirm the adequacy of the structure, prior to the formation of the board or assumption of the structure.</p> |

Attached to Directive...

"RURAL ROADS" note 16
MINIMUM STANDARDS FOR ROADS HAVING HIGHER TRAFFIC VOLUMES
(ESTIMATED TO BE GREATER THAN 50 VPD)
RURAL CROSS-SECTION (MAJORITY OF ABUTTING FRONTAGES EXCEED 30 m)

| | | |
|-------------------------|--|--|
| Right-of-Way | Minimum, unless width is approved by M.M.A. or a delegated approval authority. (In the case of an L.R.B. or S.L.B. right-of-way may be: road allowances or their deviations, reserves for roads, or R.O.W. acquired through owner dedication, purchase or expropriation, or through prescriptive right through the regular spending of public funds on roads.) | 20.0m |
| Clearing | | 12.0m |
| Surface Course | (a) Width (b) Type | 8.0 m (including 1.0 m shoulders)' travelled surface - Hot Mix asphalt for rural subdivision roads, L.C.B. for other roads. shoulders - Granular "A" or "M" to OPSS 1010 or crushed rock to applicable standard. |
| Base and Subbase | | Type and depth of base and subbase dependent upon anticipated loading and existing soil conditions. |
| Ditches | (a) Stormwater Management/Drainage Report (b) Sizing (c) Minimum Depth (d) Erosion Protection (e) Drainage (f) Side slopes | As requested by the District Engineer. To accommodate design flow. 500 mm below outer edge of subgrade Suitably vegetated or otherwise protected from erosion. Positive to suitable outfall. Maximum 2:1 for earth sections only. |

In the case of rural residential subdivision roads that essentially only accommodates traffic associated with those residing on the street, the municipality can choose a lesser width.

| | | |
|-------------------------------|--|---|
| Culverts | (a) Minimum Diameter | Entrance and Road - 400 mm |
| | (b) Minimum Cover/Gauge | Must meet M.T.O. requirements. |
| | (c) Approved Materials | Corrugated steel pipe, concrete or plastic, where approved. |
| Geometrics | (a) Vertical/Horizontal Control | As per the Geometric Design Standards For Rural Ontario Roads (Attachments 5, 6 , 8, 9 and 10). |
| | (b) Cul-de-Sac Requirements | As per OPSD 500.01 and 500.03 |
| Signage/Safety Devices | (a) Unorganized Areas | Only non-regulatory signs and safety devices felt essential to ensuring public safety need be installed at the proponent's expense. |
| | (b) Organized Areas | In order to ensure public safety and protect against liability, regulatory signs, non-regulatory signs, guide rails and safety devices are to be appropriately installed at the proponent's expense. |
| Bridges | To be designed in accordance with the Ontario Highway Bridge Design Code and design criteria approved by the District Engineer. | Certification must be undertaken by a qualified professional and all related costs are to be borne by the proponent. Whenever the proponent is an L.R.B. or S.L.B., the Regional Structural Section is to perform the certification, prior to the formation of the board or assumption of the structure. |

Attached to Directive...

"URBAN ROADS" Note 17

**MINIMUM STANDARDS FOR ROADS HAVING HIGHER TRAFFIC VOLUMES
(ESTIMATED TO BE GREATER THAN 50 VPD)
URBAN CROSS-SECTION (MAJORITY OF ABUTTING FRONTAGES LESS THAN 30 m)**

| | | |
|-------------------------------|--|---|
| Right-of-Way | Minimum, unless a lesser width is approved by M.M.A. or a delegated approval authority. | 20.0 m |
| Clearing | | 20.0 m |
| Surface | (a) Width (b) Type | Municipality to ensure that chosen design width will accommodate present and future traffic flows, existing and future traffic patterns and future developments. ^{note 18} ("Best Practices") preferred minimum 8.5 m face of curb to face of curb* Hot Mix for urban residential subdivision roads. Low Cost Bituminous for other roads. |
| Boulevard Width | | Adequate to accommodate anticipated snow storage, off-street parking, and utility needs. |
| Base and Subbase | | Type and depth of base and subbase dependent upon anticipated loading and existing soil conditions. |
| Drainage | | Storm sewer, curb and gutter. Storm sewer to be sized to design storm. |
| Geometrics | (a) Vertical/Horizontal Control (b) Cul-de-Sac Requirements | As per the Geometric Design Standards For Undivided Urban Roads in Ontario* (Attachments 7, 8 and 9). As per OPSD 500.02 |
| Signage/Safety Devices | | In order to ensure public safety and protect against liability, regulatory signs, non-regulatory signs, guide rails and safety devices are to be installed at the proponent's expense. |
| Bridges | Designed in accordance with the Ontario Highway Bridge Code and the design criteria approved by the District Engineer. | Certification is to be undertaken by a qualified professional and all related costs are to be borne by the proponent. |

Attached to Directive...

***In the case of urban subdivision roads that essentially only accommodate traffic associated with those residing on the street, the municipality can choose a lesser width.**

**MINIMUM STANDARDS
FIELD INSPECTION PROCEDURES**

| | | |
|---|--|---|
| Right-of-way | Staff to review draft plan in order to reaffirm compliance. If proposed R.O.W. is less than 20 m, ensure that all works including drainage, snow storage, utilities etc., can be accommodated. If inadequate, communicate concern to M.M.A. through Corridor Management. | 20.0 m unless otherwise approved by M.M.A. or a designated approval agency. |
| Legal Survey/Road Alignment and Limits | <p>Proponent's O.L.S. to certify presence of control point monumentation prior to ministry field inspection. Staff to spot verify same as well as verify that all works have been accommodated within the R.O.W.</p> <p>Whenever road allowance and road const. centrelines deviate, details of approved deviations are to be documented.</p> <p>Roads are to be constructed to the full length of the public road allowance. Survey monumentation should be used to determine compliance.</p> | <p>Presence of control point monumentation.</p> <p>Permanent record of approved deviations on record.</p> <p>Fully serviced frontage.</p> |
| Minimum Width of Clearing | Spot checks to be conducted in order to confirm compliance. | <p>< 50 VPD (12.0 m)</p> <p>> 50 VPD (20.0 m)</p> |
| Surface Course | <p>Visually inspect surface, in particular L.C.B.</p> <p>Check width.</p> | <p>< 50 VPD - crushed rock/Gran 'A' or 'M'</p> <p>> 50 VPD - L.C.B.</p> <p>Hot Mix asphalt for rural and urban residential subdivision roads.</p> <p>Urban X-sect. (preferred 8.5 m face-to-face)</p> <p>Rural X-sect. (min. 6.0 m edge-edge)</p> |

| | | |
|---|---|--|
| <p>Granular Base Course</p> | <p>Spot check width from rounding breakpoint to rounding breakpoint. (surface + shoulders + roundings)</p> <p>Spot check surface depth at varying offset.</p> <p>Staff should be satisfied that material is of acceptable quality. Should quality be of concern, sieve analysis and/or other appropriate quality tests should be arranged for at the proponent's expense.</p> <p>Material shall be adequately stabilized. (Should the road section be in an area having no permanent crushing facilities in the immediate vicinity, placement of surface material may be delayed in order to accommodate the availability of a mobile crusher. Preventative measures are to be taken under such circumstances to minimize erosion and suitable securities may be required to compliance.)</p> | <p>5.5+ (2x1.0) = 7.5m(<50VPD) 6.0 + (2x1.0) = 8.0 m(> 50 VPD)</p> <p>150 mm minimum</p> <p>Crushed rock or gravel Granular "A" or "M" (OPSS 1010)</p> <p>100% Std. Proctor Density</p> |
| <p>Gran. Subbase Course</p> | <p>Spot check granular subbase depth at variable offset. Depth and type of material used dependent upon anticipated loading.</p> <p>Ensure that material quality and compaction effort appear satisfactory. If questionable tests should be arranged at the proponent's expense.</p> | <p>Granular "B" Types 1 and 11 (OPSS 1010)</p> <p>100% S.P.D.</p> |
| <p>Ditches</p> | <p>Spot check to ensure that ditches are of adequate depth below subgrade. (Concentrate on those ditches which appear shallow.)</p> <p>Drainage is to be positive and be to a suitable outfall.</p> <p>Check for signs of erosion, ensuring that appropriate steps are taken.</p> | <p>Minimum 500 mm below outer edge of subgrade.</p> <p>Side and backslopes are to be suitably vegetated and stable (maximum 2:1 slop in earth sections).</p> <p>Rip-rap, gabion, or other acceptable form of erosion control should be used where appropriate.</p> |
| <p>Stormwater/Drainage Studies</p> | <p>Undertaken to determine flows and velocities for specific storm events, the sizing of ditches, storage areas, culverts etc, and in the case of an urban cross-section, stormsewer sizing.</p> | <p>Should be requested at the discretion of the District Engineer.</p> <p>Check to ensure easements are provided for drainage away from road. <small>Note 19</small></p> |

| | | |
|--------------------------------------|--|--|
| <p>Cu.lverts</p> | <p>Spot check culverts for problems relating to diameter, length, installation, gauge/class, cover etc.</p> | <p>Min. Dia: 400mm <small>Note 20</small> Min. Cover:300mm(dia.<600mm) dia + 300(dia.>600mm) 4 Materials-c.s.p. concrete or plastic (where approved by District Engineer). All materials must meet M.T.O. requirements. Culverts are to be installed such that invert is 1/10 dia. below ditchline.</p> |
| <p>Geometrics</p> | <p>Drive road at speed limit and identify alignment related problems, if present. (If "as constructed" profile exists, check same.)</p> | <p><50 VPD: Must be able to accommodate the safe and efficient operation of maintenance equipment. Max grade - 12% unless otherwise approved by District. >50 VPD (Urban Rural X-sect.) In accordance with the Geometric Design Standards for Ontario Municipal Roads and Structures and Section B of this Directive. Geometrics relating to cul-de-sacs for rural and urban roads, shall be as per OPSD 500.01, 500.02 and 500.03.</p> |
| <p>Signage/Safety-Devices</p> | <p>Ensure that non-regulatory signs and safety devices are installed on roads within unorganized areas, if felt essential to safety. Verify that all necessary regulatory and non-regulatory signs and safety devices are in place on those roads located within organized areas and advise municipality in cases of omissions.</p> | <p>Signs/guide rails/safety devices are to be installed at the proponent's expense where deemed necessary by the municipality.</p> |
| <p>Bridges</p> | <p>During the initial stage, ensure that spans are not lengthened for the sole purpose of avoiding environmental approvals.</p> <p>During the pre-tendering stage, ensure that all necessary approvals, including environmental obligations, have been acquired.</p> | <p>Conditions of approval must be confirmed as having been completed.</p> <p>Certification that the structure meets conditions set out in the Ontario Highway Bridge Code and design criteria approved by the District Engineer must be undertaken by a qualified professional. (In the case of a L.R.B. or S.L.B., the Regional Structural Section is to provide certification.</p> |

ALIGNMENT STANDARDS

| Design Speed | Minimum ^a Curve Radius | Minimum Stopping Sight Distance | Minimum ^b Crest Curve Parameter (k) | Minimum ^c Sag Curve Parameter (k) | Minimum ^d Sag Curve Parameter in Illuminated Areas (k) |
|---------------------|--|--|---|---|--|
| km/h | m | m | m | m | m |
| 40 | 55 | 45 | 4 | 8 | 4 |
| 50 | 90 | 65 | 8 | 12 | 5 |
| 60 | 130 | 85 | 15 | 18 | 8 |
| 70 | 190 | 110 | 25 | 25 | 12 |
| 80 | 250 | 135 | 35 | 30 | 15 |
| 90 | 340 | 160 | 50 | 40 | 20 |
| 100 | 420 | 185 | 70 | 45 | 25 |
| 110 | 525 | 215 | 90 | 50 | 25 |
| 120 | 650 | 245 | 120 | 60 | 30 |

- (a) **Minimum Curve Radi** based on maximum superelevation of 0.06 m/m.
- (b) **Minimum Curve Parameter** based on stopping sight distance.
- (c) **Minimum Curve Parameter** based on stopping sight distance.
- (d) **Based on comfort criteria-** use in illuminated areas only when stopping sight distance requirements are met.

Attached to Directive...

**GEOMETRIC DESIGN STANDARDS
FOR RURAL ONTARIO ROADS**

| Design Year | | Design Speed km/h | Curves | | | Max. Grade % | Width (m) | |
|---------------------|--------------------|----------------------|-----------------------|-------------------------|-----------------------|--------------------|-----------|----------|
| AADT | DHV | | Min Hor. Radii (m) | Min. Vert. Crest (K) | Min. Vert. Sag (K) | | Lane | Shoulder |
| 4000 and up | 600 and up | 120 | 650 | 120 | 60 | 6-7 | 3.75 | 3.00 |
| | | 110 | 525 | 90 | 50 | 6-7 | 3.75 | 2.50 a |
| | | 100 | 420 | 70 | 45 | 6-8 | 3.75 | 2.50 a |
| | | 90 | 340 | 50 | 40 | 6-8 | 3.50 a | 2.50 |
| | | 80 | 250 | 35 | 30 | 6-8 | 3.5 | 2.50 |
| 4000 to 3000 | 600 to 450 | 110 | 525 | 90 | 50 | 6-7 | 3.75 | 2.50 a |
| | | 100 | 420 | 70 | 45 | 6-8 | 3.50 a | 2.50 |
| | | 90 | 340 | 50 | 40 | 6-8 | 3.50 a | 2.50 |
| | | 80 | 250 | 35 | 30 | 6-8 | 3.50 | 2.50 |
| | | 70 | 190 | 25 | 25 | 6-12 | 3.25 | 2.00 |
| 3000 to 2000 | 450 to 300 | 110 | 525 | 90 | 50 | 6-7 | 3.75 | 2.50 |
| | | 100 | 420 | 70 | 45 | 6-8 | 3.50 b | 2.50 |
| | | 90 | 340 | 50 | 40 | 6-8 | 3.50 | 2.00 b |
| | | 80 | 250 | 35 | 30 | 6-8 | 3.25 | 2.00 |
| | | 70 | 190 | 25 | 25 | 6-12 | 3.25 | 2.00 |
| 2000 to 1000 | 300 to 150 | 110 | 525 | 90 | 50 | 6-7 | 3.50 c | 2.50 |
| | | 100 | 420 | 70 | 45 | 6-8 | 3.50 | 2.00 c |
| | | 90 | 340 | 50 | 40 | 6-8 | 3.25 | 2.00 |
| | | 80 | 250 | 35 | 30 | 6-8 | 3.25 | 2.00 |
| | | 70 | 190 | 25 | 25 | 6-12 | 3.00 | 1.00 |
| | | 60 | 130 | 15 | 18 | 6-12 | 3.00 | 1.00 |
| 1000 to 400 | 150 to 60 | 100 | 420 | 70 | 45 | 6-8 | 3.50 | 1.00 |
| | | 90 | 340 | 50 | 40 | 6-8 | 3.25 | 1.00 |
| | | 80 | 250 | 35 | 30 | 6-8 | 3.25 | 1.00 |
| | | 70 | 190 | 25 | 25 | 6-12 | 3.00 | 1.00 |
| | | 60 | 130 | 15 | 18 | 6-12 | 3.00 | 1.00 |
| Less than 400 | Less than 60 | 80 | 250 | 35 | 30 | 8 | 3.25 e | 1.00 d |
| | | 70 | 190 | 25 | 25 | 12 | 3.00 | 1.00 d |
| | | 60 | 130 | 15 | 18 | 12 | 3.00 | 1.00 d |
| | | 50 | 90 | 8 | 12 | 12 | 2.75 | 1.00 d |

Four lanes are to be considered where there is measurable capacity deficiency with only two lanes.

1. Design Year should reflect the anticipated life span of the proposed improvement.
2. Use DHV for design.
 - (i) The 1.0m gravel shoulder width is considered the minimum desirable width for pavement support. This may be reduced to 0.5 m for paved shoulders.
 - (ii) The 2.0m shoulder width is considered the minimum acceptable for a disabled vehicle.
3. These cross-sections listed in the previous table are desirable standards. An acceptable standard formed by a variation of (+/-) one increment may be considered, with the appropriate approval.
 - (a) if number of trucks $\geq 10\%$, increase by one increment
 - (b) if number of trucks $\geq 15\%$, increase by one increment
 - (c) if number of trucks $\geq 25\%$, increase by one incrementLane width increments - 0.25 m
Shoulder width increments - 0.50 m
 - (d) 0.5 m shoulders will be permitted where there is no foreseeable possibility of the road being paved within a 20-year period. (Note: 1.0 m shoulder must be used where guide rail is installed).
 - (e) A 3.0 m lane width may be acceptable where type size and volume of trucks are not significant.
4. When curb and gutter is used in conjunction with a paved shoulder the gutter pan forms part of the paved shoulder.
5. Lane widths for multi-lane highways shall be 3.75 m in all cases except:
 - (i) 4-lane divided or undivided with design speed less than 100 km/h, where the lane width shall be 3.5 m. In rural fringe areas where urban development is likely within the life of the highway, rural cross-section of 1.0 m flush median, 4 x 3.75 m driving lanes and 0.5 m of full depth construction partial width paved shoulders should be considered where 4 lanes are required. (This 17m cross-section provides for a 3.0 m continuous left turn lane with 3.5 m driving lanes).
 - (ii) 6 or more lanes divided, all design speeds, the median lane shall be 3.5 m.

See Table D.2.3 of Geometric Design Standards for Ontario for lane widths.

Attached to Directive...

Attachment No. 6 (cont'd)

6. For 4-lane divided highways, the right shoulder is the same as for 2-lane and 4-lane undivided roads. The left shoulder width is desirably 1.5 m and is partially paved. A 1.0 m width is acceptable but it should be fully paved.
7. For 6 or more lane divided highways, the right shoulder is 3.0 m and the left shoulder is 2.5 m. Both are fully paved.

Auxiliary Lanes

1. Left turn lanes with no median strip are to be 0.25 m less than the width of the adjacent through lane, minimum 3.25 m.
2. Left turn lanes with median strip (painted, rippled or raised) shall be 3.0 m exclusive of gutter or curb offset. The curb face on all raised medians adjacent to the left turn lanes must be offset by not less than 0.5 m.
3. Continuous left turn lanes shall be 4.0 m desirable, 3.0 m minimum. The minimum standard should normally only be utilized where operating speeds are less than 60 km/h.
4. Right turn lanes and acceleration lanes are to be 0.25 m less than the width of the adjacent through lane, minimum 3.25 m.
5. Truck climbing lanes and passing lanes are to be 0.25 m less than the width of the adjacent through lane minimum 3.25 m. The adjacent shoulder should desirably be the same as that on the approach roadway but may be reduced to a minimum of 1.0 m where significant economies can be demonstrated.

Rounding

1. Shoulder widths do not include rounding. Rounding, when applied, shall be:
 - (a) 0.5 m when design speed \leq 100 km/h
 - (b) 1.0 m when design speed $>$ 100 km/h
 - (c) where steel beam guide rail is used width of rounding is 1.0 m.

Medians

1. Flush medians - 1.0 m.
2. Raised division islands usually associated with intersections - 2.0 m.
3. Raised medians intended to accommodate left turn storage lanes within the median - 5.0 m.

Attached to Directive...

**GEOMETRIC DESIGN STANDARDS
FOR UNDIVIDED URBAN ROADS IN ONTARIO**

| DESIGN YEAR TRAFFIC | | Design Speed km/h | No. of lanes | Minimum Lane Width m | Parking Lane Width m | Minimum Curb to Curb Distance m | Maximum Grade % |
|---------------------|------------|--------------------------|--------------|-----------------------------|-----------------------------|--|------------------------|
| AADT | DHV | | | | | | |
| 6000 and up | 600 and up | 80 | 4 | 3.5-3.75 | | 14.5 | 6-8 |
| | | 60-70 | 4 | 3.5 | | 14.5 | 6-12 |
| 6000 to 3000 | 600 to 300 | 60-70 | 4* | 3.5 | | 14.5 | 6-12 |
| | | 80 | 2 | 3.5-3.75 | 2.5-3.0 | 10.0 | 6-8 |
| | | 60-70 | 2 | 3.5 | 2.5-3.0 | 10.0 | 6-12 |
| 3000 to 2000 | 300 to 200 | 80 | 2 | 3.5 | 2.5-3.0 | 10.0 | 6-8 |
| | | 60-70 | 2 | 3.25 | 2.5-3.0 | 9.5 | 6-12 |
| | | 50 | 2 | 3.0 | 2.5-3.0 | 9.0 | 8-12 |
| 2000 to 1000 | 200 to 100 | 60-70 | 2 | 3.25 | 2.5-3.0 | 9.5 | 6-12 |
| | | 50 | 2 | 3.0 | 2.5-3.0 | 9.0 | 8-12 |
| less than | less than | 40-50 | 2 | 2.75-3.0 ^b | 2.5-3.0 ^b | 8.5 ^b | 8-12 |

- (a) Four lanes are appropriate in the upper limit of this traffic range where there is a measurable capacity deficiency with only two lanes.
- (b) For *residential subdivision settings*, the curb distances and lane widths may be less than the minimum in the above table. NOTE 21
- Design Year should reflect the anticipated life span of the proposed improvement. Use DHV for selection of design standards.
- Horizontal and vertical geometric design standards shall conform to alignment.
- Lane widths and parking lane widths do not include width of gutter.
- Auxiliary lane widths shall conform to criteria for Rural Highways.
- Curb clearance is 0.25 m.

Boulevards

Boulevards are measured from the outer face of curb to the edge of sidewalk. Where boulevards are provided, the desirable minimum boulevard widths are 3.0 m on arterial roads and 2.0 m on collector roads. The desirable minimum boulevard width should be 1.5 m.

Sidewalks

The desirable minimum sidewalk width is 1.5 m. Sidewalks of greater widths may be considered in areas of high pedestrian activity.

Note:

Sidewalks are not eligible for subsidy unless replacement is necessary due to construction requirements.

Attachment No. 8

RIGHT-OF-WAY WIDTHS

Right-of-way widths for urban and rural highways and roads shall be selected from the following range of standard values.

20, 26, 30, 35, 40, 45, 50, 55, 60, 70, 80, 90 and 100 m.

Right-of-way widths for local residential subdivision roads shall be selected by municipality and approved by MMA or delegated authority.^{NOTE 22}

Attached to Directive...

MINIMUM STRUCTURE CROSS-SECTION STANDARDS FOR ONTARIO ROADS AND STREETS

1. The driving and auxiliary lanes are to be carried through at the same width as the adjacent roadway.
2. For a bridge where the approach roadway is provided with continuous barrier walls or curbs, and does not have sidewalks, the shoulder width on the bridge should be the same as that on the approach roads.
3. For a bridge where the approach roadway is not provided with continuous barrier walls or curbs and does not have a sidewalk, the shoulder width should be 0.5 m narrower than the approach shoulder width but not less than 1.0 m, except to a speed-change lane, in which case the shoulder width is 0.5 m adjacent to a single lane interchange ramp and 1.0 m adjacent to all other speed-change lanes.
4. For a bridge of deck length less than 10 m, the shoulder widths stated above may be increased to approach shoulder width.
5. For a bridge of deck length greater than 200 m, the shoulder width is that of the approach shoulder of 1.5 m whichever is less.
6. The dimensions for sidewalks (for subsidy purposes) are shown in Figure 1.

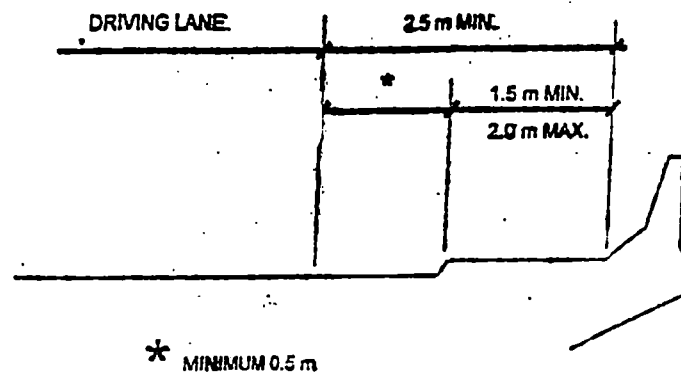


Figure 1

7. The height of curbs should be not less than 150 mm above the roadway except to match the height of curbs on the approach roadway.
8. Where the adjacent roadway does not have curb and gutter, the sidewalk width should be at least 1.5 m.
9. In general, the minimum acceptable bridge cross-section is 8.5 m, measured from face to face of rail, or 7.5 m face to face of curbs.
10. Single lane bridges with a minimum deck width of 5.0 m, measured from face to face of rail, may be permitted on very low volume roads with the appropriate approval.

Attached to Directive...

**STRUCTURE CLEARANCES FOR ONTARIO
RURAL HIGHWAYS**

Multi-Lane Highways

1. The width of through lanes and auxiliary lanes should be the same on the bridge deck as on the approach roadway.
2. The horizontal clearance for freeways under bridges is desirably 10 m minimum, measured from the edge of the travelled way to the face of an abutment or pier, and 1.5 m to the toe of a slope measured from the edge of shoulder.
3. Where a pier is required in a median whose width is less than the pier width plus 20 m, some form of barrier protection is required at the pier. Clearances to guide rails and median barriers are as shown in Figure 2.
4. Widths and horizontal clearances of sidewalks are as shown in Figure 1.

Roads other than Multi-Lane Highways

1. Through lanes, auxiliary lanes are to be carried through at the same width as on the approach roadway.
2. The horizontal clearance for roads other than freeways is measured from the edge of travelled way to the face of barrier protection. It is equal to the width of the approach shoulder and is not less than 1.5 m. At median piers, this may be reduced as indicated in Figure 2.
3. Widths and horizontal clearances of sidewalks are as shown in Figure 1.

Minimum Vertical Clearance

Refer to Geometric Design Standards for Ontario Highways.

Attached to Directive...

Attachment No. 9 (con'd)

| design speed km/h | d (m) |
|----------------------|-------|
| 100 | 2.0 |
| 80 | 1.5 |
| 60 | 1.0 |

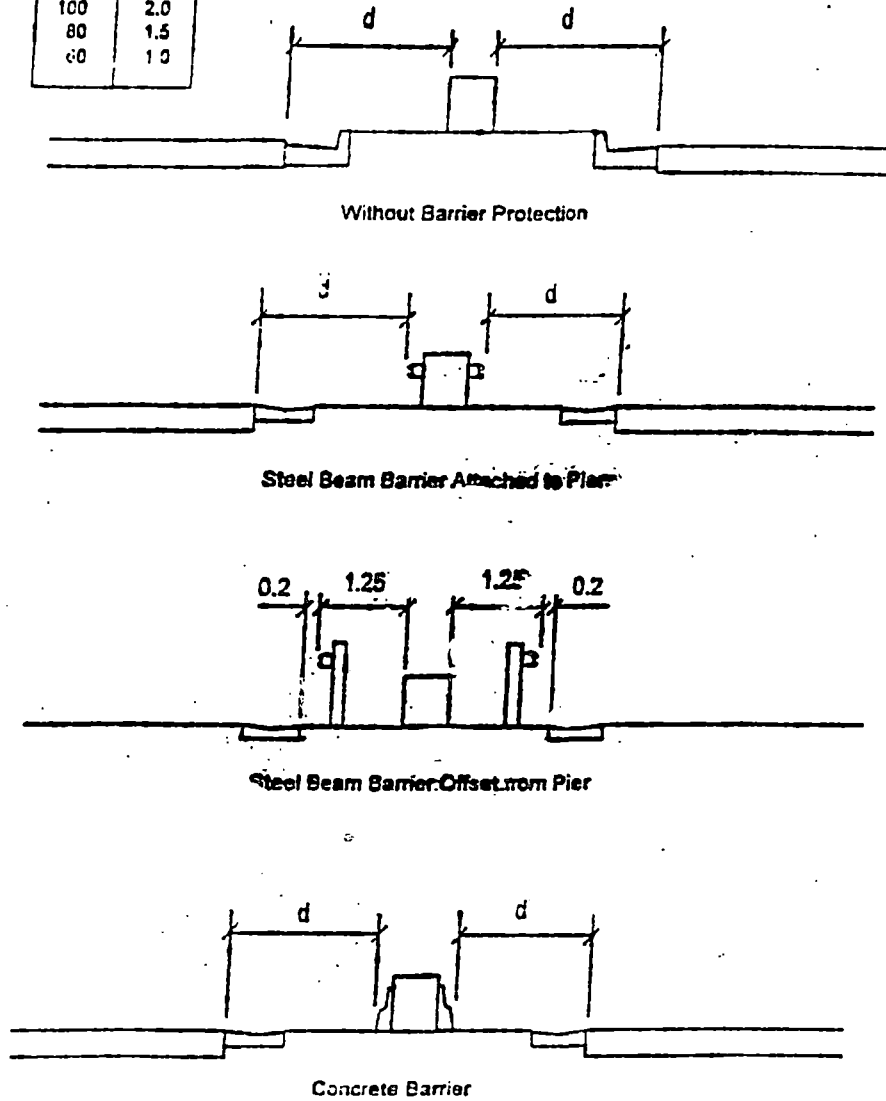


Figure 2
Urban Arterial Raised Median Treatment at Bridge Pier

Attached to Directive...

**SURFACE TYPE STANDARDS
RURAL ONTARIO ROADS**

| AADT AT TIME OF CONSTRUCTION | DHV AT TIME OF CONSTRUCTION <small>NOTE 23</small> | SURFACE TYPES ^(a) |
|---|---|--|
| 0-400 ^(c) | 0-60 | GRAVEL |
| 400-1000 ^(c) | 60-150 | ^(b) LOW COST BITUMINOUS 40 mm OF HOT MIX |
| 1000-2000 | 150-300 | FOR LOWER VOLUMES IN RANGE 40mm OF HOT MIX FOR HIGHER VOLUMES IN RANGE 50 mm OF HOT MIX |
| ABOVE 2000 | ABOVE 300 | 90 mm TO 130 mm OF HOT MIX |

- NOTES:
- (a) The grade upon which the surface type is to be applied is assumed to be structurally adequate.
 - (b) Apply prime and double surface treatment 0.25 m wider than lane width. e.g. 3.0 m lane width, apply 3.25 m wide.
 - (c) Selection of surface type to be based on economy and performance. Gravel in the less than 400 range and LCB in the 400 - 1000 range are usually adequate and the most economical.

Attached to Directive...

COMMENTS EXPLAINING SOME OF THE PROPOSED CHANGES TO DIRECTIVE B-18 AND B-36

Note 1(pg. 1)

In the Background section we have deleted two paragraphs that were found in the original Directive B-18. The paragraph dealing with main thoroughfares and roads or streets opened by private interests accepted by a municipality prior to Jan. 1st, 1966 were omitted.

Note 2 (pg. 2)

In this section, we have added some introductory text which provides interpretation on the use of the subsidy criteria. In the case of municipalities who are considering accepting roads constructed without their input, Section A applies directly. Where municipalities are involved in the design criteria approval, Section B applies prior to determining subsidy support. If a municipality accepts the design outside geometric design standards, subsidy conditions may be set by District Region Head Office, otherwise Section A shall apply directly.

Previous Directive B-18 had three cases. After reviewing each case we came to the conclusion that it may be preferable to have only two cases.

In the revised text, Case 1 includes all roads that were registered, formed part of a subdivision agreement or opened prior to January 1, 1966. The basis of eliminating Case 1 from the original Directive (roads registered or opened prior to January 1, 1954), is that there likely exists very few roads over 40 years old that have not been brought into the municipal road system. The ones that remain outside the system are likely in very poor condition. The ones that remain outside the system and are considered in good condition will now have to meet the minimum design standards as set out in new Case 1.

Note 3 (pg.2)

Please note the change of date

Note 4 (pg. 3)

In Directive B-18, Case 111, it was noted that the Degree of Subsidy Support offered some compromise from the minimum standards for "URBAN ROADS" only. As worded in B-18, "RURAL" and "50 VPD" roads had to meet all applicable minimum standards in order to be eligible for subsidy. Therefore, we reworded the first paragraph to allow subsidy for all types of roads as long as they meet applicable minimum standards.

Note 5 (pg. 4 (e))

This is a new section in the geometric design directive.

This section hopefully provides some flexibility in the approval of design criteria for re-construction projects. Several Districts have expressed some concerns over the strict adherence to our geometric design standards, especially in rough terrain areas and scenic routes. As a result, we have established some common grounds where flexibility may be considered. However, the municipality/consultant/designer will be required to substantiate their requests by ensuring that public safety is maintained and that capital cost benefits are realized.

Note 6 (pg.4 (e))

This comment was added to the directive in order to allow Districts/Regions to set some conditions to subsidy approval if sub-standard design results in premature failure of a municipal road.

Note 7 (pg. 5)

Please note the new road designation from "COTTAGE AREA" to "50 VPD ROADS"

Note 8 (pg. 5)

Dust control was deleted, as we feel that this criteria does not come into play when considering the acceptance of a road into the municipal road system. Unlike other parameters which can physically be measured, dust is not quantifiable and cannot be measured.

Note 9 (pg. 5)

The OPSS reference was added in order to provide some reference criteria whereby granular material could be tested and be considered adequate or not. This reference is made throughout the text, where Granular 'A' or 'M' is mentioned. Granular 'A' should be used whenever possible. Granular 'M' typically consists of more fines and should only be used when Gran. 'A' is not available. 1010 or crushed rock to applicable standard.

Note 10 (pg.5)

We added existing soil conditions as a condition of determining depth of base and subbase. Note that this change is made throughout this Directive.

Note 11 (pg.5)

The depth of roadside ditches has been revised from 500 mm below the crown of the road, to 500 mm below the edge of the subgrade. This is a major difference in ditch depth. However the revised standard corresponds to the MTO Geometric Design Standards (D.9.3 - Drainage Channels). This configuration provides adequate drainage of the entire pavement structure.

Note 12 (pg. 5)

Side slope criteria was added to the minimum standards in order to provide some guidance over what is considered acceptable slope construction. This standard obviously applies only to earth sections. A 2:1 side slope is considered to be a stable slope. Steeper grades may show rapid signs of erosion or slope failure.

Note 13 (pg. 6)

The minimum diameter for entrance culverts has been revised to 400 mm. The road culverts also have a minimum of 400 mm diameter, for consistency. We should note at this time, that the 400 mm diameter is a minimum and that districts are free to select a minimum size suitable to the needs of their area.

Note 14 (pg. 6)

Reference is made to Ontario Provincial Standard Drawings for Cul de Sacs.

Is referencing OPSD too stringent for the purpose of this Directive?

Note 15 (pg.6)

We added guide rails to the list. This change is consistent throughout the Directive.

Note 16 (pg. 7)

Please note the change in designation from "SUBURBAN AREA" to "RURAL ROADS"

Note 17 (pg. 9)

Please note that this designation has not changed.

Note 18 (pg. 9)

8.5 m paved width (curb to curb) was deleted from the minimum standards for Urban Roads. The wording has been revised to reflect the objectives of the Alternative Design Standards which have been accepted by the MTO.

Note 19 (pg.11)

Easement requirements for surface drainage away from roads is important and should be reviewed prior to accepting a municipal road into the system.

Note 20 (pg. 12)

The minimum size of culverts was revised to 400 mm as the 300 mm culvert is considered too small by most districts. This minimum will apply to both entrance and road culverts.

The minimum cover was revised to 300 mm in order to correspond to OPSD and culvert standards. More information was provided with respect to minimum cover for larger culverts.

Note 21 (pg. 17)

Reference is made to the Alternative Design Standards ("Best Practices") for local residential subdivision roads and streets. Note that an 8.5 metre pavement width is no longer a condition of subsidy for these types of roads.

Note 22 (pg. 18)

This statement was added in order to comply with the Alternative Design Standards (Best Practices).

Note 23 (pg. 22)

This column was added as some municipalities prefer using the Design Hourly Volume (DHV) versus using the AADT.