

# Municipality of the County of Colchester

## Municipal Transportation Infrastructure Maintenance Policy

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### Background

The Municipality of the County of Colchester recognizes the vital role that transportation infrastructure such as Streets and Sidewalks play in enhancing the quality of life in the community in addition to providing normal day to day access. In addition, municipal streets provide access to services such as ambulance, fire trucks and police during emergencies. In recognition of the role and importance of municipal transportation infrastructure, the Municipal Council has adopted this Policy on inspection and maintenance of municipally owned sidewalks and streets within the Municipality. The policy attempts to develop a prioritizing process for repair and maintenance activities to establish a reasonable, systematic and predictable approach to repair and maintenance of streets and sidewalks in light of limited financial resources.

### Application of Policy

This Policy applies only to existing municipally owned and maintained streets and sidewalks or sidewalks or streets that may be constructed or extended under other investment programs/policies of the municipality, subsequent to completion of their construction or extension. The Policy does not apply to grass boulevards alongside sidewalks or grassed medians and dividers on streets which are maintained as a part of normal summer maintenance operations of the municipality.

### Objectives

The Policy has been established with the following objectives:

1. To establish a set of criteria and a rating system to rate the condition of municipally owned streets and sidewalks in the Municipality.
2. To establish standards of maintenance reflective of the condition rating of municipally owned sidewalks and streets.
3. To establish a mechanism to prioritize investment in repairs & maintenance of the streets and sidewalks in view of limited financial resources.

4. To establish an inspection schedule and an inspection cycle for ensuring that the streets and sidewalks are inspected and maintained according to the established standards of maintenance.

## Definitions

For the purpose of this Policy:

1. **Council** means the Council of the Municipality of the County of Colchester.
2. **Overall Street Component Rating** means a numerical value derived as a product of the rating number assigned to a particular component of the street system and the importance rating assigned to the street.
3. **Roadside Drainage Condition Rating** means a numerical value assigned between 5(best) to 1(worst) based on the visual condition of roadside storm water drainage ditches. Roadside drainage ditches form a component of the street system.
4. **Sidewalk** means a pathway having asphalt or a concrete surface and used primarily for pedestrian traffic movement.
5. **Sidewalk Combined Overall Rating** means a numerical value derived as a product of condition rating number assigned to the sidewalk and the importance rating assigned to the street.
6. **Sidewalk Condition Rating** means a numerical value assigned to a particular section of the sidewalk based on the visual condition of the traveled surface. The condition rating ranges from 5(best) to 1(worst).
7. **Street** means a road, street or an access path having an asphalt paved surface or a gravel surface designed for sustained handling of regular vehicular traffic and owned and maintained by the Municipality of the County of Colchester.
8. **Street Importance Rating** means a numerical value assigned to denote the importance of a street/road based on its location, traffic volume and the purpose served by the street/road.
9. **Street Shoulder Condition Rating** means a numerical value ranging from 5(best) to 1(worst) assigned to the street shoulder based on the visual condition of the shoulder of a street/road.

10. **Street Surface Condition Rating** means a numerical value assigned to a particular section of the surface of the street/road based on the visual condition of the traveled surface, both for asphalt surface as well as gravel surface streets. The condition rating for asphalt surface streets ranges from 10(best) to 1(worst) and the rating for gravel surface streets ranges from 6(best) to 1(worst).
11. **Street System** means a combination of various components that form a functional street. The components include the traveled surface, shoulder, roadside drainage and traffic management signage & markings.
12. **Street System Combined Rating** means a numerical value derived from a weighted summation of numerical values assigned to various components constituting a street system.
13. **Traffic Management Signage & Marking Condition Rating** means a numerical value ranging between 5(best) and 1(worst) assigned to the traffic management signage and marking component of the street system based on the visual condition of the signs and painted markings.

## **Inspection and Maintenance of Sidewalks**

The Municipality of the County of Colchester recognizes that sidewalks, trails and bikeways are a part of active transportation and an important integral part of community infrastructure. Sidewalks are significantly impacted by weather conditions and can deteriorate quickly, affecting pedestrian traffic.

The criteria developed for sidewalk maintenance do not apply to emergency repairs to any sidewalk or sidewalks.

### **(A) Sidewalk Condition Rating**

The sidewalks shall be inspected and rated on a scale of 1 (failed or worst condition) to 5 (excellent or best condition) depending upon the condition of travelled surface, both for concrete as well as asphalt surface sidewalks. The criteria of assigning a condition rating number shall be as contained in **Annexure-A, Table-1** or **Table-2** as modified by the Council from time to time.

### **(B) Standard of Maintenance for Sidewalks**

The standard of maintenance for each of the condition ratings assigned to a sidewalk, both for concrete as well as asphalt surface sidewalks shall be as outlined in **Annexure-A, Table-1** and **Table-2** as modified by the Council from time to time. Since

one or more of the visible defects identified in sidewalks with a condition rating of 2 or less could become potentially dangerous to residents using the sidewalk, Municipality shall attempt to mark such defects conspicuously with fluorescent paint, cones or any other device to attract the attention of the pedestrians using the sidewalk till such time the particular defect is remediated according to this policy.

**(C) Prioritizing Maintenance Investment for Sidewalks**

The Sidewalk Combined Overall Rating for the purpose of scheduling and carrying out maintenance operations to standards defined in (B) above shall be computed as a product of the Sidewalk Condition Rating of the sidewalk surface as defined in (A) above and Street Importance Rating as contained in **Annexure-B** as modified by the Council from time to time.

$$\text{Sidewalk Combined Overall Rating} = \text{Sidewalk Condition Rating} \times \text{Street Importance Rating}$$

The lower is the calculated Sidewalk Combined Overall Rating, the higher is the priority attached to repair/maintenance of the sidewalk. As an example, a sidewalk achieving a Sidewalk Combined Overall Rating of 3 shall have a higher priority for repair/maintenance over a sidewalk with a Sidewalk Combined Overall Rating of 6, which shall have a higher priority for repair/maintenance over a sidewalk with a Sidewalk Combined Overall Rating of 12.

**(D) Frequency of Inspections for Sidewalks**

Frequency of inspection and scheduling of inspections for sidewalks shall be based on the Sidewalk Condition Rating and not Sidewalk Combined Overall Rating of the sidewalk which is used to prioritize maintenance investment. The frequency of inspection of sidewalks shall be as per **Annexure-C** as modified by the Council from time to time. In addition to the established inspection frequency, portions of a sidewalk or sidewalks could be inspected out of turn in response to a specific complaint of a dangerous or hazardous situation on a sidewalk by the residents.

**Inspection and Maintenance of Streets**

The Municipality of the County of Colchester recognizes that roads and streets are an important component of municipal infrastructure providing access to residential and commercial properties. Efficient access to emergency services depends in part on a well maintained and functional network of roads and streets. Although gravel surface roads are more prone to seasonal damage requiring frequent maintenance, asphalt surface roads also

deteriorate with time due to seasonal weather conditions. Maintenance activities can significantly improve access and travel times on streets.

The criteria developed for street maintenance do not apply to emergency repairs to any street component or components.

**(A) Condition Rating for Street Systems**

To assign a condition rating for a street, four components of a street shall be independently evaluated. These components are:

- 1) The street travel surface. Asphalt travel surface streets shall be inspected and rated on a scale of 1 (failed or worst condition) to 10 (excellent or best condition). Gravel travel surface streets shall be inspected and rated on a scale of 1 (very-poor or worst condition) to 6 (excellent or best condition). The criteria for assigning a Street Surface Condition Rating number to asphalt and gravel surface streets shall be in accordance with **Annexure-D, Table-1** or **Table-2** as modified by the Council from time to time.
- 2) Street shoulders. Curb and Gutter, if present, are considered a part of the sidewalk infrastructure for the purpose of this Policy. Street shoulders shall be inspected and rated on a scale of 1 (very-poor or worst condition) to 5 (very-good or best condition). The criteria for assigning a Street Shoulder Condition Rating number to street shoulders shall be in accordance with **Annexure-E** as modified by the Council from time to time. If a street shoulder is not present in a particular street system, this component shall be rated 5 for the purpose of assessing the combined street rating.
- 3) Roadside drainage (roadside ditches). Storm-water sewer and piping laid under a sidewalk or road-shoulder are not covered under this Policy. Roadside drainage shall be inspected and rated on a scale of 1 (very-poor or worst condition) to 5 (very-good or best condition). The criteria for assigning a Roadside Drainage Condition Rating number to roadside drainage shall be in accordance with **Annexure-F** as modified by the Council from time to time. If roadside drainage (roadside ditches) is not present on a particular street system, this component shall be rated 5 for the purpose of assessing the combined street rating.
- 4) Traffic management signage and markings. This includes street painting, street name signs and other traffic management signage on the street.

Traffic management signage on streets shall be inspected and rated on a scale of 1 (very-poor or worst condition) to 5 (very-good or best condition). The criteria for assigning a Traffic Management Signage & Marking Condition Rating number to traffic management signage on the street shall be in accordance with **Annexure-G** as modified by the Council from time to time. If traffic management signage is not present on a particular street system, this component shall be rated 5 for the purpose of assessing the combined street rating.

All components of the street system shall be inspected and rated individually. A Street System Combined Rating shall be calculated as a sum of:

- 50% of the Street Surface Condition Rating (from Annexure-D)
- 25% of the Street Shoulder Condition Rating (from Annexure-E)
- 15% of the Roadside Drainage Condition Rating (from Annexure-F)
- 10% of the Street Traffic Management & Signage Condition Rating (from Annexure-G).

Based on the above calculation, Street System Combined Rating could range from 1 (for worst condition) to 7.5 (for best condition) for an asphalt surface street and from 1 (for worst condition) to 5.5 (for best condition) for a gravel surface street.

**(B) Standard of Maintenance for Street Systems**

The standard of maintenance for each component of the street system shall be based on the condition ratings assigned to that component of the street system both for asphalt and gravel surface streets and shall be as outlined in **Annexure-D**, **Table-1** or **Table-2**, **Annexure-E**, **Annexure-F** or **Annexure-G** as applicable and as modified by the Council from time to time.

**(C) Prioritizing Maintenance Investment for Street Systems**

The Overall Street Component Rating of a particular component of the street system for the purpose of scheduling and carrying out maintenance operations for that component to standards defined in (B) above shall be computed as a product of the Condition Rating of that particular street component as defined in (A) above and Street Importance Rating as contained in **Annexure-B** as modified by the Council from time to time.

$$\text{Overall Street Component Rating} = \text{Street Component Condition Rating} \times \text{Street Importance Rating}$$

The lower is the calculated Overall Street Component Rating, the higher is the priority attached to repair/maintenance of that street system component. As an

example, an asphalt travel surface component of a street system achieving a Overall Street Component Rating of 6 shall have a higher priority for repair/maintenance over an asphalted surface with a Overall Street Component Rating of 18, which shall have a higher priority for repair/maintenance over an asphalted surface with a Overall Street Component Rating of 32.

**(D) Frequency of Inspections for Street Systems**

Frequency of inspection and scheduling of inspections for street systems shall be based on the Combined Condition Rating of the street system and not Combined Overall Street Rating of the street system which is used to prioritize maintenance investment. The frequency of inspection of street systems shall be as per **Annexure-H** as modified by the Council from time to time. In addition to the established inspection frequency, portions of a street or streets could be inspected out of turn in response to a specific complaint of a dangerous or hazardous situation on a street by the residents.

<b>Table – 1: CONCRETE SURFACE SIDEWALKS SIDEWALK CONDITION RATING AND REMEDIATION ACTIONS</b>			
<b>Rating</b>	<b>Condition</b>	<b>Visible Description</b>	<b>Remedial Action</b>
5	Excellent	New construction, no signs of surface wear, spalling, cracking, heave or settlement. All control & expansion joints in good shape and edges are intact.	None
4	Good	Apparent condition good, occasional cracks less than 10mm, slight signs of surface wear, slight spalling or scaling. Some isolated patches in good condition. Occasional settlement of some slabs less than 25mm vertical drop.	Monitor condition and repair cracks
3	Fair	Moderate spalling and scaling, frequent patches in good condition. Moderate longitudinal cracks extending across the control joints of about 30% - 40% length of sidewalk. Faulting i.e. vertical surface drop less than 25mm in about 10%-20% slabs.	Same as for condition 4 above
2	Poor	Up to 50% sidewalk slabs have severe chipping or spalling. Moderate cracks (10mm-20mm) extending continuously across a few slabs. Moderate settlement and trip hazard - slabs faulting 25mm or more. Large number of patch work in fair condition.	Reconstruct or repair affected slabs
1	Failed	All the above mentioned defects are in severe condition, posing a safety hazard to the users, poor drainage and extensive patching that is in a poor condition.	Reconstruction of the sidewalk



**Table – 2: ASPHALT SURFACE SIDEWALKS  
SIDEWALK CONDITION RATING AND REMEDIATION ACTIONS**

<b>Rating</b>	<b>Condition</b>	<b>Visible Description</b>	<b>Remedial Action</b>
5	Excellent	New construction, no signs of surface wear or raveling, cracking, heave or settlement. Asphalt surface age less than one year.	None
4	Good	Good visible condition, minor cracks (less than 10mm), slight signs of surface wears or raveling. Isolated patches in good condition. Slight surface rippling (sag or hog) at occasional isolated spots.	Monitor surface condition for damage
3	Fair	Moderate surface wear and raveling. Longitudinal cracks from 10 mm up to 20mm. Minor block cracks visible in a few lengths. Frequent patching in good condition. Occasional sagging & shallow potholes.	Seal cracks and patch repair affected surfaces.
2	Poor	Top surface worn out, severe raveling. Continuous longitudinal cracks 20mm or more open and closely spaced block cracking. Significant heave or sagging with frequent potholes 25mm or deeper. Severely eroded or broken edges.	Cold mill and resurface rippled areas with asphalt overlay.
1	Failed	All the above mentioned defects in severe condition. Safety hazard to the users, poor drainage, extensive patching in poor condition.	Reconstruction of the sidewalk

<b>STREET IMPORTANCE RATING</b>	
<b>Rating</b>	<b>Street/Road Type</b>
4	Local Sub-division roads or streets with no exit
3	Local Sub-division roads or streets
2	Collector Roads
1	Main Roads or Highways

<b>CONCRETE SURFACE AND ASPHALT SURFACE SIDEWALKS FREQUENCY OF INSPECTION</b>		
	<b>Sidewalk Condition Rating</b>	<b>Inspection Frequency</b>
1	Sidewalks with condition rating of greater than 4.	Inspect once every two years.
2	Sidewalks with condition rating between 4 and 2 (both values inclusive).	Inspect once every year.
3	Sidewalks with condition rating less than 2.	Inspect twice in a year – once in Spring / Summer and then again in Fall / Winter.

<b>Table – 1: ASPHALT SURFACE STREETS/ROADS STREET SURFACE CONDITION RATING AND REMEDIATION ACTIONS</b>			
<b>Rating</b>	<b>Condition</b>	<b>Visible Description</b>	<b>Remedial Action</b>
10	Excellent	New Road, New Asphalt Surface (Age < 1year), good longitudinal and cross slopes, no cracks, joints or seams visible.	None
9	Very Good	Visibly good condition surface (age 2 to 3 years), good longitudinal and cross slopes, no or inconspicuous longitudinal cracks, occasional minor (less than 6mm) transverse cracks.	None
8	Good	Isolated sections with minor (less than 6mm) longitudinal and transverse cracks widely spaced. Traces of surface wear or ravelling in less than 33% of the total road surface.	None. Monitor crack propagation periodically.
7	Good	Slight signs of surface wear and ravelling visible. Minor Longitudinal cracks (6mm or less) and transverse cracks (6mm, spaced 3m or more). No patching or occasional patches in excellent condition.	Maintain with routine crack seal coating.
6	Fair	Moderate surface wear and ravelling. Longitudinal and transverse cracks (6mm - 12mm, spaced less than 3m apart). Occasional sign of block cracking.	Maintain with routine crack seal coating.
5	Fair	Conspicuous signs of ravelling and traffic wear. Longitudinal and transverse cracks open up to 25mm open and block cracks in less than 50% of road surface. Visible wear & tear at edge of pavement.	Patch or seal affected portions of surface.
4	Poor	Wide open longitudinal and transverse cracking with more than 50% of surface having block cracking. Top surface ravelled with visible signs of distortion and rutting (up to 12mm deep) in the wheel path. Moderate frost heave in the winter.	Maintenance by filling the wide open cracks to prevent water intrusion and consequent damage.
3	Poor	Whole surface consisting of closely spaced cracks and severe block cracking. Some alligator cracks also developed. Moderate rutting or distortion (25mm -	Patching for streets with AADT < 500. Cold mill & resurface

		50mm deep) in the wheel tracks. Uneven surface with occasional potholes and poor drainage.	with 50 mm asphalt for streets with AADT > 500.
2	Very Poor	Frequent potholes and rutting 50mm deep or more in the wheel path. Top surface worn out and severe ravelling. Closely spaced alligator cracking in more than 25% of the surface. Severe frost heave of isolated patches in winter.	Remove & resurface severely affected areas for streets with AADT > 500. Reconstruct with extensive base repairs for streets with AADT > 500.
1	Failed	Almost whole road surface is configured with deep alligator cracks and frequent large potholes over 75mm deep. Severe rutting and distortion in the wheel path. Service cuts with severe settlement. Severe frost heave of the 50% or more surface area in winter.	Total reconstruction of road.

<b>Table – 2: GRAVEL SURFACE STREETS/ROADS STREET SURFACE CONDITION RATING AND REMEDIATION ACTIONS</b>			
<b>Rating</b>	<b>Condition</b>	<b>Visible Description</b>	<b>Remedial Action</b>
6	Excellent	New construction; well compacted type 1 gravels, good longitudinal and transverse slopes. Age less than 1 year.	None.
5	Very Good	Re-graded/compacted with type 1 gravels, good surface with negligible signs of wears. Age of re-grading less than 6 months.	None.
4	Good	Minor scour i.e. erosion due to surface runoff from 15mm to 25mm with some signs of ruts. Occasional shallow potholes. Drainage good.	Grade and repair potholes and affected areas only.
3	Fair	Up to 50% of gravel layer washed or embedded in the road sub-grade, moderate ruts, moderately spaced (2-3m or more) potholes and drop off edges in about 50% of the road length.	Grade and compact affected surface including potholes and ruts.
2	Poor	Top gravel layer mostly eroded with closely spaced deep potholes (<1m spacing; 75mm or more deep) developed in more than 50% surface area. Shoulder edges eroded with deep burrows, and cuts, visibly reduced travelled surface.	Re-grading and compaction with a 50mm gravel layer after repairing potholes, ruts and burrows.
1	Failed	All the above defects. Number too large to be rectified through normal grading for more than 75% of the road length.	Reconstruction of the entire road section.

<b>STREET SHOULDER CONDITION RATING AND REMEDIATION ACTION</b>			
<b>Rating</b>	<b>Condition</b>	<b>Visible Description</b>	<b>Remedial Action</b>
5	Very Good	New construction, age less than one year.	None.
4	Good	Sporadic surface erosion less than 25 mm in the road length, occasional burrows or potholes < 50mm deep, minor drop-off edges.	Spread & compact a thin layer of gravel around damaged portions.
3	Fair	Visible erosion of gravel lowering shoulder surface > 75mm, moderate potholes >100mm deep, deep burrows spaced less than 3m apart and damaged/drop-off edges in less than 50% length of road.	Spread and compact gravels to restore shoulder section in damaged portions.
2	Poor	Closely spaced deep burrows and/or potholes, top gravel layer severely eroded, shoulder width reduced to 50% due to erosion of edges.	Place and compact gravel to restore shoulder width and shoulder surface.
1	Very Poor	Almost complete shoulder failure. Visible closely spaced deep potholes and burrows. Deep cuts in edges reducing shoulder width considerably almost along entire length of road.	Complete reconstruction of shoulder.

<b>ROADSIDE DRAINAGE CONDITION RATING AND REMEDIATION ACTION FOR ROADSIDE DRAINAGE DITCHES</b>			
<b>Rating</b>	<b>Condition</b>	<b>Visible Description</b>	<b>Remedial Action</b>
5	Very Good	New construction, the bank edges and bed slopes are intact as designed.	None.
4	Good	Minor scour or sedimentation, occasional signs of erosion along the ditch bank edges, vegetative lining growth < 150mm.	None.
3	Fair	Moderate bed scouring or sedimentation affecting the design slope & capacity. Deposition of silt, debris or gravels on ditch bed. Significant growth of vegetation within ditch section.	Trimming vegetation and cleaning of deposits.
2	Poor	Thick and long grown vegetation, heavy bed scouring, edges badly eroded, stagnant water ponds at places.	Cut/trim vegetation, re-grade bed and restore edges.
1	Very Poor	Ditch not functioning to discharge capacity. Banks severely eroded or damaged. Bed silted with sedimentation or choked with debris and excessive vegetative growth.	Complete ditch section restoration to design grade.



<b>TRAFFIC MANAGEMENT SIGNAGE &amp; MARKING CONDITION RATING AND REMEDIATION ACTION</b>			
<b>Rating</b>	<b>Condition</b>	<b>Visible Description</b>	<b>Remedial Action</b>
5	Very Good	Newly painted markings, brightly visible during all weather conditions, all signs, letters and marks fully intact and legible.	None.
4	Good	Small amount of fading due to dust, dirt and minor discolouration. All markings otherwise clearly visible.	None.
3	Fair	Several minor surface abrasions, small patches of oil, grease, dirt & dust, minor loss of painted signage marks but legible both day & night.	Cleaning the patches concealing the markings.
2	Poor	Significant fading or discolouration of signs and markings effecting visibility and legibility of signs during night or bad weather.	Repainting of illegible and effected markings.
1	Very Poor	Stripes, marking, letters and legends totally abraded or absent affecting visibility even during daytime.	New painting or complete repainting of traffic markings on entire street.

