

# MPT 651 – Municipal Engineering Systems

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# Objectives

- MPT651 Covers various aspects of the evaluation and design of municipal services. Topics include municipal road design, design of storm and sanitary sewers, and water main systems, lot grading, sewer construction, erosion and sediment control, and water crossings.

# Learning Outcomes

- Determine required dimensions for road classifications, public transportation, sidewalks, etc.
- Apply principles for watermain network design
- Apply principles for sanitary sewer design
- Apply principles for storm sewer design
- Be able to perform grading design
- Exposure to construction techniques
- Exposure to Erosion and Sediment Control techniques

# Evaluation

15.0%	Assignments
15.0%	Quizzes
15.0%	Group Assignment
20.0%	Mid Term
<u>35.0%</u>	Final Exam
100.0%	

(approximately)

# Grading Policy

A+ 90% to 100%

A 80% to 89%

B+ 75% to 79%

B 70% to 74%

C+ 65% to 69%

C 60% to 64%

D+ 50% to 54%

F 0 % to 49%

# Course Outline

(preliminary)

- Week 1: Introduction / Definitions / Subdivision Plans
- Week 2: Grading and Drainage
- Week 3: Sanitary Sewers
- Week 4: Storm Sewers
- Week 5: Stormwater Management
- Week 6: Transportation
- Week 7: Review and Quiz
- Week 8: Study Week (No Class)
- Week 9: Review and Mid Term
- Week 10: Watermains, Forcemains, Pumping Stations
- Week 11: Watermains, Forcemains, Pumping Stations
- Week 12: Construction
- Week 13: Erosion and Sediment Control
- Week 14: Review
- Week 15: Exam

# Definitions (information)

- Hamlet < 100 people
- Township – generally means an area associated with a town (ie: King Township)
- Counties (very few)
- Village (Approx. Pop. 500) – group of houses / buildings; larger than a hamlet but smaller than a town
- Town (Pop. 2000)
- City (Pop. 15000/25000)
- Each area has different levels of authority, subsidies and grants etc.
- Ontario Municipal Board (OMB) administers the Municipal Act

# Definitions

- Official Plan An Official Plan of an area or Regional municipality is a document containing objectives and policies to guide the future growth and development of the municipality. The intention of an Official Plan is to help deal with the physical development of a community while having regard to relevant social, economic, and environmental matters.
- Zoning By-law A Zoning By-law is a legal instrument for implementing the general policies of the Official Plan.
  - deal specifically with the manner in which the land is to be used
  - more detailed than the Official Plan
  - specifies the uses and standards for individual or sections of land including types of buildings, heights of buildings, size of lots .
  - Zoning By-laws are prepared by the local municipality and passed by council. They are then approved by the Ontario Municipal Board.

# Definitions

- Road Allowances – municipal owned land for transportation purposes
- ROW – municipal property (for vehicular, pedestrian purposes)
- Easement – acquisition of specific rights to land (for example, a sewer easement, Enbridge, etc). Land is still privately owned but entity may use lands within easement. Restrictions are usually placed on owner.
- Coverage – percentage of land that can be used for a purpose (ie: 60% of land (1hectare) can be used for office space)
- Street Line – boundary of road allowance (typical RA = 1 chain wide = 66 feet)
- Travelled portion – curb to curb
- Boulevard – curb to street line

# Definitions

- Property Line – boundary between different owners or properties
- Severance – splitting lots or creating 2 or more
- Subdivision - more than 4 to 8 lots from one property - municipality sets the limits
- Municipal Services
  - Storm sewer, sanitary sewers, water (these are “WET” utilities)
  - Street lights, Roads, Sidewalks
- Private Services
  - Phone (Bell)
  - Gas (Enbridge)
  - Cable (Rogers)
  - Hydro (Power Stream) (these are examples of “DRY” utilities)

# Development Process

- Block of land (owner/developer)
  - OLS
    - Reference R-Plan (Boundary Survey)
    - Topographic Survey
  - Consultants (Planning, Civil, Environmental, etc.)
  - Official Plan/Zoning
  - draft plan of subdivision
  - distributed to local agencies
    - City / Region / Conservation Authority
    - police - fire - School Boards - other utilities (Bell, Cable) for comments
  - Revisions as Needed
  - Submitted to Council for Official Plan and zoning approval (as req'd)
  - provincial ministries - MTO, MOECC etc
  - subdivision agreement (between municipality and owner)
  - engineering drawings approved
  - Go to Tender / Contract
  - Construction
  - Turns roads over to municipality (if applicable)