

Design and Sustainability for Winter Operations

Rational:

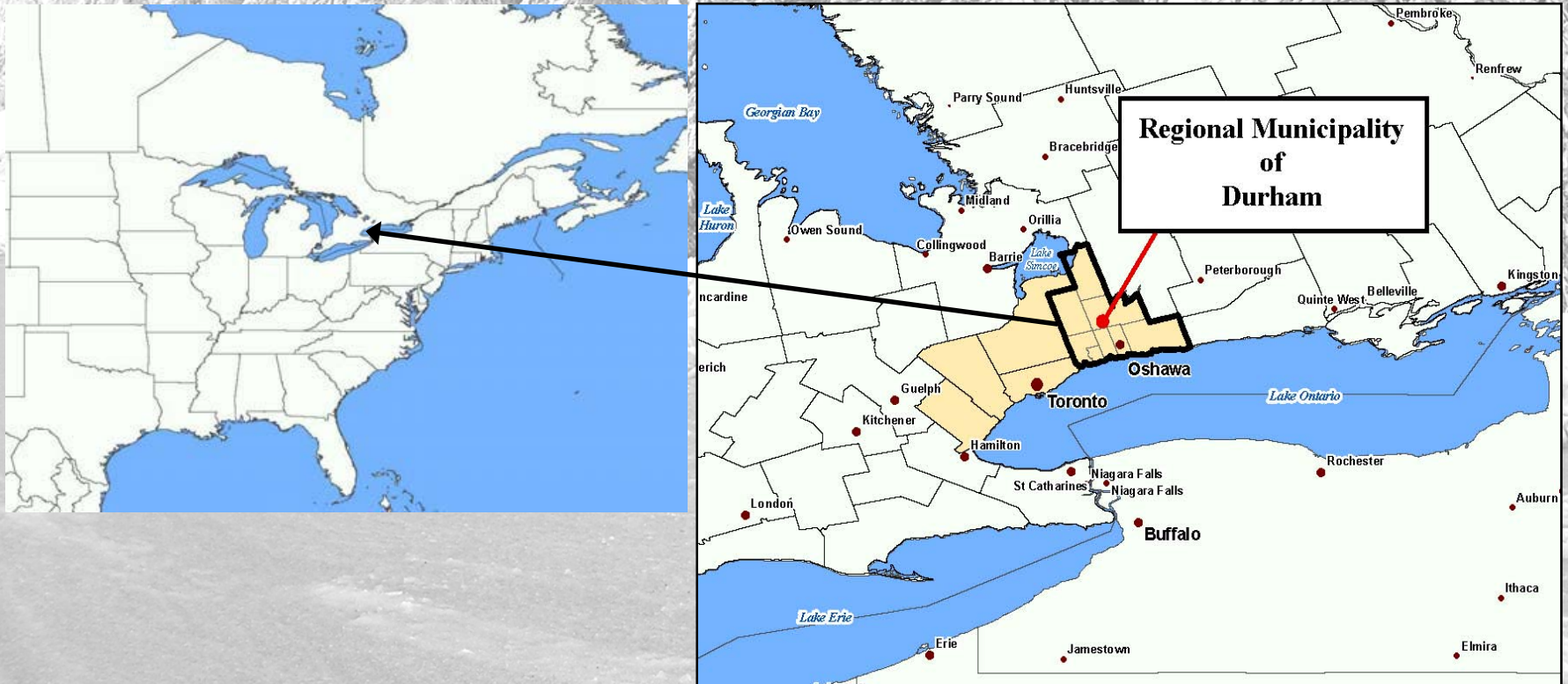
**For Operations staff to be more involved in the
Design of our road infrastructure.**

***“What gets designed and built by others,
Becomes our maintenance legacy”***



Sustainability for Winter Operations

The Regional Municipality of Durham



Sustainability for Winter Operations

Within the Region of Durham, there are 8 local municipalities.

Durham's roads consist of the arterial road network throughout all the local jurisdictions.

Approximately 2,200 L/Km (or 1,400 L/miles).

Population of 620,000

The Region currently utilizes 35 combination units of our own and contract out 21 units.

Sustainability for Winter Operations

In any Winter Maintenance Operation...

Building and sustaining relationships with our internal and external partners is an integral aspect in how we administer our responsibilities.

Sustainability for Winter Operations

Infrastructure / Transportation / Traffic Design

- Operations Management & Staff
- Planning and Development
- Fleet Management
- Contracted – Outsourced agencies

Sustainability for Winter Operations

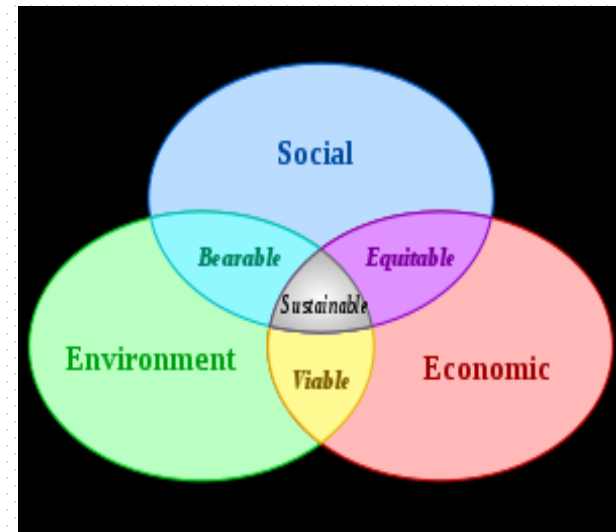
Sustainability means building to last.

Core Values:

Economic, Social, & Environmental

Ensuring a balance input from concept, design, construction, operations and in the end...

reuse/recycle/demolition of what remains.



Sustainability for Winter Operations

Operations has evolved as a reactionary branch.

The demands and expectations of providing a safe and manageable transportation system has stretched most of our resources to the point where our LOS and SOP must adapt.

Expected to do more with less ?

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Purpose, to aid / be part of the coordination or creation of a platform for the exchange of;

- Views
- Knowledge
- Experience

All with the intent of creating a sustainable road infrastructure to meet existing and future needs of the population and local economies for years to come.

Sustainability for Winter Operations

Designing for Snow & Ice Control may include:

Winter Maintenance Event Operation.

- Deceleration lanes, left and right hand turning lanes

- Distances between controlled intersections

- Emergency Services and / or Transit lanes

- Pedestrian & Accessibility needs!

- Local Economy

- Bicycle Lanes / Paths

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Design for Snow & Ice Control may include:

Snow Storage.

Availability of sufficient boulevard width or drainage

Need for snow removal and disposal

Minimize drifting by
extensive fencing or
benching Operations.



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Design for Snow & Ice Control may include:

Drainage Systems/Structures.

Active off season Drainage management program

All season inspection of inlets and grates



Sustainability for Winter Operations

Design for Snow & Ice Control may include:

Drainage Systems/Structures.

Rural & Semi-Urban settings, above ground drainage preferred over closed systems (i.e Storm Retention ponds)

Flood prone areas need monitoring,

Environmental impacts, how and where are the dispersed Chlorides moving.

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Design for Snow & Ice Control may include:

Channelization Devices.

Raised *Barrier Curb* medians and islands, good for traffic management, not for snow removal operations

Design of “flush” medians - better for drainage, trucks and plow blades.

Sustainability for Winter Operations

Maintenance challenges...



Sustainability for Winter Operations

Design for Snow & Ice Control may include:

Traffic / Pavement Delineation Devices.

Meet the needs of the motoring / pedestrian public, yet not providing an obstacle during winter events.

Re: Location and visibility – site obstructions

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Design for Snow & Ice Control may include:

Drifting / Plan & Profile.

Rural Road construction provides “cuts and fills”. Prepare cut sections that are perpendicular to prevailing winds.

Side slopes should be designed to minimize snow capture / drifting on the road allowance.



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Design for Snow & Ice Control may include:

Anticipated needs, or “Ought to have known”.

- Potholes – potential of.

- Drainage & debris, removal

- Bridge structure maintenance

- Regular / ongoing equipment condition assessment

- Road surface conditions / continuity / flooding

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Those planning decisions early, will have implications on how our services are delivered, the effect will be far reaching; Staffing, Fleet, Operating and Capital Budgets, LOS, Facilities, etc.

Some challenges Durham Region has faced
in the recent past....

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To this ?



Courtesy; Regional Municipality of Waterloo

Sustainability for Winter Operations

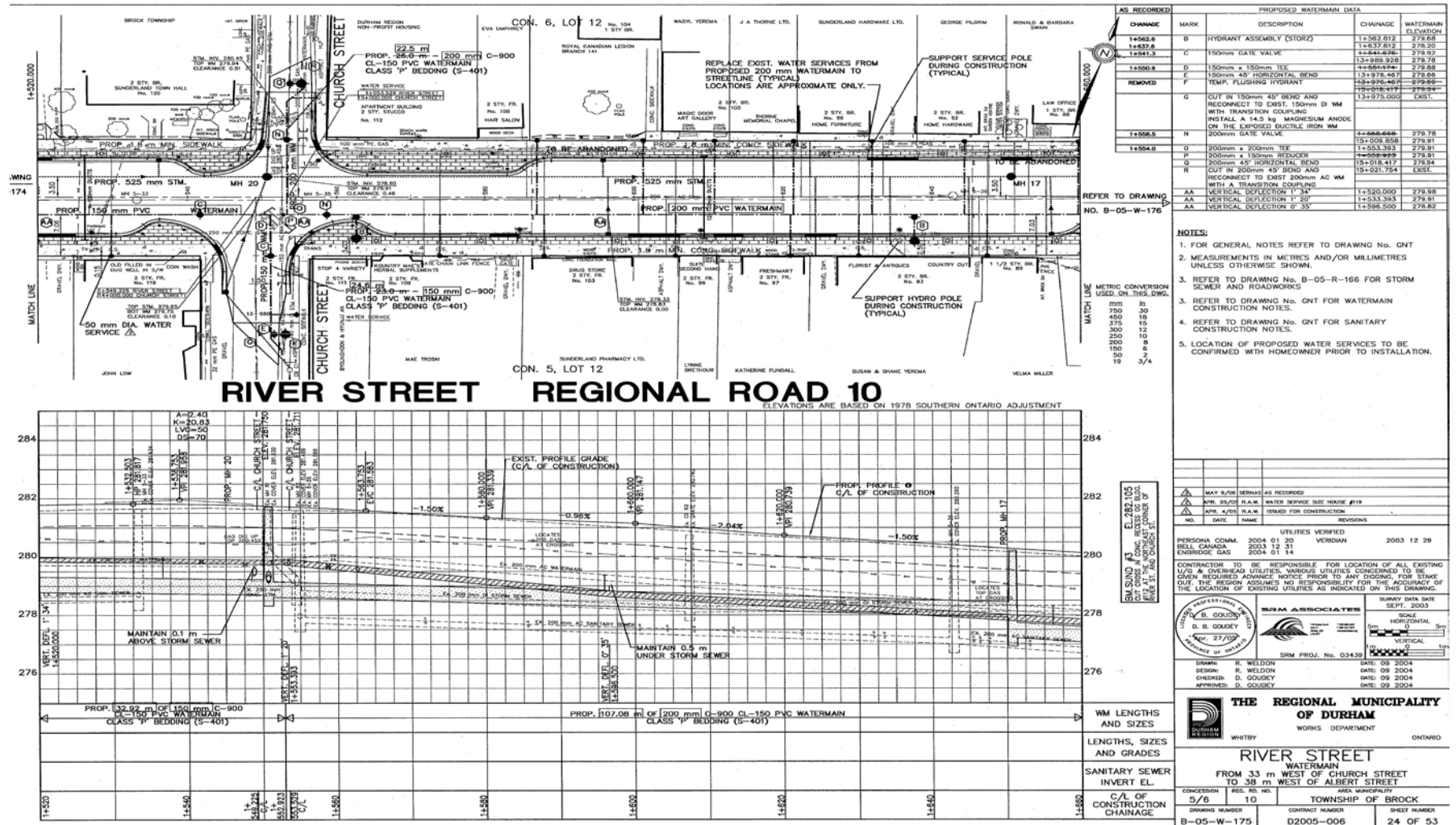


Or this ?



Courtesy; Wisconsin DOT

From this...



Sustainability for Winter Operations



To this ?



Sustainability for Winter Operations

Maintenance challenges...



Sustainability for Winter Operations

Solving Operational Problems

Left hand turning lanes



Sustainability for Winter Operations

Maintenance challenges...



Cul-de-Sacs

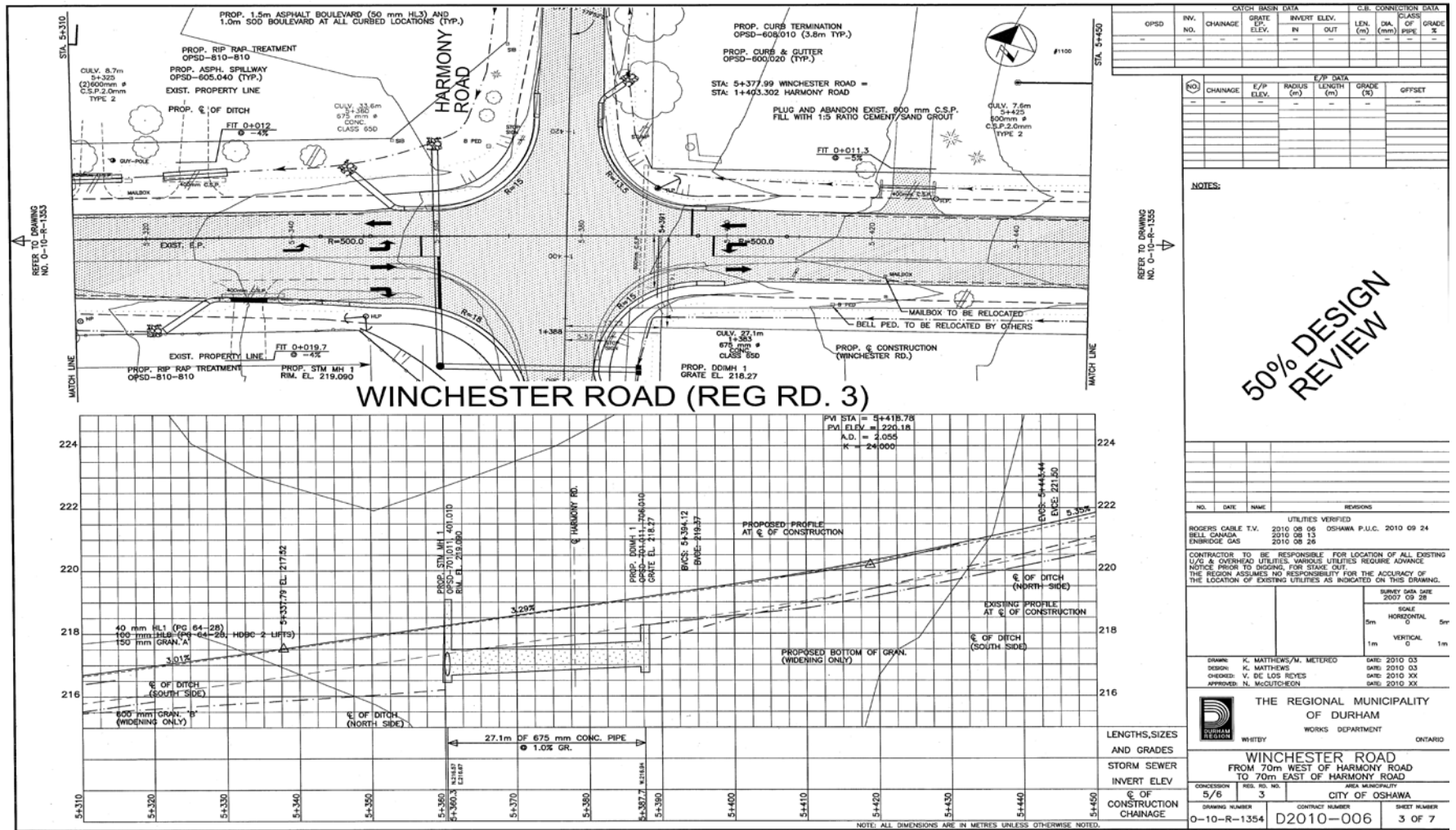


Boulevards, Bicycle lanes, Sidewalks and Snow Storage.



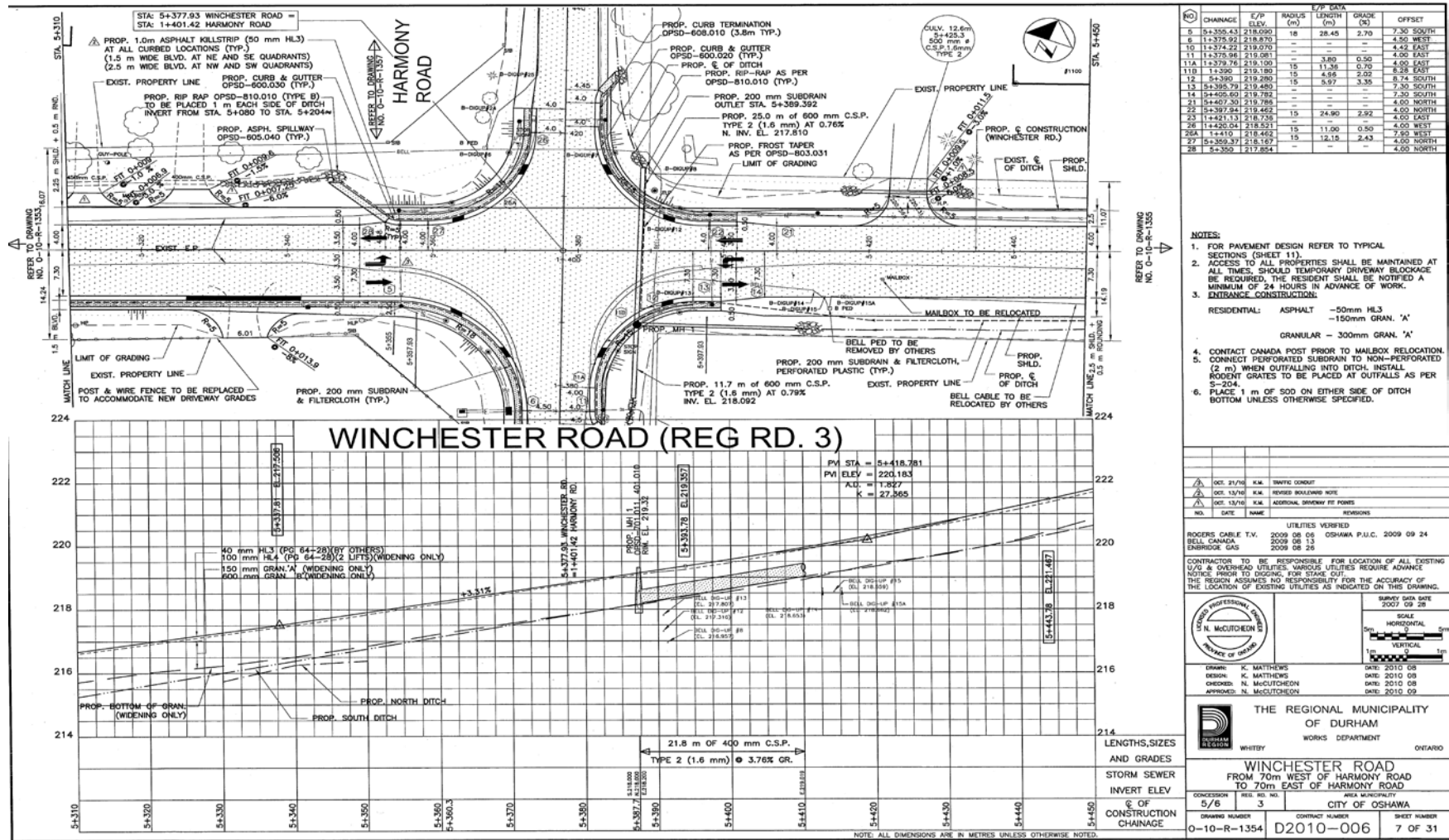
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From this...

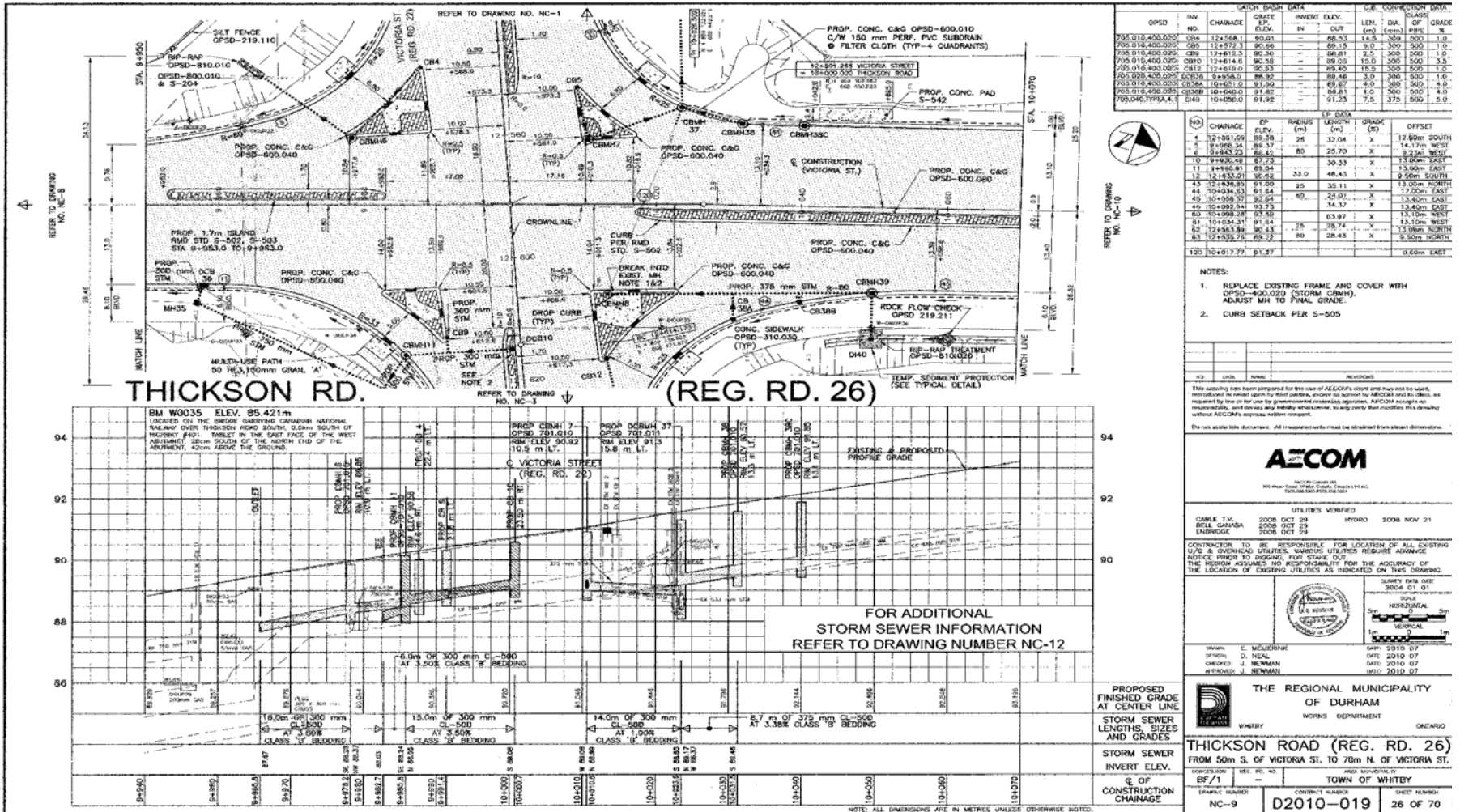


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To this



Discussion...



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Solving Operational Issues

- Develop a protocol involving your work group
- Identify in-house efficiencies, what works
- Encourage field and supervisory staff input

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PROJECT DISTRIBUTION LIST

PROJECT: Harmony Rd. (Reg. Rd. 33)
City of Oshawa

CONTRACT: D2013 - XXX

DATE:

Location : Harmony Rd. / Conlin Rd.

CO-ORDINATOR: Glen R

WORKS DEPARTMENT

ENVIRONMENTAL

- Director:
- Service - Design Manager:
- Planning and Studies Manager:
- Technical Support Manager:

John
Bernie
Jim
Greg

- Project Engineer
- Technician
- Technician
- Sanitary Sewer
- Storm Sewer
- Watermain
- Roads

* Kevin
Rod
* Geeves
* Dale
* Warren

TRANSPORTATION

- Director:
- Design Manager:
- Traffic Eng. & Operations Manager:
- Maintenance Operations Manager:

Sam
Paul
Bob
Peter A

- Supervisor
- Oshawa - Whitby Depot:

* Joel
* Kerry

- Transportation Infrastructure

Steve

- Utilities:

Stuart

CONSTRUCTION

- Construction & Asset Man. Manager:
- Survey & Mat. Test. Engineer:

Dan
* Ron

- Survey
- Project Manager
- Material Testing
- Contracts Co-ord
- Draftsperson

Tim
* Bill
Joe
Allan
Abe

SUPPORT SERVICES

- Director:
- Admin. & Real Estate Manager:
- Development Approvals Manager:

Gord
Jenni
Pat

- Apprais./Negotiator
- Project Eng.

Monique
* Paul G.

DURHAM REGION - PLANNING DEPARTMENT

- Transportation Planning, Manager

Roy

Planner
Planner

Peter D
Jeff

DURHAM REGION TRANSIT

- Transit Operations, Manager

* David

Works Health and Safety

- Safety Officer

Barry

CITY OF OSHAWA

Director of Engineering Services
Design Manager, Engineering Services

Gary
* Anthony (4 sets)

* Denotes those persons who will receive a set of construction drawings for comment purposes.

Sustainability for Winter Operations

Solving Operational Issues

- Assess deficiencies
- Prioritize and correct / adapt to those deficiencies
- Communicate your internal challenges to others in your municipality

Sustainability for Winter Operations

Summary

- Relationship Management, recognize the needs of others, as well make your input clearly understood.
- Create a Standard Operating Procedure – circulation list of who and how projects are reviewed and commented on.
- Discern what your operational financial obligations and capabilities are now and in the future.

Sustainability for Winter Operations

Sustainability / Summary

- Expectations & your Standards, compromised ?
- Commitment – Fiscally and Operationally
 - Knowledge Management
 - A deliberate planning process!

Sustainability for Winter Operations

Sustainability / Summary

Ensure your operation is accommodating.

“Sustainable long term road safety is a structural and preventable approach in which the public's safety (road user) is incorporated in your planning, design, and long term *maintenance operations*”.

Sustainability for Winter Operations

Sustainability is not about off the shelf solutions, rather instead about a range of balanced options.

Thank you

Questions ?

warren.nicholishen@toronto.ca



Prepared By: Warren Nicholishen CRS CST
For: 2018 Michigan Winter Operations Conference
Director Transportation, Fleet and Operations, Port Hope
(*Superintendent Roads and Sidewalks, City of Toronto)

