



# Asset Management Department

Information Session on Street Lighting  
Project – Inventory Data Collection and  
Condition Analysis of Existing  
Infrastructure

# Background

- The Town of Markham currently operates and maintains approximately 22,000 streetlights.
- The Town had a very limited data base of information on older existing infrastructure.
- The Town has never previously undertaken a detailed inventory or condition analysis for streetlighting
- In order to properly manage an asset it is essential to have good data on attributes, age and the condition of the asset
- To upgrade the Town's streetlight knowledge, Asset Management retained a consultant (Enersource) to prepare a background study (Phase 1 Condition Analysis ) to review the Town's streetlighting system and identify typical life cycle, and condition problems.
- The study was completed in 2007 and used as background and reference for the inventory project.

# Background

- In 2007, the Asset Management Department added a streetlight module to our HANSEN Data Base software to help manage future streetlight maintenance requirements.
- From the start of 2007 new streetlight data has been added directly to the HANSEN database system by Asset Management staff (approximately 4,000 lights to date) using “As Built Drawing” information received from the Engineering Department .
- In the spring of 2008, the Town issued a tender and awarded a contract for the compilation of; accurate location (by GPS) of streetlights, inventory of types of streetlights, and the condition for the older 18,000 streetlights.
- ITRANS Transportation and Traffic Consultants were awarded the project.
- Highlights of the project are outlined in the following ITRANS summary.



# Project Overview

## Data Collection Needs

- Streetlight inventory –poles, brackets and luminaires
- Streetlight condition analysis

*Project duration was 3 months and was completed in October 2008*

# Streetlight Inventory

- Pole Information
  - GPS Coordinates
  - Ownership (Town or PowerStream)
  - Material
  - Colour
  - Height
  - Foundation type
  - Year constructed
  - Manufacturer/class

# Streetlight Inventory

- Luminaire Brackets
  - Number of Brackets
  - Top mount Bracket
  - Bracket Type
  - Arm Length
  - Bracket Attachment Type
  - Banners
  - Hangers

# Streetlight Inventory

- Luminaire Information
  - Number of Luminaires on Pole
  - Wattage
  - Type of Luminaire
  - Photocell
  - Control Relay
  - Orientation to Road



# Streetlight Condition Assessment

- Pole – Structure (cracks, concrete spalling, rusting, dents, reinforcing bars exposed), lean, paint, and hand hole covers.
- Luminaire Bracket – Structure ( rust, broken, cracks ), orientation to road, and paint.
- Luminaire - Housing Structure and Lense, paint, cleanliness, and light obstruction by trees



# Three Point Scale for Condition Analysis

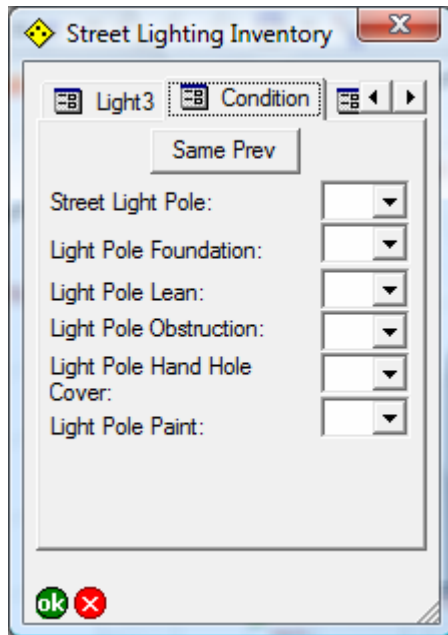
1. No action recommended
2. No immediate action recommended / review periodically
3. Repair / replace as soon as possible
  - a photo and detailed description were supplied for each problem

# Pocket PC & Battery Pack used in Field to Collect Data and Pictures



# Condition and Comment Screens used to Collect Data in Field

## Photo and comment collected for Level 3



Street Lighting Inventory

Light3 Condition

Same Prev

Street Light Pole:

Light Pole Foundation:

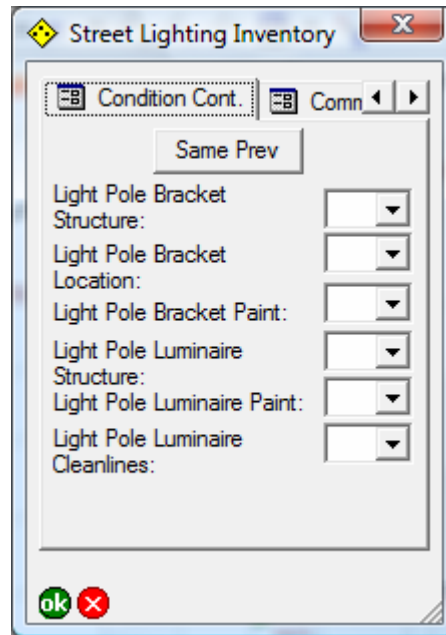
Light Pole Lean:

Light Pole Obstruction:

Light Pole Hand Hole Cover:

Light Pole Paint:

ok x



Street Lighting Inventory

Condition Cont. Comn

Same Prev

Light Pole Bracket Structure:

Light Pole Bracket Location:

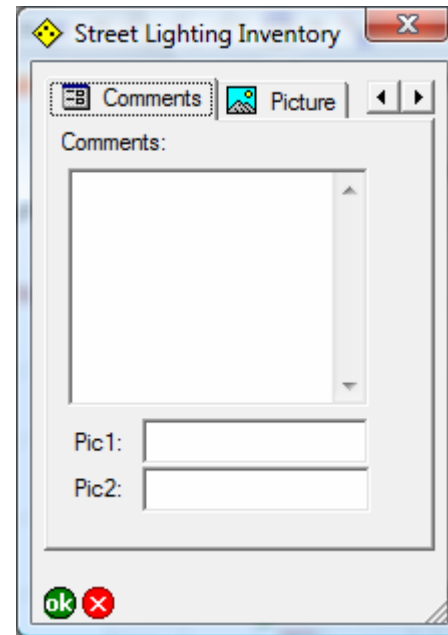
Light Pole Bracket Paint:

Light Pole Luminaire Structure:

Light Pole Luminaire Paint:

Light Pole Luminaire Cleanlines:

ok x



Street Lighting Inventory

Comments Picture

Comments:

Pic1:

Pic2:

ok x



### Typical Pole Condition 3 Light Pole Obstruction





Typical Pole Condition 3  
Light Pole Concrete Failure



CONCRETE SPALLING, RUSTING,  
EXPOSED REINFORCING BARS



CONCRETE CRACKING



### Typical Pole Condition 3 Hand Well Covers (Corrosion)





Typical Pole Condition 3  
Light Pole - Metal

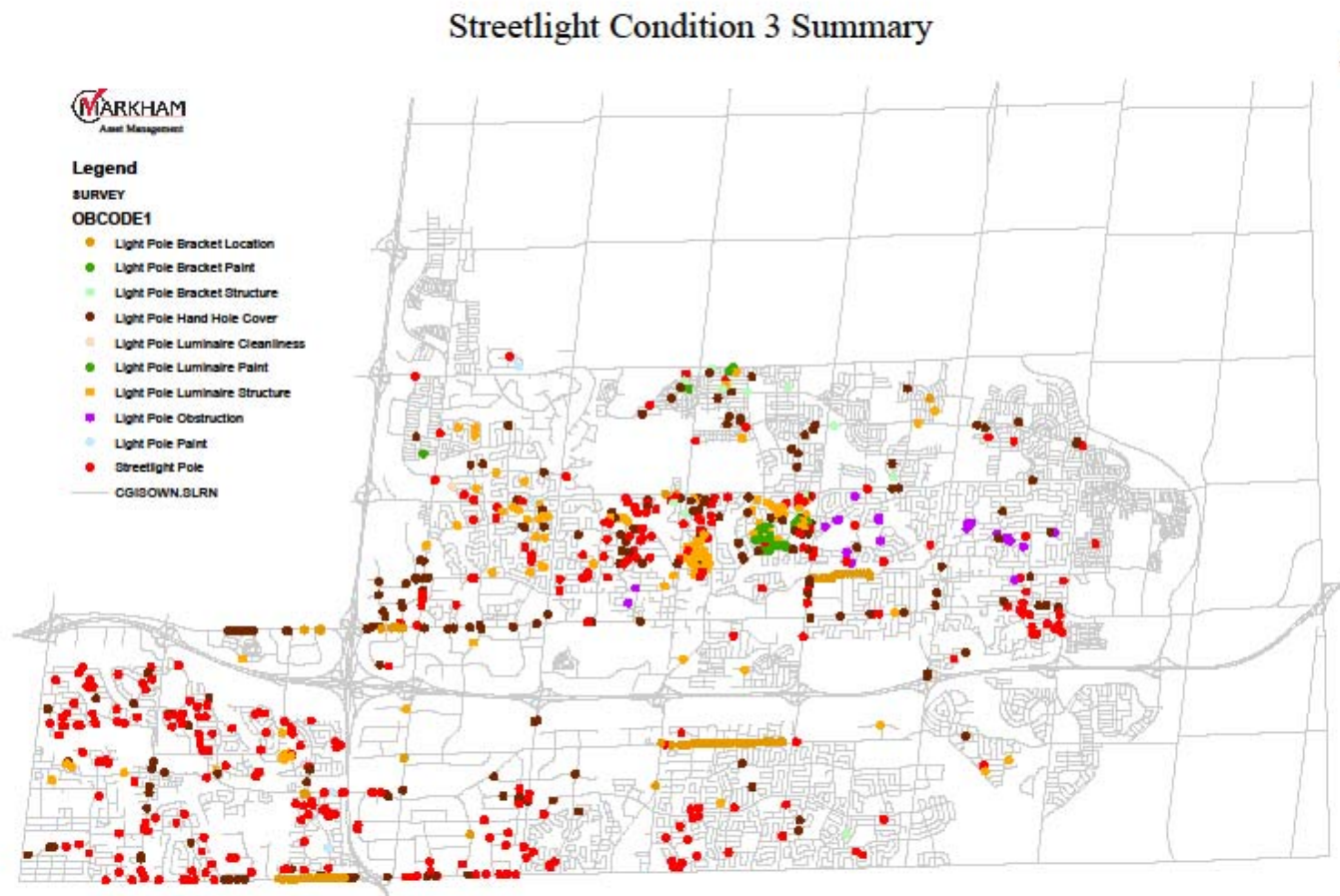


DENTED STEEL



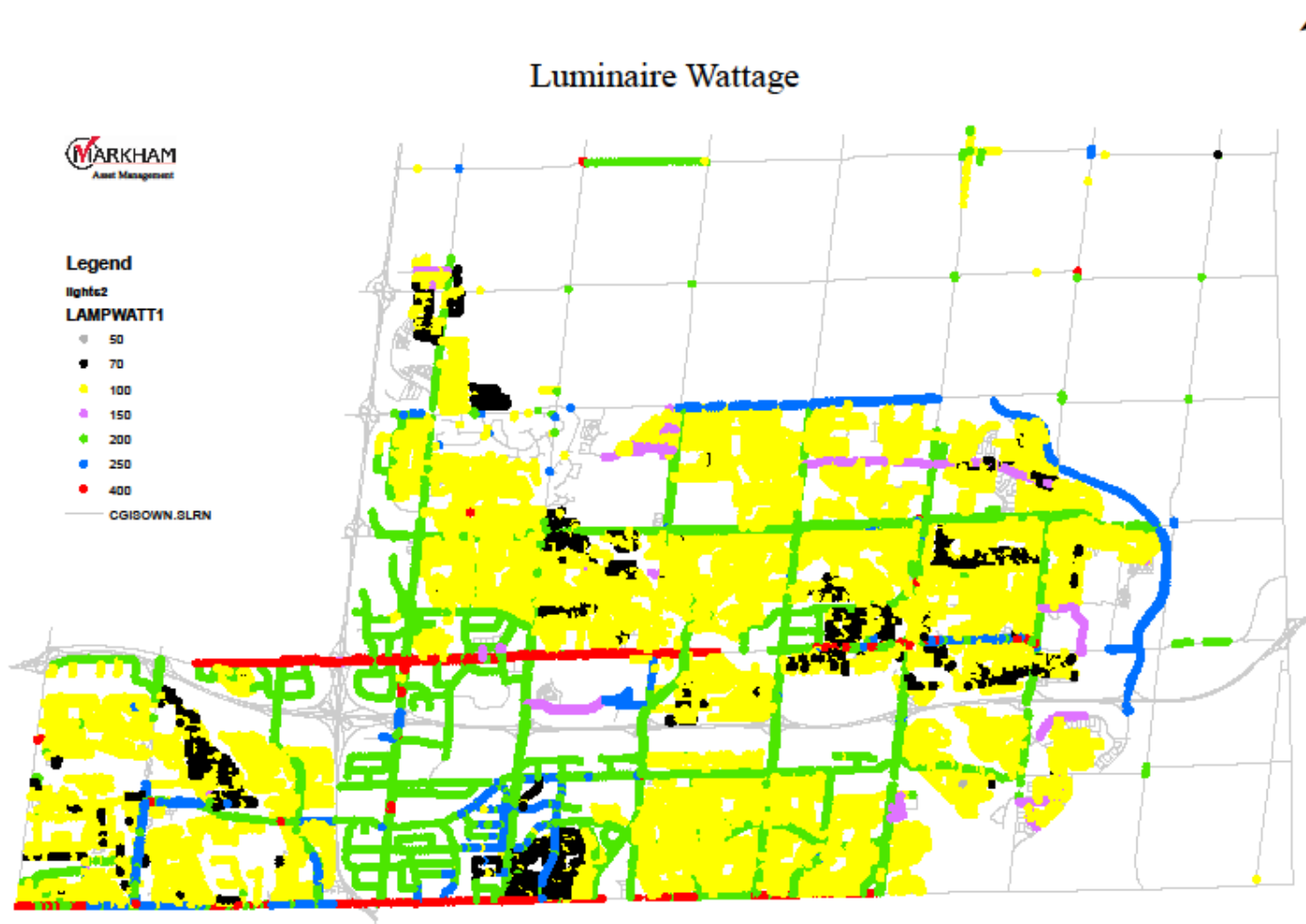
DENTED ALUMINIUM

# EXAMPLE FROM DATA BASE – MAPPING SHOWING LOCATION/SUMMARY OF CONDITION 3 INFRASTRUCTURE





## EXAMPLE FROM DATABASE—MAP SHOWING WATTAGES OF ALL STREETLIGHTS



# **Markham's Next Steps**

## **Condition Analysis**

- Approx. 200 poles and 200 handhold covers need to be further reviewed for the repair /replacement program. ( Note- a complete pole replacement is estimated to cost approx. \$4,000-5,000/pole)
- No luminaires or brackets were identified with significant problems at present.

## **2009 Capital Budget (\$200,000)**

- Consultant to be retained to prioritize and project multi year rehabilitation action plan (\$25,000).
- Tender for 2009 replacement/repair program as per the Consultant's recommendations (\$175,000).