

Presentation to the Town of Oakville Waterfront Lighting-Aug26/19 Bill Apted-Chris MacIsaac

- Invitees
- Cathy Duddeck-Town & Regional Councillor, Ward 2
- Ray Chisholm-Town Councillor, Ward 2
- Ray Green, PEng-Town Chief Administrative Officer
- Colleen Bell-Commissioner, Community Services
- Chris Mark-Director, Parks & Open Spaces
- Bill Apted-Resident
- Chris MacIsaac-Resident

Bill Apted

- 30 Year Oakville Resident
- Retired CEO Multi National Corporation 27,000 Employees, 3 Continents , 35 Countries
- Harvard Business School AMP
- Board Member, Ontario Review Board

Meeting Objectives

- RECOMMEND RESPONSIBLE LIGHTING THAT:
- Is Non Intrusive to Near By Homes
- Retains the Dark Sky Objectives Stated in West Harbour Master Plan
- Safe for Park Users that Retains CPTED Goals
- Consistent with Existing Lighting Already Installed on Tannery Park Observation Deck

West Harbour Lighting Plan

- 2007-2017...Dark Sky
- 2016.....July 13 Rakesh Mistry: “low level fixtures”
- 2017.....Livable Oakville Lighting Design: “Full Cut Off”
- 2018.....15 Foot LED Lighting
- 2019.....15 Foot LED Lighting with 120 degree shields

West Harbour Master Plan

- “Along entire PathwayDARK SKY”
- “Design with CPTED principles” to ensure a safe site.
- Walker St Promenade: “terrific lake views”:
- Day and Night
- “Key Direction #2: Balance and Respect for all Users”
- Tannery Observation Deck: Dark Sky

Livable Oakville Plan Town Policy (2009)

- Outdoor lighting fixtures shall direct light away from the night sky. Energy efficient outdoor lighting fixtures are encouraged.
- (Livable Oakville 6.14.4)
- Town of Oakville Municipal Lighting Standard Draft V1 should build on Livable Oakville Plan and Livable Oakville Plan should be updated to express the importance of preservation of the night sky in Town Parks, Pathways , Trails and particularly in environmentally sensitive areas including shorelines

Town of Oakville Outdoor Lighting Standard Draft 1.0

- “Protect Natural Environment from Adverse Affects of Night Time Lighting “
- “Curtail Light Pollution, Reduce Sky Glow and Improve Night Sky for Astronomy”
- “Conserve Energy”

Conservation Halton

- Stewardship, which includes wise, informed decision making, will help ensure that generations to come will be able to enjoy the natural heritage that we have today
- We inherited our natural spaces from the generations before us and will pass them on to our children and future generations.

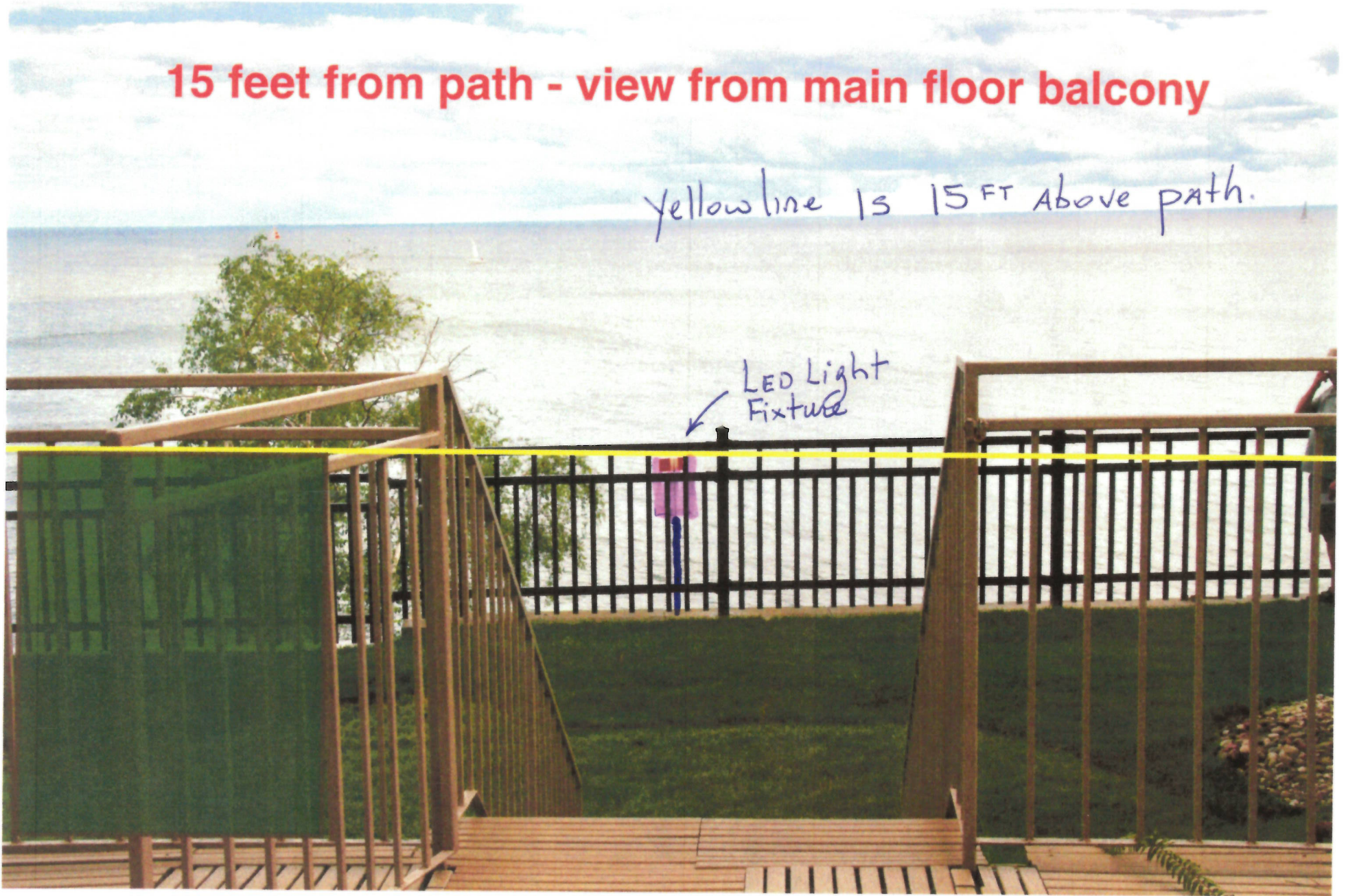


INTRUSIVE OPTION

15 feet from path - view from main floor balcony

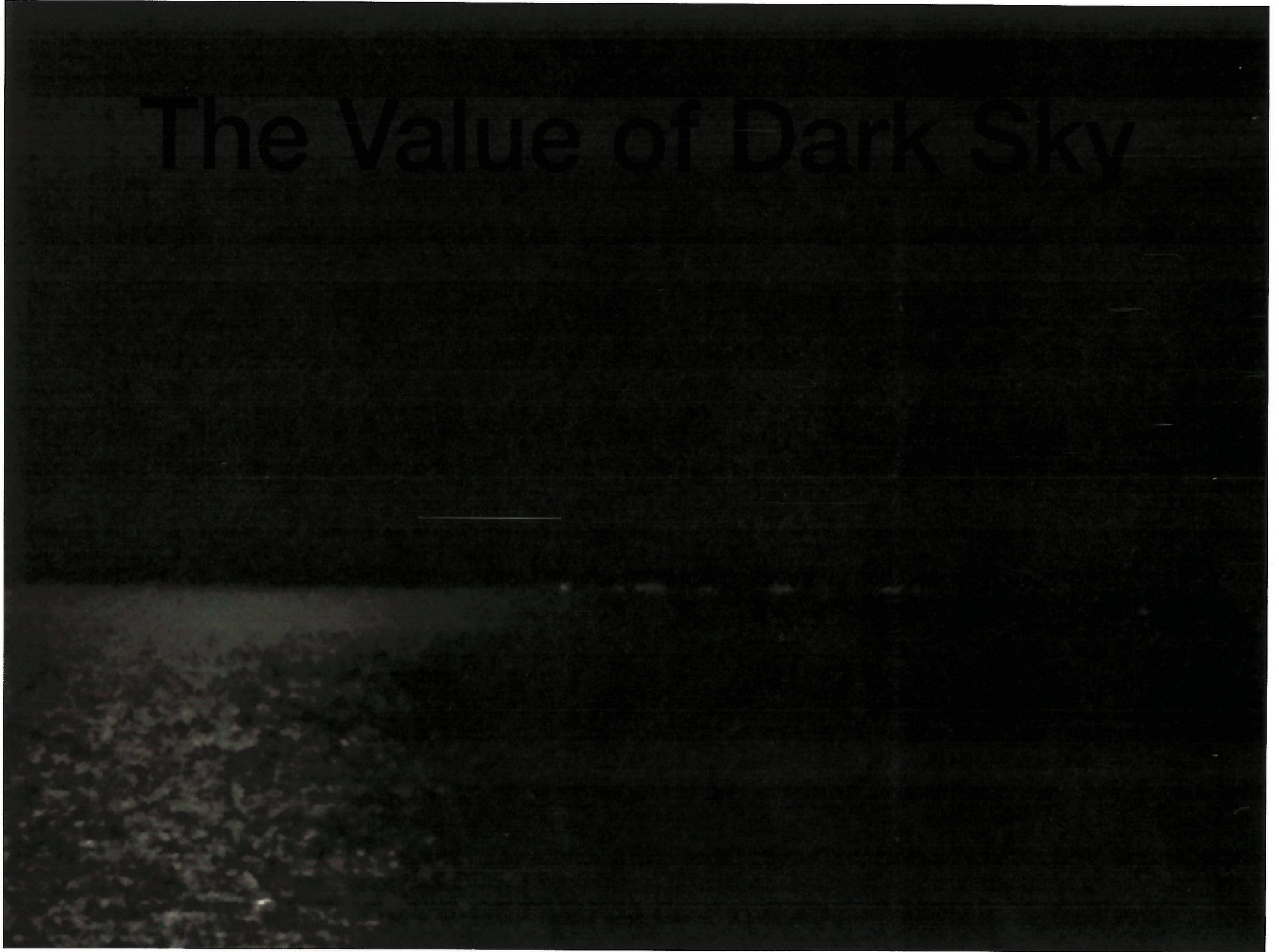
yellow line is 15 FT Above path.

LED Light
Fixture





The Value of Dark Sky



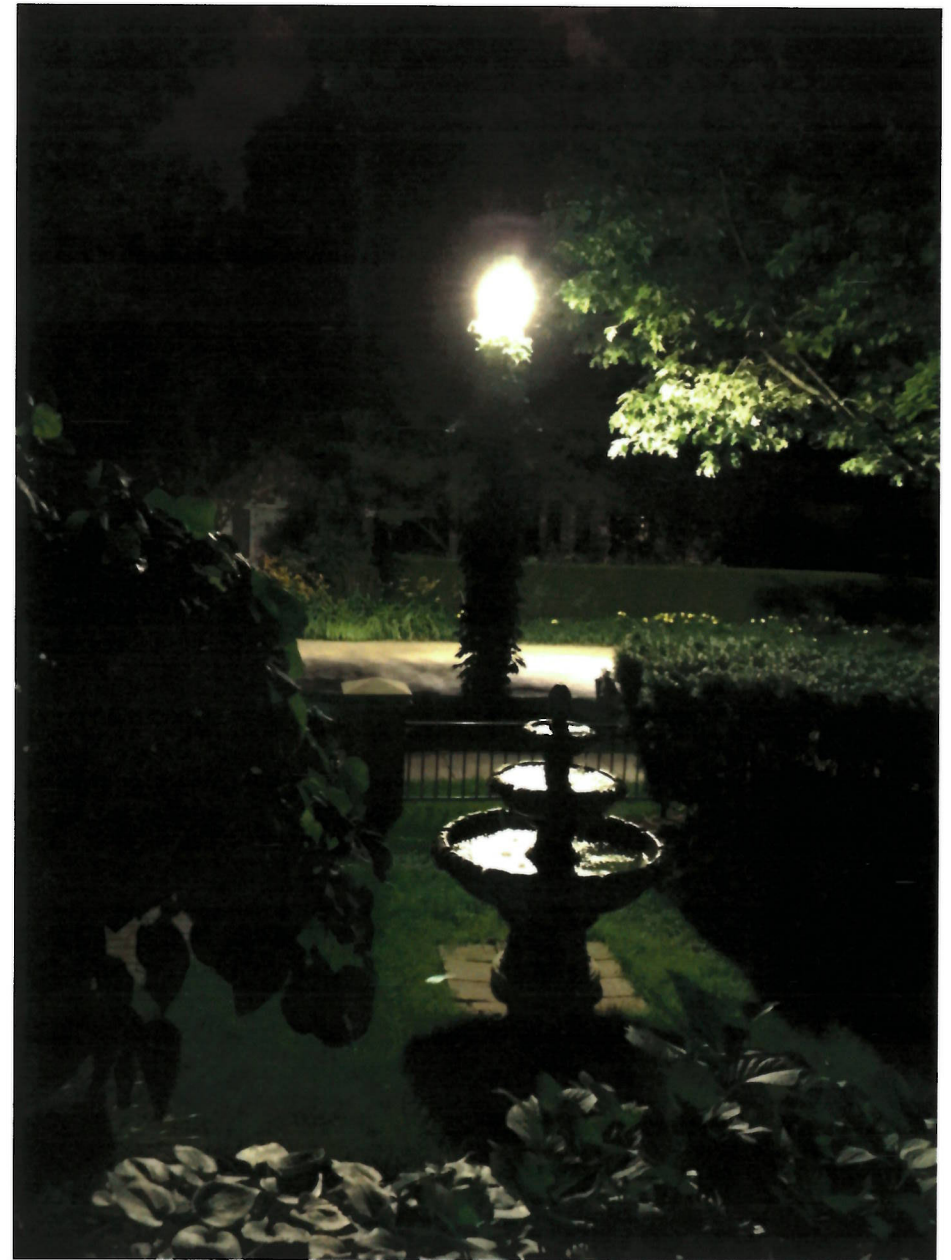
- *Christopher MacIsaac, 46 Walker St , 40 year Oakville Resident*
- Bachelor Science..... Bachelor Engineering
- Professional Engineer..... Ontario, Alberta (Retired)
- Lighting Consultant, final Engineering School Work Term
- Career.....Senior Executive, Global Technology Company
- Harvard Business School...Executive Development Program Visiting Lecturer Cornell MBA Program

LED ILLUMINATION

1030PM- Kitchen Table
46 Walker St., West Harbour

Several Similar New Lights Planned
Adjacent 60 Walker Property
Water Works Park

Intrusive Lighting



60 Walker St
35ft from Kitchen

Walker St Entrance to
Waterworks Park



International Dark Sky Association IDA

- Is a Globally Recognized Organization
- Approves Manufacture's Fixtures as "DSA"
- "Responsible" Outdoor Lighting Education
- Certifies Cities, Parks as Dark Sky Friendly
- Former IDA president provided Sky Glow Consulting to Halton Region (Litigation)

International Dark Sky Association Evaluated Tannery-Promenade-Waterworks as “Zone LZ-0”

- Environmentally Sensitive
- Nocturnal-Natural Environment
- Aquatic Shoreline - Nature Walk
- Bird Migratory Path(CPM)





Photo Tannery/Waterworks Park and Promenade
Environmentally Sensitive Natural Environment-Aug16/19

International Dark Sky Association Review of Town Proposed Fixture-K55 I

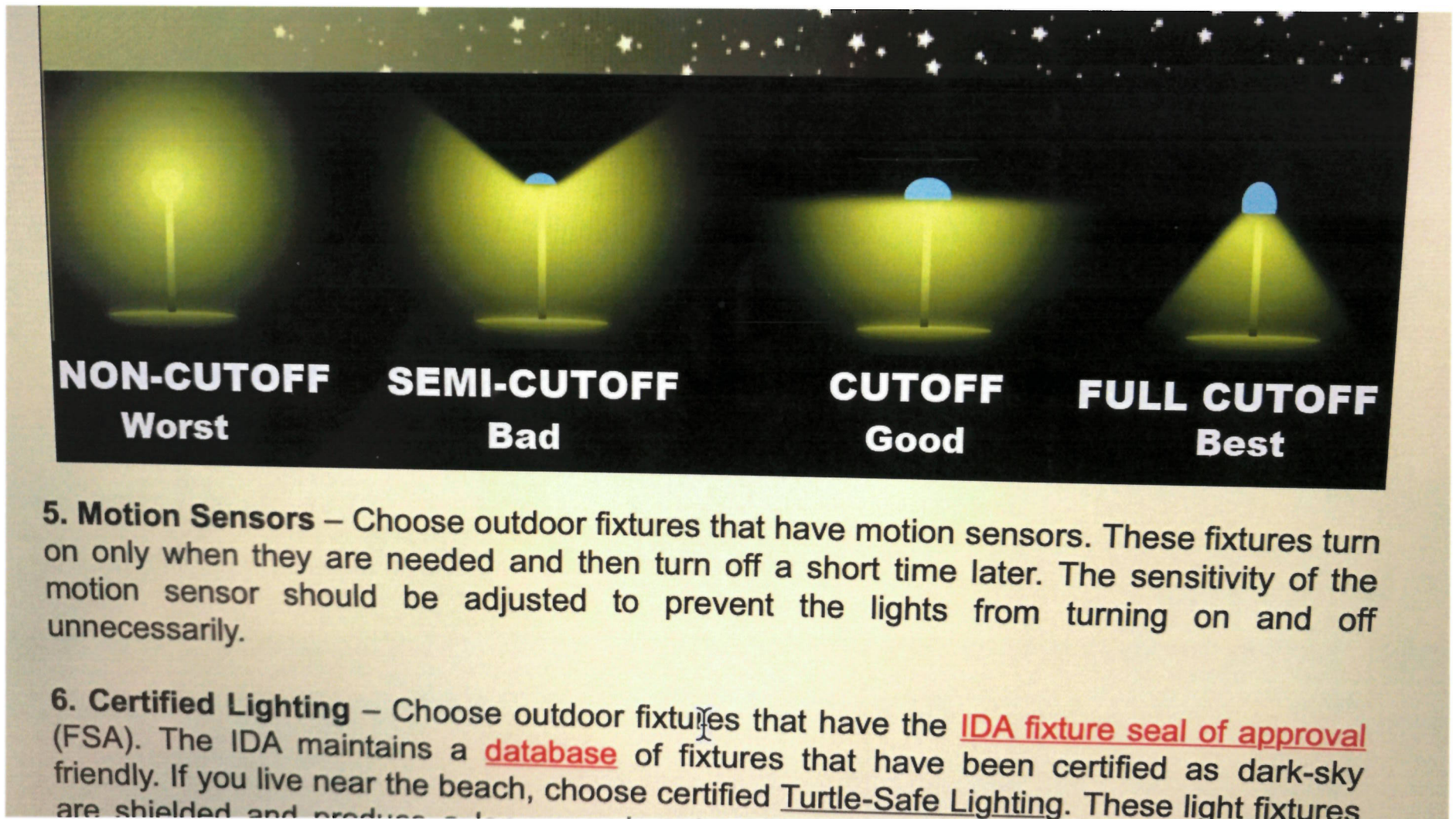
- Fixture a Light Bomb
- Not Dark Sky Approvable
- Not Full Cutoff
- A Day View Fixture
- Health Issue-AMA
- Photo West Harbour



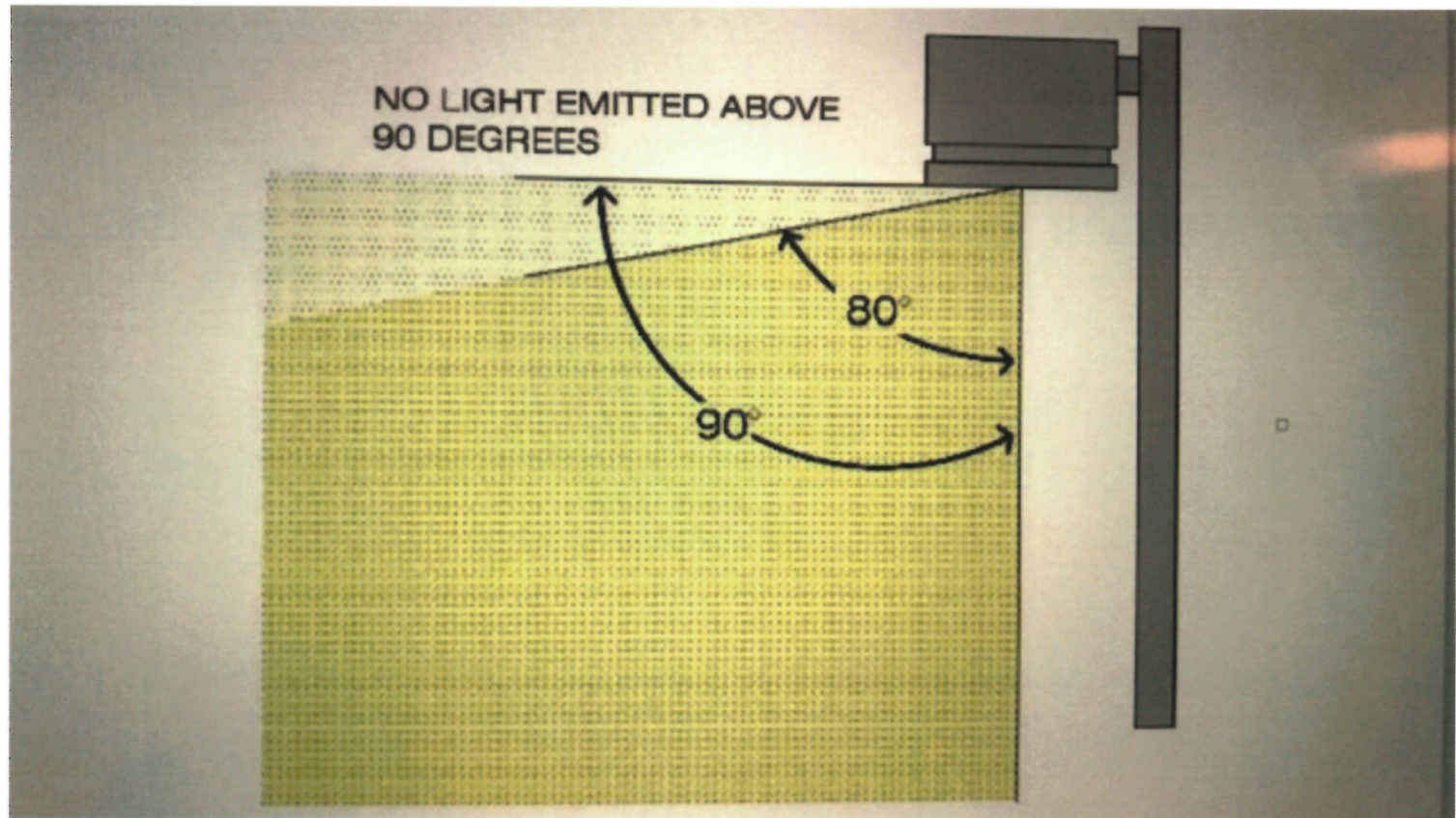


Marketing Terms for Fixtures- Luminaires:

Dark Sky Friendly
Dark Sky Compliant
Dark Sky
Dark Sky Approvable



Types of Cutoff Fixtures



Full Cutoff Fixture

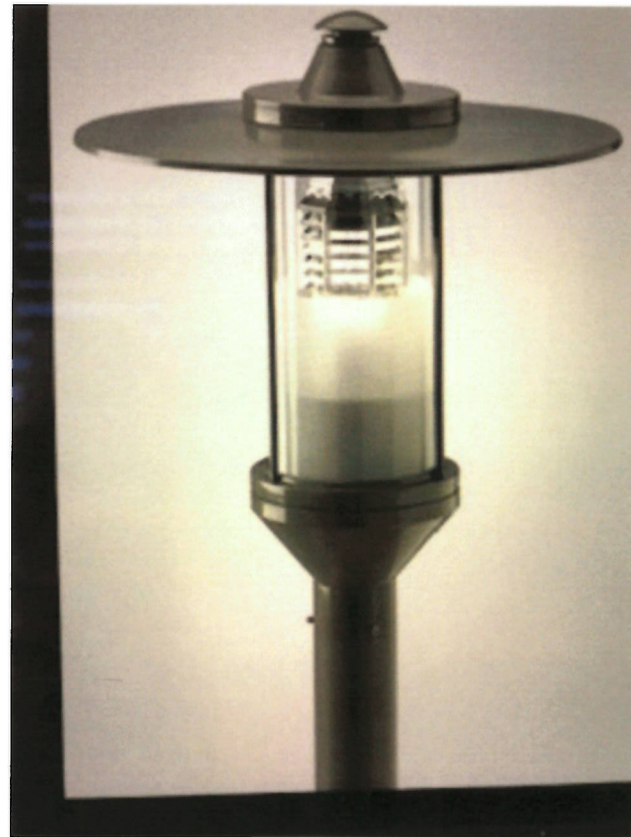
Town Site- Design and Development Standards page 45-4.6

All exterior lighting fixtures shall be full cut-off to direct illumination downward and dark sky compliant to reduce light pollution and sky glare

Endorsed by Planning and Development Council March20/17

Planned K55 I Fixture

- A Day View Fixture
- Value= Daytime Appearance
- Cap does not Prevent Up Light-Sky Glow
- Photo- Manufacturers website



American Medical Association

- June 14, 2016 Annual Meeting
- AMA Policy statement:
- Risk Human, Animal Health
- Maximum 3000K color temperature
- Industry PushBack- AMA



The Proposed 15ft Tall Light Fixture K55 I LED LIGHTING

- 3500K Town Spec K55 I
- 4000-4500K Town Draft Regulation VI.0
- 2700K IDA Maximum
- 3000K AMA Maximum
- **Higher Temperature
=Whiter Light=Health Risk**
- Photo West Harbour



Site Design and Development Standards for Oakville
Endorsed by Planning and Development Council March 2017
Livable Oakville

- “Lighting levels appropriate for size, character, function of sites”
- “Appropriately scaled pedestrian lighting”
- “Direct light away from night sky”
- All fixtures “Full Cutoff....Dark Sky Compliant”
- “Over illuminating not recommended”
- Bollards are Appropriate, not Street Type Lighting....Residents

Tannery-Promenade-Waterworks Shoreline Parks Safety Enhanced without Over Lighting

- Resident Surveillance the Primary Safety Driver 33 Years
- Amateur fireworks and bonfires the Leading Issue
- *New passive safety measures include:*
- Police Cars now able to Drive Through with Headlights (Concrete Surface)
- Shoreline Party area removed with Significant Tree Removal
- PLUS Minimal low level Full Cutoff Bollard Lighting Suitable for Safety

Safety-The Parks and Promenade IDA Technical Director

- Has Spoken at CPTED Conferences
- “Better not More Lighting is Safer”
- “Glare is Detrimental to Safety”
- “Municipalities use Security as Default for Lighting”
- “Passive methods are Effective”
- “Use Low Bollard Level Lighting - Entrances, Parking
- Less Light = More Crime (Not Supported by the Data)



Bronte Harbour Promenade/Park Does not have Lighting



Newly Constructed Edgemere Shoreline Park
Does not have lighting

EATON-US \$22Billion Global Sales

- Bollards with lights can become a featured addition to illuminate and accent landscaping, walkways, buildings and parking areas
- They Improve Security by increasing visibility and mark pathways and driveways
- Our bollards provide uniform light spread with control to Minimize Light Pollution
- Other appealing factors include durable weather and Vandal- Resistant Casings
- Energy saving options are available
- BOLLARDS Improve Security-Minimize Light Pollution-Vandal Resistant-Energy Saving

National Geographic Article April 3/19

“Our nights are getting brighter and Earth is Paying the Price”

- **“Though it may not be as immediately toxic as a chemical spill, light pollution is now among the most chronic environmental perturbations (Anxieties) on Earth.”**
- “White LED’s emit Wavelengths Harmful to Animals and Humans”
- “Glare Blinds Birds, Disoriented They Hit Windows”
- “People tend to overuse LED’s and over-illuminate areas” Jasper-Annual Dark Sky Festival & Relighting Town with 1700&1900K lights
- **“Less light causing more crime, decreased safety uptick not supported by the data-Chicago”**

Fatal Light Awareness Program

Executive Director Michael Measure

Low Level Bollards are the Environmentally Responsible Lighting Solution

- FLAP - Toronto based Environmental Group
- Collaboration- Humane Society International/WWF
- Bird Migration occurs at Night-Spring & Fall
- West Harbour Shoreline an Important Bird Migratory Route
- Tall Structures with Bright Lights Disorient Birds
- Protect Migratory Birds from “Tall Bright Light caused Death”-Window Collisions & Exhaustion



Birds Fly Towards Tall Bright LED Lights at Night
Becoming Disoriented Crashing into Windows and Die
Photo Aug 16/19

Tannery-Promenade-Waterworks Park Lighting Plan

(Reference Appendix 1)

- Not consistent with the Town West Harbour Master Plan 2008
- Not consistent with the 2009 Town Livable Oakville Plan
- Not consistent with the Halton Conservation Mission
- Not consistent with Bollard Plans Emailed to Residents in 2016
- Not Consistent with Town Livable by Design Urban Design Manual 2017
- Not Consistent with Town Outdoor Lighting Standard V1.0
- Not consistent with Town's Full Cutoff Commitment emailed in 2018/19
- Not consistent with Best Practices Highlighted by the IDA

Oakville Draft Lighting Standard VI.0 vs IDA Model

Judgement required in both to assign an area to the correct lighting Zone

- Oakville Weak on Commitment to Night Time Sky Enjoyment
- IESNA lumen levels per area are minimums-Enables Great Discretion
- Oakville 4000-4500K(Glare-Health) vs IDA 2700K
- Glare elimination not included in Oakville Lighting Standard Purpose
- IDA- New installs on Public Property only receive lighting if a Public Safety Hazard exists which can't be Mitigated by Passive Means

Oakville Environmental Sustainability Strategy (2018-2022) Council Approved
Sustainability is Avoidance of the Depletion of Natural Resources
The Night Sky is a Natural Resource-Oakville Dark Sky Initiative Required

- Oakville Goal “To sustain and enhance our environment”
- “To lead in applying innovative, best management practices”
- “Take a proactive, leadership role on environmental and sustainability issues in Oakville”
- “Provide opportunities for residents and community groups to contribute to enhancing the environmental sustainability of Oakville”
- “Integration of community feedback on environmental sustainability priorities”
- “Demonstrate the Town’s commitment to environmental sustainability”
- “Investigate partnerships with Halton Region and others to explore potential for linking health and environment in Town’s policies and programs”

Tannery-Promenade-Waterworks Parks Residents Request Approval-Commissioner Colleen Bell,Council, Mayor Rob Burton

- IDA Recommendation: Zone LZ-0...no Lighting unless safety hazard exists which can't be Mitigated by Passive Measures
- Resident Request Approval: Install low level, Full Cutoff Bollards across Waterworks Park, Promenade, Tannery Park, Parking Lot,2700K in locations where 15ft Tall 3500K lights were Planned
- New Construction along Environmentally Sensitive Shoreline Presents an Opportunity to do it Right



An Oakville Environmental Treasure
530AM August 1/19
Let's Preserve it.....Imagine Street Type Lighting
Photo Promenade-Tannery Park

Walking Along the Pathway at Night

- Look up- The glare of Tall LED Lights
- Look up-Observe Sky Glow
- OR
- Look up-View the Dark Sky
- Look up-Marvel at the Stars and Universe
- The Decision- The Town of Oakville

Appendix 1

References for slide “Not consistent with.....”

1. Not consistent with the West Shore Master Plan 2008

(page 31...6.0 Waterworks Park, is green. It serves primarily as a neighborhood park. It will see intensified use with the connecting of the shoreline along Walker Street Promenade to Tannery Park.)
(page 33 ...9.0 We also propose dark sky initiative style lighting of the entire pathway from the parking lot.
) (Implies when the Promenade is connected to the Parking lot). (page 4 Mission & Goals.....Design with CPTED principles to ensure a safe site.) (Pg 4 Concept Statement..... To develop each park in the system to have a more of an individual character and identity while maintaining the intention of a whole system that is linked and related. This will be accomplished by making: • Tannery Park more of an accessible urban waterfront park • Walker St. Promenade actually be a promenade • Waterworks Park more of what it currently is – a terrific naturalized neighborhood park)

2. Not consistent with the 2009 Livable Oakville Plan/updated each 5 years. (B-1...2.1 Mission Statement.....To enhance the Town's natural, cultural, social and economic environments by ensuring that environmental sustainability, cultural vibrancy, economic prosperity and social well-being are incorporated into growth and development decisions.) (B-1...2.2.3b Achieving sustainability in order to: b) preserve, enhance and protect the Town's environmental resources, natural features and areas, natural heritage systems and waterfronts;) (C-13 ...6.0 Good urban design is an integral part of the planning process. Development and public realm improvements shall be evaluated in accordance with the urban design direction provided in the Livable by Design Manual.) (C-20 ...6.14 Lighting 6.14.1 Lighting levels shall be appropriate for the size, character and function of buildings and sites. 6.14.2 Appropriately-scaled pedestrian lighting should be provided at building entrances, pedestrian walkways, steps and ramps, amenity areas, transit stops, parking areas and other site features. 6.14.3 All building and site lighting shall be mitigated at the source to minimize impact on adjacent properties and public roads 6.14.4 Outdoor lighting fixtures shall direct light away from the night sky. Energy efficient outdoor lighting fixtures are encouraged.)

Appendix 1

3. Not Consistent with Halton Conservation Mission and Policies (unclear if their mandate includes the night sky...if it doesn't, it likely should!) (About us.....Your neighborhood conservation authority, Conservation Halton, works to protect, restore and manage natural resources in your watershed from lake to escarpment) ([Lake Ontario Shoreline Management program](#)..... Conservation Halton works on the Lake Ontario Shoreline Management Program to help ensure that waterfront developments are undertaken in a safe and environmentally sound manner.

Under the Conservation Authorities Act, Conservation Halton (CH) has a mandate to protect life and property from natural hazards such as flooding and erosion, to prevent environmental degradation and loss of natural features ([MacIsaac note: the night sky is a natural feature](#)) and their ecological and hydrological functions, and to prevent pollution of natural features ([The night sky?](#)) and watercourses. Conservation Halton's mission is to help protect the natural environment, from lake to escarpment, for the benefit and enjoyment of present and future generations. Stewardship, which includes wise, informed decision making, will help ensure that generations to come will be able to enjoy the natural heritage that we have today. ([Home-nature's spaces-natural Heritage-Challenges...](#)[There are significant challenges to overcome and adapt to as we work to protect our natural spaces and ensure that the ecological needs of the environment are met. As we manage these spaces, we have to consider the needs of business and citizens while grappling with stressors that include: Climate Change, Intensification, urbanization and growth, pollution\)](#)

MACISAAC NOTE..NOT CLEAR IS THE SKY INCLUDING POLLUTION OF THE NIGHT SKY AND IT'S IMPACT ON HUMANS,BIRDS,PLANTS,ANIMALS IS INCLUDED AS PART OF HALTON CONSERVATIONS ENVIRONMENTAL PROTECTION MANDATE. IF NOT, IT likely SHOULD BE.

4. Not Consistent with Bollard Plans sent to Walker St Townhome Residents July13, 2016

.RAKESH MISTRY WROTE TO THE RESIDENTS IN AN EMAIL.....[Currently we are proposing bollards \(low level light fixtures\) along the future pathway of the shoreline works. These lights are only proposed along the property line of the Walker St. townhouses. More detailed plans will be presented at a community open house in 2017.](#)

Appendix 1

5. Not Consistent with with Site Design and Development Standards for Oakville endorsed by the Planning and Development Council March 20/17 /Livable by Design Urban Design Manual 2017. (page 46....4.5 Site Lighting All exterior lighting fixtures shall be full cut-off to direct illumination downward and dark sky compliant to reduce light pollution, sky glare and light trespass onto neighbouring properties. All lighting fixtures, whether mounted on poles, building walls, roofs, and under canopies, should be shielded and the refractor not visible, from a horizontal plane, to abutting public rights of way, residential areas and other sensitive land uses.)

6. Not Consistent with Outdoor Lighting Standard V1.0 (Section I ...page 3 The purpose of the Town of Oakville Municipal Outdoor Lighting Standard is to provide a standard for outdoor lighting that will: Permit the use of outdoor lighting that meets the minimum levels for night-time safety, utility, security, productivity, enjoyment, and commerce. Minimize adverse offsite impacts of lighting such as light trespass, and obtrusive light ;Curtail light pollution, reduce sky glow and improve the night time environment for astronomy .Help protect the natural environment from the adverse effects of night lighting from gas or electric sources ;Conserve energy and resources to the greatest extent possible .

LZ0: No ambient lighting(This is the most rigorous of the 5 lighting zones)

Areas where the natural environment will be seriously or adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Human activity is secondary in importance to nature. The vision of human residents and users is adapted to the darkness, and they expect to see little or no lighting. When not needed, lighting should be extinguished.

LZ1: Low ambient lighting

Areas where lighting might adversely affect flora and fauna or

disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline.

Appendix 1

MacIsaac note... The Technical Director of the International Dark Sky Association and residents see this area from Waterworks to the Parking Lot as an LZ0 zone! THE SHORELINE OF LAKE ONTARIO IS A NATURAL ENVIRONMENT THAT WILL BE SERIOUSLY AFFECTED BY LIGHTING. THE DARK/BLACK BACKGROUND AT NIGHT PRESENTED BY THE LAKE OFFERS A PERFECT AND DECLINING OPPORTUNITY TO VIEW THE URBAN NIGHT SKY.

EARTH DAY 2019..... MAYOR ROB BURTON COMMENTS ON TURNING OFF LIGHTS FOR 1 HOUR :
"Every action we take – big or small – to conserve energy makes a positive difference on our community and the environment".

7. Not Consistent with Full Cutoff Commitment in 2018/19 MADE BY Chris Mark in writing to Ray Chisholm and forwarded by Ray to Bill and Chris.

On Dec 6, 2018, at 2:21 PM, Chris Mark <chris.mark@oakville.ca> wrote:

Councillor Chisholm

Thank you for the e-mail. I spoke with our lighting consultant and he is still working with a supplier to determine the best method to enable the fixture to be a full cut-off. I hope to have the information from him within 2 weeks and share it with the group at that time..... Chris Mark

From: Chris Mark <chris.mark@oakville.ca> Date: **February 8, 2019** at 11:21:34 AM EST
To: Ray Chisholm <ray.chisholm@oakville.ca> Cc: Cathy Duddeck
<cathy.duddeck@oakville.ca> Subject: Lighting Spec's

Councillor Chisholm . Please find attached the lighting spec sheets and detail sheets for the light fixture specified for the Tannery walkway. It is a full cut-off fixture, and the luminaire has a full house side shield on the back side which will be oriented towards the adjacent residential properties.

Thank you

Chris Mark

It took from Dec6/18 to Feb8/19 to come up with the light fixture. It was the same fixture as the West Side of the Harbour around the corner. Why did they have to hire a lighting consultant to propose a fixture they planned to install all along!

Appendix 1

8. NOT CONSISTENT WITH BEST PRACTICES HIGHLIGHTED BY THE International Dark

Sky Association The IDA has prepared a Model Town Lighting Regulation/Standard for

Municipalities to use as a baseline in preparing their own. It has drawn from the best of the best Municipal regulations throughout various countries. The Oakville Draft Regulation Draft V1.0 shares the same environmentally responsible purpose and zone labels. Care and judgement are required to assign areas to the correct zone to avoid overlighting and excessive energy use. Oakville has a 4000K to 4500K limit and does not mention minimizing blue light(short wave length light) which can cause Health issues &Glare. Oakville does not mention glare minimization in it's purpose although it does via BUG ratings. The IDA ordinance requires public out door spaces not receive lighting unless a Public Safety Hazard Exists which can't be mitigated by passive means.

Chris MacIsaac Aug 18/19

Appendix 2

Recommended reading(available online)

- 1.National Geographic Article , Nadia Drake , April 3,2019
Our Nights are Getting Brighter and Earth is Paying the Price
- 2.New York Times , August 17,2019
Is the evening sky doomed?
- 3.CNN Health, Susan Scutti, CNN
LED lights damage eyes and disturb sleep
4. American Medical Association warns of health and safety problems from 'white' LED streetlights
The Conversation, June17,2016
- 3.Horizon Magazine , Gareth Willmer, March27,2018
Light pollution is altering plant and animal behaviour
- 4.AMA adopts guidance to reduce harm from high intensity street lights, June 14,2016
- 5.CNN Health, Richard Steavens, June 21,2016
Doctors issue warning about LED Street Lights
6. International Dark Sky Association Website
7. Dark Sky Partners Website