A Model CSO Alert

Environment and Sustainability Standing Committee
Halifax City Council Presentation
September, 2nd 2021



Presenters: Kelly Schnare, Projects Director #RAH2050 Or Denemark, Swim Drink Fish Reference Report

Slides prepared by Pippa Feinstein



Why a model CSO alert?

Model alert meant to:

- Support the public's right to know about the health of their local waterways so they can make informed decisions about how they want to use those spaces for recreation
- assist other organizations/community groups to advocate for real-time CSO notification in their cities and towns
- constitute a helpful tool in raising public awareness about CSOs and their environmental impact
- Show municipalities and other local authorities how potentially simple it can be to design and implement proactive public alert systems

Advocating for other municipalities to report: Developing the model CSO alert

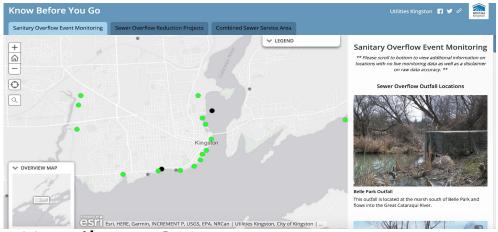
- Prepared in consultation with several members of the US-Canadian Great Lakes Network:
 - Lake Ontario Waterkeeper, Ottawa Riverkeeper, Ontario Rivers' Alliance, Buffalo Niagara Waterkeeper, Alliance for the Great Lakes, Fresh Water Alliance
- The model alert based on US Environmental Protection Agency (EPA)
 proposed public notification requirements for CSO events in the Great
 Lakes Basin
 - Implementing s. 425 of Consolidated Appropriations Act and the Federal Water Pollution Control Act (ss. 1314(1), 1318, 1342, 1361(a))
 - EPA requirements mandatory as permit conditions for CSO owners/operators
- The model alert was drafted for use in Ontario, however, this presentation contains updates to enable use on the west and east coasts

Advocating for other municipalities to report: Developing the model CSO alert

- Most Canadian cities already required to collect most of the information specified in the model alert
 - E.g. Wastewater Systems Effluent Regulations (under the *Fisheries* Act), Ontario Ministry of Environment, Conservation, and Parks Procedure F-5-5, British Columbia's Municipal Wastewater Regulation, and the Atlantic Canada Wastewater Guidelines Manual
- The only new requirements in this alert:
 - Real-time reporting to the public (not just government agencies) and a public online interface
 - Monitoring required over modelling (generally this legally required, but some municipalities have been effectively exempt)

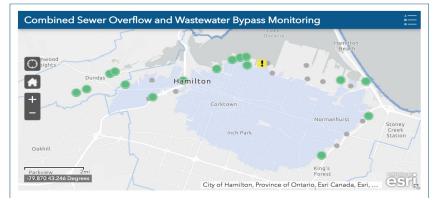
Several municipalities already proactively reporting CSO events

Kinston, ON



Hamilton, ON





• Vancouver, BC



Sudbury, ON



Introduction and summary of the Ontario model public sewage alert

Sevage discharges in Onionio ser regulated breft follerully and provincially by Environment and Climate Change Canala (ECCC) and the Onionio Ministry of Environment, Conservation and Parks (EMCE). Fallowin Signations (somely the Kinevatere Johnson (Editor Regulations) and promoting allowed the Conference and Conference

Name of Advances from account tractional plants are held to a higher standard flow other trace of account disclares While sewage treatment plant discharges (including bypasses) are subject to provincial looses conditions and follows and provincial regulatory emissions limits, discharges of sewage into lixed waterways upstream from trumment plants are effectively except from many of these regulatory exquirements. This is despite the fact that these non-treatment plant discharges are responsible for releasing billions of time sewage into the Great Lakes and their tributeies such year.

This model after is intended to focus on the release of all automated arrange from polars apparatus from winterwater result in the discharge of sewage into local waterbodies. At the same time, in order to understand the cumulative impacts of all savings upills to local waterways, savings treatment plant bypos reporting has also been included in real-time and to not being spared to select mountain the selection of t

The alest sequence filter stages of wrange shisses expering resistant, monthly, and anseed to provide members of the police with or substraining of the conveners and impacts of everyor release resets. Deer stage reporting a committy have proposed in a set of Extrainmental Provincios Agency application contraining COS apporting as deported by a content facility and contrained an application of the extract protons content and opported by a content facility and contrain a contraining requirements of everyor protons content and opporters. In addition to public action, the decoration of the experim application against application of the everyor desired for the everyor desired and the extraction of the everyor desired and the everyor desired and

likew is a trial minimary and explanation of each provision in the resold abov. When generating the model above to provisional agencies as often subsection, this introduction and automacy section should be minimal.

Provides 1: Physical signage of all sewage surfath is required. Physical signage must contain the name of the sewage time constant and a time number or which they can be reached a description of the sequences in the since number and on the second state of the second age upon un su participa del composito de material que se executar que acuaciparen en ou en acumento en las paps, envisingo debun basilio conseguentes el corriago sino contra viale suo en periodily transis servaga, and instrucciones for hom membros el flue pubble con sociore stal-linen enverga referen deleto. Attantando de los prevente membros el flue pubble from commag sono commage estis sur pursially transis servaga. El el flue

rative public assuments of sever influstructure and the season affected by severgy release events.

Problem 2. Maps of all sexups outfails must be made publicly available. These maps must avoid as of conducted sever-spotes (\$555 confell locations, all aways transment plant dechange points, all dechange points from severage solutions or systems and pumping sistems, are seller unables were sentified, and all standardies and plats in sensetional bands that require varieties from from the confells. According to give analysis of the public of higgs-points understanding of every inframework in their communities and families to give markers of the public of higgs-points understanding of every inframework in their communities and

the scale of potential complainte impacts of CSOs and other types of sewage releases

Assaul swaps robust trail proving required.
Annual swap robust trail papers such as smallest in the public documenting trank in the required of swaps
destinations to receive the few core. The agent ment due to take CNI relatation required by Selective core.

The agent ment due to the core of t

The use of machine-resoluble formula (e.g. HTML, EDF, XML, JSON, etc.) for annual reports in strongly recommended.

troughy recommended; Handatory contents of annual sewage release trend reports: i. The total moothly substitute car estimated substitutes of the year's CSO events;

He test installs stoned in ordinated variation of the just of \$3.0 region.

The land detailed of the maximum bear that \$40.0 College is an extra of the year.

The land detailed of the process of the pr

Combined Server Nation of NN2. The physical influencies that cellular nod serves both or compa-nies concerns for instances or only accounted plane. When somework the same as high, Clf has a cellular c

It is important to note that the information gathering requirements in this short are not soon reservoirs than information abroady required by Saboral or Ostanto regulations. For the stear part, oversof-operations of average systems are required to know most of the discussionational information in their own records and within the same timeforthers, recording to the model during The

Provision 7: Public consolication is required in the development of local servage release after to.

Fatiments on each management per servage and consolication of the servage release after significantly, the society and
who can solid entertainty to determine head ments and equation;

and can solid entertainty to determine head ments and equation;

Rationale: these plans detail municipalities 'imp-nove plans as eleminare CSI
the plans' implementation in annual reports ensures greater municipal account
address CSI and other severge influencestations.

Problem 2: Policy may be satisfied all transproblems events for radd-time. This merries we not done often one for the consensation of the results of the few set. A three merits and intended promotion of the results and the least intended promotion of the results and the least the set of the results and the least the set of the results and the resul

Problems for Mark marks in milled of market in reality of market in comparation receives these opens on an interaction for market in the contract of market in the contract of

trainly means. The approaches in this date are insured to help for influent and approxymentary present an experimental progressive with implementation of properties of production of the control of the

as CSS. This type of wangs witness is implicated has the some treatment place beyoness.

A support of the control of the contr

APPENDIX IV: Monthly sewage release report template

Type of spill	Date of spill	Spill start and end times	Total duration (in hts) and whether this value is a measurement or estimate	Spill location	Receiving	Affected public recreational beaches	Total CSO volume (m²) and whether value is a measurement or an estimate	of the event	Level of weatment' received by weaterwater	Results of contaminant testing,1 if sampled	Results of my flow rate monitoring, if measured

For example: CSO, collection system overflow, pumping station spill, sanitary sewer overflow.

For example: maintenance work, blockage, wet weather event, severe storm, snow melt, etc.

For example: ransitateach permay trated, secondary reated.

Results must be provided for all contaminants that are being monitored and sampled. This may include: e-coli, carbonaceous biochemical oxygen, suspended solids, uncincule amongs, autronic, and plf values.

Model Public Sewage Alert for Ontario

Clear signings required in the vicinity of all sexings sorbids.⁶
 For all sexings sorbids these exposed and submergraft there issue be clear signings identifying the certail and in.

The science are common to the public may subscribe to real-time public skyrs, and skyrs to the second of the public may subscribe to real-time public skyrs, and the A. As further information one upon cycless we necessary for the same by demanded with public consultation.

*The Appendix E for a simple for physical ways could be proposed.

"These appeals to the samples to adjusted one-up entitle datages."

J. Andrich personal feet to make any of wavege and the binter regulared to specific any of the samples of the samples

Paral time sweeps relieve over reporting regulate
 Rest time sweeps relieve over reporting regulate
 rest of sweeps inhammatics as test considerated in the same of sweeps inhammatics as test considerated in the same of sweeps relieve to some, above, or fall to be bed water-up.
 Public stem used to de commencement and out of all times comme.
 Reporting with a work of the sweep relieve reserved.

Public and considerated in the same relieve to the same of the same relieve to the same rel

Police authorizes court be used immediately, or a last within but from the large of an examination of a commission of a commis

subscription process than the simple and clarity commissioned ordine. These simple is the simple and the simple and clarity because of the clarity of the simple and the si

As a wayshing of advanced houses benefit foreign or content by content that sometimes the soft of advanced houses benefit foreign or content by content and an advanced foreign or the pupils for the pupils to content of an advanced most of contents, exercised to which can be a content of the content of the

Reporting at the end of a nowage release event*
 Reporting meat be immediate;
 Public notifications count be made transitionity, or at least within first boars of the end of, or

Faille middeline must be rome to expected and in the states even.

10. Once peach, craft disor failed and peach station.

10. Once peach, craft disor ratios event covariant reports more remain scaling permanently (e.g., the control of the state of th

expected and of, the referee event.

Public above mean also be refereed via local radia;
Those radio above to make within four hours of the end of, or expected and of, the release

M.

Method public shorts in toleration, and/or nature receives or, or expected and of, the inhuse M.

Method public shorts in toleration, and/or nature involves.

Method public short in toleration of the short involves in toleration.

The method is not of converticing every antidis.

The nature of shortshort perceiving waterholdes that may be effected.

The short of the short involves of the short of the

of the event;

If the exact time it which the release even poled is not known the notice must include the time at which the event was expound of larse ended. This motion must specify whether the

and lines are written for an entition.

The based derived of the write.

The based derived of the write.

The based derived of the write.

The based of the based of the paper of the based of the based of the paper of the based of the paper of the based of the based

son tool the possible data issued by provided.

Nexamend values or endinated values of the sewage discharge, if known;
The short must specify if this is no actual monocontents or an intense. If mean
are estimates are not per lamous, the short mean must have a wide be discharged
and only service and the state of the state of the state of the state of the
monothyle service release specir is instead. The outpage URL where members of the
Market and the state of the provided and

use tend the posted shift must be provided, and
10. Any further information savings system ensemblear union done movemary.
This must be determined with public consultation.
"See Appendix III for a real-time slart template for end of a servage release arount.

Monthly sewage column event follow-up reporting required:

Mone distrible exports must be easily policity available on a nomitity basis as allow numbers of the policit to
be distributed exports must be ready policity available on a nomitity basis as allow numbers of the policy in
members of the policy to industry distribute version in relinear revents and almost numbers for make more informed
distributes short using load warefundate for reconstant.

A. Nowing relative event filtering a spectra more list prepared and publish; distributed monthly;

Nevage release event follow up reports must be prepared and publishy disclosed mustiby;
 Manship reports must be solvenised and posted unlike;
 Once posted, mentily reports must remain unline permanently (s.g. in publishy accordible unline)

C. Once point, months (supern more remains unto permission) to, in public percental section of the control sect

The raper state specify whether the communication and end times were verified or estimate. The duration of each reported sensor release result. The measured or estimated volume of discharge, expressed in or, for each reported sewage release event; The report small specify whether the robuse of each reported release event was measured or as

ville. The level of bioatment received for each reported savage release event (e.g. no bioatment.

18. The first of treatment entried for each reports swage relates to recent rule, on necessary, plants production, or correlate presidents; perfectly contained, perfectly related to the presidents over, sow such participation or contained to the presidents over, sow such that the president of the presidents over, the president of the preside

APPENDIX 1: Physical sewage outfall signage template

CAUTION:

This pipe contains ["raw or partially treated savage" CR. "a mixture of stormeaster and raw or partially treated sewage", depending on the contents of the pipe), Avoid contact with any wastewater being discharged from this pipe.

Members of the public are advised to revial necessariant uses of the water around this discharge point for
the public are advised to revial necessariant uses of the water around this discharge point for

All waterware discharges from these server pipes are publicly supersal union at [insert we/bugge URL whose reports are posself and over food radio on [insert radio nation.] If you would like to recover interediate orbifocation of discharges/overflows which the transcription is sent and or term resuger, piezus subscribe value or [insert look to we/bugge where public use subscribe.]

mist infertation for ever operator [must phose number of ensuring control

CAUTION:

X netters from this observation is the submerged until of a pige corrylong "true or partially treated swage" (30.% in this test of the true active at most own profiled) transicle swage," depending on the contrasts of the pige, it is extitude communitions only, were warder and users also the profiled of the profiled of the profiled of the same and the discharge point for all the public or advised to world reconstruct the cost of the water around this discharge point for all beautiful the public or advised to world reconstruct the cost of the water around this discharge point for all beautiful the public or advised to a facility of the cost profiled profiled or all beautiful the cost of the water around this discharge point for all beautiful the public or advised to the profiled profiled or and the discharge point for all beautiful the public or advised to the public of the water around this discharge point for all beautiful the public or advised to the public of the water around this discharge point for all beautiful the public or advised to the public of the water around this discharge point for all the public or advised to the

Individuals who have come into contact with this wantermiter and experience of a confort, each, or other symptoms should mileral [most local public health auth disconfort, tests, or other computers should uniform [most local patter health authority] by caring preservation are serious, individuals should introdukely [X] computers are serious, individuals should introdukely contain a materiary positionism.

APPENDIX II: Real-time public sewage release event commencement alert template

At [inert time] today, the [inert name of emologicality] discovered at his reason to believe that a sewage release count legan. Recruitment water successful evoid the [inert receiving waters] until further notice. Potentially affected public recruitment learness include: [inert learnes]. Montlers of the public are advised to avoid recrusional uses of affected waterbodies for 40 loses when the end of the

[Insert name of municipality] has safed a sewage release after to make recentional water mere in the municipality aware of risks of water pollution near [ment receiving waterbodies]. The after is in effect until further notice.

[If the cases is known.] This release event was caused by (insurt cases, e.g. not weather, sower stems, minimum which has a position of the cases of the stems of the release of the release of the release over in one yet hances. Once leaves, it will be reported on the release event is not yet. Insures. Once leaves, it will be reported on the release events' avenable report, or done for earth monthly awares parts. tend report and peoted online at [insert webpage URL]

Members of the public are advised to provid contact with Towart receiving waterhooding.

bull riduals who have come into contact with consummed water and reportence mild gammion total discoss sade, or other completes should inferse [mort load public builds suthering by colling [mort plants transfer of load public health authority, it symptoms are service, individuals should immediately crimind a storical profession.

setfall map for the manuscipality). Sewage discharges may contain fraction, choricals, and other commission risk to human health. As alort remains in effort for 48 hours after the after the end of the arrange release event.

APPENDIX III: Real-time public sewage release event cossation alert template

The reported sewage release event from Jasort time and date of the commencement or suspected commencement

The total duration of this release event was [insert hours and minutes].

While the savage release event has now could, members of the public are still advised to avoid nonvestional uses of affected waterbodies for an additional 40 hours to affect for description and departure of the waterwater is receiving

For the next 48 hours

Monthers of the public are still solvined to avoid contact with forcet receiving waterholders).

As also is called when severge relations are incurring, or are likely to usure, at one or more of the manicipality's owage untital business. For a rouge of all antiful business is the manicipality's better than the contine many (most likel to entitive aways) and the manicipality's [Sweep dishlarges way contain business, charless, and other assummations for pose a pik to human bank). As after manition are offered by the business have the called the awayst relative covers.

Model Alert at glance

stroduction and summary of the Ontario model public sewage alert

APPENDIX 1: Physical sewane outfall signary template for exposed sutfalls:

- submittation process, trans by anyther and depth, communicated effects. These studies of the studies of the communication of the commun

- "See Appending 17 or a real name after the expension or assumentation of Assuming 17 or a subject to the control of the expension of the control of the cont
- expected and of, the minute event.

 Public aborts must also the released via local radio;

 Ularse radio aborts must be main within foor lower of the and of, or expected and of, the minute.

- The control of the co

- and once we controlled or controlled by the cont
- "The Appendix II for a serious and burgins for our of a sering retones errors of the public wayer of these areas follows appendix appendix and the serious of the public to the serious of the
- of machine realistic formaticing. HTML, HDC, XML, JMOS, etc.) for monthly reports in recommended.
- enemyle reconstructed.

 Exchanges contained of manifely pattic uneage relaxes following reports:

 Exchanges contained of manifely pattic uneage relaxes following reports. COL, collection systems

 error files, pumping union concluse, etc.)

 Exchanges and all uneage another has conclusive disting the supervised manifely

 follower creat:

 Exchanges contained another description of pattern description of the control of the con
- Elle locarismos result, servings release event; mental release avent; The date and time of leitiful accordance and end of each reported arrange release event; the date and time of leitiful accordance and end time were verified or ordinates.
- The open must specify whether the continuous and and imass were visitled at estimates. The duration of each reported sensing release events.

 The necessard or estimated values of discharge, expressed in m', for each reported sewage release events.

 The report must specify whether the volume of each opported release event was measured or an
- The report state specify whether the volume of such approximate relation errors was measured or our The The level of assessment service the east responsed weaping opinious extent (e.g. as treatment, personnels, or secondary weathered).

 In the contrast of the contrast o

- This companies of the committy companies anything and the companies and the companies of the companies anything and the companies and the

- The eard values or ordinated releases of a size by year of usage release ufter that CNO coasts.

 Measurements or unique of trade in a season for its mean in the trade or organized
 for receive varying for each in a season for its mean in the trade or organized
 for receive varying for each.

 For each or each organized in the contract of the contract
- All issuabilipolities asset make their Pollution Provestion and Control Plans publishly available online.
 Excel community feedback mericanisms required.
 Monitors of the public must be delt to persolately provide feedback, and have their feedback considered by sewage systems research operations, contempting the contempt of the galletic dairy operations and the cost for use improvements.

APPENDIX III: Real-time public sewage release event cessation alert template

Monthers of the public are advised to avoid nonunional uses of afforded waterholes for 40 hours after the cod of the release event.

APPENDIX II: Real-time public sewage release event commencement alert template

The total dentities of this relieuse event was limset boson and executed.

For the next 49 Sensor

APPENDIX IV: Monthly sewage release report template

Type of spill	Date of spill	Spill start and end times	Total duration (in hrs) and whether this value is a measurement or estimate	Spill location	Receiving	Affected public recreational beaches	volume (m²) and whether value is a measurement or an estimate	of the event	Level of treatment' received by wastewater	Results of contaminant testing," if nampled	Results of any flow rate monitoring, if measured

- For example: CSO, collection system overflow, pumping station spill, sanitory sewer overflow.
 For example: maintenance word, blockage, were weather event, sevents some, some melt, etc.
 For example: maintenance, prinsip results, sevently results.
 For example: maintenance, prinsip results, sevently results.
 For example: maintenance, prinsip results, sevently results are maintenance, and principles of the sevently results are principles.
 Results must be provided for all constraints that are being results and sampled. This may include: c.col, carbonaceon biochemical oxygon, supported orbits, reserved agreement, secretion, and plf values.

at a glance

structure

Model

CSO

Alert

Overview of the 3 sections of the model alert

- Introduction
 - Legal and policy context
 - Descriptions and rationale for each section of the bylaw template



Alert template

- Legal language to help inform future municipal bylaws/permits
- Outlines exact reporting requirements (incl. frequency and content of notices)



Appendices with notice templates

Language and content for public notices (incl. outdoor signage and online notices)

Walking through the draft alert: section 1

1. Clear signage required in the vicinity of all sewage outfalls

For all sewage outfalls (both exposed and submerged) there must be clear signage identifying the outfall and its contents to the public.

- a) Signage must be clear and visible to members of the public For exposed outfalls, signs must be in close proximity to the discharge point. For submerged outfalls, signs must be located along the shoreline closest to the outfall.
- b) Mandatory contents of signage:
 - i. Name of sewer pipe owner/operator;
 - ii. Phone number for CSS owner/operator;
 - iii. Description of effluent (e.g. sewage/human waste and stormwater);
 - iv. A notice that members of the public should avoid contact with wastewater;
 - v. A notice that members of the public should avoid recreation in local receiving waters around the outfall for at least 48 hours after the cessation of any wastewater discharges;
 - vi. A notice that sewage release events are publicly reported in real-time online and on local radio stations; The website and radio stations on which these reports are made must be provided.
 - vii. Instructions for how members of the public may subscribe to real-time public sewage release alerts; and
 - viii. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation.

Appendix I: template for outdoor outfall signage

For exposed outfalls:

CAUTION:

This pipe contains ["raw or partially treated sewage" OR "a mixture of stormwater and raw or partially treated sewage", depending on the contents of the pipe]. Avoid contact with any wastewater being discharged from this pipe.

Members of the public are advised to avoid recreational uses of the water around this discharge point for at least 48 hours after any discharge ceases.

Individuals who have come into contact with this wastewater and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

All wastewater discharges from these sewer pipes are publicly reported online at [insert webpage URL where reports are posted] and over local radio on [insert radio station]. If you would like to receive immediate notification of discharges/overflows within the municipality via email or text message, please subscribe online at [insert link to webpage where public can subscribe].

Owner/operator of this pipe: [insert name of owner/operator]

Contact information for over/operator: [insert phone number of owner/operator]

For submerged outfalls:

CAUTION:

X meters from this shoreline is the submerged outfall of a pipe carrying ["raw or partially treated sewage" OR "a mixture of stormwater and raw or partially treated sewage", depending on the contents of the pipe]. In certain circumstances (e.g. wet weather and snow melts), this wastewater is discharged directly into the lake/river.

Members of the public are advised to avoid recreational uses of the water around this discharge point for at least 48 hours after any discharge ceases.

Individuals who have come into contact with this wastewater and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

In order to know whether this submerged outfall is discharging wastewater, please visit [insert webpage URL where reports are posted] where all wastewater discharges from these sewer pipes are publicly reported. Discharges are also reported on local radio at [insert radio station]. If you would like to receive immediate notification of discharges/overflows within the municipality via email or text message, please subscribe online at [insert link to webpage where public can subscribe].

Owner/operator of this pipe: [insert name of owner/operator]

Contact information for over/operator: [insert phone number of owner/operator]

Walking through the draft alert: section 2

2. Publicly accessible online maps of sewage outfall locations required

All sewage system owner/operators must make a map of all sewage outfall locations available to the public online. Copies of these maps must also be available at designated municipal buildings or civic centres.

- a) Mandatory contents of sewage outfall maps: The map must clearly label:
 - i. All CSS outfall locations within the municipality (both exposed and submerged);
 - ii. All sewage plant discharge points within the municipality;
 - iii. All collection system outfalls within the municipality;
 - iv. All potential outfalls from sewage pumping stations;
 - v. Any other types of sewage outfall other than those mentioned above;
 - vi. All waterbodies that receive wastewater from identified sewage outfalls;
 - vii. All public recreational beaches within the municipality;
 - viii. Any further information sewage system owner/operators deem necessary This must be determined with public consultation.

Walking through the draft alert: section 3a

3. Real-time sewage release event reporting required

All sewage release events must be reported by the owner/operator of sewage infrastructure in real time so that members of the public may make informed decisions about whether to swim, drink, or fish in local waterways. Public alerts must be made at the commencement and end of all release events.

- a) Reporting at the start of a sewage release event
 - i. Reporting must be immediate; Public notifications must be made immediately, or at least within four hours of the commencement of, awareness of, or reason to suspect the commencement of a release event;
 - ii. Public alerts must be electronic and posted online;
 - iii. Once posted, real-time release event commencement reports must remain online permanently (e.g. in publicly accessible online archives);
 - iv. Sewage system owner/operators must provide text message or email alerts for members of the public who have registered for real-time alerts; Members of the public must be able to subscribe to receive real-time sewage release alerts. The subscription process must be simple and clearly communicated online. These emails or text messages must also be sent immediately, or within four hours of the commencement of, awareness of, or reason to suspect the commencement of a release event.
 - v. Public alerts must also be made via local radio; These radio alerts must be made within four hours of the commencement of, awareness of, or reason to suspect the commencement of a release event.
 - vi. Additional public alerts via television and/or social media are recommended;
 - vii. Contents of public real-time release event commencement alert must include:
 - 1. The location of overflowing sewage outfalls;
 - 2. The names of identified receiving waterbodies that may be affected;
 - 3. The names of identified public recreational beaches that may be affected;
 - 4. The date and time of initial release event occurrence; If the owner/operator of the sewage outfall does not know the exact time at which the release event began, the notice must include the time at which the event was first discovered or suspected. This notice must specify whether the commencement time is verified or an estimate;
 - 5. A warning of adverse human health impacts caused by contact with untreated or partially treated sewage;
 - 6. A warning for the public to avoid recreational uses of receiving waterbodies while the alert is in effect, and at least 48 hours after the release event ends;
 - 7. The cause of the release event, if known (e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.); If the cause is not yet known the alert must note that it will be disclosed either when the event cession alert is issued, or else when the next monthly sewage release report is issued. The webpage URL where members of the public can find the posted alerts must be provided. and
 - 8. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation

Appendix II: template for release event reporting

At [insert time] today, the [insert name of municipality] discovered or has reason to believe that a sewage release event began. Recreational water users should avoid the [insert receiving waters] until further notice. Potentially affected public recreational beaches include: [insert beaches].

Members of the public are advised to avoid recreational uses of affected waterbodies for 48 hours after the end of the release event.

[Insert name of municipality] has called a sewage release alert to make recreational water users in the municipality aware of risks of water pollution near [insert receiving waterbodies]. The alert is in effect until further notice.

[If the cause is known:] This release event was caused by [insert cause, e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.]. [If the cause is not yet known:] The cause of this release event is not yet known. Once known, it will be reported in this release event's cessation report, or else the next monthly sewage release trend report and posted online at [insert webpage URL].

During a Sewage Overflow Alert:

- Members of the public are advised to avoid contact with [insert receiving waterbodies].
- Individuals who have come into contact with contaminated water and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

An alert is called when sewage releases are occurring, or are likely to occur, at one or more of the municipality's sewage outfall locations. For a map of all outfall locations in the municipality, see this online map: [insert link to online sewage outfall map for the municipality]. Sewage discharges may contain bacteria, chemicals, and other contaminants that pose a risk to human health. An alert remains in effect for 48 hours after the after the end of the sewage release event.

[insert media contact]

Walking through the draft alert: section 3b

b) Reporting at the end of a sewage release event*

- i. Reporting must be immediate; Public notifications must be made immediately, or at least within four hours of the end of, or expected end of, the release event.
- ii. Public alerts must be electronic and posted online;
- iii. Once posted, real-time release event cessation reports must remain online permanently (e.g. in publicly accessible online archives);
- iv. Sewage system owner/operators must also provide text message or email alerts for members of the public who have registered for real-time alerts; These emails or text messages must also be sent immediately, or within four hours of the end of, or expected end of, the release event.
- v. Public alerts must also be released via local radio; These radio alerts must be made within four hours of the end of, or expected end of, the release event.
- vi. Additional public alerts via television, and/or social media are recommended;
- vii. Contents of public real-time release event end alert must include:
 - 1. The location of overflowing sewage outfalls;
 - 2. The names of identified receiving waterbodies that may be affected;
 - 3. The names of identified public recreational beaches that may be affected;
 - 4. The date and time of initial release event occurrence and the date and time of the end of the event; If the exact time at which the release event ended is not known the notice must include the time at which the event was expected of have ended. This notice must specify whether the end time was verified or an estimate;
 - 5. The total duration of the event;
 - 6. A warning of adverse human health impacts caused by contact with untreated or partially treated sewage;
 - 7. A warning for the public to avoid recreational uses of receiving waterbodies at least 48 hours after the release event ends;
 - 8. The cause of the release event, if known (e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.); If the cause is not yet known, the alert must note that it will be disclosed when the next monthly sewage release report is issued. The webpage URL where members of the public can find the posted alert must be provided.
 - 9. Measured volume or estimated volume of the sewage discharge, if known; The alert must specify if this is an actual measurement or an estimate. If measurements or estimates are not yet known, the alert must note that it will be disclosed when the next monthly sewage release report is issued. The webpage URL where members of the public can find the posted alert must be provided. and
 - 10. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation.

Appendix III: template for release event reporting

The reported sewage release event from [insert time and date of the commencement or suspected commencement of the release event] has now ended.

At [insert time] on [insert date], the [insert name of municipality] discovered or had reason to believe that a sewage release began. Recreational water users were advised to avoid the [insert receiving waters] until further notice. Potentially affected public recreational beaches include: [insert beaches].

The total duration of this release event was [insert hours and minutes].

[If cause is known:] This release event was caused by [insert cause, e.g. wet weather, severe storm, maintenance work, blockage, equipment failure, snow melt, etc.]. [If cause is not yet known:] The cause of this release event is not yet known. It will be reported in the next monthly sewage release trend report. This report will be posted online at [insert webpage URL].

[If total discharge volume is known:] X [insert amount] m³ of wastewater was discharged into receiving waters as a result of this release event. [If total discharge volume is not yet known:] The total volume of wastewater discharged during this release event is not yet known. Once known, it will be reported in the next monthly sewage release trend report and posted online at [insert webpage URL].

While the sewage release event has now ended, members of the public are still advised to avoid recreational uses of affected waterbodies for an additional 48 hours to allow for dissolution and dispersion of the wastewater in receiving waterbodies.

For the next 48 hours:

- Members of the public are still advised to avoid contact with [insert receiving waterbodies].
- Individuals who have come into contact with contaminated water and experience mild gastrointestinal discomfort, rash, or other symptoms should inform [insert local public health authority] by calling [insert phone number of local public health authority]. If symptoms are serious, individuals should immediately consult a medical professional.

An alert is called when sewage releases are occurring, or are likely to occur, at one or more of the municipality's sewage outfall locations. For a map of all outfall locations in the municipality, see this online map: [insert link to online sewage outfall map for the municipality]. Sewage discharges may contain bacteria, chemicals, and other contaminants that pose a risk to human health. An alert remains in effect for 48 hours after the after the end of the sewage release event.

Walking through the draft alert: section 4

4. Monthly sewage release event follow-up reporting required

More detailed reports must be made publicly available on a monthly basis to allow members of the public to assess the severity of previously reported sewage release events. These monthly follow-up reports would also help members of the public to identify short-term trends in release events and allow individuals to make more informed decisions about using local waterbodies for recreation.

- a. Sewage release event follow-up reports must be prepared and publicly disclosed monthly;
- b. Monthly reports must be electronic and posted online;
- C. Once posted, monthly reports must remain online permanently (e.g. in publicly accessible online archives);
- d. The use of machine-readable formats (e.g. HTML, RDF, XML, JSON, etc.) for monthly reports is strongly recommended;
- e. Mandatory contents of monthly public sewage release follow-up reports:
 - i. The type of release event must be specified (e.g. sewage bypass, CSO, collection system overflow, pumping station overflow, etc.)
 - ii. The location of all sewage outfalls that overflowed during the reported month;
 - iii. The names of identified receiving waterbodies potentially affected by each reported sewage release event;
 - iv. The locations/descriptions of public recreational beaches potentially affected by each reported sewage release event;
 - v. The date and time of initial occurrence and end of each reported sewage release event; The report must specify whether the commencement and end times were verified or estimates;
 - vi. The duration of each reported sewage release event;
 - vii. The measured or estimated volume of discharge, expressed in m3, for each reported sewage release event; The report must specify whether the volume of each reported release event was measured or an estimate;
 - viii. The level of treatment received for each reported sewage release event (e.g. no treatment, primary treatment, or secondary treatment);
 - ix. The cause of each reported sewage release event (e.g. precipitation event, snow melt, maintenance work, blockage or equipment failure, etc.);
 - x. The results of any water quality sampling conducted of sewage release effluent or receiving waters after the occurrence of each reported sewage release event;
 - xi. The results of any measured flow rates in sewer infrastructure during sewage release events; and xii. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation.

Appendix IV: template for monthly reporting

Type of spill ¹	Date of spill	Spill start and end times	Total duration (in hrs) and whether this value is a measurement or estimate	Spill location	Receiving waters	Affected public recreational beaches	Total CSO volume (m³) and whether value is a measurement or an estimate	Cause ² of the event	Level of treatment ³ received by wastewater	Results of contaminant testing, ⁴ if sampled	Results of any flow rate monitoring, if measured
		c						9			

- 1. For example: CSO, collection system overflow, pumping station spill, sanitary sewer overflow.
- 2. For example: maintenance work, blockage, wet weather event, severe storm, snow melt, etc.
- 3. For example: raw/untreated, primary treated, secondary treated.
- 4. Results must be provided for all contaminants that are being monitored and sampled. This may include: *e.coli*, carbonaceous biochemical oxygen, suspended solids, unionized ammonia, ammonia, and pH values.

Walking through the draft alert: section 5

5. Annual sewage release trend reporting required

Annual sewage release trend reports must be available to the public documenting trends in the response of sewage infrastructure to external weather events. This report must also include CSS evaluations required by Ministry of Environment and Climate Change's Procedure F-5-5, as well as updates by owner/operators of CSSs concerning measures taken to ensure the good operation of CSSs and minimization of CSO events.

- a. Sewage release trend reports must be prepared and publicly disclosed annually;
- b. Annual reports must be electronic and posted online;
- C. Once posted, annual reports must remain online permanently (e.g. in publicly accessible online archives);
- d. The use of machine-readable formats (e.g. HTML, RDF, XML, JSON, etc.) for annual reports is strongly recommended;
- e. Mandatory contents of annual sewage release trend reports:
 - i. The total monthly volume (or estimated volume) of the year's CSO events; The report must specify whether these volumes were measured or estimated;
 - ii. The total number of days each month in which CSO events occurred over the year;
 - iii. The total volume (or estimated volume) of each type of sewage release other than CSO events; The report must specify whether these volumes were measured or estimated;
 - iv. Measurements or modelling of trends in wastewater flow in sewer infrastructure (especially CSSs) over the year compared with precipitation trends and how they impacted peak wet and dry weather sewage flow rates;
 - v. Confirmation of the public availability of municipal Pollution Prevention and Control Plans required by Ministry of Environment and Climate Change's Procedure F-5-5 and a description of any changes made to these plans over the reported year;
 - vi. A summary of any developments in the implementation of the municipal Pollution Prevention and Control Plans;
 - vii. The inclusion of, or inclusion of a summary of, monthly sewage release reports; and
 - viii. Any further information sewage system owner/operators deem necessary. This must be determined with public consultation 18

Walking through the draft alert: section 6 - 8

- 6. All municipalities must make their Pollution Prevention and Control Plans publicly available online.
- 7. Local community feedback mechanisms required Members of the public must be able to periodically provide feedback, and have their feedback considered by sewage system owners/operators, concerning the contents of local public alert protocols and the need for any improvements.
- 8. Definition section

Conclusion

- The model alert is an advocacy tool, a starting point for communities that want to see more action to address CSOs. Advocates can take what they need from the model and leave the rest
- The requirements in this model alert are not significantly more than what's already required by law, and the model does much of this policy bridging work for communities and municipalities
- Shows municipalities and other local authorities how potentially simple it can be to design and implement proactive public alert systems
 - Kingston, Sudbury, Hamilton, Seattle, Vancouver have shown that fulsome real-time sewage monitoring and reporting is possible, Calgary has eliminated CSOs altogether (Edmonton not far behind)
- This work supports the public's right to know about the health of their local waterways so they can make informed decisions about how they want to use those spaces for recreation

References:

Swimmable Waters in Your Community Presentation Swim Guide - www.theswimguide.org 2018 Toronto Water Monitoring Report 2019 Water Monitoring Report Floating Trash Skimmers Vancouver 2020 Water Monitoring Report Vancouver 2019 Water Monitoring Report Swim Drink Fish Water Monitoring Hubs WSER Report The Impact of Sewage of the East Coast Webinar CSO MODEL ALERT 11 page report

THANK YOU

for helping us

RE-IMAGINE OUR HARBOUR