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GETTING AHEAD OF THE STORM: FLOOD-RESILIENCY STANDARDS FOR EXISTING HOMES AND NEW COMMUNITIES



Prepared for:
TRIECA 2018 Conference

Prepared by:
Natalia Moudrak, Director, Intact Centre
(March 21, Toronto)



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ON CLIMATE ADAPTATION

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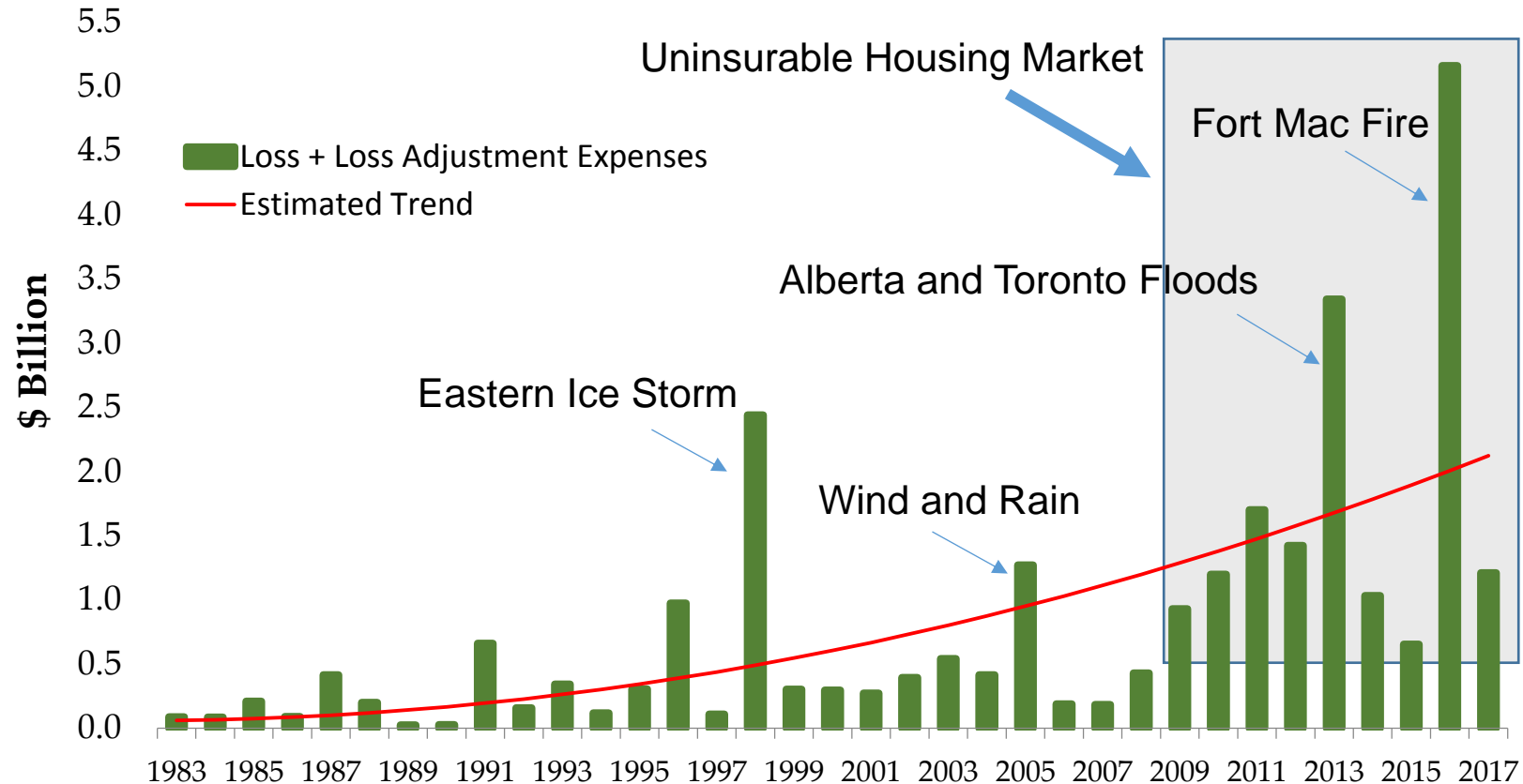


1. Costs of extreme weather in Canada continue to rise
 - Elevated risk of mortgage defaults
 - Mental health impacts, time off work claims
2. P&C insurance incentives for flood risk reduction
3. Flood-resiliency guidelines & standards under development
 - Flood-resiliency for homes
 - Flood-resiliency standard for new communities
 - Flood-resiliency standard for existing communities

COSTS OF EXTREME WEATHER: P&C CATASTROPHIC INSURABLE LOSSES (\$CAD)

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Source: IBC Facts Book, PCS, CatIQ, Swiss Re, Munich Re & Deloitte
Values in 2017\$ CAN, 2017 preliminary

Note: Cost to government, businesses and individuals **3-4X** that of private insurers

REPEATED FLOODING ELEVATES RISK OF MORTGAGE DEFAULTS

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THE SQUARE WINDSOR'S INDEPENDENT NEWS SOURCE



WINDSOR TRI-COUNTY NEWS DETROIT OPINION BUSINESS SPORTS LIFESTYLE EVENTS GAS PR

Windsor Residents Lose Flood Insurance

BY: ROBERT TUOMI 12 MARCH 2018



BUSINESS

f +5 t +7 s +0 u i e p

Tampa Bay mortgage delinquencies climbing due to Hurricane Irma

'We are trying to survive': Floods wash away Montreal business owners' life's work

"We have to restart from scratch," says Michael Gad, 1 of several West Island business owners forced to close



Jay Turnbull - CBC News - Posted: May 13, 2017 6:00 AM ET | Last Updated: May 13, 2017



CBCnews | Ottawa

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Let flood victims dip into RRSPs without penalty, petition says

Around 400 people have signed petition demanding change to Income Tax Act

CBC News Posted: Mar 12, 2018 8:55 AM ET | Last Updated: Mar 12, 2018 4:50 PM ET



...n's website asking for victims of natural disasters to have ...id their homes. (Justin Tang/The Canadian Press)

WINDSOR STAR

NEWS BUSINESS OPINION SPORTS ARTS LIFE CAREERS

ALL NEWS LOCAL NEWS NATIONAL WORLD TRAFFIC

Don't expect more flood help from province – minister

Don't expect more flood help from the province following record storm, Ontario Municipal Affairs Minister Bill Mauro advises local mayors.

DOUG SCHMIDT, WINDSOR STAR

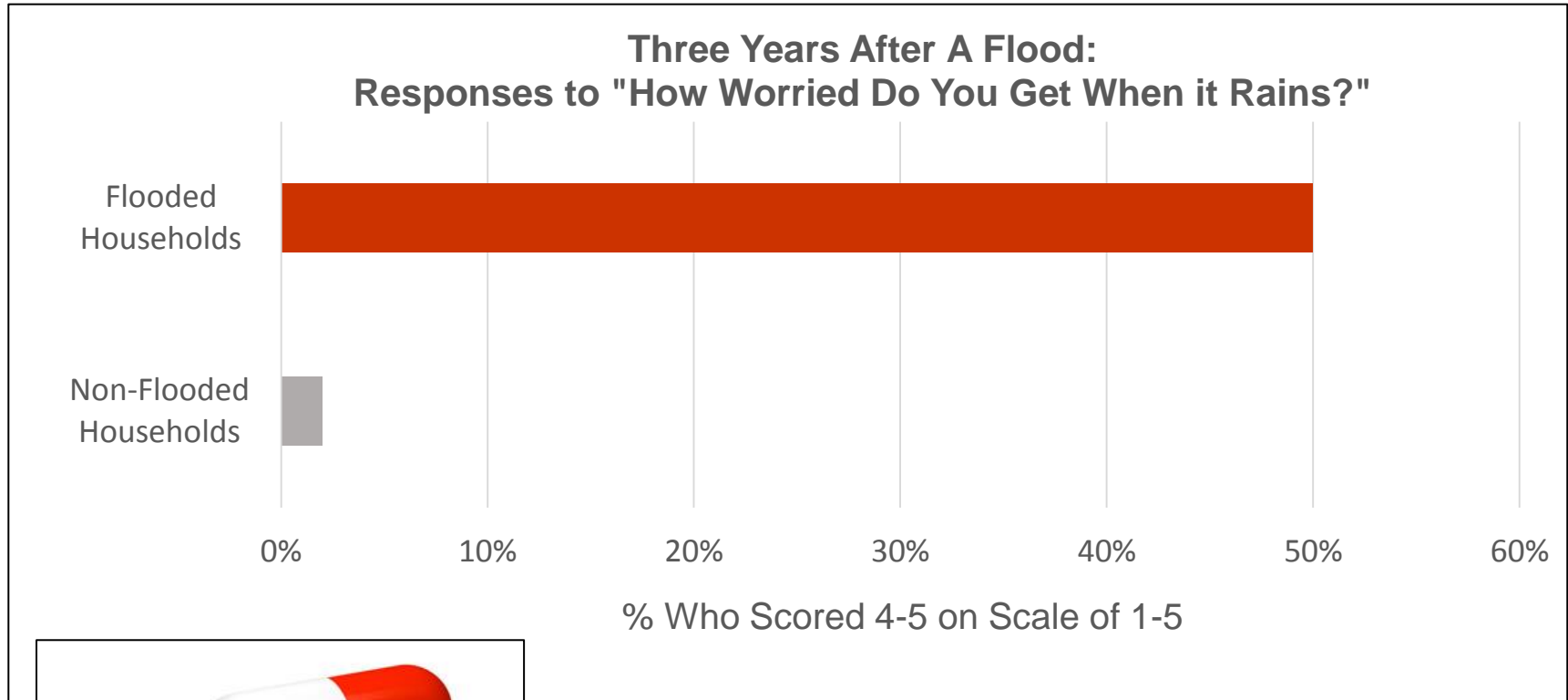
Published on: September 12, 2017 | Last Updated: September 12, 2017 8:00 PM EDT

MENTAL HEALTH IMPACTS OF FLOODING: TIME OFF WORK CLAIMS, PRESCRIPTION USE

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Average time off work was 7 days following home flooding – Burlington, ON



*High River female residents following 2013 Alberta floods: **164%** increase in anti-anxiety medication; **232%** increase in sleeping aids (Sahni et al. 2016)*

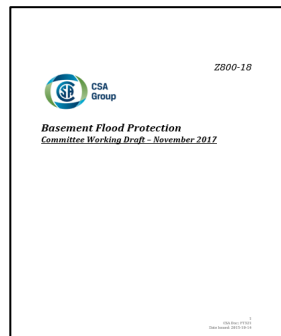
*"Water damage is now the leading cause of personal property claims. Over the last 10 years, water losses for personal property claims have doubled to 40% (of \$ paid in losses). There are a number of improvements that Canadians can take to better protect their homes and communities against water damage. **By taking these steps, Canadians could lower their annual premiums - anywhere from 5 to 15%.** Those who live in municipalities who make climate resilient infrastructure a priority could also benefit from more affordable premiums, higher coverage limits and enhanced insurance coverage."*

Intact Financial Corporation, 2017

FLOOD-RESILIENCY GUIDELINES & STANDARDS UNDER DEVELOPMENT (EXAMPLES)

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**Flood-Resiliency
Standard:
Basements**

**New Standards
Supported by:**

National Research Council Canada



**Flood-Resiliency
Standard:
New Communities**



Standards Council of Canada
Conseil canadien des normes



**Flood-Resiliency
Standard:
Existing Communities**

**... and experts all
across Canada, who
contribute to
research and
standards
development...**



FLOOD-RESILIENCY FOR HOMES: HOME INSPECTIONS

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- 9,000 Home Inspectors in Ontario & 40,000 nationally
- Home Inspectors currently receive virtually no training on home flood risk
- Home flood assessment would be applied to nearly all homes during the “buy/sell cycle”, on request by home owner/insurer

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Courses in Home Inspection Certificate (Online)

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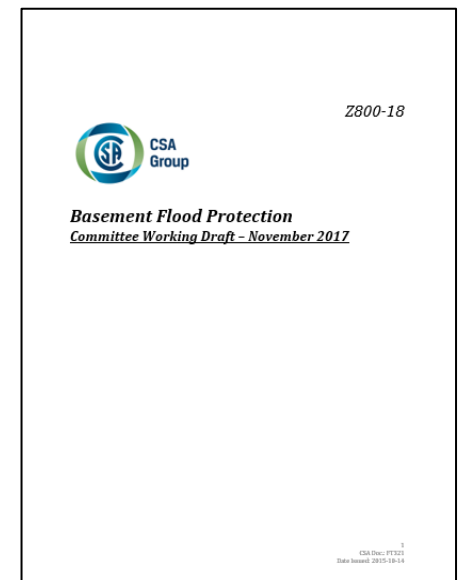
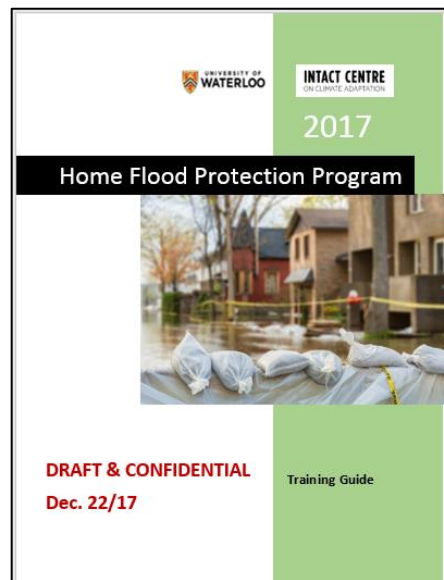
- » Roofing Inspection (CNST106)
- » Structural Inspection (CNST107)
- » Electrical Inspection (CNST099)
- » Heating Inspection I (CNST101)
- » Heating Inspection II (CNST102)
- » Air Conditioning and Heat Pump Inspection (CNST097)
- » Plumbing Inspection (CNST105)
- » Exterior Inspection (CNST100)
- » Interior/Insulation Inspection (CNST103)
- » Communication/Professional Practices (COMM052)

FLOOD-RESILIENCY FOR HOMES: HOME FLOOD SELF-ASSESSMENT APP

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- **Purpose:** assess basement flood risk based on “80:20” rule. App would consist of 10-20 questions presented to home owners regarding potential flood risk – much material to draw upon (see below)
- **Characteristics:** “connect to homeowner” using simple tool. Fast: 20-30 minutes to complete. Scalable: available to all homeowners/insurers. Incentive: App could result in premium adjustment. Government: requires virtually no support to execute



FLOOD-RESILIENCY STANDARD FOR NEW COMMUNITIES: UNDER DEVELOPMENT

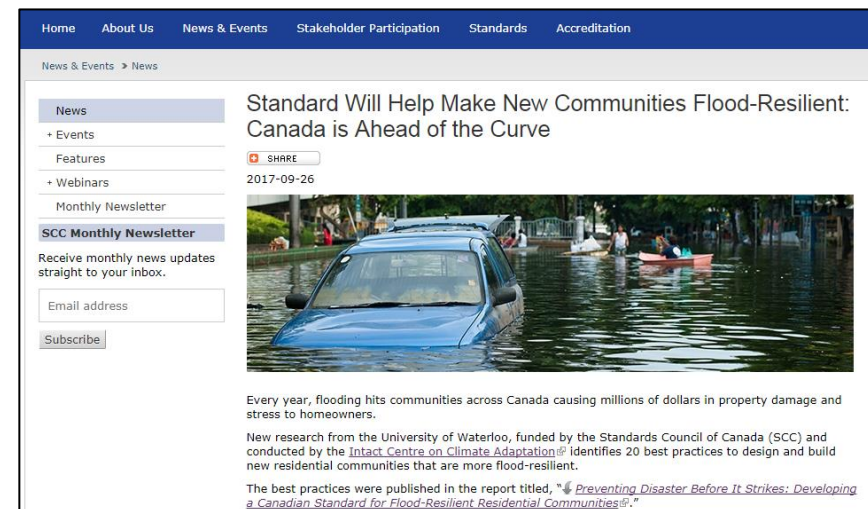
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Purpose: develop a standard for flood-resilient new community design for low-rise residential developments in Canada

Current Status:

- CSA Group will develop a national standard of Canada
- “Preventing Disaster Before It Strikes” report developed by the Intact Centre (Sept. 2017) serves a seed document for the standard
- Technical Committee (municipal experts, developers, homebuilders, engineering consultants, insurance industry reps, academia, etc.)
- Expected publication Sept. 2019



FLOOD-RESILIENCY STANDARD FOR EXISTING COMMUNITIES

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Purpose:

- 1) develop a framework for screening neighbourhoods to prioritize flood risk reduction work; and
- 2) identify best practices for flood risk reduction based on flood hazards and neighborhood characteristics

Current Status:

- Draft outline of the prioritization framework prepared and circulated for review
- NBC review of flood-resiliency dates and measures underway
- May 22, 2018 in-person meeting in Toronto to discuss the framework, BP's



National Research Council Canada



Standards Council of Canada
Conseil canadien des normes

Neighborhood Screening

- Age
- Location
- Sewer system type (combined, partially separated, fully separated with and without dual drainage design)
- Design practice assumptions
- Nature of Complaints/Flood Reports
- Estimate of Level of Service
- Flood density (# properties per unit area)
- Estimated cost of damages

FLOOD-RESILIENCY STANDARD FOR EXISTING COMMUNITIES

In Scope	Out of Scope
Best Practices: <ul style="list-style-type: none">Physical infrastructure enhancements (minor capital projects, lot level improvements)Best management practices and behavioral programs (e.g., monitoring, maintenance, education and awareness programs)Planning / land use management considerations	Best Practices: <ul style="list-style-type: none">Critical infrastructure improvements (e.g., major capital investment projects such as wastewater treatment plant upgrades, watercourse diversions/berms)
Geography: <ul style="list-style-type: none">All 10 provinces in Canada	Geography: <ul style="list-style-type: none">Permafrost communities
Flood Hazards: <ul style="list-style-type: none">RiverineOverlandStorm and Sanitary Sewer Back UpGroundwater Seepage (as it relates to sewer back up risk)	Flood Hazards: <ul style="list-style-type: none">Coastal (e.g., storm surge; tidal flooding; sea level rise)Unique flood hazards (e.g., dam failures)
Residential Development: <ul style="list-style-type: none">Urban AreasRural AreasInfill / Redevelopment Areas	Non-Residential Development: <ul style="list-style-type: none">Industrial, Commercial and InstitutionalAgriculturalOther non-residential development and major transportation routes

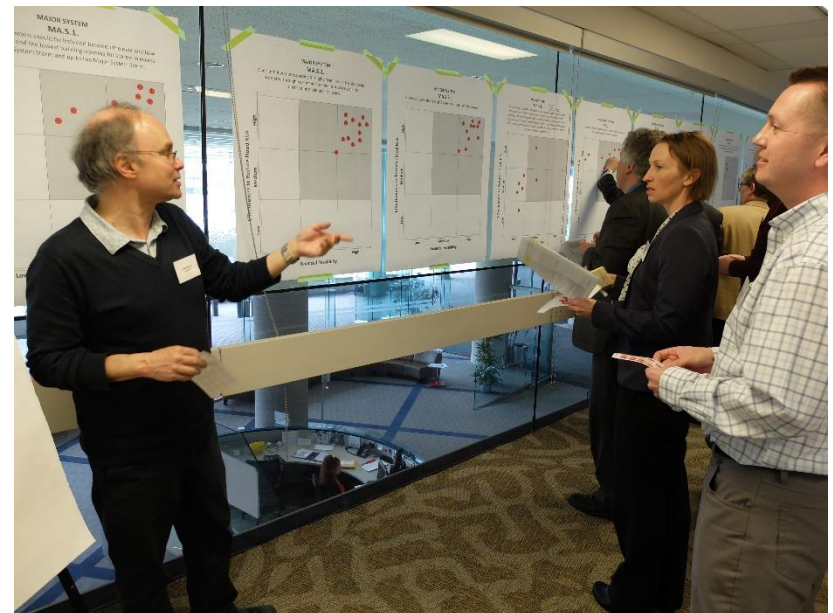
FLOOD-RESILIENCY STANDARD FOR EXISTING COMMUNITIES

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To prioritize draft best practices and arrive at a “highly practical” list, key stakeholders rank each best practice in term of:

- a) effectiveness to reduce flood risk; and
- b) financial and technical feasibility for implementation.

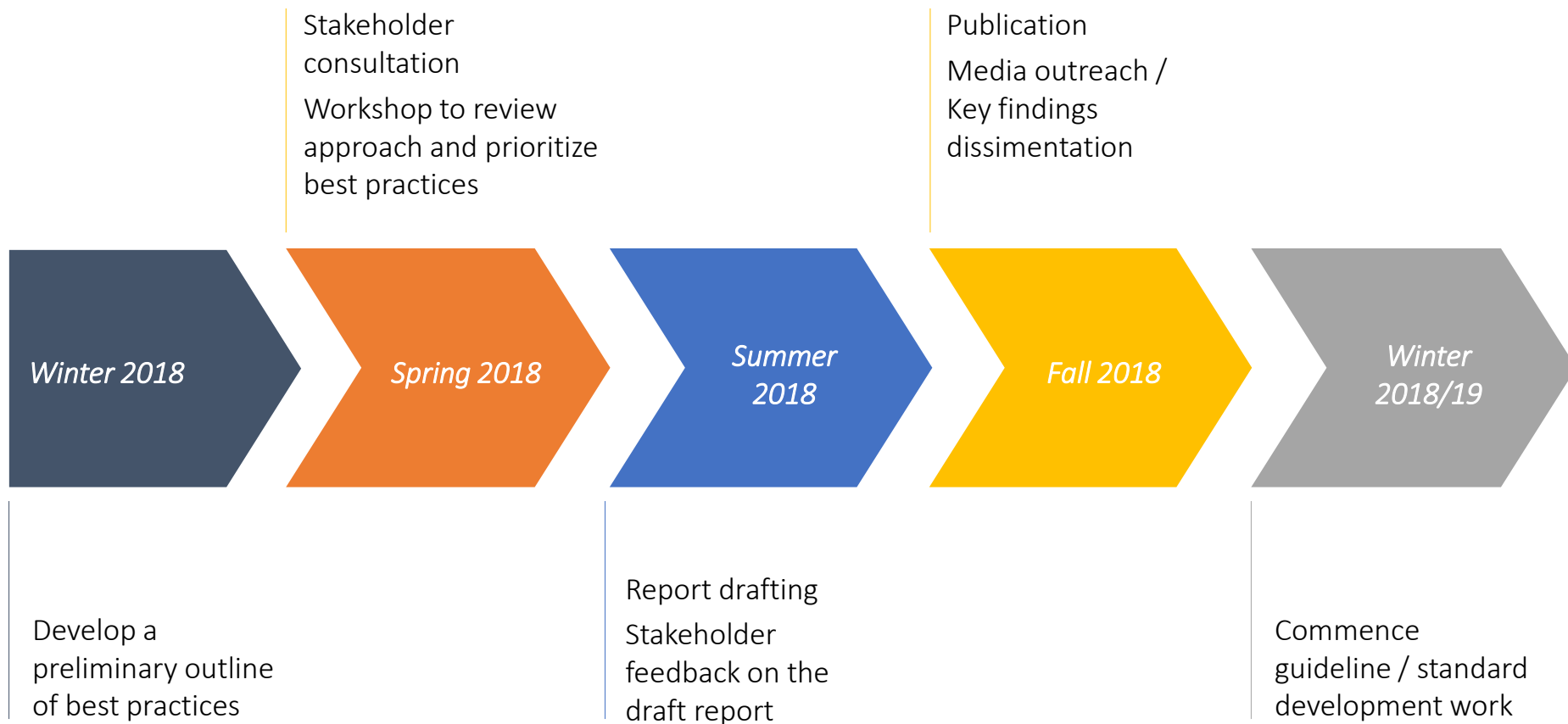
The highest-ranking best practices are considered as part of the seed document for guideline/standards development.



FLOOD-RESILIENCY STANDARD FOR EXISTING COMMUNITIES: TIMEFRAME

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