

WELCOME TO THE DISTRICT OF NORTH SAANICH

OCP MARINE POLICY & GUIDELINES
RECOMMENDATIONS FOR SEA LEVEL RISE PLANNING &
ADAPTATION

PROPOSED NEW DEVELOPMENT PERMIT AREA

TWO PROPOSED SPECIAL DEVELOPMENT AREAS

PUBLIC CONSULTATION

THURSDAY, OCTOBER 19TH 2017



DNS Adaptation Action Plan

Marine Task Force
Review (2008)

DNS FCL
Studies

Marine Policy
Review

Community Consultation

2011

2013

2015

2017

2019

2011

Province updates SLR
flood management
guideline Documents

2013

Property Rights on
Waterfront (PROW)
association calls for
DNS initiative

2014

Capital Regional District
(CRD) starts Regional
Flood Construction Level
(FCL) assessment

2014

Dr. Tom Petersen
addresses Council on Sea
Level Rise
Province updates Council
on updating of FHALMG

2017 January 26
Community Consultation

2017 October 19
Consultation Update

2017 October 26
SDA Field workshop

2017 / 2018, Winter

OCP Policy Options
approval

Public consultation zoning
policies



DNS Flood Adaptation Program: Continuing Consultation



SNC • LAVALIN

OCP Marine Policy & Guideline Recommendations

Community Consultation Update

19 October 2017



Agenda

	AGENDA	
4:00	Registration and Coffee	
4:30	Opening Remarks District of North Saanich Overview of Marine Policy Planning & Flood Construction Level Consultation Update	Mayor Finall
4:45	Marine Policy & Regulations Planning <ul style="list-style-type: none"> - SLR Update - OCP - Proposed Changes Review - OCP – Updated Proposed Changes - OCP – DPA 9 Sea Level Rise Coastal Flood Hazard Areas - OCP - Shoal Harbour Migratory Bird Sanctuary - OCP – Infrastructure - Protection and Adaptation 	John Readshaw
5:45	Discussion	Open
6:15	Introduction to Special Development Areas Section 13 OCP <ul style="list-style-type: none"> - Tsehum Harbour - Lochside Drive Section 13 OCP - Plan for Next Meeting - November 16, 2017 	John Readshaw
6:30	Closing Remarks	Mayor Finall

Acknowledgements

Sherry Lim, P. Eng. Project Engineer, Policy Review

Jessica Wilson, EIT Project Engineer, FCL Study

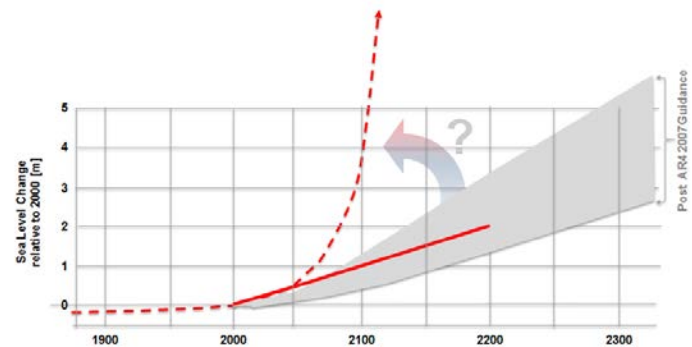
Brett Korteling Mapping Consultant

Reviewers from North Saanich

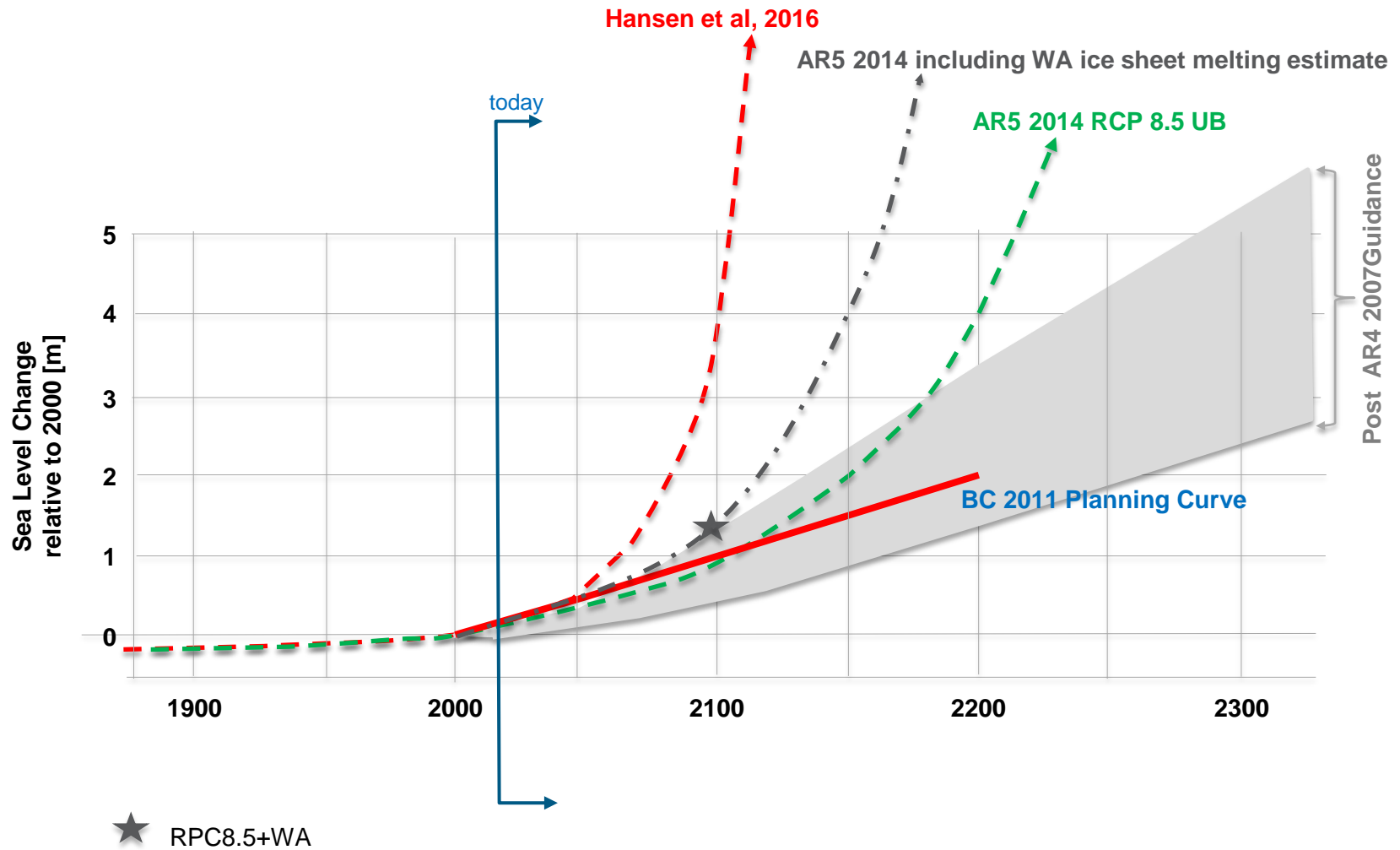
Resident Questionnaire Returns and Comments

SLR Update

Since January 2017



Updated Guidance Summary



Recent Events (post January 2017)

- › Larson C Ice Shelf broke off (no direct rise in sea levels but opens up yet another Antarctic Ice sheet for rapid calving – leads to increasing SLR)
- › Another summer of low summer ice cover in Arctic
- › Mapping of Greenland and Antarctic shows much larger areas of ice sheets exposed to ocean (warm) waters – implications are more consistent with exponential rise in SLR
- › Regional Satellite measurements analysis show accelerated SLR in Pacific NW area
- › Global mean SLR has slowed for now
- › Tropical storms in Atlantic – Caribbean unusually severe in both rainfall and wind
- › Post Tropical Storm Ophelia brings hurricane force winds to Ireland – furthest north progression of tropical storm on record

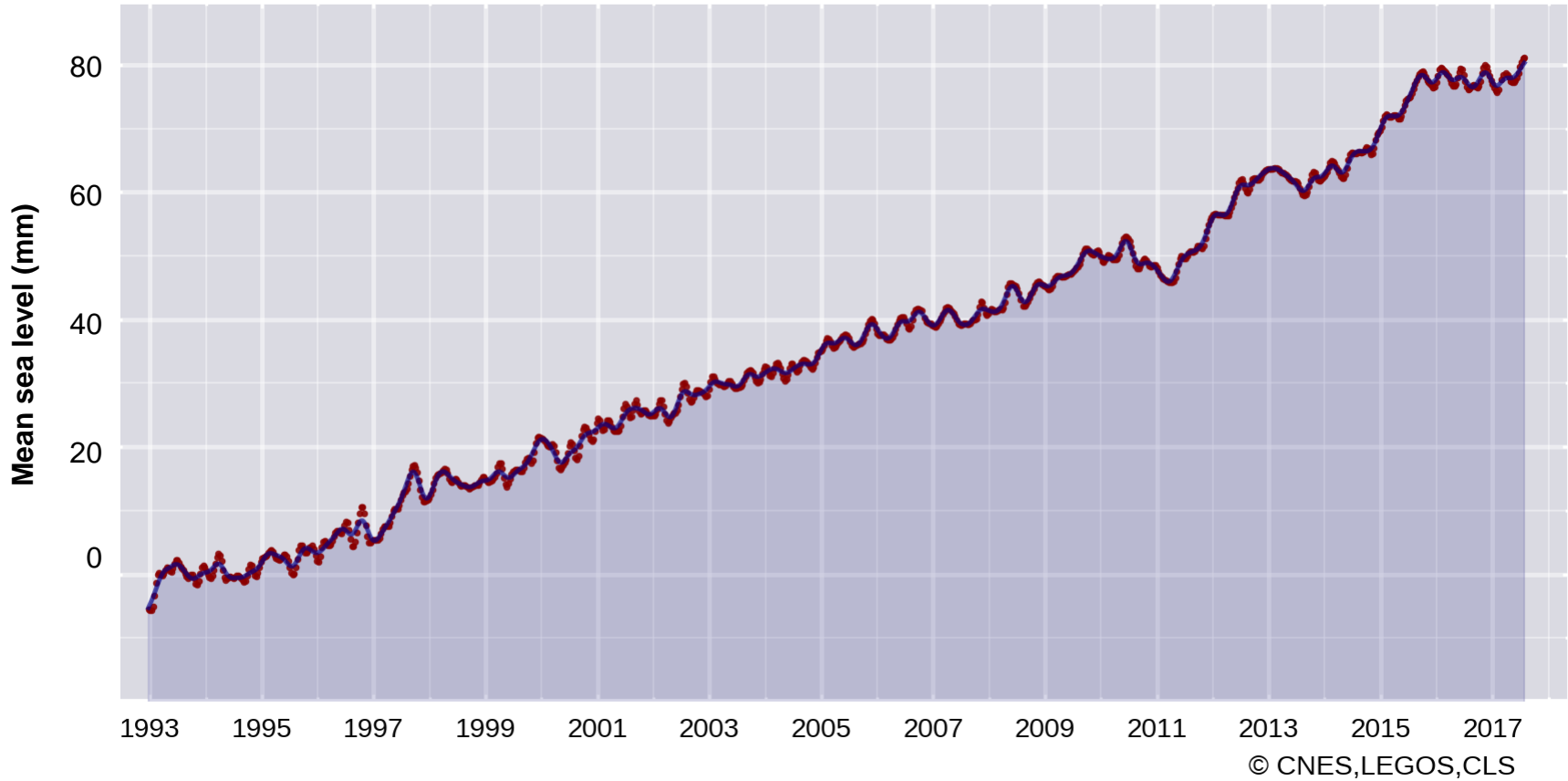


Recent Global Mean Sea Level Rise

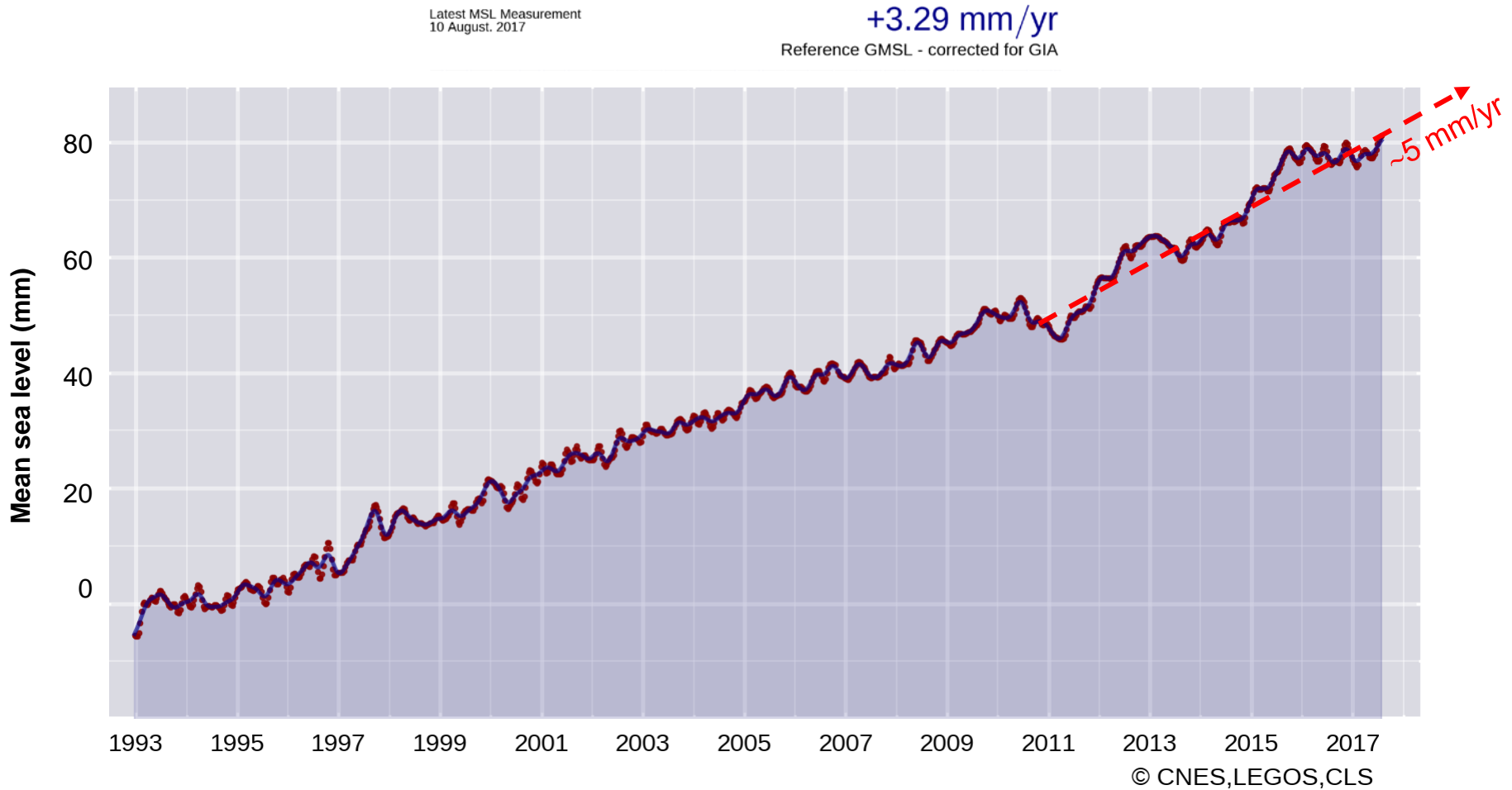
Latest MSL Measurement
10 August, 2017

+3.29 mm/yr

Reference GMSL - corrected for GIA



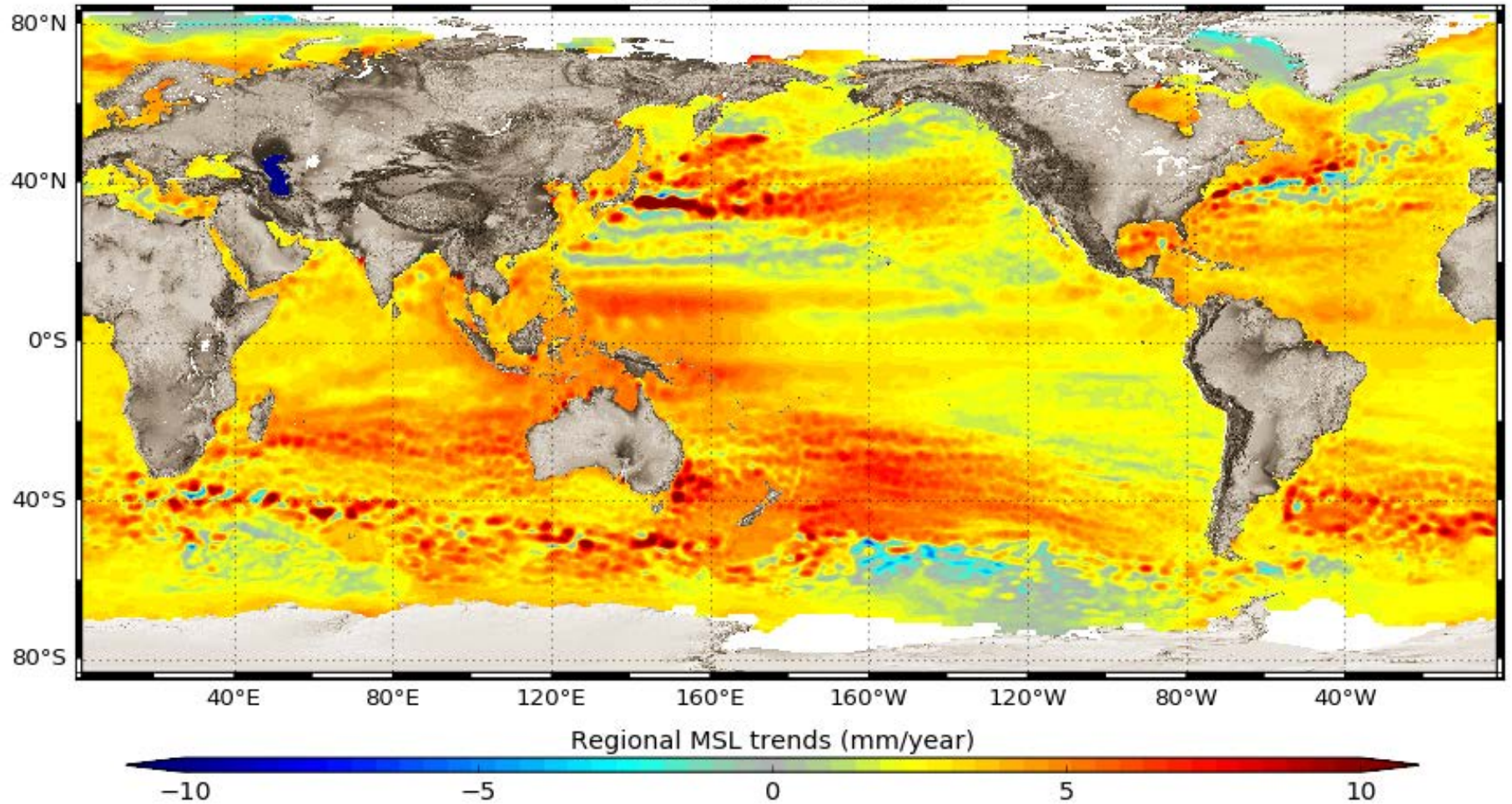
Recent Global Mean Sea Level Rise



Global Mean SLR – 1992 -2017

Multi-Mission Sea Level Trends

Period: Jan-1993 to May-2017

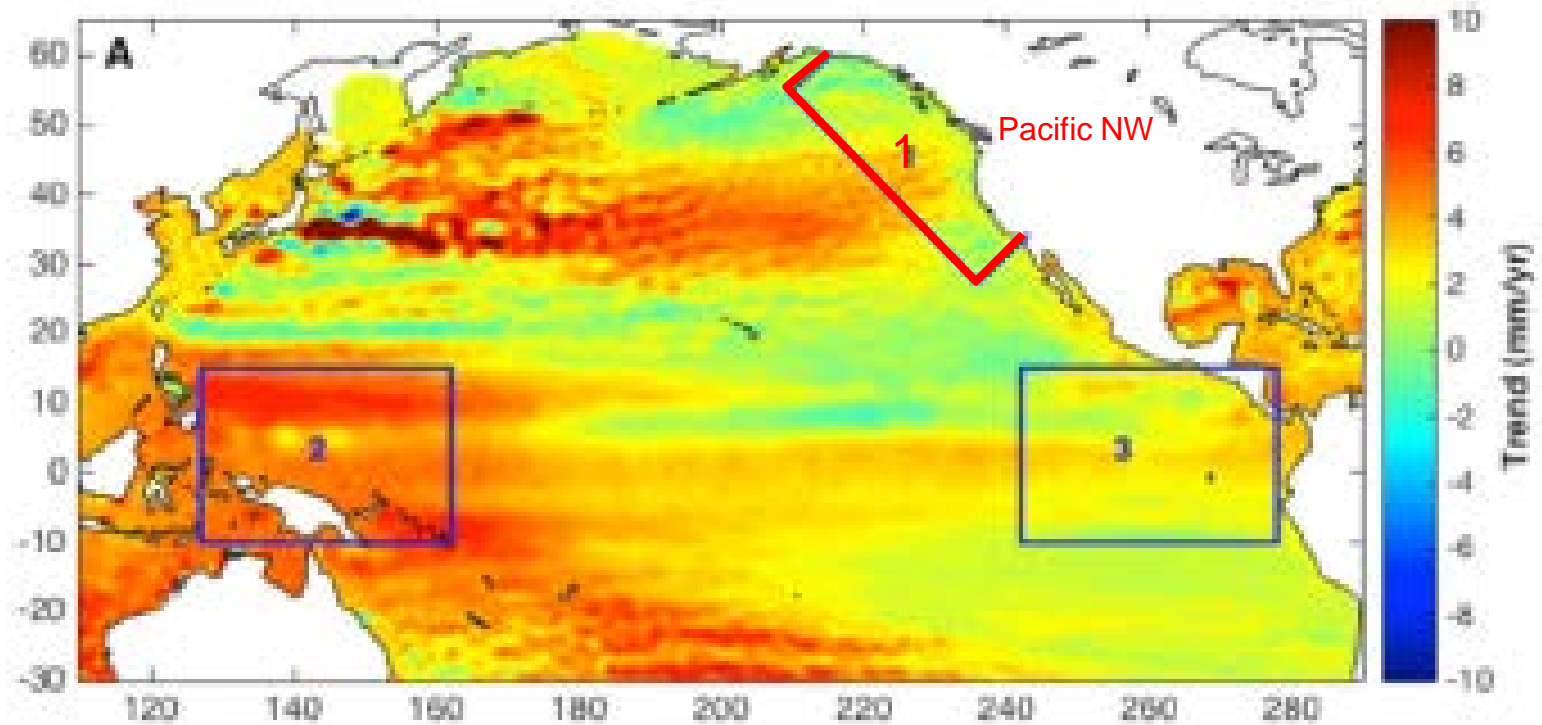


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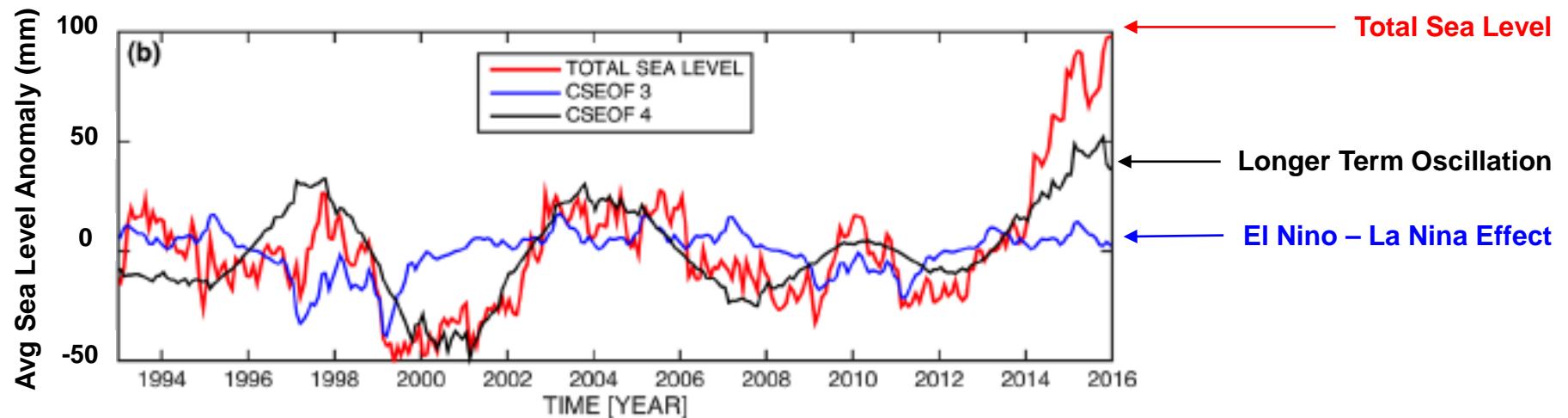
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Recent NE Pacific Sea Level Rise



Source: Hamlington, B.D. et al, "An ongoing shift in Pacific Ocean Sea Level, JGR, 121, 5084-5097, 2016

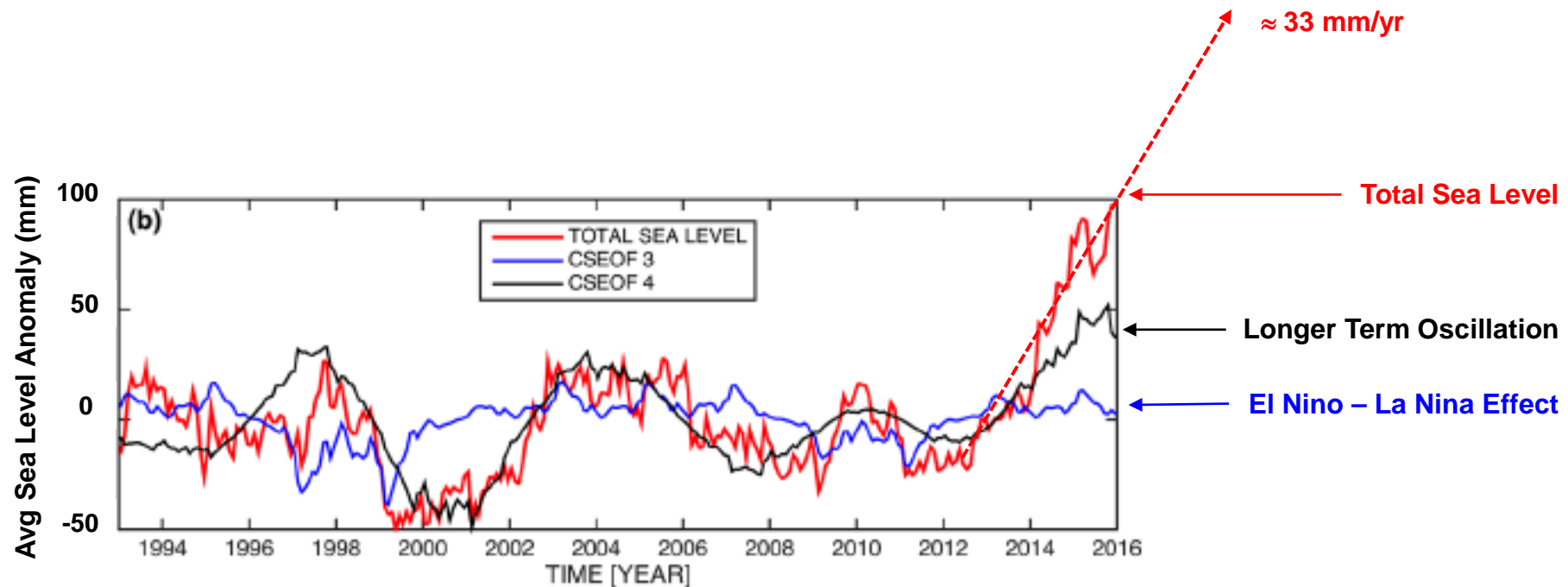
Recent Pacific NW Sea Level Rise Trends



Source: Hamlington, B.D. et al, "An ongoing shift in Pacific Ocean Sea Level, JGR, 121, 5084-5097, 2016



Recent Pacific NW Sea Level Rise Trends



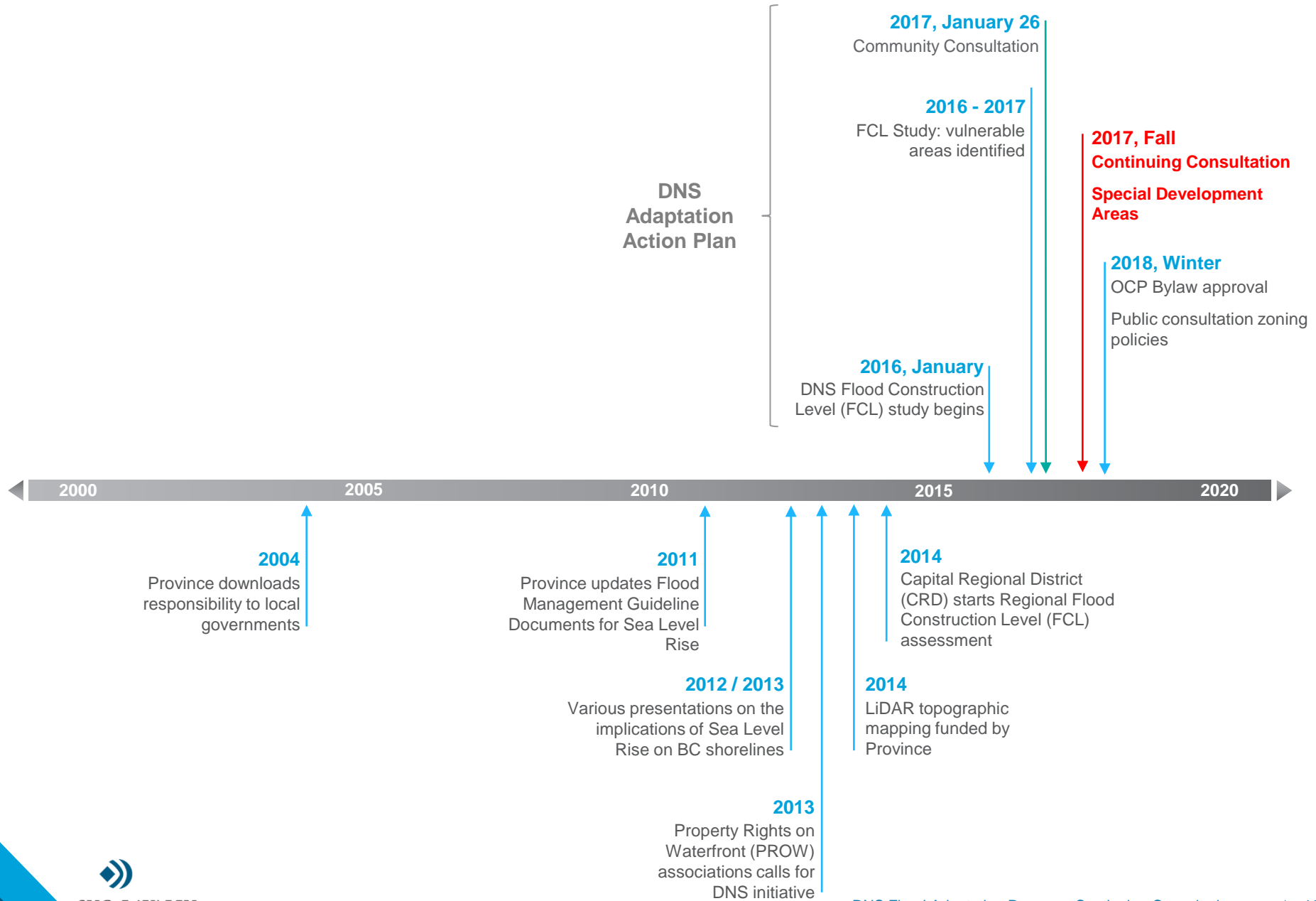
Source: Hamlington, B.D. et al, "An ongoing shift in Pacific Ocean Sea Level, JGR, 121, 5084-5097, 2016



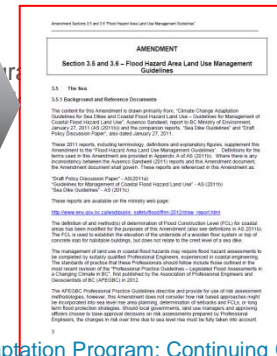
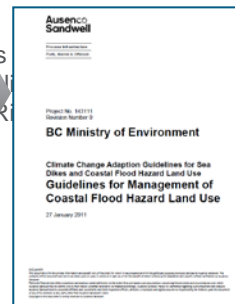
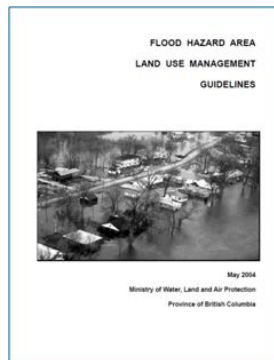
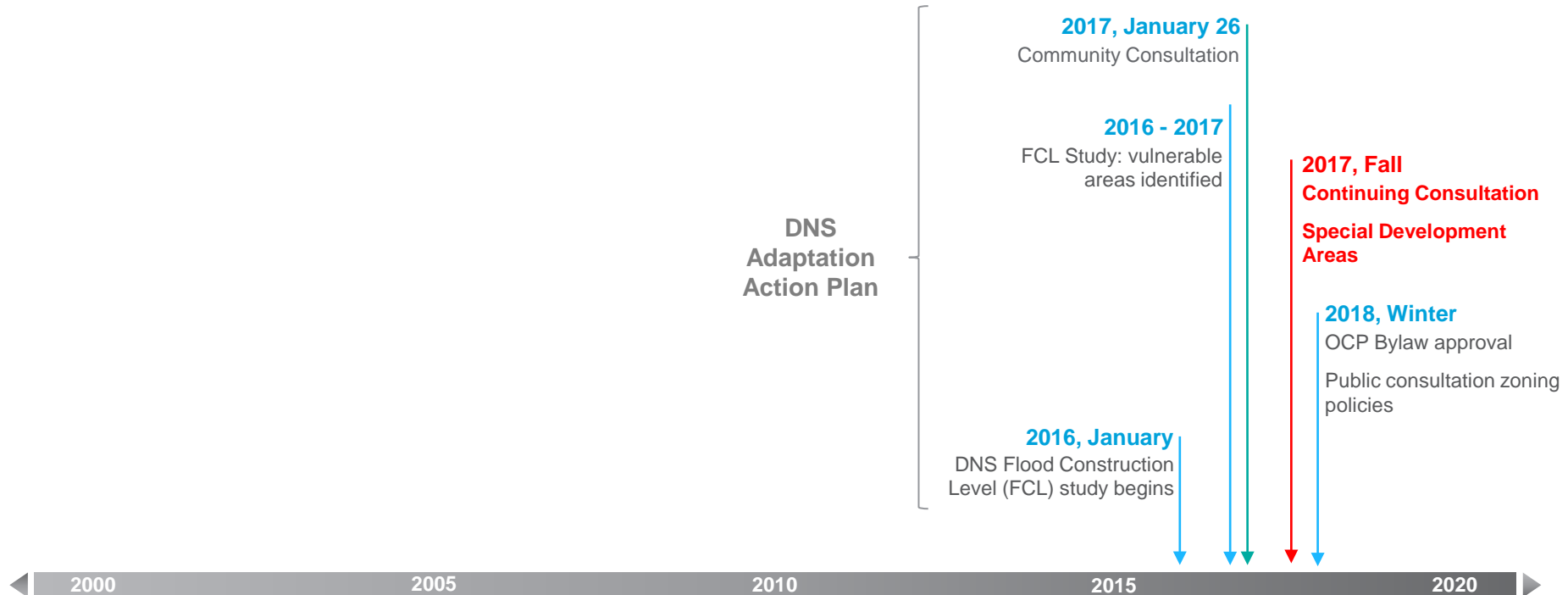


Relevant Provincial Guidelines Progress

Timeline



Timeline

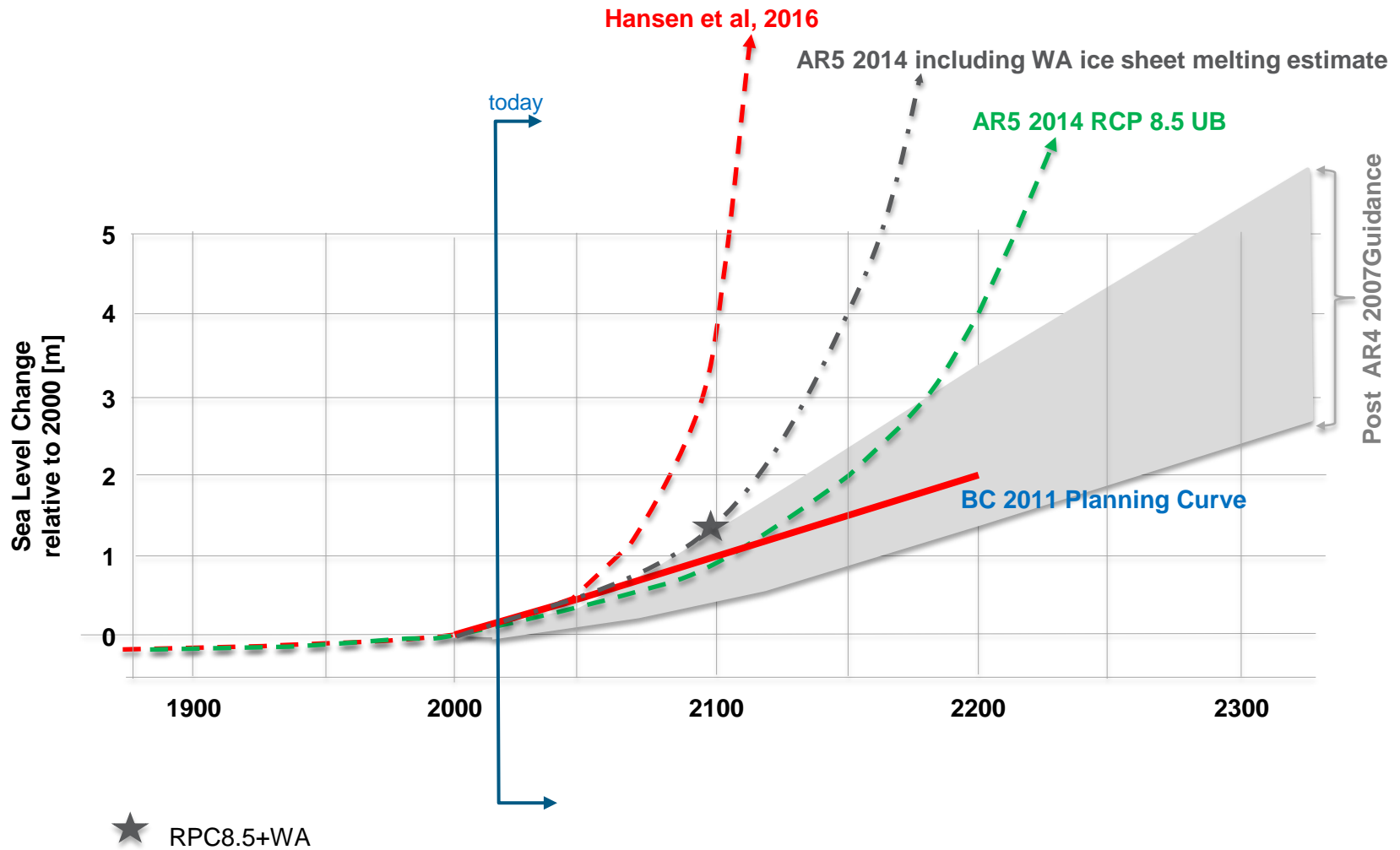


Implications

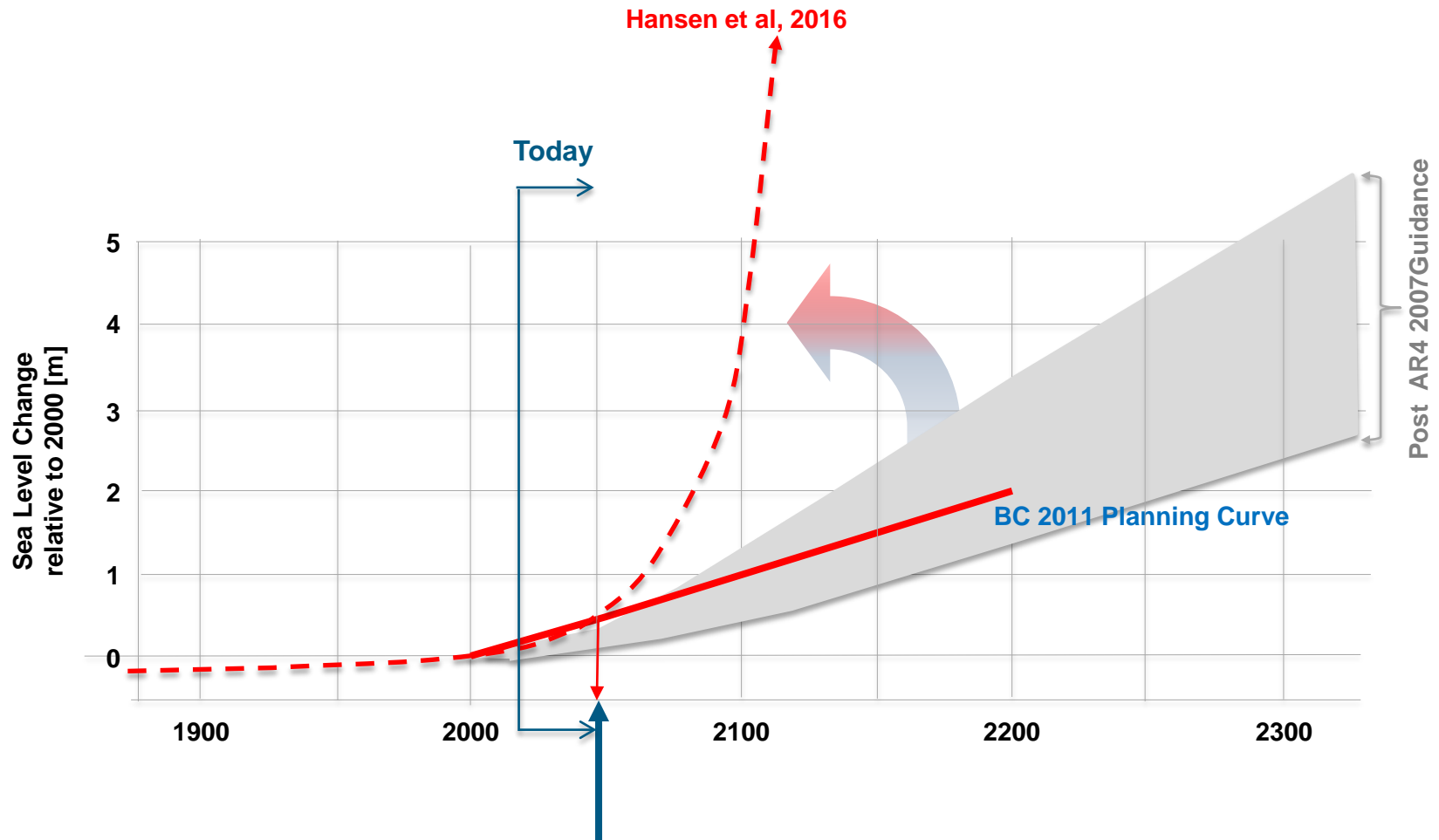
Updated Section 3.5 – 3.6

- › Acknowledges the influence of “significant new scientific information” on the 2011 Planning Curve:
 - › *IPCC AR5 (2014)*
 - › *Hansen et al (2016)*
 - › *Continuing stream of information on vulnerability and pace of ice sheet melting*

Significant New Scientific Information

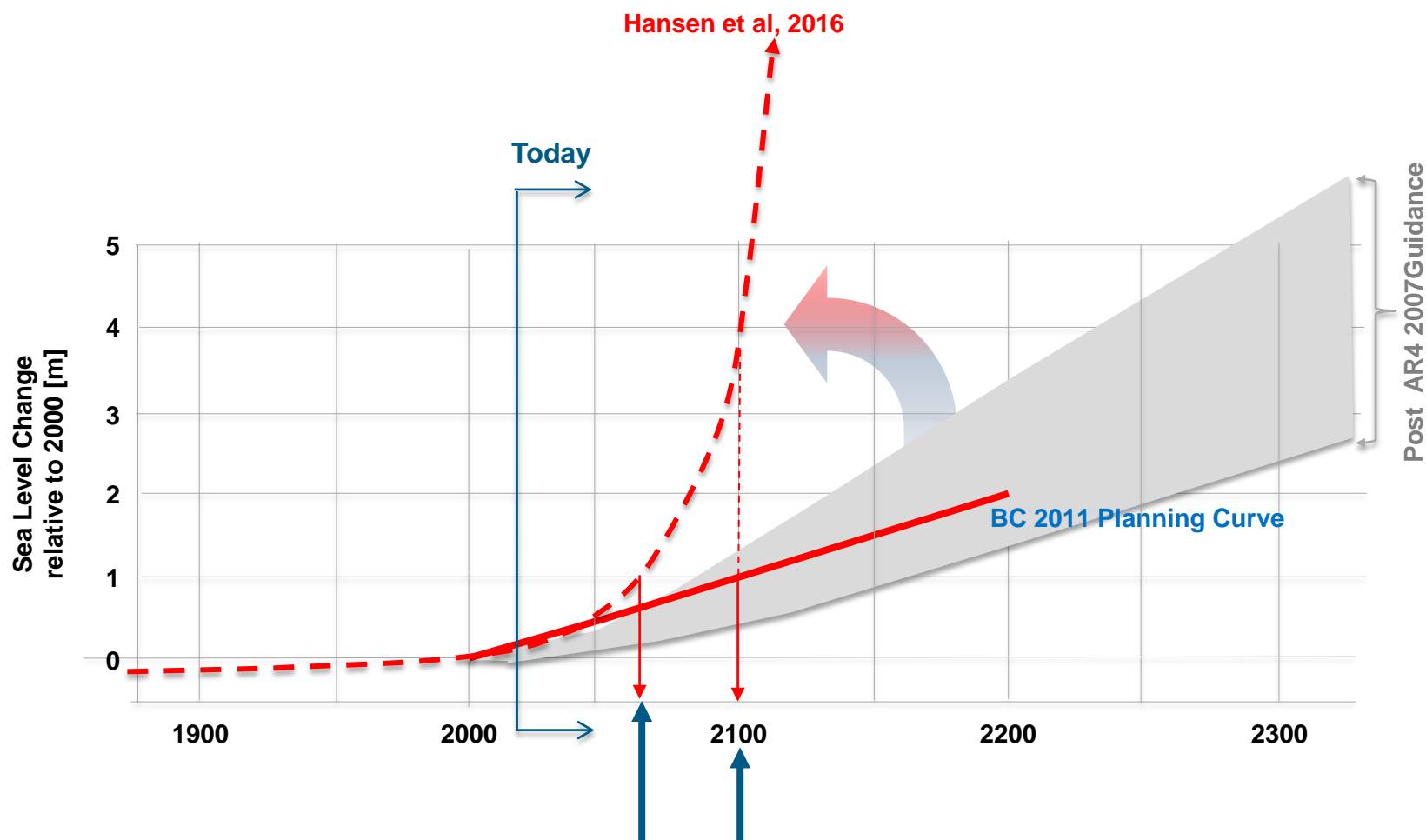


Sea Level Rise Guidance 2017



0.5 m of SLR is coming (~2050)

Sea Level Rise Guidance 2017



1 m (or more) SLR is coming (~ 2065 +)



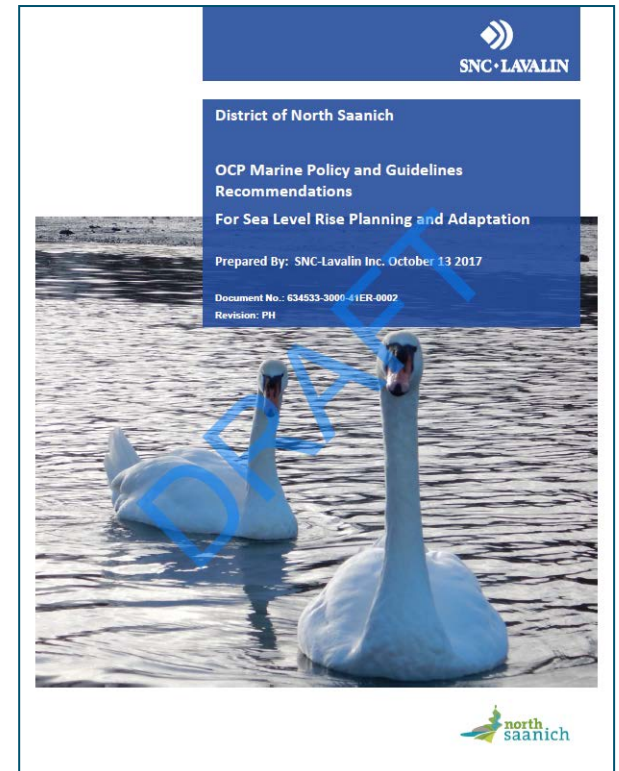
Implications of Provincial Guidelines

Updated Section 3.5 – 3.6

- › Acknowledges the influence of “significant new scientific information” on the 2011 Planning Curve:
 - › *IPCC AR5 (2014)*
 - › *Hansen et al (2016)*
 - › *Continuing stream of information on vulnerability and pace of ice sheet melting*
- › Procedure for defining FCL is the same as used for DNS FCL Study (2016)
- › Recommends establishment of Sea Level Rise Planning Areas
- › Recommends creation of Flood Protection Plans
- › Where a Flood Protection Plan has been created – FCLs may be reduced



Marine Policy Changes Updates DRAFT



Recommended Marine Policy Changes (DRAFT)

Changes to OCP Sections

Two New Special Development Areas

New Development Permit Area



January 26 2017 Responses

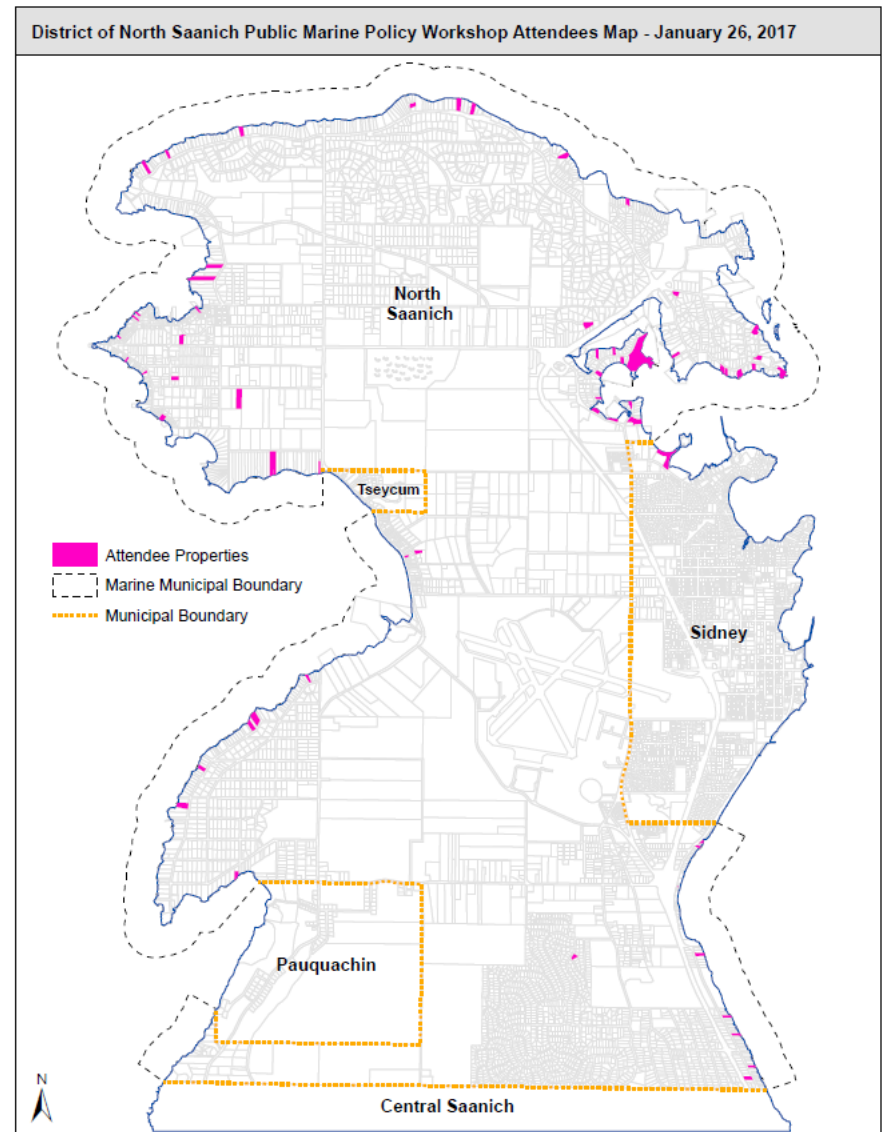
100 Participants

Questions during presentation

7 Questionnaire responses

Follow-up communications:

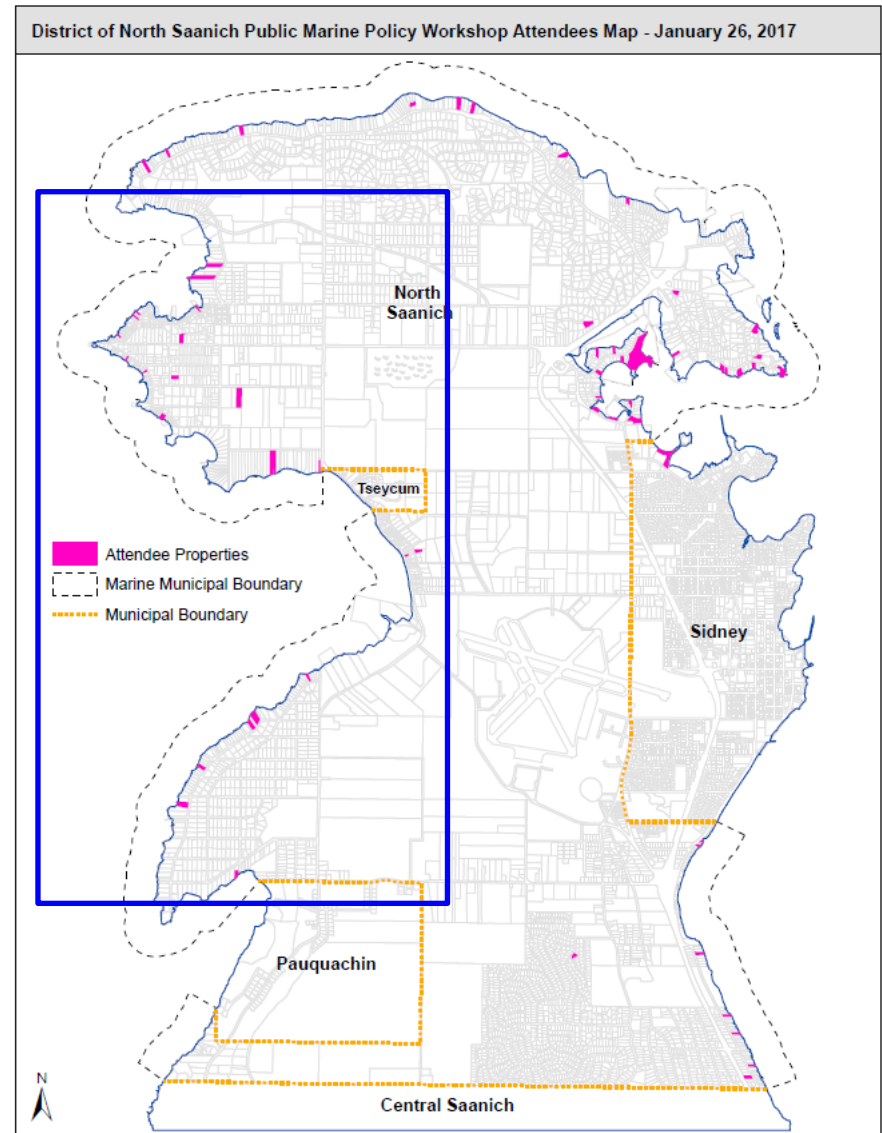
- › Friends of Shoal Harbour
- › View Corridors



January 26 2017 Responses

West Shoreline Respondents (4):

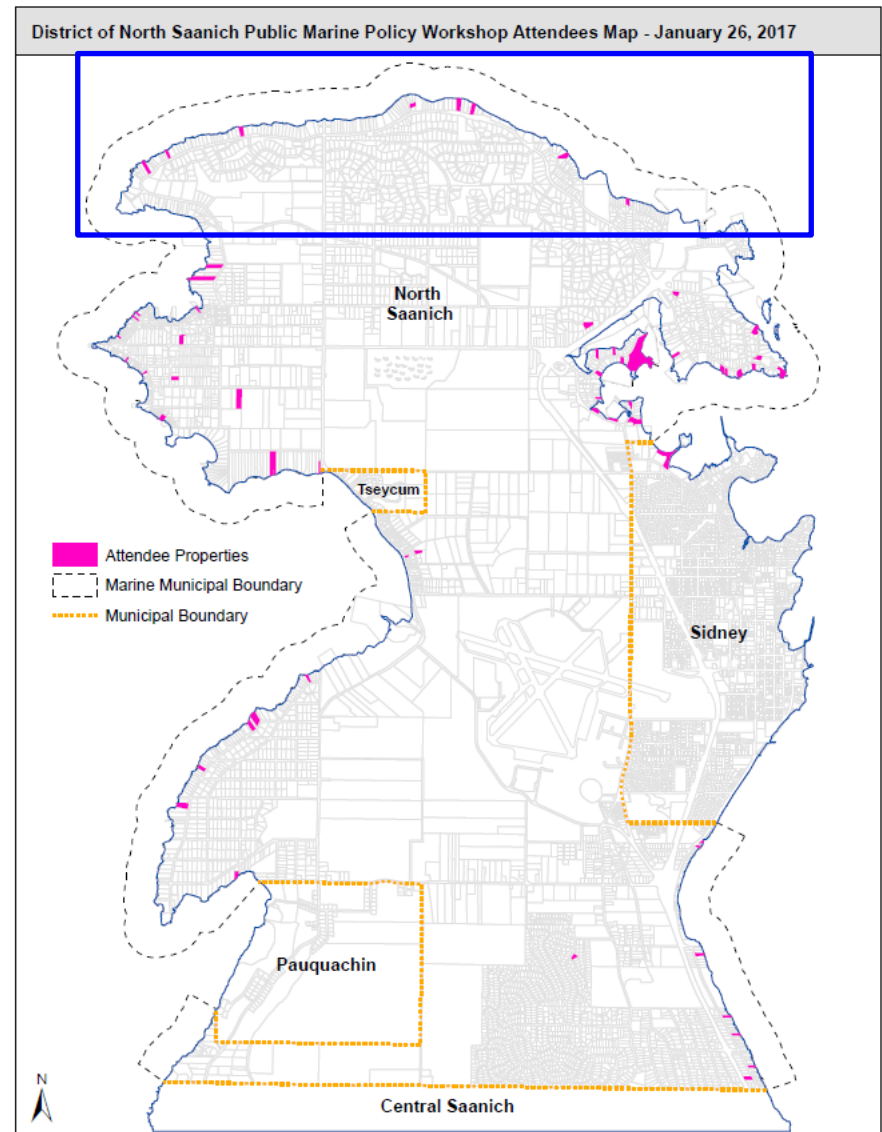
- › What sea level rise has occurred so far?
- › Storms have not changed in 22 yrs
- › DNS should work with other municipalities
- › Concern about boat house and SLR
- › Keep SLR adaptation requirements simple
- › Concern about new DPA
- › Damage to W Saanich Road and Scoter Trail
- › More ideas for adaptation options
- › Mitigation actions important
- › Contingency planning essential
- › How will SLR affect utilities, sewers, storm drains and access for non-flooded properties



January 26 2017 Responses

North Shoreline Respondents (2):

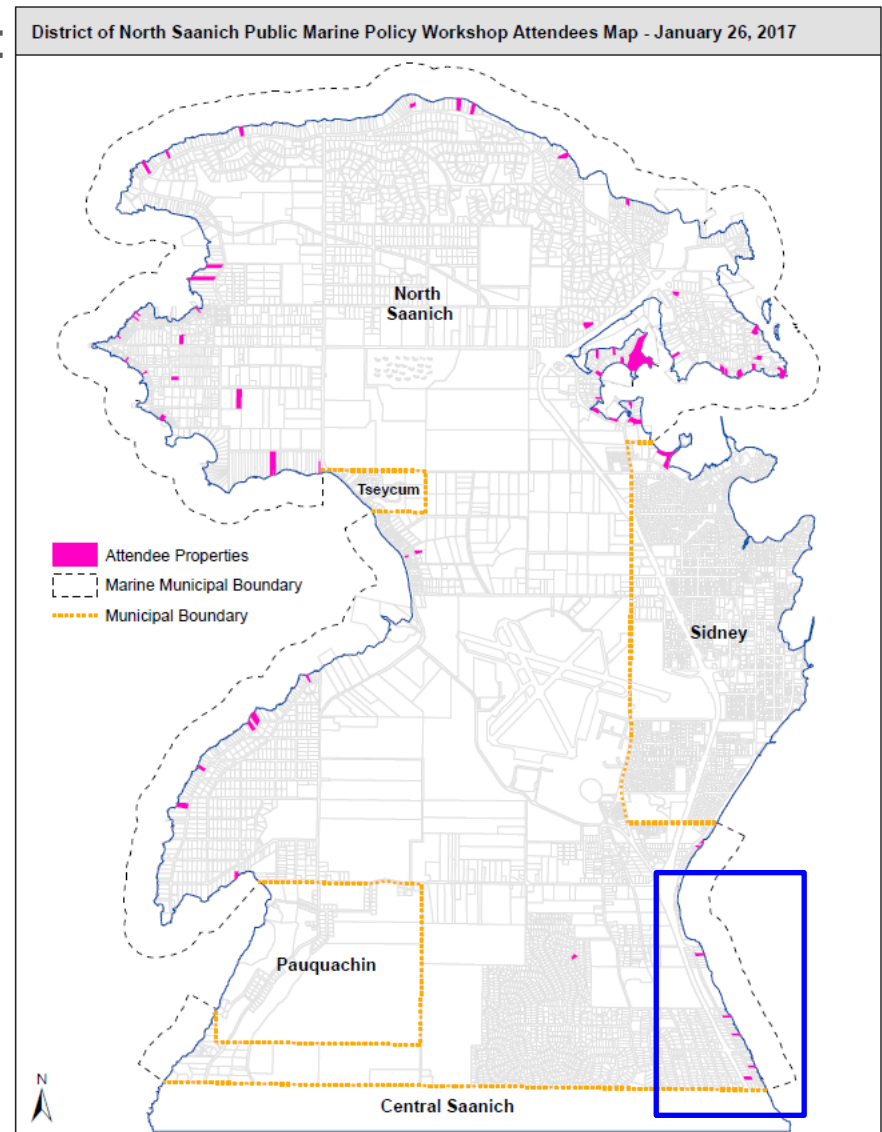
- › How will SLR affect utilities, sewers, storm drains and access for non-flooded properties?
- › Allowing boat houses would allow access during flooding events
- › Want careful planning to occur
- › Concern about beach environments



January 26 2017 Responses

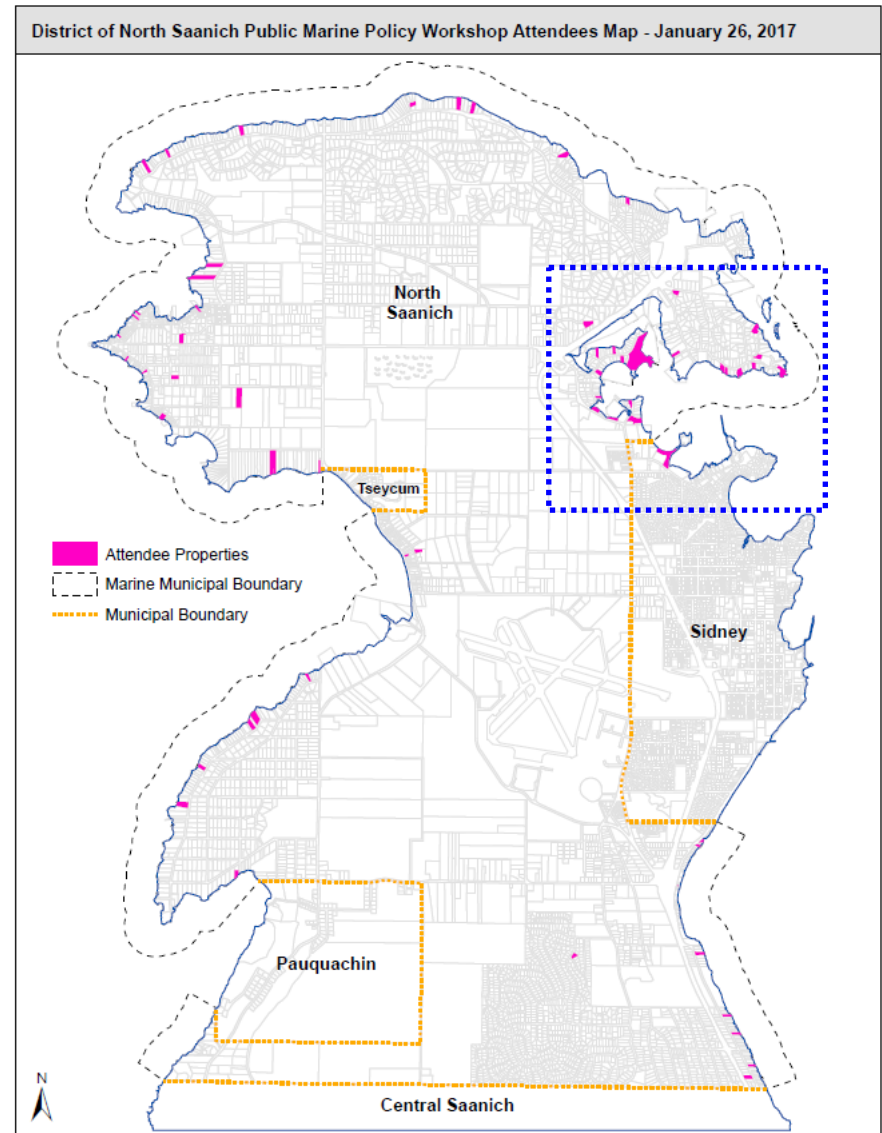
East Shoreline Respondents (1):

- › Concerned that shorelines will be hardened with seawalls leading to deterioration of beach environments
- › More information on adaptation options:
 - › Examples of environmental friendly options
 - › Examples of property protection examples that work
 - › Cost information
 - › Source information

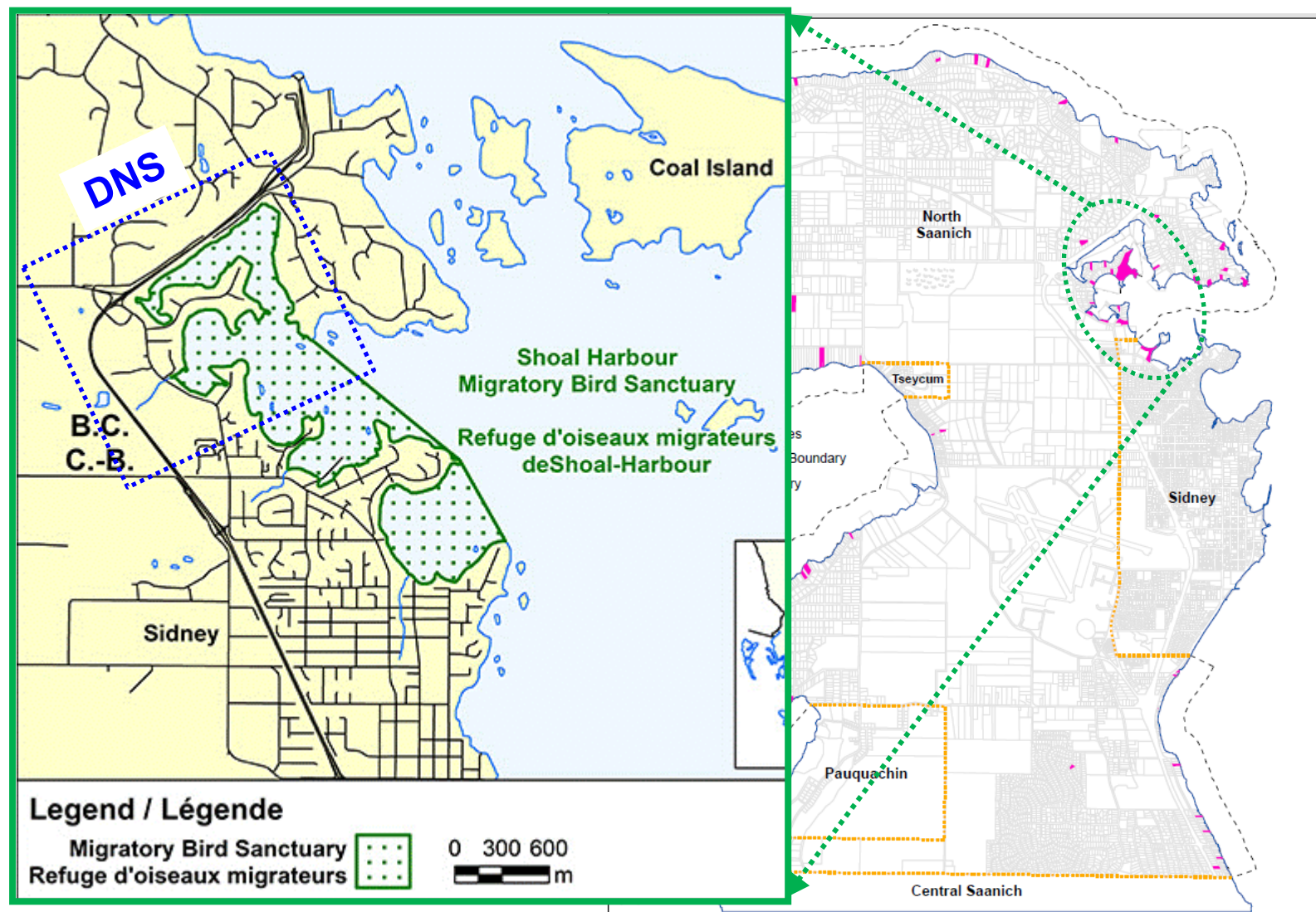


January 26 2017 and later Responses

- › Friends of Shoal Harbour addressed Council:
 - › Shoal Harbour Migratory Bird Sanctuary (SHMBS) (1931) is oldest sanctuary area in Canada



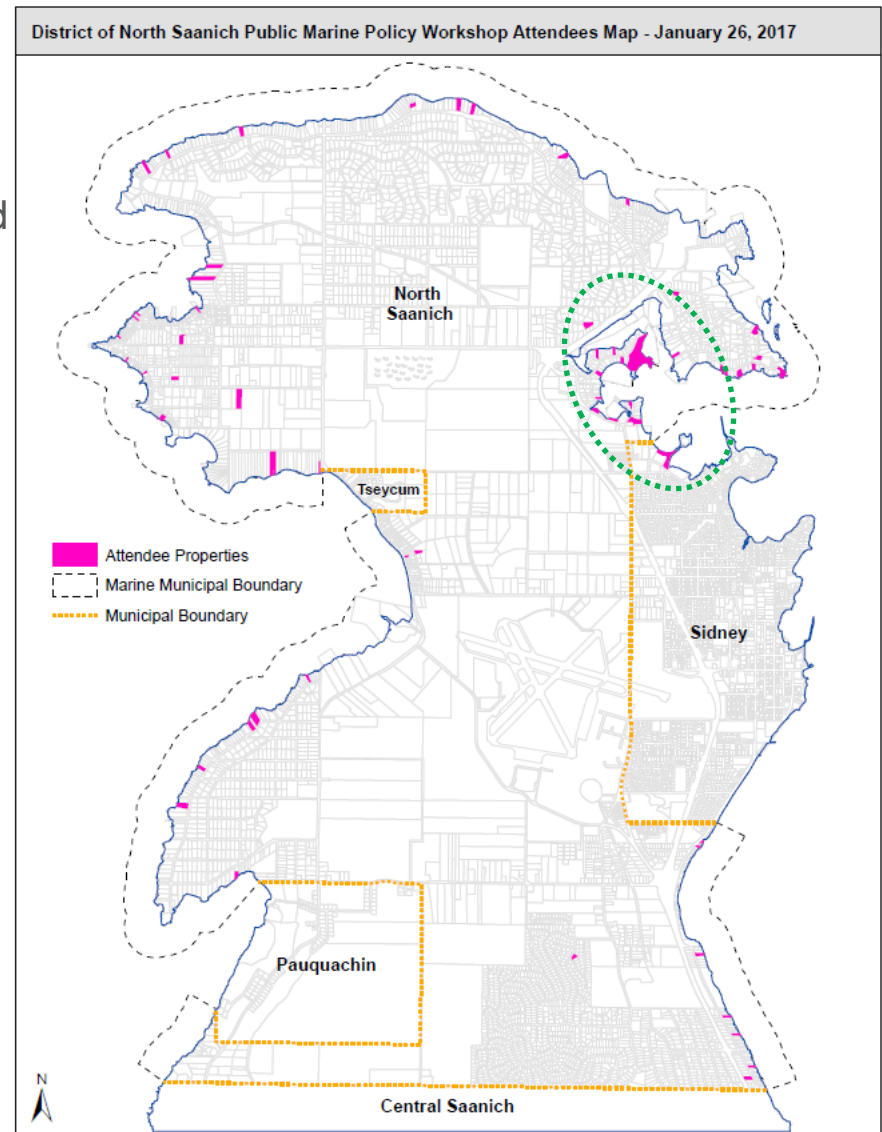
Shoal Harbour Migratory Bird Sanctuary



January 26 2017 and later Responses

Shoal Harbour Migratory Bird Sanctuary (SHMBS) (1931):

- › is oldest sanctuary area in Canada
- › Environmental values have deteriorated
- › FOSH recommending:
 - › *Protect, conserve and manage Sanctuary better*
 - › *Respect existing interests*
 - › *Use zoning and ESA provisions already in place*
- › Municipal jurisdiction extends 300 m seaward
- › Preservation and even enhancement, of the SHMBS is consistent with growing recognition that natural values play a significant adaptation and/or resilience building role
- › Potential role in a Special Development Area designation for Tsehum area.



Updated Changes to Existing OCP

8 areas of the Existing OCP that should be updated:

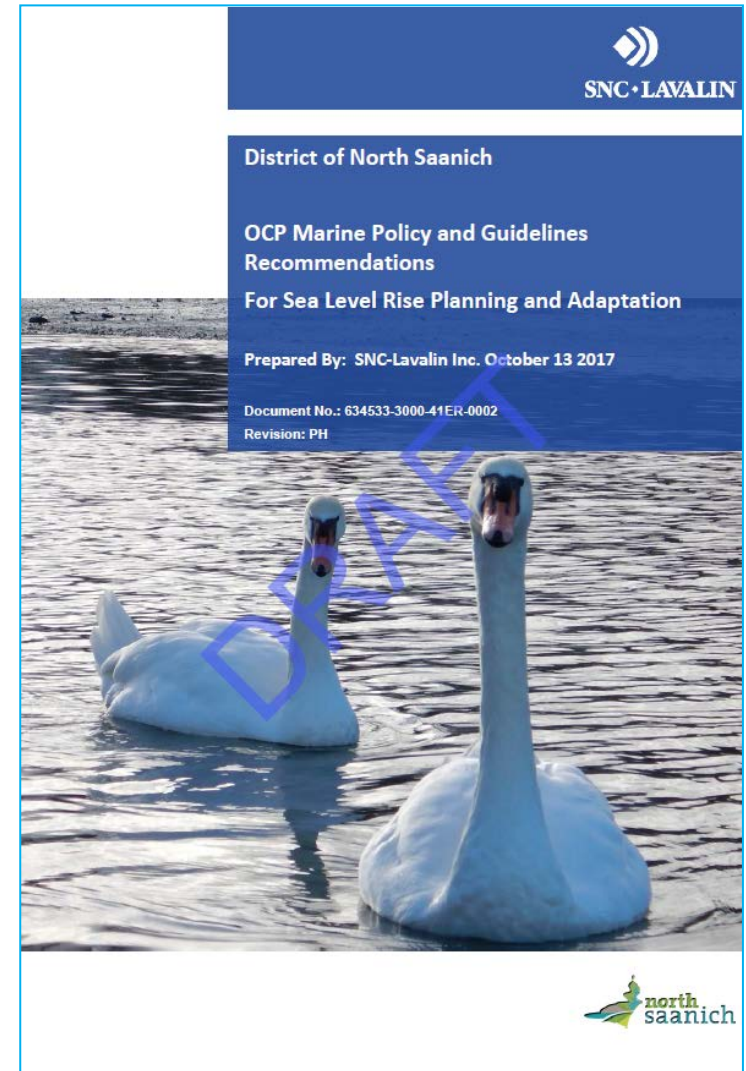
- › **Section 3 relating to Environmentally Sensitive Areas**
- › Section 4, relating to Marine Areas
- › Section 6, relating to Residential Areas
- › **Section 7, relating to Commercial Development**
- › **Section 11, relating to Roads and Servicing**
- › Section 12, relating to General Development Policies
- › **Section 13, relating to Special Development Areas**
- › Section 14, relating to Development Permit Areas

All other Sections are either not affected or are still consistent with the findings of the results of the FCL Study.

Summary of Updated Changes to Existing OCP

Complete updated document – Rev PH (dated 13 October 2017):

- › Posted on District website:
- › <https://www.northsaanich.ca/document-store/OCP%20Marine%20Policy%202017-10-13.pdf>
- › All changes are also provided on the Questionnaire which is also now posted on website
- › Paper copies of Questionnaire available in hall
- › All changes Rev PH are included in the Questionnaire with space to indicate either:
- › ☐ No Comment
- › or to provide Comments



Marine Policy Report Format

3.0 Environmentally Sensitive Areas

Policy 3.1

Current Policy

Recognize ecologically sensitive areas by identifying and conserving special wildlife, plant and marine shore environments (such as pocket beaches) in their natural state. These are outlined on Schedule G and identified through the various development permit requirements.

Evaluation and Explanation of Need for Change

It is generally recognized that ecologically sensitive areas, such as pocket beaches and inter-tidal marshes and related marine vegetation can be beneficially used to build resilience capabilities along the shoreline to absorb and modify storm related wave energy.

This suggested change to this section of Bylaw 1130 is intended to allow this the use of these areas in such a fashion where it can be justified.

Recommended Policy

Recognize ecologically sensitive areas by identifying and conserving special wildlife, plant and marine shore environments (such as pocket beaches and the Shoal Harbour Migratory Bird Sanctuary) in their natural state. These are outlined on Schedule G and identified through the various development permit requirements. Modifications that assist in building resilience to the effects of sea level rise will be permitted when justifiable.



Marine Policy Report Format

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Marine Policy Report Format

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Questionnaire Format

3.0 ENVIRONMENTALLY SENSITIVE AREAS				
3.1 Shoal Harbour Marine Bird Sanctuary				
Current Text	Evaluation and Explanation of Need for Change	Recommended Text	No Comment	Comments
<p>3.1: Recognize ecologically sensitive areas by identifying and conserving special wildlife, plant and marine shore environments (such as pocket beaches) in their natural stated. These are outlined on Schedule G and identified through the various development permit requirements.</p>	<p><i>It is generally recognized that ecologically sensitive areas, such as pocket beaches and inter-tidal marshes and related marine vegetation can be beneficially used to build resilience capabilities along the shoreline to absorb and modify storm related wave energy.</i></p> <p><i>This suggested change to this section of Bylaw 1130 is intended to allow this the use of these areas in such a fashion where it can be justified.</i></p>	<p>3.1: Recognize ecologically sensitive areas by identifying and conserving special wildlife, plant and marine shore environments (such as pocket beaches) in their natural stated. These are outlined on Schedule G and identified through the various development permit requirements. Modifications that assist in building resilience to the effects of sea level rise will be permitted when justifiable.</p>	<input type="checkbox"/>	



Questionnaire Format

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Summary of Changes

OCP Section	# of Changes	Summary
3 Environmentally Sensitive Areas	1	Identifies the Shoal Harbour Migratory Bird Sanctuary as an ESA.
4 Marine Areas	4	Allows for modification of shoreline type (1- rocky shorelines, 2 - drift sector beaches, 3 - pocket beaches and 4 - mudflats and tidal marshes): <i>- where works are intended and designed to preserve the shoreline character and limit coastal flood-related effects.</i>
6 Residential	2	-Minor text changes -Allows for slope alterations: <i>if they help reduce the effects of coastal flooding.</i>
7 Commercial Development	1	Buildings <i>or structures</i> used for commercial use must be buffered from adjacent rural and residential uses <i>and should preserve access and views from adjacent rural and adjacent uses.</i>



Summary of Changes

OCP Section	# of Changes	Summary
8 Light Industrial Areas	1	Buildings <i>or structures</i> used for commercial use must be buffered from adjacent rural and residential uses <i>and should preserve access and views from adjacent rural and adjacent uses.</i>
11 Roads and Servicing	3	<p>- (2) <i>Developments shall take into consideration possible sea level rise and the requirements of Development Permit Areas for the placement and construction of roads and bicycle paths.</i></p> <p>– (1) Sea level rise adaptation measures acceptable as reason for service expansion – as appropriate.</p>
12 General Development Policies	3	-Development shall consider coastal flood-affected areas. These areas must incorporate appropriate adaptation measures.



Summary of Changes

OCP Section	# of Changes	Summary
13 Special Development Areas	2	2 new Special Development Areas recommended: - Justification and DRAFT Policy added
14 Development Permit Area	5	- (4) minor text changes to existing DPAs to be consistent with results of FCL study - (1) New Sea Level Rise Coastal Flood Hazard Areas DPA



Development Permit Areas (DPA)(DRAFT)

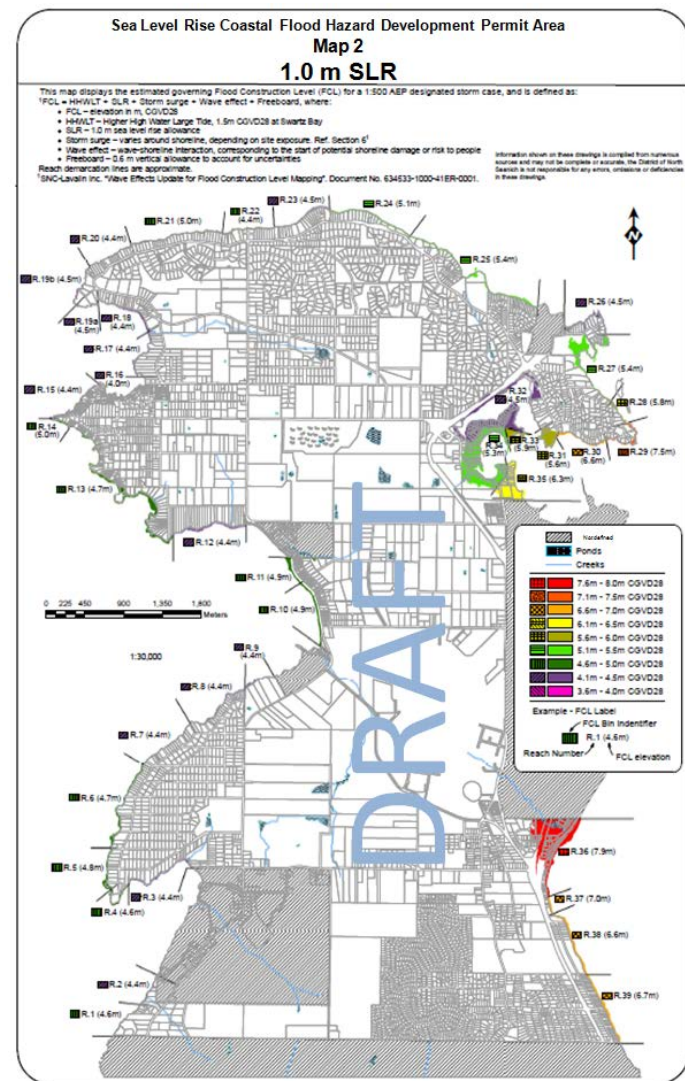
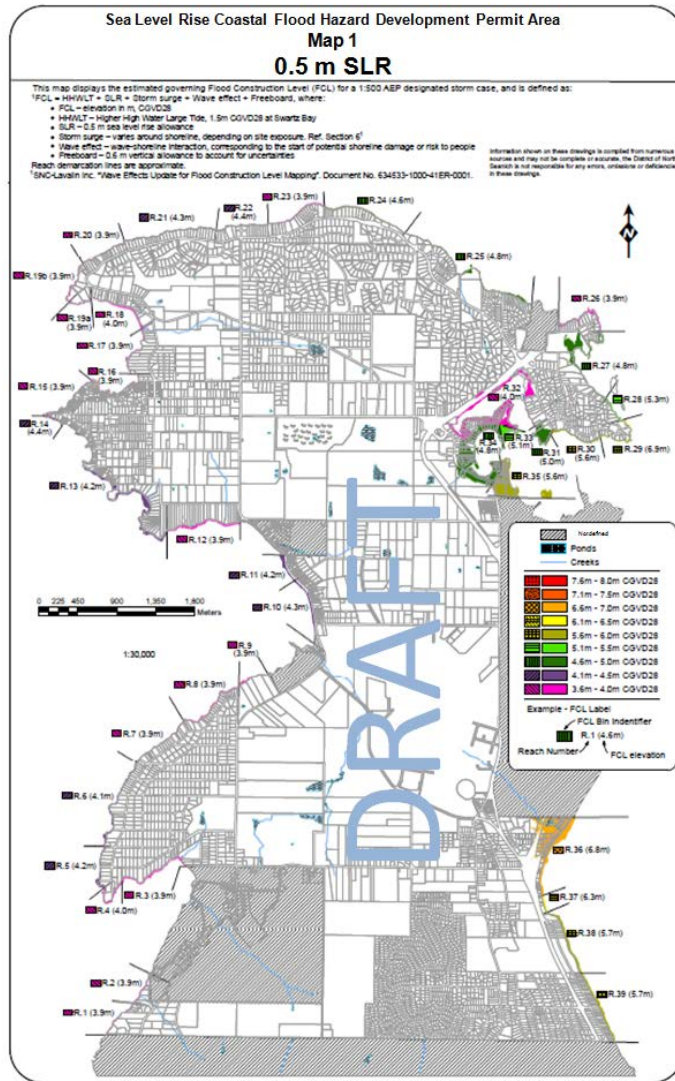
There are currently 7 DPAs in the OCP

- › DPA 1: Marine Lands and Foreshore
- › DPA 2: Creeks, Wetlands Riparian Areas and Significant Water Resources
- › DPA 3: Sensitive Ecosystems
- › DPA 4: Steep Slopes
- › DPA 5: Commercial and Industrial
- › DPA 6: Multi-Family Dwellings
 - › DPA 7 was re-numbered to DPA 6 in the current OCP.
- › DPA 8: Intensive Residential Development

These reflect the *Local Government Act* (LGA) in place in 2007

Latest LGA (2015) allows for DPA to protect development from **hazardous conditions**.

Vulnerability



Why a new DPA?

- Existing DPA's include existing areas exposed to flood risk:
 - › DPA 1
 - › DPA 4
- Existing DPA's have specific reasons, that are still valid and should be sustained.
- As the understanding of the rate of SLR evolves, existing DPA issues remain constant.
- A SLR flooding issue DPA can be modified/revised as appropriate.
- New DPA relates mostly to future development or redevelopment
- New DPA can be used to guide resilience building in the District.
- New DPA addresses issues becoming of greater concern to mortgage granters and property insurers.
- Provides clarity and certainty

Why a new DPA?

Present

- › 2004 era FCLs (static sea level) are 1.5 m above a defined Natural Boundary
- › 2004 era Setbacks (static sea level) are (generally) 15 m from defined Natural Boundary

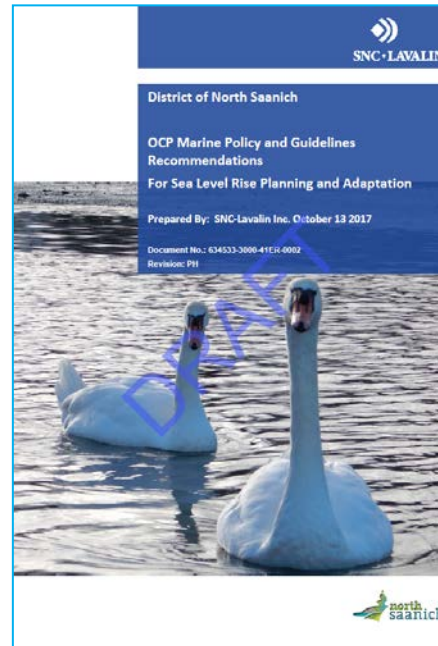
Future

- › Sea Level will rise and the Natural Boundary will move inland
- › Future location of the Natural Boundary can only be estimated
- › Provincial Guideline (FMALMUG) defines a rationale procedure for estimating where the future Natural Boundary will be.
- › Provides a degree of certainty planning purposes, including Emergency Planning.

Coastal Flooding Area DPA Summary

Details of new DPA are in Marine Policy Review Report


› Section 4



Also in Questionnaire:

DMS OCP MARINE POLICY PUBLIC CONSULTATION 19 OCTOBER 2017				
Recommendations to "Section 4.8 Development Permit Areas"				
Current Text	Evaluation and Explanation of Need for Change	Recommended Text	No Comment	Comments
The proposed DPA currently does not exist in OCP bylaw 150.	Section 48(1) of the Local Government Act authorizes the local government to designate development permits where protection of development from hazardous conditions can be justified. Both existing and new development may be damaged by future coastal flooding related to sea level rise. The provincial government has recognized that future coastal flooding is a hazard and planning and adaptation measures are justified. The provincial government position on this subject is outlined in the document: Ministry of Environment – Section 3.8 and 3.9 – Flood Hazard Area Land Use Management Guidelines (FloodLUG) effective 1 January 2016, which can be found here: http://www2.gov.bc.ca/gov/content/spe/spe000/landuse/landuse000/landuse000.htm The areas of the District of North Saanich shown on maps included in the new DPA are designated as a development permit area pursuant to Section 48(1) of the Local Government Act (LGA) for protection of development from hazardous conditions. This Development Permit Area includes all areas subject to direct or indirect future flooding, as indicated by the expanded Flood Construction Level (FCL) for 0.5 m or 1.0 m of sea level rise (SLR) on Development Permit Area maps.	The recommended text and updates to this new DPA are provided on the following pages.	<input type="checkbox"/>	

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 <div style="text-align: center;"> DMS OCP MARINE POLICY PUBLIC CONSULTATION 19 OCTOBER 2017 </div>	
Recommended Text for Policy 16.11 NEW – Sea Level Rise Coastal Flood Hazard Areas	
<p>Designation</p> <p>Those areas of the District of North Saanich shown on Development Permit Area DPA 16.11 maps are designated as a development permit area pursuant to Section 48(1) of the Local Government Act (LGA) for protection of development from hazardous conditions. This Development Permit Area includes all land parcels subject to direct or indirect future flooding, as indicated by the expanded Flood Construction Level (FCL) for 0.5 m or 1.0 m of sea level rise (SLR) on Development Permit Area maps.</p> <p>Justification</p> <p>Section 48(1) of the LGA authorizes the local government to designate development permits where protection of development from hazardous conditions can be justified. Both existing and new development may be damaged by future coastal flooding related to sea level rise. The provincial government has recognized that future coastal flooding is a hazard and planning and adaptation measures are justified.</p> <p>Objective</p> <p>The objective of this Development Permit Area is to manage development in areas exposed to the present or future flooding from the combined effects of sea level rise and coastal storms in a manner that protects development from such hazardous conditions and reduces the risk to life, property, public safety and marine environmental resources.</p> <p>Designated Areas</p> <p>The design areas are included on Development Permit Area X maps. The Development Permit Area guidelines apply to all parcels either partially or entirely within the Development Permit Area X maps and also including, additionally, parcels immediately adjacent to parcels that are either partially or entirely threatened by future flooding. The Development Permit Area should not be interpreted as a prohibition on development activity but as identification of areas where professional assessment and specific development adaptation measures are required.</p> <p>Development Type</p> <p>For the purpose of this DPA, there are four types of development:</p> <ol style="list-style-type: none"> 1. New build and construction on undeveloped lands 2. New build and construction on previously developed lands 3. Substantial renovation of buildings 4. Minor renovations, maintenance and repair of buildings <p>The definition of these types of development is provided below:</p> <p>New Build and Construction on Undeveloped Lands</p>	<input type="checkbox"/>

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Coastal Flooding Area DPA Summary

The main structure of the Draft DPA is:

- › Designation: - applies to parcels exposed to direct or indirect future flooding
- › Justification: - authorized by *Local Government Act*
- › Objective: - protect developments (habitable buildings) from hazardous conditions and reduce risk to life, property, public safety and related consequences
- › Geographic Areas: - as per FCL Study mapping
- › Development Type: - considers 4 types/locations of development
- › Parcel Category: - considers 6 classes of land parcels
- › Flood Construction Level: - defines FCL elevations per development type and parcel category
- › Setback: - defines Setbacks for habitable buildings as above
- › Guidelines: - outlines reporting and flexibility provisions in DPA
- › Mandatory Report: - required to show how proposed development will conform
- › Flexibility: - provides for a parcel specific modification **if desired**
- › Adaptation Report: - provides for situations where a parcel is expected to be completely inundated in the future
- › Revision: - as sea level rise rate becomes clear in the future allows for revision



Development Types

Development Types

- › 1 - New Build or Construction on Undeveloped Lots
- › 2 - New Build or Construction on Already Developed Lots
- › 3 – Substantial Renovation of Buildings
- › 4 – Minor Renovations, Maintenance or Repair of Buildings

What it does not apply to:

- › Renovations that do not require a Building Permit

Land Parcels

Types of Land Parcels

Directly Affected Lots

- › 2 – Parcel partially affected < 15 m setback distance
- › 3 – Parcel partially flooded > 15 m but not entire lot
- › 4 – Parcel completely inundated

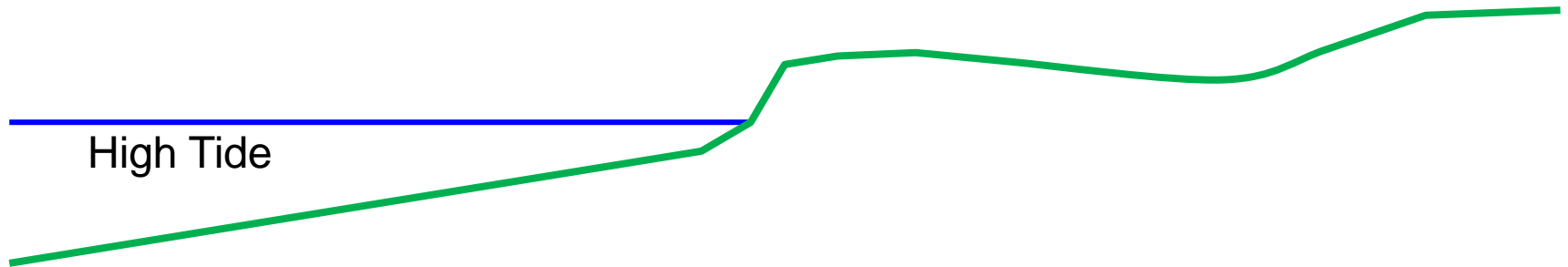
Indirectly Affected Lots

- › 5 – Parcel adjacent to lot where some flooding is expected
- › 6 – Parcel is adjacent to a completely inundated lot

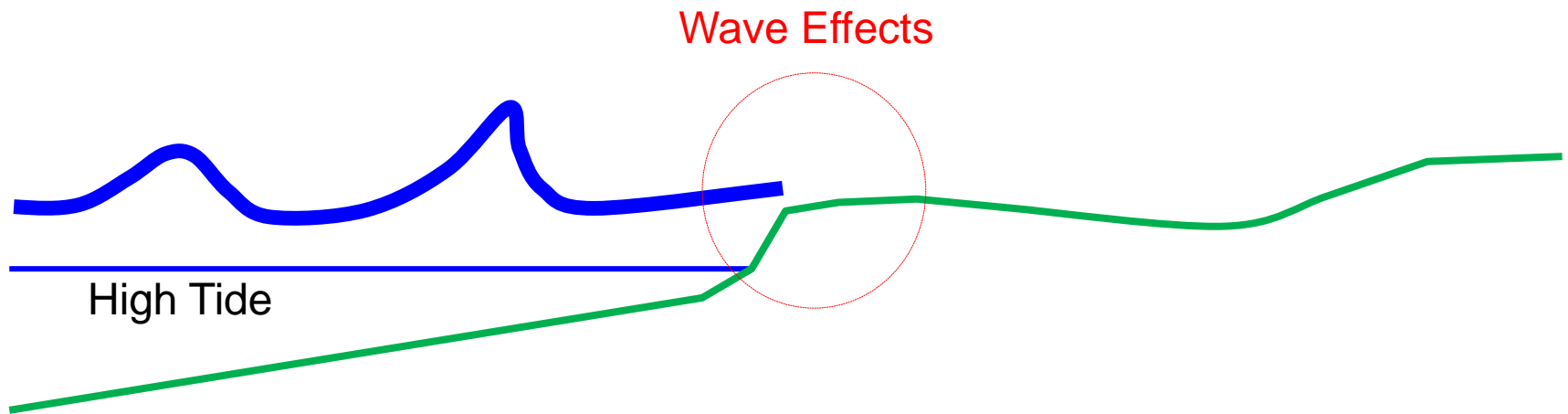
What it does not apply to:

- › 1 – Not at Risk -The FCL elevation does not encroach onto the existing lot

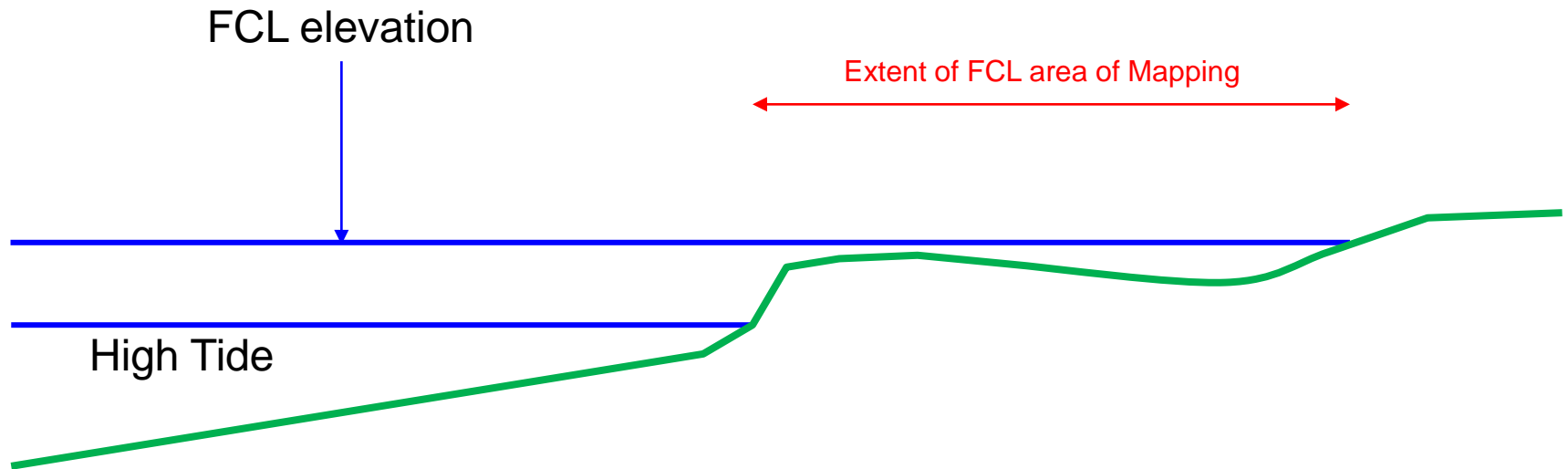
What does an FCL mean?



What does an FCL mean?

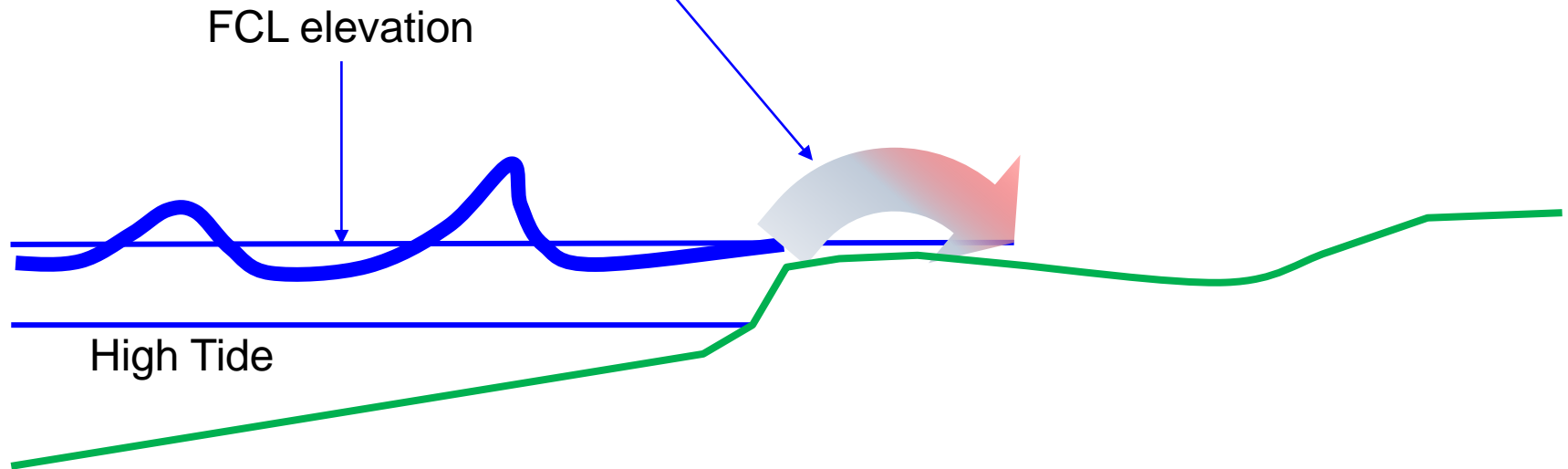


What does an FCL mean?



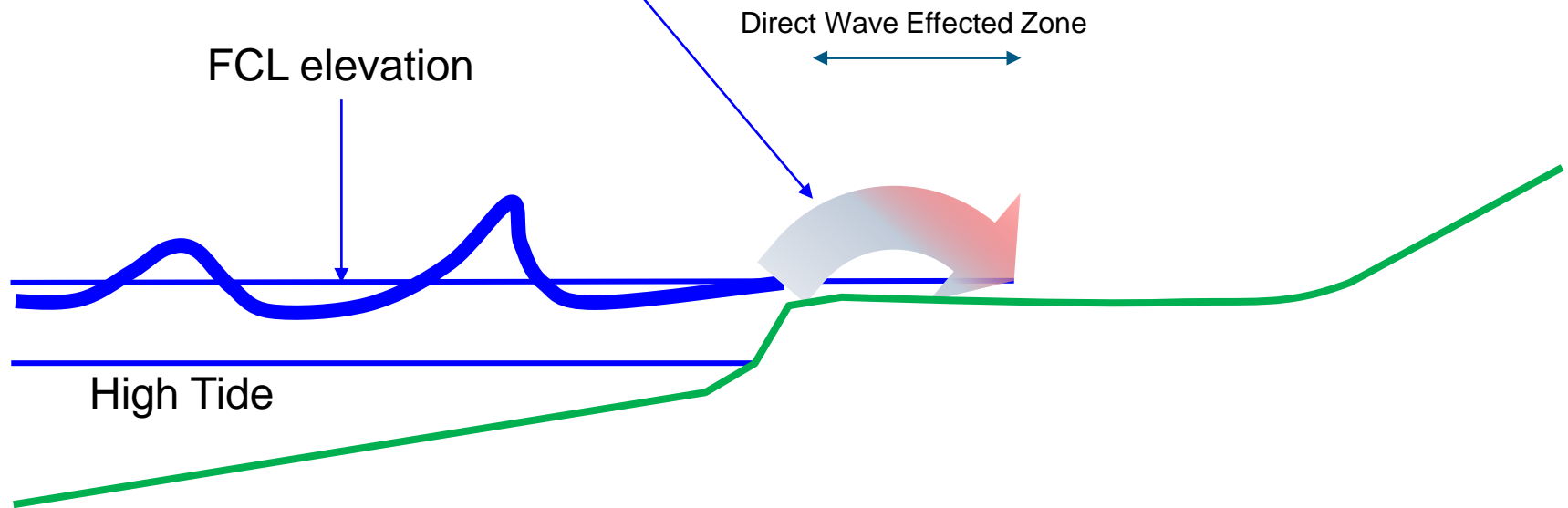
What does an FCL mean?

Threshold Condition for defining FCL
10 liters of water/m/s



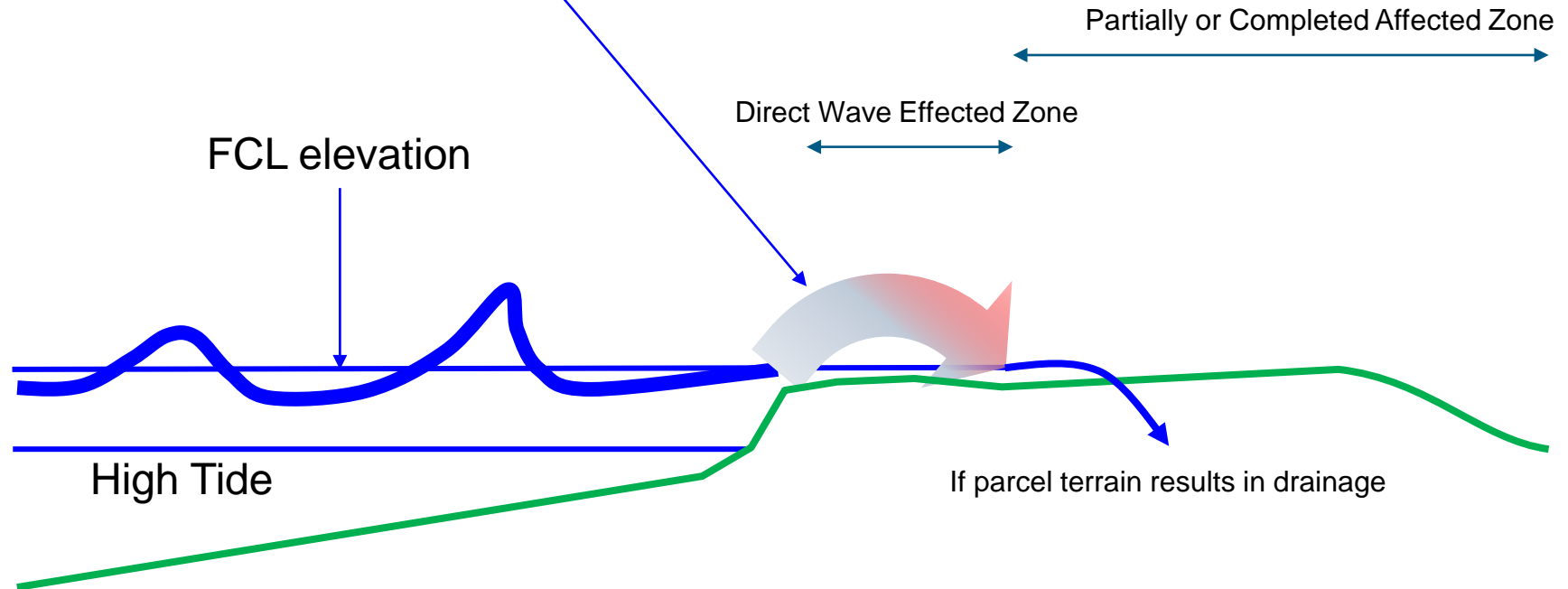
What does an FCL mean?

Threshold Condition for defining FCL
10 liters of water/m/s



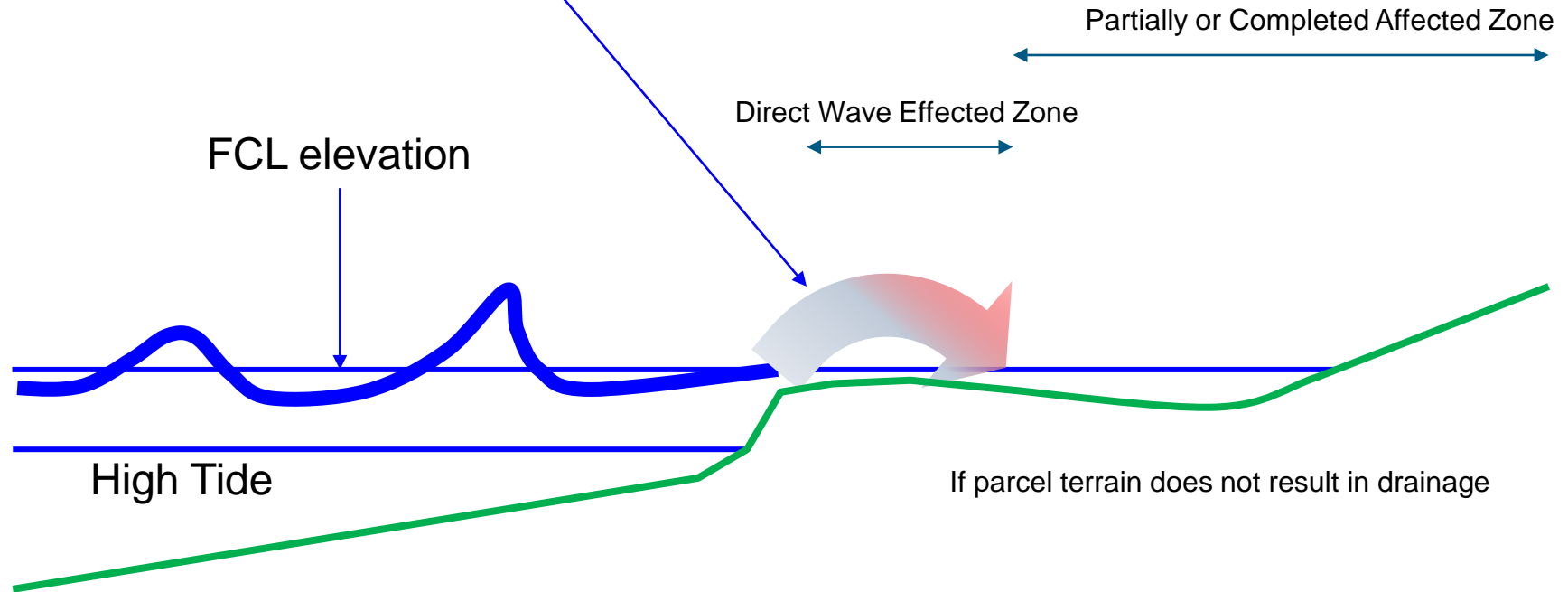
What does an FCL mean?

Threshold Condition for defining FCL
10 liters of water/m/s



What does an FCL mean?

Threshold Condition for defining FCL
10 liters of water/m/s



Directly Affected – Category 1

Lot not affected



Category 1 - Not Affected

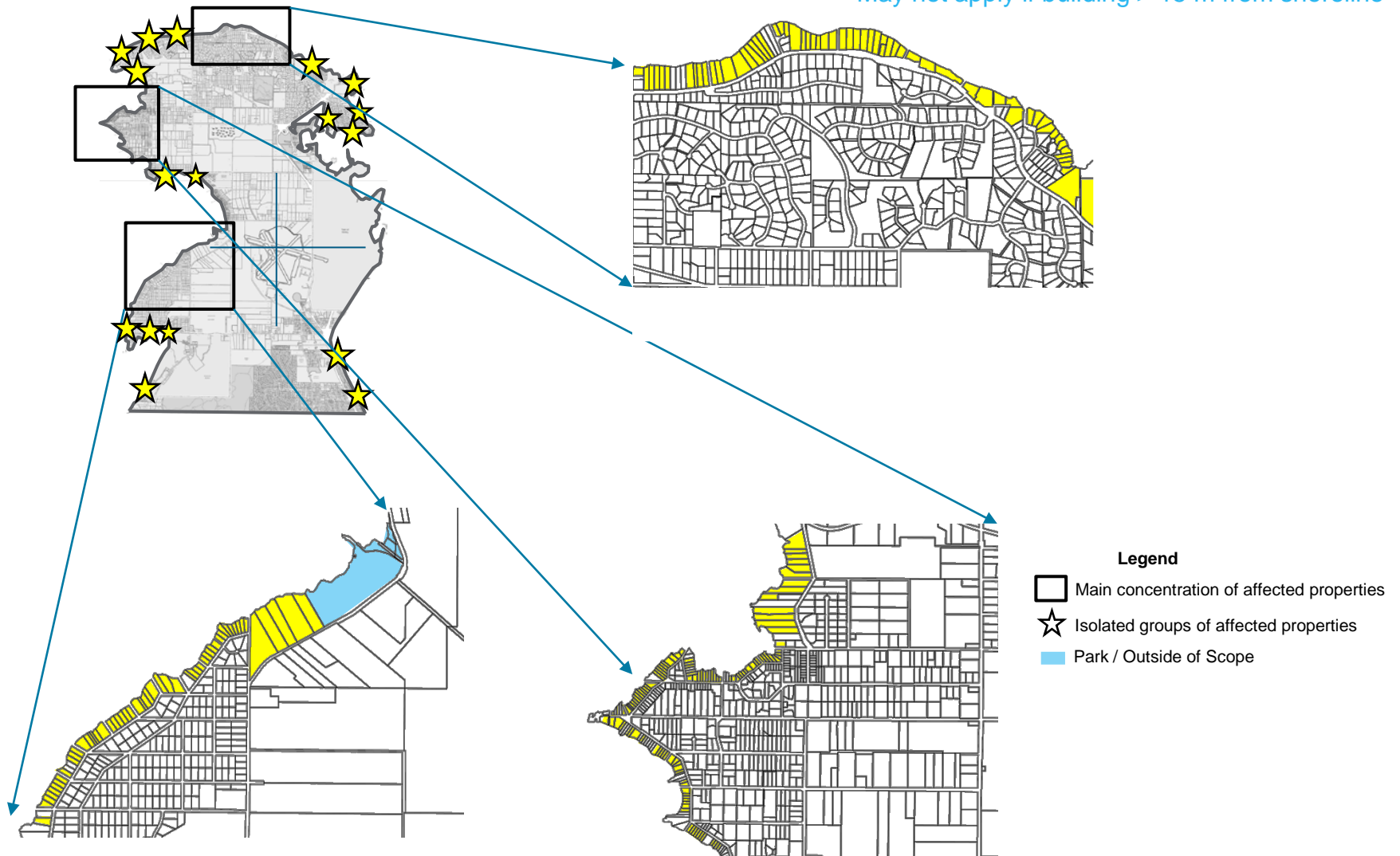
Non-Erodible High Steep Shoreline



Partially Affected – Category 2

Lot partially affected, <15m

May not apply if building > 15 m from shoreline



Category 2 – Partially Affected

Erodible Low Bank Steep Shoreline



Reach 03



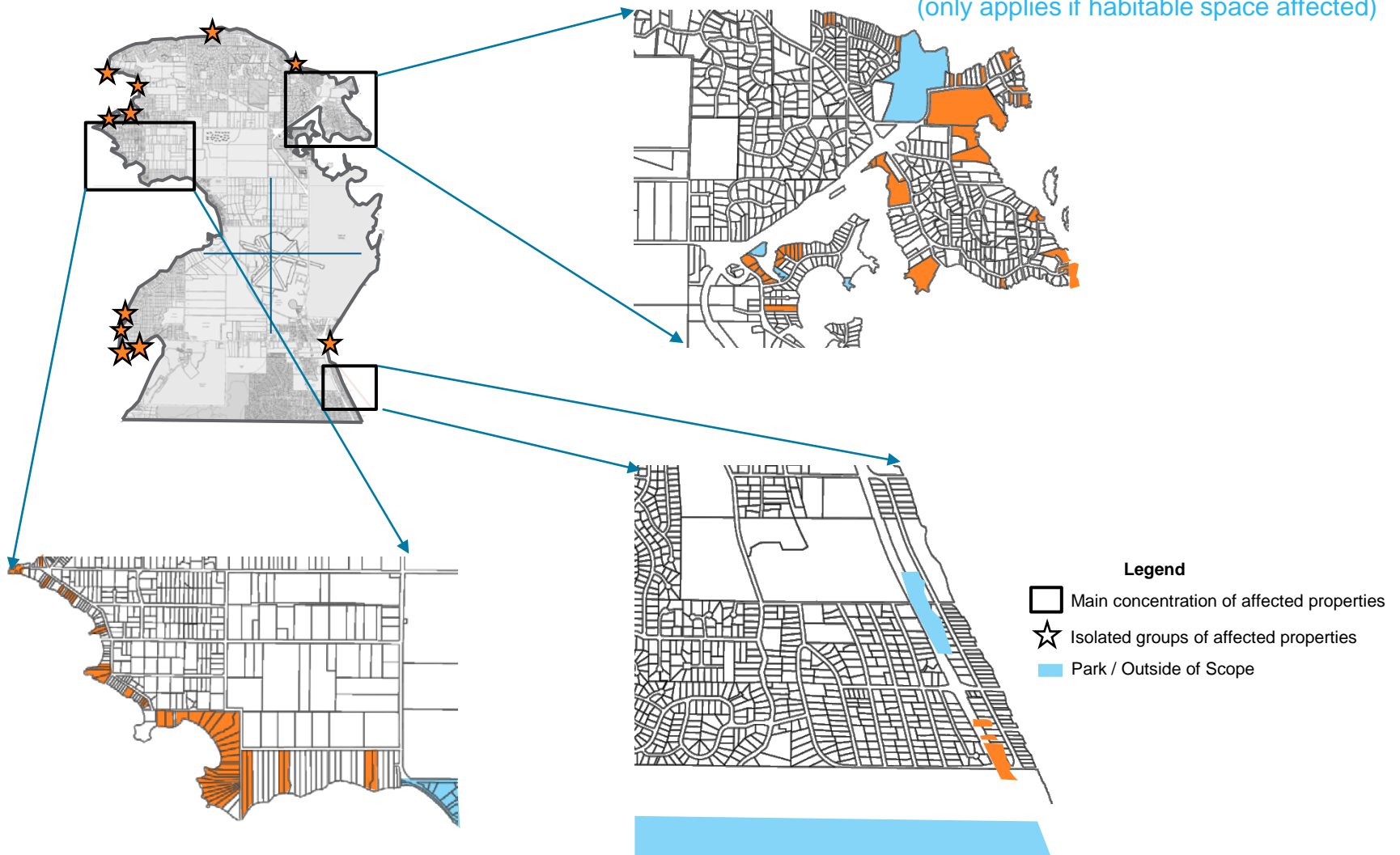
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Directly Affected – Category 3

Lot partially flooded, >15m)



(only applies if habitable space affected)



Category 3 – Partially Flooded > 15 m

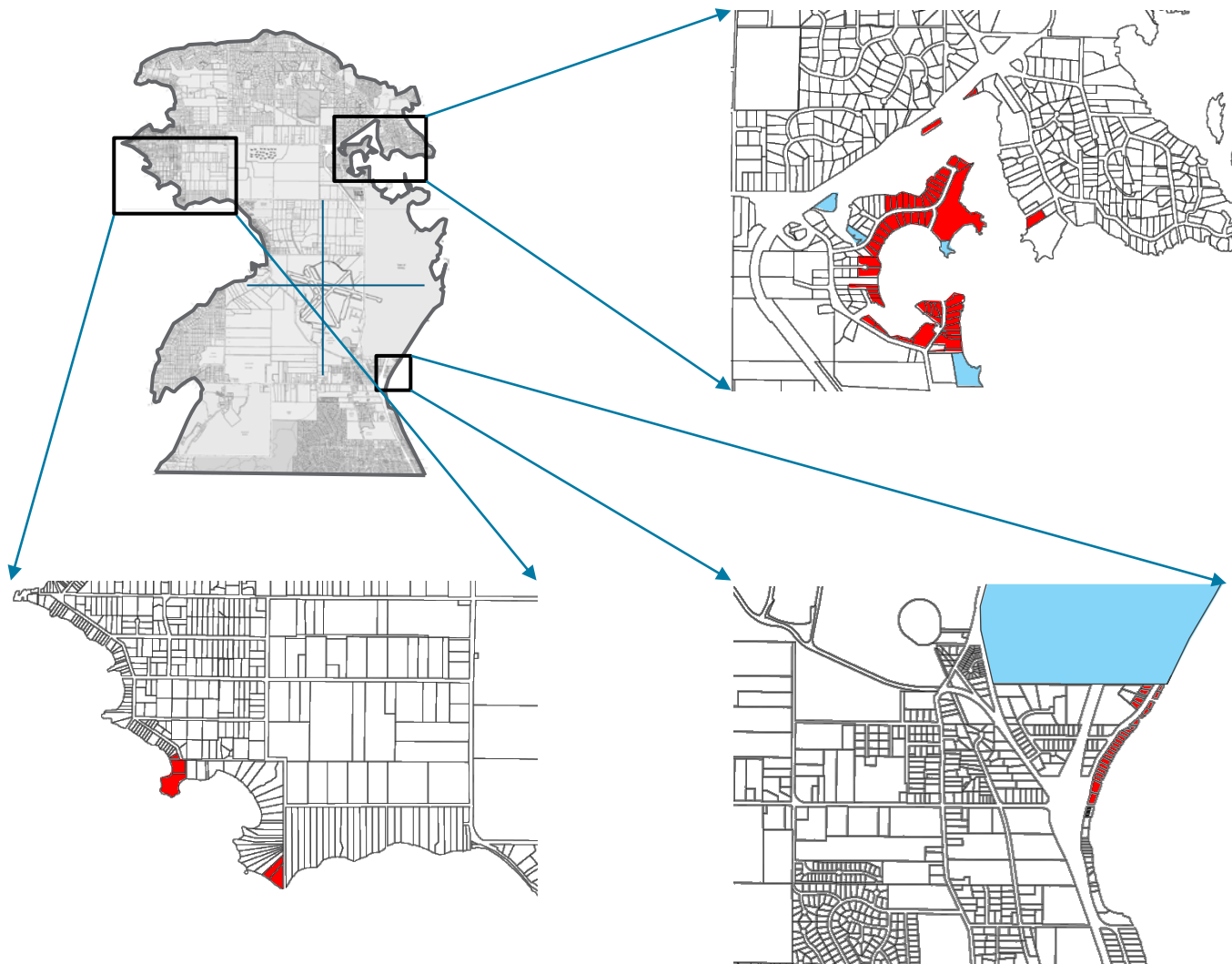
Seawalls or Steep Revetments and high bank



Page 22

Directly Affected – Category 4

Lot completely inundated



Legend

- Main concentration of affected properties
- ☆ Isolated groups of affected properties
- Park / Outside of Scope



Category 4 – Directly Affected

Low coastal plain



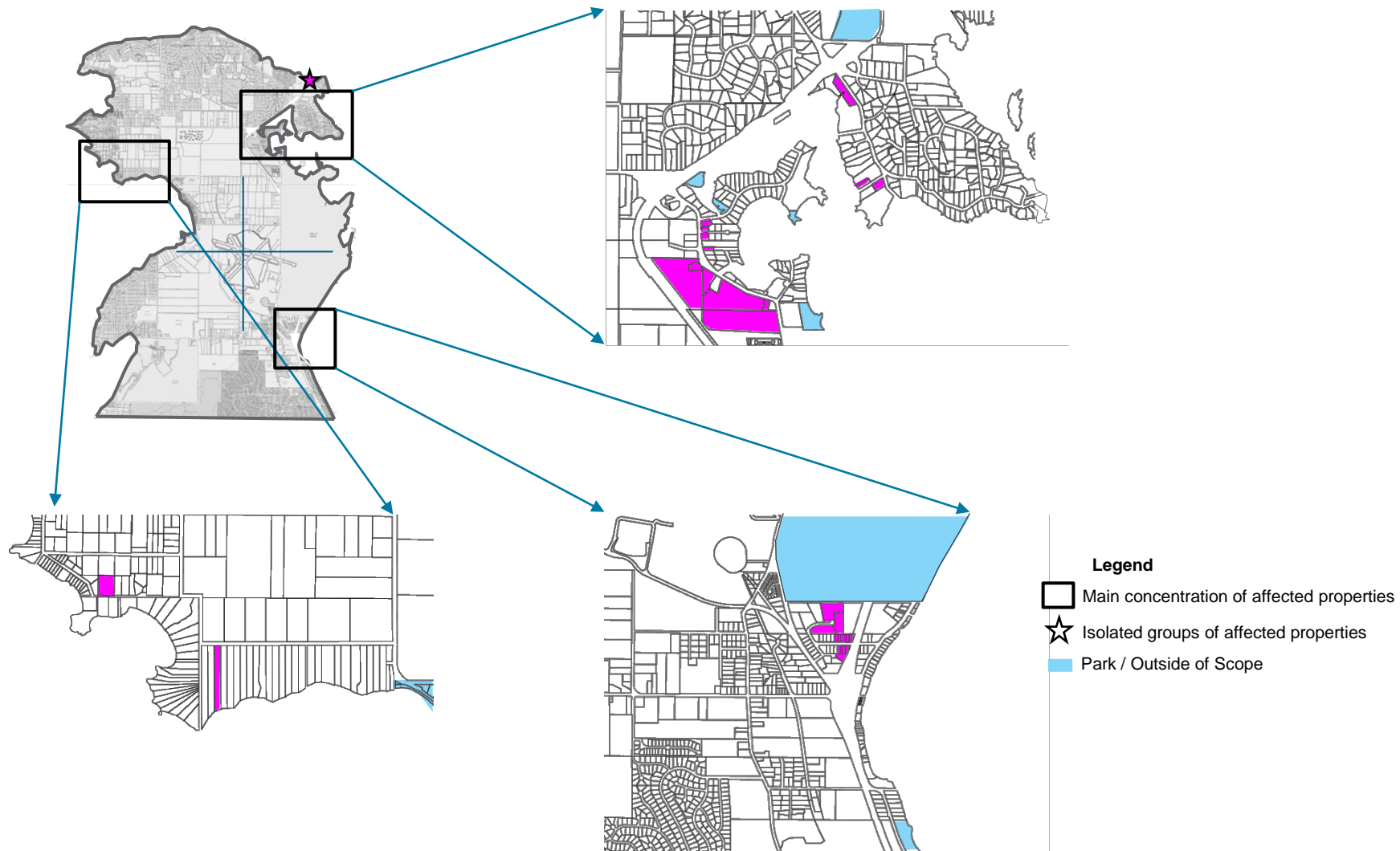
Re



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Indirectly Affected – Category 5

Adjacent lot has flooding potential)



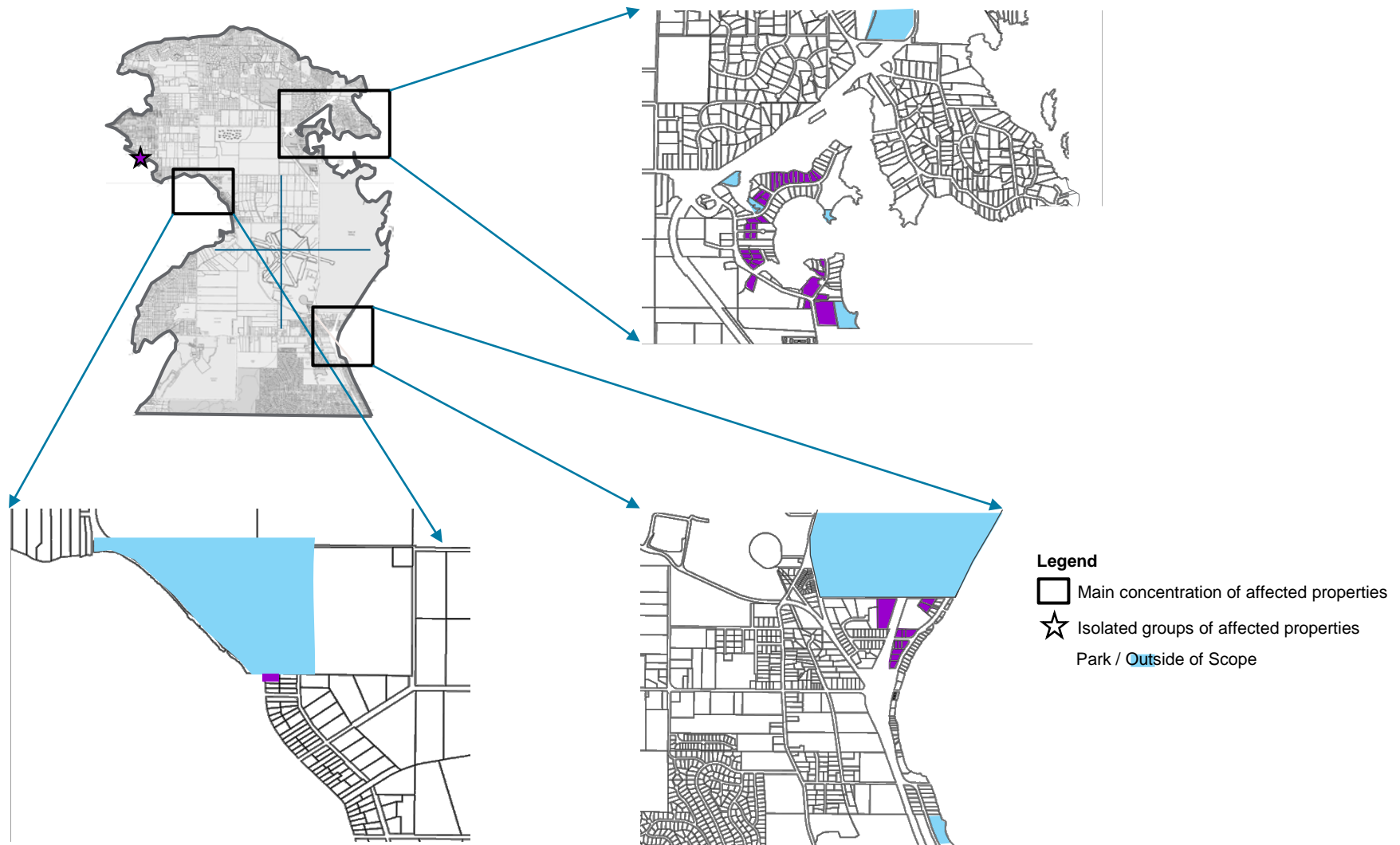
Category 5 - Indirectly Affected

Road expected to be flooded from left hand side



Indirectly Affected – Category 6

Adjacent lot completely inundated)



Category 6 – Adjacent Lots Affected

Area expected to be flooded from both sides



Photo by [unclear]



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FCLs

Development Type	Land Parcel Category					
	1	2	3	4	5	6
	Directly Affected				Indirectly Affected	
1 New Build/Construction (Undeveloped Land)	NA	NA	1 m SLR	1 m SLR	1 m SLR	1 m SLR
2 New Build/Construction (Developed Land)	NA	NA	1 m SLR	1 m SLR	1 m SLR	1 m SLR
3 Substantial Renovation	NA	1 m SLR	1 m SLR	1 m SLR	1 m SLR	1 m SLR
4 Minor Renovation	NA	0.5 m SLR	0.5 m SLR	0.5 m SLR	0.5 m SLR	0.5 m SLR
NA: Does not apply						

Setbacks

Development Type	Land Parcel Category					
	1	2	3	4	5	6
	Directly Affected				Indirectly Affected	
1 New Build/Construction (Undeveloped Land)	15 m	15 m	15 m	*	15 m	15 m
2 New Build/Construction (Developed Land)	15 m	15 m	15 m	*	15 m	15 m
3 Substantial Renovation	NC	NC	NC	NC	NC	NC
4 Minor Renovation	NC	NC	NC	NC	NC	NC
<p>The indicated setbacks are the minimum. Setbacks where a coastal bluff exists may be greater due to other issues</p> <p>*: Parcels that will be completely inundated will require an Adaptation Report.</p> <p>NC: No change to the existing setback.</p>						

Exceptions and Flexibility

- includes provision for relaxation and flexibility
- where parcels may not allow for adaptation or in special circumstances:
 - › - sea level rise will inundate entire property
 - › - some parcels may have unique features not captured by the present study
 - › - it may not be possible to move the building
 - › - the appropriate response is both individual and site specific
 - › - measures are taken to mitigate flooding (safe haven, choice of materials etc)
- provision for lot specific independent determination of FCL
 - › Lots may have specific details different from the reach (1000 m) characteristics
 - › Large lot with varying exposure and opportunity to mitigate flooding
 - › Modification proposed to shoreline treatment (ie: replace seawall with beach)
 - › Dry flooding proofing considered (ie: fill)

Reports

Various reporting options:

Mandatory Report, showing:

- ✓ How proposed development conforms with the “default” FCL and Setback guidance.
- ✓ Describes how proposed development includes measures to safeguard adjacent properties from transferred flooding hazard
- ✓ Letter of exemption may be sufficient

Adaptation Report, in cases where a relaxation is requested:

- ✓ Describes the vulnerability of site to flooding hazard
- ✓ A risk assessment and risk management plan
- ✓ Measures taken to increase site resilience

Independent Parcel Specific Report

- ✓ *Applicable to individual lot refinements*
- ✓ *Required content is in the Draft DPA*

SUMMARY

Province has delegated responsibility for Flood Management to local governments (2004)

- › The FCL Study work has shown areas of DNS will be flooded
- › Some areas are threatened today if a severe storm occurs at high tide
- › Existing (2007) OCP policies do not allow some practices are simply just good adaptation strategies
- › Proposed policy modifications will allow these strategies in the future
- › The intent is to provide guidance and flexibility



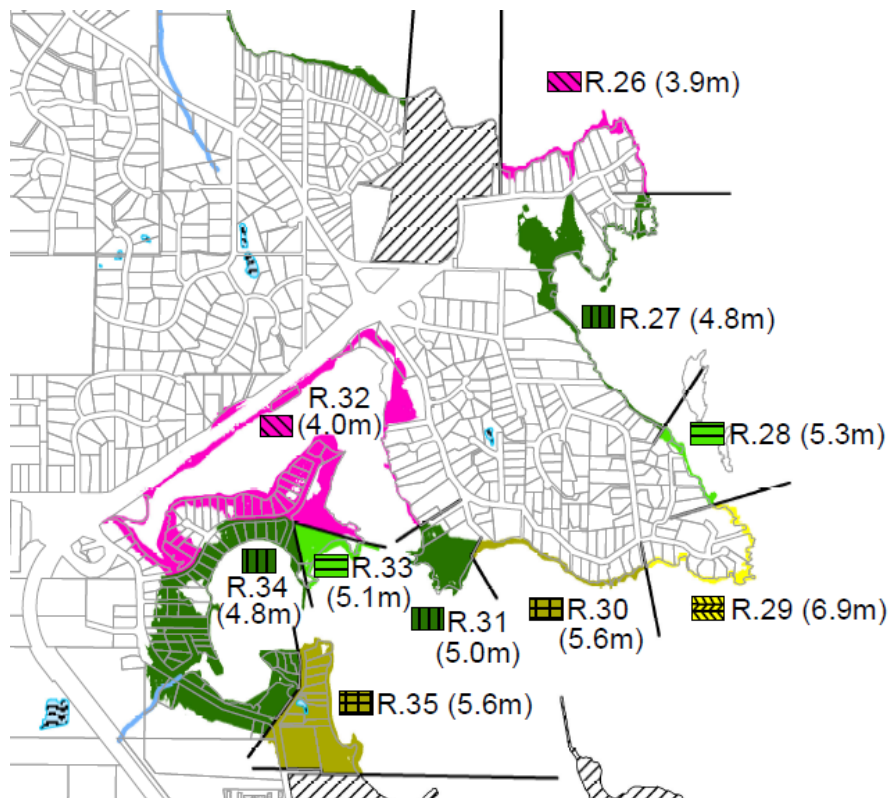
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Special Development Areas

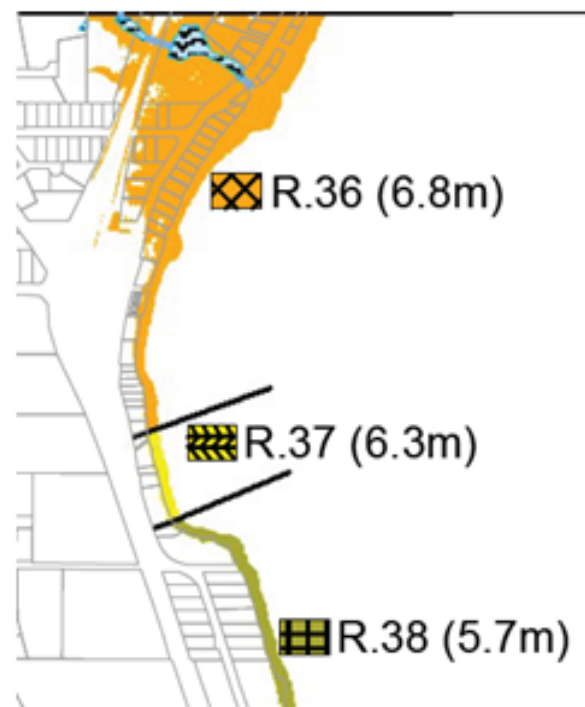
Special Development Areas

Tsehum Harbour Area



FCLs 0.5 m SLR

Lochside McTavish Area

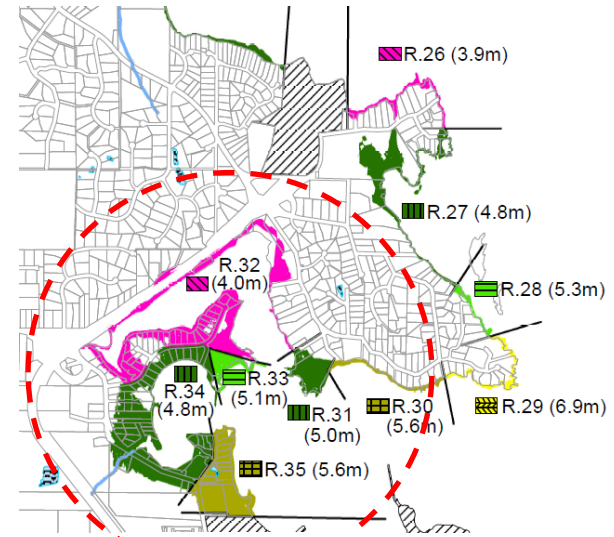


FCLs 0.5 m SLR

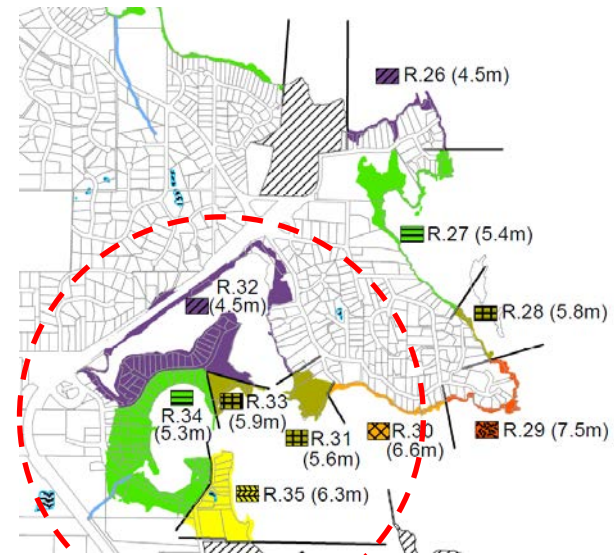


Special Development Areas - Tsehum

- › Low lying shorelines
- › Most shoreline areas are directly exposed
- › Considerable ground elevation variation away from the shoreline
- › Multiple properties will be affected by sea level rise
- › Adjacent properties will be affected by neighbour properties
- › Mix of existing and new development
- › Mix of residential, commercial and park facilities
- › Numerous marine related infrastructure
- › Municipal infrastructure (roads, utilities, power) will be affected



FCLs 0.5 m SLR

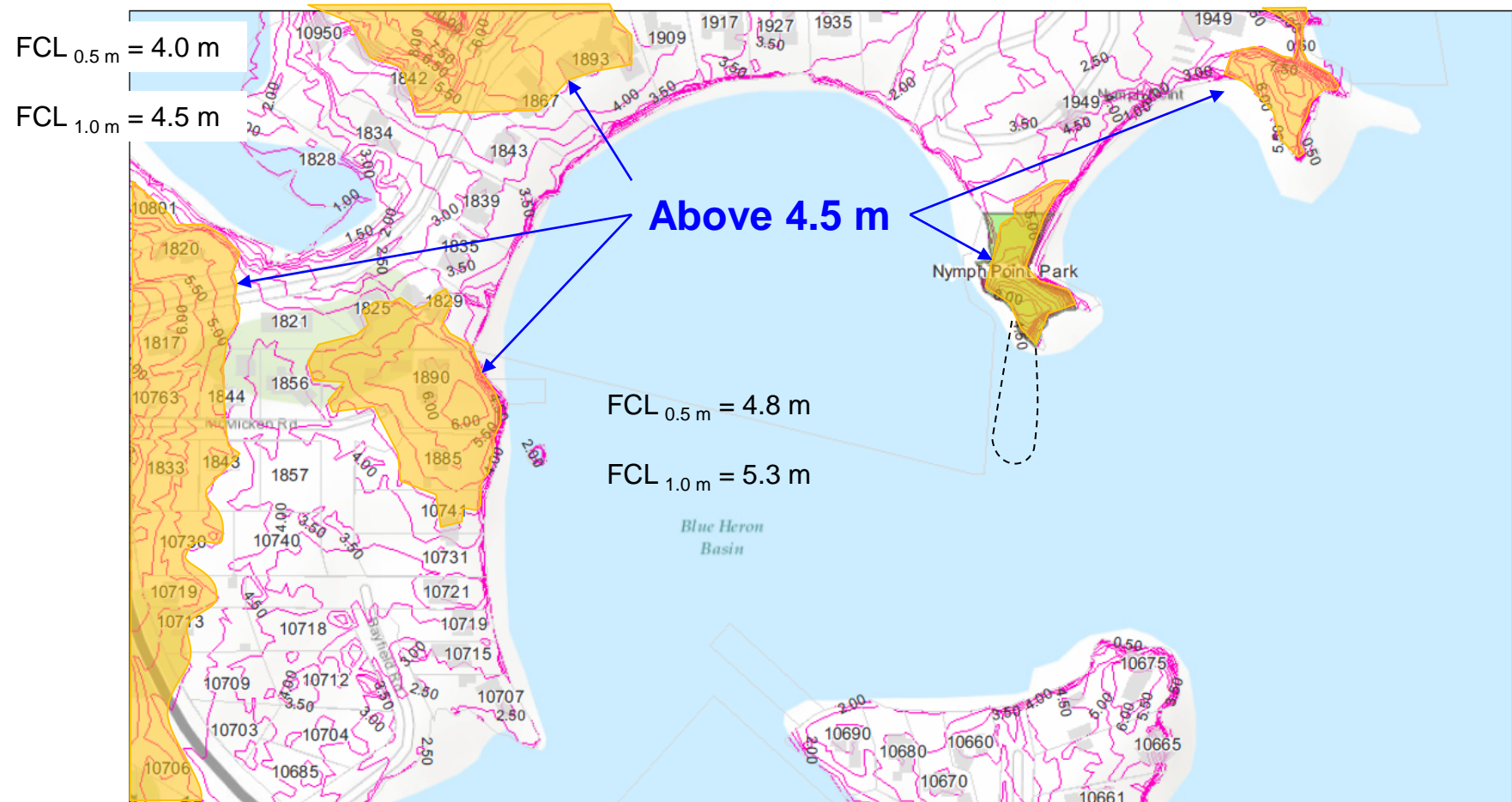


FCLs 1.0 m SLR



Tsehum Area Terrain

elevations = CGVD28 (same as FCL's)



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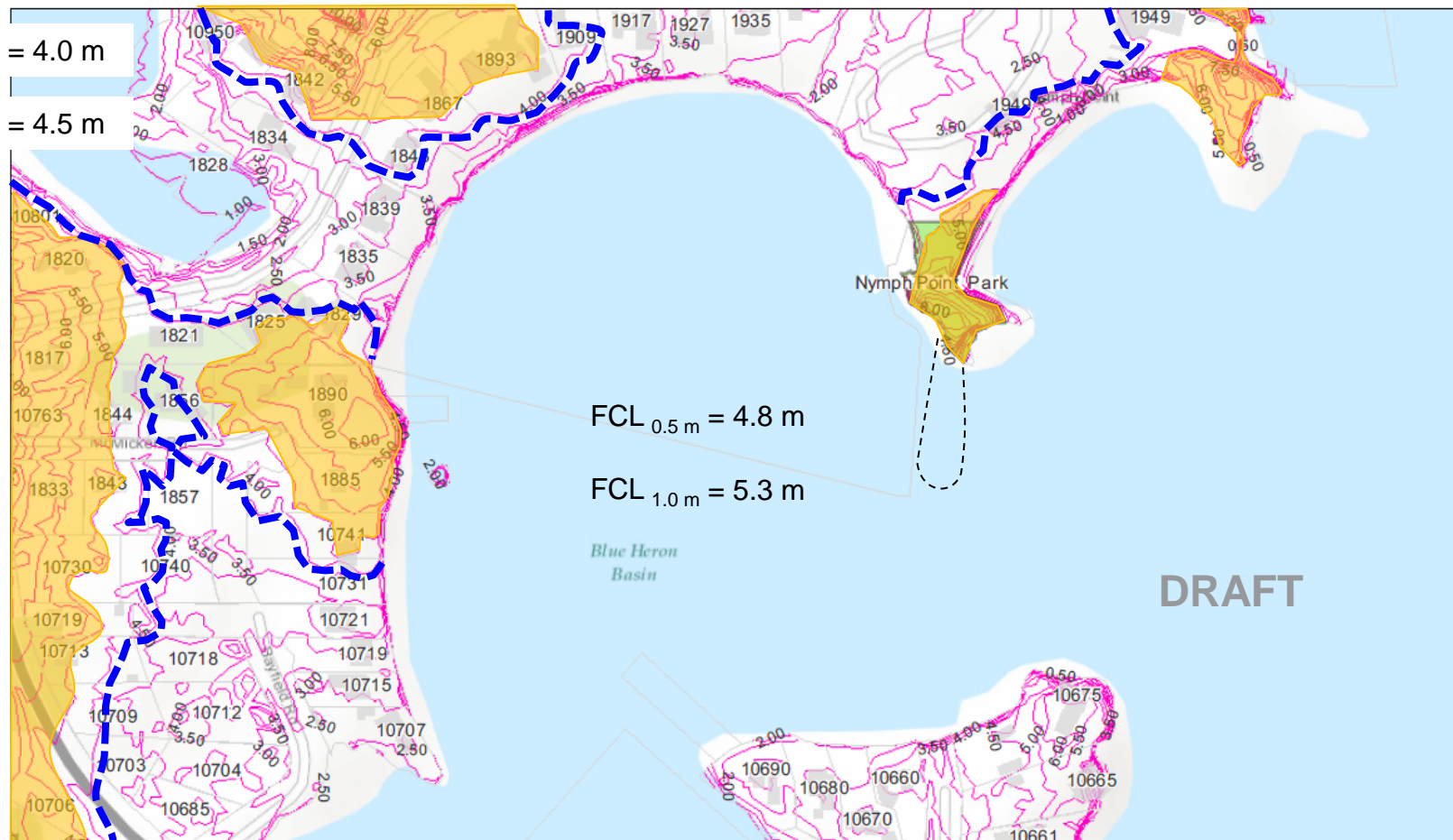
Tsehum Area Terrain

elevations = CGVD28 (same as FCL's)

Designated Flood Level₂₀₁₇ = 3.8 m

FCL_{0.5 m} = 4.0 m

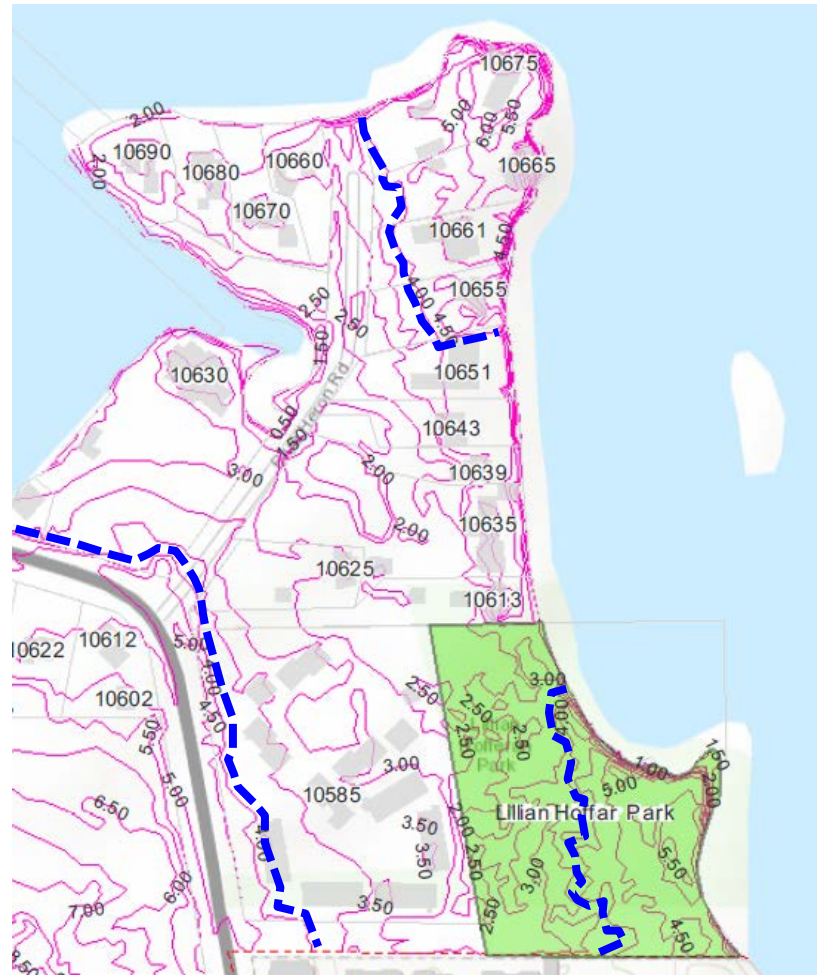
FCL_{1.0 m} = 4.5 m



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Blue Heron Road Area

Designated Flood Level₂₀₁₇ = 3.8 m



DRAFT



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Policy 13.7 NEW Tsehum Harbour

Current Text	Evaluation and Explanation of Need for Change	Recommended Text
<p>This SDA currently does not exist in OCP Bylaw 1130</p>	<p><i>This area is significantly affected by the findings and results of the FCL Study. It is clear this area should be added to the list of Special Development Areas to conform to the Provincial Government updated guideline documents to identify Sea Level Rise Planning Areas where there is a threat of flooding due to expected SLR as a result of ongoing climate change</i></p>	<p>Justification:</p> <p>The Tsehum Harbour area affected by future sea level rise, as delineated in DPA 14.11 maps 1 or 2, has been designated as a special development area, as mandated by the Provincial Guideline Memorandum Amendment – Section 3.5 and 3.6 – Flood Hazard Area Land Use Management Guidelines (FHALUMG) effective: 1 January 2018, for the following reasons:</p> <ul style="list-style-type: none"> a) The subject area contains significant residential, commercial, light industrial and parklands. b) The subject area contains significant environmental values to be accommodated in a sensitive manner and which could be protected through innovative design. c) The affected lands fall within the recommended provisions related to Sea Level Rise Planning Areas as defined in the FHALUMG. d) The area includes District infrastructure including utilities, sewer, roads and paths and water supply that are important to the District. e) The area forms the boundaries of the Shoal Harbour Migratory Bird Sanctuary, established in 1931. <p>Policy Statement:</p> <p>In designating these parcels of land as a special development area, the following planning principles shall be reflected for future development:</p> <ul style="list-style-type: none"> a) Existing land uses shall continue to be allowed. b) Development Permit Area DPA 14.11 shall apply. c) Development on existing lots shall conform with FHALUMG. d) The District shall engage in the development of a Long Term Flood Protection Strategy as outlined in Appendix 1 of FHALUMG. e) The Long Term Flood Protection Strategy shall consider the implications of policies applicable to the adjacent parcels in Sidney, BC. <p>The Province of BC's Long Term Flood Projection Strategy shall consider the benefits that might be realized from active stewardship of the Shoal Harbour Migratory Bird Sanctuary that are consistent with the standing policies of the <i>Canada Wildlife Act and Migratory Birds Convention Act, 1994</i>.</p>

Summary of SDA

Justification:

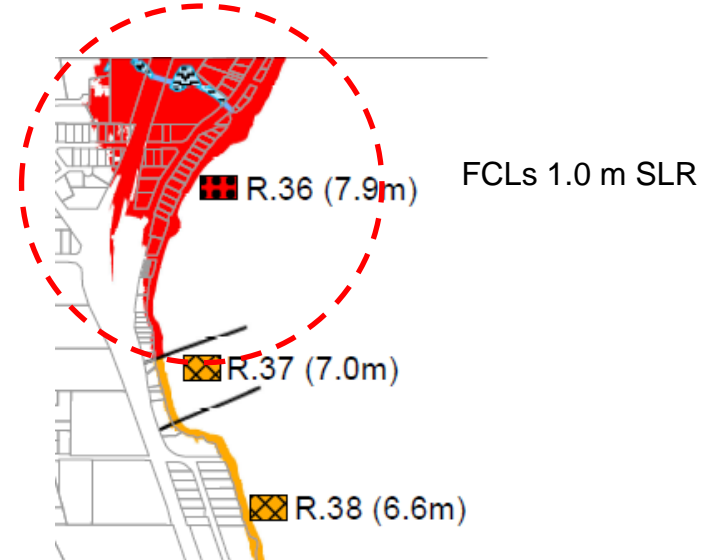
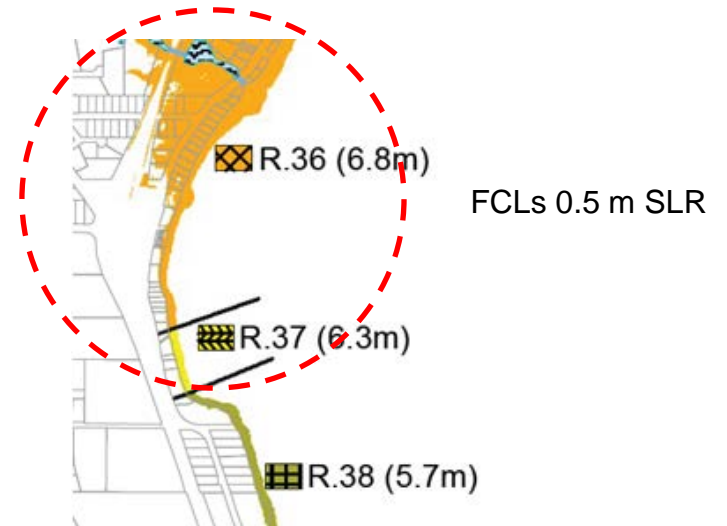
- › contains significant residential, commercial, light industrial and parklands.
- › contains significant environmental values to be accommodated in a sensitive manner and which could be protected through innovative design.
- › affected lands fall within the recommended provisions related to Sea Level Rise Planning Areas as defined in the FHALUMG.
- › includes District infrastructure including utilities, sewer, roads and paths and water supply that are important to the District.
- › forms the boundaries of the Shoal Harbour Migratory Bird Sanctuary, established in 1931.

Policy Statement:

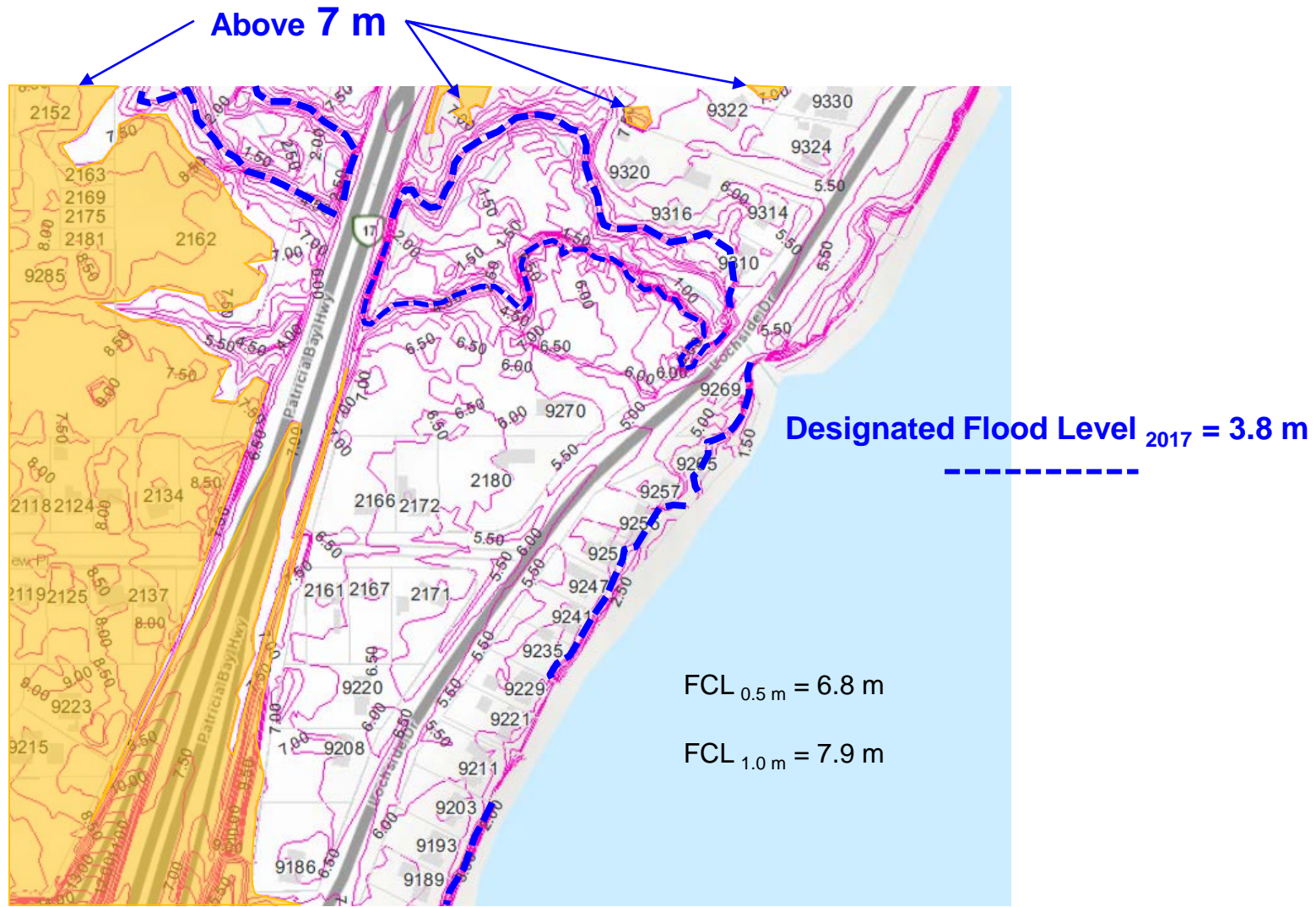
- › Existing land uses shall continue to be allowed.
- › Development Permit Area DPA 9 shall apply.
- › Development on existing lots shall conform with FHALUMG.
- › The District shall engage in the development of a Long Term Flood Protection Strategy as outlined in Appendix 1 of FHALUMG.
- › The Long Term Flood Protection Strategy shall consider the implications of policies applicable to the adjacent parcels in Sidney, BC.
- › Long Term Flood Projection Strategy shall consider the benefits that might be realized from active stewardship of the Shoal Harbour Migratory Bird Sanctuary consistent with the standing policies of the Canada Wildlife Act and Migratory Birds Convention Act, 1994.

Special Development Areas – Lochside - McTavish

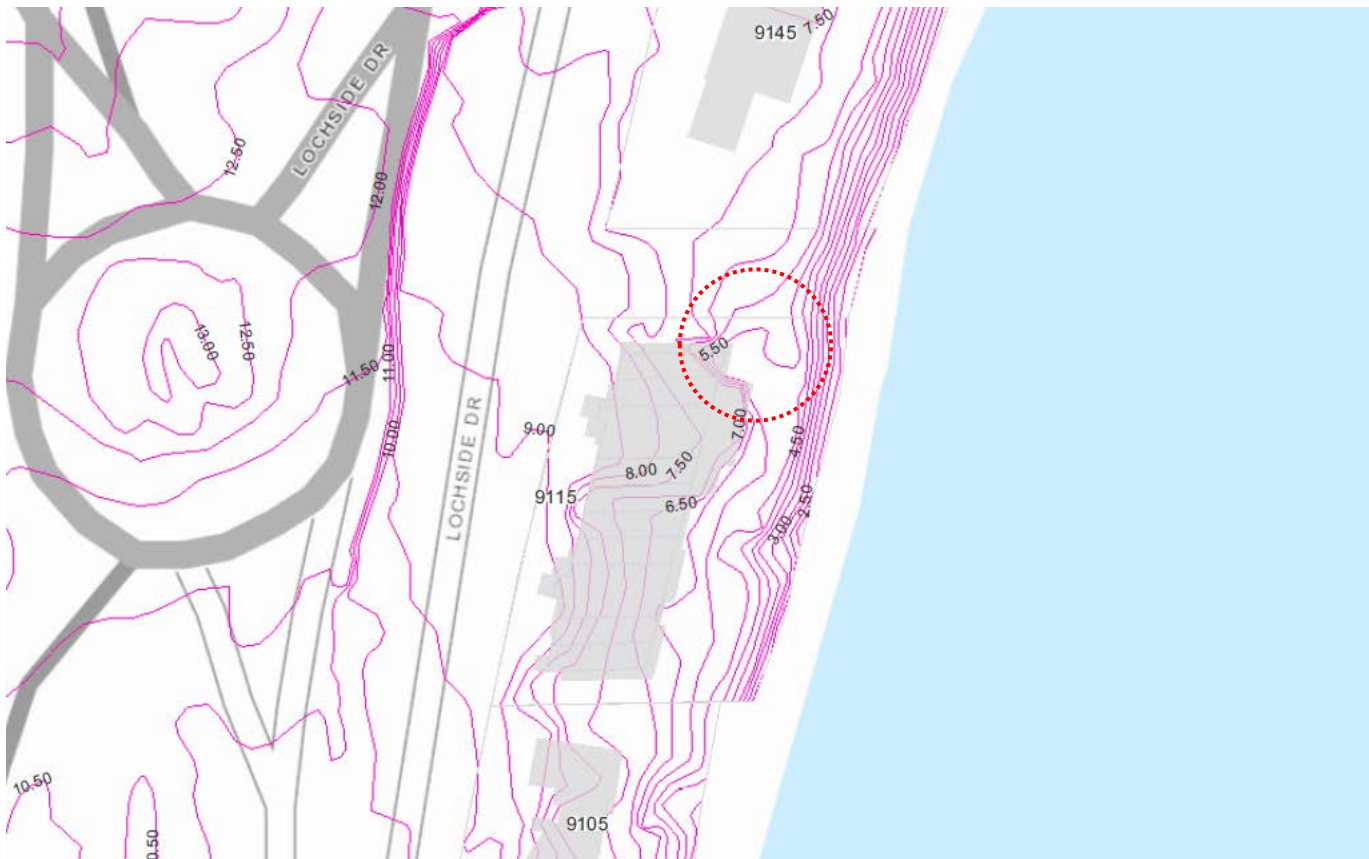
- › Most exposed land parcels in the District
- › Multiple properties along the shoreline will be affected by sea level rise
- › Shoreline does not lend itself to piecewise adaptation at the shoreline
- › Significant ground level elevation variation away from the shoreline
- › Mainly residential
- › Municipal infrastructure (roads, utilities, power) will be affected
- › Area bisected by a restored salmon bearing creek (Raey Creek)
- › Potential for future development



Lochside – McTavish SDA

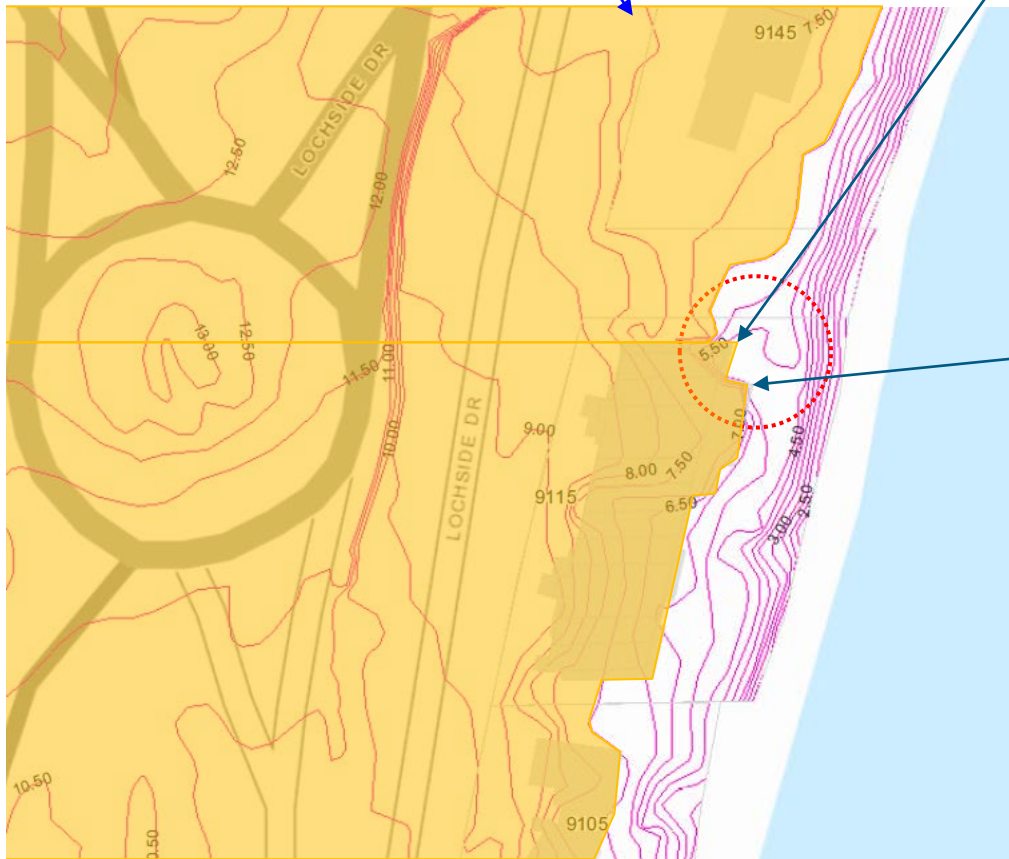


Lochside – McTavish SDA



Lochside – McTavish SDA

Above 7 m



$FCL_{1m} = 7.9 \text{ m}$



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Policy 13.8 NEW Lochside – McTavish Interchange Area

Current Text	Evaluation and Explanation of Need for Change	Recommended Text
<p>This SDA currently does not exist in OCP Bylaw 1130</p>	<p><i>This area is significantly affected by the findings and results of the FGL Study. It is clear this area should be added to the list of Special Development Areas to conform to the Provincial Government updated guideline documents to identify Sea Level Rise Planning Areas where there is a threat of flooding due to expected SLR as a result of ongoing climate change.</i></p>	<p>Justification:</p> <p>The Lochside McTavish Interchange Area affected by future sea level rise, as delineated in DPA 14.11 maps 1 or 2 has been designated as a special development area, as mandated by the Provincial Guideline Memorandum Amendment – Section 3.5 and 3.6 – Flood Hazard Area Land Use Management Guidelines (FHALUMG) effective: 1 January 2018, for the following reasons:</p> <ul style="list-style-type: none"> a) The subject area contains significant residential, commercial, light industrial, parklands and multi-jurisdictional transportation infrastructure. b) The affected lands fall within the recommended provisions related to Sea Level Rise Planning Areas as defined in the FHALUMG. c) The area includes District infrastructure including utilities, sewer, roads and paths and water supply that are important to the District. <p>Policy Statement:</p> <p>In designating these parcels of land as a special development area, the following planning principles shall be reflected for future development:</p> <ul style="list-style-type: none"> a) Existing land uses shall continue to be allowed. b) Development Permit Area DPA 14.11 shall apply. c) Development on existing lots shall conform with FHALUMG. d) The District shall engage in the development of a Long Term Flood Protection Strategy as outlined in Appendix 1 of FHALUMG. <p>The Long Term Flood Protection Strategy shall consider the implications of policies applicable to the adjacent parcels in Sidney, BC.</p>

Why an SDA?

Start to producing a **Long Term Flood Protection Plan***

- › Understand the vulnerability of the area to flooding
- › Understand how and when the area will flood:
 - › In the near-term, when low probability events (Designated Storm) occurs at high tide
 - › As sea levels rise and start to approach the threshold levels (0.5 and 1.0 m)
 - › As sea levels reach the threshold events and more probable storms (annual storms) occur at high tide
- › Develop approaches and options to increase near-term resilience
 - › What can individual properties do to minimize effects
 - › What options are realistic for ongoing re-development
 - › What long-term solutions are practical
- › Develop estimates of Option costs
- › Develop options for funding
- › Develop a time line for implementation

Benefits of a Long Term Flood Protection Plan*

Potentially FCLs Can be Reduced behind approved measures

Why an SDA?

Start to producing a **Long Term Flood Protection Plan***

- › Understand the vulnerability of the area to flooding
- › Understand how and when the area will flood:
 - › In the near-term, when low probability events (Designated Storm) occurs at high tide
 - › As sea levels rise and start to approach the threshold levels (0.5 and 1.0 m)
 - › As sea levels reach the threshold events and more probable storms (annual storms) occur at high tide
- › Develop approaches and options to increase near-term resilience
 - › What can individual properties do to minimize effects
 - › What options are realistic for ongoing re-development
 - › What long-term solutions are practical
- › Develop estimates of Option costs
- › Develop options for funding
- › Develop a time line for implementation

Needs engagement
Needs a timeline

Benefits of a Long Term Flood Protection Plan*

Potentially FCLs Can be Reduced behind approved measures

The slide features a white background with two large, solid blue geometric shapes on the left side. One is a lighter blue triangle pointing towards the top right, and the other is a darker blue triangle pointing towards the bottom right, partially overlapping the first one.

Next Steps

Next Steps

:

1. SDA related workshop/Field excursion 16 November
2. Continuing Public Consultation
3. Review Bylaws and Marine Task Force Recommendations

THANK YOU FOR ATTENDING:

PLEASE COMPLETE THE
QUESTIONNAIRE BEFORE LEAVING
OR

ON-LINE

PLEASE DROP OFF OR E-MAIL
BY 26 OCTOBER 2017





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To follow developments

For latest information on the melting of ice sheets and glaciers:

- › <https://nsidc.org/>
- › <http://icebridge.gsfc.nasa.gov/>
- › <http://darksnow.org/>

For latest information on measured sea level rise

- › <https://www.aviso.altimetry.fr/en/data/products/ocean-indicators-products/mean-sea-level.html>

For up to date information on new studies, reports and investigations related to climate change and sea levels

- › <http://climatecrocks.com/>

To read the paper by J. Hansen et al (2015):

- › <http://www.atmos-chem-phys-discuss.net/15/20059/2015/acpd-15-20059-2015.pdf>

Values that guide us

Our values keep us anchored and on track. They speak to how we run our business, how we express ourselves as a group, and how we engage with our stakeholders and inspire their trust.

Teamwork & excellence

We're innovative, collaborative, competent and visionary.

Customer focus

Our business exists to serve and add long-term value to our customers' organizations.

Strong investor return

We seek to reward our investors' trust by delivering competitive returns.

Health & safety, security and environment

We have a responsibility to protect everyone who comes into contact with our organization.

Ethics & compliance

We're committed to making ethical decisions.

Respect

We consistently demonstrate respect for all our stakeholders.

