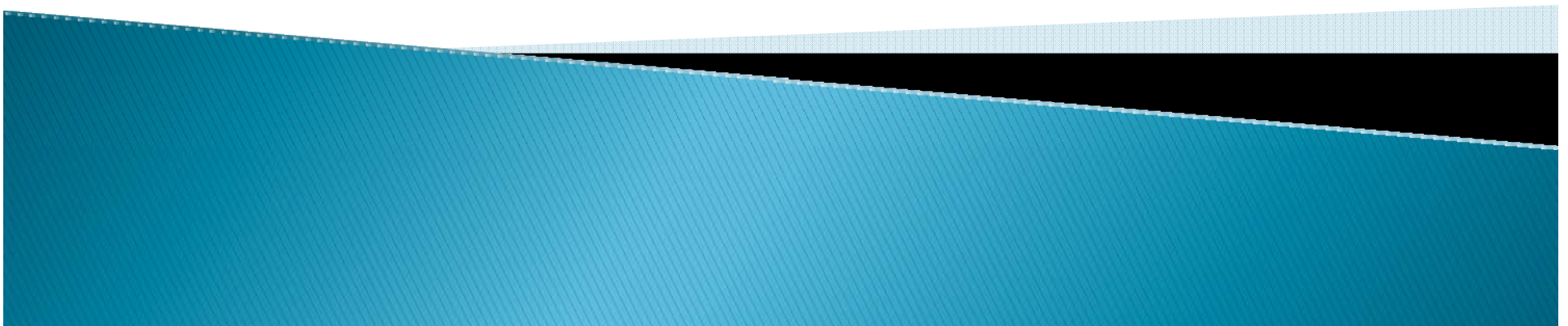


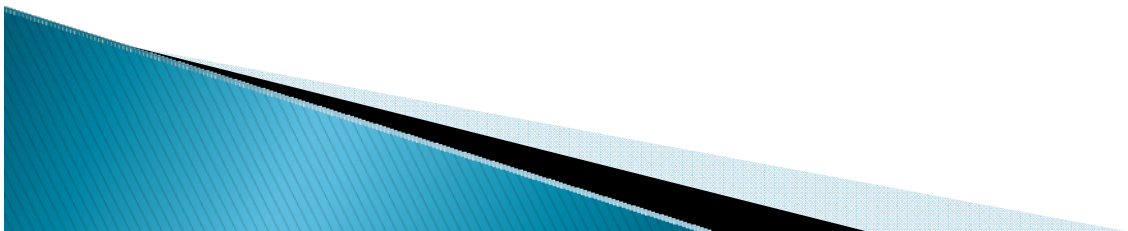
Integrated Flood Management Project Applications

September 2010



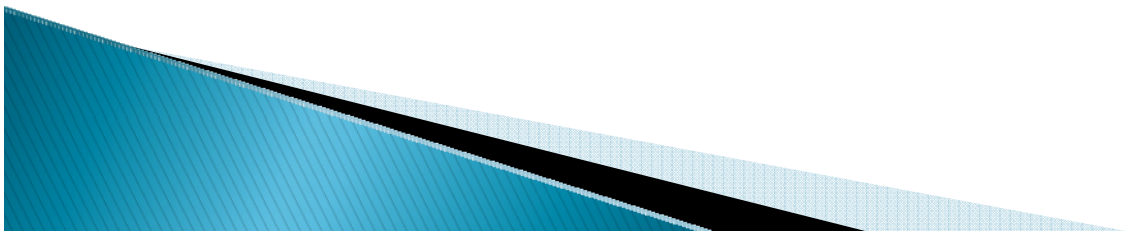
Context

- ▶ November 2009 1 in 7 year flood
- ▶ 2nd event in January 2010
- ▶ Coincidental completion of Lower Cowichan/Koksilah River Integrated Flood Management Plan



Issues Identified in the Plan

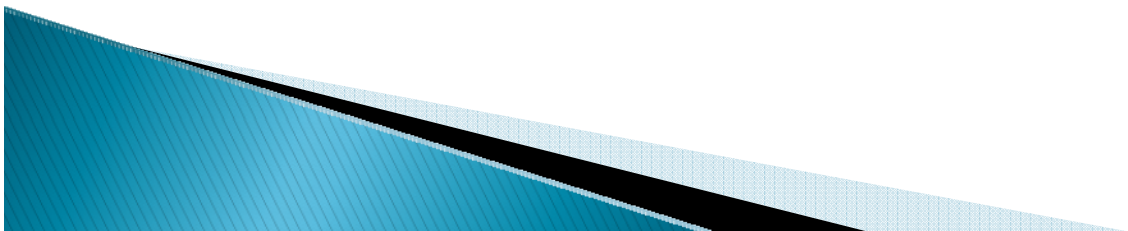
- Dikes inadequate for 200 yr flood
- TCH overtopped in 200 yr flood
- Log jams & sediment deposition serious problems
- Dyking ad hoc –unintended consequences
- Channelization maintenance and fish habitat issues
- 200 yr flood levels higher than predicted earlier
- Bridge clearances inadequate
- Development issues
- Structural solutions alone costly/impractical



The Plan – Underlying documents

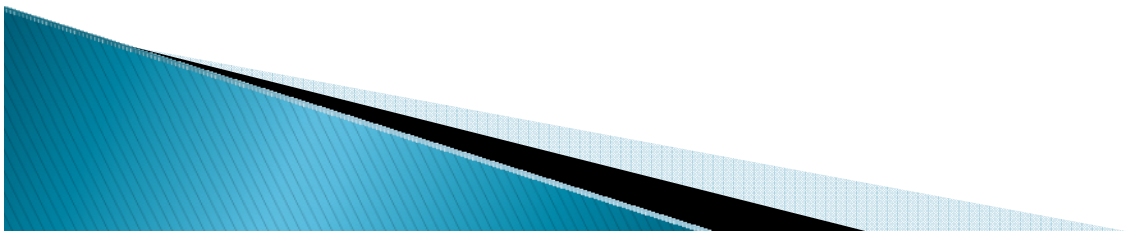
Products supporting Plan

- Updated floodplain maps
- Flood scenario mapping
- Habitat sensitivity maps



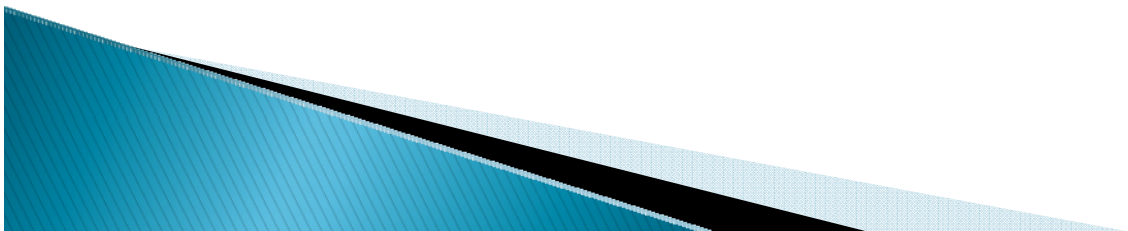
The Plan –Goals

1. Reduce flood risk to communities; protect aquatic, riparian habitat, cultural values
2. Innovate to minimize short/long economic, environmental, social costs (where possible build on assets).
3. Achievable, broadly supported, sustainable



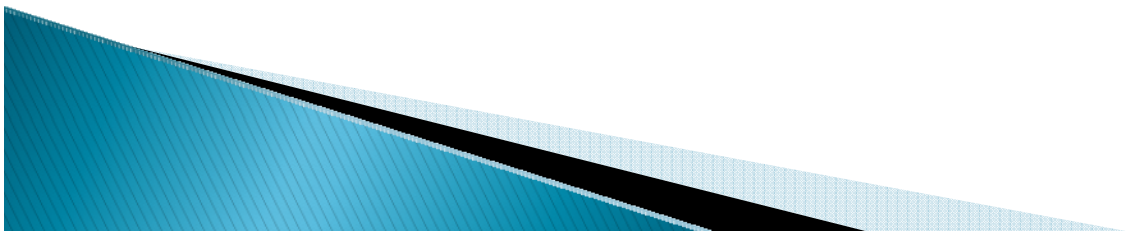
The Plan –Strategies /Principles

- ▶ Plan strategies discuss :
 - Naturalized state
 - Siting of future development
 - No net adverse impacts
 - Decrease vulnerability re current situation
 - Channel conveyancing and off channel relief
 - Promote basin wide planning initiatives
 - Ongoing monitoring/maintenance



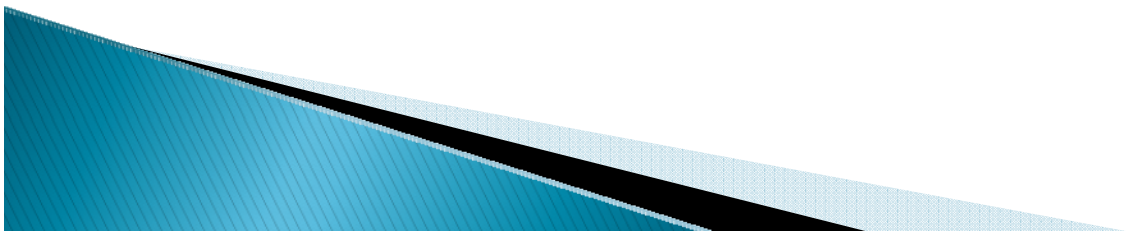
Recommended Actions

- ▶ Dike upgrades & new dike construction
- ▶ Channel maintenance/improvement
- ▶ Gravel and log jam removal/maintenance
- ▶ Veg. removal
- ▶ Set back dike construction
- ▶ Upstream sediment/debris control
- ▶ Road modifications
- ▶ Bridge replacements
- ▶ Recommended compensation projects



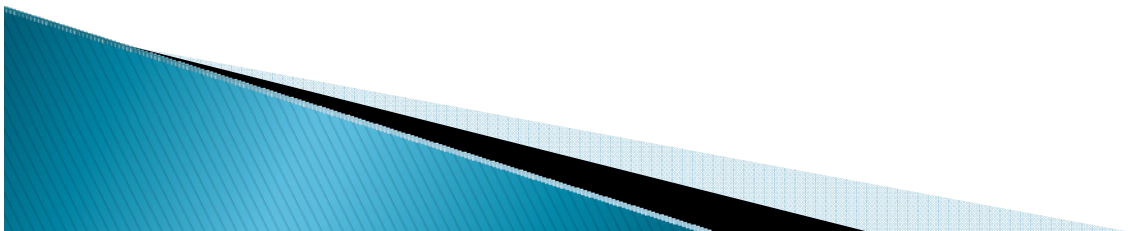
Federal/Provincial Program

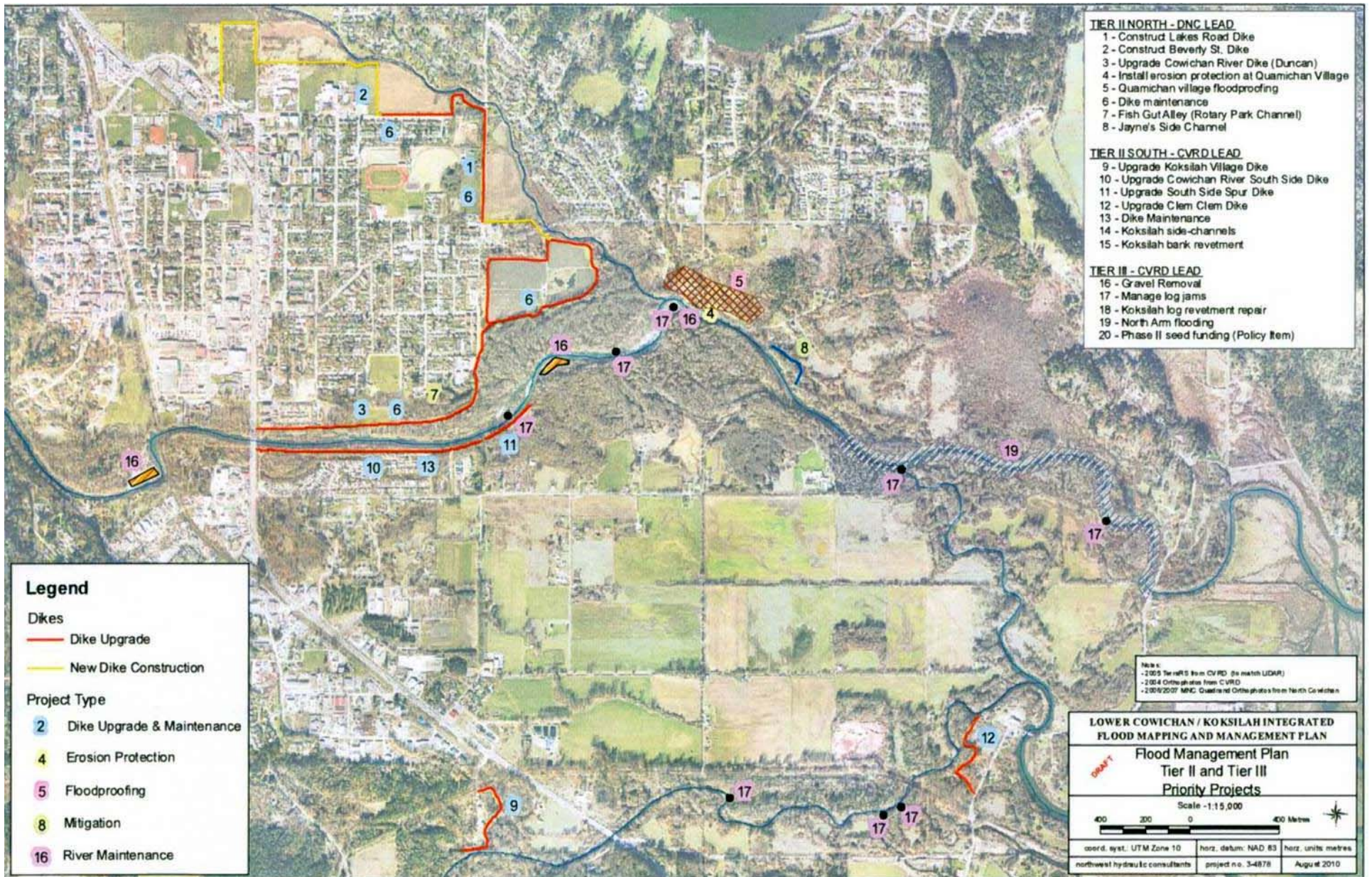
- ▶ Announced June 2010
- ▶ Tier 1 infrastructure projects to be completed early 2011 (deadline July 30)
- ▶ Tier 2 infrastructure projects –completion dates early 2014 (deadline Sept. 24)
- ▶ Tier 3 strat. flood protection –completion dates early 2014 (deadline Sept. 24)



Federal/Provincial Program cont'd

- ▶ Program for local govts. and dyking authorities 1/3-1/3-1/3 funding
- ▶ FN's projects "funded separately and administered by INAC"





- TIER II NORTH - DNC LEAD**
- 1 - Construct Lakes Road Dike
 - 2 - Construct Beverly St. Dike
 - 3 - Upgrade Cowichan River Dike (Duncan)
 - 4 - Install erosion protection at Quamichan Village
 - 5 - Quamichan village floodproofing
 - 6 - Dike maintenance
 - 7 - Fish Gut Alley (Rotary Park Channel)
 - 8 - Jayne's Side Channel

- TIER II SOUTH - CVRD LEAD**
- 9 - Upgrade Koksilah Village Dike
 - 10 - Upgrade Cowichan River South Side Dike
 - 11 - Upgrade South Side Spur Dike
 - 12 - Upgrade Clem Clem Dike
 - 13 - Dike Maintenance
 - 14 - Koksilah side-channels
 - 15 - Koksilah bank revetment

- TIER III - CVRD LEAD**
- 16 - Gravel Removal
 - 17 - Manage log jams
 - 18 - Koksilah log revetment repair
 - 19 - North Arm flooding
 - 20 - Phase II seed funding (Policy Item)

Legend

- Dikes**
- Dike Upgrade
 - New Dike Construction
- Project Type**
- 2 Dike Upgrade & Maintenance
 - 4 Erosion Protection
 - 5 Floodproofing
 - 8 Mitigation
 - 16 River Maintenance

Notes:
 - 2005 Tier II'S from CVRD (to match LEDAR)
 - 2004 Orthophotos from CVRD
 - 2006/2007 MNC Grounded Orthophotos from North Cowichan

LOWER COWICHAN / KOKSILAH INTEGRATED FLOOD MAPPING AND MANAGEMENT PLAN

Flood Management Plan
Tier II and Tier III
Priority Projects

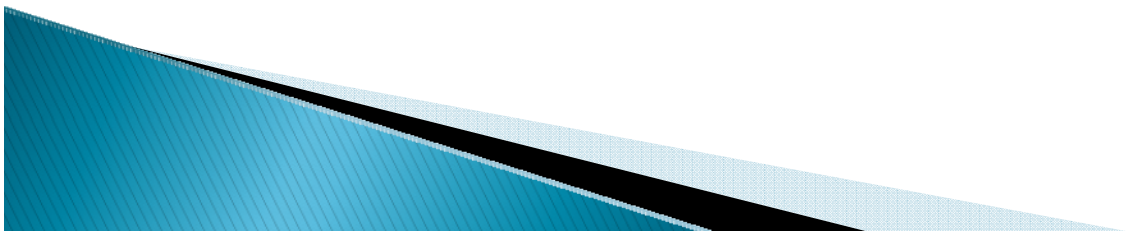
Scale - 1:15,000

400 200 0 400 Metres

coord. syst. UTM Zone 10	horz. datum NAD 83	horz. units metres
northwest hydraulic consultants	project n.o. 3-4878	Augu # 2010

Issues

- ▶ Gt. Opp. –recent flood, new plan, lots of projects.
- ▶ Complex model
- ▶ Deadlines –no time to digest plan, model, or for comment/buy-in by those affected including INAC
- ▶ No formal governance structure
- ▶ Risk of increasing CT's flood protection gap
- ▶ Good will within community
- ▶ Politics difficult.



Role of Watershed Board

- ▶ Attempt to provide objective voice
- ▶ General support for parties
- ▶ Work with CVRD on stakeholder/beneficiary workshop (likely won't happen in advance)
- ▶ Larger role?

