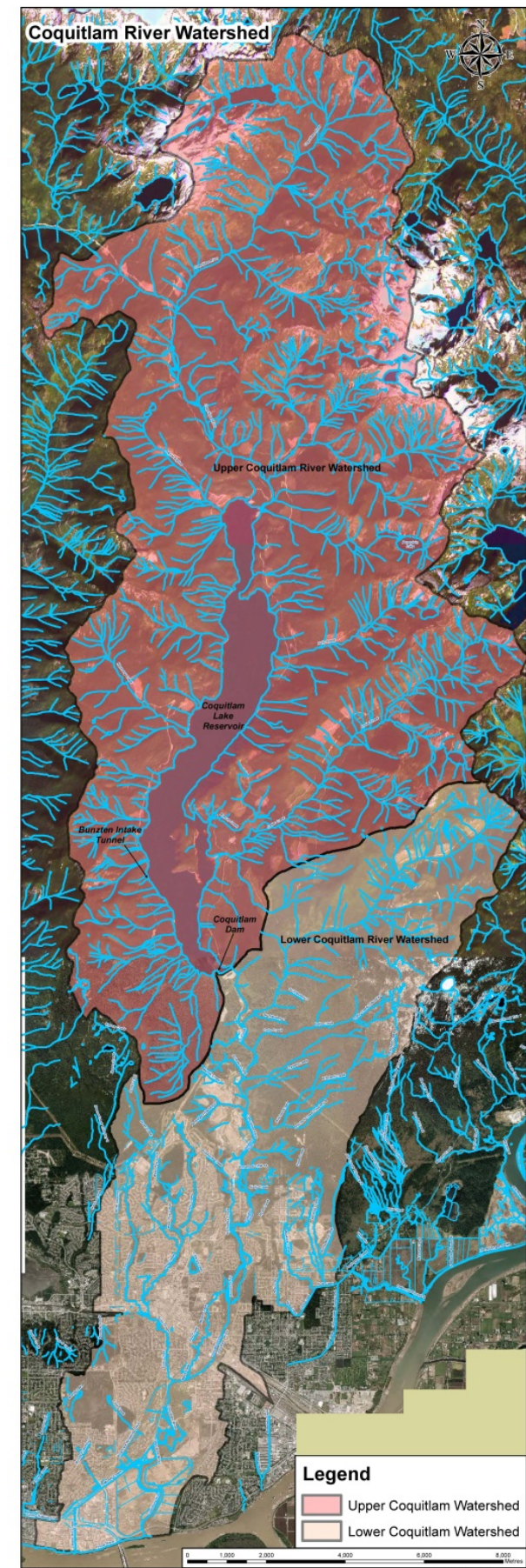
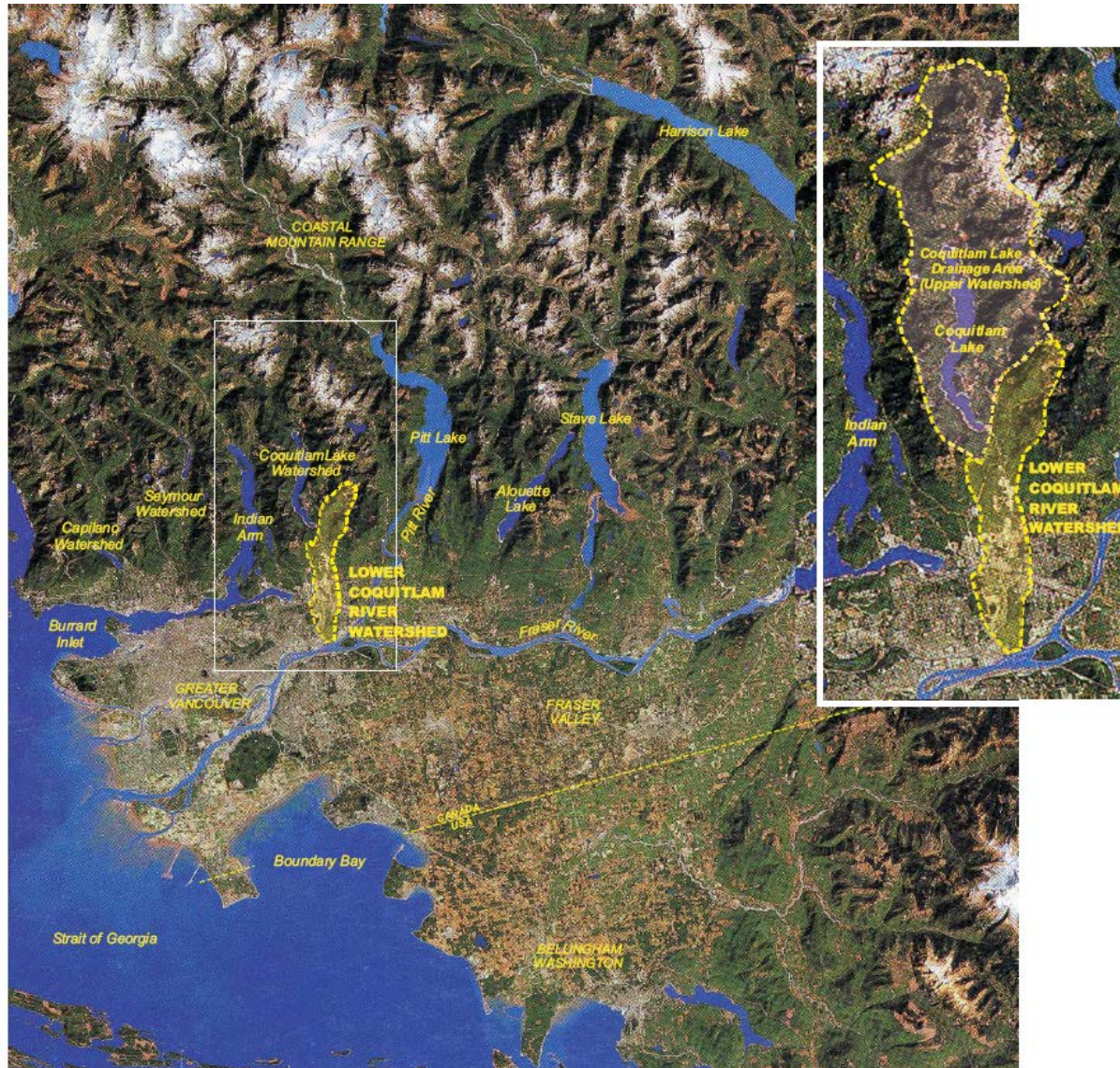




Lower Coquitlam River Watershed Plan – Step 1



Find us at [Coquitlam River](https://www.coquitlamriverwatershed.ca)

www.coquitlamriverwatershed.ca



Coquitlam River Watershed Roundtable

The Lower Coquitlam River Watershed Plan

The Roundtable is following the Open Standards for Practice of Conservation, an adaptive management approach that seeks to integrate both ecological and human well-being concepts into conservation planning. The development of the watershed plan is being led by a Task Group of the Core Committee, comprised of individuals from the City of Coquitlam, Watershed Watch Salmon Society, Fisheries and Oceans Canada and the Urban Development Institute and local stewards. The first phase of the plan is nearing completion, this phase involves developing a conceptual model that describes:

1. **Component Identification** (What do we care about & think is critical?)
2. **Health Assessment** (How healthy are the things we that we care about?)
3. **Pressures Assessment** (What pressures are affecting the things we care about & which pressures are the worst?)
4. **Conceptual Modeling** (What are contributing factors to the current situation?)

Component	KEA	Indicator	Indicator Ratings			
			Poor	Fair	Good	Very Good
Recreation	Access to and use of the river	Public accessibility of the river & tributaries	Decrease from current level	Current level	Plans underway to improve access	Greater access, including handicap access
Current Status					Current	
Desired Future Status						Desired Future

Ranking Categories for Human Well Being Indicators			
Poor	Fair	Good	Very Good
Does not meet goal condition and requires significant intervention to improve condition	Does not meet goal condition but has potential with moderate intervention	Meets goal condition; some intervention required to ensure stability of that condition	Indicator meets goal and requires little intervention to maintain stability of condition

Figure 2. Example of a Health Assessment for Recreation



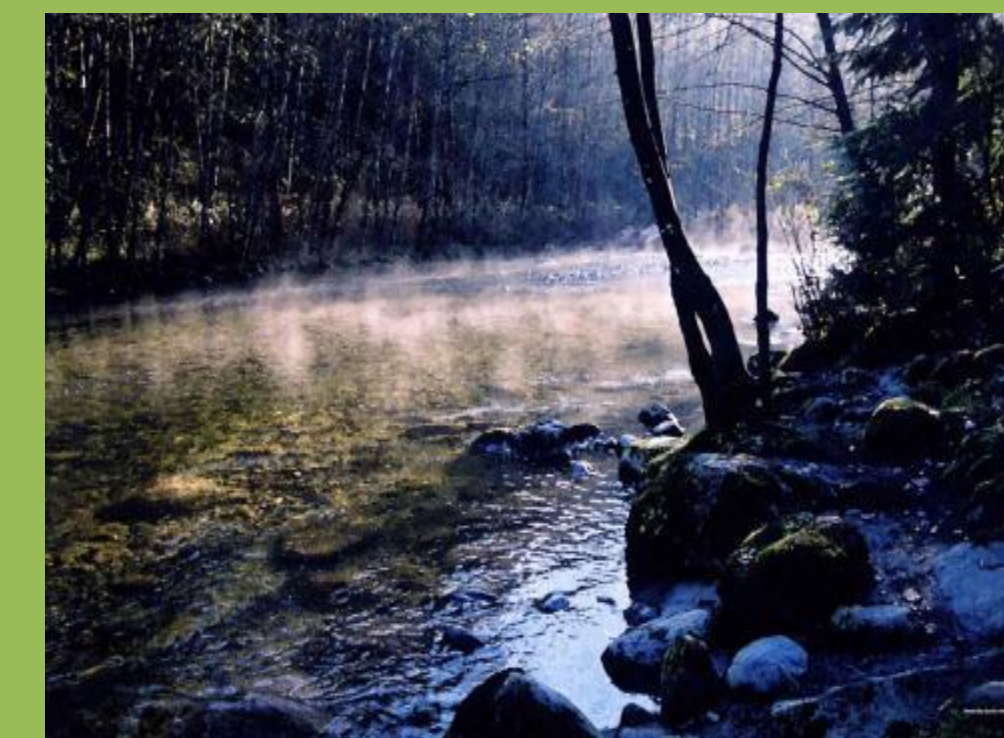
Figure 1. Open Standards Project Management Cycle Version 2.0

The Roundtable has identified four ecological and six human well being components. Once the components were identified, the next step was to assess the current health or status of several key ecological attributes (KEA) that describe the size, condition and context for the component. In Figure 2, “recreation” is the component and “access and use of the river” is the KEA because without access and use of the river, recreation opportunities would be altered or lost. Indicators are then used to measure the status of the attribute and to assess trends and track change over time. Classifying the state of each indicator in this way enables a simple evaluation of the health of the attribute, and therefore the health of the component.



COQUITLAM RIVER SYSTEM

Goal: Ensure management of water flows, water quality, and habitat in order to support productivity and other ecological and human well-being values



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT

**Size:
Flow
(Downstream
of Dam)**

- Annual Flow Levels
- Ecologically Relevant Base (min) Flows
- Ecologically Relevant Peak (max) Flows

Poor	Fair	Good	Very Good
Flows differ from min/max targets set by the WUP	Flows occasionally differ from min/max targets set by the WUP	Flows match the min/max targets set by the WUP	Flows match the min/max targets set by the WUP and mimic natural hydrograph

**Condition:
Water Quality
(Downstream
of Dam)**

- Benthic Invertebrates (Index of Biotic Integrity)
- Turbidity
- Water Chemistry (pH, DO, Metals, Hydrocarbons)

Many sites showing values considered "fair" to "poor" (<25)	Some sites within the "fair" to "very good" ratings (16-35)	Majority of sites are within "fair" to "very good" ratings (16-35)	Majority of sites within "good" to "very good" ratings (26-45)
Maple Creek (14.5)			

Source: Kerr Wood Leidal (2012). Draft report appendices: Maple Creek Integrated Watershed Management Plan Phase 4. Based on four samples taken in October 2010. Ratings: Poor (B-IBI (10 - 15)), Fair (B-IBI (16 - 25)), Good (B-IBI (26 - 35)), Very Good (B-IBI (36 - 45))

**Context:
Channel
Morphology/
Hydrology**

- Rates of Lateral Migration OR % of Channel Diked

Measurements throughout the watershed are consistently BELOW (>50% of the time) the attainment (green) level	Measurements in specific problematic locations are consistently BELOW (>50% of the time) the attainment (green) level	Measurements are sporadically BELOW (less than 50% of the time) the attainment level, with no developing trend	Measurements are consistently BETTER (95%+ of the time) than the attainment level
Oxygen (throughout) Zinc (Maple Creek)	Copper, Cadmium, Iron (Maple Creek)		Metals (main-stem)

Source: Kerr Wood Leidal (2012). Draft report appendices: Maple Creek Integrated Watershed Management Plan Phase 4. Ministry of Environment. Lower Mainland Region EPD (retrieved from http://www.env.gov.bc.ca/epd/regions/lower_mainland/water_quality/wq_data/low_fras_riv_trib/index.htm, May 2013) Minister of Water, Land, and Air Protection Lower Mainland Region (2003). Water Quality Objectives Attainment Monitoring for the Coquitlam River in 2002. City of Coquitlam (2013). Coquitlam River Water Quality Monitoring Update.



COQUITLAM RIVER SYSTEM

Goal: Ensure management of water flows, water quality, and habitat in order to support productivity and other ecological and human well-being values



INDICATORS

TRENDS

Water Quality (Downstream of Dam)

Turbidity

Water Chemistry (pH, DO, Metals, Hydrocarbons)

Year	Reference	Sample Locations	Turbidity (NTU)	pH (Relative Units)	Dissolved Oxygen (mg/L)	Zinc (ug/L)	Lead (ug/L)	Copper (ug/L)	Cadmium (ug/L)	Iron (ug/L)
Attainment Level			0-5 NTU	6.5-9.0	>11 mg/L	<6 ug/L	<5 ug/L	<3 ug/L	<0.03 ug/L	<800 ug/L
2012	City of Coquitlam	Mainstem, Gate to Mouth	Very Good (1.0, n=70)	Very Good (7.2, n=70)	Poor (9.8, n=70)	Very Good (3, n=70)	Very Good (0, n=70)	Very Good (0.6, n=70)	Very Good (0, n=70)	Very Good (150, n=70)
2012	Kerr Wood Leidal	Maple Creek	NA	NA	NA	Poor (9.5, n=7)	Very Good (1.7, n=7)	Fair (2.2, n=7)	Fair (0.02, n=7)	Fair (524.7, n=7)
2003	Ministry of Water, Land, and Air Protection	Mainstem, Gate to Mouth	Fair (2.5, n=24)	Very Good (7.0, n=24)	Fair (11.1, n=24)	Fair (2.7, n=24)	Very Good (0.2, n=24)	Very Good (0.7, n=24)	Good (0.02, n=24)	NA
1993	Ministry of Environment	Mainstem, Gate to Mouth	Fair (5.7, n=26)	Very Good (7.1, n=25)	Good (11.3, n=25)	NA	NA	NA	NA	NA
1991	Ministry of Environment	Mainstem, Gate to Mouth	Fair (15.4, n=24)	Very Good (7.0, n=25)	NA	NA	NA	NA	NA	NA
1990	Ministry of Environment	Mainstem, Gate to Mouth	Fair (6.0, n=25)	Very Good (7.2, n=35)	Fair (10.5, n=25)	Poor (99.3, n=25)	Poor (92.8, n=25)	Poor (15.2, n=25)	Poor (10, n=25)	Fair (693, n=25)

Rating (average, number of samples)

Kerr Wood Leidal (2012). Draft report appendices: Maple Creek Integrated Watershed Management Plan Phase 4.

Ministry of Environment. Lower Mainland Region EPD (retrieved from http://www.env.gov.bc.ca/epd/regions/lower_mainland/water_quality/wq_data/low_fras_riv_trib/index.htm, May 2013)

Minister of Water, Land, and Air Protection Lower Mainland Region (2003). Water Quality Objectives Attainment Monitoring for the Coquitlam River in 2002.

City of Coquitlam (2013). Coquitlam River Water Quality Monitoring Update.

Attainment levels defined by the Stage 1 Stormwater Monitoring Approach developed by the Stormwater Interagency Liason Group.



RIPARIAN AREAS

Goal: Maintain and where possible, maximize the width and connectivity of intact and healthy riparian areas for proper ecological functioning along the Coquitlam River and tributaries



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT

Size:
Amount of
Riparian Area

Percent of Intact
Riparian Area along the
Mainstem and
Tributaries

Poor	Fair	Good	Very Good
<25%	25-50%	50-75%	>75%
		Current (60%)	

Source: Calculated by Kerr Wood Leidal in 2013 based on GIS information provided by the City of Coquitlam and City of Port Coquitlam.

Maturity of Riparian
Area

Data deficient

Condition:
Riparian Area
Composition

Native Plant
Richness (in parks)

Many invasive patches (>15%)	Some invasive patches (5-15%)	Mostly native (<5% invasive)	All native with small, contained invasive patches (<1%)
	Current (12%)		

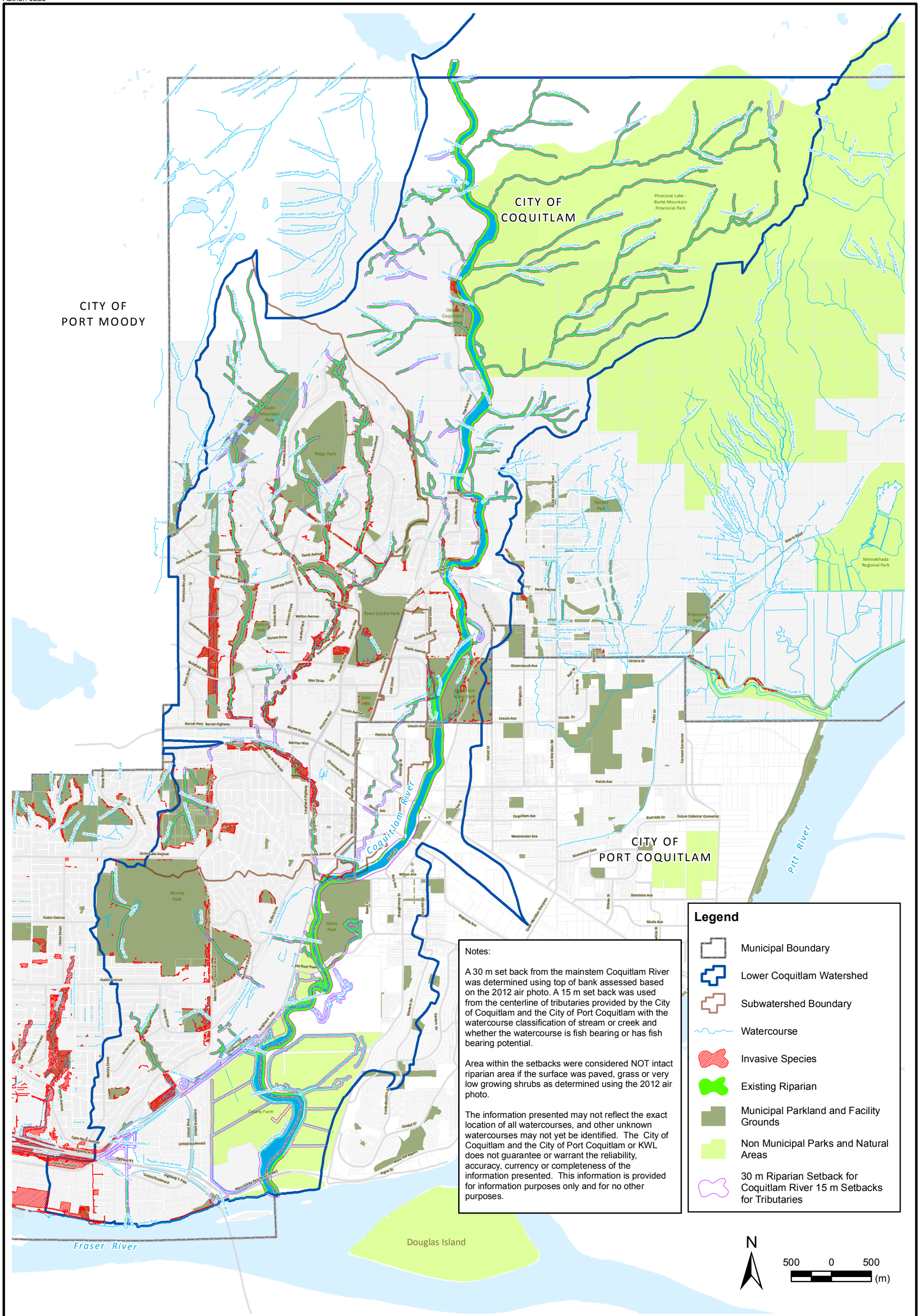
Source: Calculated by Kerr Wood Leidal in 2013 based on GIS information provided by the City of Coquitlam (invasive plant inventory in parks). Only includes invasive plants within City of Coquitlam Parks within the riparian zone.

Abundance/Presence of
Indicator Species (Pacific
water shrew and Red-legged
frog)

Indicator Species Never/Rarely Detected	Occasional/ Irregular Detection	Regularly Detected	At Carrying Capacity

Context:
Connectivity

Connectivity or
Continuity Measure



Notes:

A 30 m set back from the mainstem Coquitlam River was determined using top of bank assessed based on the 2012 air photo. A 15 m set back was used from the centerline of tributaries provided by the City of Coquitlam and the City of Port Coquitlam with the watercourse classification of stream or creek and whether the watercourse is fish bearing or has fish bearing potential.

Area within the setbacks were considered NOT intact riparian area if the surface was paved, grass or very low growing shrubs as determined using the 2012 air photo.

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Legend

- Municipal Boundary
- Lower Coquitlam Watershed
- Subwatershed Boundary
- Watercourse
- Invasive Species
- Existing Riparian
- Municipal Parkland and Facility Grounds
- Non Municipal Parks and Natural Areas
- 30 m Riparian Setback for Coquitlam River 15 m Setbacks for Tributaries



Lower Coquitlam River Watershed

Riparian Zone

Date: June 05, 2013

Reference: GIS data from the City of Coquitlam and the City of Port Coquitlam.
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SALMON

Goal: Ensure resilient, healthy populations of native salmon, for current and future generations



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT

**Size:
Abundance**

- Juvenile Outmigration (chum and pink)
- Number of Spawners (chum and pink)

Poor	Fair	Good	Very Good
Downward trend in #s	Increasing trend in #s	#s at capacity (limited by ocean conditions)	Increased habitat results in increased #s
	Current		

Source: Decker, S., Macnair, J. and G. Lewis. 2012. Lower Coquitlam River Fish Productivity Index. Coquitlam/Buntzen Water Use Plan. Implementation Year 5 (reference COQMON-7). Study period 2000-2010

**Condition:
Productivity**

- Smolt Density/100m2 (Coho, Steelhead)
- Benthos Diversity and Abundance

Smolt densities show declining trend	Smolt densities are stable, but lower than reference	Smolt densities approximate reference conditions	Smolt densities exceed reference conditions
		Current	

Source: Decker, S., Macnair, J. and G. Lewis. 2012. Lower Coquitlam River Fish Productivity Index. Coquitlam/Buntzen Water Use Plan. Implementation Year 5 (reference COQMON-7). Study period 2000-2010

**Context:
Diversity**

- Proportion of Species at Healthy or Capacity/Potential

0-2 Species (Pink, Chum)	2-3 Species (Pink, Chum, Coho)	4-5 Species (Pink, Chum, Coho, Steelhead, Chinook)	All 6 Species (Pink, Chum, Coho, Steelhead, Chinook, Sockeye)
		Current	

**Context:
Salmon Habitat**

- Condition of Spawning Gravel
- Blockages to Salmon Access
- Accessible Spawning and Wintering Habitat

Decrease from current	Current level	Increase by 10%	Increase to historic levels
	Current		



SALMON

Goal: Ensure resilient, healthy populations of native salmon, for current and future generations



INDICATORS

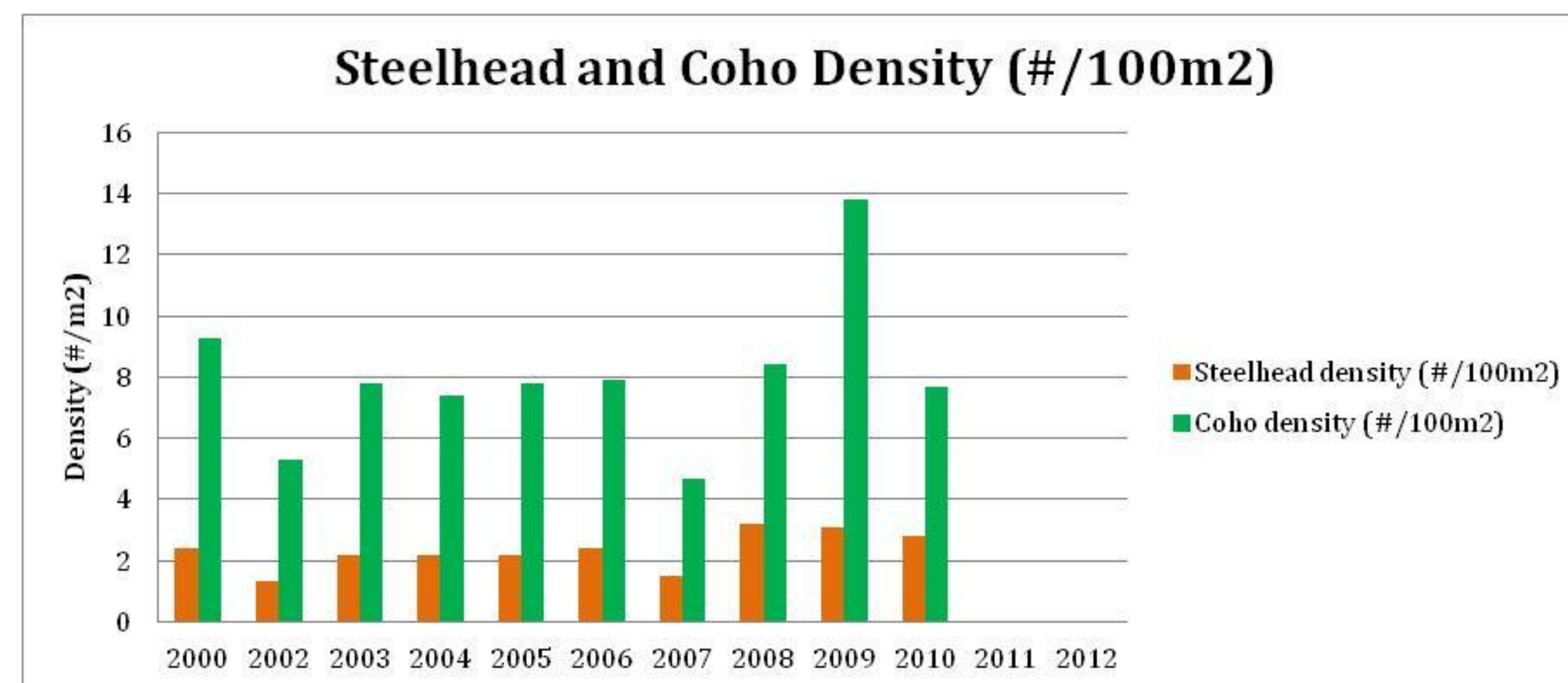
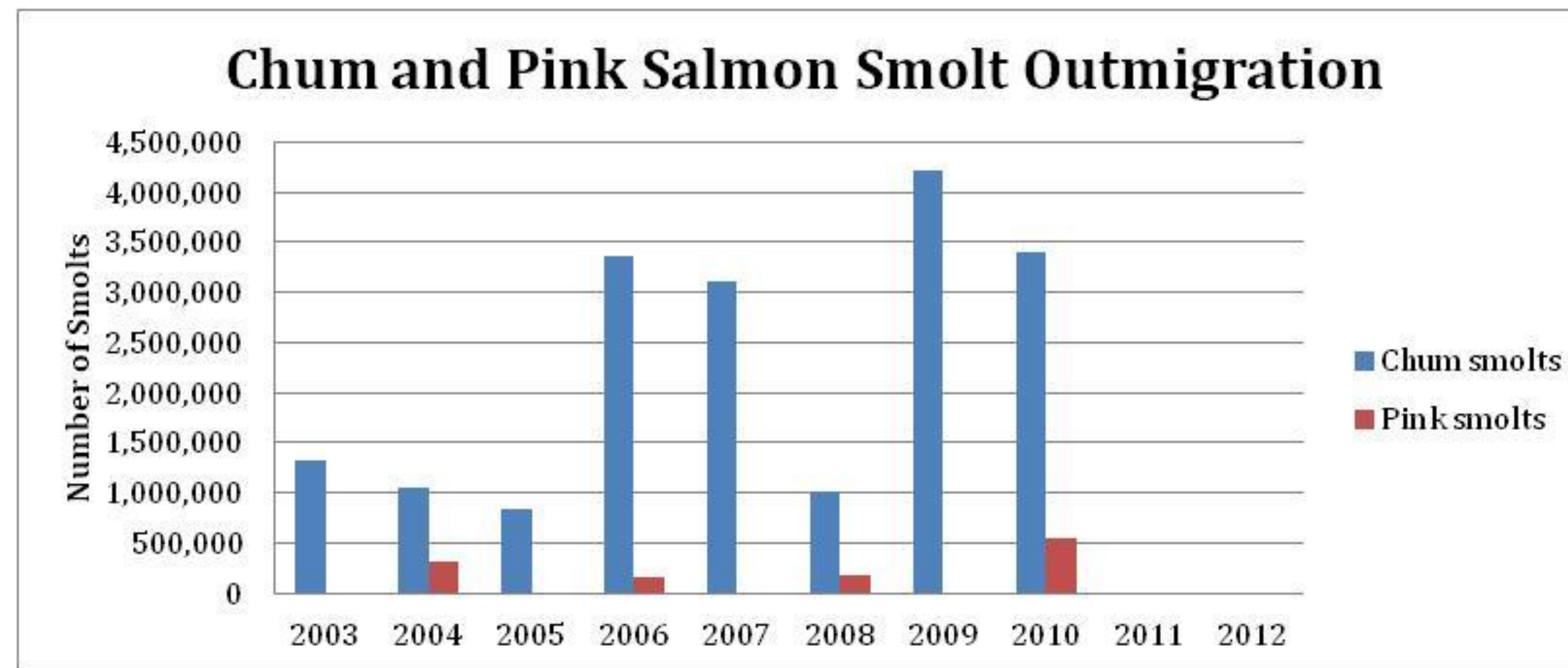
Size: Abundance

Juvenile Salmon
Outmigration
(chum and pink)

Condition: Productivity

Smolt Density/100m²
(coho and steelhead)

TRENDS / STATUS



Reference Conditions

Steelhead

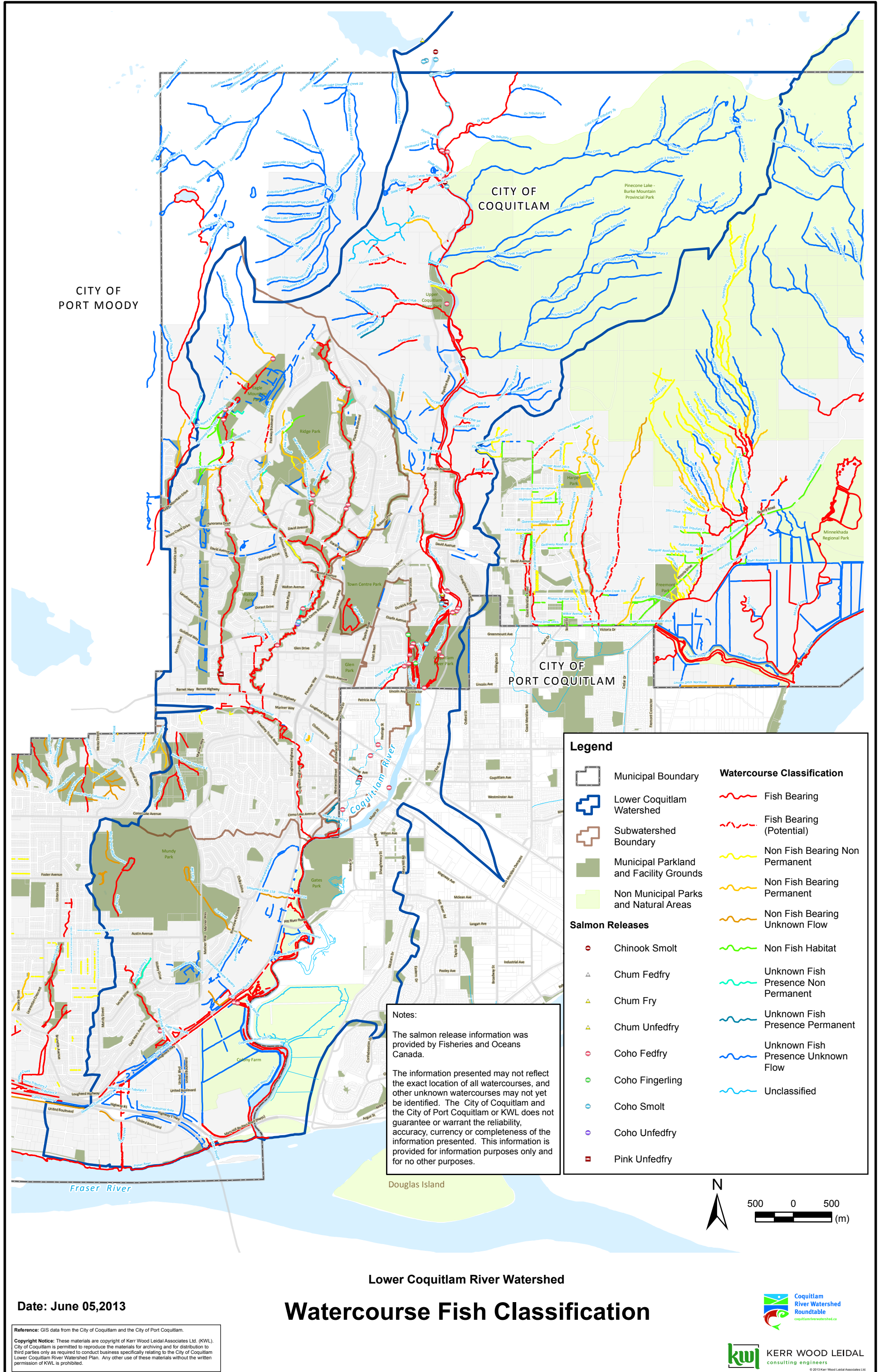
2.0 smolts/100m² (Tautz, A.F., B.R. Ward and A. Ptolemy. 1992. Steelhead trout productivity and stream carrying capacity. PSARC Working Paper S92-68.)

Coho

7.7 smolts/100 m² (Ptolemy. 1992. Steelhead trout productivity and stream carrying capacity. PSARC Working Paper S92-68.)

1,897 smolts/km (Bradford, MJ, GC Taylor and JA Allan. 1997. Empirical Review of Coho Salmon Smolt Abundance and the Prediction of Smolt Production at the Regional Level. Transactions of the American Fisheries Society 126: 49-64.)

Source: Decker, S., Macnair, J. and G. Lewis. 2012. Lower Coquiltam River Fish Productivity Index. Coquiltam/Buntzen Water Use Plan. Implementation Year 5 (reference COQMON-7). Study period 2000-2010.



Notes:

The salmon release information was provided by Fisheries and Oceans Canada.

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Lower Coquitlam River Watershed

Watercourse Fish Classification

Date: June 05, 2013

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NATURAL AREAS

Goal: Maintain an interconnected network of land and water resources to support functioning natural systems, recreational opportunities, and aesthetic values



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT

Size:
Amount of Natural Area

- Area of Forest Cover
- Area of Freshwater and Wetland
- Area of Shrub, Grassland, and Old Field Habitat

Poor	Fair	Good	Very Good
0-20%	20-30%	30-40%	>40%
<1%	1-1.5%	1.5-2%	>2%
<1%	1-3%	3-5%	>5%
		Current	
		Current	
		Current	

Source: Metro Vancouver technical report (Sensitive Ecosystem Inventory for Metro Vancouver & Abbotsford 2010-2012). The Environmentally Sensitive Areas percentages are calculated within the watershed of the City of Coquitlam and City of Port Coquitlam. The Forest category includes mature forest, old forest, young forest and riparian. The freshwater/wetland category includes freshwater and wetland. The grassland and shrub category includes old field.

Condition:
Ecological Integrity of Natural Areas

- Native Plant Richness
- Wildlife Trees
- Indicator Species (one for each habitat)

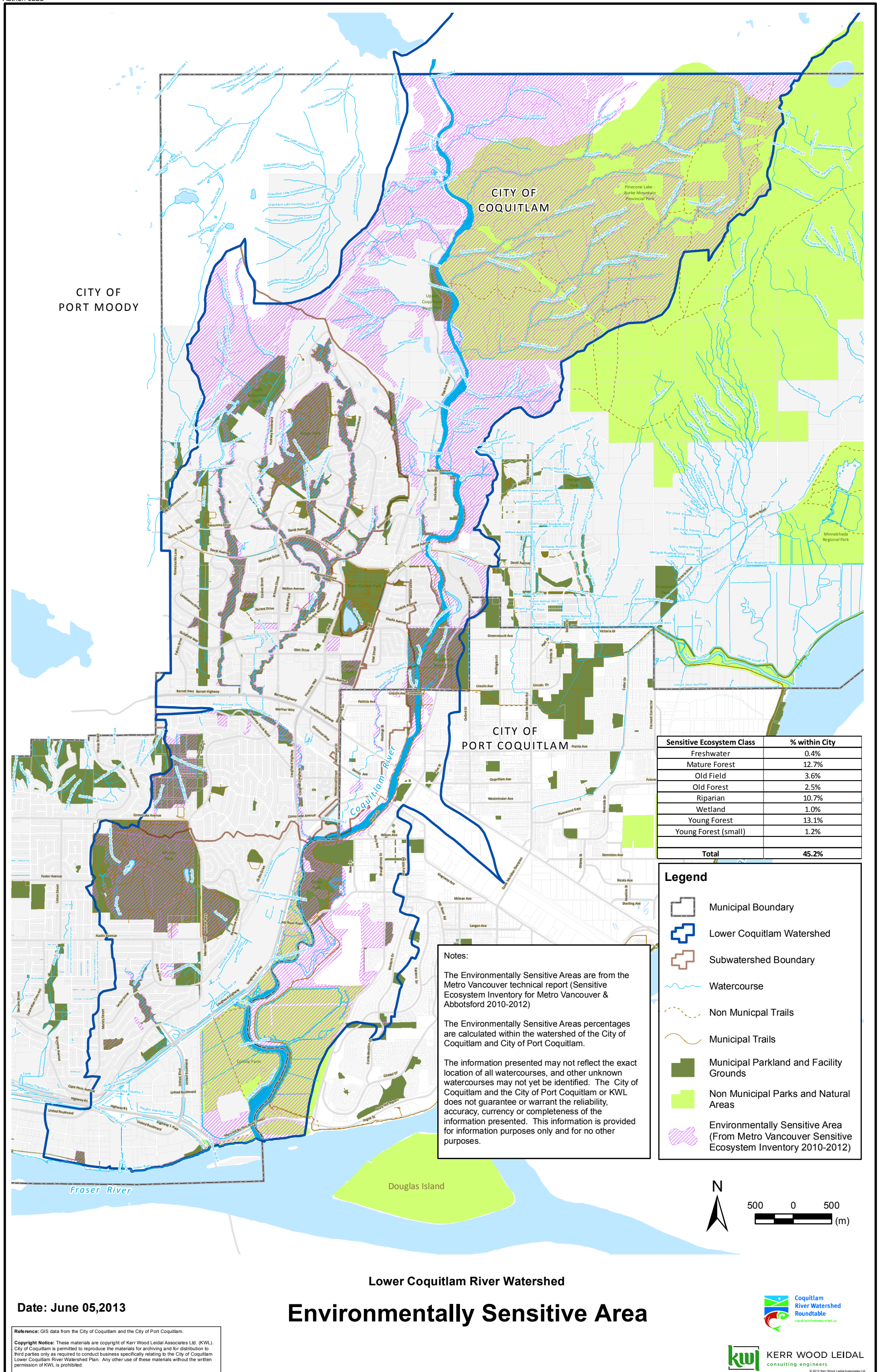
Many invasive patches (>15%)	Some invasive patches (5-15%)	Mostly native (<5% invasive)	All native with small, contained invasive patches (<1%)
Current			

Source: City of Coquitlam. 2008. Invasive Plant Management Strategy. Prepared by Raincoast Applied Ecology, Vancouver BC.

Context:
Connectivity

- Wildlife Corridors

Indicator Species Never/Rarely Detected	Occasional/Irregular Detection	Regularly Detected	At Carrying Capacity



Sensitive Ecosystem Class	% within City
Freshwater	0.4%
Mature Forest	12.7%
Old Field	3.6%
Old Forest	2.5%
Riparian	10.7%
Wetland	1.0%
Young Forest	13.1%
Young Forest (small)	1.2%
Total	45.2%

Legend

- Municipal Boundary
- Lower Coquitlam Watershed
- Subwatershed Boundary
- Watercourse
- Non Municipal Trails
- Municipal Trails
- Municipal Parkland and Facility Grounds
- Non Municipal Parks and Natural Areas
- Environmentally Sensitive Area (From Metro Vancouver Sensitive Ecosystem Inventory 2010-2012)

Notes:

The Environmentally Sensitive Areas are from the Metro Vancouver technical report (Sensitive Ecosystem Inventory for Metro Vancouver & Abbotsford 2010-2012)

The Environmentally Sensitive Areas percentages are calculated within the watershed of the City of Coquitlam and City of Port Coquitlam.

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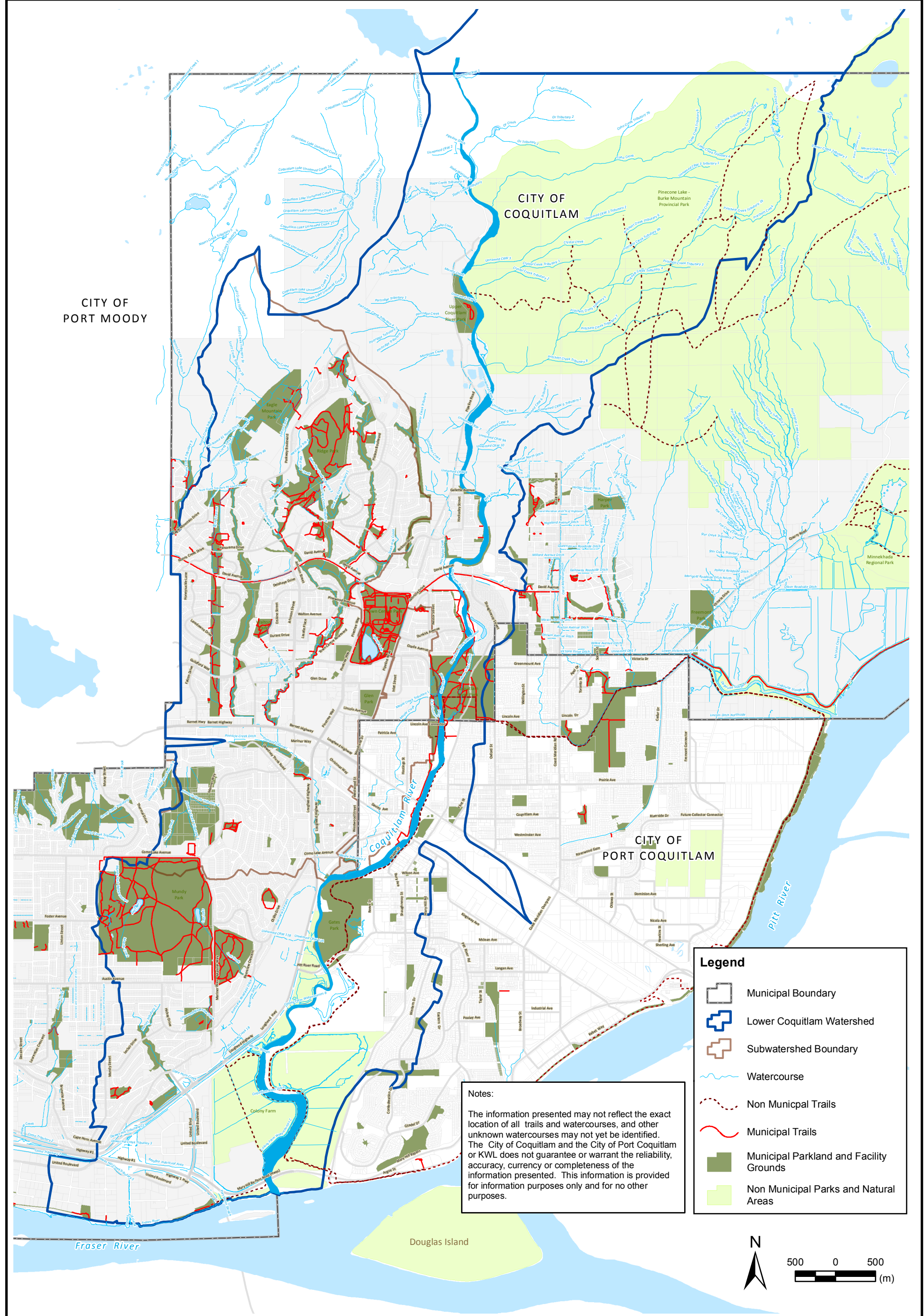


Lower Coquitlam River Watershed

Environmentally Sensitive Area

Date: June 05, 2013

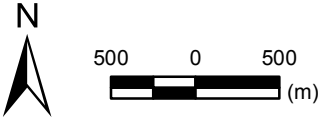
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Legend

- Municipal Boundary
- Lower Coquitlam Watershed
- Subwatershed Boundary
- Watercourse
- Non Municipal Trails
- Municipal Trails
- Municipal Parkland and Facility Grounds
- Non Municipal Parks and Natural Areas

Notes:
 The information presented may not reflect the exact location of all trails and watercourses, and other unknown watercourses may not yet be identified. The City of Coquitlam and the City of Port Coquitlam or KWL does not guarantee or warrant the reliability, accuracy, currency or completeness of the information presented. This information is provided for information purposes only and for no other purposes.



**Lower Coquitlam River Watershed
 Existing Trails Map**

Date: June 05, 2013

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CULTURAL AND SPIRITUAL

Goal: Support opportunities for people to connect in the watershed through personal spiritual experiences, heritage conservation and the arts



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT

		Poor	Fair	Good	Very Good
Spiritual	Catalogue or Description of Spiritual Experiences	No catalogue/ descriptions	Some catalogue/ descriptions Current?	Growing catalogue/ descriptions	Complete catalogue/ descriptions
	Sockeye Returns	Less than 50 detected per year; Irregular Current	Regular detections of 50+ per year	Regular detections of 500+ per year	At maximum levels allowed (5,000)
	Maintenance of Places that Provide Connections	No places; Places lost	Few places; places threatened or inaccessible Current ?	Sufficient; places protected/restored or access improved	New places created
Heritage	Storytelling and language	Stories/language lost or archived	Some stories shared Current?	Stories shared regularly, language preserved	Wide format/ variety of sharing
Public Art	Number of Artistic Displays/Events Inspired by the Watershed	Rare watershed inspired public art installations or events	Occasional watershed inspired public art installations or events Current ?	Regular watershed inspired public art installations or events	Regular watershed inspired public art installations or events connected to the Roundtable



RECREATION

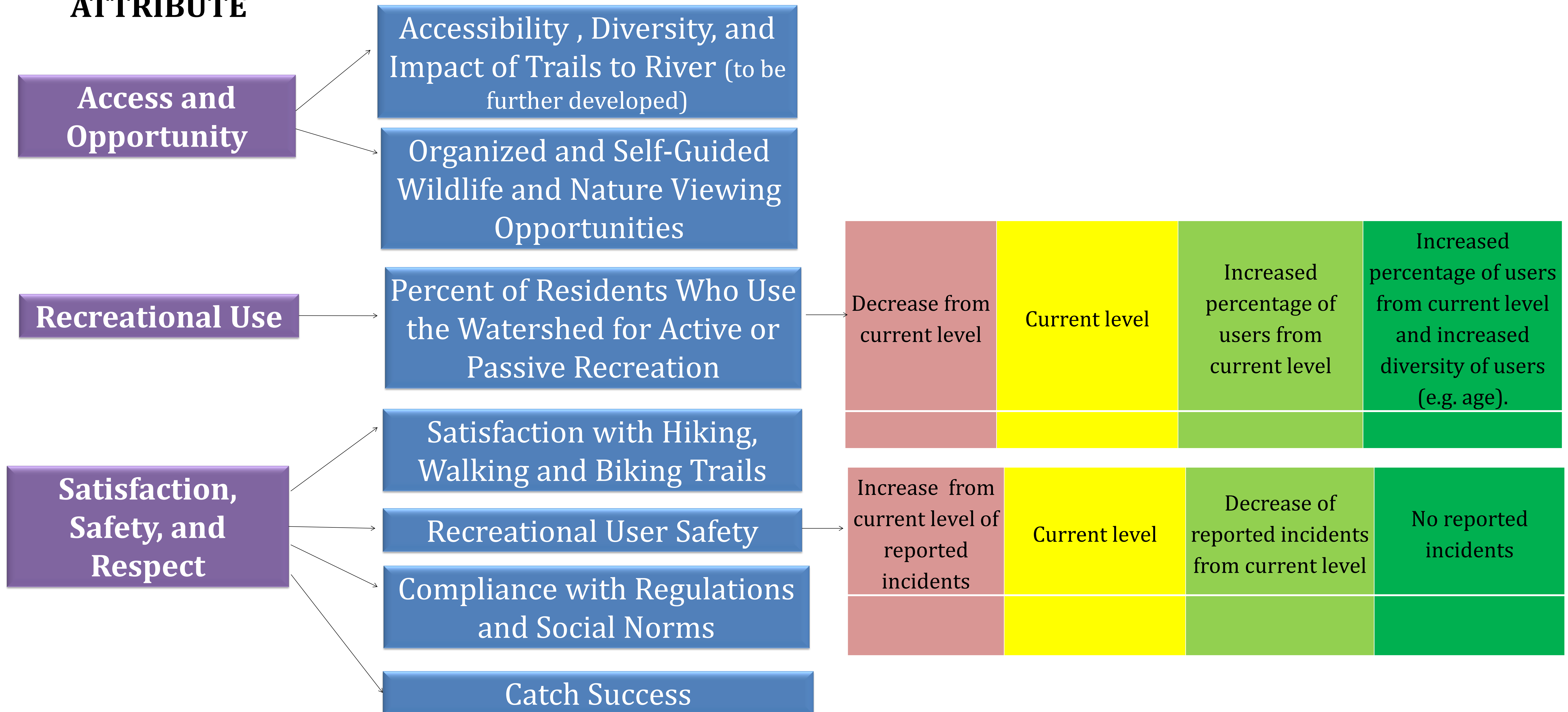
Goal: Promote passive and active recreation that respects other users and the watershed



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT





STEWARDSHIP

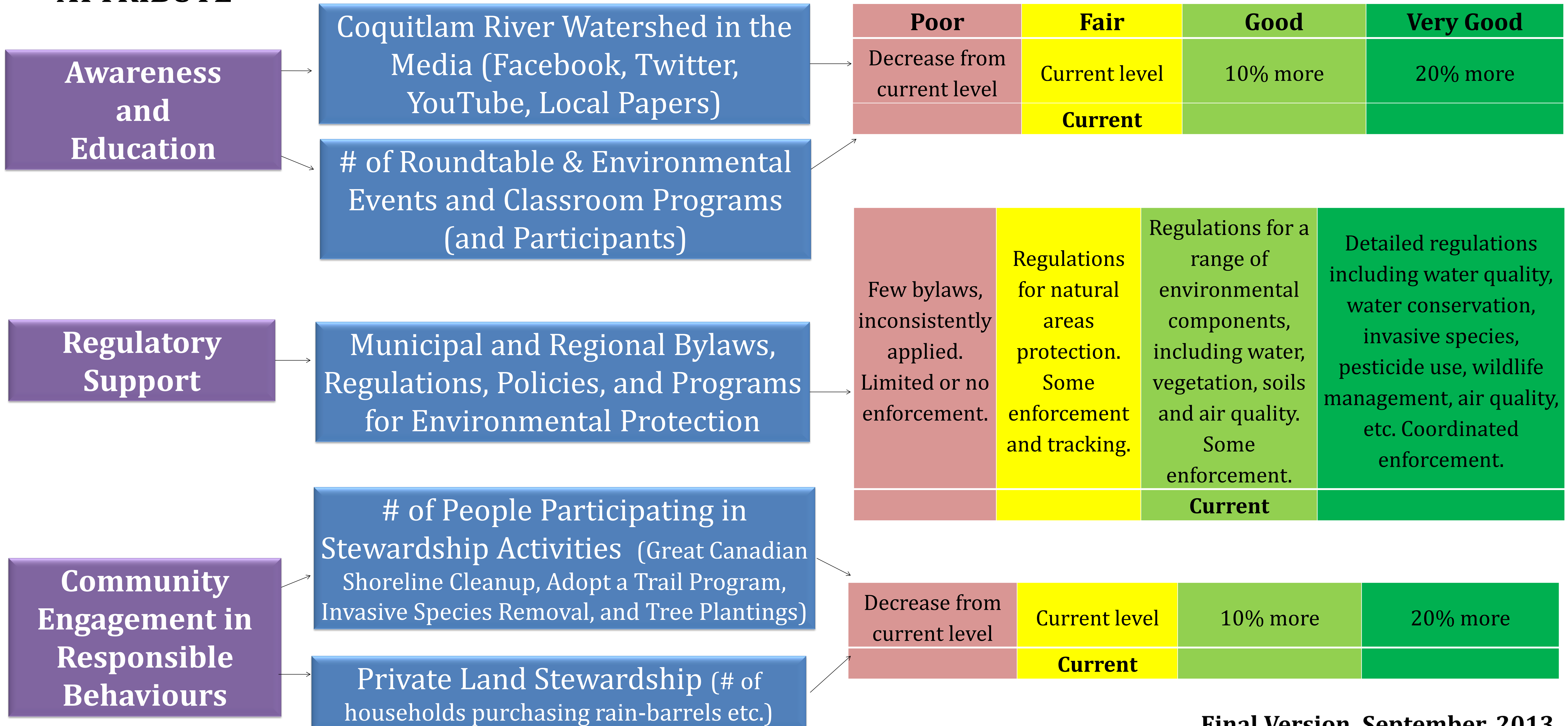
Goal: Foster a stewardship ethic in all who interact with the watershed



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT





LIVEABLE COMMUNITIES

Goal: Promote sustainable, liveable communities



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT

Sustainable Growth

Density Targets (upa)

Mixed Use Types

Waste Reduction

Green Infrastructure

Storm-water Practices

Total Pervious Surfaces

Availability of community/
garden spaces

Aesthetics

Urban Tree Cover (%)

Ratio of Proportion of
Developed Areas to
Natural Areas

**Transportation
and Safety**

Transportation and
Safety Measure (to be
developed)

Poor	Fair	Good	Very Good
Decrease in density	0 - 7.5 upa Low 7.5 - 20 upa Low-Med 20 - 40 upa Medium 40 - 60 upa Med-High	20 upa Low-Medium 80 upa Medium -High <i>(to be developed based on 2011 census data)</i>	0 - 7.5 upa Low 7.5 - 20 upa Low-Med 40 - 60 upa Medium 60 - 80 upa Med-High 80 - 100 upa High
	Current		

Source: Community Planning Dwelling Unit Projections, City of Coquitlam, Based on 2006 Census, Density Targets and Traffic Zone Data, June 4, 2013

40% residences within 400 m of shops/services; single type	60% residences within 400 m of shops/services; some mixed types	80% residences within 400 m of shops/services; balanced mixed types	90%+ residences within 400 m of shops/services; diversity of types
	Current		

Source: Strategic Transportation Plan, City of Coquitlam - discusses walkability to transit and services.

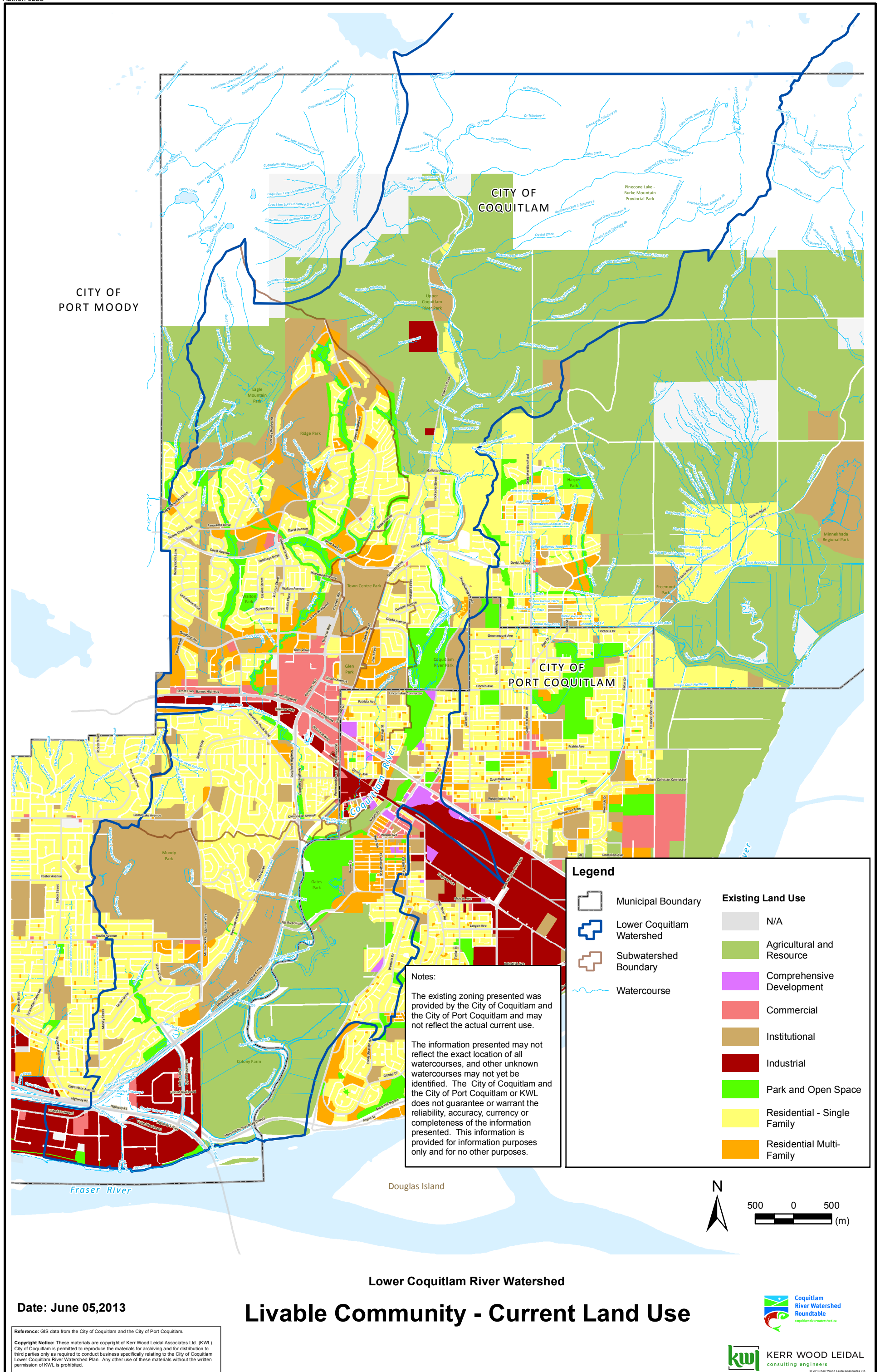
Waste >250 kg/person/yr; some recycling	Waste <250 kg/person/yr; 60% diversion	Waste <200 kg/person/yr; 70% diversion	Waste <150 kg/person/yr; 80% diversion
	Current		

Source: Metro Vancouver Waste Composition Study 2011 <http://www.metrovancouver.org/services/solidwaste/Resources/Pages/ReportsandStatistics.aspx>
Integrated Solid Waste and Resource Management Plan 2010 <http://www.metrovancouver.org/services/solidwaste/Resources/Pages/ReportsandStatistics.aspx>

<50% pervious	60-74% pervious	75-89% pervious	90%+ pervious

Source: Institute for Resources and Environment, University of British Columbia. Cited in the Lower Coquitlam River Watershed Atlas (2003).

Limited to backyards in single family homes	Common areas available to multi-family residents	Some community gardens	No waitlist on Community gardens
		Current	



CITY OF
PORT MOODY

CITY OF
COQUITLAM

CITY OF
PORT COQUITLAM

Legend

	Municipal Boundary	Existing Land Use
	Lower Coquitlam Watershed	N/A
	Subwatershed Boundary	Agricultural and Resource
	Watercourse	Comprehensive Development
		Commercial
		Institutional
		Industrial
		Park and Open Space
		Residential - Single Family
		Residential Multi-Family

Notes:

The existing zoning presented was provided by the City of Coquitlam and the City of Port Coquitlam and may not reflect the actual current use.

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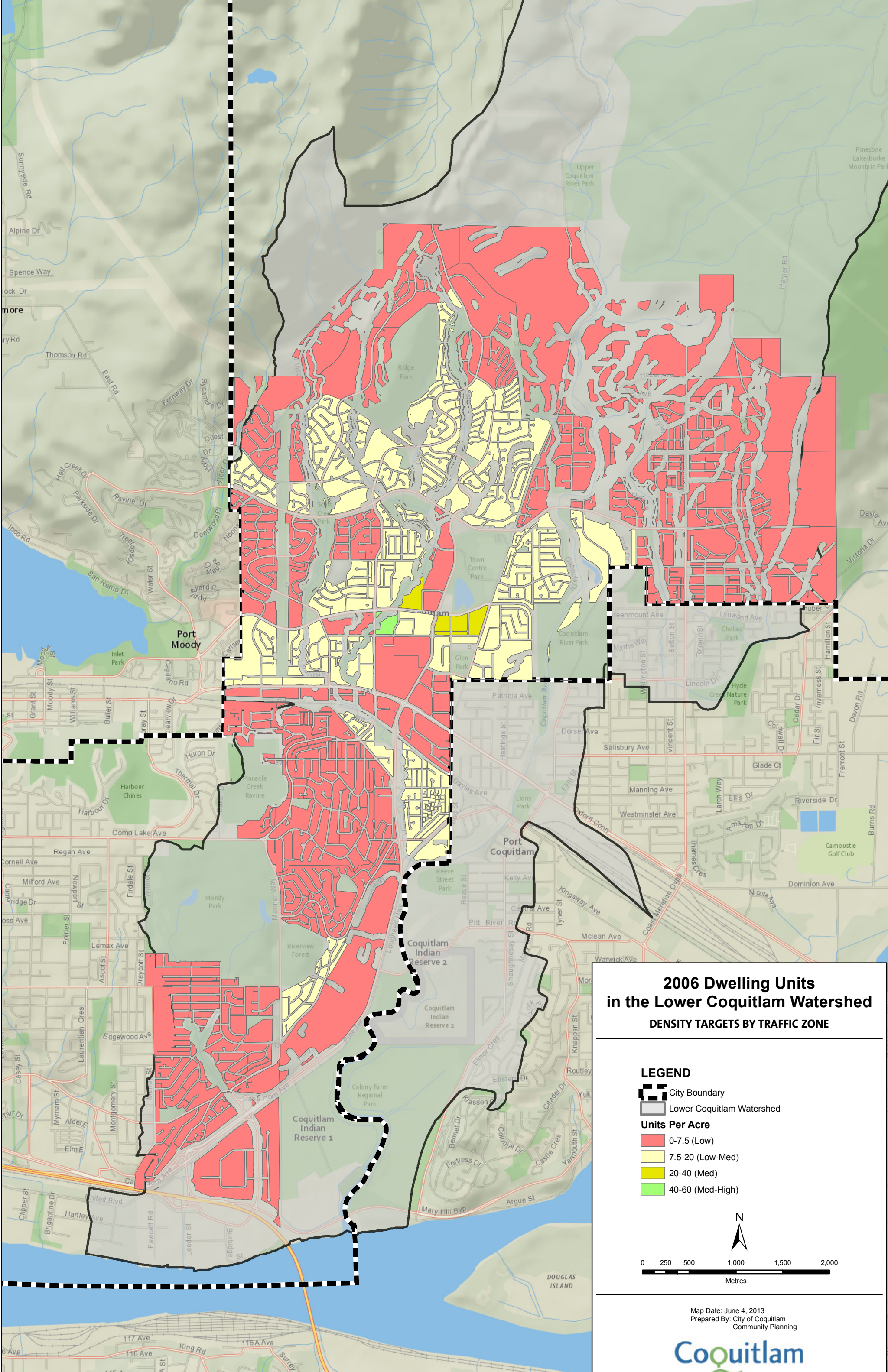


Lower Coquitlam River Watershed

Livable Community - Current Land Use

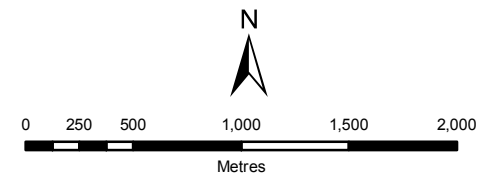
Date: June 05, 2013

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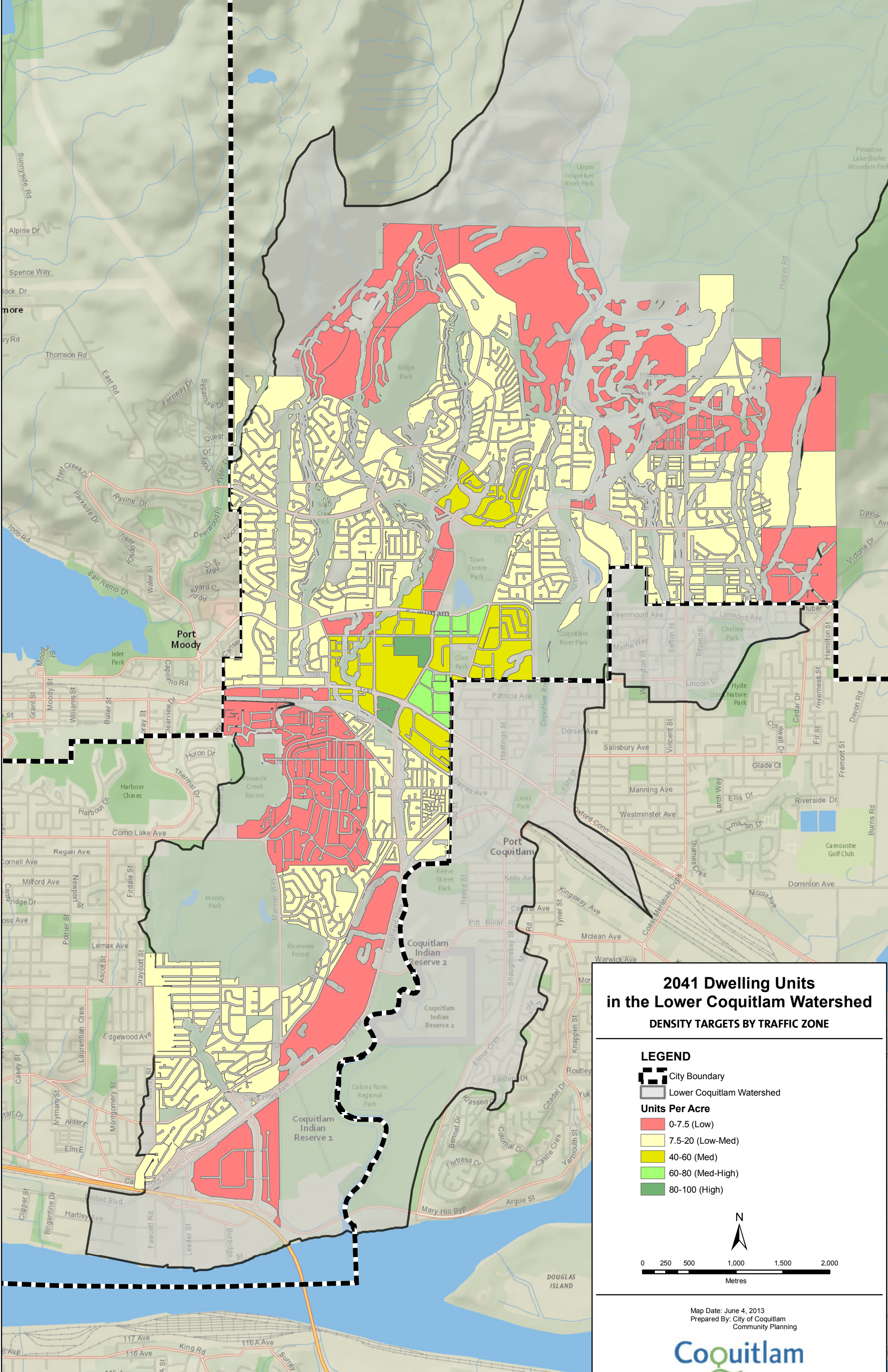
**2006 Dwelling Units
in the Lower Coquitlam Watershed
DENSITY TARGETS BY TRAFFIC ZONE**

- LEGEND**
- City Boundary
 - Lower Coquitlam Watershed
 - Units Per Acre**
 - 0-7.5 (Low)
 - 7.5-20 (Low-Med)
 - 20-40 (Med)
 - 40-60 (Med-High)



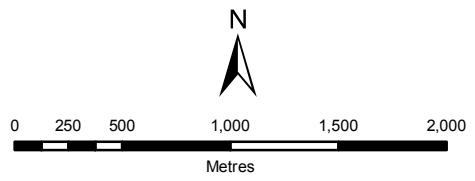
Map Date: June 4, 2013
Prepared By: City of Coquitlam
Community Planning





**2041 Dwelling Units
in the Lower Coquitlam Watershed**
DENSITY TARGETS BY TRAFFIC ZONE

- LEGEND**
- City Boundary
 - Lower Coquitlam Watershed
 - Units Per Acre**
 - 0-7.5 (Low)
 - 7.5-20 (Low-Med)
 - 40-60 (Med)
 - 60-80 (Med-High)
 - 80-100 (High)



Map Date: June 4, 2013
Prepared By: City of Coquitlam
Community Planning





HUMAN HEALTH, WELL-BEING AND SAFETY

Goal: Promote a watershed environment that contributes to human health, well-being and safety



KEY ECOLOGICAL ATTRIBUTE

INDICATORS

HEALTH RATING/VIABILITY ASSESSMENT

Clean Air

Air Quality Objectives for NO₂, CO, O₃, and Fine Particulates

Poor	Fair	Good	Very Good
MV air quality objectives rarely met	MV air quality objectives met sometimes	MV air quality objectives met most of the time	MV air quality objectives always met
			Current

Source: Metro Vancouver (2013). 2011 Lower Fraser Valley Air Quality Monitoring Report. Coquitlam Station located at Douglas College.

Clean Water

E.Coli and Coliforms in Mainstem and Tributaries

Source Drinking Water Quality (Turbidity, E-Coli and Coliforms)

Poor	Fair	Good	Very Good
Measurements throughout the watershed are consistently BELOW (>50% of the time) the attainment (green) level	Measurements in specific problematic locations are consistently BELOW (>50% of the time) the attainment (green) level	Measurements are sporadically BELOW (less than 50% of the time) the attainment level, with no developing trend	Measurements are consistently BETTER (95%+ of the time) than the attainment level
	Maple Creek		Mainstem

Source: Kerr Wood Leidal (2012). Draft report appendices: Maple Creek Integrated Watershed Management Plan Phase 4. Ministry of Environment. Lower Mainland Region EPD (retrieved from http://www.env.gov.bc.ca/epd/regions/lower_mainland/water_quality/wq_data/low_fras_riv_trib/index.htm, May 2013) Minister of Water, Land, and Air Protection Lower Mainland Region (2003). Water Quality Objectives Attainment Monitoring for the Coquitlam River in 2002. City of Coquitlam (2013). Coquitlam River Water Quality Monitoring Update

Safety From Natural Hazards and Floods

Safety from Floods and Other Natural Hazards

Poor	Fair	Good	Very Good
Drinking water objectives rarely met	Drinking water objectives met sometimes	Drinking water objectives met most of the time	Drinking water objectives always met
			Current (2011)

Source: Metro Vancouver (2011). Water. The Greater Vancouver Water District Quality Control Annual Report 2011. Volume 1.

Physical Use of The Watershed

Duration and Frequency of Walking in the Watershed



HUMAN HEALTH, WELL-BEING AND SAFETY

Goal: Promote a watershed environment that contributes to human health, well-being and safety



INDICATOR

Clean Air

Air Quality Objectives for NO₂, CO, O₃, and Fine Particulates

Source: Metro Vancouver (2013). 2011 Lower Fraser Valley Air Quality Monitoring Report. Coquitlam Station located at Douglas College.

Clean Water

E.Coli and Coliforms in Mainstem and Tributaries

Attainment levels defined by the Stage 1 Stormwater Monitoring Approach developed by the Stormwater Interagency Liason Group.

Final Version, September, 2013

TRENDS / CURRENT STATUS

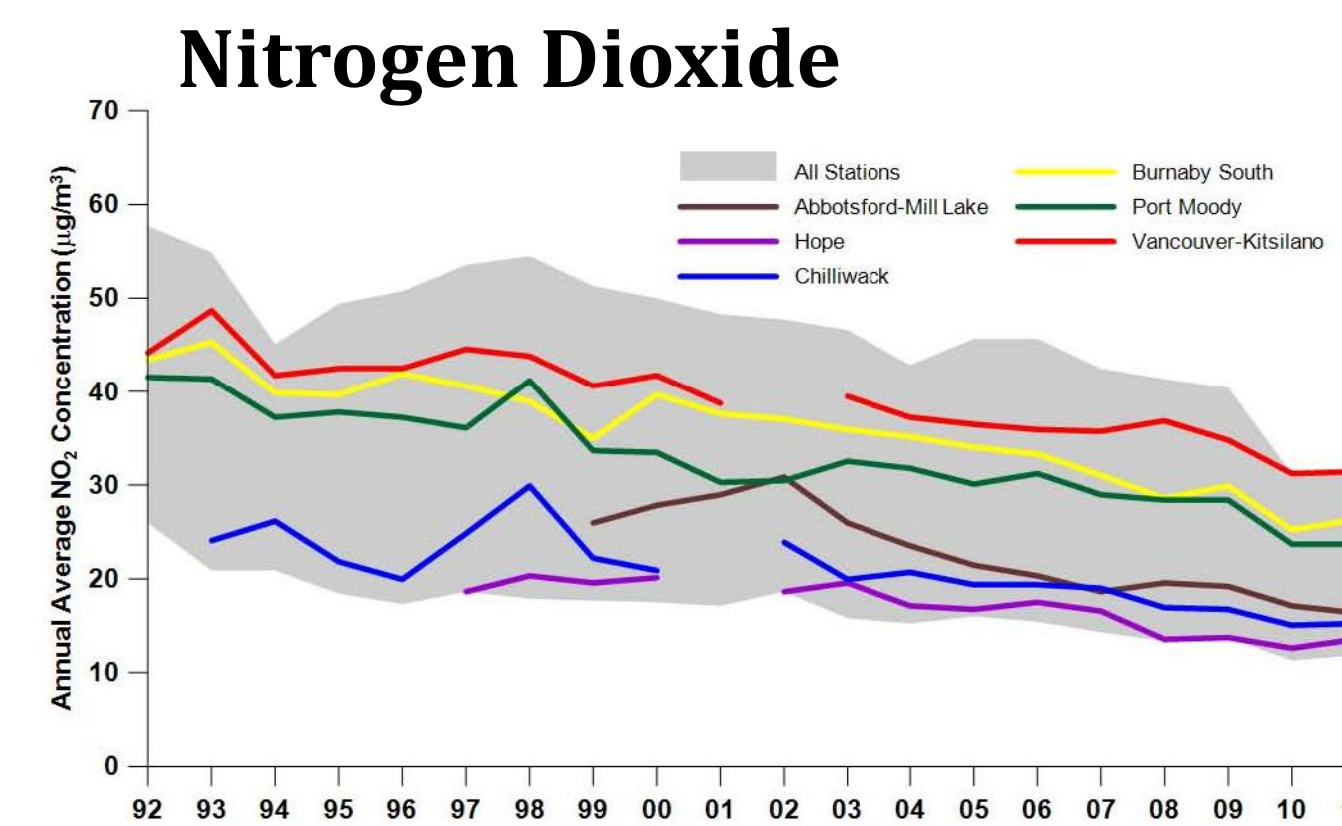


Figure 22: Annual nitrogen dioxide trend, 1992 to 2011.

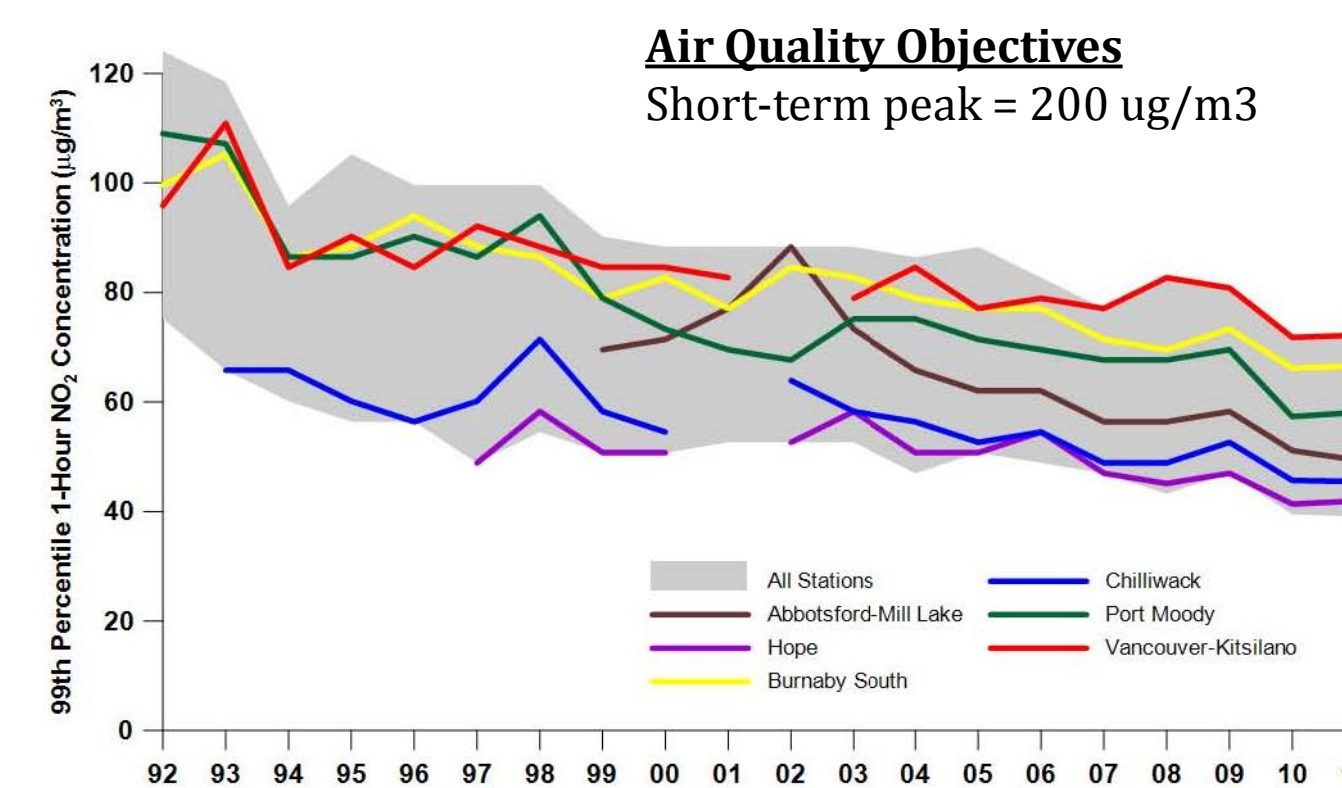


Figure 23: Short-term peak nitrogen dioxide trend, 1992 to 2011.

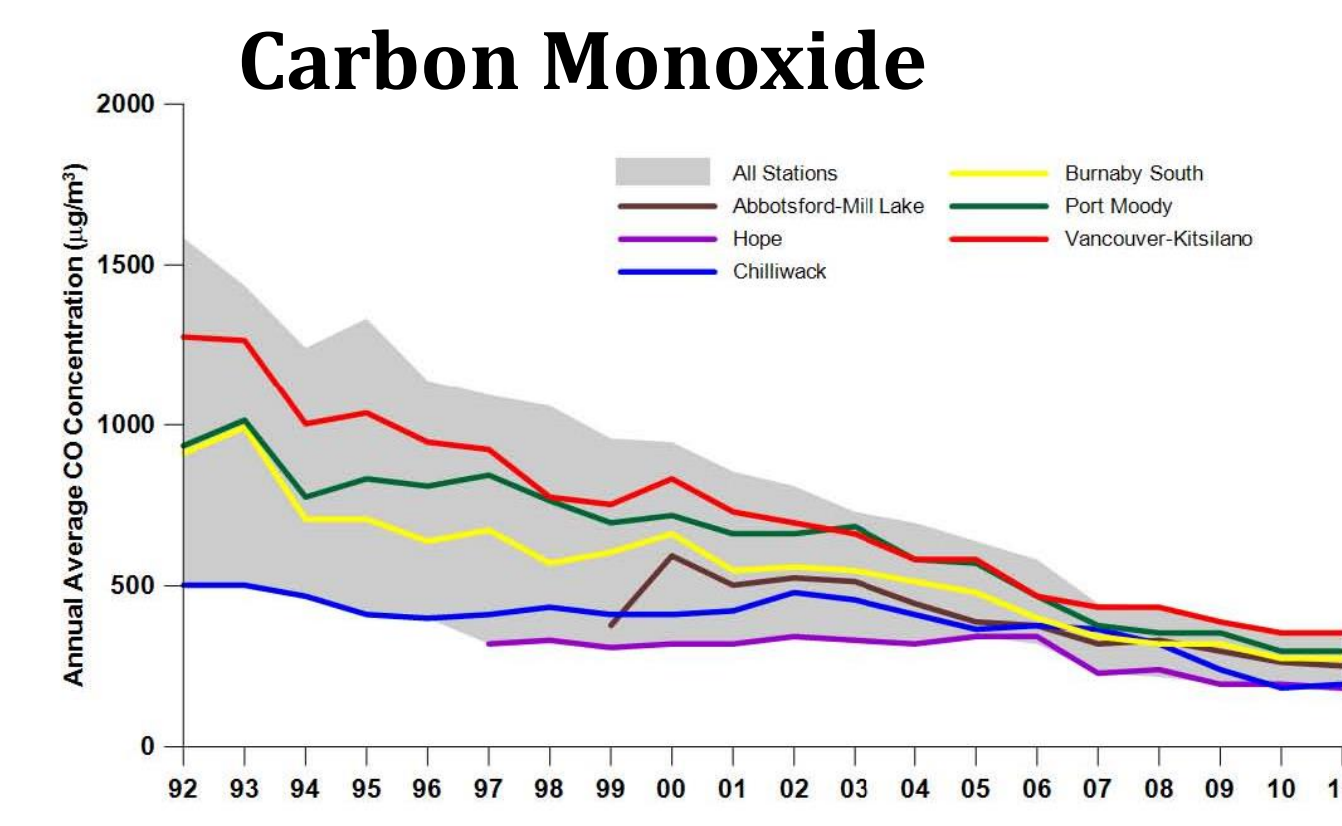


Figure 31: Annual carbon monoxide trend, 1992 to 2011.

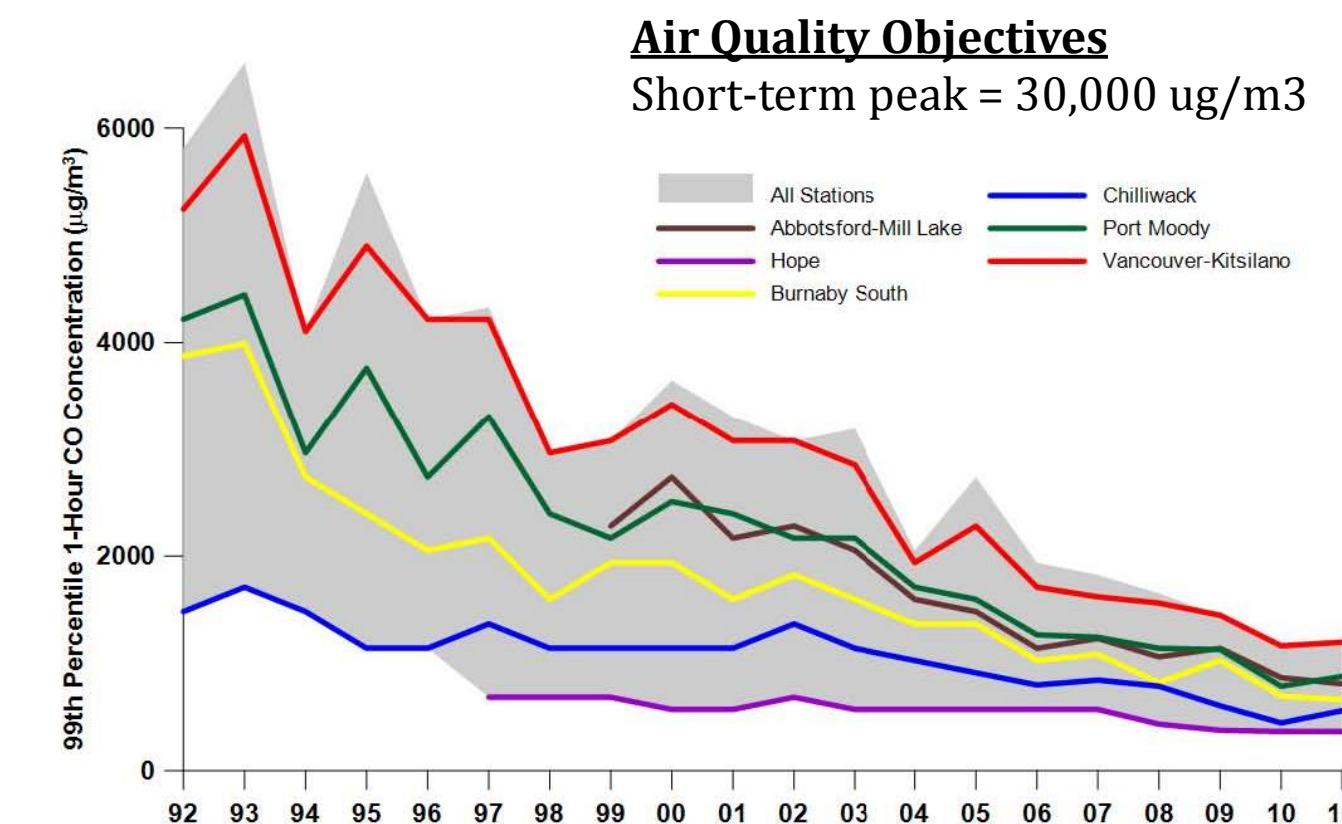
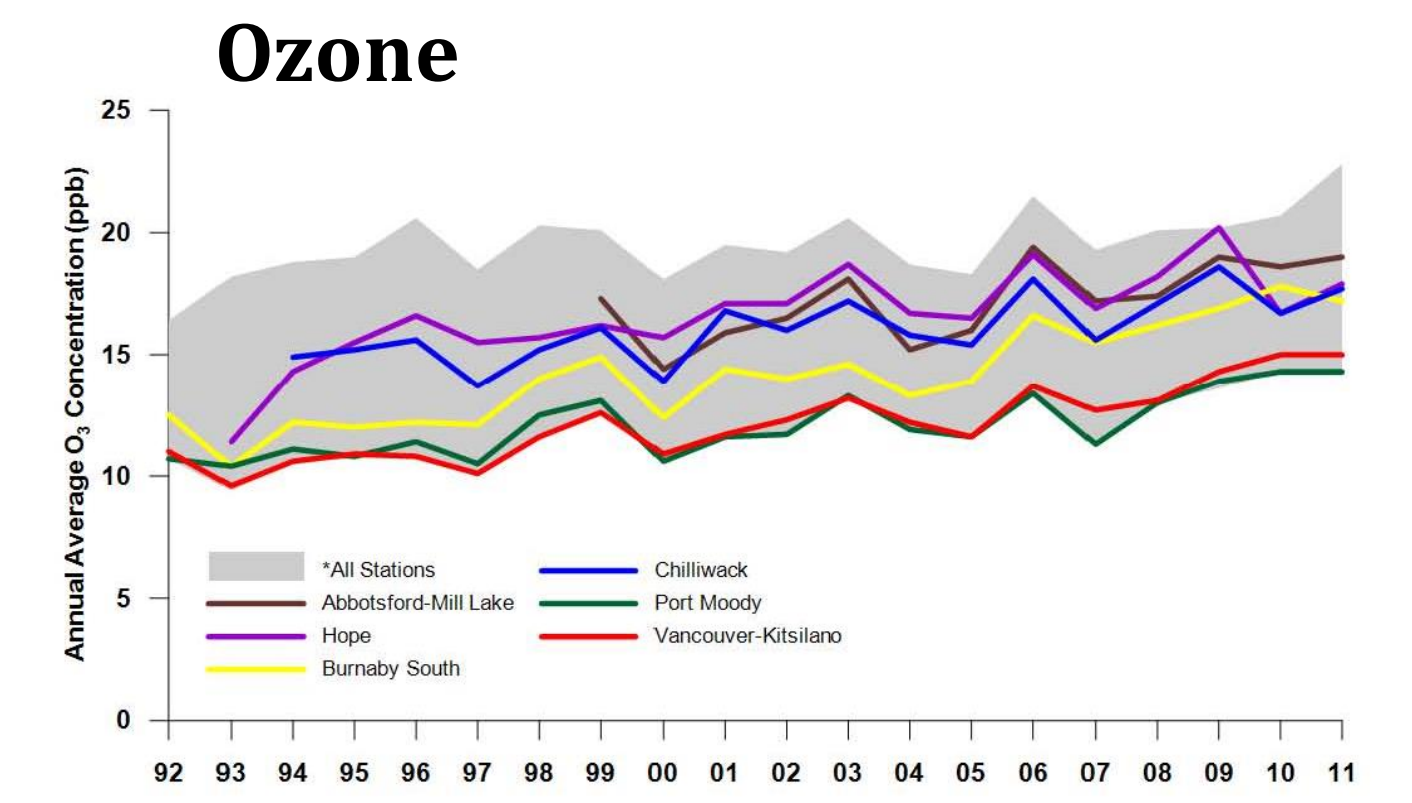
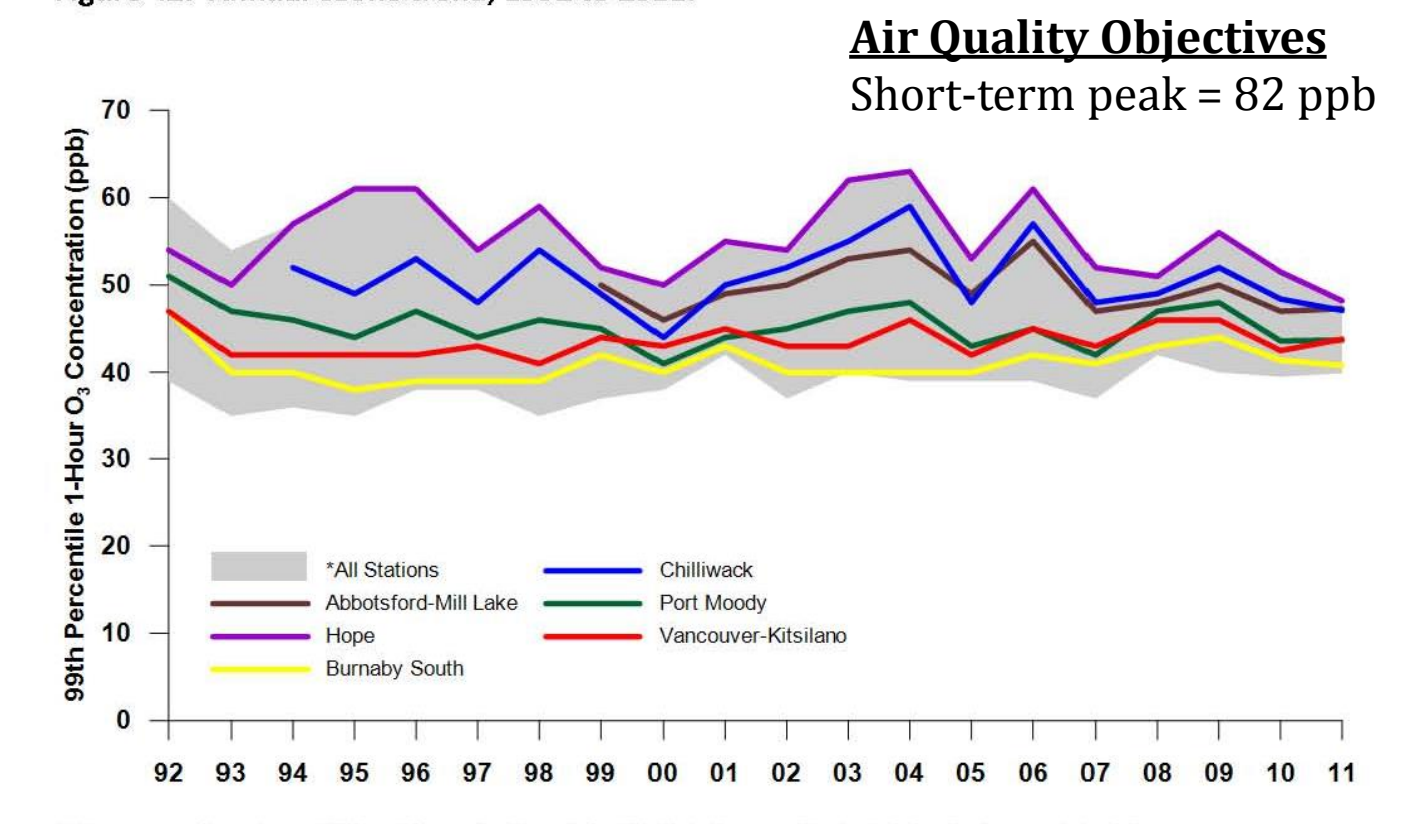


Figure 32: Short-term peak carbon monoxide trend, 1992 to 2011.



* Vancouver-Downtown (T1) and Burnaby Mountain (T14) stations not included due to incomplete data.

Figure 42: Annual ozone trend, 1992 to 2011.



* Vancouver-Downtown (T1) and Burnaby Mountain (T14) stations not included due to incomplete data.

Figure 43: Short-term peak ozone trend, 1992 to 2011.

Year	Reference	Location	E.Coli	Fecal Coliforms
Attainment Level			>77 CFU/ 100 ml	>200 CFU/ 100 ml
2012	City of Coquitlam	Mainstem, Gate to Mouth	Very Good (13.06, n=70)	Very Good (31.86, n=70)
2012	Kerr Wood Leidal	Maple Creek	NA	Fair (>1600, n=7)
2003	Minister of Water, Land, and Air Protection	Mainstem, Gate to Mouth	Very Good (20.56, n=24)	Very Good (20.97, n=24)
1993	Ministry of Environment	Mainstem, Gate to Mouth	Fair (433.52, n=25)	Fair (429.8, n=25)
1992	Ministry of Environment	Mainstem, Gate to Mouth	Fair (131.82, n=25)	Fair (152.52, n=25)
1991	Ministry of Environment	Mainstem, Gate to Mouth	Fair (186.5, n=25)	Good (182.47, n=25)
1990	Ministry of Environment	Mainstem, Gate to Mouth	Fair (128.64, n=25)	Very Good (170.24, n=35)

Rating (average, number of samples)

Consistently problematic areas include Scott Creek, Maple Creek and mouth of the River (Colony Farm)

Attainment levels defined by the Stage 1 Stormwater Monitoring Approach developed by the Stormwater Interagency Liason Group.

Sources: Kerr Wood Leidal (2012). Draft report appendices: Maple Creek Integrated Watershed Management Plan Phase 4.

Ministry of Environment. Lower Mainland Region EPD (retrieved from http://www.env.gov.bc.ca/epd/regions/lower_mainland/water_quality/wq_data/low_fras_riv_trib/index.htm, May 2013)

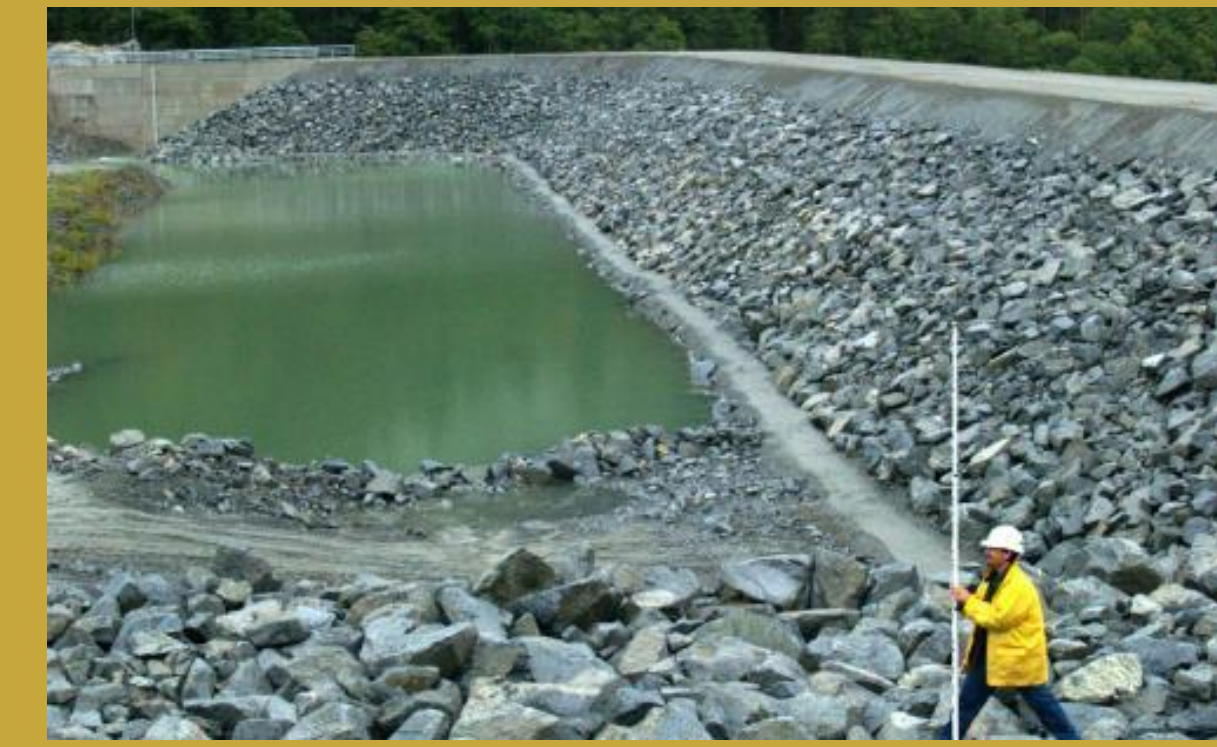
Minister of Water, Land, and Air Protection Lower Mainland Region (2003). Water Quality Objectives Attainment Monitoring for the Coquitlam River in 2002.

City of Coquitlam (2013). Coquitlam River Water Quality Monitoring Update.



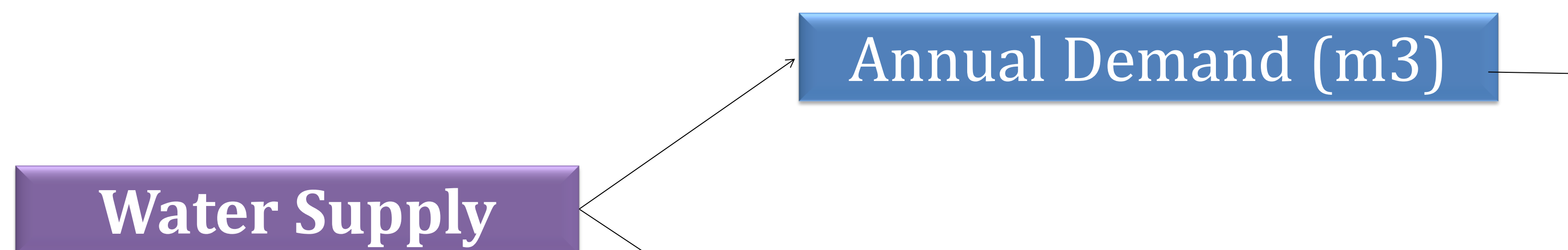
RESOURCE INDUSTRIES

Goal: Promote sustainable use of renewable resources and monitored, prudent use of non-renewable resources



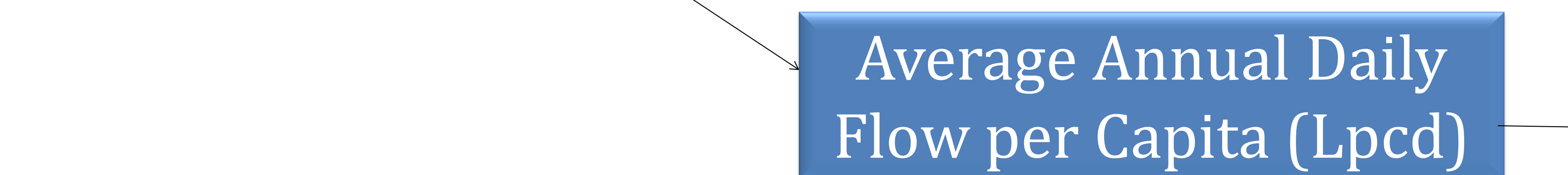
KEY ECOLOGICAL ATTRIBUTE

INDICATORS



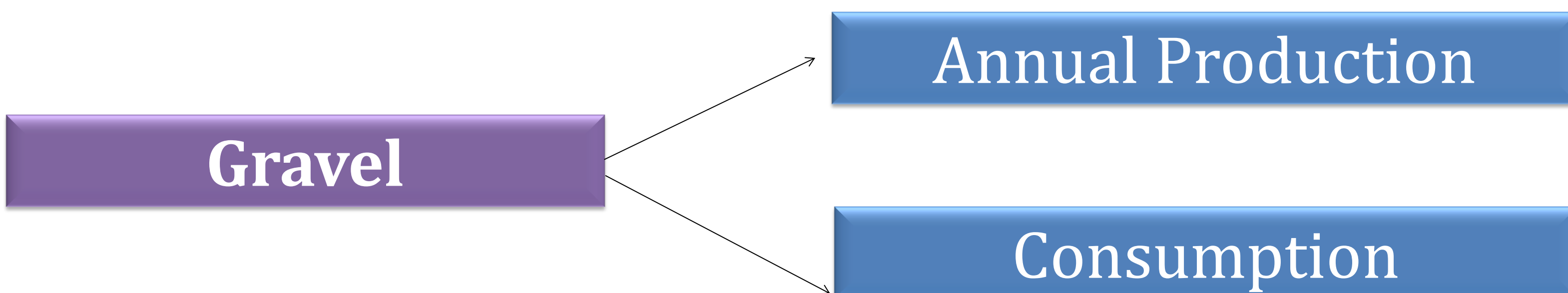
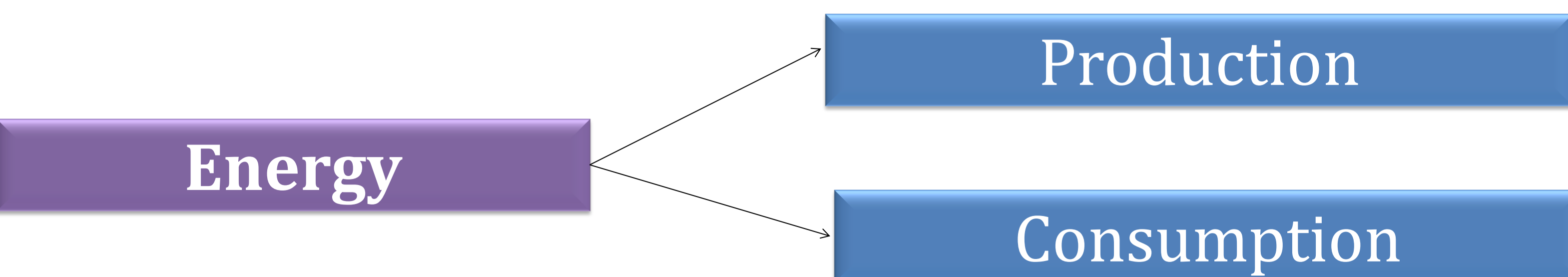
Poor	Fair	Good	Very Good
Increased demand	Maintained at current level	Slight decrease in demand	Substantial decrease in demand
	Current		

Source: Metro Vancouver (2011). Water consumption statistics report. Operations and Maintenance Department. 2011 Edition.



Poor	Fair	Good	Very Good
Increased demand	Maintained at current level	Slight decrease in demand	Substantial decrease in demand
		Current	

Source: Metro Vancouver (2011). Water consumption statistics report. Operations and Maintenance Department. 2011 Edition.





RESOURCE INDUSTRIES

Goal: Promote sustainable use of renewable resources and monitored, prudent use of non-renewable resources



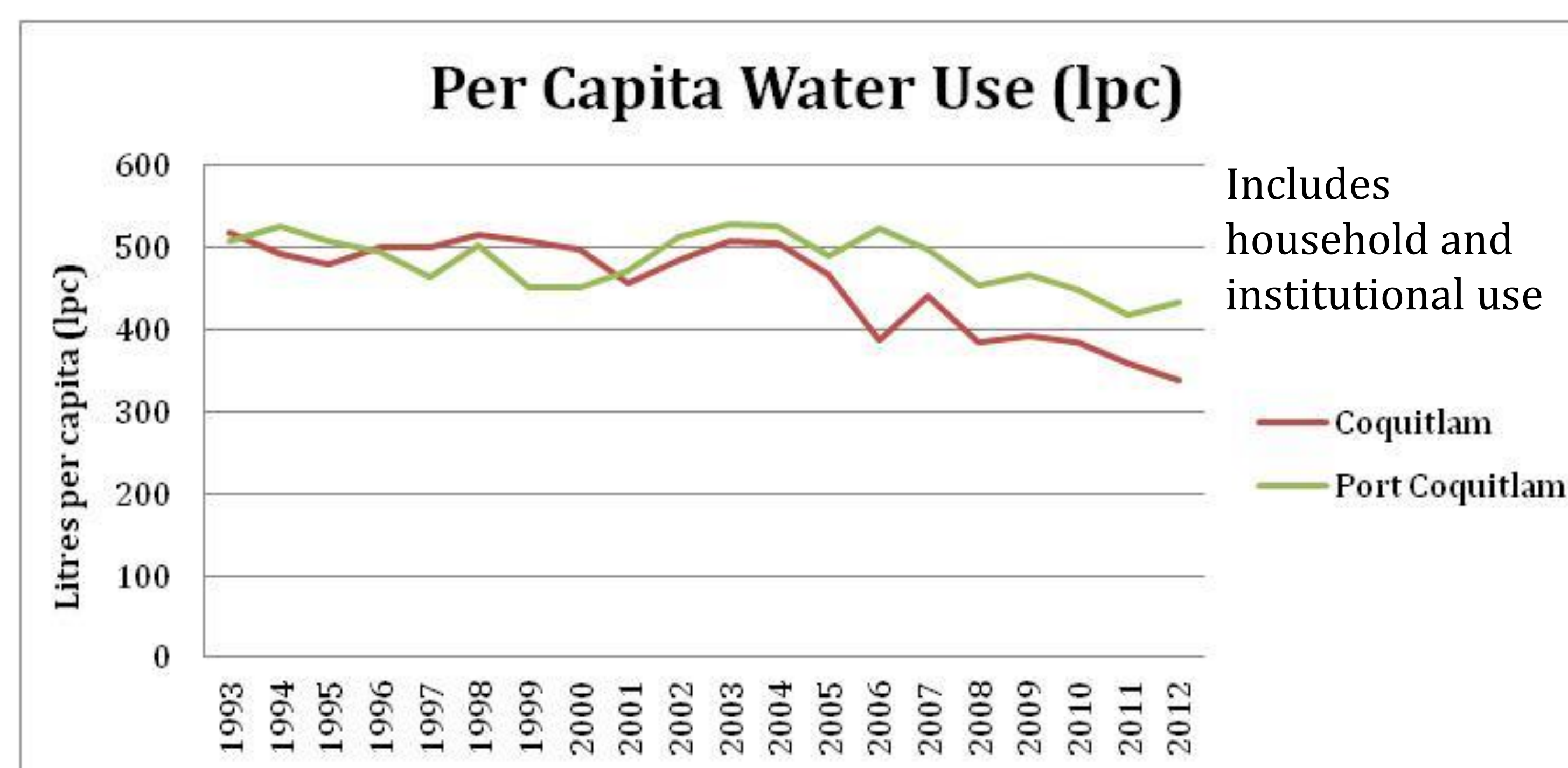
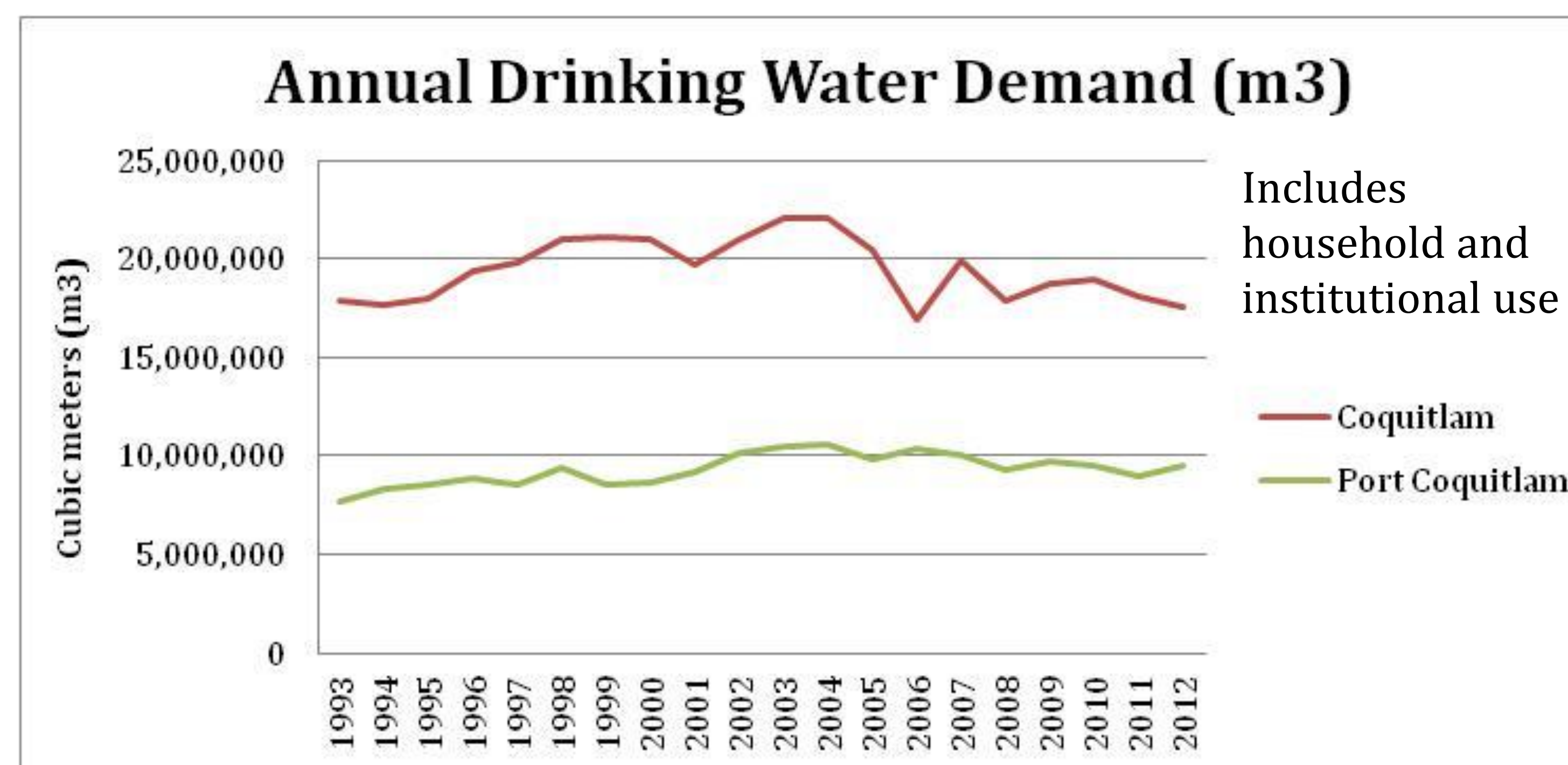
INDICATOR

Water Supply

Annual Demand (m3)

Average Annual Daily Flow per Capita (Lpcd)

TRENDS / CURRENT STATUS



Source: Metro Vancouver (2011). Water consumption statistics report. Operations and Maintenance Department. 2011 Edition.



RESOURCE INDUSTRIES

Goal: Promote sustainable use of renewable resources and monitored, prudent use of non-renewable resources



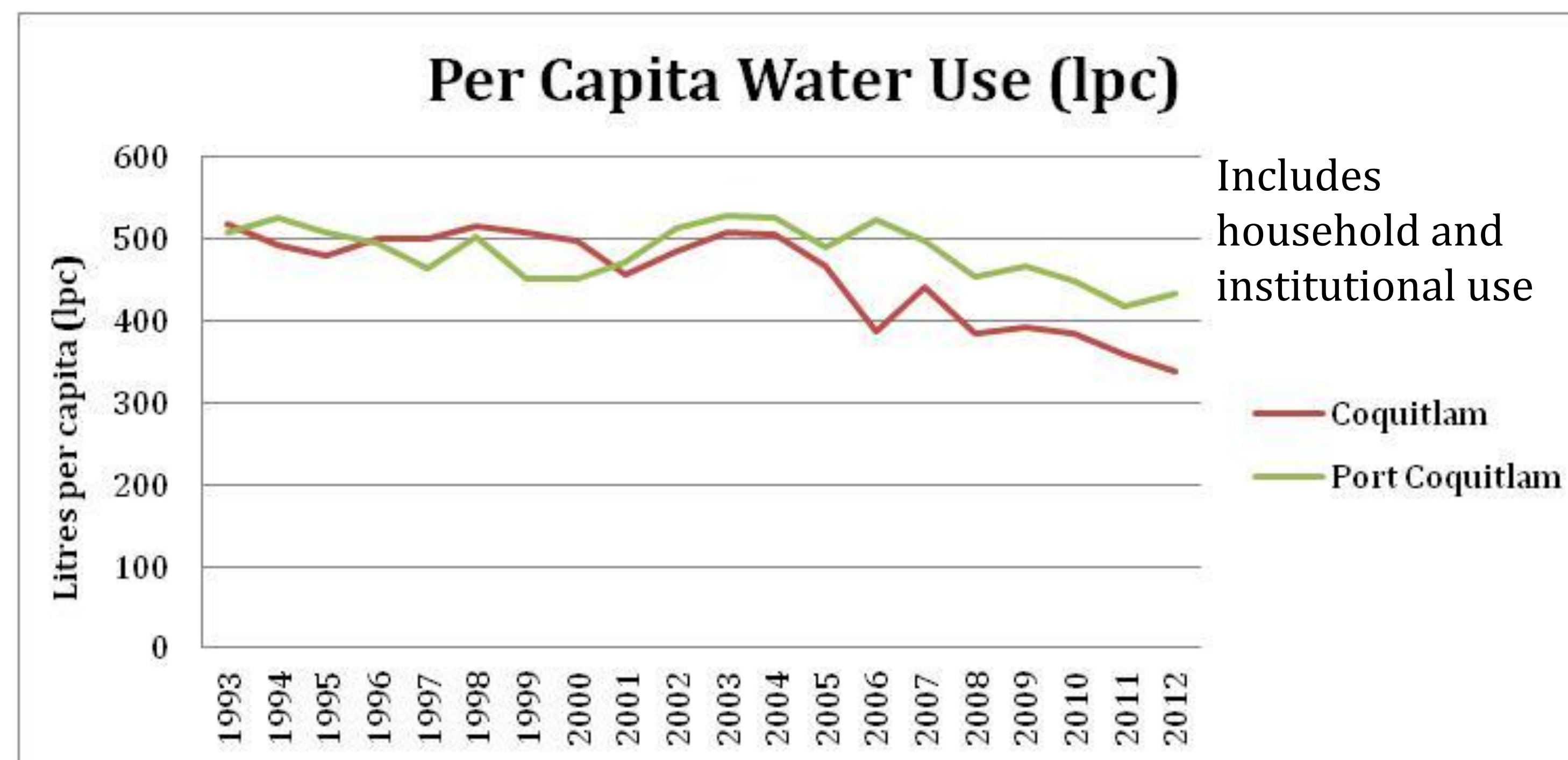
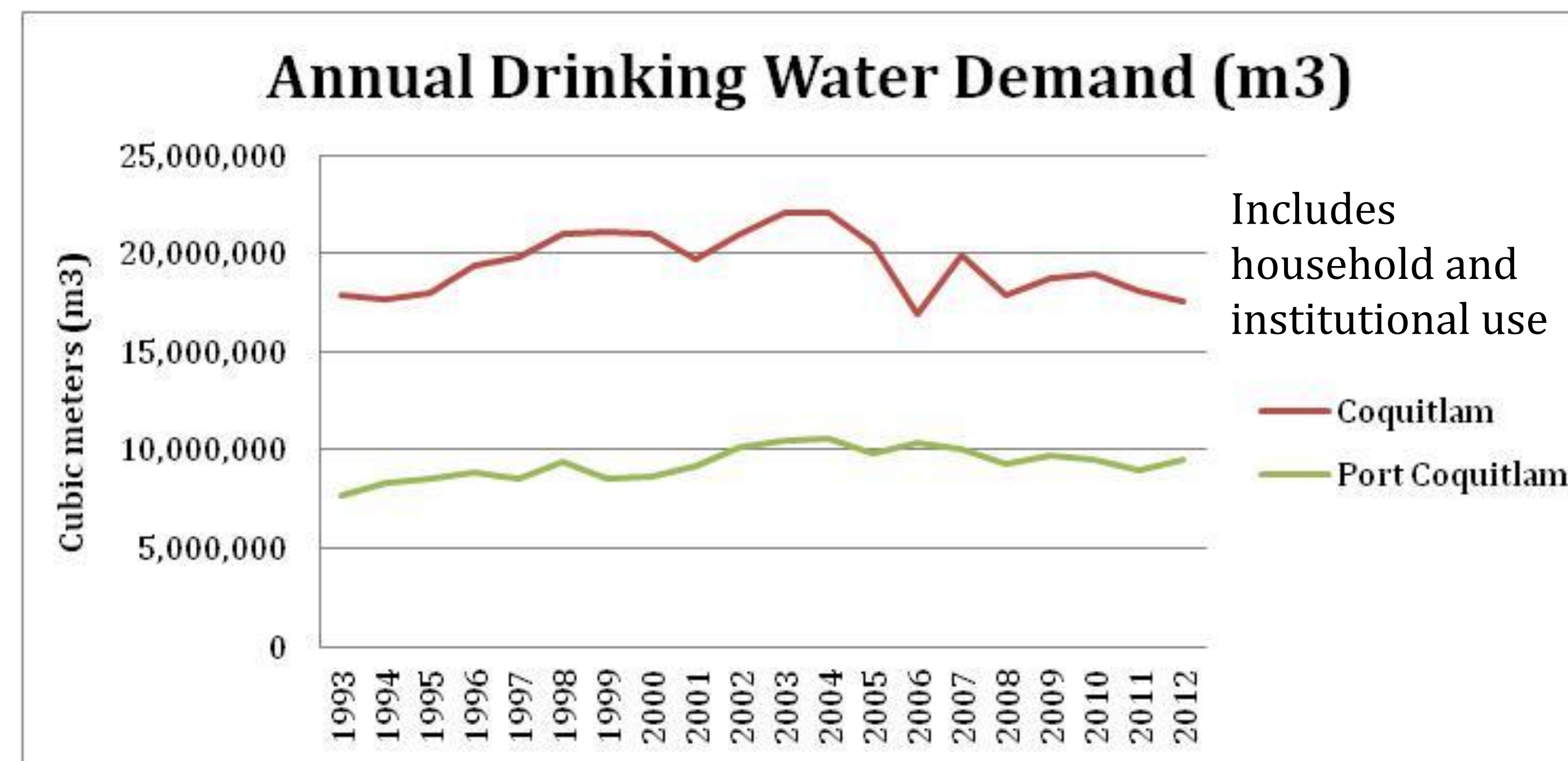
INDICATOR

TRENDS / CURRENT STATUS

Water Supply

Annual Demand (m3) A

Average Annual Daily Flow per Capita (Lpcd)



BC Hydro Flow Data 2003 - 2012

Year	Fish Flow (Mm3)	TBF (Mm3)	QIN CQD (Mm3)	QIN BNZ (Mm3)	QINF CQD+BNZ (Mm3/yr)	GVWD REL (Mm3/yr)	Buntzen Generation (MW.h)
2003	96.2	404.6	637.6	41.6	679	180	117,247
2004	113.1	363.2	621.9	40.3	662	141	100,978
2005	109.7	450.1	653.1	39.4	692	133	129,044
2006	142.6	477.5	663.8	42.1	706	126	136,285
2007	176.5	530.4	850.5	50.0	900	169	150,753
2008	198.1	360.1	587.8	22.1	610	119	102,299
2009	165.3	333.9	650.3	20.9	671	153	94,931
2010	153.7	199.2	734.4	69.2	804	145	55,770
2011*	148.3	223.3	724.3	66.5	791	121	66,306
2012*	151.5	473.7	746.1	56.1	802	110	141,532

* Buntzen Generating Station was out of service during ~1/2 of 2010 and 2011 for a runner upgrade, which influenced the amount of power generation in these years.

Additional Information: All water that leaves the Coquitlam Lake Reservoir will either go to the Buntzen Generating Station (turbine flow), down the Coquitlam River (fish flow), or to the GVWD (GVWR releases).

Mm3 = Million cubic meters
 TBF = Turbine Flow
 QIN CQD = Coquitlam Inflows
 QIN BNZ = Buntzen Inflows
 QIN CQD + BNZ = Inflow for both Coquitlam and Buntzen
 GVWD REL = Greater Vancouver Water District Releases
 MW.h = Megawatt hours = generation
 All of the info in Mm3 is the volume of water

Source: Water Resources, Generation Resource Management, BC Hydro (pers.com Maureen DeHaan) Prepared June 2013. **NOTE:** Historical Flow Data to the 1980's does not separate fish flows from GVWD withdrawals for domestic use.