



Lake Geraldine Situational Assessment

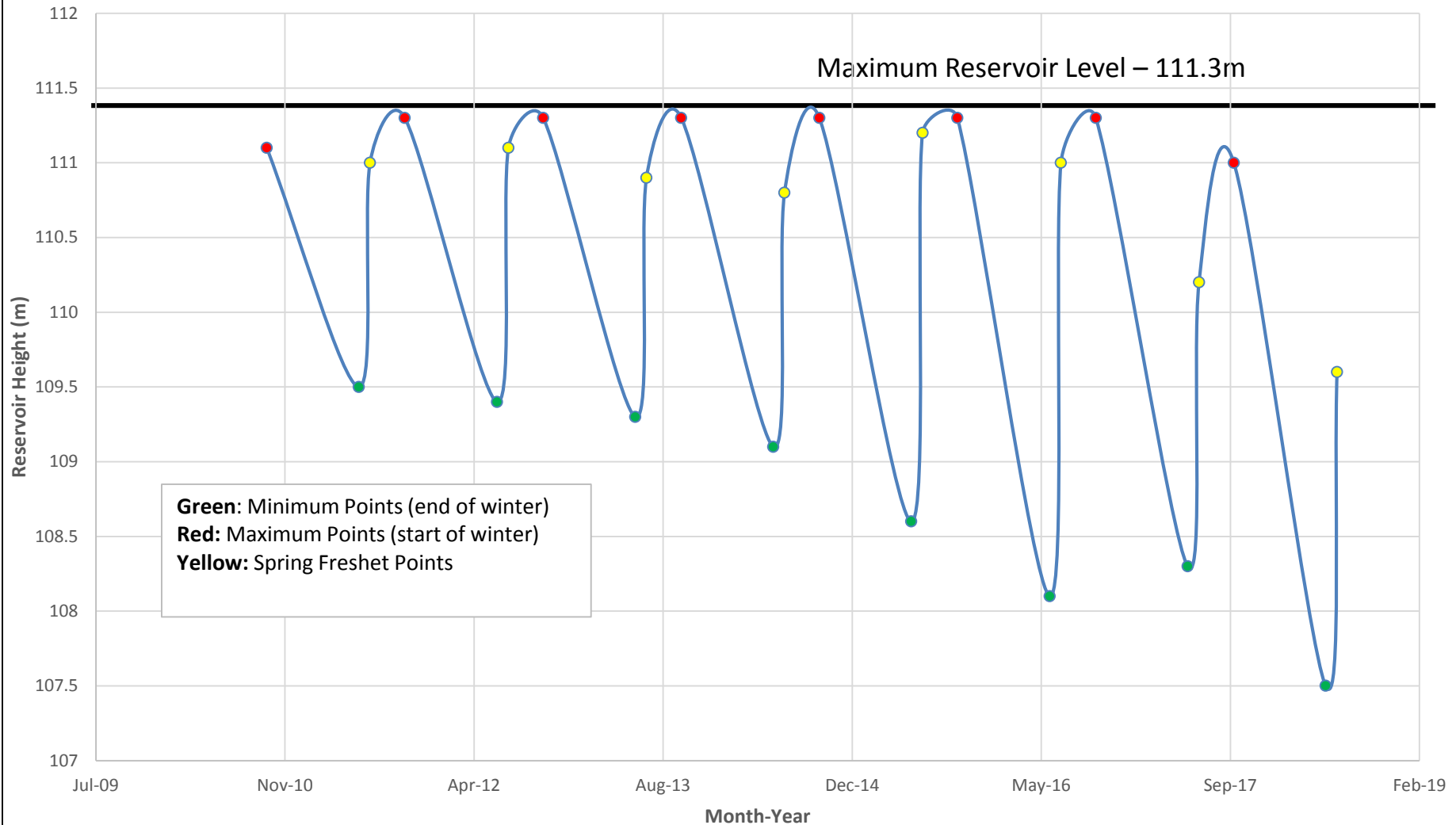
- City of Iqaluit
- July 17, 2018.
- 820726-0151(1.0)





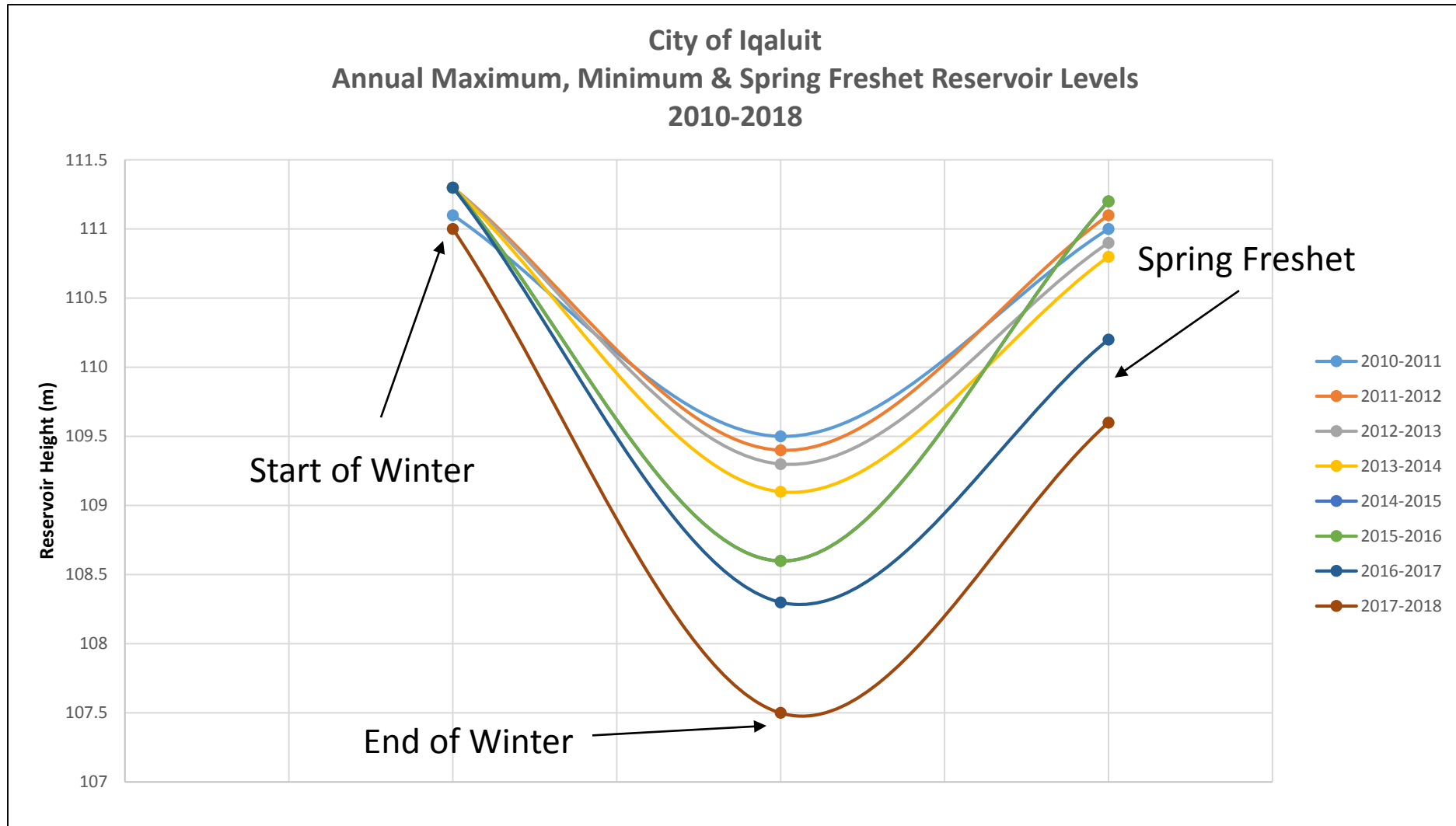
Lake Geraldine Reservoir – Graph #1

City of Iqaluit
Maximum, Minimum & Spring Freshet Reservoir Levels
2010-2018





Lake Geraldine Reservoir – Graph #2



Why isn't the Reservoir Refilling?

- Two reasons:
 - Lower than 'normal' precipitation
 - Significantly higher than 'typical' water demand.



Precipitation Records Data

City of Iqaluit

2007-2018

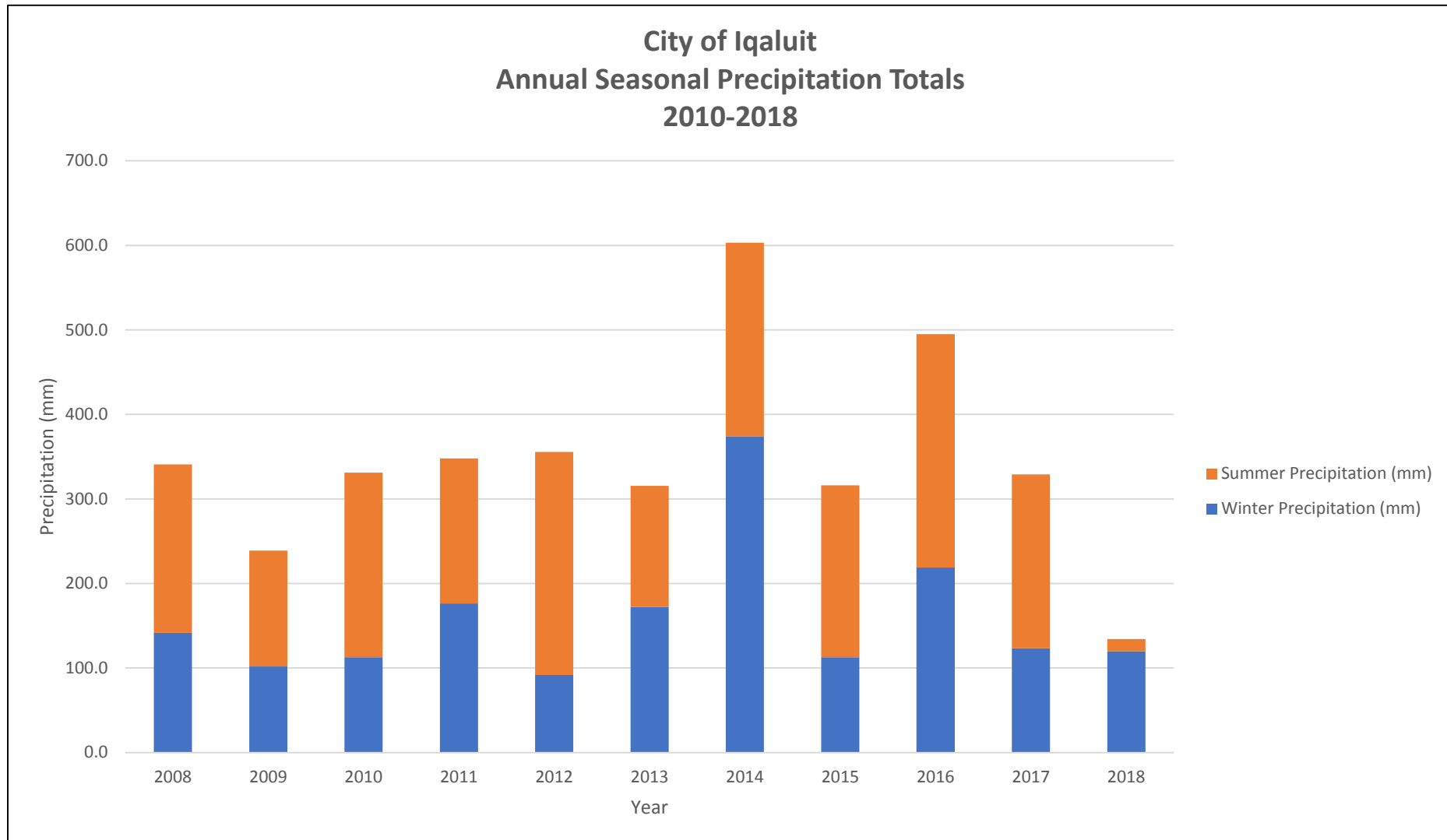
Data Table 1	Precipitation (mm)														
Date	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	AVERAGE	MIN	MAX
January	8.7	8.6	1.6	17.5	26.8	3.2	7.5	58.0	5.2	8.8	16.9	7.1	14.2	1.6	58.0
February	6.3	6.6	14.7	19.3	25.5	7.6	29.0	129.0	5.1	18.5	13.3	2.6	23.1	2.6	129.0
March	7.2	41.8	8.7	11.5	12.7	13.8	60.8	115.6	13.7	45.8	22.6	32.6	32.2	7.2	115.6
April	12.1	18.3	9.4	17.5	15.6	13.6	25.2	9.8	11.3	81.8	11.5	8.3	19.5	8.3	81.8
May	5.7	11.7	13.9	24.2	22.3	20.4	22.3	22.5	22.7	23.8	27.2	7.3	18.7	5.7	27.2
June	78.4	78.9	30.8	33.7	15.7	51.4	20.8	73.3	47.6	42.5	23.6	14.5	42.6	14.5	78.9
July	64.1	56.3	19.2	63.7	58.2	55.6	40.3	38.9	82.3	131.1	46.5		59.7	19.2	131.1
August	88.9	32.3	44.3	72.1	53.9	64.5	23.0	93.0	52.9	56.8	46.6		57.1	23.0	93.0
September	15.3	31.8	42.5	49.1	43.7	92.2	59.1	23.8	20.4	45.7	89.2		46.6	15.3	92.2
October	37.2	33.6	3.5	22.6	19.0	10.9	24.7	36.7	9.7	10.3	26.6		21.3	3.5	37.2
November	12.3	10.0	7.2	33.0	6.4	14.2	9.7	4.4	12.6	12.4	23.8		13.3	4.4	33.0
December	5.2	10.1	12.0	18.0	8.0	2.4	4.8	13.7	17.9	9.1	11.5		10.2	2.4	18.0
TOTAL:	341.4	340.0	207.8	382.2	307.7	349.8	327.2	618.7	301.4	486.6	359.3	72.4	365.6	207.8	618.7
*Winter Total:	N/A	141.7	102.0	112.7	176.4	92.0	172.3	374.1	112.8	218.9	123.3	119.8	158.7	92.0	374.1
**Summer Total:	246.7	199.3	136.8	218.6	171.5	263.7	143.2	229.0	203.2	276.1	205.9	14.5	208.5	136.8	276.1

*Calculated by sum of previous years Oct-Dec, plus current years Jan-May

Source: Government of Canada – Environment and Natural Resources



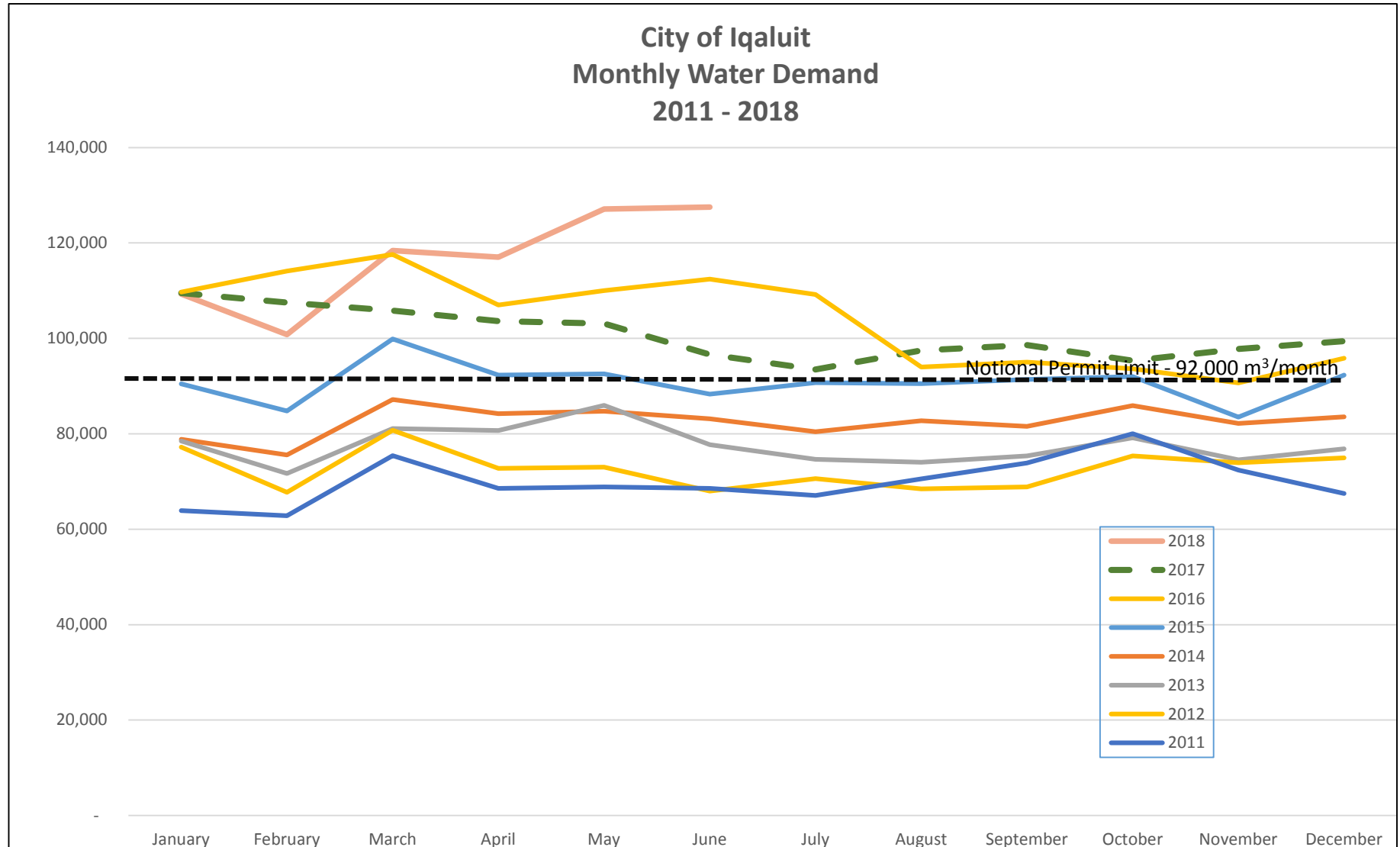
Precipitation Records - Chart



Source: Government of Canada – Environment and Natural Resources



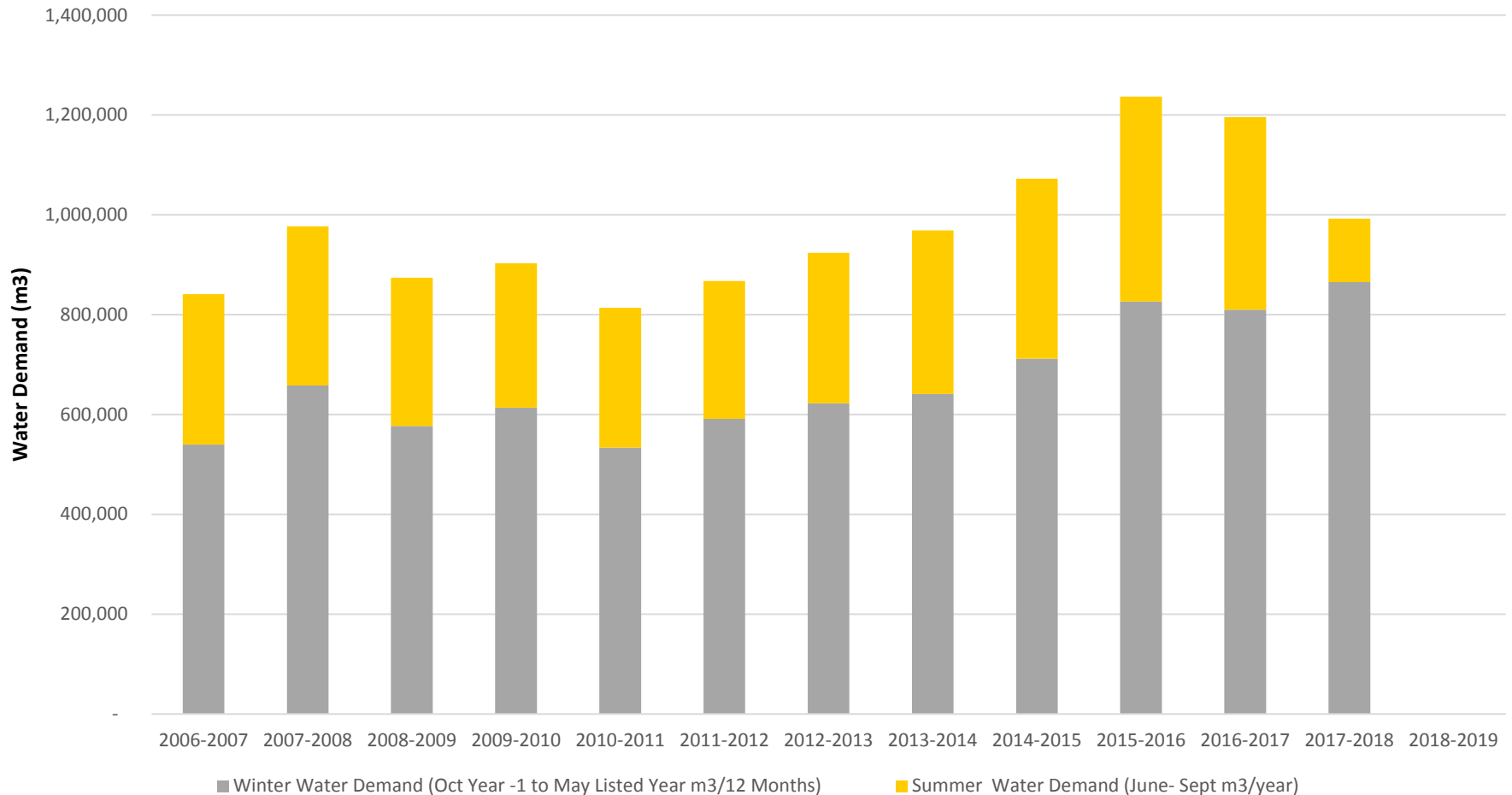
Water Demand Data – Graph #1





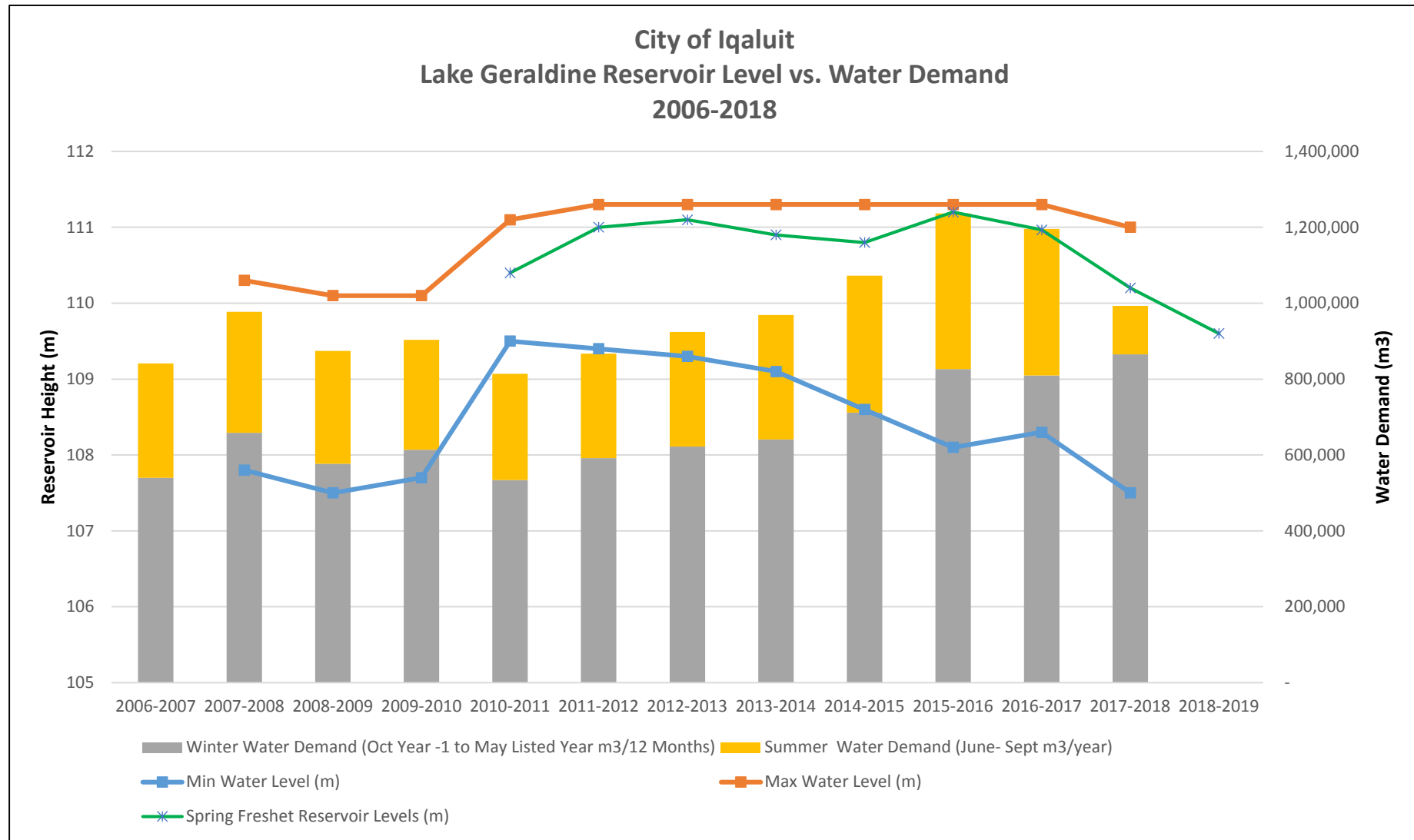
Water Demand Data – Graph #2

City of Iqaluit
Lake Geraldine Reservoir Level vs. Water Demand
2006-2018





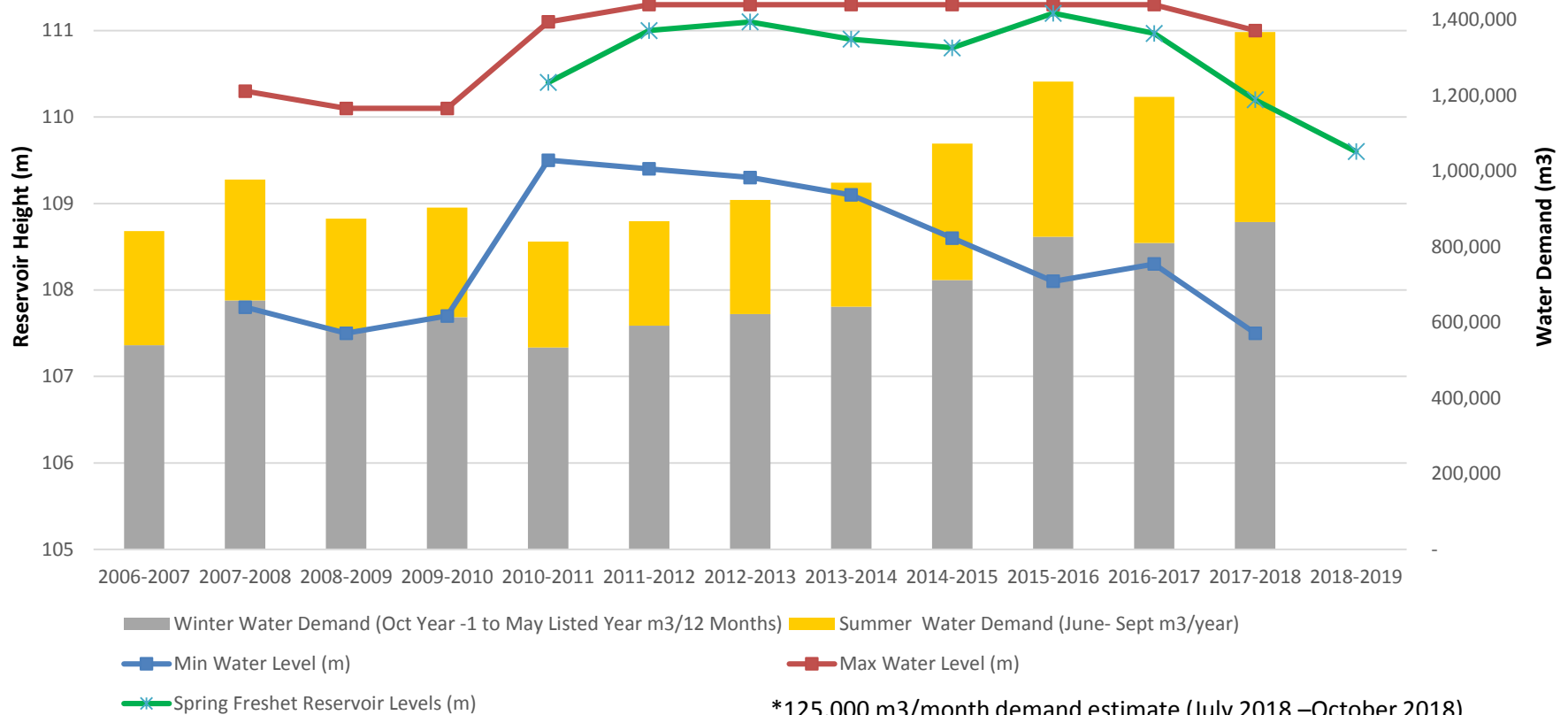
Water Demand Data – Graph #3





Water Demand Data – Graph #4

City of Iqaluit
Lake Geraldine Reservoir Level vs. Projected Water Demand (July-Sept)
2006-2018





City Action to Address Situation

2006 – Lake Geraldine Dam Elevation Raised to Current Level

2013 – Lake Geraldine Water Balance Report – Golders Associates

Identifies and quantifies supplemental water supply requirements

2014 – Supplemental Water Supply Report – EXP Services

Conceptual Design for Apex River Pumping Station

2017 – Apex River Fish Habitat Study – Nunami-Stantec

Identifies Apex River as fish habitat.

DFO Guidelines limit water taking below City requirements.

2017 – Development of Water Demand Management Strategy – EXP Services

Develop Water Loss Control and Water Conservation Strategies for City

2018 – Options Evaluation Sylvia Grinnell River – Nunami-Stantec

Identifies potential Supplemental Water Supply Location in Sylvia Grinnell River

2018 City Capital Budget Allowances:

- \$1 Million – Supplementary Water Supply Design
 - Engineering to Pre-Design Stage
- \$1 Million – Demand Management / Unaccounted for Water Initiative
- \$100,000 - Utilidor Management Initiatives

