



# Proposed Mega Park

Life Cycle Cost Analysis Case Study

# PRESENTATION OUTLINE:

- How it Began
- Life Cycle Cost Analysis Steps
- LCC Tool Used
- Results
- Key Messages



# THE PROPOSAL:

- Spring 2022 - Prince George Community Foundation – Rotary Destination Park ('Mega Park') proposed to City Council



# PROPOSED DONATED FEATURES:



# PLUS OTHER AMENITIES:

- Washroom with Changeroom
- Picnic Shelter & Tables
- Benches
- Trees
- Turf
- Irrigation
- Fencing
- Drinking Water Fountains
- Paved Walkways
- Trail Lighting
- Trash Containers
- Signage

# CPG CURRENT PARKS SERVICES:



Pet-friendly Parks



Athletic Parks



Community Parks



Downtown Parks



Nature Parks



Neighbourhood Parks



Parks with Playgrounds



Premier Parks

# COMMUNITY SURVEY:

2,200

Respondents

62%

Had Children

90%

Wanted a park  
like this



20%

Worried about  
the cost

- Who here has done a life cycle cost analysis?
- What type of life cycle cost analysis:
  - Project options comparison?
  - New asset yah or nay?
  - Proposed development?





# LCC STEP #1:

Meet with the Experts:

- What other amenities /considerations?
- Annual Operating Costs
- Cyclical Maintenance Costs
- Initial Capital Cost
- Future Capital Renewal Costs
- End of Life Costs

# FORECASTED ANNUAL O&M COSTS

Asset	Activity	Annual Cost (for First Year)
Junior Adventure Park	Playground Inspection (1x per week @ \$74/visit)	\$ 3,848
Junior Adventure Park	Contracted Playground Annual Inspection	\$ 1,050
Junior Adventure Park	Playground minor repairs	\$ 778
Junior Adventure Park	Synthetic Safety Surface Annual maintenance/repairs	\$ 1,580
Youth Adventure Park	Playground Inspection (1x per week @ \$74/visit)	\$ 3,848
Youth Adventure Park	Contracted Playground Annual Inspection	\$ 1,050
Youth Adventure Park	Playground minor repairs	\$ 778
All Accessible Playground	Playground Inspection (1x per week @ \$74/visit)	\$ 3,848
All Accessible Playground	Contracted Playground Annual Inspection	\$ 1,050
All Accessible Playground	Playground minor repairs	\$ 778
All Accessible Playground	Synthetic Safety Surface Annual maintenance/repairs	\$ 1,560
Spray Park	Annual Maintenance	\$ 4,000
Pump Track	Annual Operating Budget (from City of Powel River)	\$ 20,000
Senior Fitness Station	Graffiti Removal, weeding, cleaning	\$ 250
Senior Fitness Station	Inspections	\$ 200
Senior Fitness Station	Minor Repairs	\$ 300
Senior Fitness Station	PM's - Tightening & Lube	\$ 250
Senior Fitness Station	Concrete Structure Renewal (\$6,000 every 12 years)	\$ 500
Washroom	Weekly Janitorial	\$ 16,000
Washroom	Exterior Enclosure - Annual Maintenance	\$ 882
Washroom	Interior Finishes - Annual Maintenance	\$ 882
Washroom	Interior Finishes - Painting (\$2,500 every 8 years)	\$ 313
Trees	Tree Pruning	\$ 20,474
Irrigation	Irrigation Operations	\$ 4,410
Irrigation	Annual Maintenance	\$ 1,698
Landscaping & Turf	Mowing, Fertilizing, Aeration, Weed Control (2.3 Ha)	\$ 4,142
Drinking Water Fountains	Winter Blow Out (included in Irrigation Ops)	\$ -
Trash Containers (Bear resistant)	Litter Pickup Once per Week (20 trash containers)	\$ 3,320
Benches (Composite)	Frame Painting (\$10,464 every 3 years)	\$ 3,488
Picnic Tables (Concrete)	Paint (\$4,400 every 3 years)	\$ 1,467
Picnic Shelter (428m2 proposed)	Paint (ballpark cost est. \$2,500 every 3 years)	\$ 833
Paved Walkways	Snow & Ice Control (approx 500m)	\$ 1,089
Lighting	BC Hydro	\$ 985
Lighting	Lamp Replacements (\$11,200 every 20 years)	\$ 560
Paved Parking Lot and Access Rd	Condition Inspection (\$217 every 3 years)	\$ 72
Paved Parking Lot and Access Rd	Annual Maintenance	\$ 382
Fencing	No data	\$ -
Man Gates	No data	\$ -
Vehicle Roller Gates	No data	\$ -
Signs	No data	\$ -
		\$ 106,664

# LCC STEP #2:

Estimated Useful Life:

- Professional judgement
- Cityworks CMMS
- PSAB Useful Lives
- BC Guide to Useful Lives



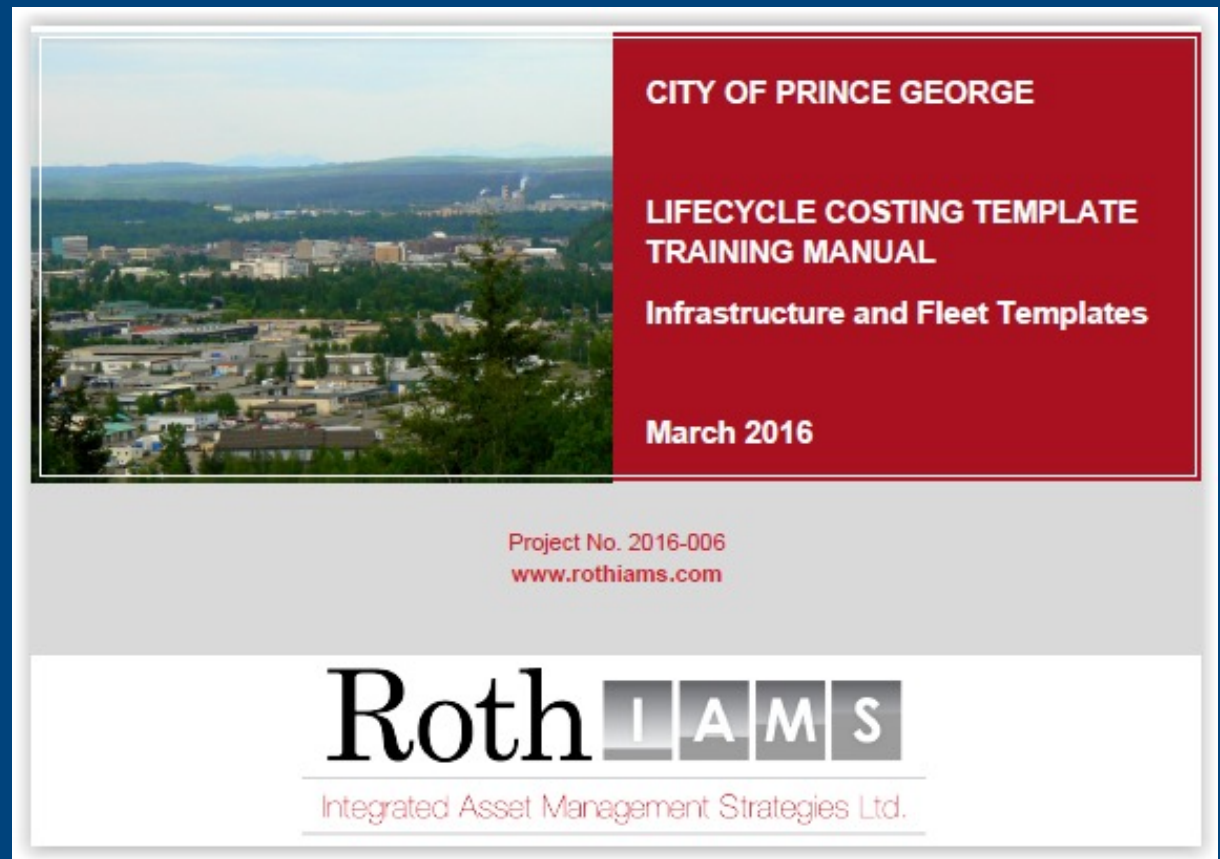
# ASSUMPTIONS:

- Annual inflation set to 5%
- Possible revenue not included
- 50 years of ownership
- Six major features donated
- Park amenities closed during winter except for walkways

- What type of tool did you use:
  - Excel?
  - AM Software?
  - Other?



# LCC TOOL:



The tool calculates:

- Total Life Cycle Cost;
- Life Cycle Cost per Year (based on ESL of the Asset);
- Life Cycle Cost per Resident;
- Life Cycle Cost per Resident per Year;

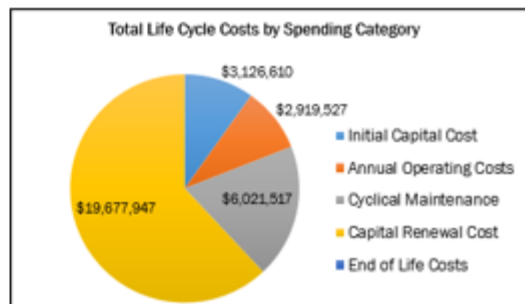
## Other Park Amenities

No.	Component	Component ESL
1	Trees	40
2	Irrigation	25
3	Landscaping & Turf	80
4	Drinking Water Fountains	15
5	Trash Containers (Bear resistant)	15
6	Benches (Composite)	15
7	Picnic Tables (Concrete)	20
8	Picnic Shelter (428m <sup>2</sup> proposed)	25
9	Paved Walkways	25
10	Lighting	20
11	Paved Parking Lot and Access Rd	20
12	Fencing	20
13	Man Gates	20
14	Vehicle Roller Gates	20
15	Signs	10

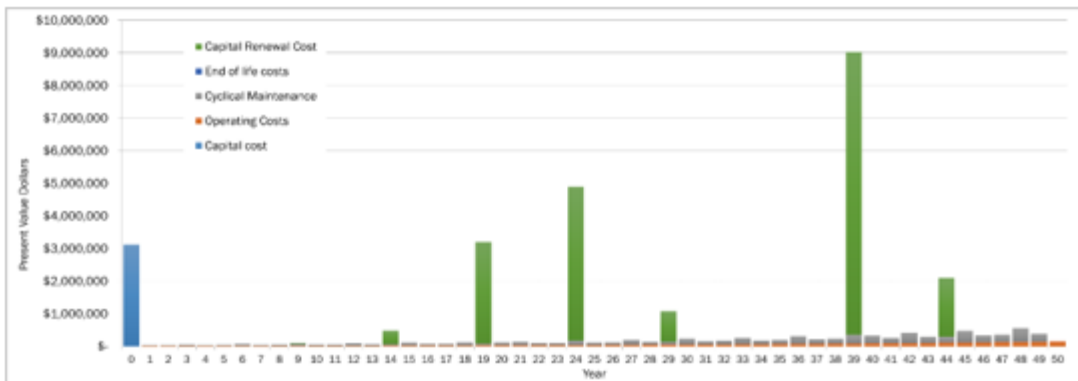
These Estimated Service Lives (ESL) were derived from a variety of sources including [Cityworks](#), the City's Tangible Capital Asset reporting, BC Guide to Useful Lives, IPWEA Useful Life Book for Parks Assets, [Powerplan](#), BUILDER SMS, and professional judgment from Parks staff. The LCC tool uses these [ESL's](#) to determine when the component needs to be renewed, adding them together over a 50 year term for a total of \$19.7M in capital renewal costs for these 'other park amenities'. For example, a bench would need to be renewed every 15 years over the course of the 50-year term that was chosen for this analysis.

# LIFE CYCLE COSTING SUMMARY SHEET

Total Life Cycle Costing (50 years):	
Initial Capital Cost	\$3,126,610
Annual Operating Costs	\$2,919,527
Cyclical Maintenance Costs	\$6,021,517
Capital Renewal Costs	\$19,677,947
<b>Total Life Cycle Cost (LCC)</b>	<b>\$31,745,602</b>
LCC/Year	\$634,912



Notes: The City would need to fund approx. \$3.1M to install the above noted amenities that would be required for a park of this caliber. The operating and maintenance costs were derived from historical costs for comparable parks, like Duchess and LTMP. The proposed Mega Park would be classed as a Service Level A park.



# RESULTS:

Total Life Cycle Costs over 50 years of Ownership:	
Initial Capital Cost	\$3,975,305
Annual Operating Costs Over 50 yrs	\$10,508,392
Cyclical Maintenance Costs Over 50 yrs	\$12,156,576
Capital Renewal Costs Over 50 yrs	\$41,635,395
<b>Total Life Cycle Cost (LCC)</b>	<b>\$68,275,668</b>
LCC/Year	\$1,365,513

Inflation Rates	5%	2%	0%
Junior Adventure Playground	\$ 3,196,786	\$ 1,350,480	\$ 800,703
Youth Adventure Playground	\$ 2,310,605	\$ 1,020,897	\$ 611,233
All Accessible Playground	\$ 10,279,512	\$ 4,611,042	\$ 2,768,390
Spray Park	\$ 2,273,439	\$ 1,031,985	\$ 621,250
Pump Track	\$ 4,562,913	\$ 1,873,728	\$ 1,111,020
Seniors Fitness	\$ 1,366,400	\$ 521,568	\$ 285,875
Washroom	\$ 12,540,413	\$ 5,414,082	\$ 3,426,088
Other Amenities	\$ 31,745,602	\$ 14,635,116	\$ 9,664,682
	\$ 68,275,670	\$ 30,458,899	\$ 19,289,241



# KEY MESSAGES TO COUNCIL:

- \$68M over 50 years = \$1.36M annually required to operate, maintain, and save up for eventual replacements of assets
- Additional \$107k annually for O&M plus inflation, not including fulltime onsite staffing if desired
- Consider investing in existing park infrastructure that is in need of replacement or upgrade rather than building new assets to add to the inventory.

# OUTCOMES:





# THANK YOU

Find the Mega Park Life Cycle Cost Analysis Report and Council presentation at:

[www.princegeorge.ca/city-hall/mayor-council/meetings-agendas-minutes](http://www.princegeorge.ca/city-hall/mayor-council/meetings-agendas-minutes) *(for Dec 19, 2022 and June 12, 2023)*

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