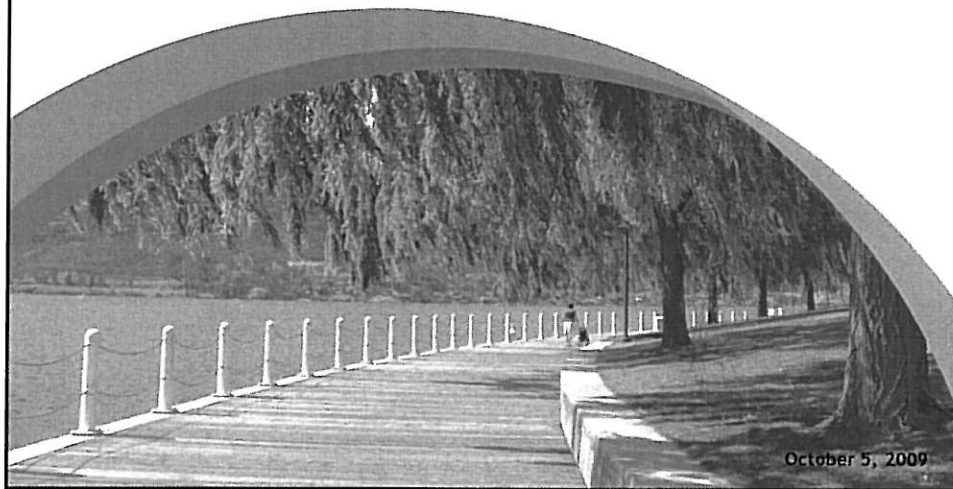


CONSTRUCTION COSTING FOR PARKS & PUBLIC SPACES



Presentation to City Council



CONSTRUCTION COSTING FOR PARKS & PUBLIC SPACES

- ▶ **Introduction**
- ▶ What do park construction costs include ?
- ▶ What influences how much a park costs ?
- ▶ How are costs estimated ?
- ▶ How are costs determined ?
- ▶ How are costs controlled ?
- ▶ Discussion and questions

**WHAT DO PARK CONSTRUCTION
COSTS INCLUDE?**

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COSTS INCLUDE?**

▶ **Materials**

▶ *Materials are all the physical things that make up a park, the things the park is built from, whether it is seen or unseen.*

▶ *e.g. grass, trees, shrubs, irrigation pipe, top soil, fertilizer, trash cans, concrete, asphalt, bricks, gravel, lights, electrical wire, signs, benches, fences, swings, slides, etc.*

WHAT DO PARK CONSTRUCTION COSTS INCLUDE?

- ▶ **Materials**
- ▶ **Labour**
- ▶ *Labour is the people power that brings all the materials together the way they're intended to go*
- ▶ *e.g. labourers, technicians, tradesmen, formen, equipment operators*

WHAT DO PARK CONSTRUCTION COSTS INCLUDE?

- ▶ **Materials**
- ▶ **Labour**
- ▶ **Equipment**
- ▶ *Equipment is the powered and motorized vehicles used to help make labour more efficient*
- ▶ *e.g. excavators, dump trucks, cranes, 'bobcats', dozers, compactors, loaders, trenchers, tractors, lawn mowers*

WHAT DO PARK CONSTRUCTION COSTS INCLUDE?

- ▶ Materials
 - ▶ Labour
 - ▶ Equipment
 - ▶ **Contractor overhead/profit**
-
- $\Sigma = 70-80\%$ of project cost
- ▶ *For the most part the City employs contractors, rather than staff, for park construction*
 - ▶ *In addition to labour, material & equipment costs, contractors have fixed overhead costs to cover & they compete to make profit in order to sustain their business*

WHAT DO PARK CONSTRUCTION COSTS INCLUDE?

- ▶ Materials
 - ▶ Labour
 - ▶ Equipment
 - ▶ Contractor overhead & profit
 - ▶ **Consulting fees**
- ▶ *The City typically employs consultants, rather than staff, to design & oversee the construction of parks*
 - ▶ *The consultant's time (including O/H & profit) is purchased for a specific scope of work on a clearly defined project*

WHAT DO PARK CONSTRUCTION COSTS INCLUDE?

- ▶ Materials
 - ▶ Labour
 - ▶ Equipment
 - ▶ Contractor overhead & profit
 - ▶ Consulting fees
 - ▶ Staff time
- ▶ *On smaller projects City staff design & oversee construction of parks*
 - ▶ *On larger projects City staff manage the consultant*
 - ▶ *This requires time from the 2 staff responsible for park design & construction*
 - ▶ *Additional time & services as required from Planning, Purchasing, Accounting, Env't & Engineering staff*

WHAT DO PARK CONSTRUCTION COSTS INCLUDE?

- ▶ Materials
 - ▶ Labour
 - ▶ Equipment
 - ▶ Contractor overhead & profit
 - ▶ Consulting fees
 - ▶ Staff time
 - ▶ **'Developer' costs**
- ▶ *The City is a developer (of parks & public spaces) & is subject to the same development costs & fees as private developers*
 - ▶ *e.g. permit fees, utility services, landfill fees, environmental regulations, off-site charges (roads, curbs, water, drainage, etc.)*

**WHAT INFLUENCES
HOW MUCH A PARK COSTS?**

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HOW MUCH A PARK COSTS?**

- ▶ **Park type**
- ▶ *Different parks serve different needs, & each has its own development requirements*
- ▶ *Recreation park* \$\$\$\$\$
- ▶ *City wide park* \$\$\$\$\$
- ▶ *Community park* \$\$\$\$
- ▶ *Neighbourhood park* \$\$\$
- ▶ *Linear park* \$\$
- ▶ *Natural open space* \$

**WHAT INFLUENCES
HOW MUCH A PARK COSTS?**

- ▶ Park type
- ▶ Functions/activities/uses
- ▶ *Every function, activity & intended use for a park requires some form of infrastructure
(e.g. lawn, concrete, irrigation, swings, trees)*
- ▶ *All infrastructure has a real cost*
- ▶ *Parks with more features & activities have higher costs*

**WHAT INFLUENCES
HOW MUCH A PARK COSTS?**

- ▶ Park type
- ▶ Functions/activities/uses
- ▶ Intensity of use
- ▶ *Parks that support more users must have more facilities & amenities in order to meet public demand/need*
- ▶ *e.g. waterfront parks*
- ▶ *Parks that support more users are built stronger, with more durability, in order to adequately support high levels of use*
- ▶ *e.g. soccer pitches*

**WHAT INFLUENCES
HOW MUCH A PARK COSTS?**

- ▶ Park type
 - ▶ Functions/activities/uses
 - ▶ Intensity of use
 - ▶ **Location & context**
- ▶ *Parks in urbanized locations are developed more intensively than parks in less urbanized locations*
 - ▶ *e.g. Jim Stuart vs Ben Lee*
 - ▶ *Parks that have a high public profile are developed with more refined materials and finishes than parks in areas of low public profile*
 - ▶ *e.g. cenotaph renovations*

**WHAT INFLUENCES
HOW MUCH A PARK COSTS?**

- ▶ Park type
 - ▶ Functions/activities/uses
 - ▶ Intensity of use
 - ▶ Location & context
 - ▶ **Size**
- ▶ *Larger parks*
require more \$\$\$\$\$\$
time & \$\$\$\$\$
materials to \$\$\$\$
develop \$\$\$
 \$\$
 \$
 - ▶ *Smaller parks*
require less
time &
materials to
develop

**WHAT INFLUENCES
HOW MUCH A PARK COSTS?**

- ▶ Park type
 - ▶ Functions/activities/uses
 - ▶ Intensity of use
 - ▶ Location & context
 - ▶ Size
 - ▶ **Site conditions**
- most park development projects *
have to address one or more
of these issues
- ▶ *Site conditions have a direct bearing on development costs*
 - ▶ *steep slopes*
 - ▶ *high groundwater*
 - ▶ *soil (mineral, weak, rocky)*
 - ▶ *existing services (or not)*
 - ▶ *disturbed sites*
 - ▶ *vandalism/undesirable use*
 - ▶ *environmentally sensitive areas*

**WHAT INFLUENCES
HOW MUCH A PARK COSTS?**

- ▶ Park type
 - ▶ Functions/activities/uses
 - ▶ Intensity of use
 - ▶ Location & context
 - ▶ Size
 - ▶ Site conditions
 - ▶ **Development standards**
- ▶ *Like all other public infrastructure, parks have minimum standards for design & construction*
 - ▶ *public and worker safety (e.g. Hwy 97 medians)*
 - ▶ *cost effective maintenance*
 - ▶ *durability & long life*
 - ▶ *aesthetic quality*
 - ▶ *water conservation*
 - ▶ *environmental protection & conservation*

WHAT INFLUENCES HOW MUCH A PARK COSTS?

- ▶ Park type
 - ▶ Functions/activities/uses
 - ▶ Intensity of use
 - ▶ Location & context
 - ▶ Size
 - ▶ Site conditions
 - ▶ Development standards
 - ▶ **Development philosophy**
- ▶ *Demands/needs are great - maximize opportunity for public use & enjoyment (e.g. "power of 10")*
 - ▶ *Land is expensive - maximize use of the land (e.g. artificial turf, parkades)*
 - ▶ *Phased development costs - try & build it all at once (e.g. it costs 25% more to do it later)*
 - ▶ *Sustainability matters - protect, conserve, enhance*
 - ▶ *We own it forever - plan it and build it to last*

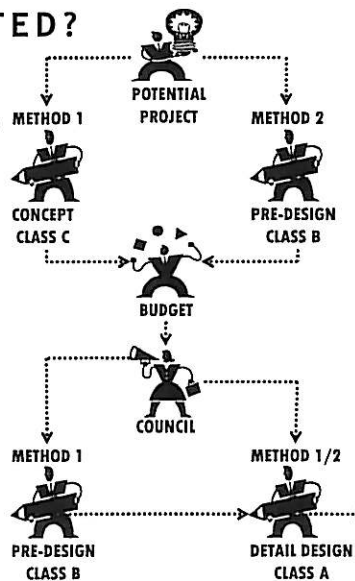
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- ▶ Park type
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 - ▶ Development standards
 - ▶ Development philosophy
 - ▶ **Market forces**
- ▶ *Like other City infrastructure, almost all park construction is publicly tendered for construction by the private sector*
 - ▶ *during the recent boom, construction costs increased 50% over a three years*
 - ▶ *since the slowdown, costs have declined by about 25%*
 - ▶ *costs are speculated to rise again in 2010*

- ▶ Introduction
- ▶ What do park construction costs include ?
- ▶ What influences how much a park costs ?
- ▶ **How are costs estimated ? . . . design**
- ▶ **How are costs determined ? . . . tender**
- ▶ **How are costs controlled ? . . . construction**
- ▶ Discussion and questions

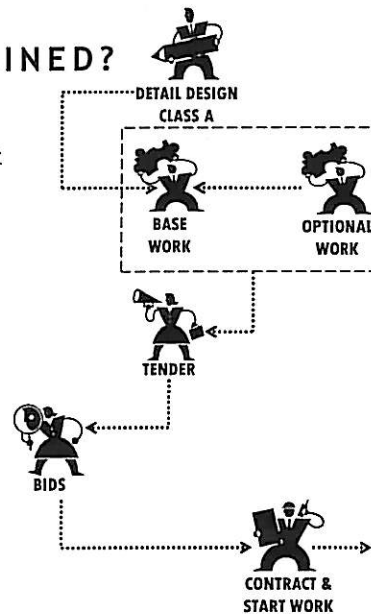
HOW ARE COSTS ESTIMATED? DESIGN PHASE

- ▶ A design & cost estimate is prepared (2 ways);
 - ▶ Method 1 - as a Concept Plan (Class C)
 - ▶ Method 2 - as a Pre-Design (Class B)
- ▶ Staff put project forward as a formal budget submission, as Priority 1 or Priority 2
- ▶ The annual capital budget, & the projects identified therein, receive Council approval
- ▶ A detail design & refined cost estimate is prepared to fit within the approved budget
 - ▶ Method 1 - as a Pre-Design (Class B)
 - ▶ Method 2 - as a Detail Design (Class A)



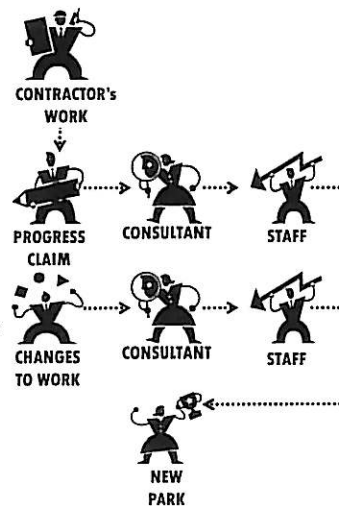
HOW ARE COSTS DETERMINED? TENDER PHASE

- ▶ Depending on need & opportunity, the project may be broken down into
 - ▶ Base Work - can be built within budget
 - ▶ Optional Work - maybe within budget
- ▶ The project is assembled as one package
- ▶ And put out to public tender per the City's Purchasing policies
- ▶ Competitive bids are received & evaluated
- ▶ The construction contract is awarded to the low bidder (project cost is set). A standard Contract (MMCD) is signed by the City & the Contractor. Construction starts



HOW ARE COSTS CONTROLLED? CONSTRUCTION PHASE

- ▶ Construction work follows the drawings, specifications & unit prices set out in the Contract
- ▶ The contractor's work & monthly payments are monitored & managed by a contract administrator (consultant) & staff
- ▶ Changes are reviewed & approved by the contract administrator & staff before they are implemented. Changes happen (e.g. unknown conditions, design changes, product availability)
- ▶ The result is a new park, completed within budget & ready for public use



DISCUSSION & QUESTIONS