Aldergrove and Belmead Flood Prevention Improvements

Public Consultation
How Did We Get Here?

- Major flooding in July, 2004
- Flood prevention becomes top priority
- Commitment to public consultation and education
- Belmead & Aldergrove identified as at risk neighbourhoods
How Did We Get Here?

• Community consultations in 2006 & 2007 to discuss flood prevention options and get input
• Additional study and concept development led to some adjustments
• Here tonight to talk about those changes and the additional benefits
Today’s Meeting

1. Present recommendations and implementation plan
2. Get your input and feedback
3. Make necessary adjustments
After Today’s Meeting

1. Summarize and share input
2. Incorporate input into final plan
3. Report progress
4. Continue community consultation as required until work is completed
Background and Review

July 2004

- Three of the worst storm events ever recorded in the City of Edmonton
- Extensive surface and basement flooding
- Over 4,000 homes affected
- Several million dollars in damage to drainage infrastructure
Photos (Edmonton Journal) July 2 & 3, 2004
July 11, 2004 Flooding
Flooding Mechanisms

- Water volume exceeded storm sewer capacity
- Stormwater got into sanitary system via:
  - Flooded manhole covers
  - Weeping tile connected to home’s sanitary sewer
- Most flooded basements caused by sanitary sewer backup
Project History

- Extensive flooding in 2004
- West Edmonton Flood Investigation 2005 - 2006
- Concept Design 2006 - 2008
Proposed Improvements:

1. Stormwater Retention via Aldergrove Dry Pond.
2. Summerlea Storm Surcharge Relief.
3. 178th Street Sanitary Surcharge Relief.
4. Arrow head Trail Regrading.
5. La Perle Stormwater Diversion
Stormwater Retention Strategy: Initial Concept, Dry Pond in Aldergrove

Aldergrove Dual Use Dry Pond

- 4-5 m facility depth.
- 1500 m of shallow storm sewer conveyance improvements.
- 5 inlet/outlet structures.
What’s new?
Stormwater Retention Strategy: Revised Concept *Dry Ponds in Aldergrove and Belmead*

**Belmead Dual Use Dry Pond**
- 2 m facility depth.
- 500 m of shallow storm sewer conveyance improvements.
- 2 inlet/outlet structures.

**Aldergrove Dual Use Dry Pond**
- 2 m facility depth.
- 700 m of shallow storm sewer conveyance improvements.
- 3 inlet/outlet structures.
Conceptual Design Basis

- Maintain existing playing fields within proposed dry pond
- Dry pond would only fill when storm system conveyance capacity is exceeded
- Storage Capacity of conceptual design approximately:
  - Aldergrove – 24,000 m³
  - Belmead – 12,000 m³
- Special trees identified to remain in place.
Why did the concept change?

- Constructing two dry ponds allows for a shallower facility depth:
  - Concern for shallow groundwater table.
  - Public safety
  - Improved sightlines.
  - More aesthetically pleasing.
Where are we today?
Drainage Services Engineering Project Life Cycle

Every engineering project goes through a number of stages before it is finally constructed and completed. At certain points in the project life cycle we would like your input before proceeding to the next stage.

- Identify the Problem
  - What needs improvement?
- Concept Development
  - What are the options?
- Concept Design
  - Will the preferred option work?
- Preliminary Design
  - Begin design of selected option
- Detailed Design
  - Final drawings, specifications, estimates
- Construction
  - Tender, award and manage contractor
- Commissioning
  - Test and transfer finished product to Drainage Operations

Today we are at this stage
What is a dry pond?

- Low Area - collects storm water runoff
- Receives storm water from:
  - Surface drainage
  - Surcharged storm drain
- Usually takes 4 to 6 hrs to drain
- Landscaped to blend in
- Can be used for recreation when dry
- Common in many cities; some on school sites (incl. Regina, Red Deer & Calgary)
- 65-68 in Edmonton, mostly along roadways
How do dry ponds work?
What are the Benefits?

- Quicker overall drainage
- Less pooling of water on the surface
- Less likelihood of basement flooding
- Less property damage
- Savings of time, money and inconvenience
Safety

- Many safety features built in
  - Gentle slopes, grated inlet/outlet, signage
  - Risk moved from street to field
  - Wet meadow cleans flow
  - Ponding a rare occurrence (storm sewers take most runoff)
  - Remote monitoring (SCADA)
- Adult supervision – security guard
- Post-event clean up
Lendrum Dry Pond
Lendrum Dry Pond
Belmead Dual Use Dry Pond

- **Recreation Facilities**: subject to final agreement with parks, community, school.

- **Physical Dimensions**
  - 2 m facility depth
  - Gentle slopes
  - Covers entire sports field

- **Performance**
  - Sees water during a 2-5 year event (less than 0.5 m)
  - Water depth during a 100 year event ~ 1.4 m
Aldergrove Park

Existing Tree Stand (south end)
Aldergrove Dual Use Dry Pond

- Recreation Facilities: subject to final agreement with parks, community, school.
- Physical Dimensions
  - 2 m facility depth
  - Gentle slopes
  - Covers entire field
- Performance
  - Sees water during a 2-5 year event (less than 0.5 m)
  - Water depth during a 100 year event ~ 0.7 m
Option 1

ALDERGROVE DUAL USE DRY POND

Decoteau Shallow Storm Improvement

87th Avenue Surcharge Relief / Outlet

86th Avenue and 178 Street Shallow Storm Improvement
## Implementation Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>Identify Problem</th>
<th>Concept Design</th>
<th>Preliminary Design</th>
<th>Detailed Design</th>
<th>Tender</th>
<th>Construction</th>
<th>Commission</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006-2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Construction Stages

- There are three major stages in the construction of the dry pond:
  - Bulk excavation
  - Landscaping and Restoration
  - Connection to existing storm sewers
More Questions?

Ken Chua, MSCE, P.Eng.
Drainage Services, Design and Construction
(780) 496-5545

Fernando Sacluti, P.Eng.
Drainage Services, Strategic Planning
(780) 496-5537
Flood Prevention Program

- Backwater valve homeowner subsidy program
- Home Flood Prevention Checkup
- Information bulletins, notices and education material to residents
- Ads, stories and educational information in print, on TV, in newspapers and on the web.
- Backwater valve education workshops
- Homeowners Guide to Flood Prevention
Recommendations for Homeowners

- Improve lot grading to get surface water away from house
- Install/maintain adequate eaves troughs
- Channel downspout water to proper place
- Install backflow prevention valve
- In some cases, install sump pump
Discussion and Feedback

Clarifying Questions?

ISSUES, COMMENTS, CONCERNS?

Additional information needs?