Beverley Park
Slope Stabilization Study

ITEMS OF DISCUSSION

- Introduction
- Study Findings to Date
- Alternatives/Ideas
- Discussion
- Next Steps

April 14, 2014
Park History

1940, Park Planning Program

1944, National Recreation Association, Alexandria Long-Term Recreation Plan

1963, Park Inventory, Alexandria Master Plan
Park History

“An undeveloped city opened property in Beverley Hills, known as the “gravel” pit of approximately 1.75 acres, is the only available property within this neighborhood for active recreation. The development of this property involves considerable engineering if the maximum use of the property is to be realized. Unfortunately, there is considerable differences in elevation which will involve a large amount grading. The area is further handicapped by its size but it is felt that in spite of these conditions steps should be taken to develop it for playground purposes...”

Exerpt, Long Term Recreation Plan for the City of Alexandria, National Recreation Association, 1944.
Individualized Site Rituals

- Christmas Tree Lighting
- Toys
- Beautification Programs
- Open Lawn Use
- Wheel Day
- Natural/Passive Open Space
Beverley Park
Infrastructure Conditions

- Playground
- Retaining Wall(s)
- Tree Canopy
- Drainage/Slope Erosion
- Shelter
- Accessibility
Slope Stabilization Study

- Evaluate Existing Conditions
  - Geotechnical Investigation
  - Engineering Analysis
  - Arboricultural Analysis
- Provide Recommendations and Options
Geotechnical Investigation
Findings: Geotechnical Investigation

- West and south perimeter slopes
- Core sampling at top/middle/bottom of slopes
- Dense sand and clay soil profiles
- Slope stability modelling indicates stable soils
- Future work unlikely to need special techniques
Findings: Geotechnical Investigation

South Slope
Findings: Geotechnical Investigation

West Slope
Engineering Analysis

West Slope Retaining walls

Fractured Timber Post
Permanent wall displacement
Findings: Engineering Analysis

- Retaining walls constructed in 1960’s-1980’s
- Near the end of their useful life
- Exacerbating soil erosion by concentrating water flow
- Remove existing walls
Arboricultural Analysis

- Evaluate condition of 78 trees over 4 inches in caliper
- Best trees are at the top of the slopes
- Trees include native and non-native species
Findings: Arboricultural Analysis

- 3 Trees in need of immediate removal
- Many are unlikely to survive wall reconstruction
- Approximately 25 Trees may be impacted by construction
Design Challenges

- Execute work once
- Expend funds efficiently
- Localize construction impacts
- Sustain a long-term operational solution
Slope Stabilization Alternatives
Retaining Wall & Grass Slope

| West Slope: 8.5’ height retaining wall w/ 3’ height handrail |
| South Slope: Grassed slope with 2H:1V grade, reinforced with erosion control blanket |

| Tree Removal                     | Removal of approximately 9 trees. Trees on the south slope to continue decline |
| Tree/Vegetative restoration      | New tree plantings likely to be constrained by wall, erosion control fabric, and steeper slope |
| Open Space Impact               | Playground location stays relatively the same |
| Drainage                        | Considerable drainage design for wall and playground |
| Relative Cost                   | Higher cost |
| Constructability                | Equipment for wall installation |
| Long term Sustainability        | Potential for vandalism, long term wall maintenance and repairs may be costly |
Slope Stabilization Alternatives

Retaining Wall & Grass Slope

West Slope: 8.5’ height retaining wall w/ 3’ height handrail
Slope Stabilization Recommendations

Retaining Wall & Grass Slope

South Slope: Grassed slope with 2H:1V reinforced with erosion control blanket
## Slope Stabilization Alternatives

### Grass/Natural Slope - No Wall

<table>
<thead>
<tr>
<th>West Slope: Grassed/Natural Slope, 4H:1V slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Slope: Grassed/Natural Slope, 4H:1V slope</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tree Removal</strong></th>
<th>Removal of approximately 25 trees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tree/Vegetative restoration</strong></td>
<td>New tree plantings feasible</td>
</tr>
<tr>
<td><strong>Open Space Impact</strong></td>
<td>Playground moves to another location. Slope is useable once vegetation is established.</td>
</tr>
<tr>
<td><strong>Drainage</strong></td>
<td>Reduced concentrated runoff and erosion</td>
</tr>
<tr>
<td><strong>Relative Cost</strong></td>
<td>Lower cost</td>
</tr>
<tr>
<td><strong>Constructability</strong></td>
<td>Large amount of hauling and traffic control</td>
</tr>
<tr>
<td><strong>Long term Sustainability</strong></td>
<td>Indefinite life, slopes can be maintained at an optimum level</td>
</tr>
</tbody>
</table>
Slope Stabilization Alternatives

Grass/Natural Slope - No Wall

West Slope: Grassed/Natural Slope, 4H:1V slope
Slope Stabilization Alternatives

Grass/Natural Slope - No Wall

South Slope: Grassed/Natural Slope, 4H:1V slope
Questions and Discussion

- Which alternative do you prefer?
- What should be the process for future public outreach?
- What is the preferred construction timing?

Think About...

- Constructability/Phasing/Impacts
- Relative Costs
- Long Term Solutions
Next Steps

- Develop park and playground concept plan based on preferred slope stabilization
- Continue community engagement process
- Incorporate community feedback into Final Concept Plan
- Develop construction and permitting plans, phasing plans if needed
- Obtain regulatory plan approvals