



City of Shoreline

# Ronald Bog Community Meeting

April 22, 2009



**Mind Powered: Insight with Impact.**

## Purpose of this meeting

- Provide status report on work to solve Ronald Bog flooding problem
- Answer questions
- Describe next steps

# Presentation agenda

- 2009 construction
- Status of FEMA mapping
- Basin study and proposed improvements
- Interim Flood Plain Management

# Improvements planned for 2009

- Construction of detention in Cromwell Park
- Paving on Corliss Place
- Drainage improvements on 171<sup>st</sup> east of Corliss Ave
- Drainage improvements at 172<sup>nd</sup> and Corliss Ave
- Connect foundation drains to street system & minor property restoration
- Improve the pump pad and street drainage system

# FEMA mapping/computer modeling

- Computer modeling of 100 Year Event was performed according to FEMA standards
  - Accurately describes the December 3, 2007 Event (approximately equivalent to 100 Year Event)
  - Predicts 100 Year Event with 2008 improvements in place
  - Used to determine effectiveness of improvements

# Computer simulation of floodplain

*Before 2008 improvements*



# Computer simulation of floodplain *After 2008 improvements*



## Criteria used to evaluate alternatives

- Provide 100 year flood protection
- Be affordable so it is implementable
- Does not increase downstream flows
- Minimize impacts to the neighborhood
- Be compatible with future habitat projects
- Ability to ultimately meet FEMA standards



# Why are FEMA standards important?

- Enables home owners and government agencies to have a consistent approach for evaluating flood risk & developing solutions
- FEMA standards apply to:
  - The technical computer analysis to prepare the 100 year floodplain area maps
  - The design of flood control structures that allow officials to revise the 100 year floodplain area
  - How lenders and assessors evaluate property

# Screened nearly 30 potential alternatives

- Four categories of alternatives selected for detailed analysis
  1. Increased storage at Ronald Bog
  2. Increased conveyance capacity
  3. Flood berm or wall along the south edge of the Bog
  4. Property acquisition and flood proofing

# Increased storage at Ronald Bog

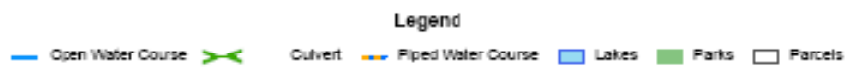
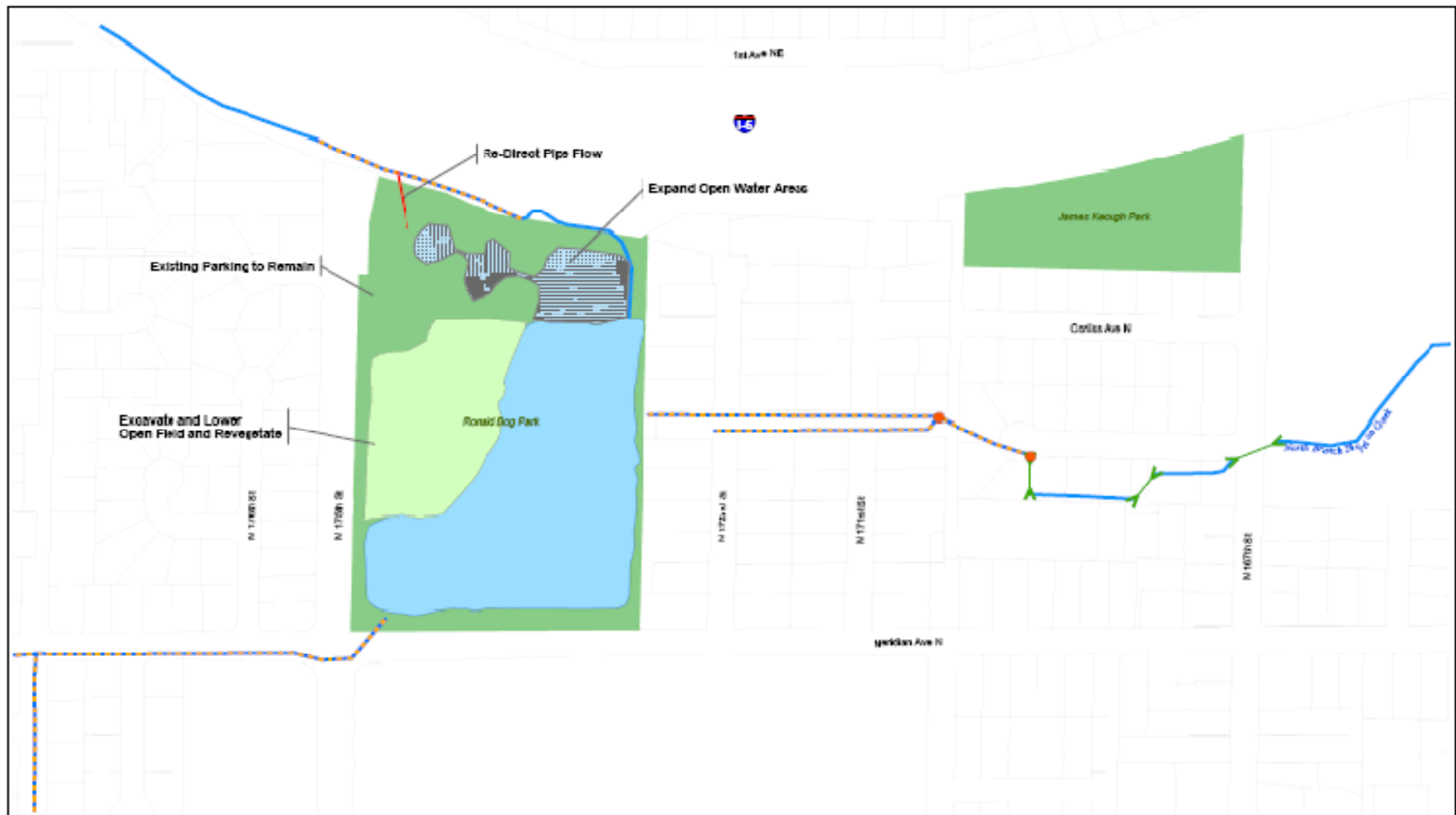


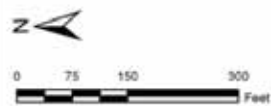
Figure 6-2  
Alternative 2  
Thornb Creek Watershed Plan  
City of Shovena  
E.W. BECK

# Increased storage at Ronald Bog

Evaluation Criteria	Yes	No	Comments
Provide 100 year flood protection		X	50 yr protection-doesn't solve groundwater problems
Be affordable/implementable		X	Funding more difficult
Does not increase downstream flows	X		
Minimize impacts to the neighborhood		X	Wetland and park impacts
Compatible with habitat projects	X		
Meet FEMA standards		X	Inadequate flood protection

**DID NOT MOVE FORWARD**

# Increased conveyance capacity



# Increased conveyance capacity

Evaluation Criteria	Yes	No	Comments
Provide 100 year flood protection	X		Doesn't solve all groundwater problems
Be affordable/implementable		X	Funding more difficult
Does not increase downstream flows		X	Increases downstream flows
Minimize impacts to the neighborhood	X		
Compatible with habitat projects	X		Designed to be fish passable
Meet FEMA standards	X		

DID NOT MOVE FORWARD

# Flood berm or wall along the Bog

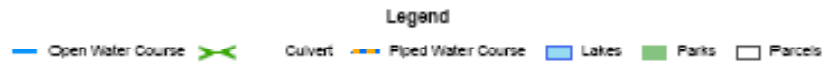
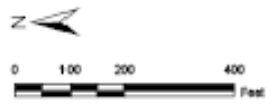
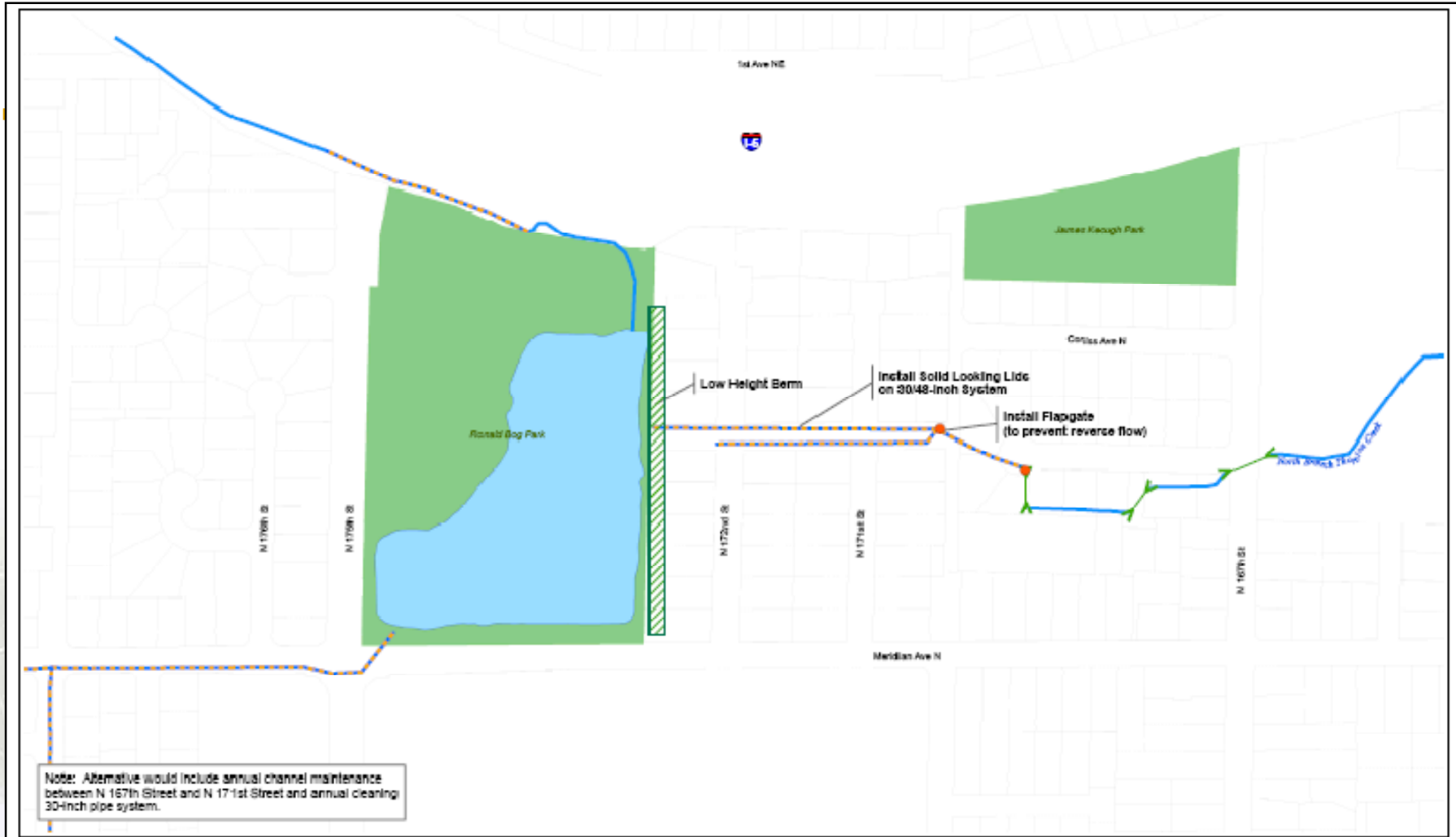


Figure 5-1  
Alternative 1  
Thornton Creek Watershed Plan  
City of Shoreline

# Flood berm or wall along the Bog

Evaluation Criteria	Yes	No	Comments
Provide 100 year flood protection	X		Doesn't solve all groundwater problems
Be affordable/implementable	X		
Does not increase downstream flows	X		
Minimize impacts to the neighborhood	X		Design coordinated with neighborhood
Compatible with habitat projects	X		Add habitat projects
Meet FEMA standards	X		

- Street and home drainage systems must be isolated from Bog outlet pipe
- May need to pump local drainage in flood events



# Property acquisition and flood proofing

- Acquire severely flooded properties
- Elevate properties with shallower flooding

# Property acquisition and flood proofing

Evaluation Criteria	Yes	No	Comments
Provide 100 year flood protection	X		
Be affordable/implementable	X		
Does not increase downstream flows	X		
Minimize impacts to the neighborhood	X		Design coordinated with neighborhood
Compatible with habitat projects	X		Add habitat projects
Meet FEMA standards	X		

- Elevate homes 1 ft above 100-year flood level to be removed from floodplain
- Homes and roads would be elevated to provide access in a 100 year flood

# Evaluation criteria eliminated two categories of alternatives

- Increased storage in the Bog is not affordable and does not provide 100 year level of protection to homes
- Additional conveyance capacity increases downstream peak flows and cost to provide downstream flood storage is not affordable

## Alternatives for further evaluation

1. Flood berm or wall along the south edge of Ronald Bog
2. Property acquisition and flood proofing
3. Combination of both the above

*Solutions Can Ultimately Meet FEMA Standards*

## Next steps

- Evaluate these alternatives using site specific data
  - Work with individual homeowners in the floodplain on floodproofing
  - Work with individual homeowners along the Bog on berm Solutions
- Develop more detailed costs
- Pursue funding alternatives
- Implement Interim Flood Management Plan
- Inform the community as work progresses

# Interim Flood Management Plan (FMP)

## The City will:

- Continue maintenance
- Provide early flood warning (Bog monitoring) system
  - Reverse 911 when Bog reaches a certain level
- Implement temporary pumping
- Assess feasibility of temporary berm in flood season
- 2009 construction improvements

# Timeline

- Spring 2009
  - Meet with individual homeowners
- Summer 2009
  - Develop recommendations and detailed costs
  - Obtain Council review and approval
  - Submit grant applications
- Fall 2009
  - Meeting to discuss FMP and preparations for 2009 - 2010 wet season
- 2010 and 2011
  - Design and construction

# Q & A

Questions?



# Stay in touch

- Website -  
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