

# Brookline Reservoir Park



JANUARY 3, 2018

BROOKLINE RESERVOIR PARK



# Welcome Everyone!



- Introduction
- Summary of Prior Meetings
- Preferred Design
- Preliminary Project Costs and Alternates
- Public Discussion
- Summary and Conclusion

# Project Goals and Priorities



- Safety and accessibility;
- Community gathering;
- Opportunities for people of all ages and abilities; and
- Beautiful, natural, historic open space.

# Baseline Improvements

— Universal access



Renovation/repair  
of walking paths



— Masonry repair



Drainage and  
utility  
improvements



— Turf and planting  
renovation



Removal of  
invasives



— Solutions for MA  
Office of Dam  
Safety

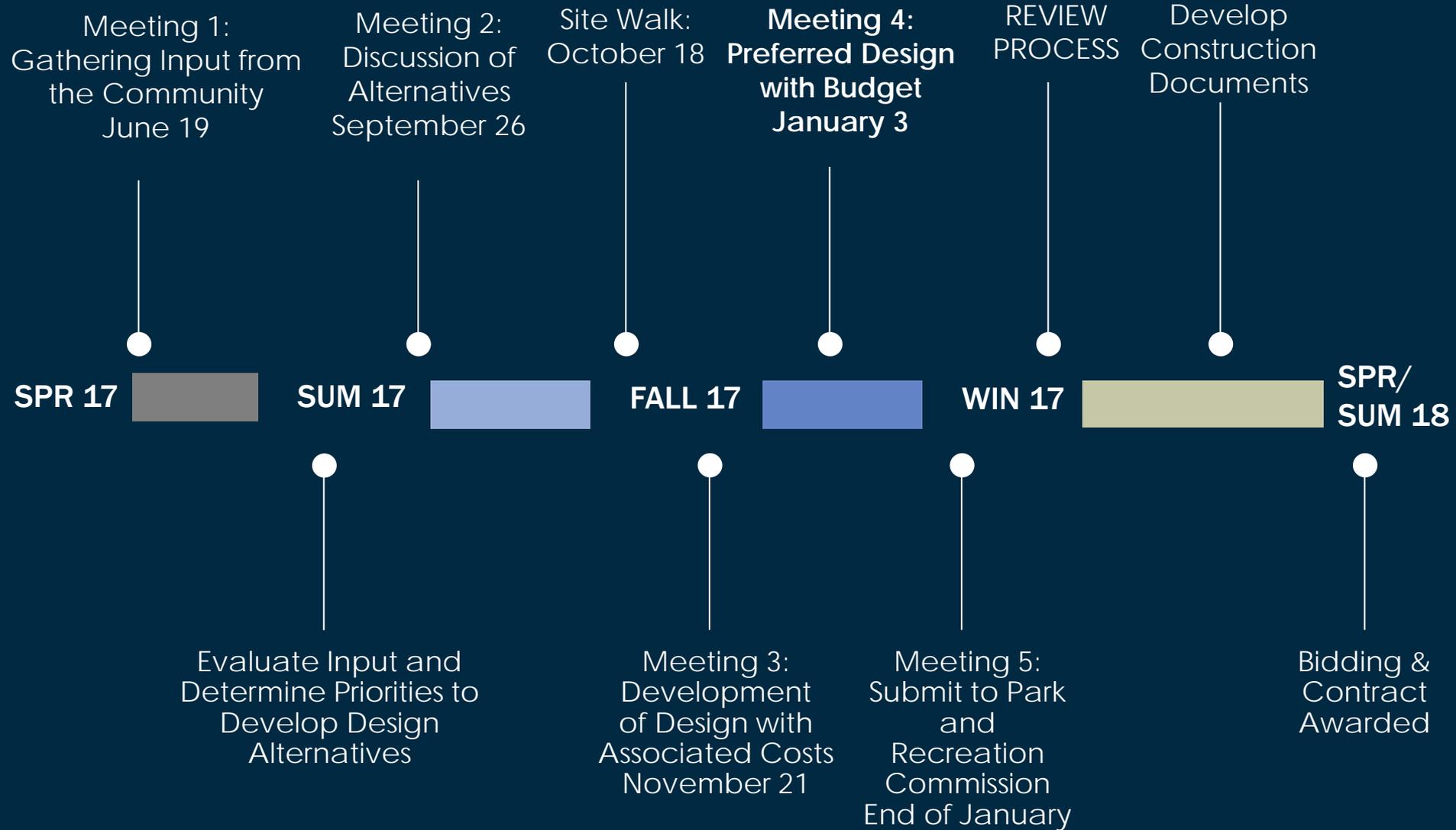


# Design Review Process



- Establishment of Design Review Committee
- Open discussion in public meetings
- Final presentation to and vote by Park and Recreation Commission
- Construction bid package by Town staff
- Total budget \$2.2 million, including gate house and masonry repair

# Project Timeline



# State Requirements for Dam Safety Compliance



REGULATED BY MASSDCR OFFICE OF DAM SAFETY (ODS)  
"INTERMEDIATE" SIZED STRUCTURE  
"HIGH" HAZARD CLASSIFICATIONS

2014 INSPECTION

- ◆ DAM IS GENERALLY WELL MAINTAINED
- ◆ OBSERVED DEFICIENCIES

## ODS POLICY ON TREES ON DAMS

- Dam embankments must be maintained free of trees and brush
- No trees and brush within 20 feet of dam or appurtenant structures
- Healthy uniform cover of grass is recommended
- Permit required if vegetation to be removed is greater than 4 inches in diameter





# SUMMARY OF PRIOR MEETINGS

JANUARY 3, 2018

BROOKLINE RESERVOIR PARK



# Prior Meetings

- DRC Meeting 1 – June 19<sup>th</sup>
- DRC Meeting 2 – September 26<sup>th</sup>
- Site Walk – October 28<sup>th</sup>
- DRC Meeting 3 – November 21<sup>st</sup>



# Comments Heard

- Concern about loss of vegetation
- Appreciation of history
- Understanding of accessibility requirements & goals
- Importance of maintaining the park's character
- Drainage issues:
  - Reduce standing water in swales
  - Address erosion on Lee Street bank
  - Address stormwater management
- Desire for amenities: bicycle racks, drinking fountain, distance markers
- Deterioration of infrastructure
- Careful consideration of site furniture
- Address 'uncomfortable' presence of Route 9
- Removal of invasive plants
- Walnut and Lee Street entries are not high priorities
- Bicycle racks to be located further from street edge
- Concerns about adding parallel parking along Warren
- Consensus for rectilinear approach to path at Gatehouse





# PRELIMINARY DESIGN ALTERNATIVES

JANUARY 3, 2018

BROOKLINE RESERVOIR PARK



# Masonry Evaluation & Potential Repair



■ ■ ■ ■ Stone at reservoir armature

— Capstone Along Rt 9



Repair needed at basin armature



Reset capstones on retaining wall along Route 9

Estimated Cost for Masonry:  
\$458,000



# Stonedust Path

## Existing Stonedust Path at Gatehouse



Existing condition 8'-16'  
wide stone dust, no edge  
PROPOSED: 10' wide



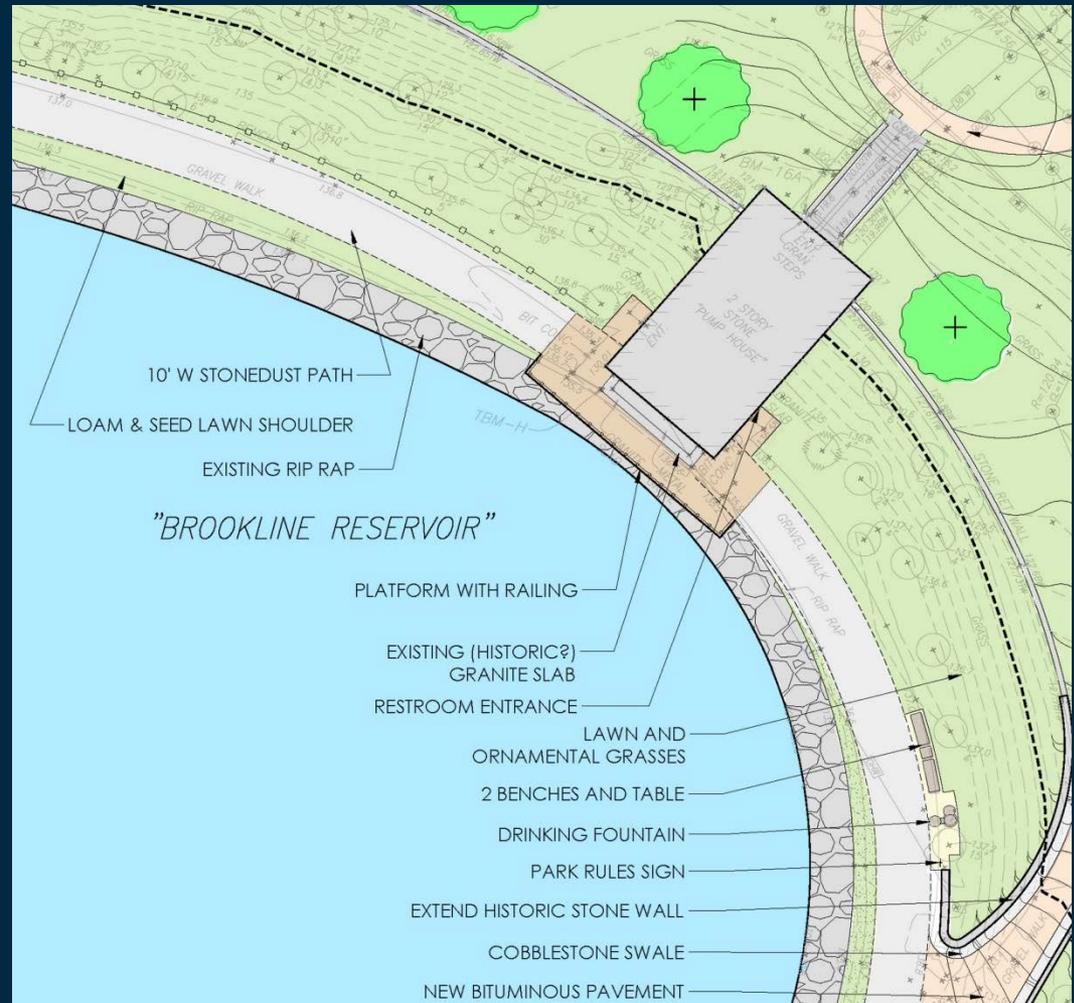
Proposed Distance marker



# Stonedust Path & Platform at Gatehouse

## PROPOSED PLATFORM

Estimated Cost for  
Platform and  
Railing:  
\$100,000

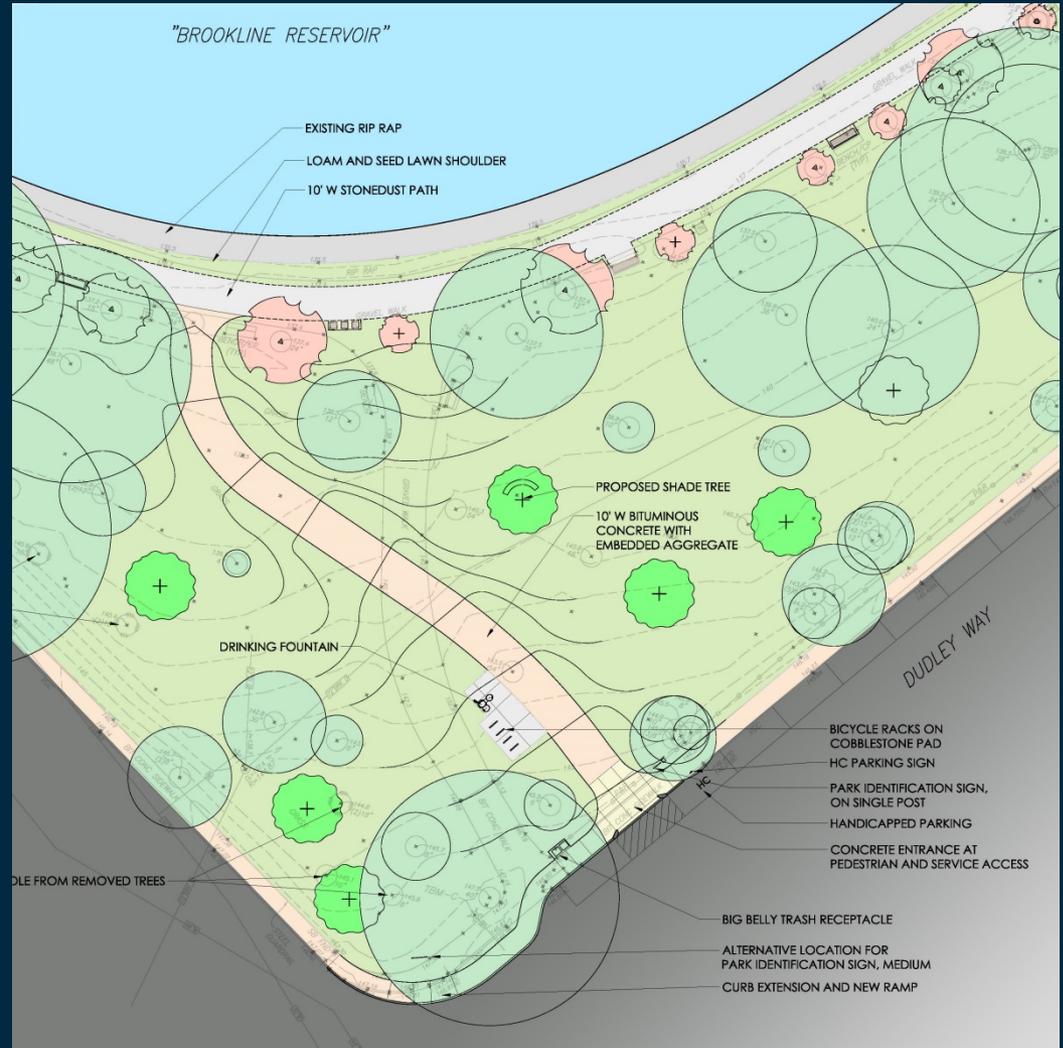


# Lee Street / Dudley Way Entrance

Existing Conditions



Base Improvements



Estimated Cost for  
Lee/Dudley Way  
Entrance:  
\$ 56,000



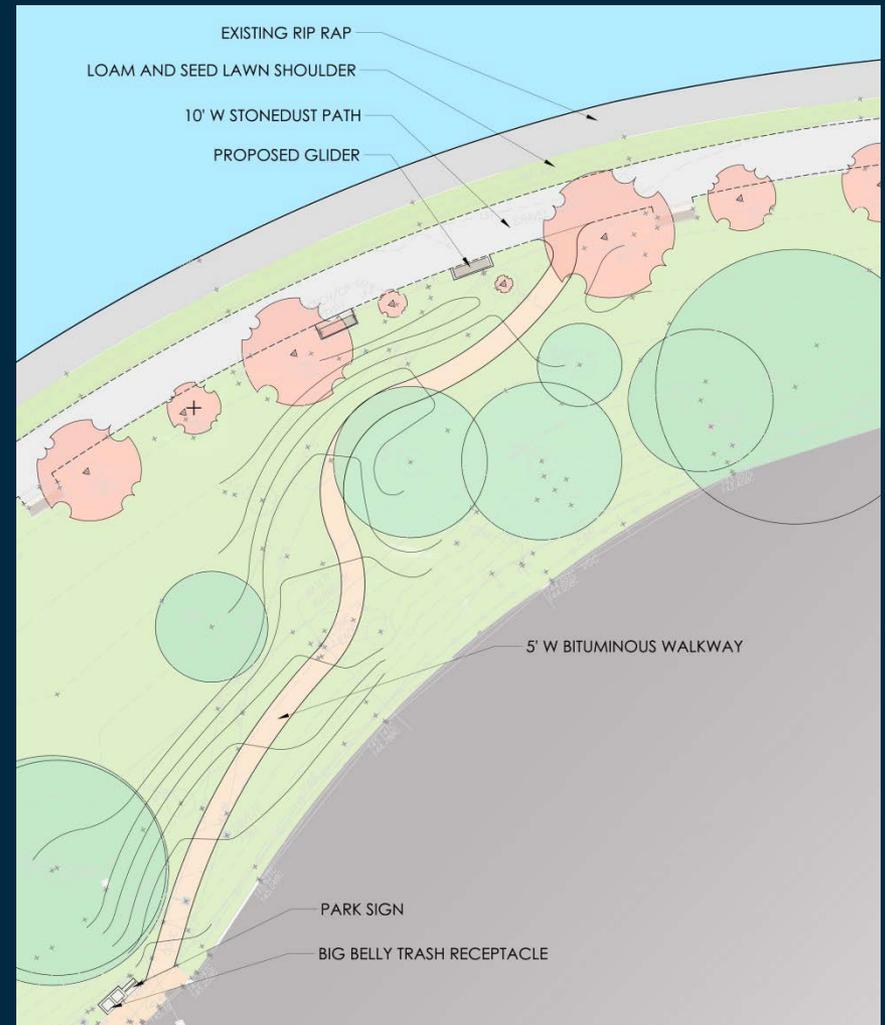
# Dudley Way Entrance

## Existing Conditions



Estimated Cost for Dudley  
Way Entrance: \$ 11,000  
Accessible Option:  
ADD \$22,000

## Proposed Alternatives



# Dudley Street Entrance - 2

## Existing Conditions



## Base Improvements



Estimated Cost for Dudley Street Entrance: \$ 37,000



# Entrance at End of Dudley Street

## Existing Conditions



Estimated Cost at the  
End of Dudley Street:  
\$ 7,600

## Base Improvements



# Walnut Street Entrance

## Existing Conditions



Estimated Cost for  
Walnut Street Entrance:  
\$ 1,500

## Base Improvements

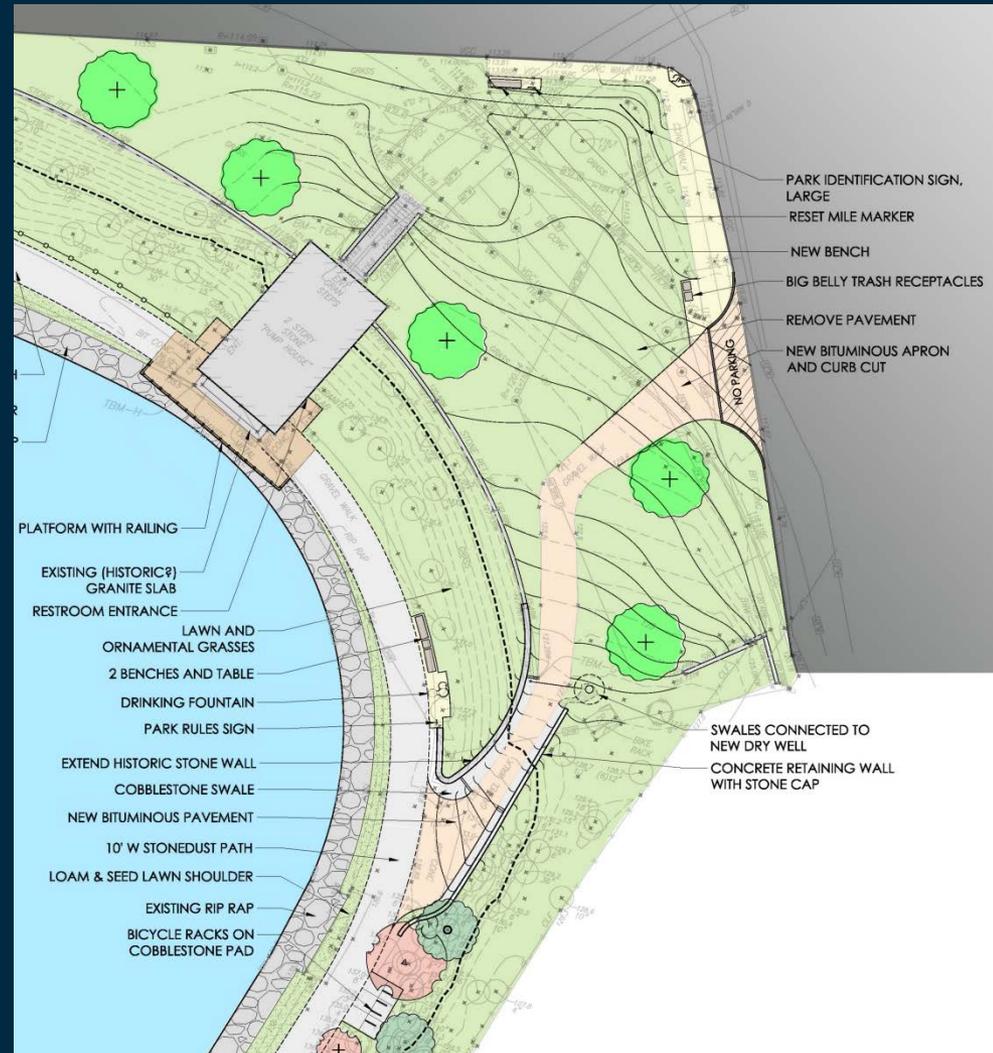


# Warren Street Entrance

## Existing Conditions



## Base Improvements



Estimated Cost for Warren Street Entrance  
Base: \$133,000

1<sup>st</sup> Option: ADD \$29,000

2<sup>nd</sup> Option (Max): ADD \$244,000

3<sup>rd</sup> Option (minimal):  
SAVE \$112,500

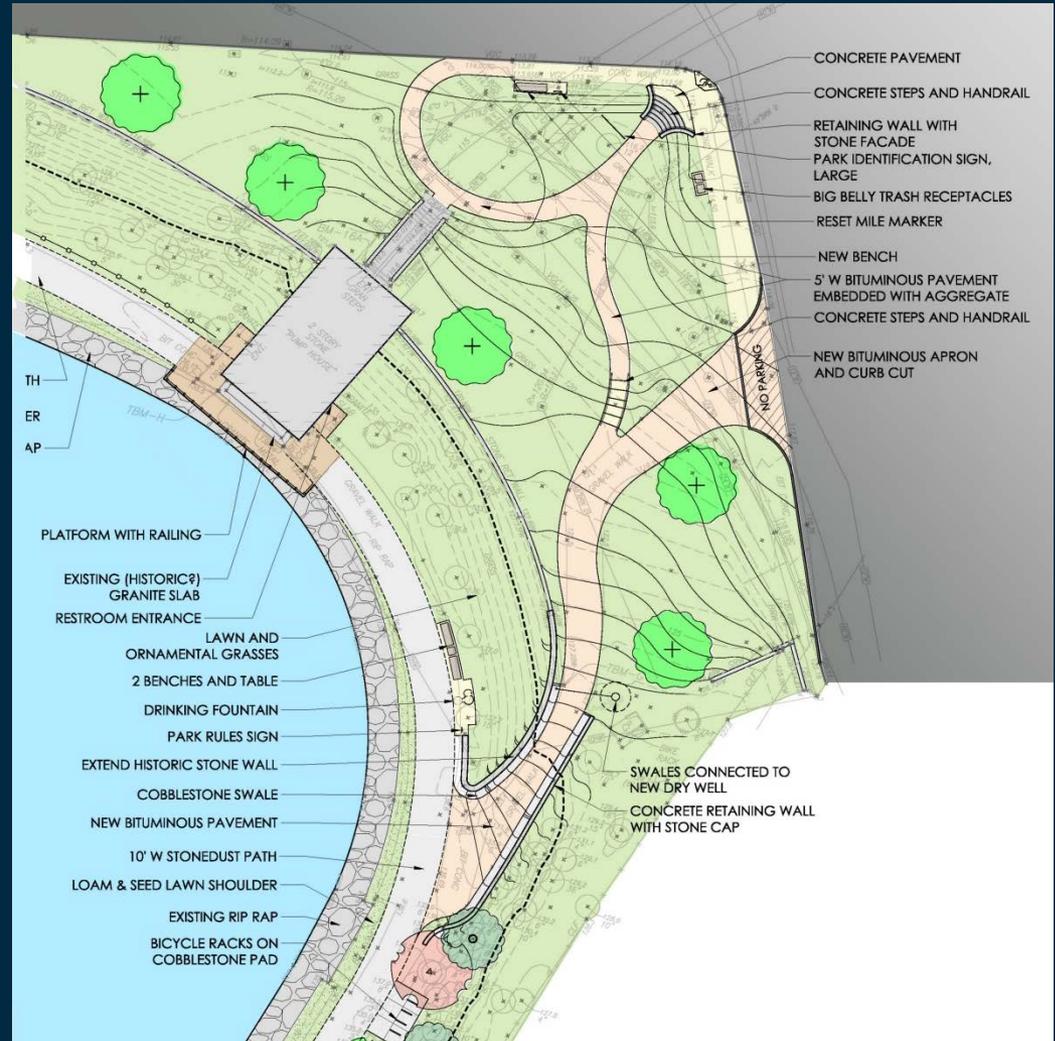


# Warren Street Entrance

## Existing Conditions



## Proposed First Option- Pedestrian Entrance



**1<sup>st</sup> Option:  
ADD \$29,000**



# Warren Street Entrance

## Existing Conditions



## Proposed Second Option (Full Build)



**2<sup>nd</sup> Option (Max):  
ADD \$244,000**

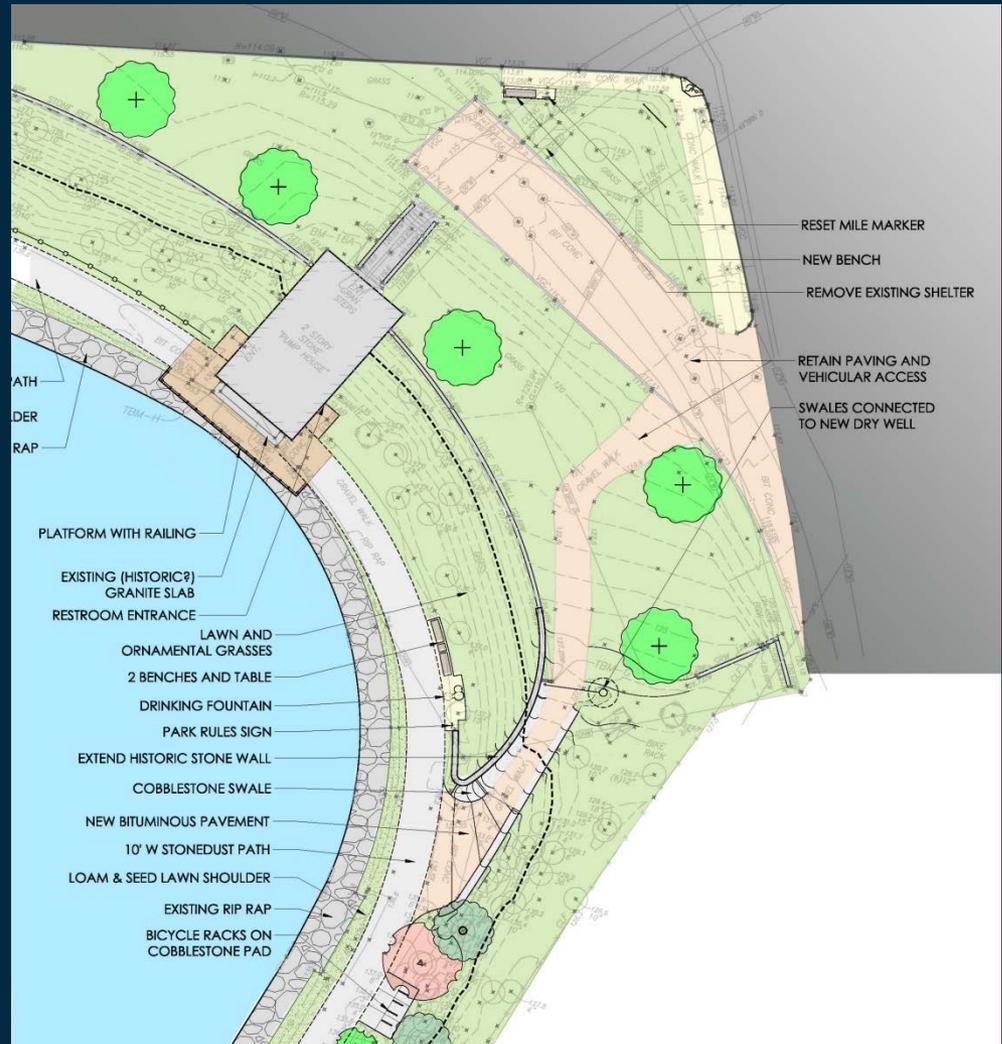


# Warren Street Entrance

## Existing Conditions



## Proposed Third Option



3<sup>rd</sup> Option (Minimal):  
SAVE \$112,500



# Park Entrances



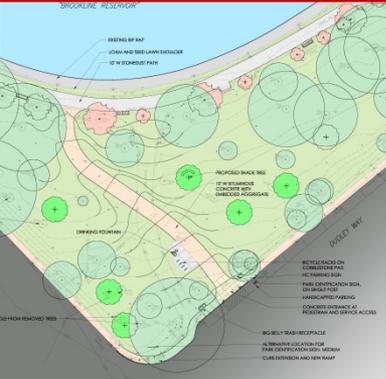
Improved Entrance



Improved Entrance



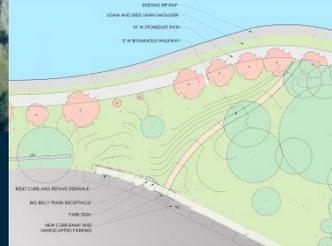
Accessible Entrance



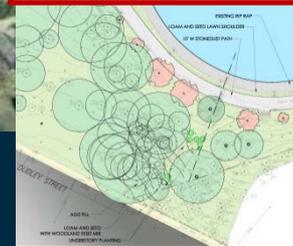
Improved Entrance



Accessible Entrance



Improved Area



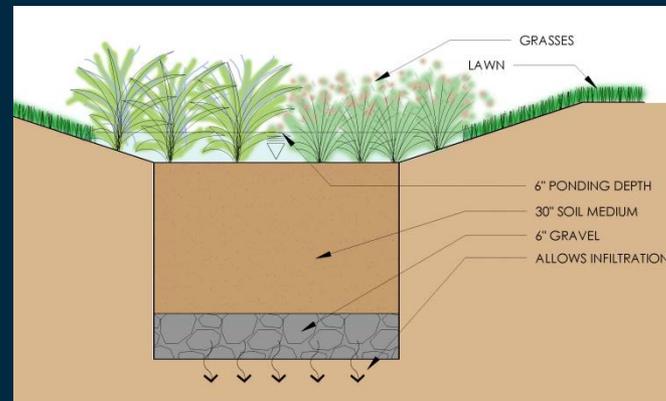
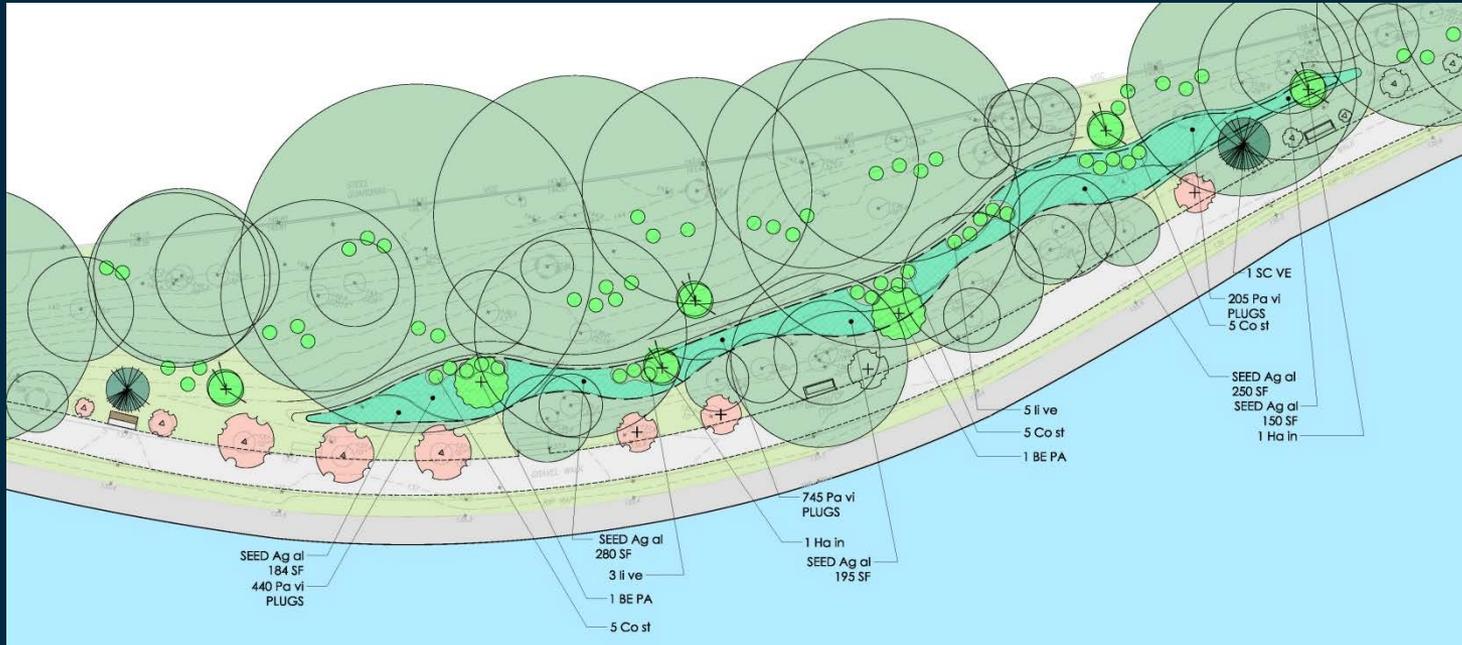
# Stormwater Management Goals

- Increase Infiltration → decrease standing water
- Decrease Impervious Surfaces



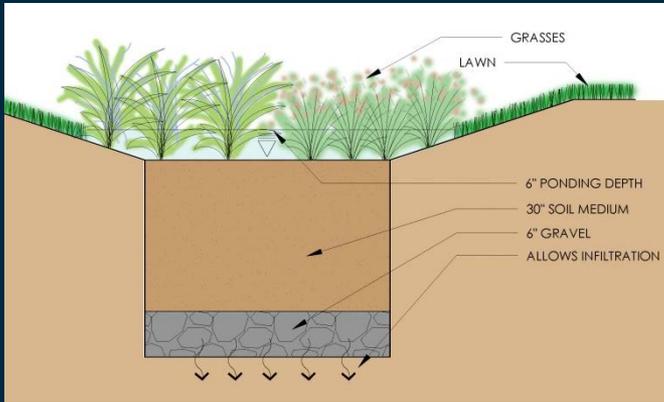
# Stormwater Management Goals

- Increase Infiltration: bioretention areas



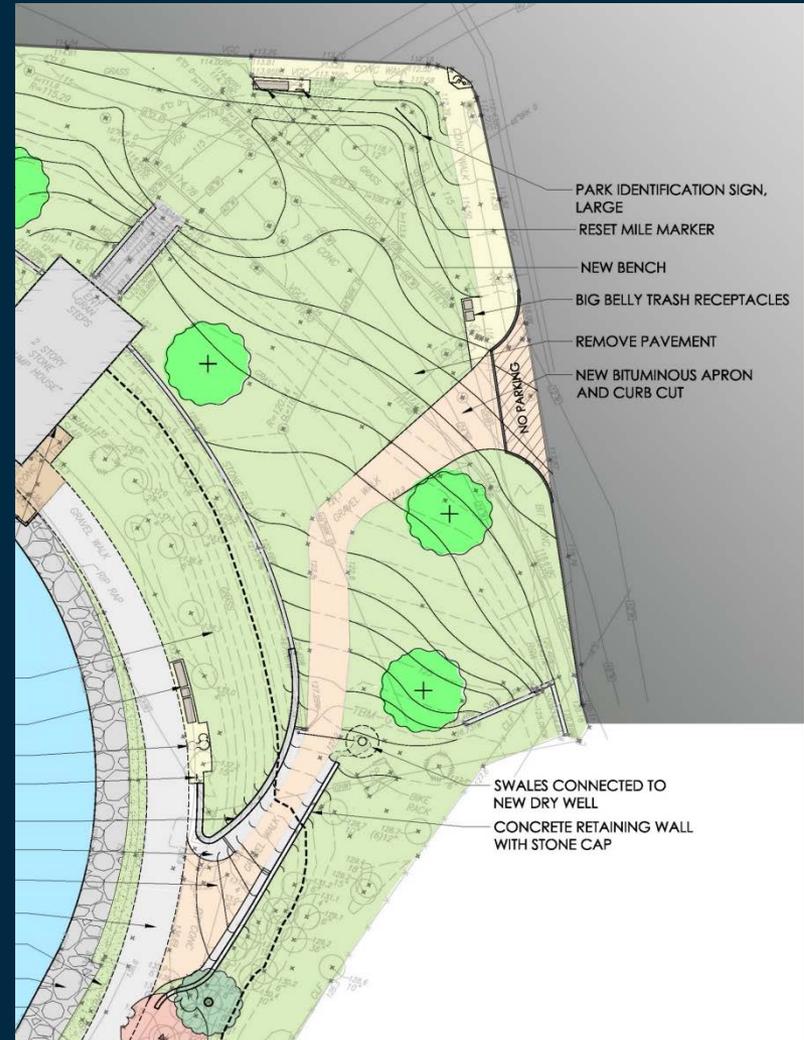
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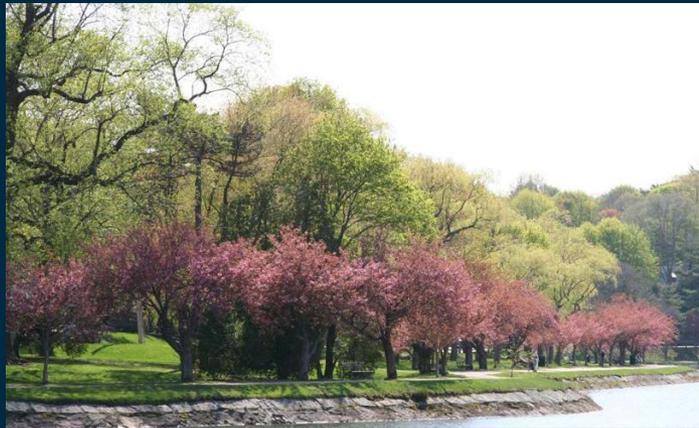
# Stormwater Management Goals

- Increase Infiltration
  - Swales and dry wells
  - Reduce impervious surfaces

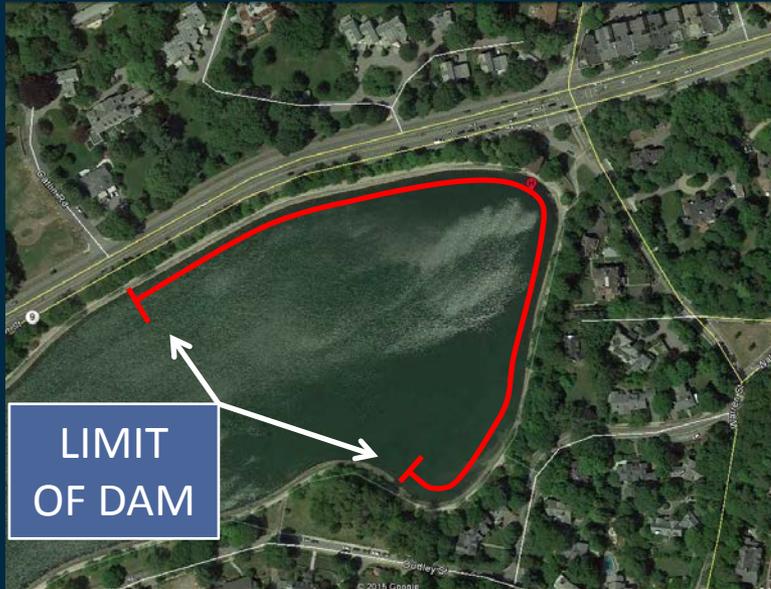


# Planting Goals

- Address ODS requirements
- Augment Cherry trees
- Remove failing trees
- Plant new trees for 'arboretum' character
- Remove invasives and plant new understory plants
- Revitalize troubled turf areas
- Add stands of ornamental grasses

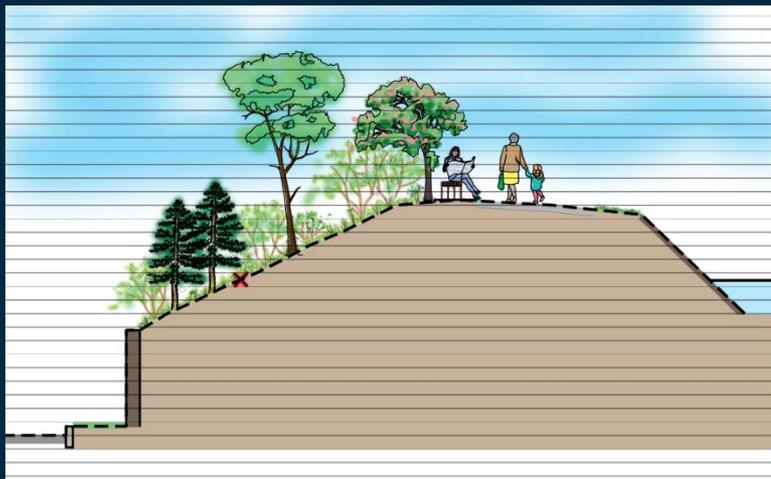


# Understanding ODS Implications

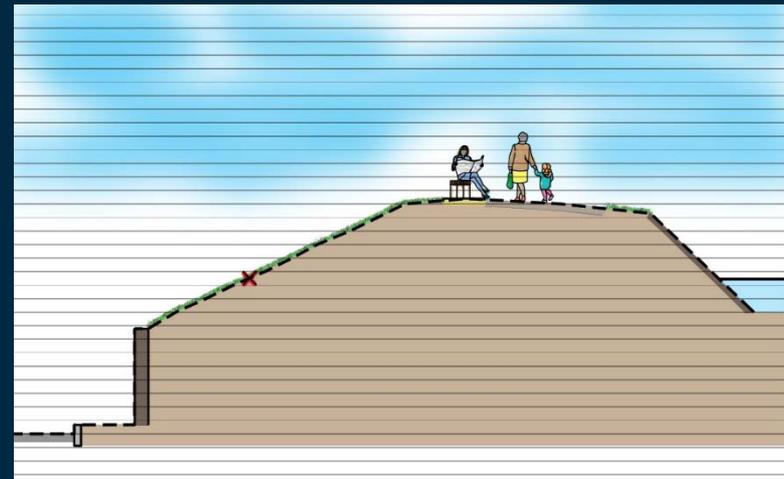


## ODS POLICY:

- Remove all under-brush and trees, establish uniform cover of grass



Existing Conditions



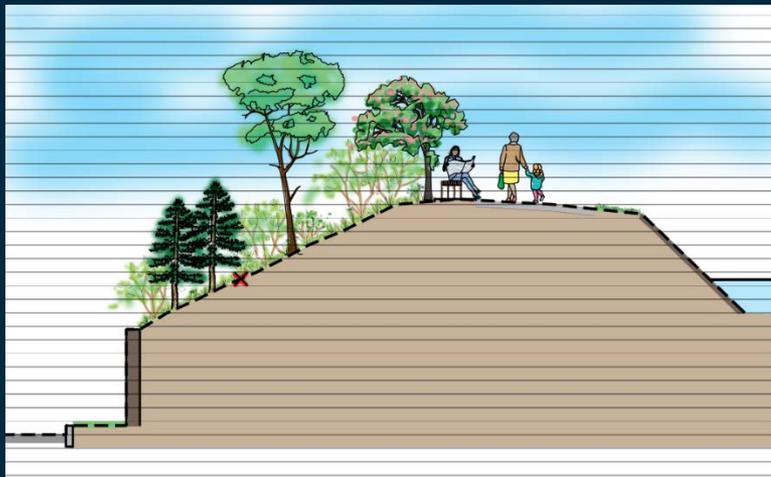
ODS Policy

# Understanding ODS Implications

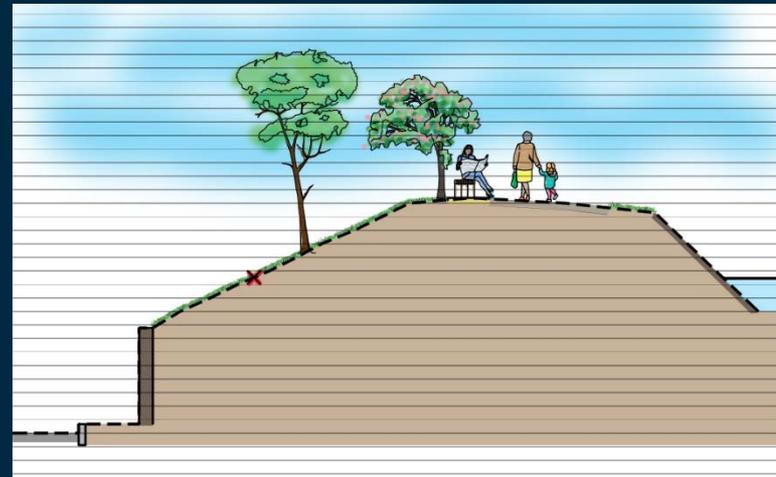


## PROPOSED REFINED APPROACH:

- MUST - Remove all under-brush & trees under 6" cal.
- MUST - Remove trees adjacent to Gatehouse & trees in poor health
- Maintain trees – back of embankment, above water level & 6" + caliper and healthy
- Maintain trees – along top of bank (i.e. Cherry trees)



Existing Conditions



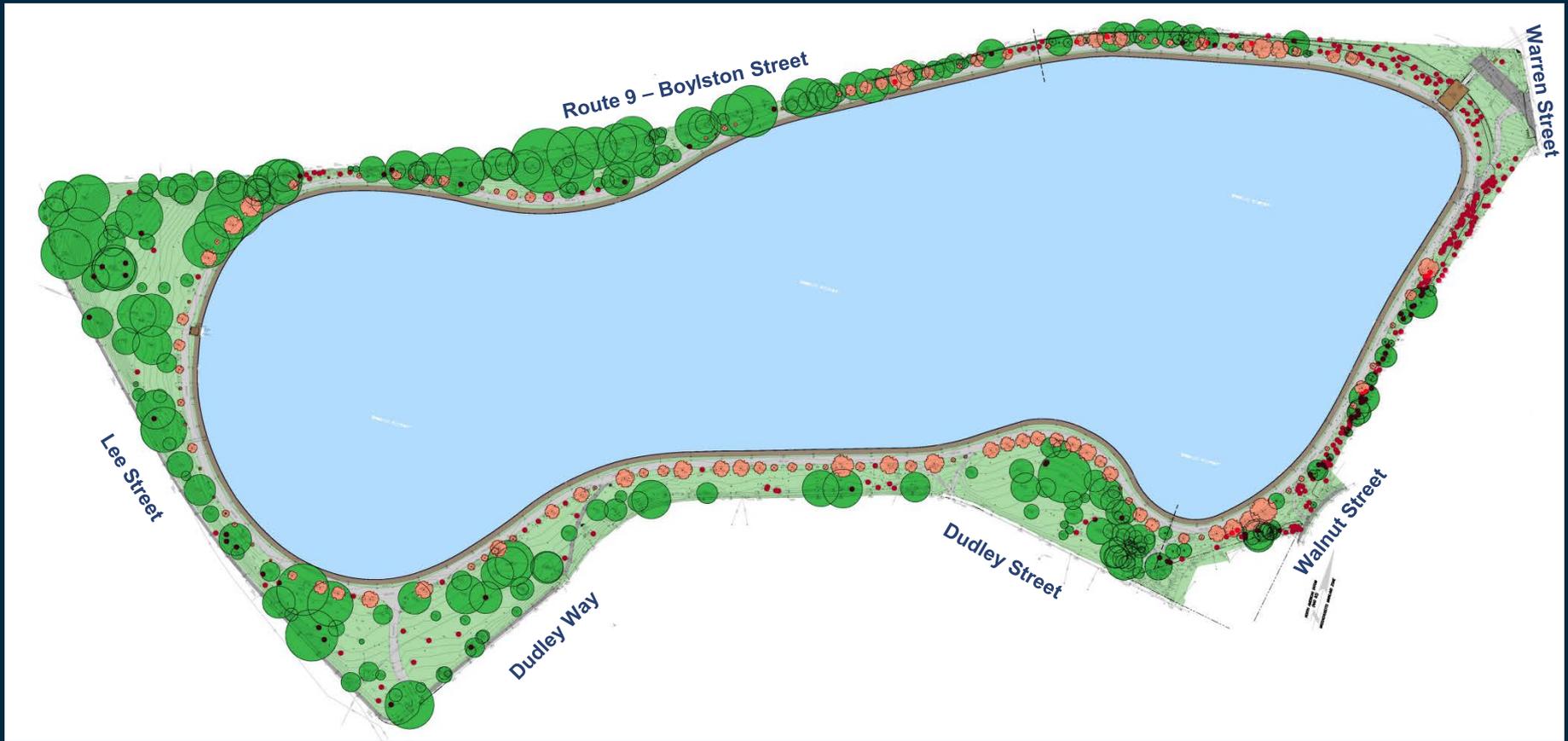
Proposed Refined Approach

# Existing Vegetation



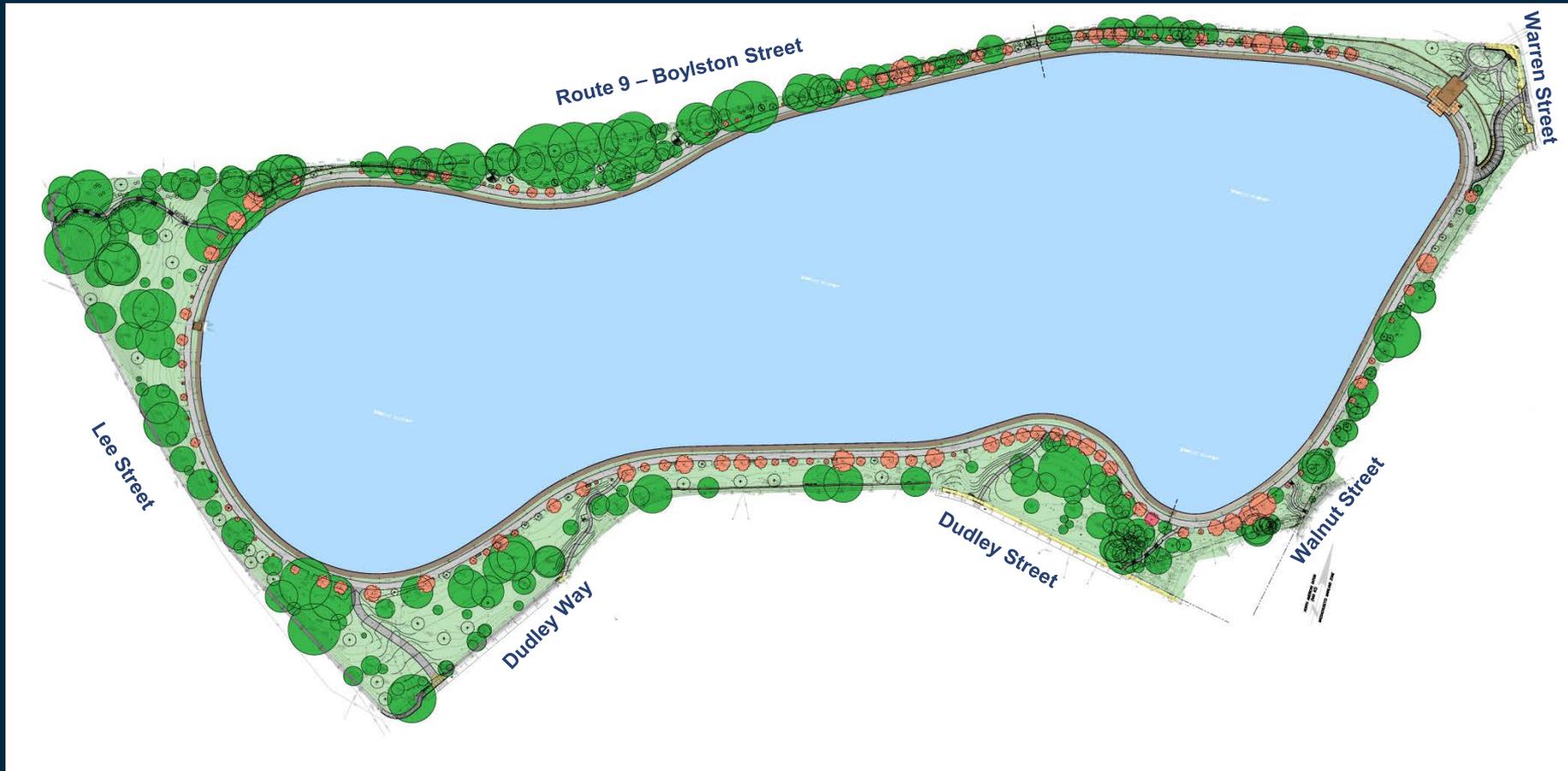
- Shade trees over lawn
- Wooded areas: trees with understory
- Signature Cherry trees

# Diagram of Tree Removals



- Proposed Refined Approach for ODS
  - Understory removal
  - Tree removal
- Remove failing trees
- Remove invasives from wooded areas

# Conditions Before New Planting



- Trees removed
- Understory removed from Dam
- Invasives removed

# Proposed New Planting



# Proposed Planting Palette

## TREES



Red Maple  
*Acer rubrum*



Ruby Horsechestnut  
*Aesculus carnea*



Paper Birch  
*Betula papyrifera*



Katsura Tree  
*Cercidiphyllum japonicum*



Redbud  
*Cercis canadensis*



Fringetree  
*Chionanthus virginicus*



Yellowwood  
*Cladrastis kentukea*



Kentucky Coffeetree  
*Gymnocladus dioica*



Turkish Filbert  
*Corylus colurna*

# Proposed Planting Palette

## TREES



Kwanzan Cherry  
*Prunus serrulata*



Tuliptree  
*Liriodendron tulipifera*



Sweetgum  
*Liquidambar styraciflua*



Sourwood  
*Oxydendrum arboreum*



Carolina Silverbell  
*Halesia*



Scarlet Oak  
*Quercus coccinea*



Pin Oak  
*Quercus palustris*



Red Oak  
*Quercus rubra*



Umbrella Pine  
*Sciadopitys*

# Proposed Planting Palette

## SHRUBS AND UNDERSTORY



Bottlebrush Buckeye  
*Aesculus parvifolia*



Red Chokeberry  
*Aronia arbutifolia*



Cornelian Cherry  
*Cornus mas*



Gray Dogwood  
*Cornus racemosa*



Redtwig Dogwood  
*Cornus stolonifera*



Witchhazel  
*Hamamelis x intermedia*



Inkberry  
*Ilex glabra*



American Holly  
*Ilex opaca*

# Proposed Planting Palette

## SHRUBS AND UNDERSTORY



Winterberry  
*Ilex verticillata*



Mountainlaurel  
*Kalmia latifolia*



Spicebush  
*Lindera benzoin*



Bayberry  
*Myrica pensylvanica*



Low Grow Sumac  
*Rhus aromatica* 'Low Grow'



Mayflower Viburnum  
*Viburnum carlesii*



Am. Cranberrybush  
*Viburnum opulus*

# Proposed Planting Palette

## GRASSES



Bluestem Grass

Redtop Grass

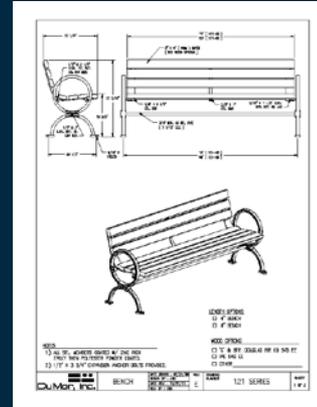
No Mow Grass

# Site Furniture, Fencing and Railings



- Proposed "Big Belly" trash/recycling
- ★ Proposed new bike racks & signage
- Proposed drinking fountains
- Proposed additional seating
- ▲ Reinstall mile-marker

# Site Furniture

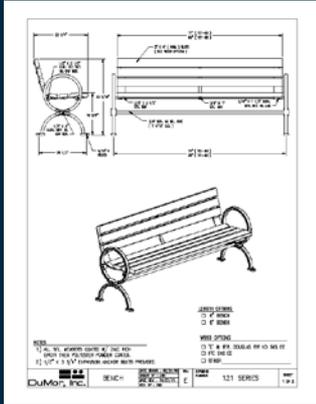


Existing site furniture

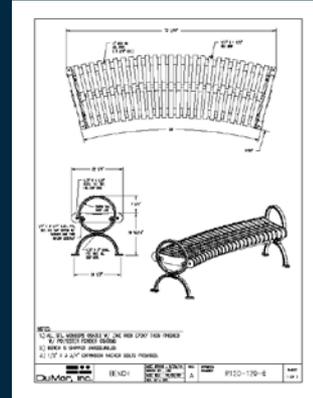


Potential site furniture

# Possible Site Furniture Arrangements



Family of furniture—  
Single seats, side tables



Radial bench for under trees



Single seats w/table



Conversational benches

# Edge Treatment along Rte. 9



Existing edge at Route 9



Extent of Ornamental Fence at Top of Slope



# Options for Ornamental Fence: Along Rte. 9

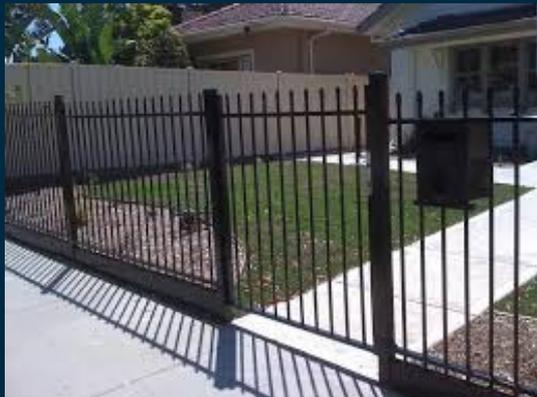
STEEL POSTS, PIPE RAIL WITH MESH INFILL



\$215 per linear foot  
Base: \$195,000

Century Metropolitan

STEEL POSTS AND PICKETS



\$205 per linear foot  
SAVE: \$9,500



# PRELIMINARY COSTS

JANUARY 3, 2018

BROOKLINE RESERVOIR PARK



# PRELIMINARY ESTIMATE REVIEW

Construction Budget in the CIP: \$2,200,000.00

## Priorities

Gatehouse	\$ 250,000
Platform and Handrails	\$ 100,000
All Masonry	\$ 457,000
SP&D, Earthwork & Utilities	\$ 408,400
Stonedust Path	\$ 97,700
Hardscape	\$ 139,200
Ornamental Fence Along Route 9	\$ 195,000
Site Furniture	\$ 72,200
Tree Planting and Seeded Areas	\$ 193,100
	<b>TOTAL</b>
	<b>\$ 1,912,600</b>
<u>15% Contingency</u>	\$ 286,900
<b>TOTAL</b>	<b>\$ 2,199,500</b>
Stormwater Management – Bioretention Areas	\$ 112,800

## Summary:

- Accessible Entrances: Lee/Dudley and Dudley Street
- Improvements to Dudley Way Entrance, revegetate at the end of Dudley St, and improvements at Walnut St. and Warren St. entrances
- Removal of invasives and new understory planting
- Longer length of ornamental fence along Route 9
- Refurbish only Boston Benches
- Donations: cherry trees and new seating



# PRELIMINARY ESTIMATE & PRIORITIES

Construction Budget in the CIP: \$2,200,000.00

## Priorities

Gatehouse		\$	250,000
Platform and Handrails		\$	100,000
All Masonry		\$	457,000
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<u>15% Contingency</u>		\$	286,900
<b>TOTAL</b>		<b>\$</b>	<b>2,199,500</b>
Stormwater Management		\$	112,800

## Add Alternates:

Warren Street Entrance – 1 <sup>st</sup> Option (pedestrian entrance)	ADD to Base	\$	29,000
Warren Street Entrance – 2 <sup>nd</sup> Option (full build)	ADD to Base	\$	244,000
Site Furniture – Refurbish remaining exist. benches	ADD	\$	20,800
Bus Shelter	ADD	\$	20,000
Dudley Way Entrance – make accessible	ADD	\$	22,000
Ornamental Pipe Rail at Dudley Street/Way	ADD	\$	168,000

## Deduct Alternates:

Minimize Warren St Entrance Improvement	DEDUCT	\$	112,553
Shorten Ornamental Fence	DEDUCT	\$	74,175





# OPEN DISCUSSION

JANUARY 3, 2018

BROOKLINE RESERVOIR PARK



# Park Entrances



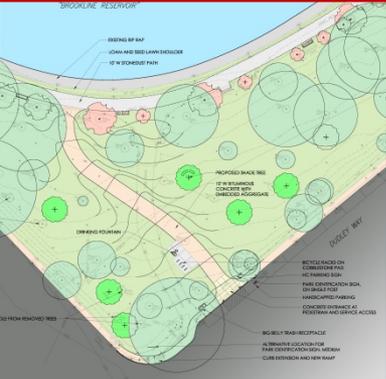
Improved Entrance



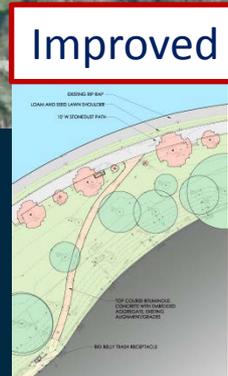
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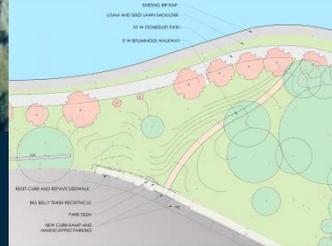
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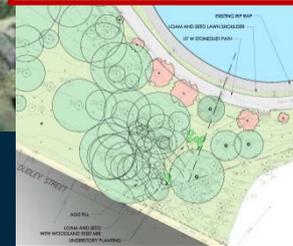
Improved Entrance



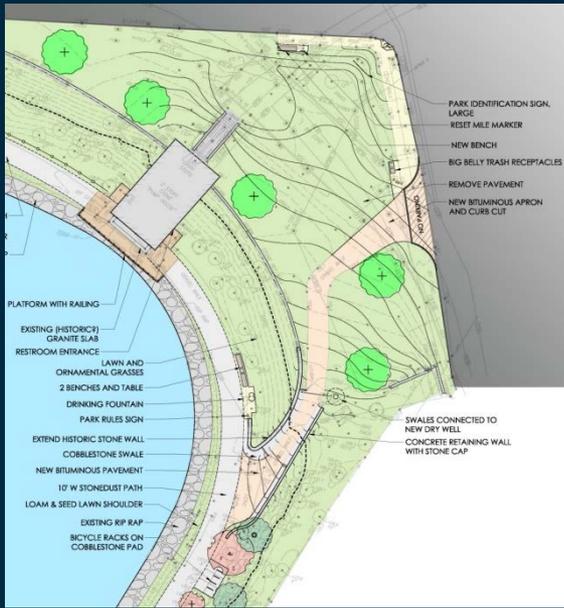
Accessible Entrance



Improved Area



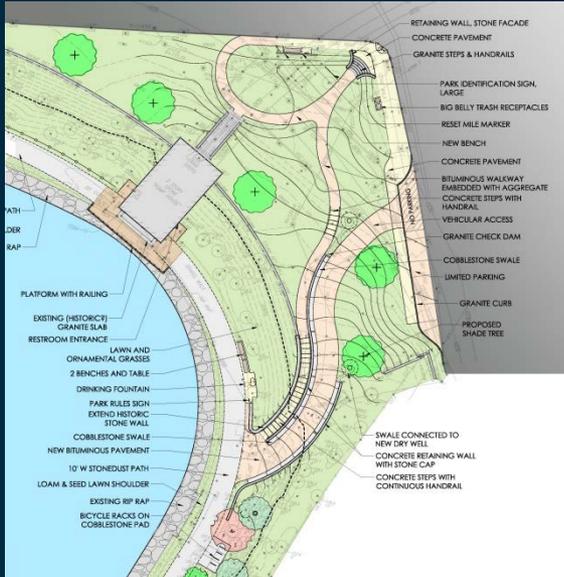
**Base:**  
**\$133,000**



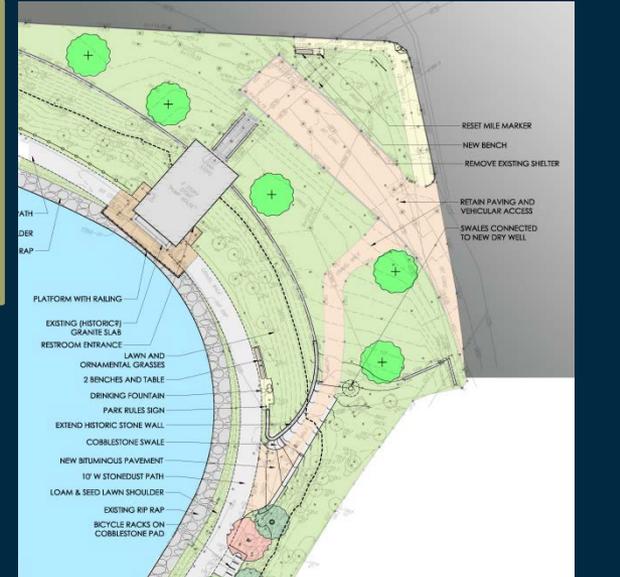
**1<sup>st</sup> Option:**  
**ADD \$29,000**



**2<sup>nd</sup> Option (Max):**  
**ADD \$244,000**



**3<sup>rd</sup> Option (Min):**  
**SAVE \$112,500**



# Contact Information

Your input is valuable - Please  
contact us with your ideas!

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