



Helena Valley Flood Mitigation Master Plan

**Helena Valley Flood Group
October 25, 2012**

The Results of L&C County's Efforts:

The cover features a background image of a river with a wooden dam. In the top left, there is a smaller inset image of a park-like area with trees and a path. Below that is a hydrograph chart showing a sharp peak. In the middle left, there is another inset image of a river with a dam structure. The Lewis and Clark County logo is in the top right.

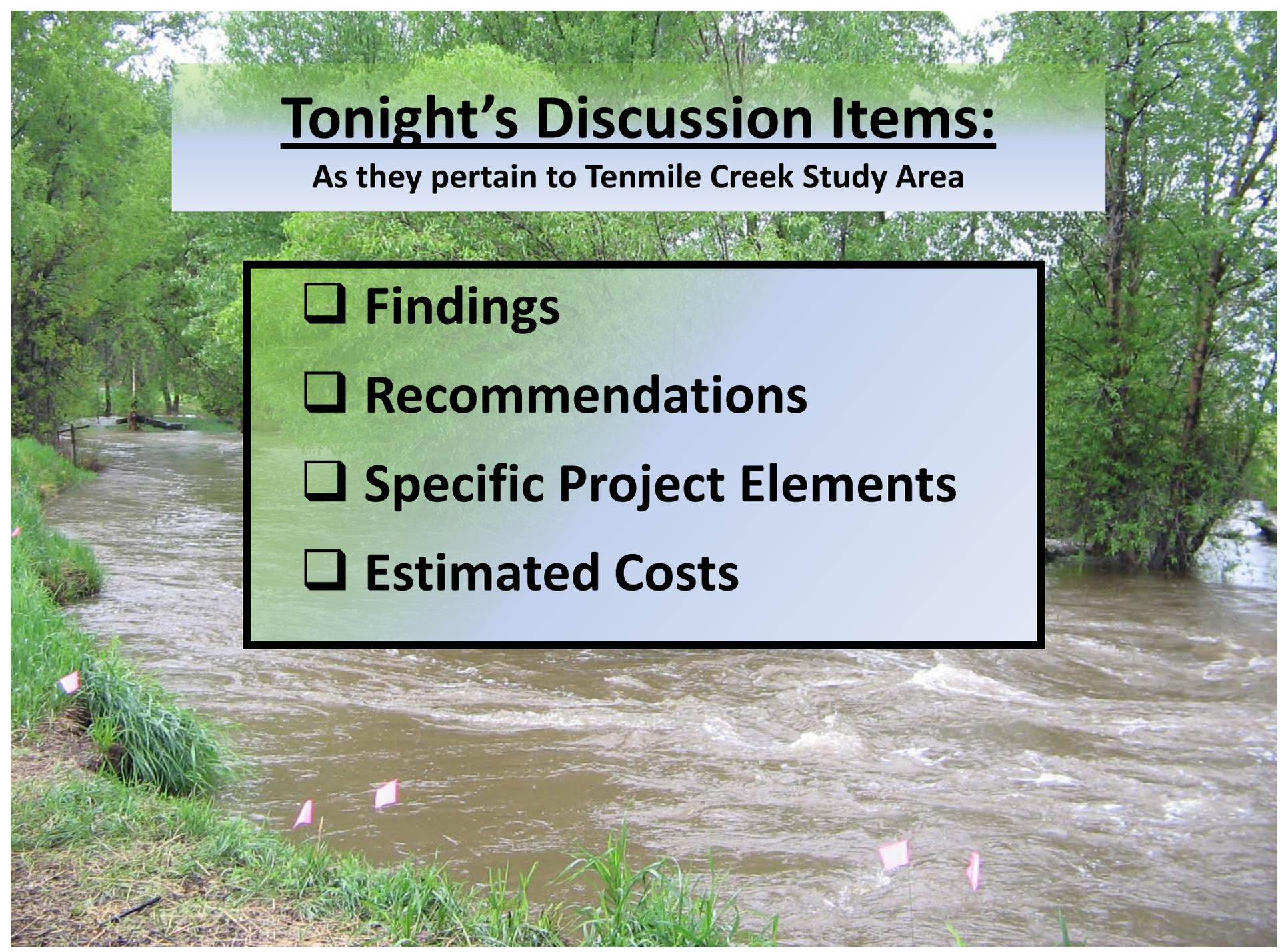
LEWIS AND
CLARK COUNTY

Flood
Mitigation
Master Plan
for the Helena Valley

Prepared By:


Anderson-Montgomery
CONSULTING ENGINEERS

October, 2012
FINAL

A photograph of a river with a white box containing text overlaid on it. The river is brown and turbulent, with white foam from rapids. The banks are lined with green trees and grass. Several pink flags are visible in the water near the shore. The white box has a black border and contains the following text:

Tonight's Discussion Items:

As they pertain to Tenmile Creek Study Area

- Findings
- Recommendations
- Specific Project Elements
- Estimated Costs

Findings

TENMILE CREEK FLOOD INTENSITY – 2011 vs. 1981

➤ 500 YEARS

➤ 100 YEARS

➤ 50 YEARS

➤ 25 YEARS

➤ 10 YEARS

← 1981 ≈ 300 YEAR EVENT - TMC

← 2011 ≈ 22 YEAR EVENT - TMC

NOTE: No flow data for Silver Creek

Findings

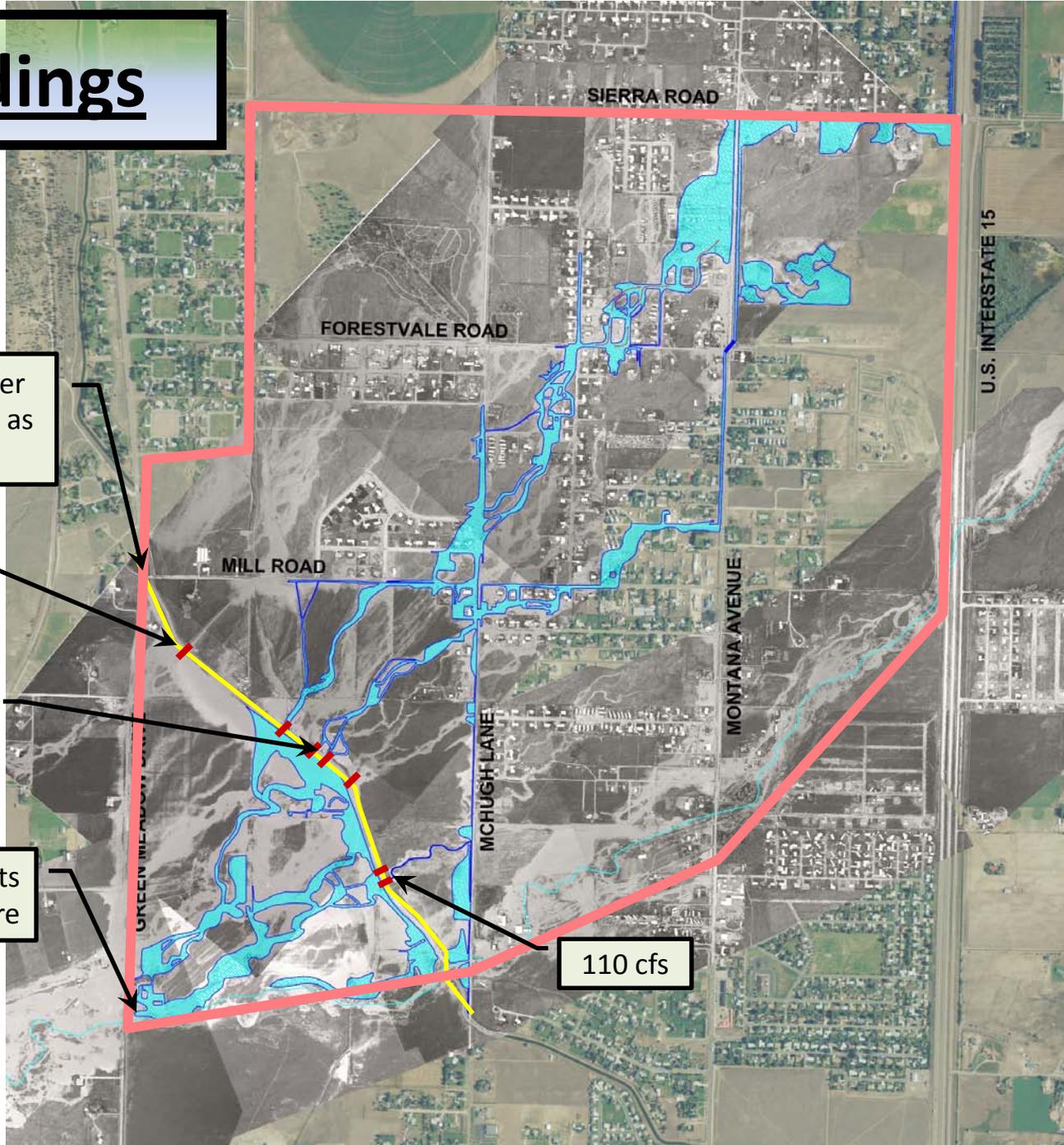
7 culverts under HVID Canal act as "regulators"

280 cfs

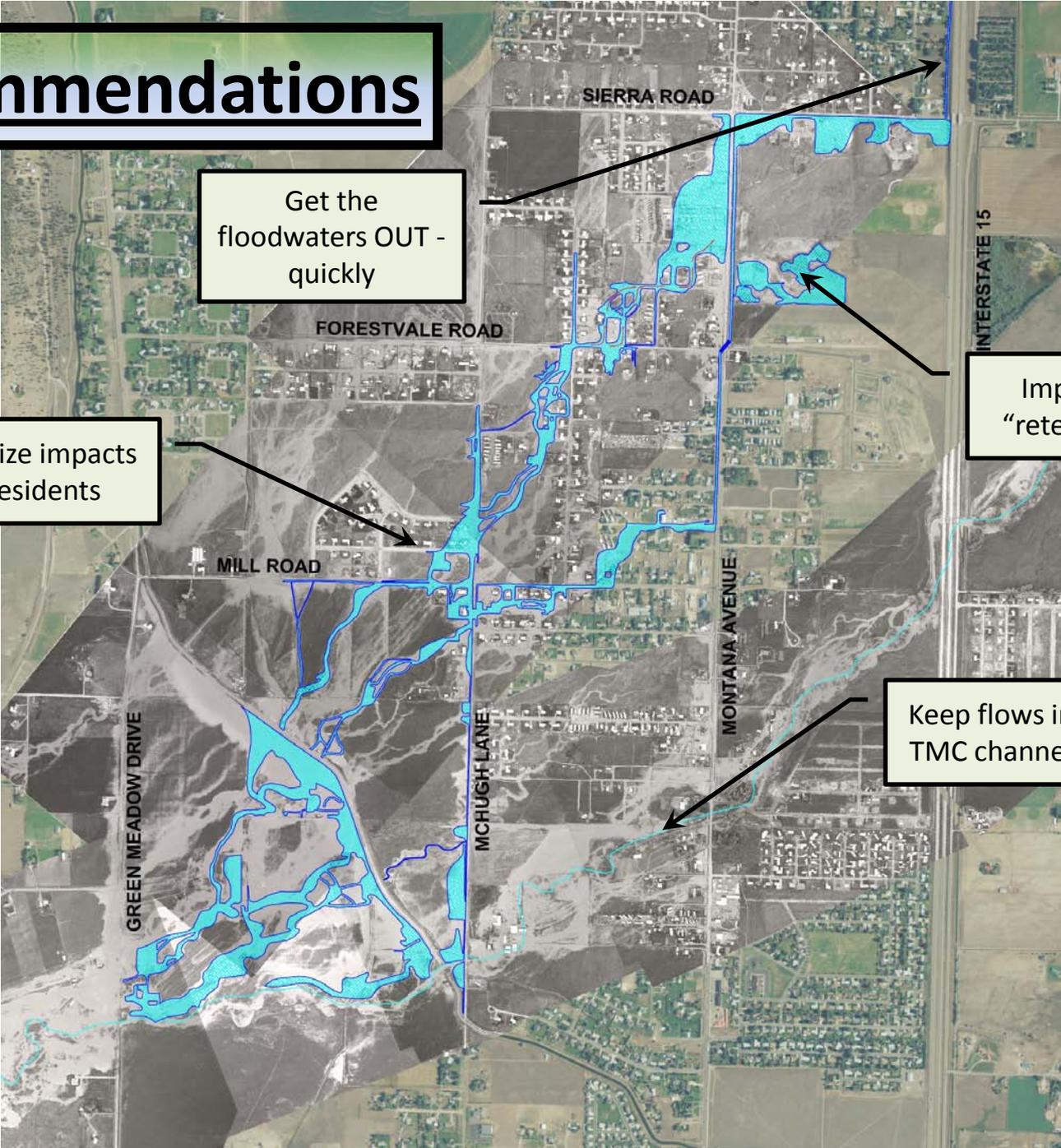
200 cfs
(total for 4)

TMC leaves its banks here

110 cfs



Recommendations



Get the floodwaters OUT - quickly

Minimize impacts to residents

Improve "retention"

Keep flows in TMC channel

Recommendations

Initial Project

Outlet to I-15 ditch

Diversion to retention pond

Ditch improvements on Montana to Sierra

Larger crossing under Montana/Forestvale

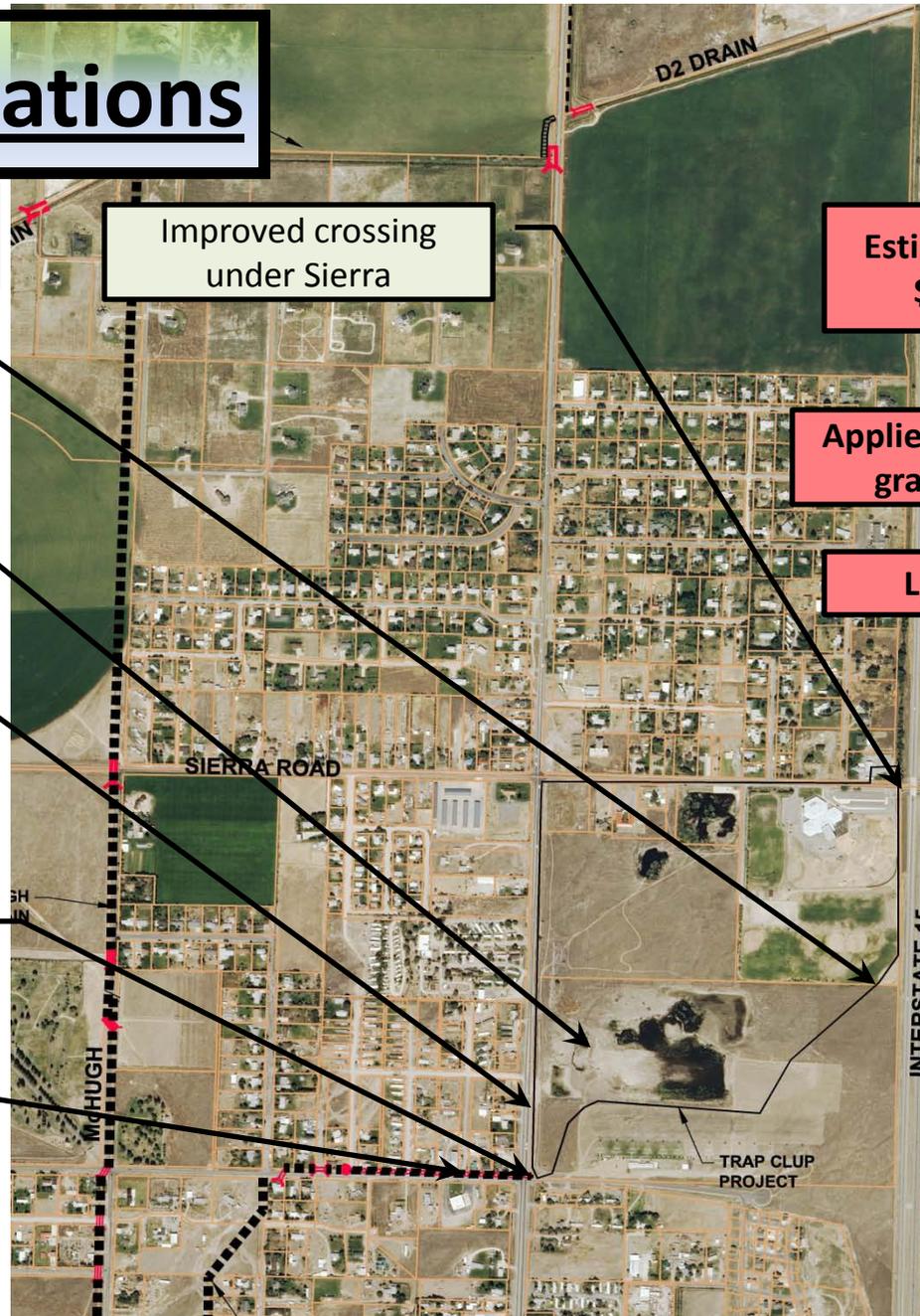
Added improvements on Forestvale

Improved crossing under Sierra

Estimated Cost: \$691,670

Applied for FEMA/HMGP grant for \$518,670

Local Share: \$173K

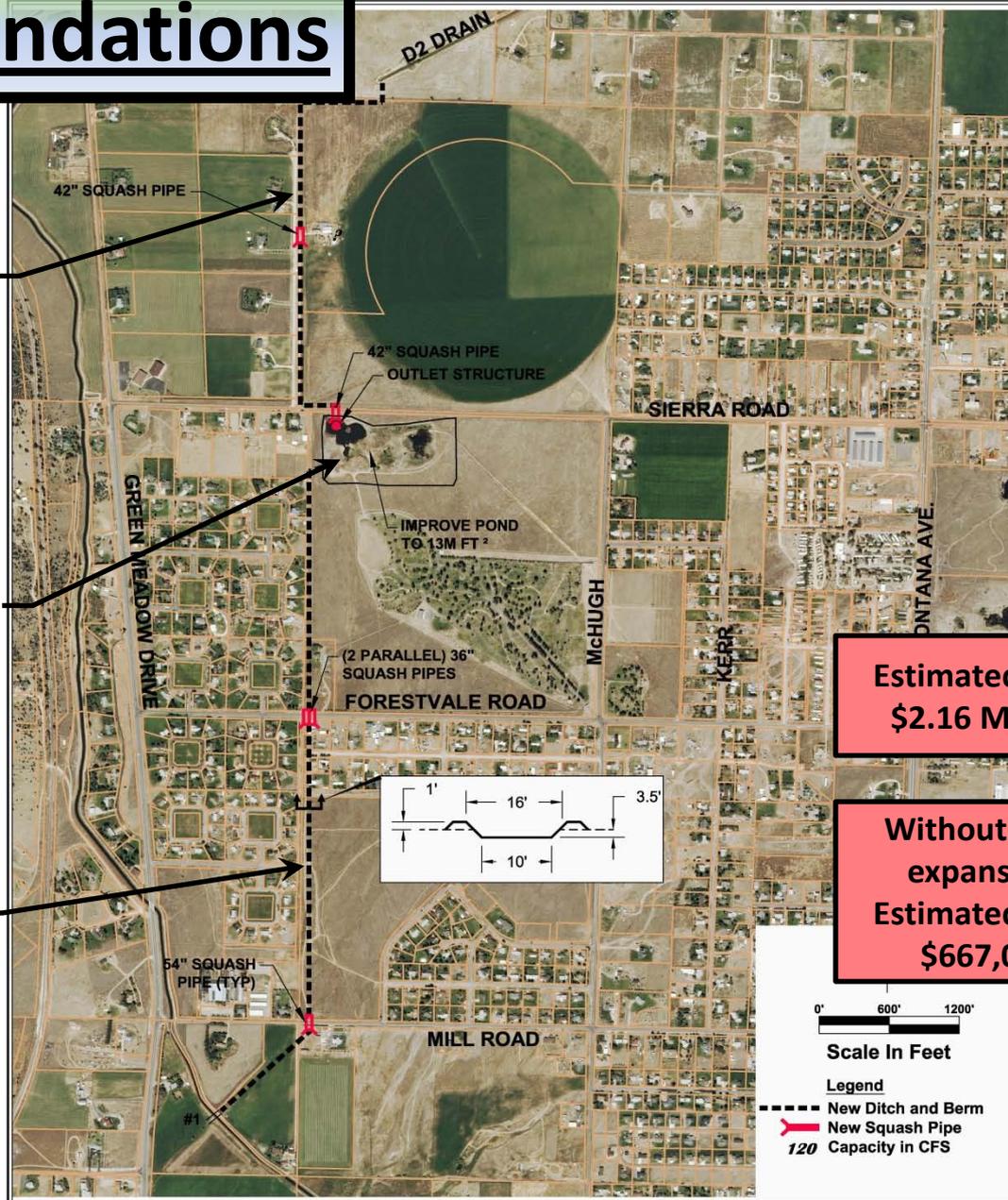


Recommendations

Overflow to
D2 Drain

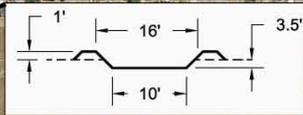
Expand Forestvale
Cemetery
Retention Pond

Lease & improve
Hilger Ditch



**Estimated Cost:
\$2.16 Million**

**Without pond
expansion:
Estimated Cost:
\$667,000**



0' 600' 1200'

Scale In Feet

Legend

--- New Ditch and Berm

➔ New Squash Pipe

120 Capacity in CFS

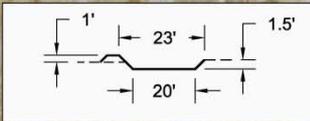
Recommendations

Mill Rd. ditch –
add bridges

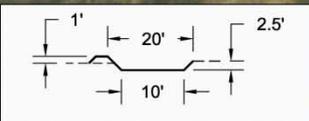
45.5'Wx30'L
TRI-DECK
BRIDGE

MILL ROAD

NEW DITCH AND
BERM



(3) 32.5'Wx25'L
TRI-DECK BRIDGES



MOTSIFF RD

McHUGH ROAD

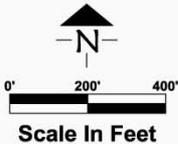
36" SQUASH
PIPE (TYP)

Improve culvert/ditch
capacity on McHugh

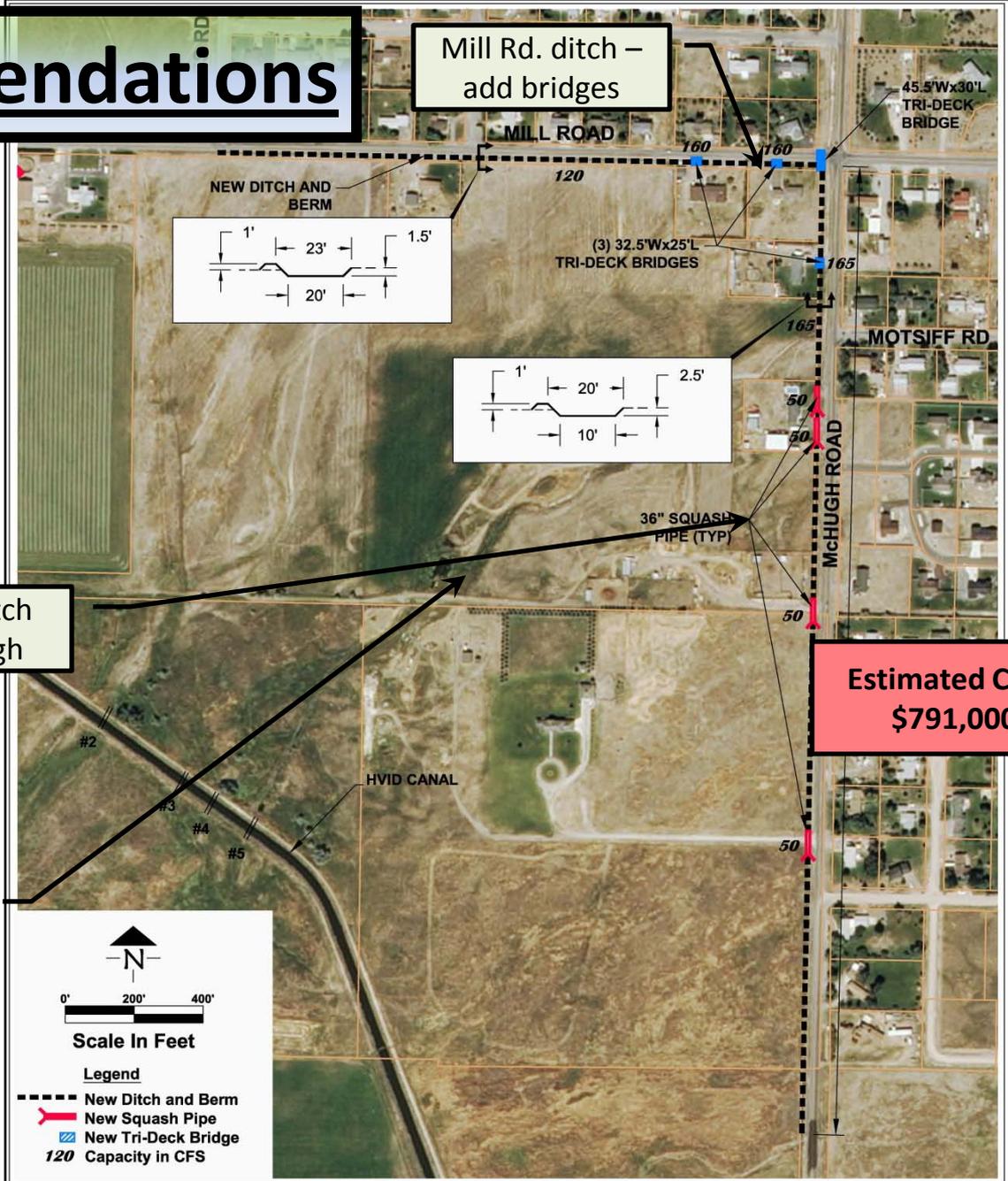
Estimated Cost:
\$791,000

Channelize flow
across field

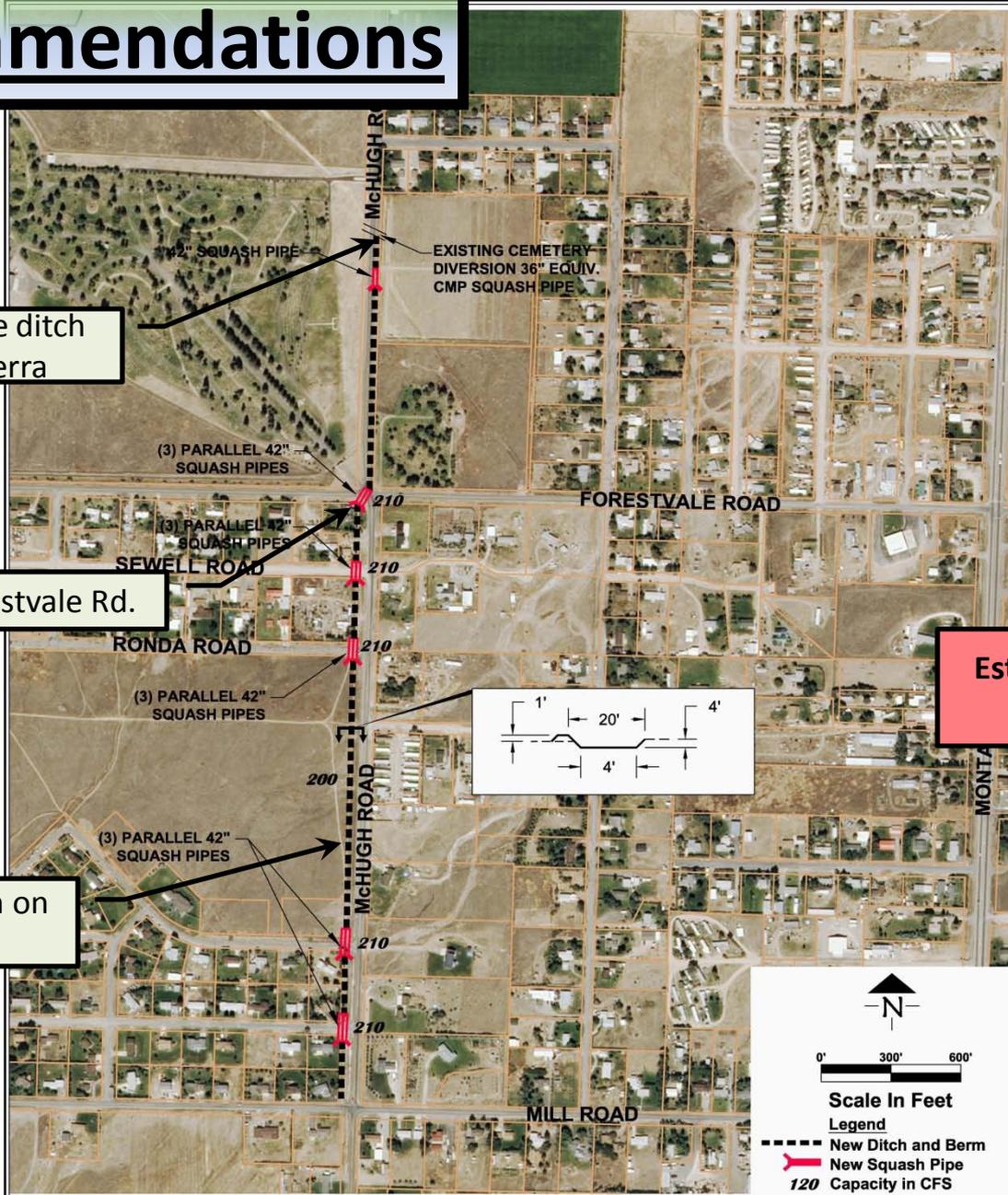
HVID CANAL



- Legend**
- New Ditch and Berm
 - New Squash Pipe
 - ▨ New Tri-Deck Bridge
 - 120 Capacity in CFS



Recommendations



Improve ditch on McHugh



0' 300' 600'

Scale In Feet

Legend

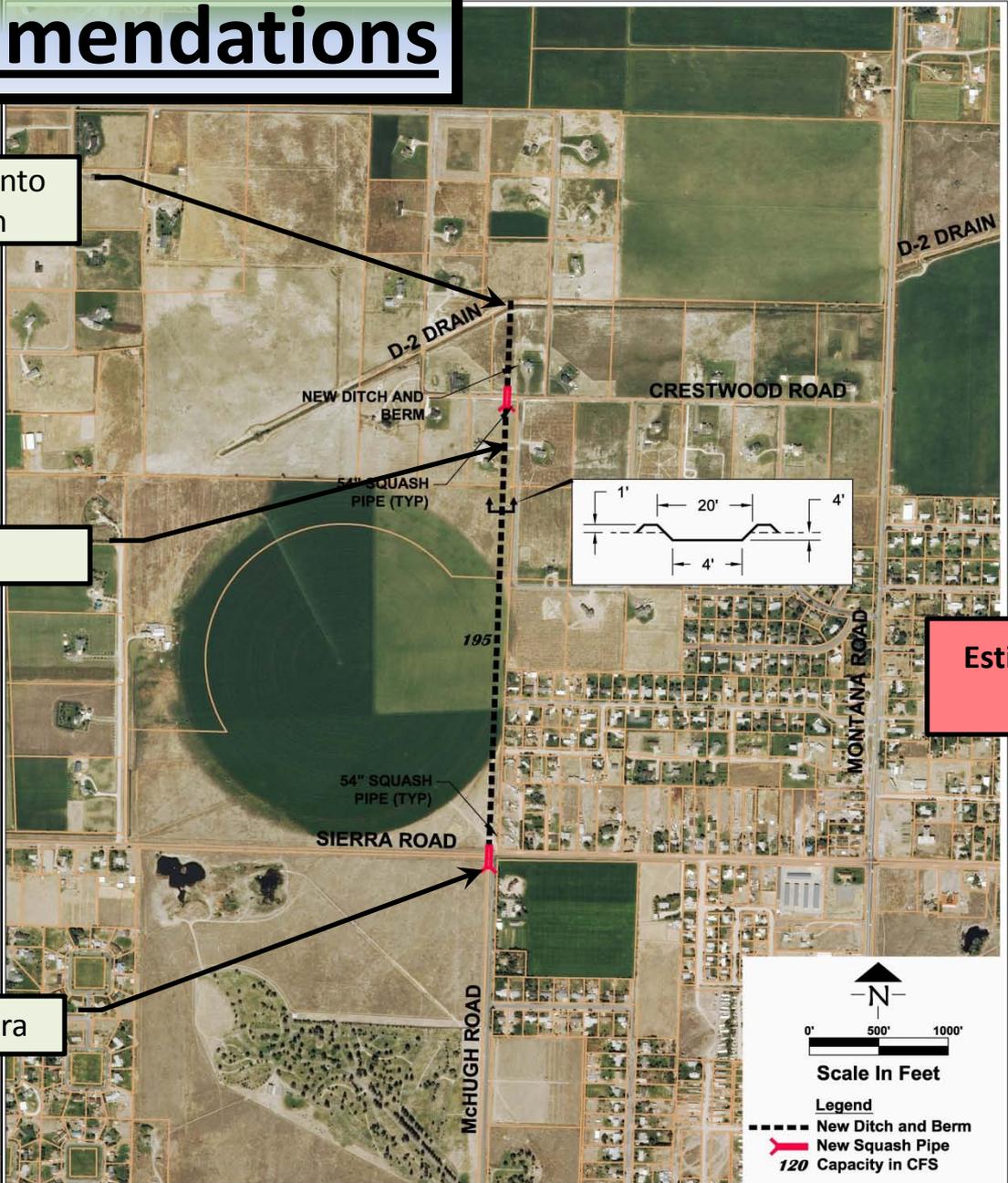
- New Ditch and Berm
- New Squash Pipe
- 120 Capacity in CFS

Recommendations

Discharge into D2 Drain

New Ditch

Cross Sierra



Estimated Cost:
\$472,000



Scale In Feet

Legend

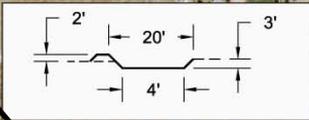
- New Ditch and Berm
- New Squash Pipe
- 120 Capacity in CFS

Recommendations

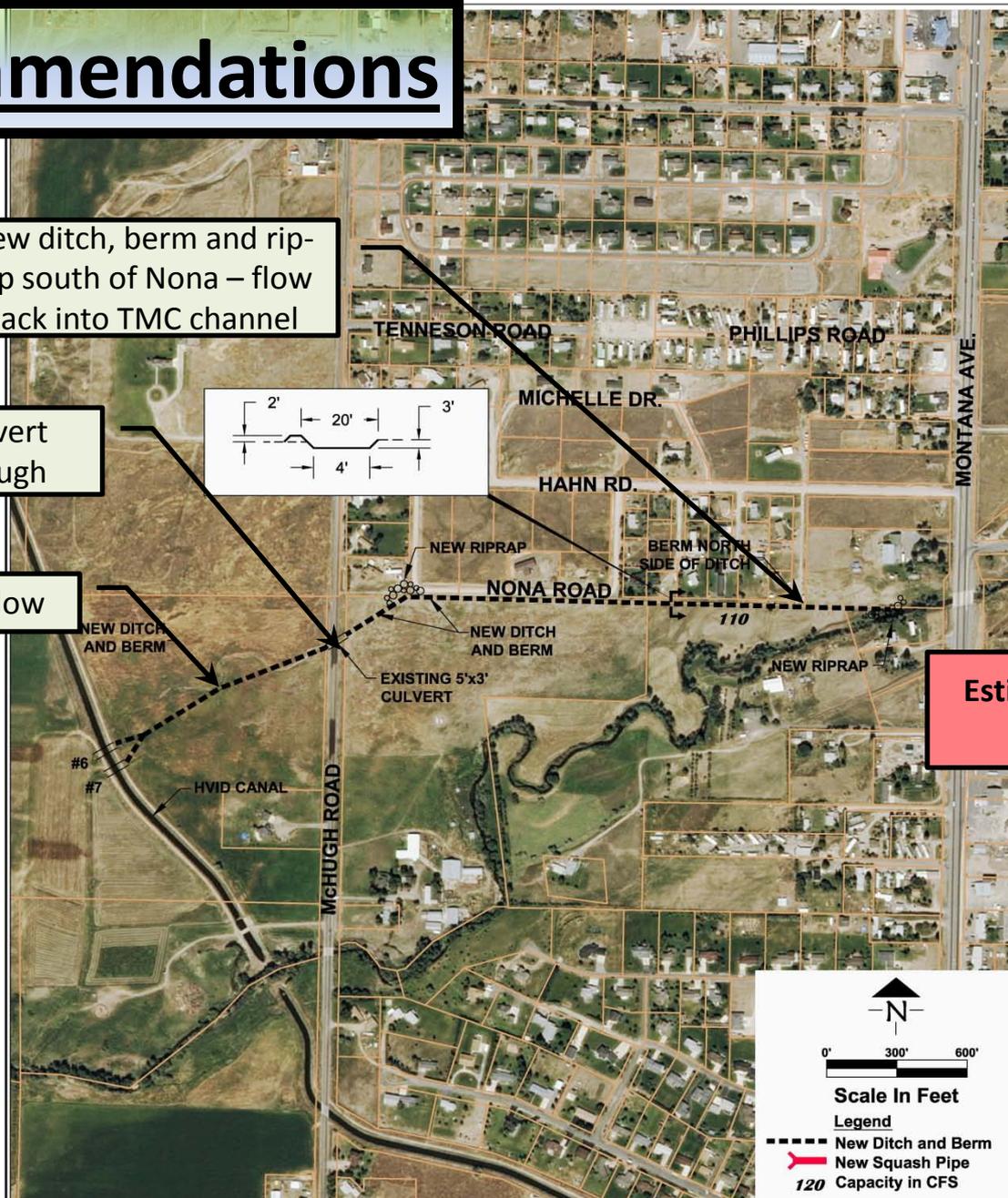
New ditch, berm and rip-rap south of Nona – flow back into TMC channel

Existing culvert under McHugh

Channelize Flow



Estimated Cost:
\$116,600



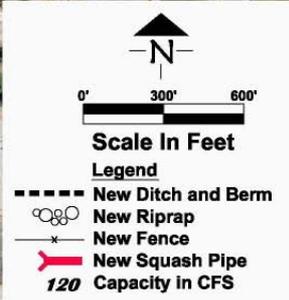
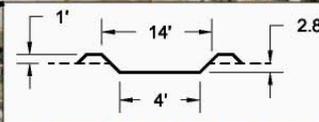
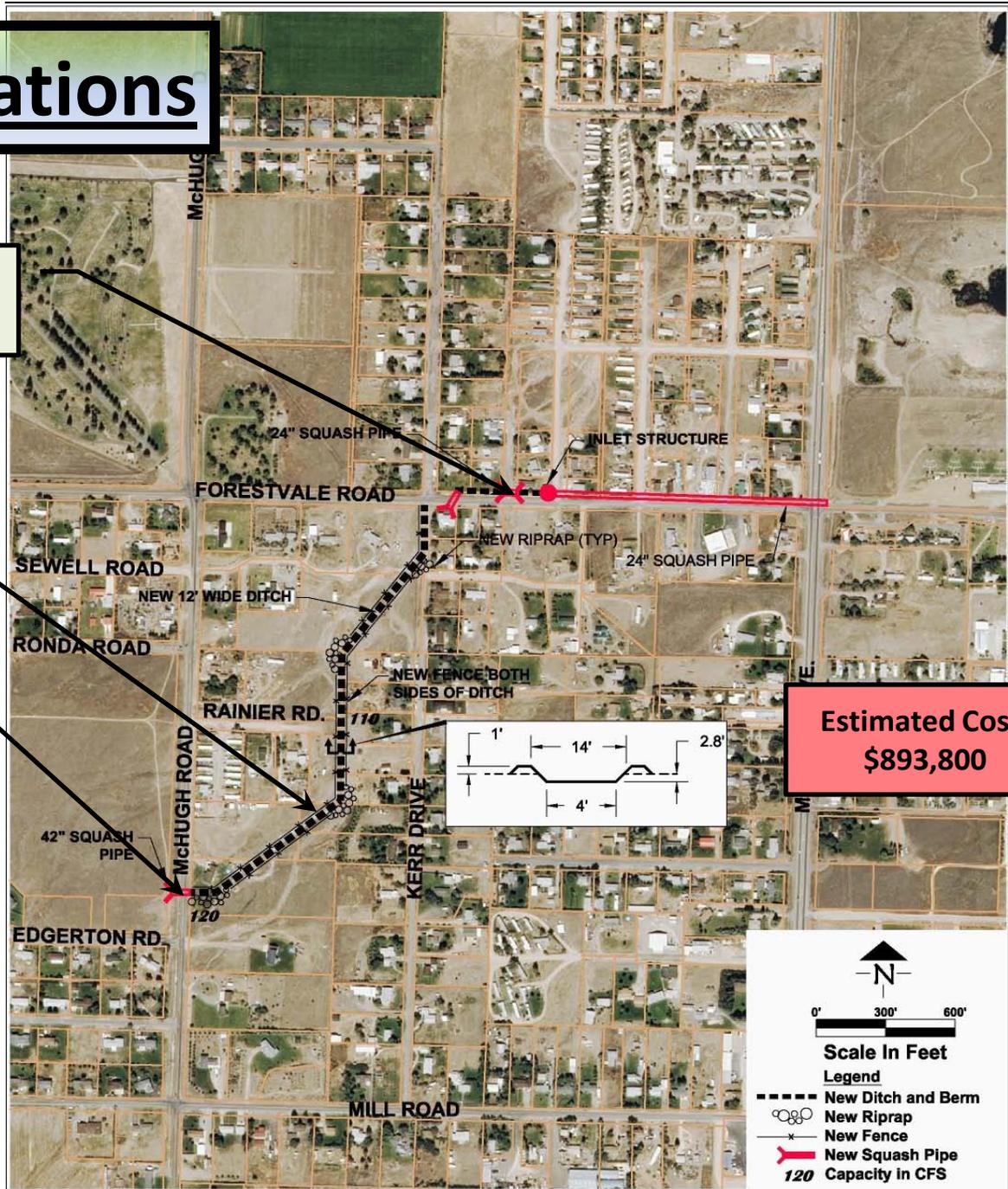
Recommendations

New ditch and pipe on Forestvale to east of Montana

New Ditch with rip-rap banks

Larger Culvert

Estimated Cost:
\$893,800



Recommendations

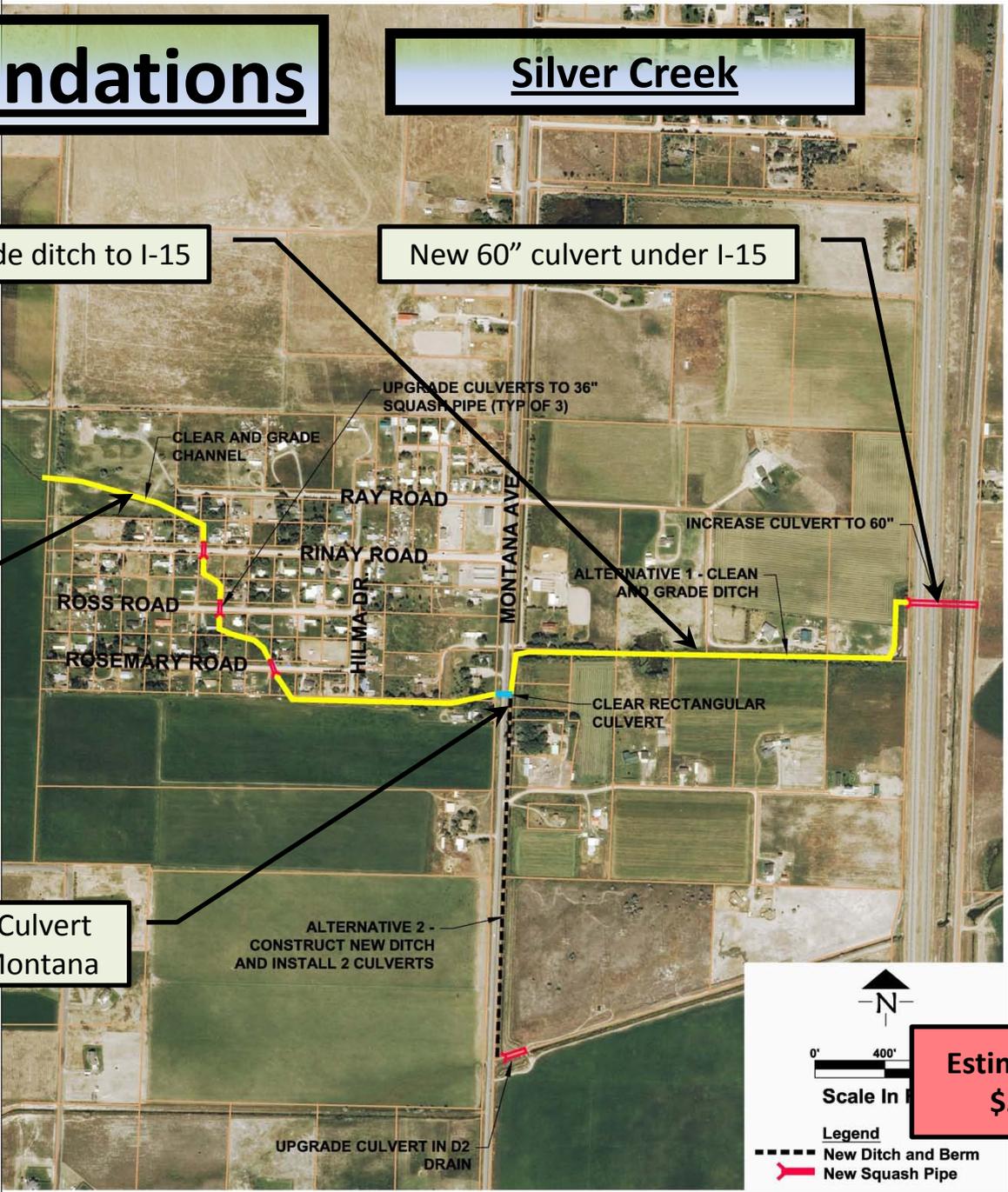
Silver Creek

Clean and grade ditch to I-15

New 60" culvert under I-15

Clean out Existing Silver Creek Channel through Sewell

Clean out Culvert under N. Montana



0' 400'

Scale In Feet

Legend

- New Ditch and Berm
- New Squash Pipe

Estimated Cost:
\$515,400

Mitigation Summary

- Trap Club Retention Pond and outlet to D2 (\$692K)
- Hilger Ditch to retention pond to D2 (\$667K to \$2.16M)
- Improve Mill/McHugh to D2 (\$1.81M)
- McHugh ditch to Nona to TMC (\$116K)
- McHugh/Edgerton to Kerr/Forestvale (\$894K)
- Silver Creek through Sewell to D2 (\$515K)

What am I forgetting?

THE D2 DRAIN

Under extreme flood conditions, the D2 could be receiving another 600 cfs of flood flow from the proposed improvements. Currently much of the D2 infrastructure is at or near capacity. The D2 must be improved in order to accept additional flows.





Recommendations – D2

4 More Bridge Crossings for Access Roads

New Bridge @ Arrowhead

Bore New Culvert under I-15 & Frontage Rd.

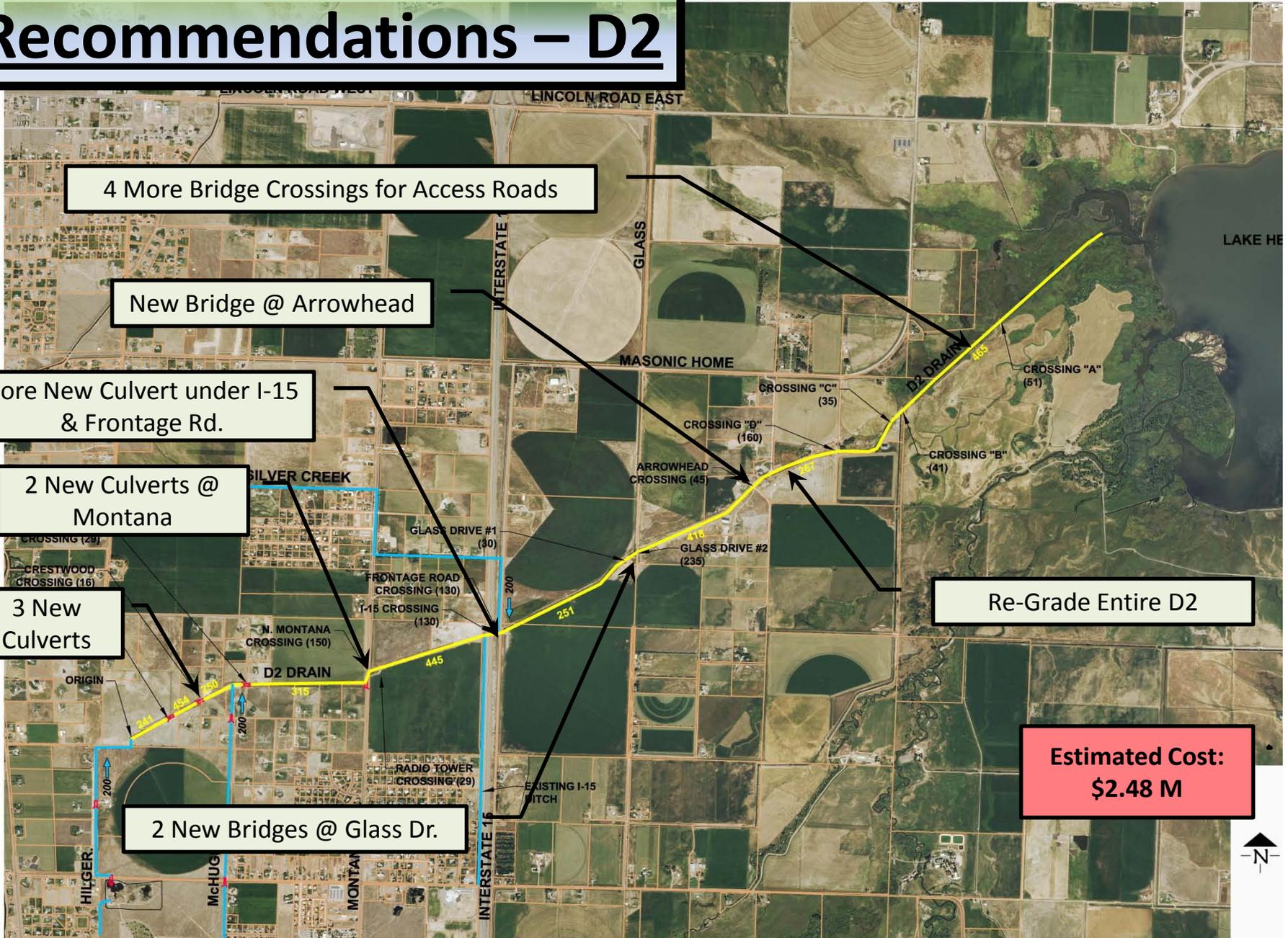
2 New Culverts @ Montana

3 New Culverts

2 New Bridges @ Glass Dr.

Re-Grade Entire D2

Estimated Cost:
\$2.48 M



Master Plan Summary

- Tenmile Creek Mitigation Projects ≈ \$4.17M
- Silver Creek Mitigation Projects ≈ \$515K
- D2 Drain Improvements ≈ \$2.48M

Where Do We Go From Here?

- Working with L&C County on Trap Club Pond Project.
- Approached HVID to seek authorization/funding for improvements to D2 Drain.
- Working with L&C County PW to prepare for mitigation projects (utility re-locations, landowner contacts, land acquisition, funding, etc.)



Master Plan Summary

Things for Valley Residents to Consider:

- Formation of an entity to guide process and seek funding – i.e. RSID or Storm Sewer District.
- Coordination with L&C County DES to prepare for future flooding events.
- Keep the momentum going on Flood Mitigation efforts – stay involved, keep your Commissioners engaged.
- Discourage development within the floodplain



Questions?

Thank you for your time.

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