Drain Recharge and Floodwater Study

City of Nampa

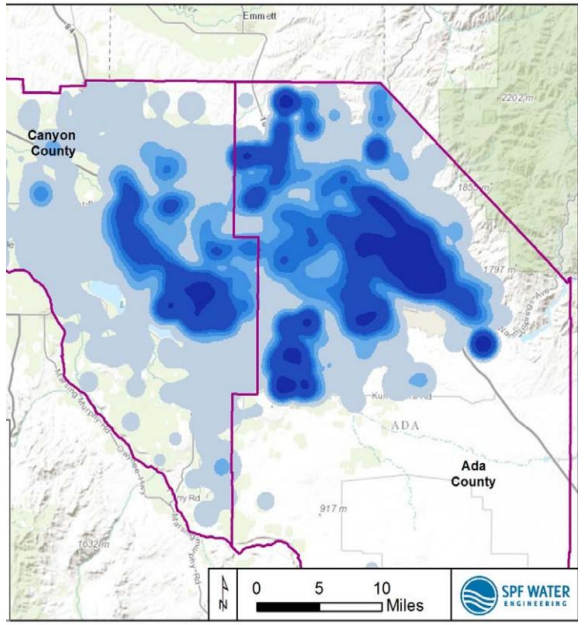
Tom Points, P.E.,
Senior Director of Public Works

NAMPA
IDAHO

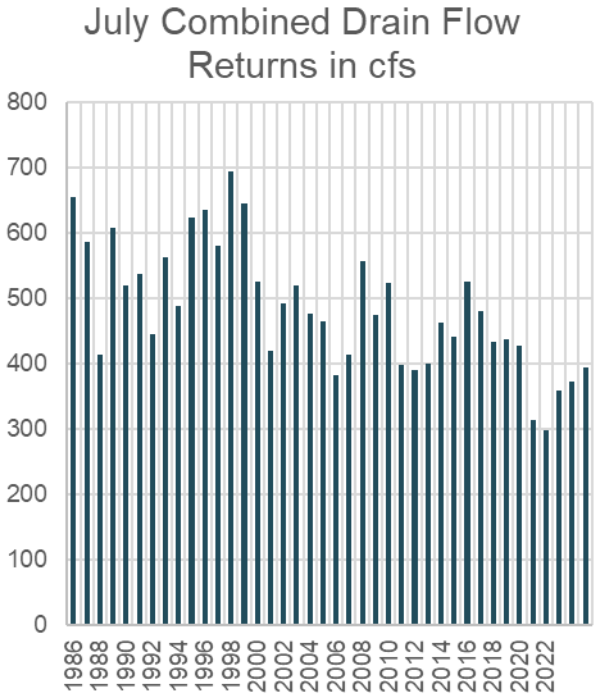
HDR

Treasure Valley Water Supply Challenges

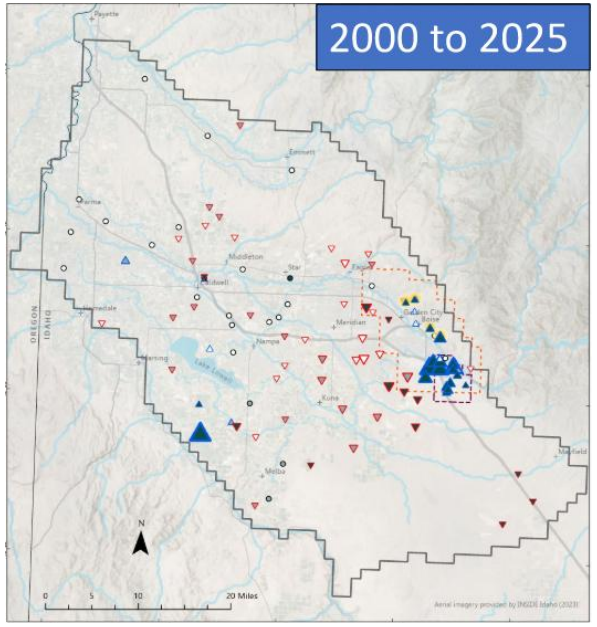
NAMPA IDAHO



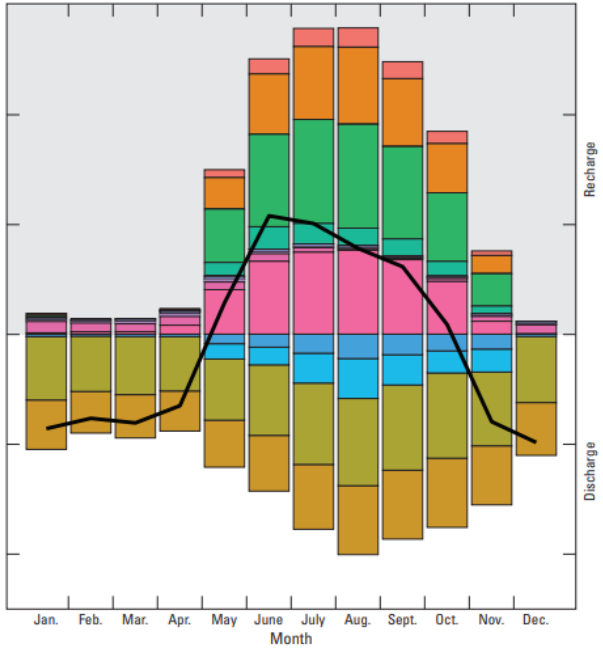
Treasure Valley DCMI - 100,000-200,000 acre-ft Increase Demand



Declining Drain Flows and Lower Boise River Return Flows



Groundwater Declines, Groundwater Management Areas, Temporary Moratoria



Conjunctive Management?

City of Nampa Goals

Proactive Regional Water Management

- Initiate collaboration among water users to address emerging water supply challenges before regulatory intervention becomes necessary

Evaluate Practical Water Supply Solutions

- Identify opportunities to utilize available Boise River natural flow and floodwater
- Prioritize solutions that leverage existing infrastructure and publicly-owned property

Regional Coordination and Partnerships

- Engage irrigation districts, municipalities, water users, and agencies to:
  - Identify mutually beneficial opportunities
  - Understand operational constraints
  - Explore partnership and facility-sharing opportunities

Goals of Potential Projects

NAMPA IDAHO

Strengthen Aquifer Resilience

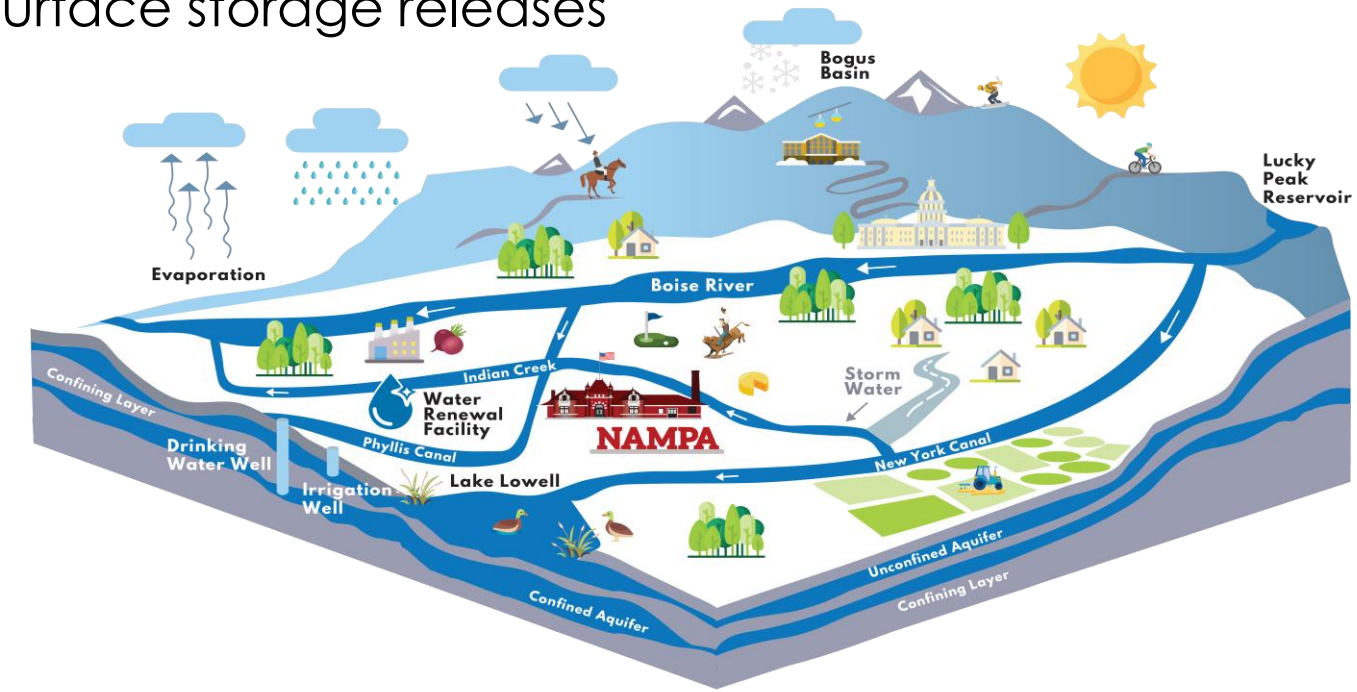
- Enhance recharge to deep aquifer systems supporting municipal supply
- Improve shallow groundwater levels supporting domestic wells and irrigation

Protect Boise River and Drain System Flows

- Sustain shallow groundwater contributions that support drain flows and natural flow
- Delay or reduce reliance on upstream surface storage releases

Regulate Canal and Drain Flows

- Improve downstream water deliveries
- Reduce daily operational fluctuations
- Increase deliverable water within the existing system



Water Availability

NAMPA IDAHO

- Natural flow is available in limited quantities
  - 10-100 cfs between Eagle and Middleton
  - >100 cfs between Middleton and Parma
- Flood flows are available ~7 out of every 10 years
  - High volume (>100 KAF)
  - Not available every year
  - May experience multi-year droughts
- Potential proposed projects may impact future flood water availability
  - Anderson Ranch Dam Raise
  - Cat Creek Energy Project
  - Elmore County Water Supply Project

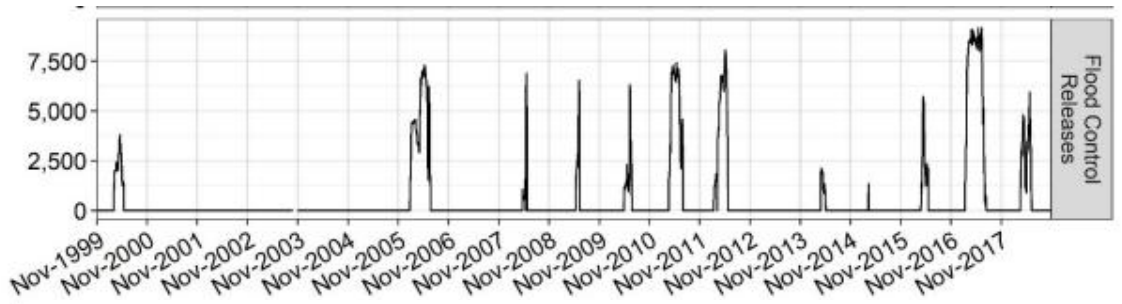


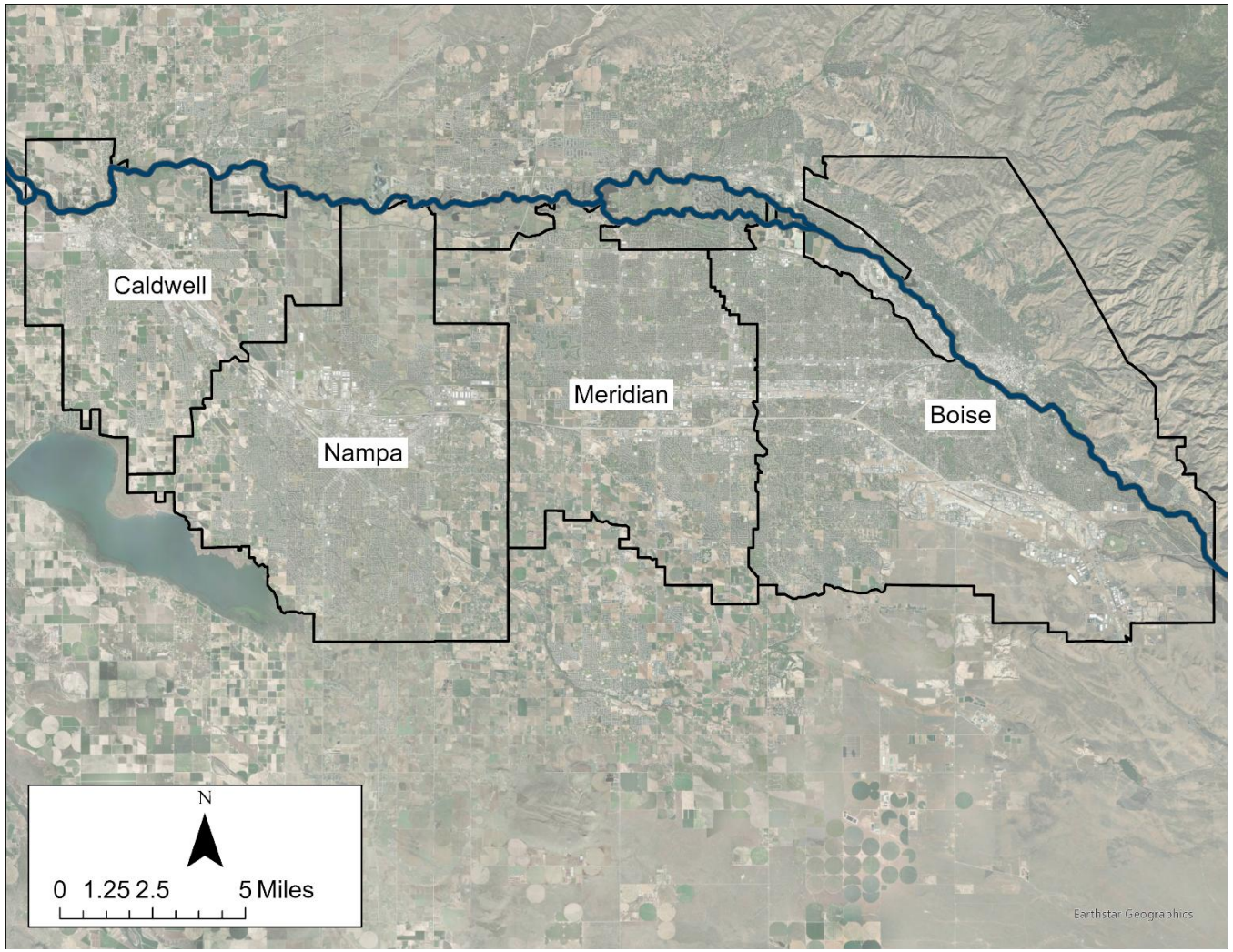
Table 2-1. Availability Results Summary

Basin	Water Source	Location	Rate (cfs) Min	Rate (cfs) Median	Rate (cfs) Max	Volume (Annual KAF) Min	Volume (Annual KAF) Median	Volume (Annual KAF) Max	Period of Availability
Boise	Natural flow	Lucky Peak to Glenwood Bridge	0	0	631	0	14	84	Sep–Apr
		Glenwood Bridge to Middleton	0	0	1,956	0	50	180	Sep–Apr
		Middleton to Caldwell	0	230	1,997	0	215	436	Jan–Dec
		Caldwell to Notus	0	379	2,429	0	294	558	Jan–Dec
		Notus to Parma	0	589	3,397	0	431	793	Jan–Dec
	Flood flow releases	Lucky Peak to Parma	0	0	9,170	0	160	2,113	Mar–Jun
	Effluent	Boise: Lander Street	14	17	44	12	12	12	Jan–Dec
		Boise: West Boise	21	27	44	17	20	22	Jan–Dec
		Meridian	7	11	28	7	7	8	Jan–Dec
		Nampa	11	17	23	11	12	13	Jan–Dec
		Caldwell	7	12	19.0	7	8	10	Jan–Dec
Payette	Natural flow	Above Letha	0	1,068	25,758	466	1,331	3,063	Oct–Jul
		Letha to Payette	0	1,352	26,599	741	1,656	3,563	Jan–Dec
	Flood flow releases	Banks to Payette	0	0	7,890	16.5	263	777	Mar–Jul
Snake	Reach gain	Milner to Murphy	0	1,481	21,931	874	1,277	2,306	Jan–Dec
	Flood flow releases	Murphy	0	2,088	26,423	107	420	4,155	Nov–Jul

cfs = cubic feet per second.
KAF = thousand ac-ft

2.1.1 Boise River Water Availability

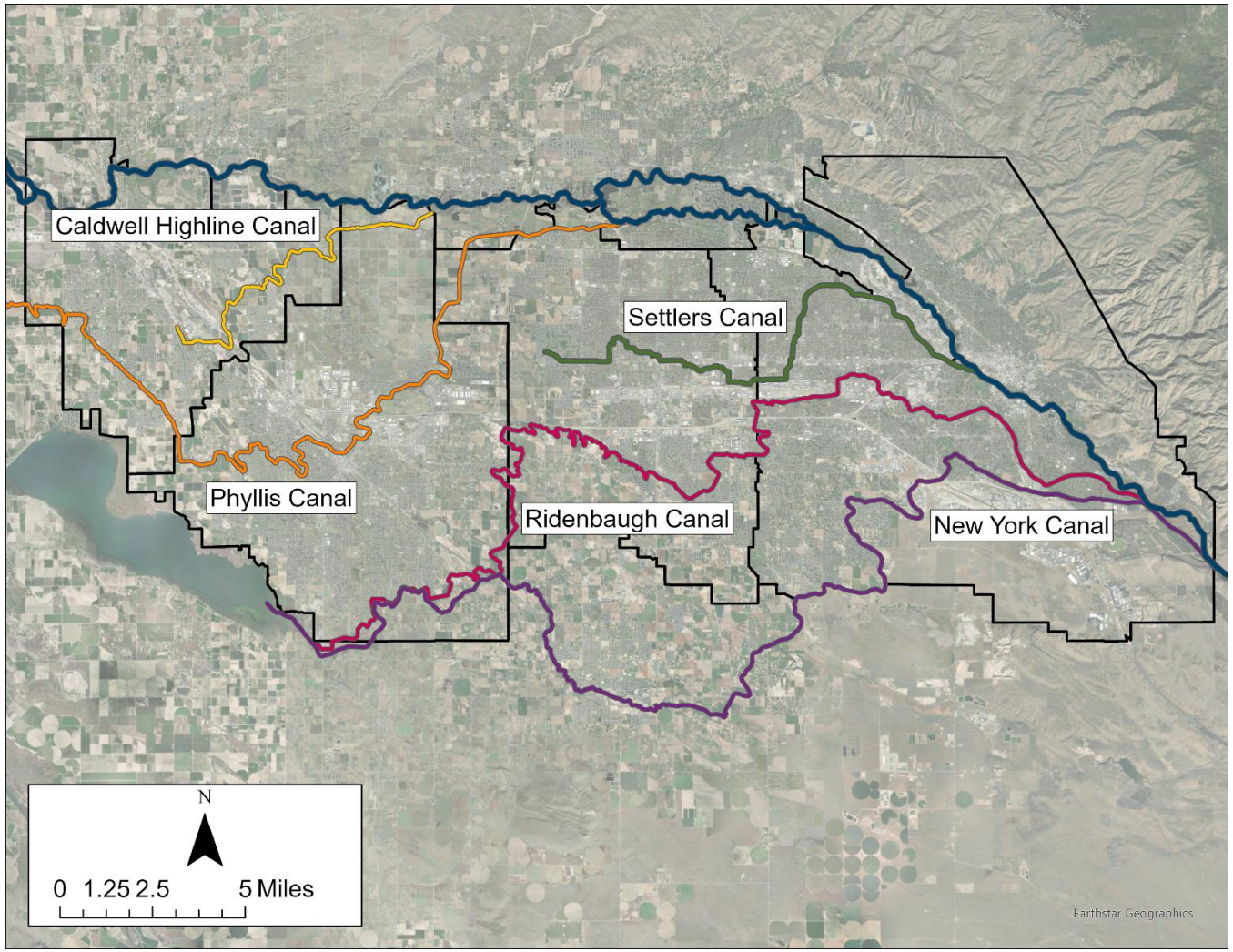
Regional Opportunities



Nampa is meeting with water users across the region to discuss opportunities and partnerships.

- City of Boise
- City of Meridian
- City of Caldwell
- Water District 63
- Boise Project Board of Control
- Nampa and Meridian Irrigation Dist.
- Pioneer Irrigation District
- Ada Co.
- Idaho Power

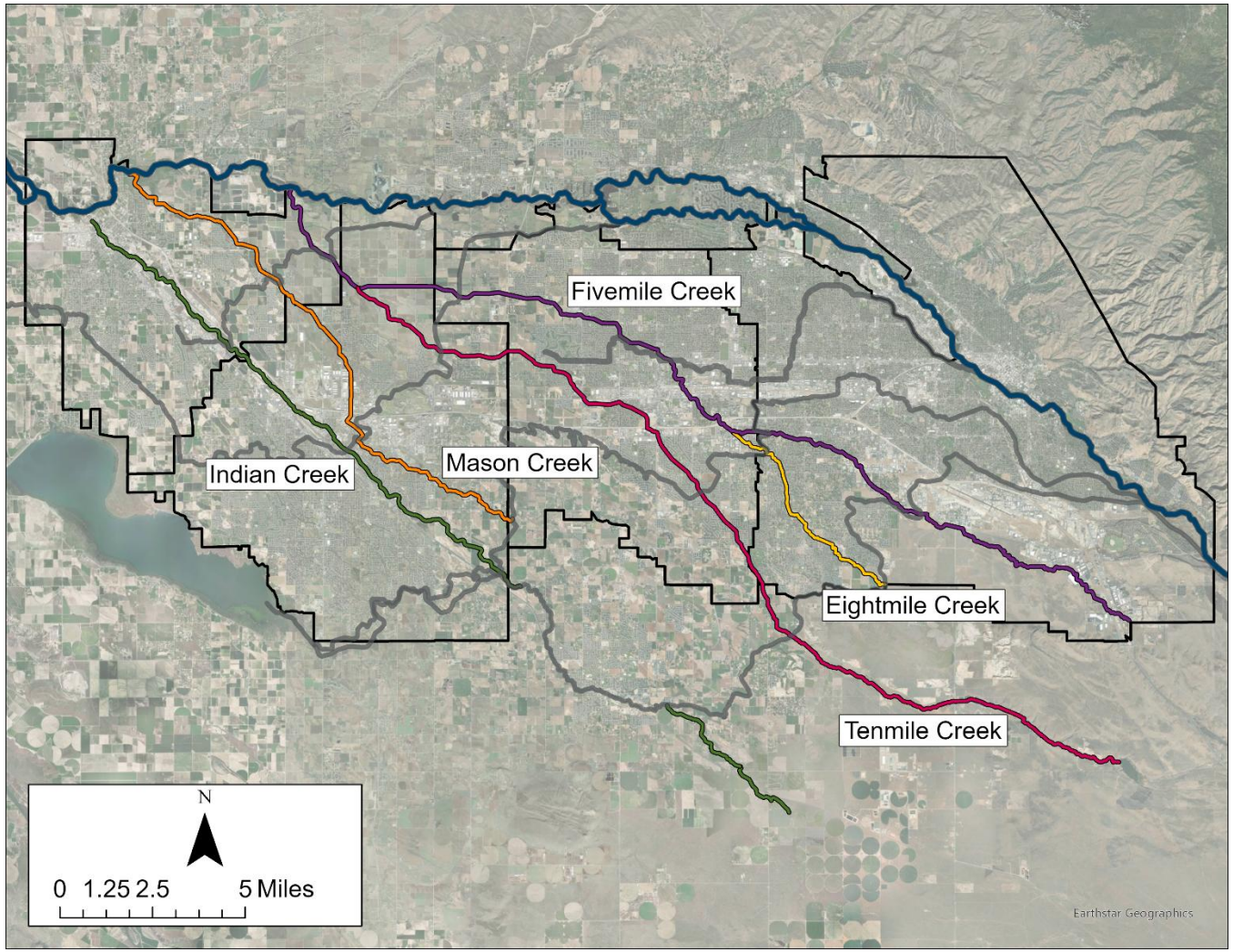
Regional Opportunities



Nampa has received permission to include the following canals in this study:

- New York Canal
- Ridenbaugh Canal
- Phyllis Canal
- Caldwell Highline Canal

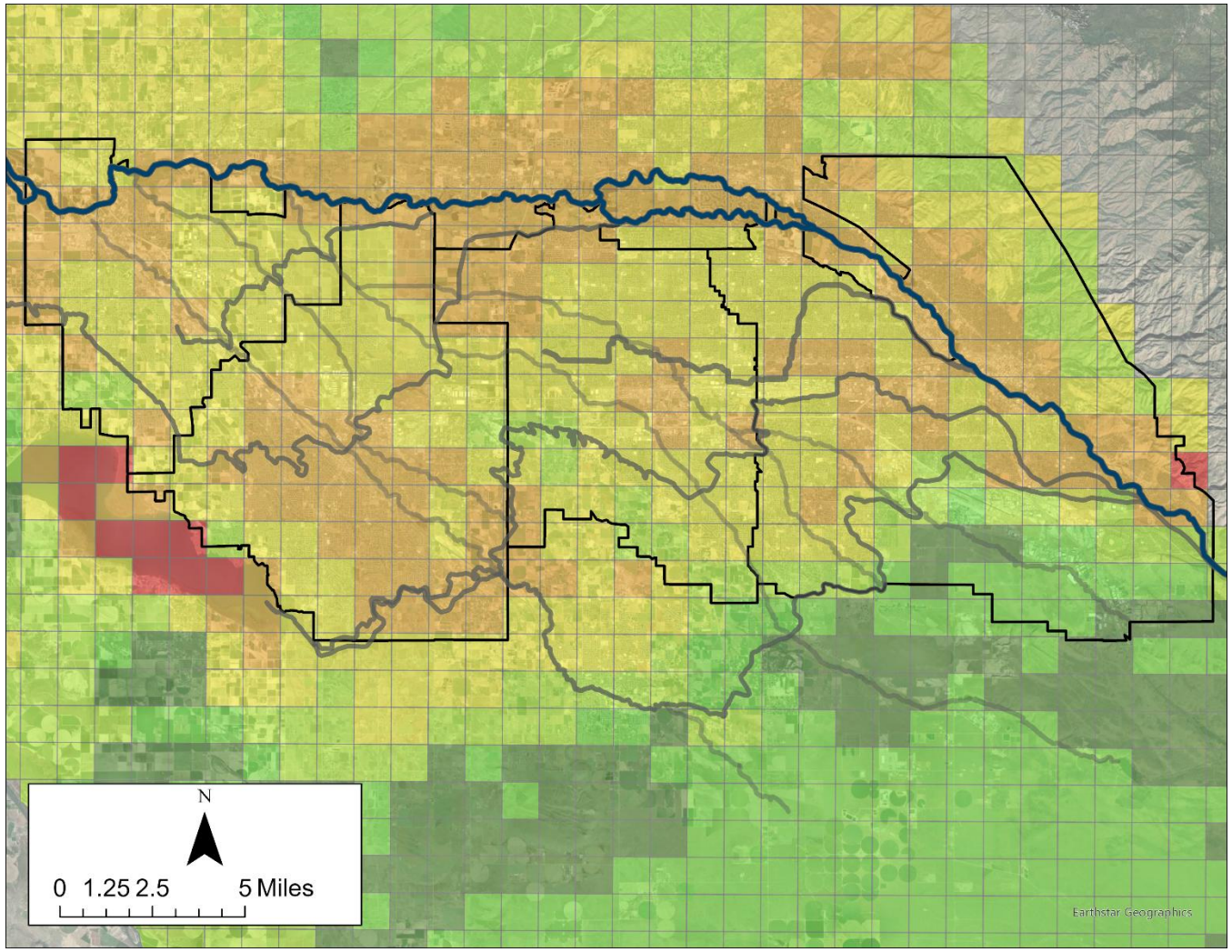
Regional Opportunities



The canals spill and/or drain into prominent creeks across the region, including:

- Fivemile Creek
- Eightmile Creek
- Tenmile Creek
- Mason Creek
- Indian Creek

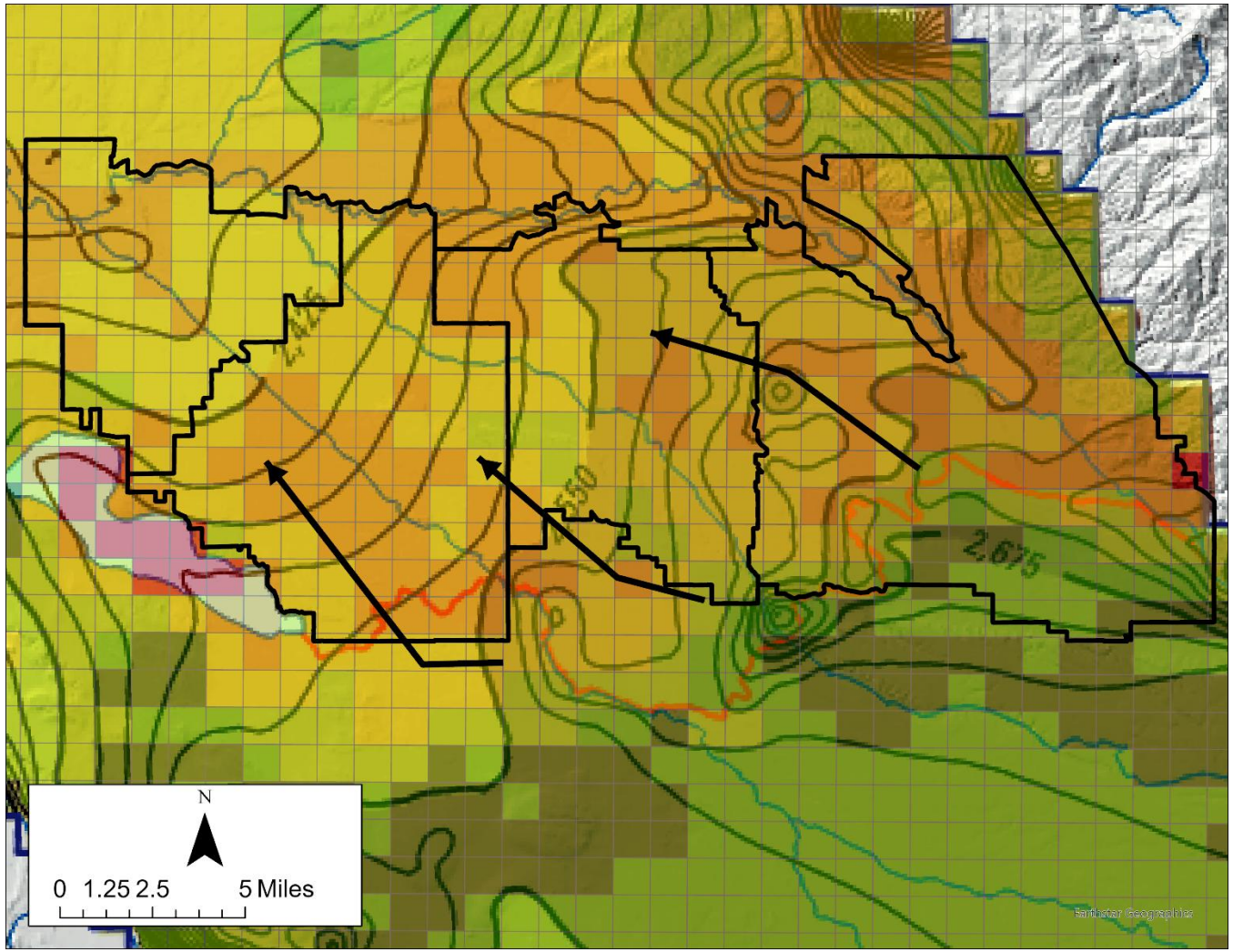
Regional Opportunities



The Treasure Valley Managed Recharge Feasibility Study (Idaho Resource Board, 2020) identified zones of high and low recharge potential.

- Green = High Potential
- Orange/Red = Low Potential

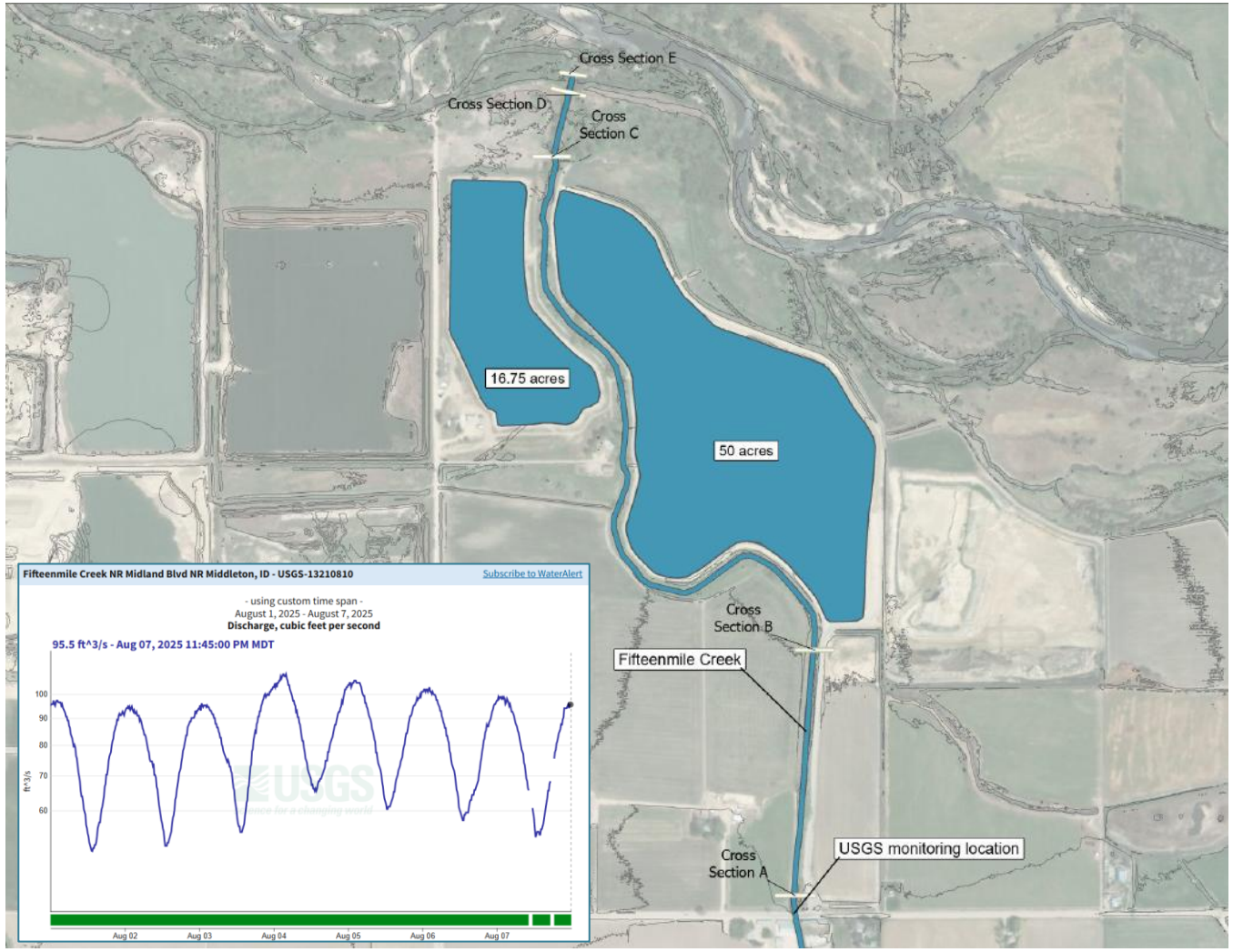
Regional Opportunities



Recharge near New York Canal has the potential to:

- Increase drain flows
- Increase natural flow in the lower Boise River
- Decrease Boise System storage use throughout the basin
- Increase the resiliency of groundwater supplies

Current Concepts



Fifteenmile Creek

Regulating fluctuations in drains flows:

- Increases deliverable water
- Improves consistency to downstream water users
- Provides temporary off-channel storage
- Could provide water quality benefit

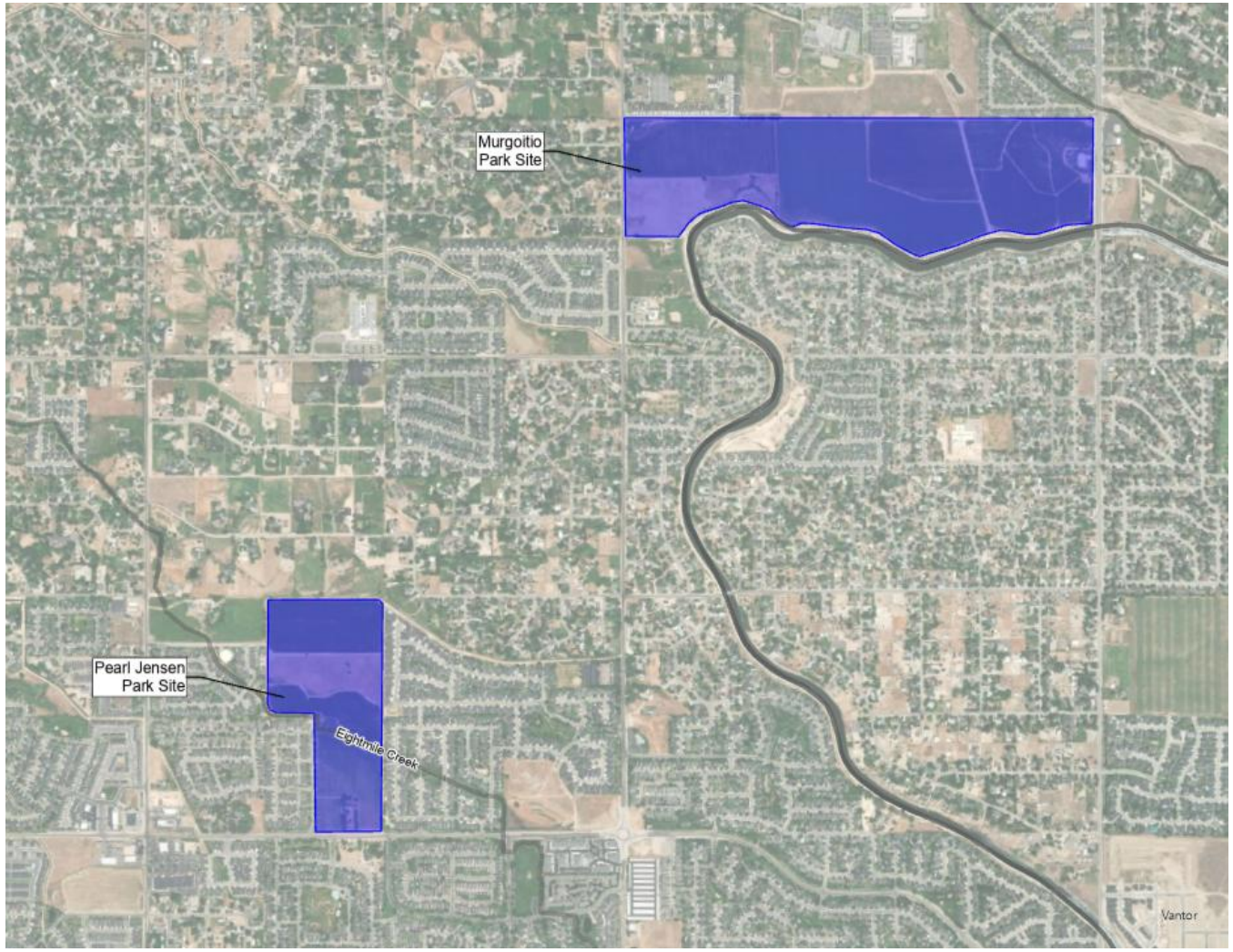
Current Concepts

Lakeview Park

Re-establish Lake Ethel:

- Creates multi-benefit amenity for the City and residents
- Improves water quality
- Increases recapture potential in the Phyllis Canal
- Could provide improved spill capacity for NMID

Current Concepts



Groundwater Recharge

Recharge groundwater using surface water:

- Increases groundwater availability
- Offsets losses from local pumping
- Could be incorporated into parks or natural spaces

Thank you!