THE CITY OF BOISE'S RECYCLED WATER PROJECT: PERMIT COMPLIANCE AND LONG-TERM SUSTAINABILITY

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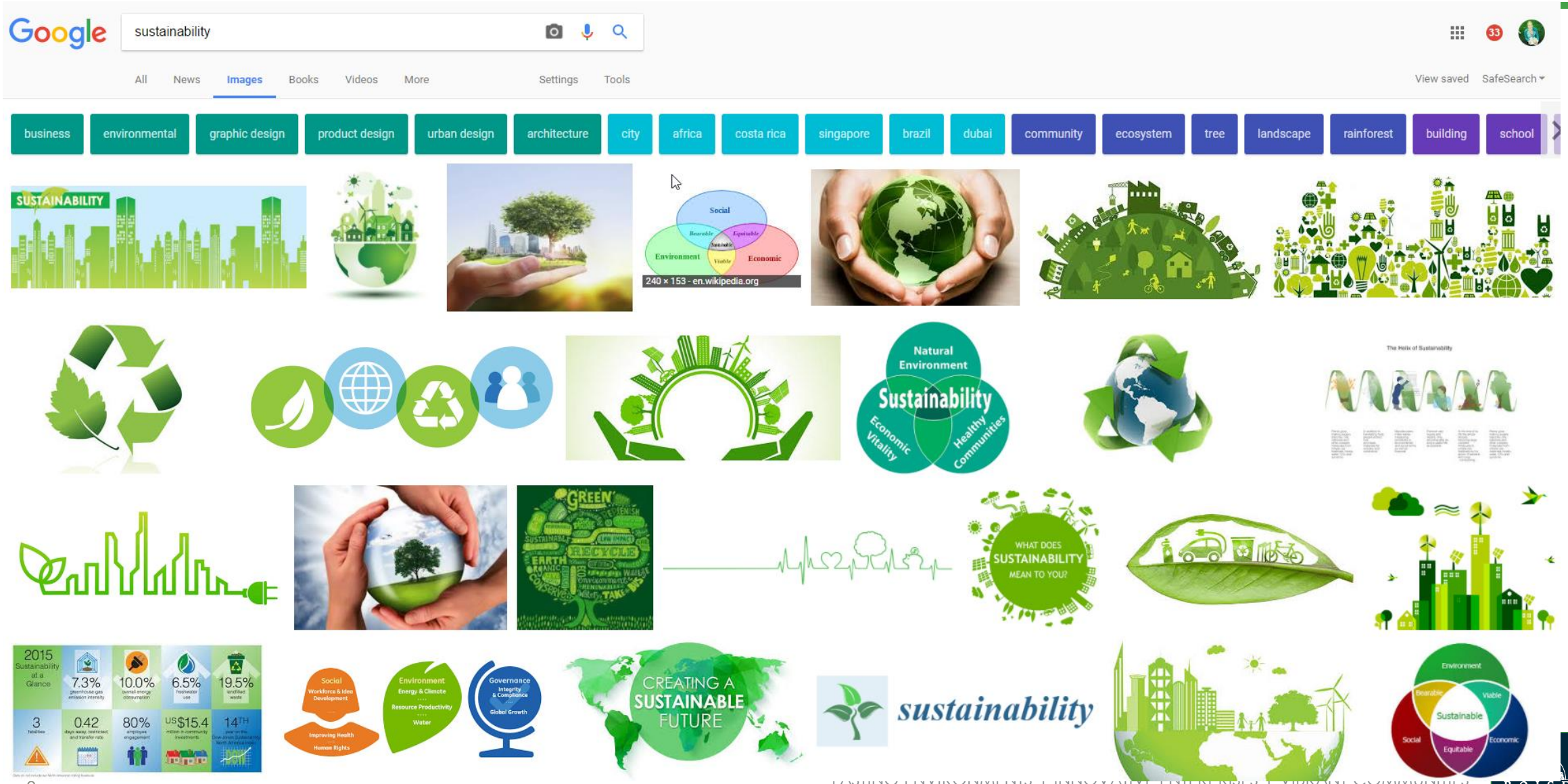
CITY OF BOISE

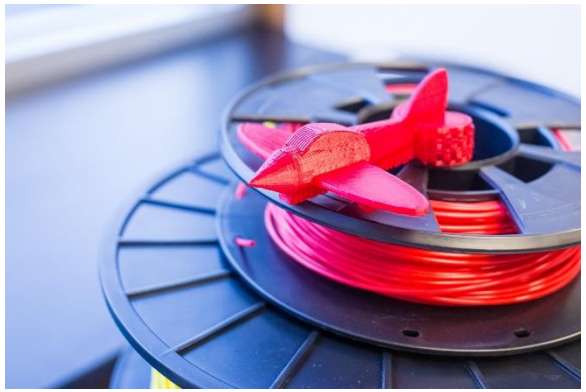
FOR BOISE, SUSTAINABILITY IS MORE THAN. . .



LIV BOISE
Lasting. Innovative. Vibrant.

We are making Boise the most livable City in the country through. . .

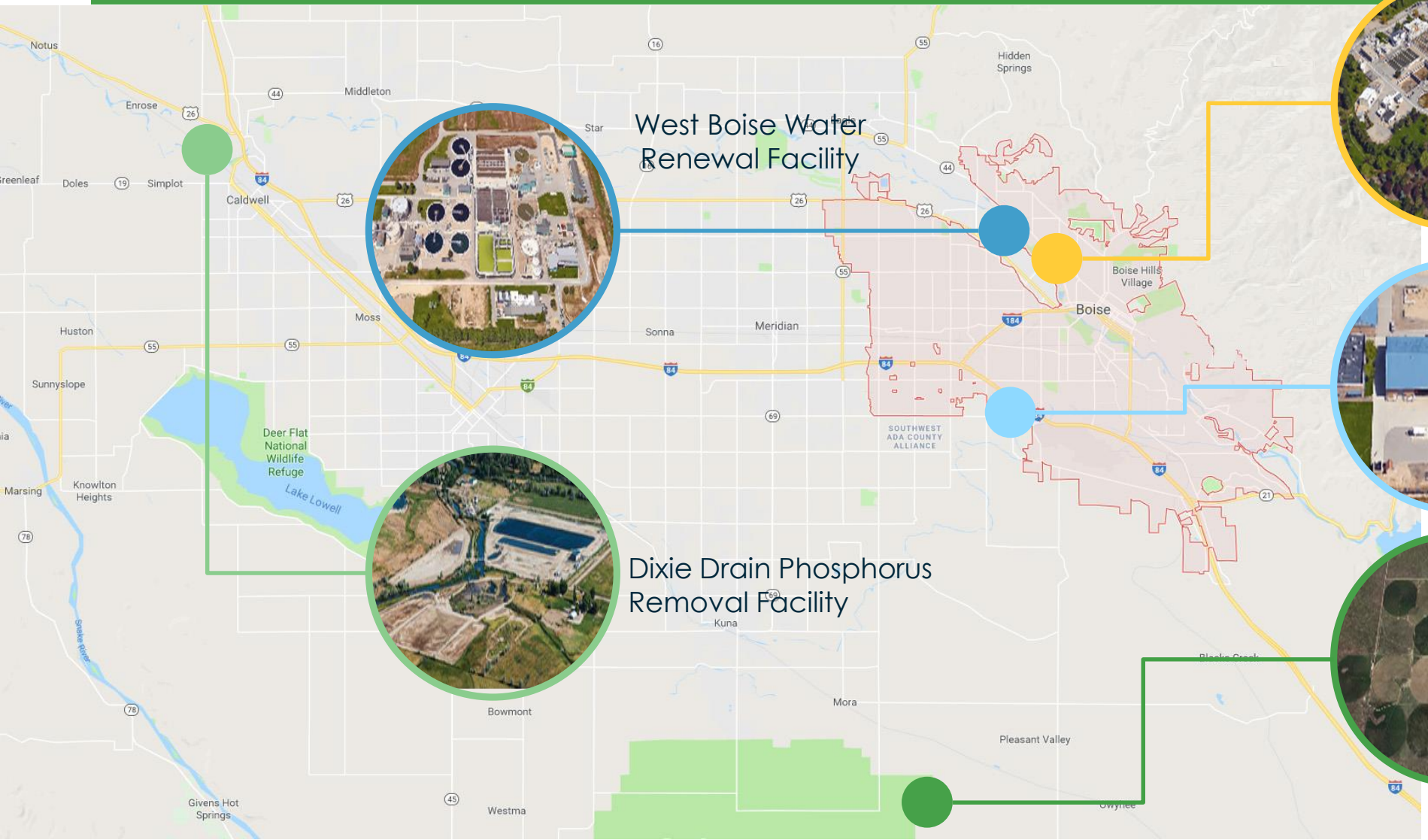
Lasting Environments



Innovative Enterprises

Vibrant Communities

HOW DO WE TREAT THE WATER WE USE?

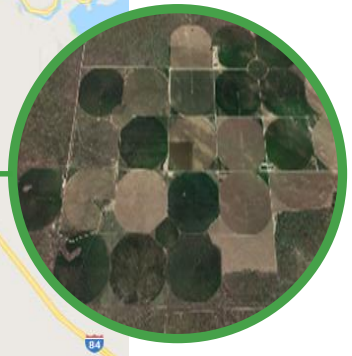


West Boise Water Renewal Facility

Lander Street Water Renewal Facility

Utility Maintenance

Dixie Drain Phosphorus Removal Facility



Twenty Mile South Farm

WHY IS BOISE CONSIDERING INNOVATIVE APPROACHES?

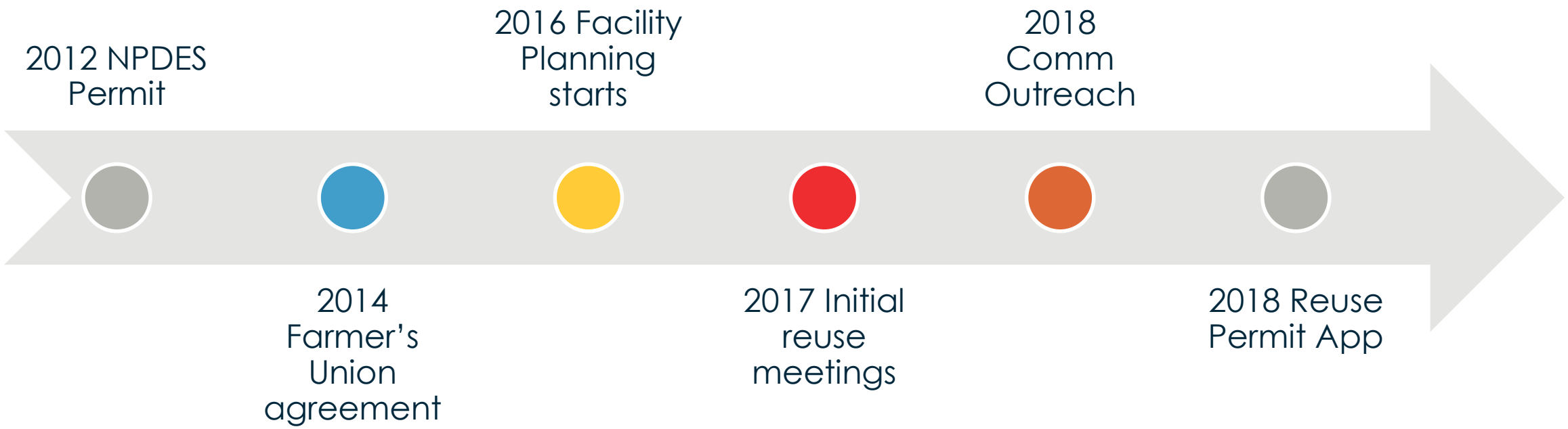
Our citizens value improved outcomes

74% of Boiseans voted "YES" to
Foothills Open Space and Clean Water Levy

Wastewater survey results:
- Invest to recover water, energy, reduce carbon - ~75%
- Willing to pay for better outcomes - ~70%

DRIVERS

TIMELINE


2012 NPDES Permit
2014 Farmer's Union agreement
2016 Facility Planning starts
2017 Initial reuse meetings
2018 Comm Outreach
2018 Reuse Permit App

2012 NPDES PERMIT – 2022 FINAL LIMITS

TABLE 1 –Effluent Limitations for Temperature

Date	MWMT	Average Daily Limit	Instantaneous Maximum Limit
November 1 – March 31	13.5°C	NA	NA
April	13.3 °C	NA	NA
May	13.5 °C	NA	NA
June 1 –July 15	NA	22.6 °C	26.1 °C
July 16 - September 30	NA	19.0 °C	22.0 °C
October	NA	20.3 °C	24.2 °C
Note: The MWMT is the mean of daily maximum temperatures measured over a consecutive 7 day period ending on the day of calculation.			

T

TEMPERATURE ALTERNATIVES ANALYSIS

The Freshwater Trust

Instream Action Plan for Tem

Task 2B Deliverable

Report

Boise River Temperature Strategy Development

Prepared for

Boise City Public Works

May 2006

CH2MHILL
Boise, Idaho

RANDUM CH2MHILL

ature Evaluation for Wetland and Pond
Boise WWTP

ection Agency (USEPA) issued the City of Boise (City) a new National
(NPDES) permit on March 15, 2012 that included provisions requiring the
iance strategy and to eventually meet new temperature limits. The

nd identify the methods the City may use to achieve the final effluent
reuse of effluent, and possible trading mechanisms, such as offsite
at restoration.

ods to achieve temperature limits at Lander Street and West Boise
).

P (if Lander is to be decommissioned), meet temperature limits at
within 10 years of effective date of the permits (**August 2012), or

required by permit in October 2012. This alternatives evaluation

June 2013

The Freshwater Trust

e Expanded Analysis

ley Thermal Uplift Estimates from Riparian Shading

ed an analysis of the temperature benefits from wetlands and ponds at the West Boise
is indicates that the cooling potential of wetlands and ponds will not be sufficient to meet
est Boise WWTP for the entire year. Wetlands and ponds provide a sufficient cooling benefit
but not the spring and fall (see Table 1). The Freshwater Trust has expanded the analysis to
the remaining thermal exceedance could be met with thermal credits generated from

*s modeling indicates that the West Boise WWTP thermal exceedance cannot be completely
he outstanding temperature reductions and their corresponding thermal load exceedances*

Time Period	Max Temperature (°C)	Thermal Exceedance (Mkcal/day)
March	1.3	192
April	5.8	856
May	6.4	945
June 1 – July 15	0.0	0
y 16 – September 30	2.3	338
ovember 1 –Dec 31	1.7*	250
January 1-Feb 28	0.0	0

**using wetlands scenario 2B from CH2M Hill technical memo 2/18/13 page 6.*

The additional analysis is shown in Figure 1. Riparian shade does not provide the same
benefit in the spring as it does in

Chinden Boulevard and east of Route 55. The area demarcated in Figure 1 as the West Boise WWTP includes approximately 300 acres of land owned by the City that surrounds the plant. The Lander Street WWTP is located on the northwest bank of the lower Boise River, to the northeast of North 36th Street. The area demarcated in Figure 1 includes approximately 18 acres of land owned by the City surrounding the plant.

A wide range of technologies, strategies, and approaches are available for
established to protect water quality and various beneficial uses. These strat
Control, In-Plant, and Stream Mitigation. Strategies that are untested and s
sink," or that require large areas of land, such as storage/evaporation pon
this evaluation. Based on these general guidelines, the fo

316(a) THERMAL VARIANCE

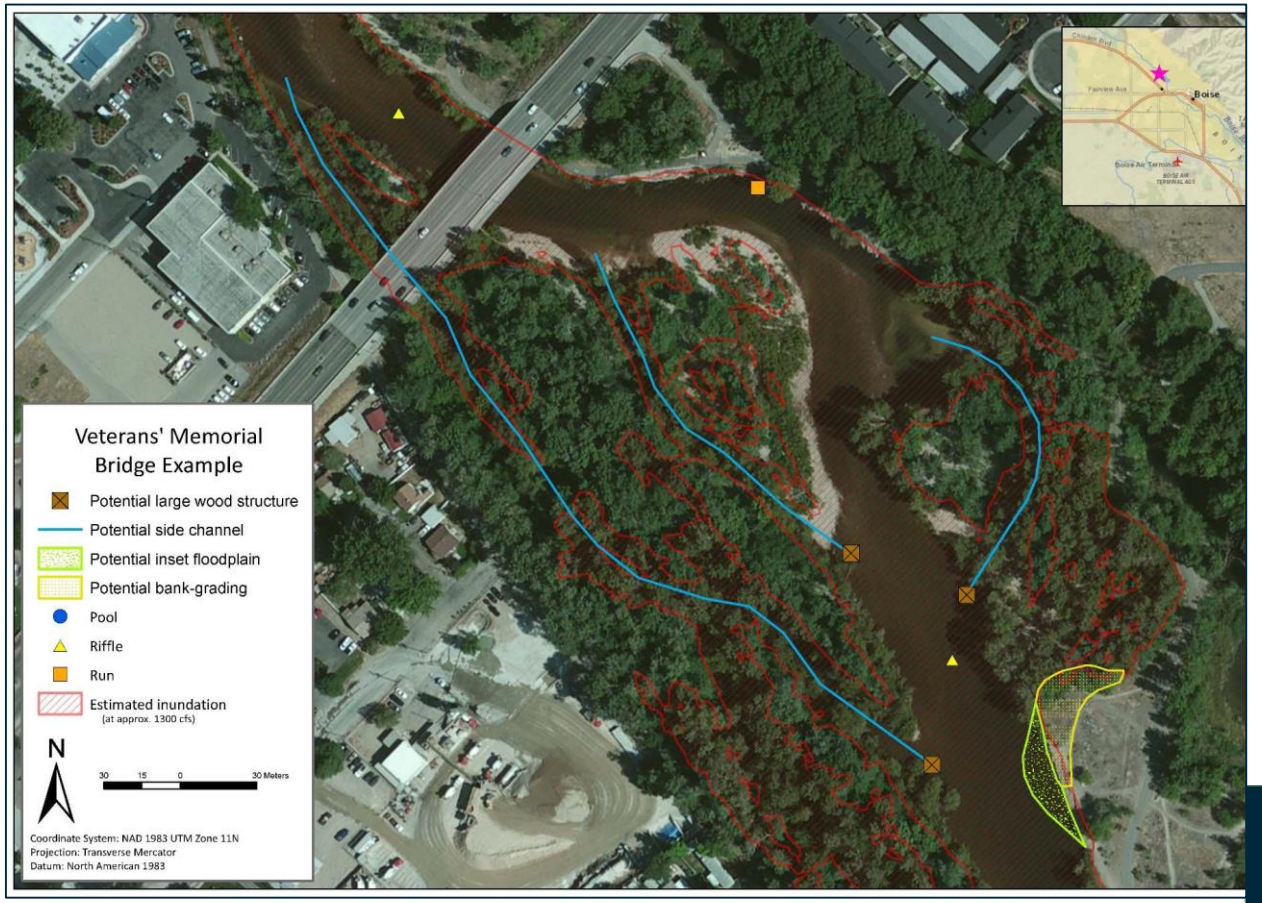
- 316(a) authorizes alternative thermal effluent limits (ATEL) when effluent limitations are more stringent than necessary to assure protection and propagation of a Balanced Indigenous Community (BIC) in a water body receiving a thermal discharge

- Federal regulations at 40 CFR 125.70 through 125.73
- Idaho IPDES: User's Guide to Permitting and Compliance, Volume 1—General Information, June 2016

- Demonstration Project
  - I – absence of prior appreciable harm
  - II – assure that the ATEL will protect BIC

TO MEET FUTURE CONDITIONS

- Reuse of Lander Street WRF effluent
- River and sidestream restoration

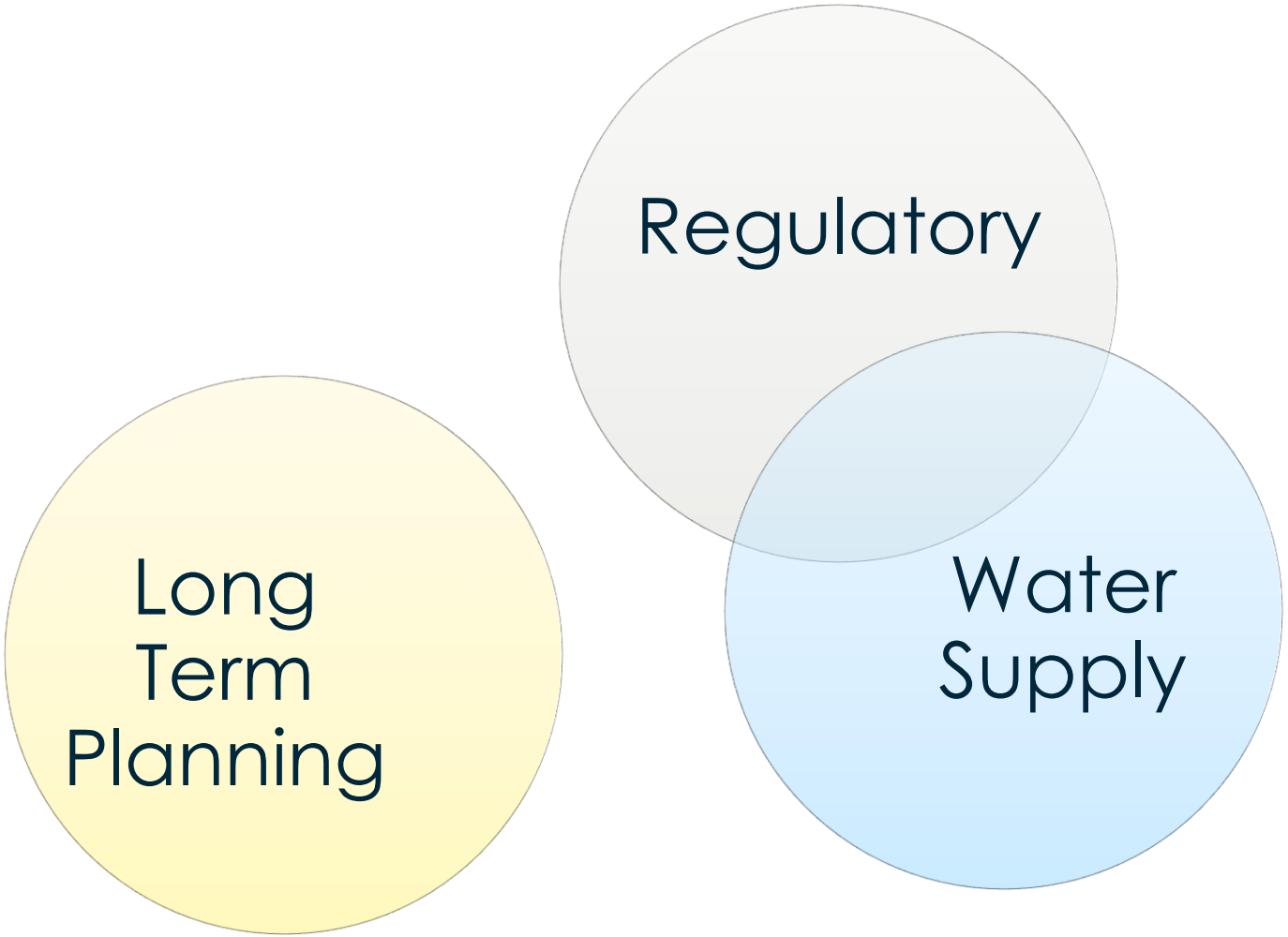


PRIORITIZING WATER RESOURCES

- 2013 – low water year
  - Farmer's Union

- Climate Change Vulnerability Assessment
  - Project changes in climate for the Boise metropolitan area
  - 20 climate models examined
  - Of Top 8 impacts, 6 related to water

HOW PROJECT COMES TOGETHER?



WATER RENEWAL PLANNING

PLANNING THE UTILITY OF THE FUTURE

Growth

Regulatory Requirements

Resource Recovery

Citizen Expectations

Food waste for digestion
- Collect commercial food scraps
- Anaerobically digest

Fertilizer recovery
- Harvest total phosphorus
- Sell to market

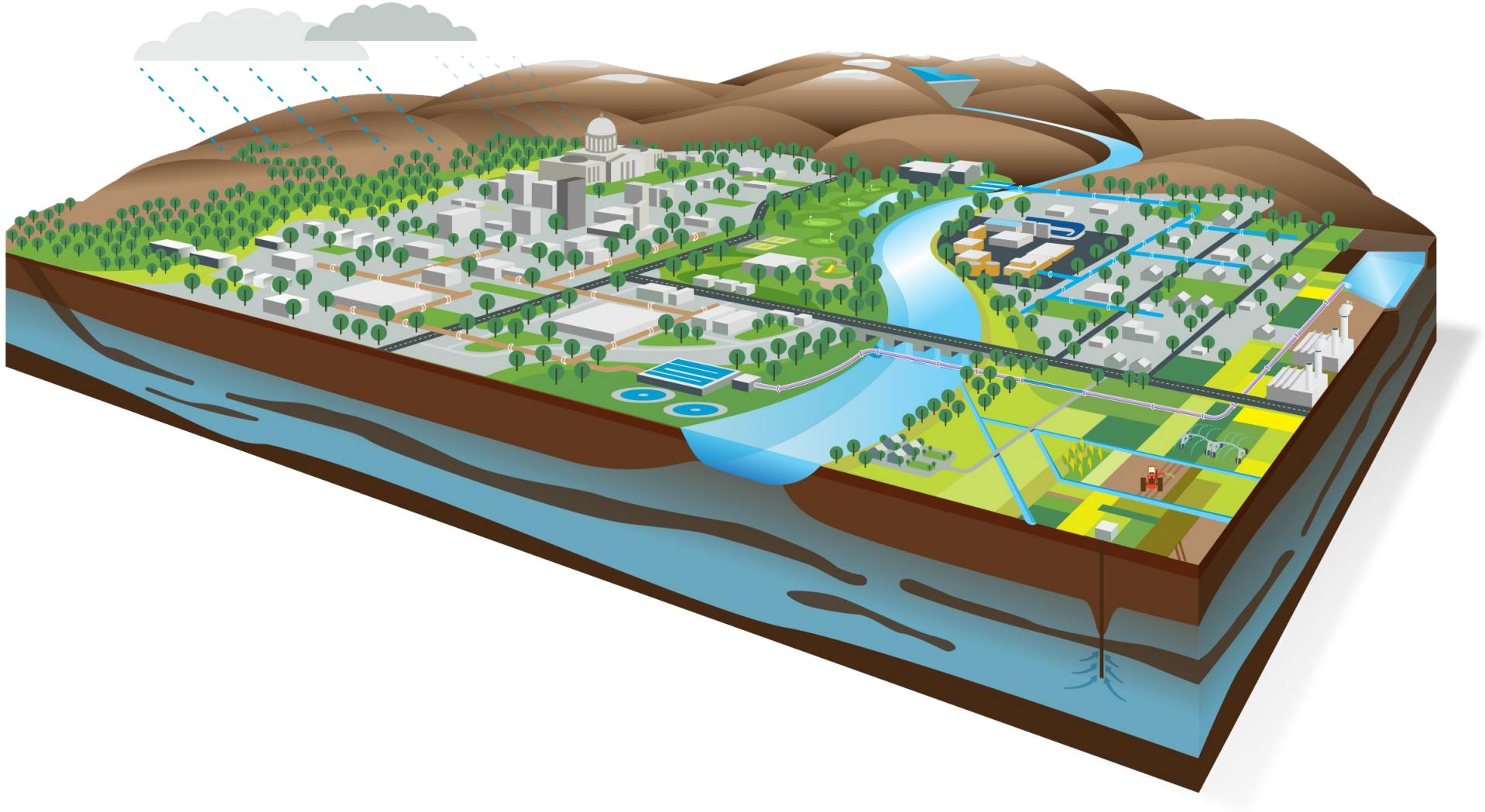
Direct Potable Reuse
- Used water to drinking water
- Help address water supply

Economic Development
- Water for industrial uses
- E.g. server farms/data centers

Net positive energy
- Food-waste for gas production
- Methane to energy

Reuse for irrigation
- Reuse water in canal systems
- Triple bottom line homerun

WATER OPPORTUNITIES



POTENTIAL PRIORITIES FOR OUR FUTURE INVESTMENTS

Improve quality of the Boise River

Produce products that can be beneficially reused

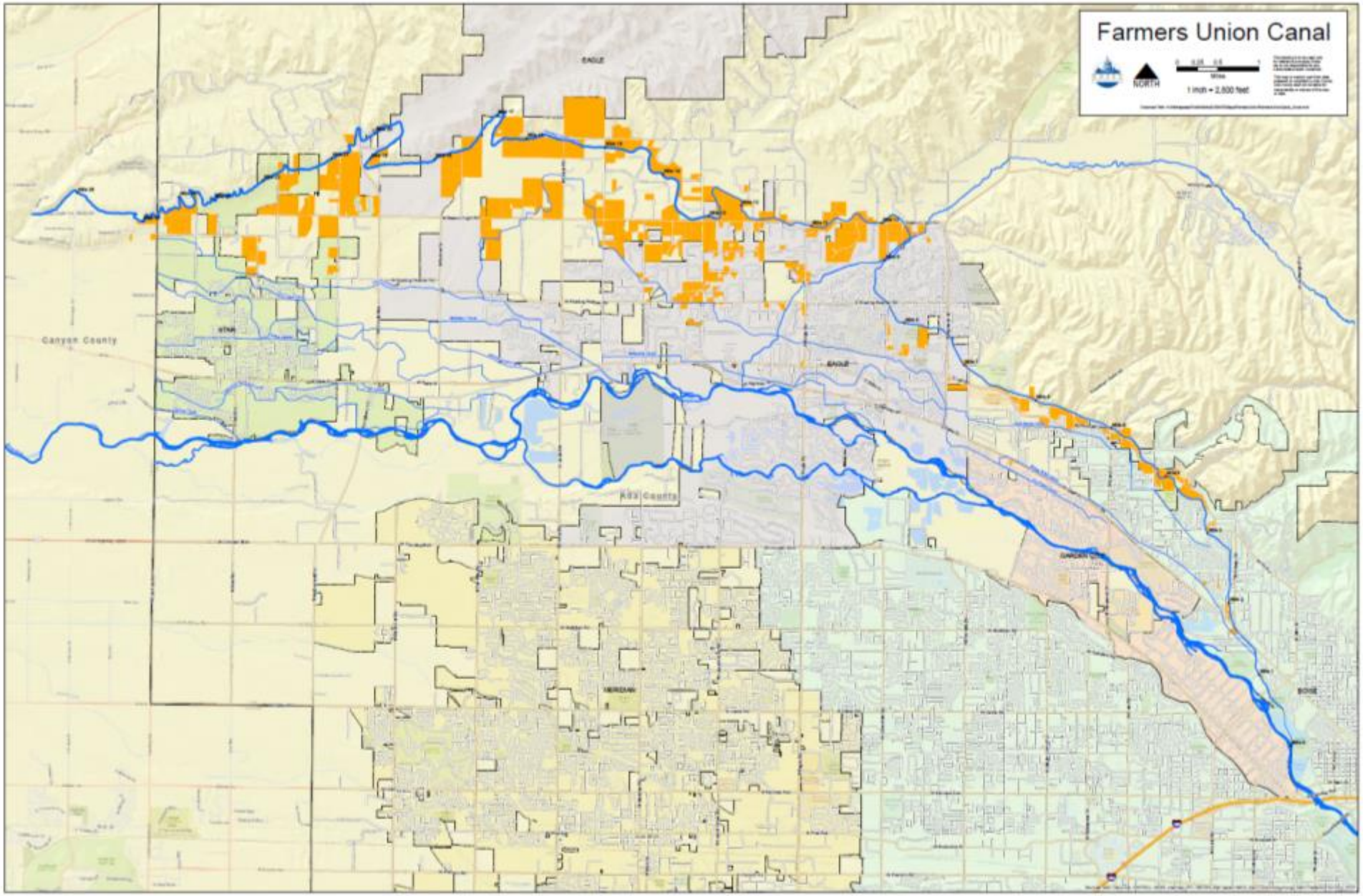
Minimize energy use for facilities

Support economic development

PROJECT DESCRIPTION AND STATUS

GOAL: BETTER OUTCOMES

- Boise River temperature benefits
- Phosphorus benefits
- Beneficial reuse of water


Farmers Union Canal
NORTH
1 inch = 2,800 feet
Canyon County
Ada County
EAGLE
BOISE

AGREEMENT WITH FARMER'S UNION DITCH COMPANY

- City has signed agreement with Farmers Union Canal Company
  - Seasonal discharge (4/1 – 11/30)
  - 15 mgd
  - Class A Reclaimed Water
  - 20 years with option to extend
  - Predicated on regulatory approval

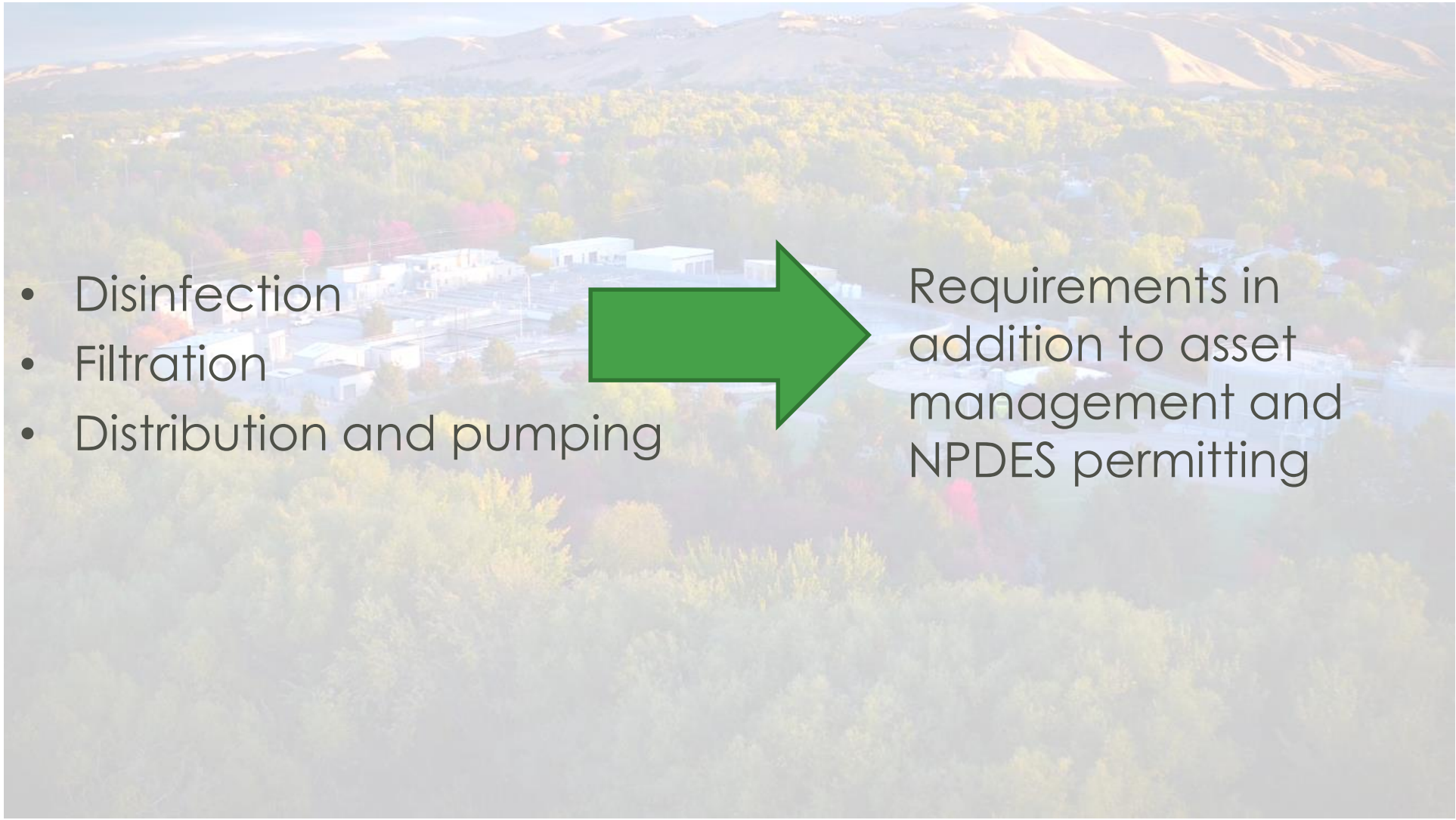
- Established preliminary alignment for outfall

FARMERS UNION CANAL NEAR LANDER STREET

FARMER'S UNION CANAL

TERMINUS OF FARMERS UNION CANAL (PAST MILE 26)

WATER RENEWAL UPGRADES REQUIRED



WHAT'S NEXT?

NEXT STEPS

- Continued coordination with IDEQ and EPA
  - Regulatory challenges: WOTUS, man-made waters, nondesignated waters
- Communication and outreach
  - Public
  - Environmental groups
- Recycled water permit
- Continued coordination with Farmer's Union

QUESTIONS