





**Nampa Wastewater Advisory Group
Workshop #3**
June 14, 2017

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City of Nampa
Wastewater Division
www.cityofnampa.us/wastewater



Introductions and Today's Workshop

Michael Fuss, P.E., M.B.A., Public Works Director



NWAG #2 Summary and Feedback

- Reviewed planning process and the primary drivers
 - External drivers - regulatory changes and growth
 - Existing asset condition and capacity
 - Community interests
- Provided an overview of potential discharge alternatives
- Updates to analysis as a result of group's advice
 - Added Alternative #2.5 – Treat and Discharge to Irrigation with Class A Industry Reuse
 - Eliminated Alternative #4 – Treat and Offset



Today's Agenda

- Provide in-depth review of discharge evaluation
 - Capital, O&M, Repair and Replacement (R&R), Risks, and Benefits
 - Sensitivity Analysis
 - Results of Evaluation
- Discuss needed repair and replacement projects
- Group discussion around alternatives



Goals for Today

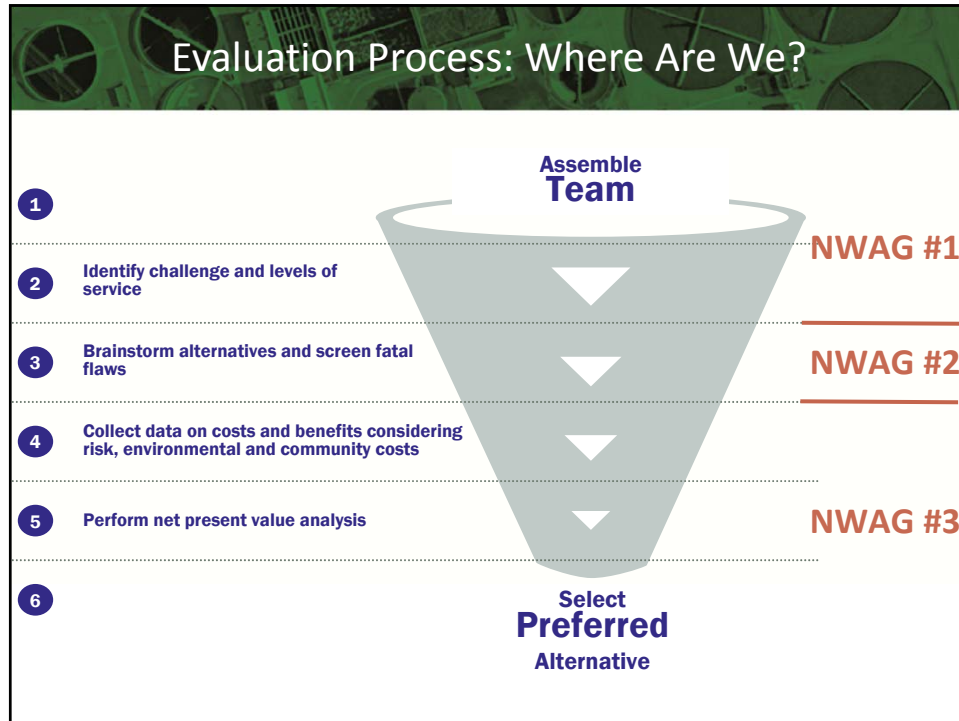
- Questions to consider today:
 - *Now that you have more information, which alternative do you prefer? Why?*
 - *What risk and/or benefit stands out to you the most?*
 - *Do you think there are other risks or benefits that were not discussed?*
- Information will be used during June 29th presentation to City Council



Wastewater Discharge Evaluation

Matt Gregg, P.E., Brown & Caldwell





Community Interests: Critical Success Factors

1. Preserve our natural resources and our environment to promote a caring community where people live, work, play, worship, and raise their families
2. Provide a healthy, professional environment that empowers our employees to succeed
3. Maintain affordable wastewater service for rate payers through long-term, fiscally-sound decision-making
4. Stimulate economic development by efficient utilization of resources and providing sufficient utility capacity
5. Anticipate future regulatory requirements by considering economic ramifications to environmental action

Sustainable Solutions

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External Drivers: Residential & Industrial Growth

- Nampa WWTP provides treatment for residential, commercial, and industrial wastewater
- Need to plan to provide capacity for expected growth within each sector
 - 2015 Population - 89,000
 - Projected 2040 Population - 154,000 (~70% growth)
- Allowing capacity for industrial growth can bring new jobs

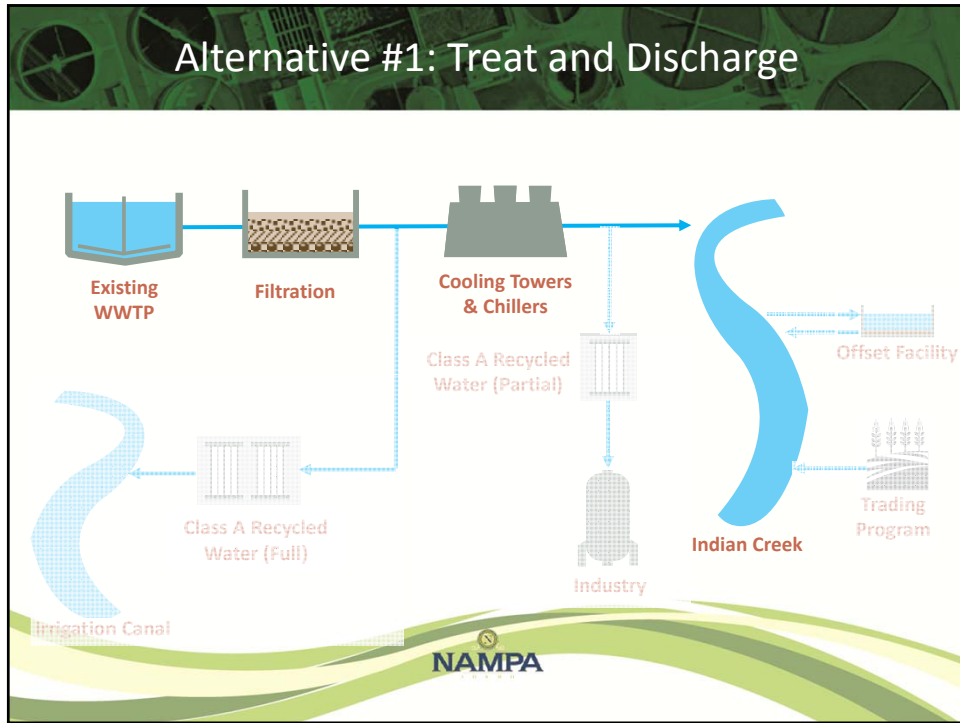


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WASTEWATER TREATMENT PLANT

Alternatives Summary

- Alternative 1 – Treat and Discharge
- Alternative 2 – Treat and Discharge Class A Reuse to Industry
- Alternative 2.5 – Treat and Discharge to Irrigation with Class A Industry Reuse*
- Alternative 3 – Treat and Discharge to Irrigation
- ~~Alternative 4 – Treat and Offset~~
- Alternative 5 – Treat and Trade
- Alternative 6 – Do Nothing More

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WASTEWATER TREATMENT PLANT



Alternative #1: Treat and Discharge


CAPITAL COSTS: \$115.2 million

OPERATIONS & MAINTENANCE COSTS:
\$9.0 million annual average
Total costs from 2026-2040 = \$134.8 million

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Alternative #1: Treat and Discharge


RISKS	BENEFITS
<ul style="list-style-type: none"> • Stricter total phosphorus limits • Degradation of Indian Creek • Permit violations • Regulation of additional constituents 	<ul style="list-style-type: none"> • DEQ removes temperature requirements



Alternative #1: Treat and Discharge


RISKS: Stricter Phosphorus Limits

WHAT: Regulations require the City to further reduce phosphorus during winter months so additional treatment is needed



Timing	2026	2031	2036
Probability	5%	30%	50%
Capital Costs	\$0	\$0	\$0
O&M Costs	\$6K	\$34K	\$91K


The costs were calculated using the price of chemicals needed for an additional 6-month period



Alternative #1: Treat and Discharge


RISK: Degradation of Indian Creek

WHAT: Water quality in the creek deteriorates & the City needs additional treatment to restore & preserve Indian Creek



Timing	2026	2031	2036
Probability	5%	20%	45%
Capital Costs	\$138K	\$552K	\$1.2M
O&M Costs	\$8K	\$33K	\$75K

The costs were calculated assuming the City would need to make new investments to reduce nitrogen at the treatment plant




Alternative #1: Treat and Discharge

RISK: Permit Violations


WHAT: City is fined for not meeting permitting requirements

COST: \$36,500

TIMING: Annually



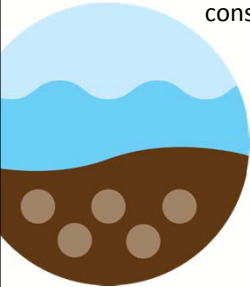
The costs were calculated assuming the City could be fined \$2,500 a day over the course of a year. The likelihood of this occurring is 4% annually.



Alternative #1: Treat and Discharge


RISKS: Regulation of Additional Constituents

WHAT: Future permits require the removal of additional constituents



Timing	2026	2031	2036
Probability	5%	20%	45%
Capital Costs	\$2M	\$8.2M	\$18.5M
O&M Costs	\$55K	\$220K	\$496K


The costs were calculated based off the price to build a ozonation facility to remove the additional particles



Alternative #1: Treat and Discharge

BENEFITS: DEQ Removes Temp. Requirements

WHAT: DEQ removes the water temperature regulation requirement for Indian Creek




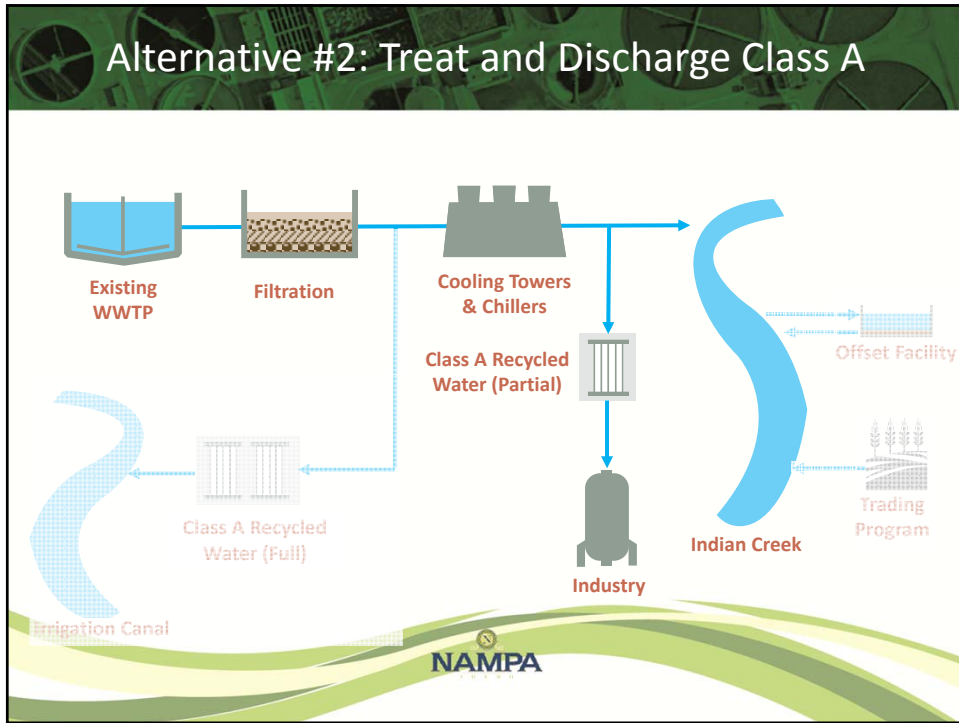
BENEFIT:

- \$780,000 capital cost savings from not building temperature mitigation
- \$55,000 in saved annual operating expenses

TIMING: DEQ decision is made prior to 2031

The costs were calculated based on the installation costs of a temperature mitigation system & the associated annual operating expenses. The likelihood of this happening is assumed to be 5%.





Alternative #2: Treat and Discharge Class A


CAPITAL COSTS: \$119.3 million

OPERATIONS & MAINTENANCE COSTS:
\$9.7 million annual average
Total costs from 2026-2040 = \$139.3 million

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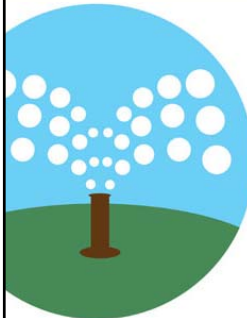
Alternative #2: Treat and Discharge Class A

RISKS	BENEFITS
<ul style="list-style-type: none">• City fails to meet Class A requirements• Stricter total phosphorus limits• Degradation of Indian Creek• Water rights• Permit violations• Public perception• Regulation of additional constituents	<ul style="list-style-type: none">• Economic development opportunity• Low cost funding availability• Additional water asset• DEQ removes temperature requirements



Alternative #2: Treat and Discharge Class A

RISKS: Water Rights




WHAT: Potential water right disputes between downstream landowners and the City if the value of water increases

COST: \$14,100


TIMING: dispute arises in 2024 and 2025

The costs were calculated based off of the legal fees it would take to address this issue. The likelihood of this happening is 5%



Alternative #2: Treat and Discharge Class A

RISKS: Public Perception




WHAT: City receives negative community feedback over its innovative treatment methods

COST: \$62,500

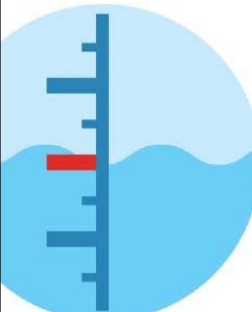
TIMING: public outreach needed in 2024 and 2025 prior to when new treatment methods are announced and implemented

The costs were calculated based off of the price of a public outreach and education campaign. The likelihood of this happening is 25%



Alternative #2: Treat and Discharge Class A

RISKS: Water Fails to Meet Class A Requirements




WHAT: City does not meet the requirements to provide Class A water to industry and must discharge it into Indian Creek

COST: \$1,400


TIMING: water quality falling below Class A reuse standards could occur starting in 2031

The costs were calculated based off of the price of daily fines for reuse permit violations. The likelihood of this happening is 4%



Alternative #2: Treat and Discharge Class A

BENEFITS: Economic Development




WHAT: Class A recycled water creates a resource that could be used to incentivize economic development

BENEFIT:

- \$960,500 tax revenue from construction activities
- \$789,000 annual property tax revenue


TIMING: Annual benefits may occur once Class A water becomes available to industries in 2026

The costs were developed through an economic impact analysis with an assumed likelihood of 30% for one new industry relocating to Nampa.



Alternative #2: Treat and Discharge Class A


BENEFITS: Additional Water Asset

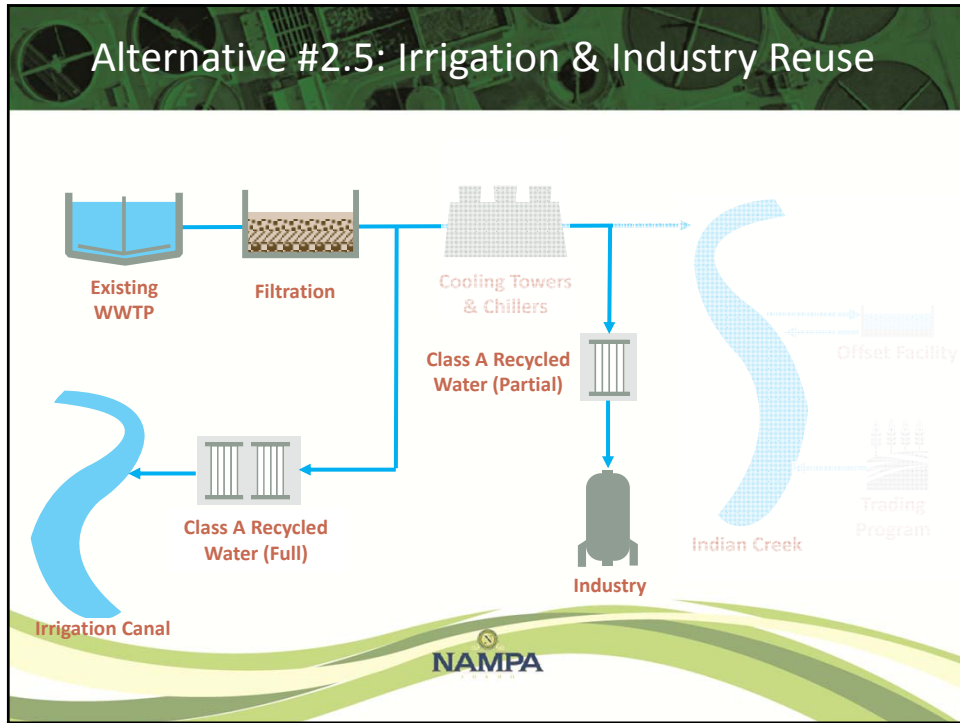


WHAT: Treating water to industrial use standards provides the City with a new water resource. This becomes more important over time as water becomes more scarce.

Timing	2026	2031	2036
Probability	5%	10%	15%
Annual Benefit	\$98K	\$196K	\$295K

The benefit was calculated assuming 2 million gallons per day of industry water is produced and the value is equal to the current potable water rate.





Alternative #2.5: Irrigation & Industry Reuse


CAPITAL COSTS: \$120.9 million

OPERATIONS & MAINTENANCE COSTS:
\$9.7 million annual average
Total costs from 2026-2040 = \$142.3 million

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Alternative #2.5: Irrigation & Industry Reuse

RISKS	BENEFITS
<ul style="list-style-type: none"> • Stricter total phosphorus limits • Regulation of additional constituents • Public perception • Contracting with canal • Permit violations • Canal temperature regulation • Water rights • Canal temperature regulation 	<ul style="list-style-type: none"> • Low cost funding availability • Economic development opportunity • Additional water asset • Higher total phosphorus limits



Alternative #2.5: Irrigation & Industry Reuse

BENEFITS: Economic Development




WHAT: Class A recycled water creates a resource that could be used to incentivize economic development

BENEFIT:

- \$960,500 tax revenue from construction activities
- \$789,000 annual property tax revenue

TIMING: Annual benefits may occur once Class A water becomes available to industries in 2026


The costs were developed through an economic impact analysis with an assumed likelihood of 30% for one new industry relocating to Nampa.



Alternative #2.5: Irrigation & Industry Reuse


BENEFITS: Additional Water Asset

WHAT: Treating water to irrigation standards provides the City with a new water resource. This becomes more important over time as water becomes more scarce.




Timing	2026	2031	2036
Probability	5%	10%	15%
Annual Benefit	\$106K	\$212K	\$317K

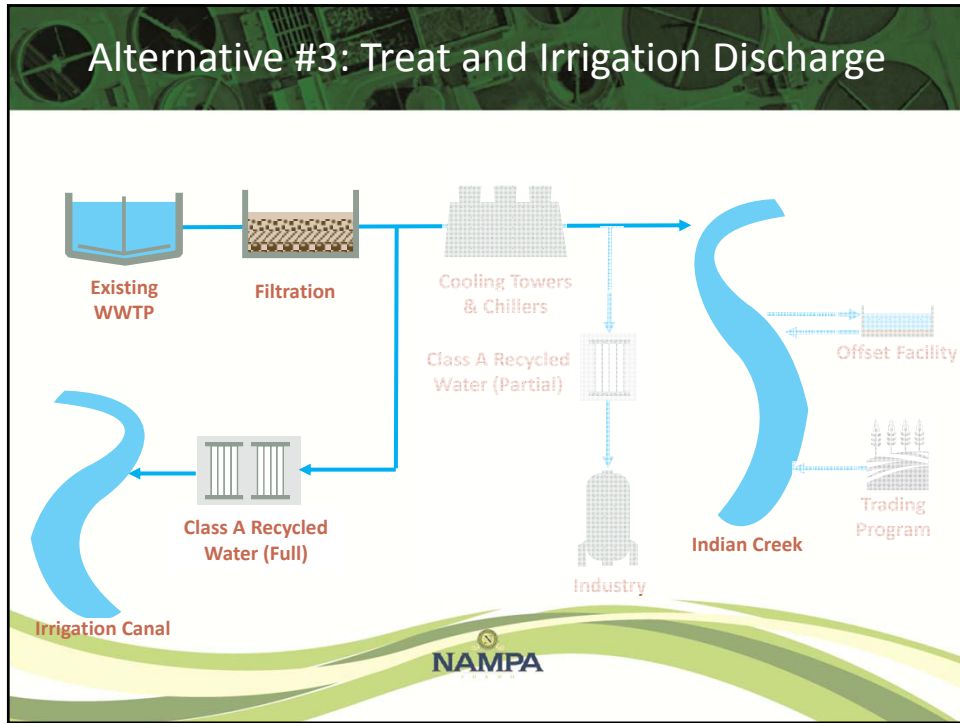
The benefit was calculated from both the value of irrigation water (\$17/acre-foot) and the value of the reused industrial water.



Alternative #2.5A: Irrigation & Industry Reuse

<h3 style="text-align: center;">RISKS</h3> <ul style="list-style-type: none"> stricter total phosphorus limits regulation of new water particles public perception contracting with canal permit violations initial contract canal temperature regulation water rights 	<h3 style="text-align: center;">BENEFITS</h3> <ul style="list-style-type: none"> Federal funding available economic development opportunity additional water asset higher total phosphorus limits
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Alternative #3: Treat and Irrigation Discharge


CAPITAL COSTS: \$117.2 million

OPERATIONS & MAINTENANCE COSTS:
\$9.4 million annual average
Total costs from 2026-2040 = \$137.5 million

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Alternative #3: Treat and Irrigation Discharge

RISKS	BENEFITS
<ul style="list-style-type: none"> • Stricter total phosphorus limits • Regulation of additional constituents • Public perception • Contracting with canal company • Permit violations • Water rights • Canal temperature regulation 	<ul style="list-style-type: none"> • Additional water asset • Federal funding available



Alternative #3: Treat and Irrigation Discharge

RISKS: Contracting with Canal Company




WHAT: If an agreement can't be reached with the canal company, the City would need to add temperature mitigation to the plant

COST: \$780,000 in capital costs and \$55,000 in annual operating expenses

TIMING: Occurs with 2036 permit and contract renewal


The costs were calculated based off the price to build a temperature mitigation facility at the plant. The likelihood of this happening is 5%



Alternative #3: Treat and Irrigation Discharge


RISKS: Canal Temperature Regulations

WHAT: Future regulations place temperature limits on irrigation water



Timing	2026	2031	2036
Probability	1%	3%	5%
Capital Costs	\$156K	\$312K	\$780M
O&M Costs	\$11K	\$22K	\$55K


The costs were calculated based off of the investment of adding temperature mitigation into the treatment plant



Alternative #3: Treat and Irrigation Discharge


BENEFITS: Additional Water Asset

WHAT: Treating water to irrigation standards provides the City with a new water resource. This becomes more important over time as water becomes more scarce.




Timing	2031	2036
Probability	5%	15%
Annual Benefit	\$9K	\$26K

The benefit was calculated based off of the current value of irrigation water (\$17/acre-foot)





Alternative #3A: Treat and Irrigation Discharge



CAPITAL COSTS:
\$117.2 million


OPERATIONS & MAINTENANCE COSTS:
\$9.3 million annual average
Total costs from 2026-2040 = \$142.9 million

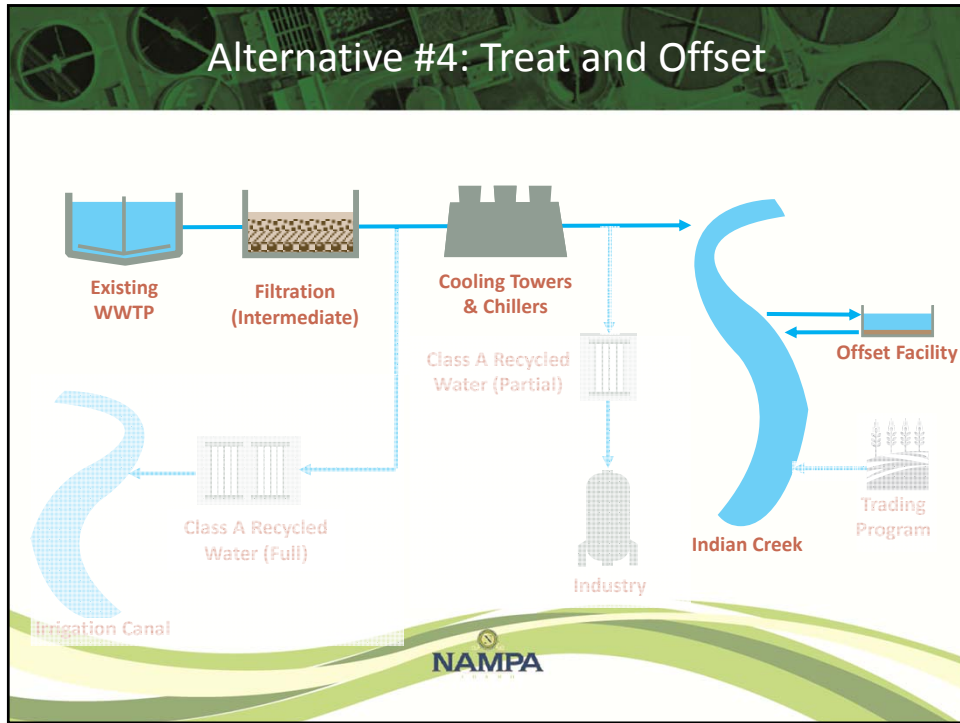




Alternative #3A: Treat and Irrigation Discharge

RISKS	BENEFITS
<p>stricter total phosphorus limits</p> <p>regulation of new water particles</p> <p>public perception</p> <p>contracting with canal</p> <p>permit violations</p> <p>canal temperature regulation</p> <p>water rights</p>	<p>less stringent total phosphorus limits</p> <p>additional water asset</p> <p>economic development opportunity</p> <p>Federal funding available</p>





Alternative #4: Treat and Offset



CAPITAL COSTS:
\$109.4 million

<ul style="list-style-type: none"> <i>Aeration Basin #4</i> <i>Final Clarifier #4</i> <i>Struvite Treatment</i> <i>Temperature Mitigation</i> <i>Phosphorus Offset Facility</i> <i>1-Stage Sand Filters</i> <i>Primary Thickening</i> 	<ul style="list-style-type: none"> <i>Aeration Blower Building</i> <i>RAS/WAS Pumps</i> <i>UV Disinfection</i> <i>Filter Pump Station</i> <i>Solids Facility Expansion</i> <i>Digester #5</i>
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OPERATIONS & MAINTENANCE COSTS:
\$8.7 million annual average
Total costs from 2026-2040 = **\$125.2 million**




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Alternative #4: Treat and Offset

RISKS	BENEFITS
<p>stricter total phosphorus limits</p> <p style="text-align: center;">water rights</p> <p style="text-align: center; color: green; font-size: 1.2em;">offset ratio</p> <p>regulation of new water particles</p> <p style="text-align: right;">permit violations</p> <p style="color: green; font-weight: bold; font-size: 1.1em;">project longevity</p> <p>public perception</p> <p style="text-align: right;">Degradation of Indian Creek</p>	<p style="font-weight: bold; font-size: 1.1em;">improved environment</p>



Alternative 4: Treat and Offset




RISKS: Offset Ratio

WHAT: If offset ratios change, the City would be required to increase the size of the enhanced wetland

COST: \$257,000 in capital costs & \$24,600 in annual expenses

TIMING: Announcement of offset ratios changing **assumed prior to completing construction**


The costs were calculated based off of the price to construct additional area and the operating and maintenance fees associated with the expanded space. The likelihood of this happening is 5%



Alternative 4: Treat and Offset


RISKS: Project Longevity

WHAT: As phosphorus is removed from Indian Creek, the effectiveness of the offset facility would decrease



Timing	2026	2031
Probability	30%	70%
Capital Costs	\$6.4M	\$15M
O&M Costs	\$713K	\$1.7M

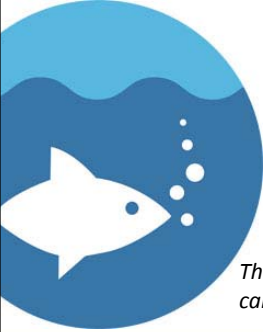
The costs were calculated based off of the price of building new phosphorus removal facilities and the associated annual operating and maintenance costs.



Alternative 4: Treat and Offset


BENEFITS: Improved Environment

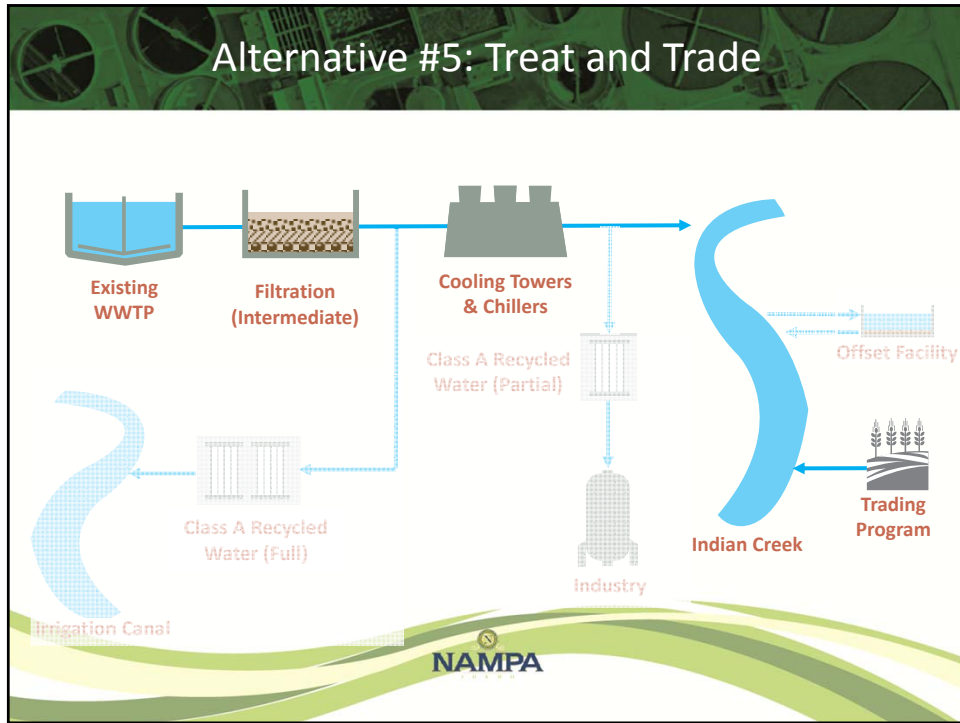
WHAT: Removing more phosphorus improves water quality and helps to improve the City's public image.



Timing	2026	2031	2036
Probability	20%	15%	10%
Annual Benefit	\$50K	\$37.5K	\$25K

The benefit was calculated using the costs of a public outreach campaign to achieve the same public image results





Alternative #5: Treat and Trade

CAPITAL COSTS: \$99.9 million


OPERATIONS & MAINTENANCE COSTS:
\$7.5 million annually

Total costs from 2026-2040 = \$118.9 million


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Alternative #5: Treat and Trade

RISKS	BENEFITS
<ul style="list-style-type: none"> • Degradation of Indian Creek • Credit ratio increases • Water rights • Permit violations • Trading credit availability • Regulation of additional constituents • Public perception • Stricter total phosphorus limits 	<ul style="list-style-type: none"> • Improved environment



Alternative #5: Treat and Trade




RISKS: Credit Ratio Increases

WHAT: The trading ratio requirements to meet the City's permit or the cost of existing credits increase; trading becomes infeasible and the City must build new infrastructure

COST: \$1.2 M

TIMING: trading ratio or cost of credits increases between 2020 and 2031


The costs were calculated assuming the price to purchase additional credits goes up by 50%. The likelihood of this happening is 20%



Alternative #5: Treat and Trade


RISKS: Credit Availability

WHAT: City must build new infrastructure to address a lack of credits or trading partners available to meet phosphorus reduction requirements



Timing	2026	2031
Probability	30%	70%
Capital Costs	\$6.4M	\$15M
O&M Costs	\$713K	\$1.7M

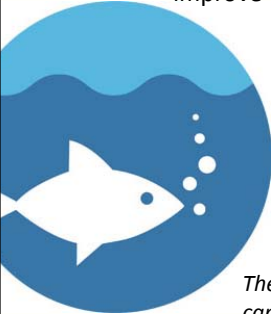
Costs were calculated based off the price of building new phosphorus removal facilities and the associated annual operating and maintenance costs.



Alternative #5: Treat and Trade


BENEFITS: Improved Environment

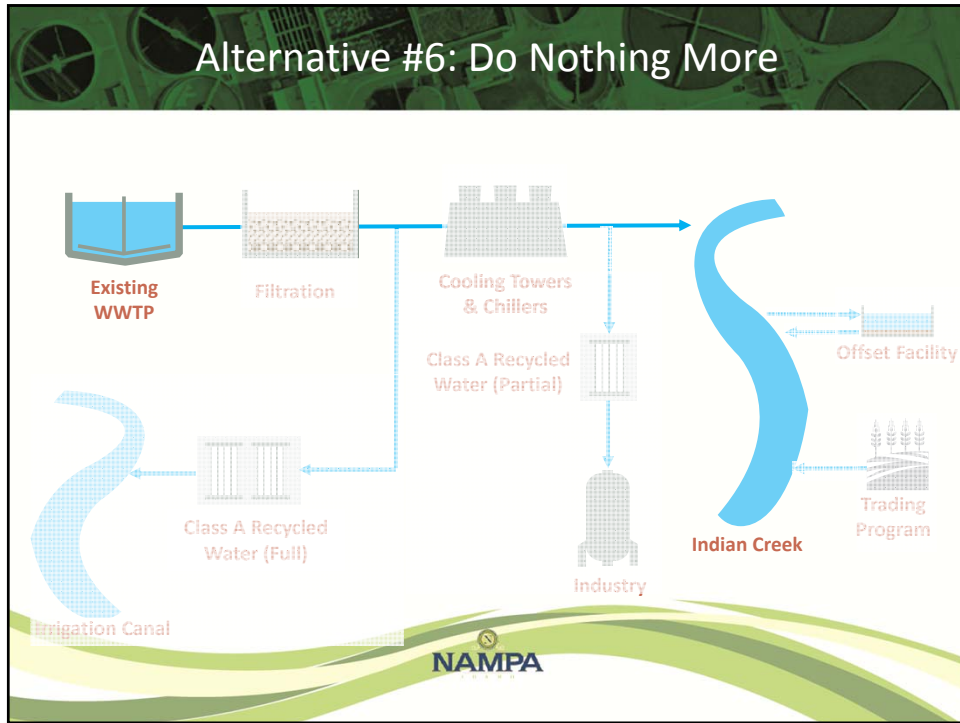
WHAT: Removing more phosphorus improves water quality and helps to improve the City's public image.



Timing	2026	2031	2036
Probability	20%	15%	10%
Annual Benefit	\$50K	\$37.5K	\$25K

The benefit was calculated using the costs of a public outreach campaign to achieve the same public image results for a more conventional treatment approach





Alternative #6: Do Nothing More


CAPITAL COSTS: \$0

OPERATIONS & MAINTENANCE COSTS: \$0

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Alternative #6: Do Nothing More

RISKS	BENEFITS
<ul style="list-style-type: none">• Permit violations• Legal costs• Regulation of additional constituents• Public perception	



Alternative #6: Do Nothing More

RISK: Permit Violations




WHAT: City is fined for not meeting permitting requirements

COST: \$36,500,000


TIMING: Annually

The costs were calculated assuming the City could be fined \$50,000 a day for both phosphorus and temperature over the course of a year.



Alternative #6: Do Nothing More

RISKS: Legal Fees




WHAT: Legal fees associated with fighting permit requirements

COST: \$1.2M


TIMING: When City fails to meet permit requirements & takes no action to comply with new requirements

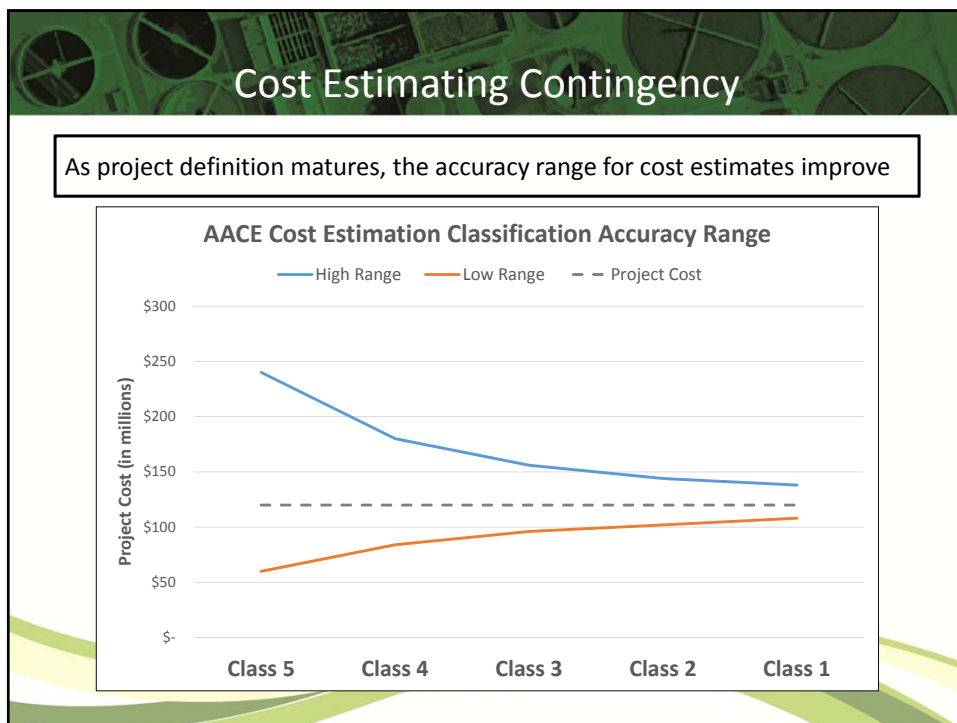
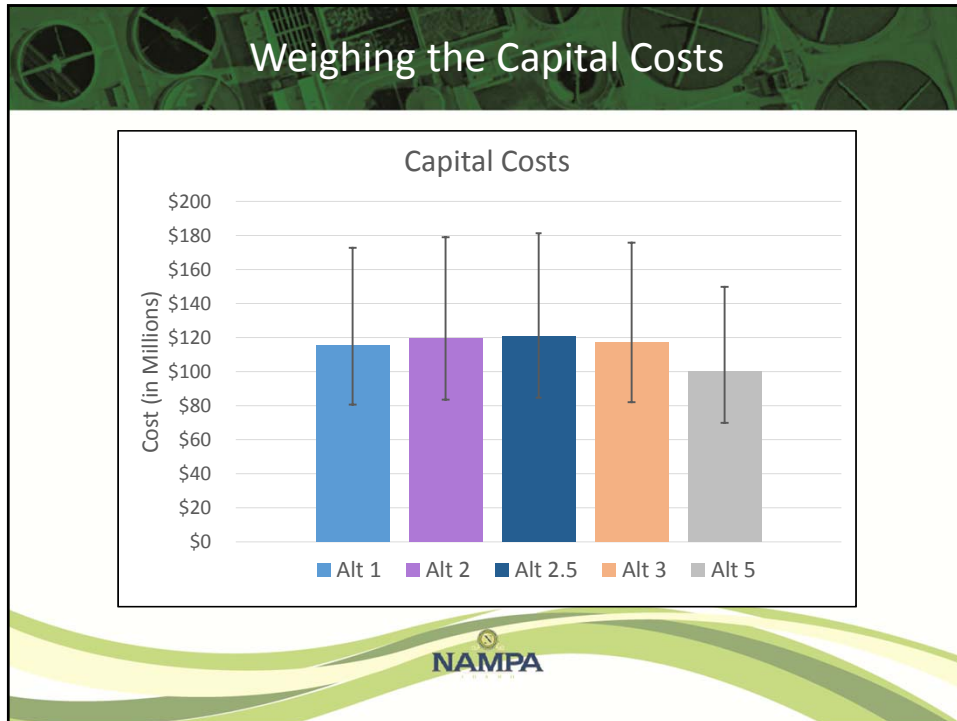
The costs were calculated using attorney fees & estimates of the time that would be spent on this case.



Comparing the Alternatives – 2040


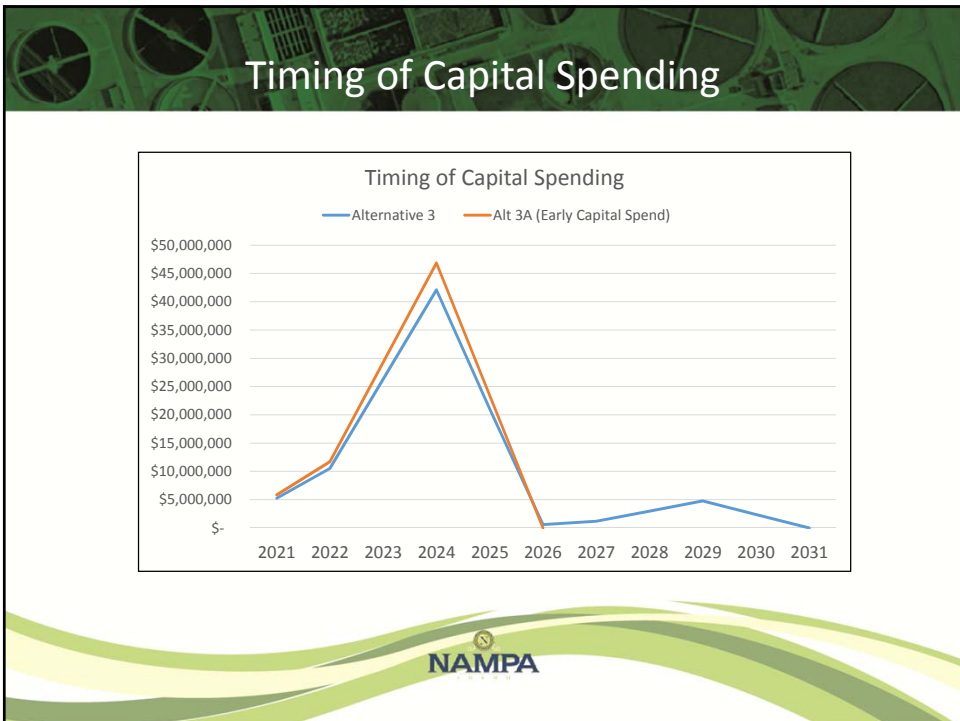
Alternatives	Capital	O&M	Risks	Benefits	2040 Net Present Value
1	\$115.2 M	\$134.8 M	\$41.2 M	\$0.3 M	\$381.9 M
2	\$119.3 M	\$139.3 M	\$41.6 M	\$16.0 M	\$371.7 M
2.5	\$120.9 M	\$142.3 M	\$41.5 M	\$18.9 M	\$372.2 M
3	\$117.2 M	\$137.5 M	\$59.8 M	\$1.2 M	\$411.4 M
5	\$99.9 M	\$118.9 M	\$92.4 M	\$0.9 M	\$398.8 M
6	\$0	\$0	\$504.9 M	\$0 M	\$713.4 M

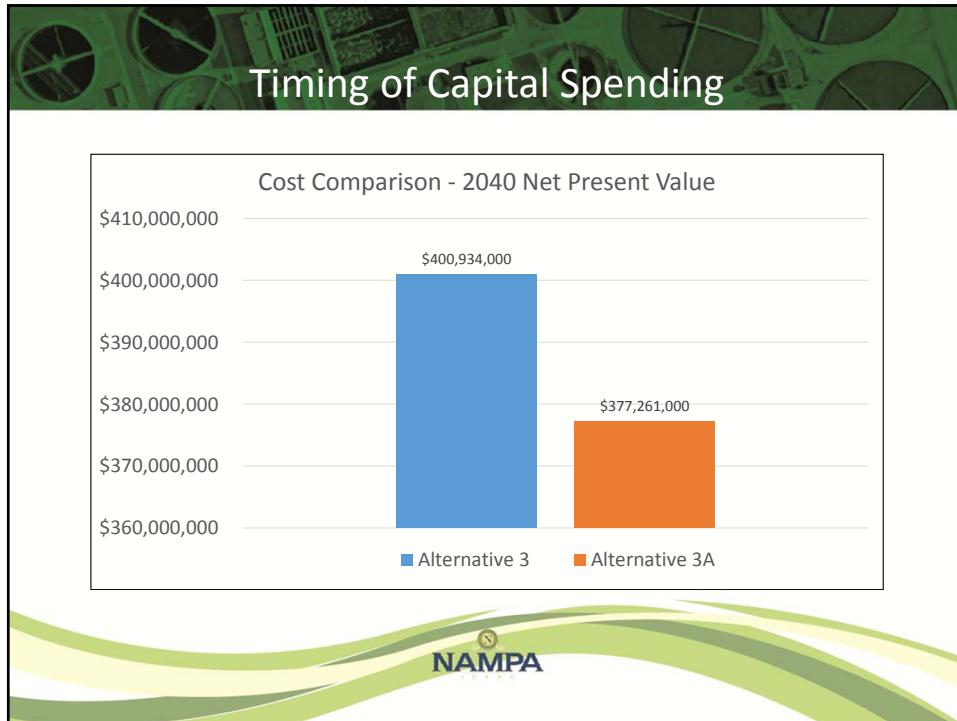




Comparing the Alternatives – 2060

Alternatives	Capital	O&M	Risks	Benefits	2060 Net Present Value
1	\$115.2 M	\$321.9 M	\$77.8 M	\$2.4 M	\$852.1 M
2	\$119.3 M	\$353.3 M	\$79.8 M	\$46.8 M	\$836.7 M
2.5	\$120.9 M	\$340.9 M	\$116.0 M	\$40.4 M	\$871.9 M
2.5A	\$120.9 M	\$343.9 M	\$86.0 M	\$47.6 M	\$814.9 M
3	\$117.2 M	\$329.7 M	\$114.4 M	\$26.8 M	\$884.2 M
3A	\$117.2 M	\$333.5 M	\$84.4 M	\$30.8 M	\$833.3 M
5	\$100 M	\$284.6 M	\$177.4 M	\$3.4 M	\$892.1 M
6	\$0	\$0	\$1.12 B	\$0	\$2.04 B



Sensitivity Analysis – Increased Capital Cost (+50%)

Alternative	2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$448.9 M	+\$67.0 M
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$441.0 M	+\$69.3 M
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$446.3 M	+\$74.1 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$479.2 M	+\$67.9 M
5 - Treat and Trade	\$398.8 M	\$457.1 M	+\$58.2 M
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0

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Sensitivity Analysis – Decreased Capital Cost (-30%)

Alternative	2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$341.7 M	-\$40.2 M
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$330.1 M	-\$41.6 M
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$334.5 M	-\$37.6 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$370.6 M	-\$40.7 M
5 - Treat and Trade	\$398.8 M	\$363.9 M	-\$34.9 M
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – No Economic Development Benefit (0%)

Alternative	2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.9 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$389.3 M	+\$17.6 M
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$389.8 M	+\$17.6 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$411.4 M	\$0
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – Economic Development Benefit (100%)

Alternative	2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.9 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$330.5 M	-\$41.1 M
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$331.0 M	-\$41.1 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$411.4 M	\$0
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – No Value of Water

Alternative	Original 2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.9 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$374.6 M	+\$3.0 M
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$379.6 M	+\$7.4 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$411.6 M	+\$0.3 M
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – Doubled Value of Water

Alternative	2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.9 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$368.7 M	-\$3.0 M
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$364.7 M	-\$7.4 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$411.1 M	-\$0.3 M
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – No Initial Contracting Risk

Alternative	Original 2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.9 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$371.7 M	\$0
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$372.2 M	\$0
3 - Treat and Irrigation Reuse	\$411.4 M	\$389.1 M	-\$22.2 M
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – Doubled Initial Contracting Risk

Alternative	Original 2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.8 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$371.7 M	\$0
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$372.2 M	\$0
3 - Treat and Irrigation Reuse	\$411.4 M	\$433.6 M	+ \$22.2 M
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – No Canal Temperature Regulation Risk

Alternative	2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.9 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$371.7 M	\$0
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$370.0 M	-\$2.2 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$406.3 M	-\$5.1 M
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Sensitivity Analysis – Doubled Canal Temperature Regulation Risk

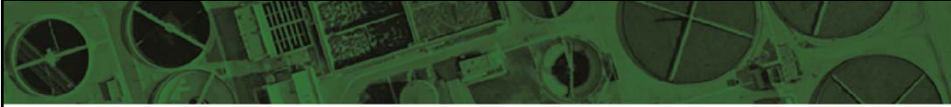
Alternative	2040 Net Present Value	New 2040 Net Present Value	Change
1 - Treat & Discharge	\$381.9 M	\$381.9 M	\$0
2 - Treat and Discharge to Indian Creek and Industry Class A Water	\$371.7 M	\$371.7 M	\$0
2.5 - Irrigation and Industrial Reuse	\$372.2 M	\$374.4 M	+ \$2.2 M
3 - Treat and Irrigation Reuse	\$411.4 M	\$416.4 M	+ \$5.1 M
5 - Treat and Trade	\$398.8 M	\$398.8 M	\$0
6 - Do Nothing More	\$713.4 M	\$713.4 M	\$0



Evaluation Summary




- Capital and operational costs are similar
- Alternative 5 has the highest level of risk (aside from Do Nothing More) due to the
 - Uncertainty in the trading framework
 - Long-term viability of trading
- Both Alternatives 2 and 2.5 provide benefit of potential economic development
- Alternative 2.5 becomes more favorable as the value of water increases beyond the assumed values








Nampa WWTP Repair and Replacement Projects

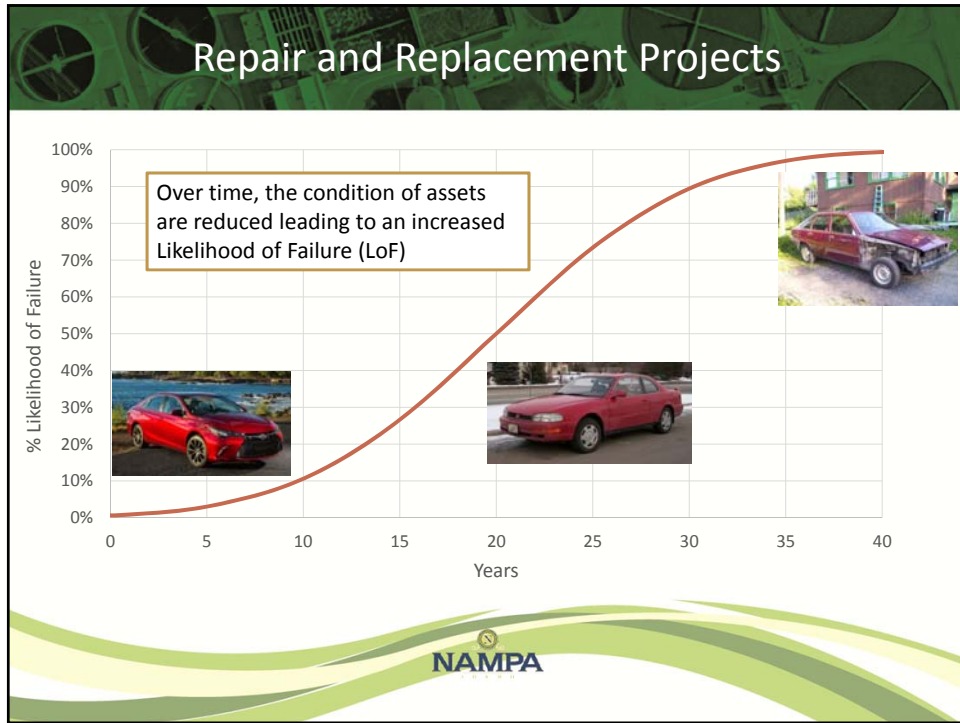
Matt Gregg, P.E., Brown & Caldwell



Asset Performance: Condition and Capacity



- Like any asset, the Nampa wastewater treatment plant requires upkeep in order to function
- The City has evaluated the facility and identified older assets needing repair or replacement
- The City uses a systematic process for evaluating and prioritizing what assets get fixed or replaced







Repair and Replacement Projects

0300-HEADWORKS COMPLEX	
Created	2014-08-05 13:52:21 UTC by Chris Somerton
Updated	2016-08-20 03:26:57 UTC by Chris Somerton
Location	03-03-00
Asset Location	0300-HEADWORKS COMPLEX
Asset Name	RAW SCREEN PUMP #1
Asset Identification	2170PUMP#1
Year installed (YYYY)	2002
Useful Life	15
Mfg	S&C Barks
Estimated Usage	30%
Annual Maintenance Cost	\$15,000
Size	72 in x 36 in x 366.5 in
Capacity	8000 gpm
Original Cost	\$150,000.00
Unit	50
Alt.	

Performed Visual Condition Assessment of Over 300 WWTP Assets including Mechanical, Structural, Electrical and Instrumentation and Controls



Adequate for intended service?	Yes
Visual Assessment Rankings	
Condition Ranking	3-Mild degradation
Performance Ranking	2-Asset functions as intended, excessive maintenance required
Failure Frequency Ranking	2-Occurs on rare occasions, every 2-5 years
Instrument/Control Functioning?	Yes
Safety Issues	Need immediate document re-emergency shutoff
CMR Considerations	Maintenance often but not excessive
Opportunities for energy savings	Upgrade motors and control equipment
Original equipment replaced	Minor items replaced
Additional Comments	Screen box items should be separate items. Oil tube system failure higher than pump.
Inspected By	Mark Hahn, Mark Wilkins
Date	2016-08-05
Plant Staff Present	Chuck McDonald
Photos	





NAMPA

Repair and Replacement Projects

Consequence of Failure (CoF) depends on the asset location, function and backup equipment. We can monetize the CoF to identify the assets that pose a greater risk if they fail.



Vs.




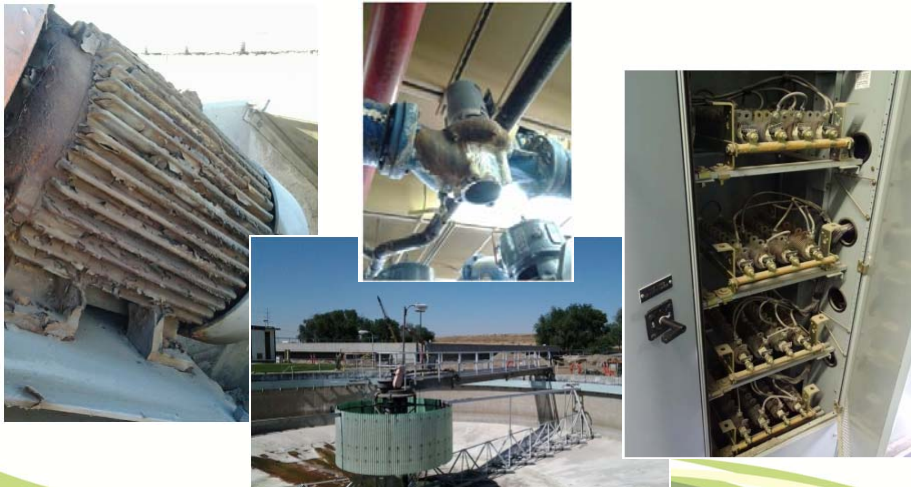
Repair and Replacement Projects

LoF (%) x CoF (\$) = Risk (\$)

WWTP Asset	LoF Estimate	Total CoF	Risk Cost
HEADWORKS BUILDING	40%	\$12,529,000.00	\$ 5,012,000
DIGESTER, #1 PRIMARY	66%	\$ 6,882,000.00	\$ 4,542,000
CLARIFIER, PRIMARY #1	92%	\$ 4,368,000.00	\$ 4,019,000
BASIN, NITRIFICATION (WEST)	29%	\$12,743,000.00	\$ 3,695,000
BASIN, NITRIFICATION (EAST)	29%	\$12,743,000.00	\$ 3,695,000
MCC-1B	85%	\$ 3,247,400.00	\$ 2,760,000
MCC-6	87%	\$ 2,885,400.00	\$ 2,510,000
MCC-7	82%	\$ 2,885,400.00	\$ 2,366,000
RAW SCREW PUMP #1	62%	\$ 3,883,000.00	\$ 2,407,000
DIGESTER, #1 SECONDARY	90%	\$ 2,432,000.00	\$ 2,189,000
DIGESTER, #2 SECONDARY	90%	\$ 2,432,000.00	\$ 2,189,000
BLOWER, POST AERATION	100%	\$ 2,008,900.00	\$ 2,009,000
DIGESTER, #2 PRIMARY	29%	\$ 6,882,000.00	\$ 1,996,000
RAW SCREW PUMP #2	57%	\$ 3,883,000.00	\$ 2,213,000
CLARIFIER, FINAL #1	29%	\$ 6,324,000.00	\$ 1,834,000
CLARIFIER, FINAL #2	29%	\$ 6,324,000.00	\$ 1,834,000
PRIMARY SLUDGE PUMP STATION	84%	\$ 2,128,000.00	\$ 1,788,000



Repair and Replacement Projects



Total Repair and Replacement Costs = \$22M

Repair and Replacement Projects

- Repair Projects
 - Primary Effluent PS Pumps
 - Primary Clarifier #1 Mechanism, Structure and Pumps
 - Post Aeration Process
 - Sludge Pumps #1, #2 and #3
 - Digester Mixing Pumps #1, #2 and #3
 - Digester Recirculation Pumps #3 and #4
- Replacement Projects
 - Primary Clarifier #2 and #3 Mechanisms
 - Final Clarifier #1, #2 and #3 Mechanisms
 - RAS Pumps #1, #2, #3 and #4

Repair and Replacement Projects

- Replacement Projects (cont.)
 - WAS Pumps
 - Primary Digester #1
 - Motor Control Centers #4, #6, #7, #8 and #10
 - Headworks Process Equipment and Motor Control Center
 - Lab/Administration Building



What's Next

Rosemary Curtin, RBCI



What's Next

- Next meeting
 - NWAG Meeting #4: TBD
- City Council Workshop
 - June 29, 2-4 PM
 - City Council Chambers
- Working Group Instructions
- Comment sheets

THANK YOU!



Questions

- *Now that you have more information, which alternative do you prefer? Why?*
- *What risk and/or benefit stands out to you the most?*
- *Do you think there are other risks or benefits that were not discussed?*

