



The City of Nampa must reduce the amount of phosphorus it discharges into Indian Creek in order to meet new federal requirements and improve water quality in the Lower Boise River and Snake River.

The City of Nampa's wastewater treatment plant is one of the largest in the state and treats millions of gallons of wastewater each day generated by residents, businesses and industries.

Wastewater is used water from washing machines, dishwashers, sinks, toilets, showers, bathtubs and industrial manufacturing and operating processes.

Currently, after the water is thoroughly treated at Nampa's wastewater treatment plant it is discharged into Indian Creek. Water from Indian Creek joins with the Boise River and eventually flows into the Snake River and Brownlee Reservoir.

To give comments or learn more about upgrading Nampa's wastewater treatment plant:

- www.cityofnampa.us/wastewater
- Contact Karla Nelson at the Nampa Public Works Department, (208) 468-5523, nelsonk@cityofnampa.us

Why is phosphorus a problem?

The Environmental Protection Agency and the Idaho Department of Environmental Quality have identified pollution problems in the Boise River and the Snake River that will impact Nampa's wastewater treatment activities. The major pollutant of concern is phosphorus – a nutrient found in wastewater from sources such as dishwasher detergent, human waste, fertilizer, industrial discharges and agricultural uses.

Too much phosphorus in lakes and rivers can cause excessive algae blooms, which can kill fish and threaten recreational uses like swimming and fishing.

New Permit Requirements

The federal Clean Water Act requires the City of Nampa to have a permit in order to discharge treated wastewater into Indian Creek. This permit is called a National Pollutant Discharge Elimination System (NPDES) permit. A new or renewed NPDES permit is issued to the City by the Environmental Protection Agency (EPA) about every five years.

Nampa's new NPDES permit is scheduled to be issued in 2013. The City expects the permit to require Nampa to meet higher standards for treating its wastewater including phosphorus removal.

The upgrades to Nampa's wastewater treatment system could cause wastewater bills to double. Given the high cost, the City recognizes that it is vital to involve the Nampa community when evaluating upgrade options.

A professional management team is thoroughly analyzing several possible ways for Nampa to upgrade its wastewater treatment systems. A citizens advisory group and an industry advisory group are also working with the City to help determine which option is best for Nampa.



City of Nampa – Infiltration Option

Nampa's wastewater treatment plant currently treats 10 million gallons of wastewater a day, which totals to about 3.65 billion gallons of wastewater a year. What leaves the plant is clean recycled water. Currently, Nampa discharges its recycled water into Indian Creek. Disposing recycled water into United States waterways such as Indian Creek is regulated by the federal Clean Water Act.

The City of Nampa needs to make extensive upgrades to how it treats and disposes its recycled water in order to meet anticipated stricter federal regulations.

In response to these anticipated stricter regulations, the City of Nampa is analyzing current processes and considering several options for treating wastewater and disposing recycled water. Each option has benefits and risks, which are being thoroughly evaluated by the City and an engineering management team.

This fact sheet explains the option of applying recycled water to land. After being applied to the land, the water would slowly infiltrate into the groundwater. This option is called **infiltration**.

What is infiltration?

Infiltration is a process in which recycled water is applied to an area of land. Recycled water from the City's wastewater treatment plant would be sent through pipes to another location and applied to a system of basins and ponds.

Two techniques of infiltration, direct and rapid, are being evaluated as possible options for Nampa. Each technique requires a different level of treatment at the City's plant.

Rapid infiltration would require less treatment at the plant because this technique would use the soil to filter and absorb phosphorus, nitrogen and organic compounds from the water. Not all of the basins and ponds could be used at the same time to treat water because the soil would need time to dry after each treatment. Because the basins and ponds would have to be rotated, rapid infiltration would require the City to purchase greater amounts of land when compared to direct infiltration.

Direct infiltration would treat water to a high enough level at Nampa's plant that it could be applied to land without undergoing further treatment through the soil. Since no soil treatment is necessary, all the basins and ponds could be used at the same time without waiting for the soil to dry. Because the basins would not need to be rotated, direct infiltration would require less land. However, more upgrades to the wastewater treatment plant would be necessary because the water would have to be treated to a higher level than rapid infiltration.

Why is Nampa considering infiltration?

Infiltration is being used in many other Western states to reuse water and keep it readily available for other uses. The infiltration option would turn recycled water into a City resource while minimizing the influence of the Environmental Protection Agency over the City. In addition to lowering phosphorous levels in Indian Creek, there would be the added benefit of recharging the depleted underground aquifer south of Lake Lowell.

Currently, the price of water in Idaho is relatively inexpensive. However, the Bureau of Reclamation has identified the Treasure Valley area as having a “moderate” potential for a water supply crisis by 2025. Initially, infiltration will recharge the depleted aquifer.

If water becomes a more valued commodity, in the future Nampa could redirect the water sent for aquifer recharge to a pressurized irrigation system during the summer for residential and commercial irrigation. If this were to happen, Nampa would have to make some modifications to its existing irrigation system.

Infiltration would also allow Nampa to generate a source of water that could be used to promote economic development throughout the community. Instead of conveying all of the water to the infiltration basins, the water could be used by an industrial user.

The infiltration basins could also be used as a habitat area for wildlife and possibly scenic walking paths.

Along with the benefits described above, the City has also recognized this option has some potential drawbacks. Infiltration would require a very specific type of land, soil and ground water quality to be effective and the regulatory approval process is rather uncertain at this point. If the proper characteristics are found, the City must secure a very large amount of land for the amount of recycled water being applied. The right conditions must be found within a certain proximity of the City’s plant in order for this option to be cost effective.

Another issue to consider is that an infiltration project of this scale has not yet been implemented in Idaho. The Idaho Department of Environmental Quality (DEQ) is thoroughly reviewing all requirements to obtain the proper permits. Nampa is working closely with the DEQ through every step of this process.

How would Nampa implement the infiltration option?

Nampa’s plant would be upgraded to treat water to a high enough level that it could be applied to land. These upgrades would add more nitrogen removal processes and possibly a filtration system to the current treatment process.

After being treated to high levels at Nampa’s plant, the recycled water would be transported through a pipe system to an offsite location where it would then be applied to basins and ponds. The City would purchase land to build the infiltration site.

Nampa is analyzing several locations in Canyon County where infiltration could possibly work. If the analyses determine that this option is viable, the City will work with Canyon County and the State of Idaho to meet all permits and laws.

For more information

To give comments or learn more about upgrading Nampa’s wastewater treatment plant:

- Visit www.cityofnampa.us/wastewater
- Contact Karla Nelson at the Nampa Public Works Department, (208) 468-5523, nelsonk@cityofnampa.us

City of Nampa – Treat and Offset Option

Nampa’s wastewater treatment plant currently treats 10 million gallons of wastewater a day, which totals to about 3.65 billion gallons of wastewater a year. Currently, Nampa discharges its treated wastewater into Indian Creek. Disposing treated wastewater into United States waterways such as Indian Creek is regulated by the federal Clean Water Act.

The City of Nampa needs to make extensive upgrades to how it treats and disposes this wastewater in order to meet anticipated stricter federal regulations.

In response to these anticipated stricter regulations, the City of Nampa is analyzing current processes and considering several options for treating and disposing its wastewater. Each option has benefits and risks, which are being thoroughly evaluated by the City and an engineering management team.

This fact sheet explains the option of reducing phosphorus to moderate levels at the treatment plant while also treating runoff from an off-site agricultural drain. Nampa would receive credits for cleaning up runoff from the agricultural drain and the credits would be applied toward the City’s treatment plant. This option is called **treat and offset**.

What is treat and offset?

Moderate upgrades would be made to Nampa’s wastewater treatment plant and treated water would continue to be discharged into Indian Creek. At the same time, the City would identify an agricultural drain that is high in phosphorus and build an enhanced wetlands system to divert and treat the agricultural runoff from this drain.

Through natural and chemical treatment, the enhanced wetlands would remove phosphorus and other pollutants from the selected drain before the pollution reaches the Boise River. The term “enhanced” is used for this option because while the wetlands area would use nature’s ability to act as a filter, it would also include man-made treatment processes. These processes would include sedimentation basins and chemical addition to more efficiently remove phosphorus.

By treating agricultural runoff, the City would receive credits, also known as “offsets,” that can be applied towards its wastewater treatment plant. Removing phosphorus at both the wastewater treatment plant *and* the enhanced wetlands would allow Nampa to meet the EPA’s requirements for lower phosphorus levels.

Why is Nampa considering treat and offset?

This option would require fewer upgrades to Nampa’s wastewater treatment plant. When compared to other options, this option could be less expensive. Constructing an enhanced wetlands area is an innovative approach that would provide water quality benefits, habitat improvements and a natural system for improving overall water quality.

One of the potential limitations with this option is that it will likely be a temporary solution to the phosphorus issue. Currently, phosphorus levels in Indian Creek and the lower Boise River are high due in large part to agricultural runoff. However, the amount of phosphorus from

agricultural drains will be reduced in the future as irrigation practices become more efficient and urban growth reduces the amount of farmland. As this occurs, the City will likely have to consider other options to remove phosphorus.

Another drawback is that this option has some regulatory uncertainty. Enhanced wetlands have not yet been used for meeting wastewater permit requirements. However, the City of Boise is proposing a similar project that would use enhanced wetlands to remove excessive phosphorus pollution from Dixie Drain, an agricultural drain near Parma. If approved by the EPA and Idaho DEQ, the Dixie Drain project will set the national precedent for offset projects for wastewater treatment. The City of Nampa is closely tracking the progress made by the City of Boise.

Finally, this option would not allow the City to reuse a valuable asset. Wastewater treated at Nampa's wastewater treatment plant would continue to be discharged into Indian Creek with no additional benefit to the City.

How would Nampa implement the treat and offset option?

Nampa would construct upgrades to its wastewater treatment plant to reduce the amount of phosphorus levels before discharging treated water into Indian Creek. Additionally, the City would purchase land to construct an enhanced wetlands system. Nampa is analyzing locations around Mason Creek and Indian Creek.

At the enhanced wetlands, a structure would be constructed to divert water from the creek into a sedimentation basin where sediment containing phosphorus would be collected. After the water is discharged from the sedimentation basin, additional phosphorus would be removed at the enhanced wetland by plant absorption and additional sediment settling, followed by chemical addition to create larger particles that would settle out in large settling ponds. After being thoroughly treated, the cleansed water would be discharged back into the creek.

For more information

To give comments or learn more about upgrading Nampa's wastewater treatment plant:

- Visit www.cityofnampa.us/wastewater
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City of Nampa Wastewater Upgrade Options

Upgrade the Treatment Plant

Nampa's wastewater treatment plant currently treats 10 million gallons of wastewater a day, which totals to about 3.65 billion gallons of wastewater a year. Currently, Nampa discharges its treated wastewater into Indian Creek. Disposing treated wastewater into United States waterways such as Indian Creek is regulated by the federal Clean Water Act.

The City of Nampa needs to make extensive upgrades to how it treats and disposes this wastewater in order to meet anticipated stricter federal regulations.

In response to these anticipated stricter regulations, the City of Nampa is analyzing current processes and considering several options for treating and disposing its wastewater. Each option has benefits and risks, which are being thoroughly evaluated by the City and an engineering management team.

This fact sheet explains how the new regulations could be met by **upgrading Nampa's wastewater treatment plant**.

What is this option?

Nampa currently treats its wastewater with biological processes at the City's wastewater treatment plant. After undergoing these processes, the treated wastewater is discharged from the plant into Indian Creek.

Meeting new phosphorus treatment requirements at Nampa's plant would entail modifying the current biological processes. Chemical treatment processes and wastewater filtration improvements would also need to be added to reduce phosphorus to very low levels. The treated wastewater would then continue to be discharged into Indian Creek.

Why is Nampa considering only upgrading the wastewater treatment plant?

Most cities across the country are meeting the new, more stringent phosphorus requirements by upgrading their wastewater treatment plants. This option is the method most commonly used for meeting new regulations.

There is known technology that could remove phosphorus to the new required low levels. However, treating to these very low levels at the plant would take significant operational effort.

Upgrading the treatment plant is how Nampa has historically responded to new permit regulations. A benefit of this option is that the regulatory framework is more certain than unconventional options, such as infiltration or treat and offset.

With this option, Nampa would still be discharging its treated wastewater into Indian Creek, so the City would still be subject to changing federal permit requirements. The City would also be disposing its treated wastewater instead of using it as a resource.

The process to reduce phosphorus to low levels would require adding a very large amount of chemicals to the water and significantly increase operational costs. This could be a drawback because using chemicals to meet the very low levels of phosphorus is costly and can be

operationally challenging. The chemical processes could also increase waste production and sludge production.

If Nampa treated for phosphorus only at the plant, what upgrades would be made?

Currently, the plant uses trickling filters and nitrification basins to treat the wastewater. While trickling filters have been a reliable technology for many years, they are not capable of removing phosphorus.

The existing trickling filters may be replaced by a biological treatment process, which would use microorganisms to remove the phosphorus from the water. Biological treatment processes have been used for years, and are currently employed at many of the wastewater treatment plants in the Treasure Valley.

In conjunction with the biological treatment process, phosphorus would be reduced to even lower levels through chemical treatment and filtration processes. A chemical would be added to the water to bind with the remaining phosphorus from the biological process. The phosphorus and the chemical would then be removed from the water using filters. This type of chemical treatment process has been used around the country to reduce the amount of phosphorus discharged from wastewater treatment plants.

For more information

To give comments or learn more about upgrading Nampa's wastewater treatment plant:

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- Contact Karla Nelson at the Nampa Public Works Department, (208) 468-5523, nelsonk@cityofnampa.us

Upgrade Options

The Challenge

Nampa's wastewater treatment plant currently treats 10 million gallons of wastewater a day, which totals to about 3.65 billion gallons of wastewater a year. The City must treat its wastewater because discharging raw sewage is neither legal nor appealing.

Nampa currently discharges its treated wastewater into Indian Creek. Disposing treated wastewater into United States waterways such as Indian Creek is regulated by the federal Clean Water Act and requires the City of Nampa to have a permit. This permit is called a National Pollutant Discharge Elimination System (NPDES) permit. A new NPDES permit should be issued to the City by the Environmental Protection Agency (EPA) every five years.

Nampa expects to receive its next NPDES permit in 2013. Based on new permits for other wastewater treatment plants in the Treasure Valley, Nampa can anticipate its new permit will include stricter regulations for treating wastewater and discharging into Indian Creek. In order to meet these new regulations, Nampa anticipates it will need to make as much as \$200 million of upgrades to its wastewater treatment and disposal system.

In response to anticipated stricter regulations, the City is evaluating the best way for Nampa to dispose of its wastewater. For this evaluation the City is analyzing current processes and considering several new ways to treat and dispose of its wastewater.

Treating and Discharging Nampa's Wastewater

The City of Nampa is working with an engineering management team to evaluate all options for treating and disposing wastewater.

All of the options described below are being thoroughly analyzed and it has been determined that each option has benefits and drawbacks. There is not a preferred option and no decisions have been made about which option will be implemented. The options being evaluated are:

- **Option #1 and #2: Infiltration** - Treated wastewater would be applied to an area of land rather than discharged into Indian Creek. Recycled water from the City's plant would be pumped offsite and released into a system of basins and/or ponds, then slowly infiltrated back into the aquifer south of Lake Lowell. Two methods of infiltration are being considered:
 - **Option #1: Direct infiltration** would increase the level of treatment to a very high level at the plant. The treated water would be pumped away from the plant and applied to constructed ponds where it would infiltrate back into the groundwater.

- **Option #2: Rapid infiltration** would increase the level of treatment to a high level at the plant. The treated water would be pumped away from the plant and applied to a series of basins. The basins would be designed to further cleanse the water by using the soil ecosystem to absorb pollutants and organic compounds. After being thoroughly cleansed through the soil, the treated water would infiltrate back into the groundwater.
 - **Option #3: Treat and offset** –Upgrades would be made at the plant to treat wastewater to certain levels and water would continue to be discharged into Indian Creek. To meet stricter regulations, Nampa would remove pollutants from Indian Creek at an alternate enhanced wetlands location.
 - **Option #4: Upgrade the treatment plant** –Substantial upgrades would be made at the plant and water would continue to be discharged into Indian Creek. To meet stricter regulations, upgrades to the plant would include adding chemical and biological processes to remove pollutants that are harmful to waterways.
 - **Option #5: Do nothing more** – Continue current processes for treating and disposing Nampa’s wastewater. This option would violate the federal Clean Water Act and have severe, negative implications for the City of Nampa.
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Note: Detailed fact sheets about each option will be available at www.cityofnampa.us/wastewater/

Improving the way that Nampa treats its wastewater will be a complex and expensive process. Funding the improvements could require a bond election and/or a substantial increase in wastewater bills. Designing, funding and building the upgrades to Nampa’s wastewater treatment and disposal system will take many years, which is why the City is taking the initiative of planning the upgrade process now.

A professional management team, a citizens advisory group and an industry advisory group are working with the City to help determine which option is best for Nampa.

For more information

To give comments or learn more about upgrading Nampa’s wastewater treatment and disposal system:

- Visit www.cityofnampa.us/wastewater
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City of Nampa – ‘Do Nothing More’ Option

Nampa’s wastewater treatment plant currently treats 10 million gallons of wastewater a day, which totals to about 3.65 billion gallons of wastewater a year. Currently, Nampa discharges its treated wastewater into Indian Creek. Disposing treated wastewater into United States waterways such as Indian Creek is regulated by the federal Clean Water Act.

The City of Nampa anticipates stricter regulations for its treatment and disposal of wastewater into Indian Creek. In response to these anticipated stricter regulations, the City of Nampa is analyzing current processes and considering several options for treating and disposing its wastewater. Each option has benefits and risks, which are being thoroughly evaluated by the City and an engineering management team.

This fact sheet explains the option of what would happen if the City chooses not to upgrade its wastewater system. This option is called **do nothing more**.

What is the ‘do nothing more’ option?

The City would continue its current treatment practices and no upgrades would be made to Nampa’s wastewater system. Nampa would knowingly be in violation of its new National Pollutant Discharge Elimination System (NPDES) permit.

Why is Nampa considering to “do nothing more?”

In order to meet the new regulations, Nampa anticipates it will need to make as much as \$200 million of upgrades to its wastewater treatment and disposal system. Some people in Nampa have given input that they believe the new regulations are unnecessary and the upgrades will be too expensive.

The City is considering all input when deciding which option is best for Nampa. Therefore, the risks and benefits of “do nothing more” are being analyzed equally with the other upgrade options.

What would happen if Nampa implements the “do nothing more” option?

If Nampa does not upgrade its wastewater treatment system it would be committing willful negligence of the Clean Water Act.

If the City chooses not to upgrade its wastewater system, negative consequences would include:

- Violation of federal law.
- Significant penalties and fines (at a minimum, the fines would start at \$27,500 a day for each non-compliance related to the permit).
- A lengthy legal process which would result in large legal bills.
- Imprisonment of city staff and city council.

- Moratorium on growth (if the City does not meet permit requirements, the regulatory agencies would not approve any expansions of the wastewater treatment facility or allow connections of new customers to the existing system).
- Negative public perception of Nampa for not properly treating its wastewater.

For more information

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