



# Wastewater Treatment & Water Reclamation Project

# & Questions & Answers



# Wastewater Treatment & Water Reclamation Project Questions & Answers



## What is the Wastewater Treatment & Water Reclamation Project?

The Wastewater Treatment & Water Reclamation Project is a sewer system that would collect, treat, and reclaim wastewater for the area shown on the map on pages 7 and 8. The project is being proposed for funding as an Assessment District which property owners would approve through an election. The system, as proposed, has three phases. Phase 1, which is projected for construction by 2016, includes:

- a sewer collection system
- a wastewater treatment plant
- water reclamation recharge ponds

For definitions of technical terms, see page 14



### Collection System

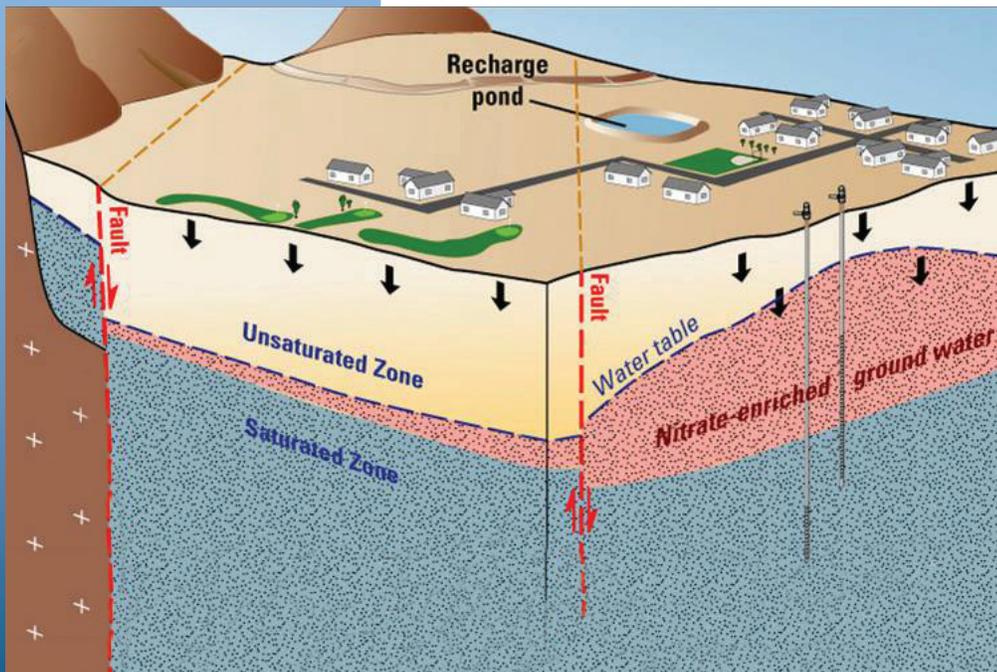
The collection system, the largest part of the project, consists of about 405,800 linear feet of pipe. Gravity will move the wastewater through the majority of the system. Three pump stations will be sited to pump the wastewater from the collectors to the treatment plant. The sewer pipe will be designed to have enough capacity to accommodate the eventual flow from phases 2 and 3, which are future parts of the larger project. Pipe sizes will range from 8 inches to 36 inches in diameter. The collection system will provide service up to the property line of privately-owned homes, businesses, and vacant land. (For

more information about installing a connection to the system from your private property see page 5).

### Treatment Plant

The treatment plant will use extended aeration and may use advanced treatment (also called tertiary treatment) to treat an initial 1.5 million gallons of wastewater a day. This is enough to serve Phase 1 only. When phases 2 and 3 are built, additional capacity will be added. The plant will be located on 20 acres in the southern portion of an 80-acre parcel east of Home Depot (see map page 8), south of the highway, with access from La Contenta and Sunnyslope.

High nitrate concentrations exist in the unsaturated zone of the soil. The continued use of septic systems drives the nitrates into our groundwater.



### Water Reclamation Recharge Ponds

At the treatment plant, the treated water will be discharged into ponds. The water will percolate into the ground to recharge the groundwater. In the future, treated water can be used to irrigate facilities with large landscapes such as parks and schools. A recycled water option may be added in the future, but would represent an increase in project costs. Hi-Desert Water District is working with the Town of Yucca Valley on ways to fund a recycled water system.

## **Q** Why do we need the Project?

**A** The sewer system is needed to protect the groundwater. Septic systems leave behind residues when wastewater is discharged to the soil and absorbed. These residues include nitrates and other pollutants including pharmaceuticals and salts and, for more than 60 years, they have been accumulating underground near and around the District's wells.

Water quality concerns are not new to Yucca Valley. As early as the 1970s much of the area's development was already located over the groundwater basin.

### **Groundwater Protection**

Fortunately the water table for the groundwater basin is deep (approximately 280 feet below the surface of the land) which has slowed impacts to groundwater quality and delayed the need for a sewer system until now.

Today, continuing to rely on septic systems as we have in the past is no longer an option. Historically, increasing levels of water use caused the water table to drop over 300 feet from the 1940s through 1995. During this period, the water levels dropped faster than the nitrates from septic systems moved downward.

To address the declining groundwater levels, the community voted for and constructed the Morongo Basin Pipeline and recharge basins. Hi-Desert Water District began to percolate water purchased from Mojave Water Agency to replenish the groundwater supply.

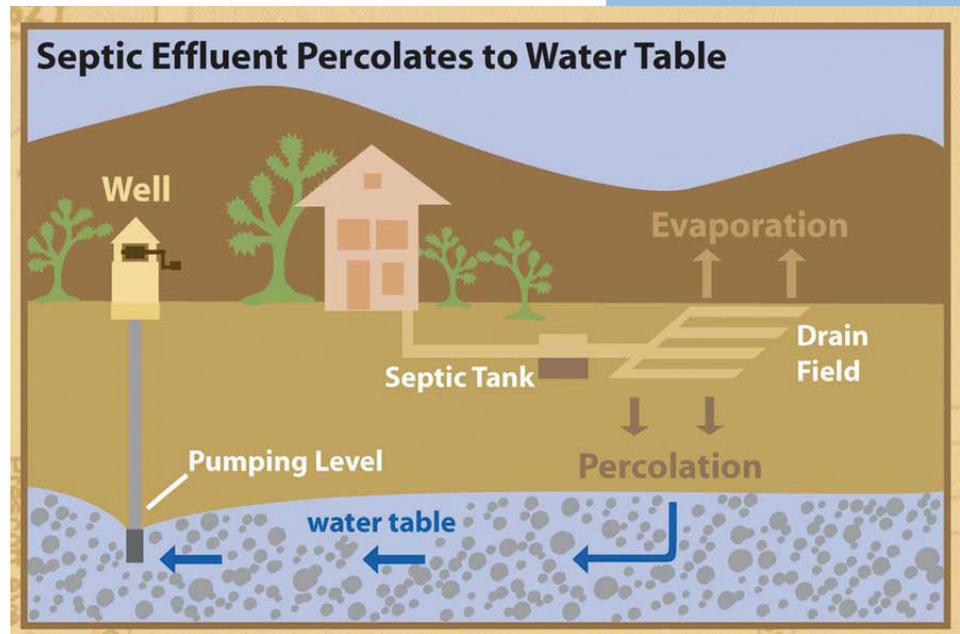
Once the District began to recharge the groundwater, the water table began to rise. High levels of nitrates left behind from the years of septic discharge were found in some wells. As a result, recharge activities have been limited and the storage capacity of the basin has been lost due to nitrate accumulation in the soils. The recharge water is high quality and has actually improved groundwater quality by diluting the nitrates. Water levels have also not returned to native levels.

The USGS confirmed that discharge from the septic systems and nitrates that exist in the unsaturated soil continue to pose a threat to the groundwater. In fact, the USGS estimates 880 acre-feet of septic discharge currently reaches the groundwater every year.

### **Septic Prohibition**

In 2007, the California Regional Water Quality Control Board (Regional Board), the State agency responsible for protecting water quality, adopted a resolution identifying the Town of Yucca Valley as a top priority for eliminating the use of septic systems. A Memorandum of Agreement with Regional Board, the Town of Yucca Valley and the Hi-Desert Water District set interim permitting guidelines to allow new septic systems while a wastewater system is planned. In addition, the State has passed septic discharge prohibitions for the future. Prohibition in the Phase 1 area begins 2016, Phase 2 begins in 2019, and Phase 3 begins in 2022. The prohibition states existing septic systems will not be allowed to discharge wastewater into the ground (see page 3 for more details).

Hi-Desert Water District has assumed the role of planning and building a Wastewater Treatment & Water Reclamation System to protect the groundwater and satisfy the State requirements for groundwater protection.



## Q What are the State’s Septic Discharge Prohibitions?

**A** On November 1, 2011, the State Regional Water Quality Control Board amended their Basin Plan to prohibit discharge from septic systems in the Town of Yucca Valley beginning in 2016 for Phase 1, 2019 for Phase 2 and 2022 for Phase 3.



The Regional Water Board Enforcement staff will “implement prompt, consistent, fair, and progressive enforcement” to bring those who fail to stop discharging into compliance. Non-compliance letters, followed by Cleanup and Abatement Orders are the first stages of enforcement. Cease and Desist orders and Civil Liability Complaints, or fines may be used to achieve compliance with the prohibition. Although fines of up to \$5,000 per day can be levied against individual property owners in the form of liens for violators, the mission of the State Regional Board is to eliminate septic discharge impacts to groundwater and help property owners comply.

There are limited provisions for exemptions which individual property owners may apply. Exemptions would be evaluated on a case-by-case basis.

If the Wastewater Treatment & Reclamation Project is not built, there will be no sewer service and property owners will not be allowed to discharge from their septic systems. Septic tanks would be required to be sealed and pumped when full or the property owner could construct a residential level package treatment plant. These options are costly and will not provide a community-wide solution. The cost of a residential level package treatment plant is \$20,000 to \$30,000, plus operating costs. The average cost to pump a septic system is \$350 each time. A sealed tank could require pumping at intervals between one week to two months depending on use and number of occupants.

New construction would be allowed to be built only with a package treatment plant.

## Q Can we just treat the water at the well that we serve to customers, instead of building a wastewater treatment plant?

**A** We are required to protect the water supply, not just treat it. Treating nitrates is not an acceptable solution according to the Regional Board, as the groundwater supplies would still be in danger of irreversible contamination.

## Q What alternatives did the District consider prior to choosing the centralized treatment plant and gravity collection system?

**A** The District considered various technologies including decentralized systems, package treatment plants, Septic Tank Effluent Pump/Gravity systems (STEP/STEG), enhanced septic systems, and a regional project.

Package treatment plants and decentralized systems offered little savings up front and are more expensive to operate.

Investigation of the STEP/STEG option revealed too many risk factors including high maintenance costs. No other community of Yucca Valley’s size has ever had a STEP/STEG system and therefore, have never been successfully demonstrated at the service levels required by Yucca Valley. Additionally, the topography of the valley lends itself well to a traditional gravity collection system.

Enhanced septic systems are estimated to cost more than the centralized project at \$20,000 per house and each property owner would have to maintain his or her own system. Local commercial package treatment plant operation has proven to be costly to the businesses who own them.

As stated above, nitrate removal is not an option because the law requires that the water supply be protected, not just treated.

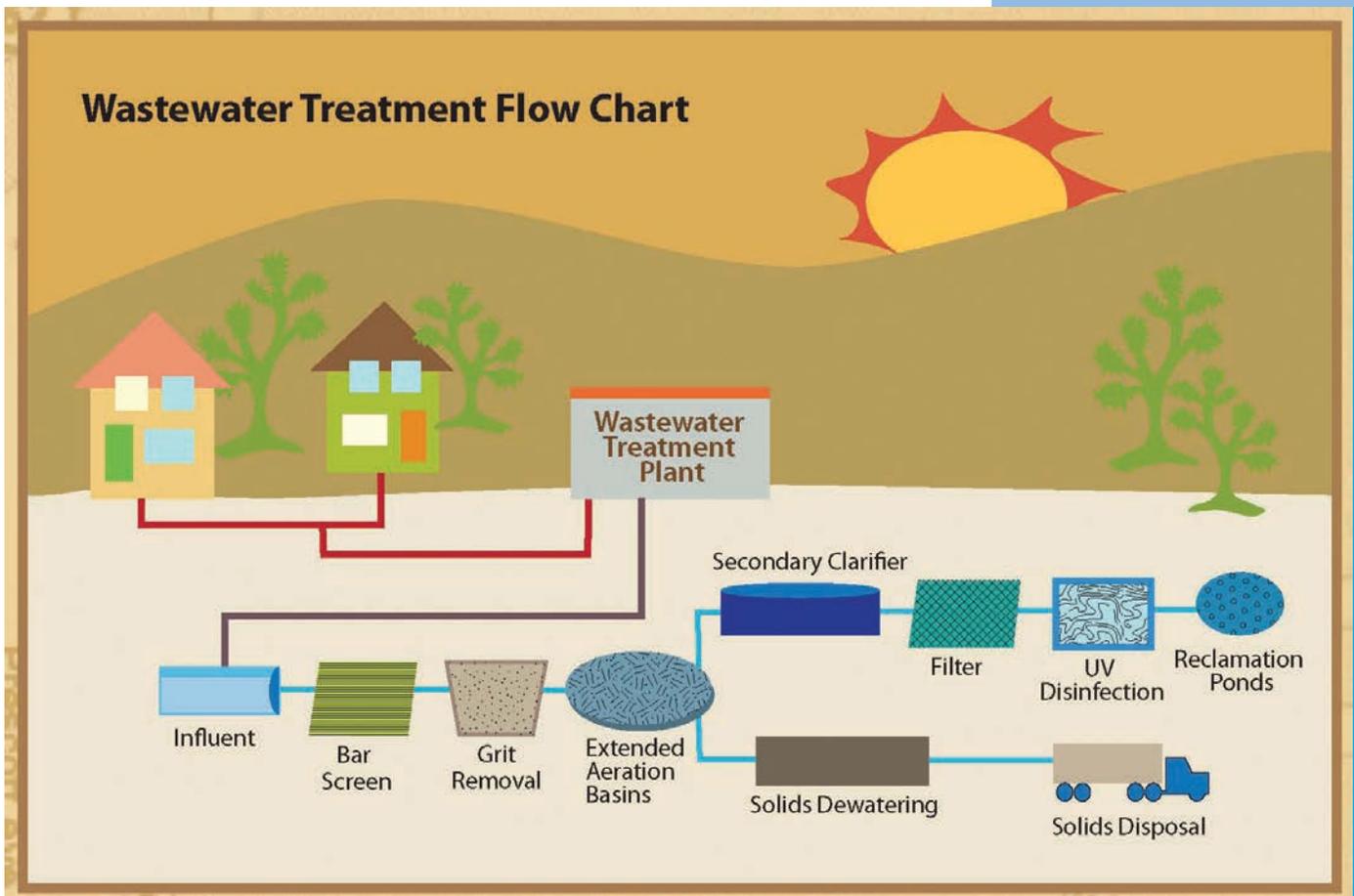
At this time a regional wastewater facility is not feasible due to the cost and timeline; however, there are opportunities for regional cooperation through shared operating agreements, purchasing power, and information exchange. Joshua Basin Water District and the City of Twentynine Palms are both working on solutions to address wastewater disposal in their communities.

## How will the system work?

Sewer collection lines will, for the most part, use gravity to transport wastewater to the treatment plant. The system will not collect rain run-off, only household and commercial waste.

At the treatment plant, the water will be treated to meet regulatory requirements. Nitrates are removed to meet drinking water standards. The solids will be dried using a mechanical belt press and trucked to be recycled for fertilizer or to a landfill. The treated water is then recharged to the groundwater basin through on-site recharge ponds where it will percolate into the ground to become part of the future water supply.

It is also important to note that current technologies for odor control will result in little to no odor.





## When and how will customers hook up?

Once the wastewater sewer lines are constructed in the streets (2015-2016), property owners will be notified to connect to the system. There will be approximately 30-90 days for property owners to connect. The exact time will be set by the Hi-Desert Board of Directors in accordance with the Regional Board requirements.

Property owners or their contractors will install a collection line from homes or businesses to the property line and abandon their existing septic systems. The time required for this work is often only one day.

In most cases, the current septic system is left in place until the new connection can be made. A home is typically out of wastewater service for only 15 to 30 minutes during the final connection.

### Here's how the system will be built and the property owner would connect.

The District will survey and map the specific details of the community including elevations, utility locations, streets, and buildings, then hire an engineer to design the system. Once the design is final, a contractor will be hired to install the collection system in the street and laterals to the property lines (see diagram to the right). The pipes will be constructed to allow gravity to move most of the wastewater to the treatment plant.

Once the system is operational, homeowners or their licensed contractors will install a private property connection and abandon the septic tank by following these steps:

- Locate the septic system
- Design the line from the sewer lateral at the property line to the connection point
- Obtain a permit from the Town of Yucca Valley
- Dig the trench from the connection point to the property line
- Lay the pipe in the trench
- Disconnect the septic system
- Pump the septic tank and fill it with dirt or sand
- Finalize the connection and have it inspected
- Backfill the trench, making sure there is proper compaction of the dirt

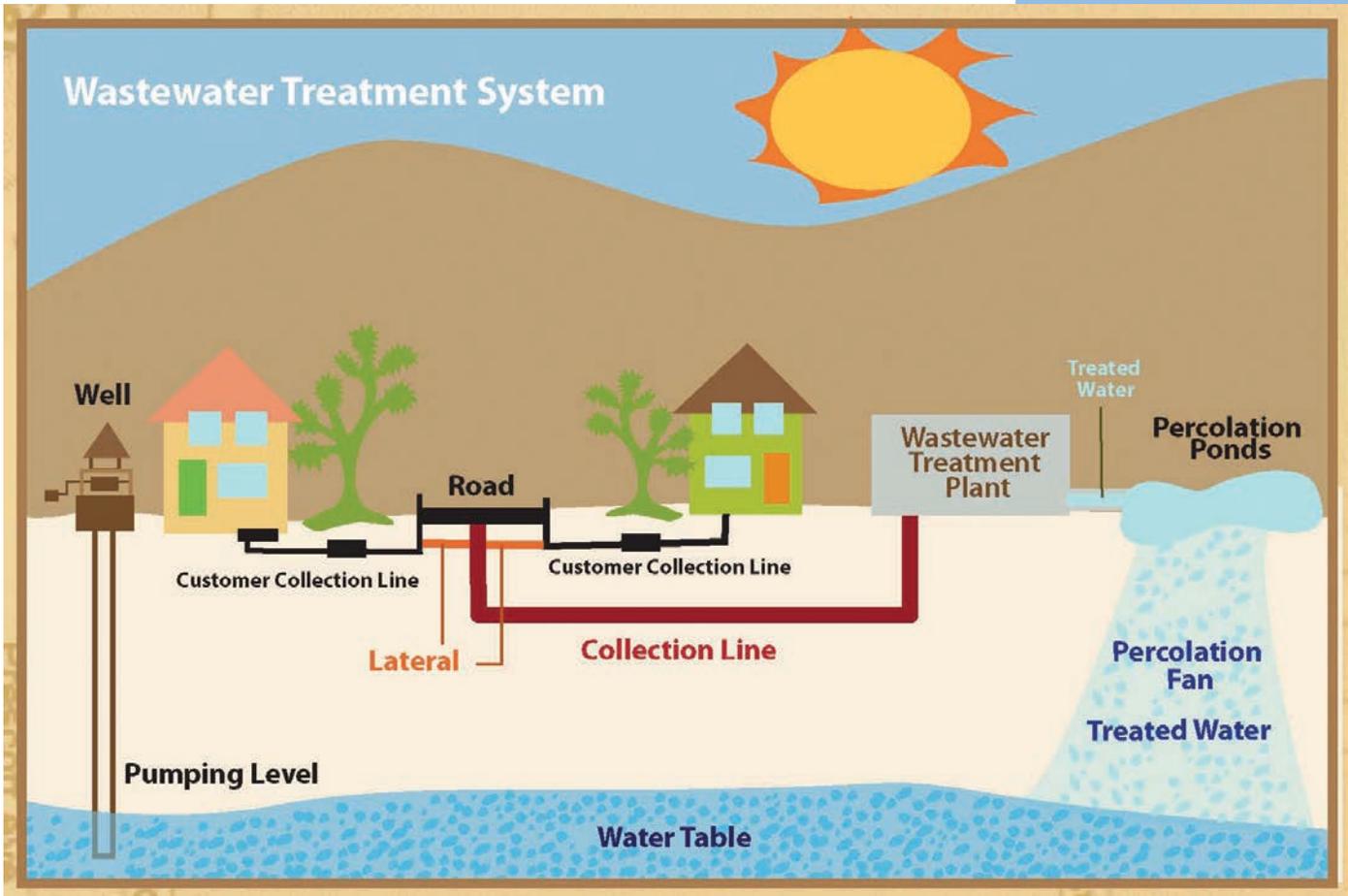
Some people are concerned their homes are lower than the street. The depth of the sewer collectors is determined by the elevation of properties. Collectors can be buried very deep—7 feet to more than 20 feet deep.

The slope required to the street is determined by the size of the pipe. Pipe sizes three or four inches in diameter require a slope of one-quarter inch drop every foot of distance. A house with a connection 50 feet from the street and four-inch pipe would require a minimum of 12.5 inches drop from the connection point to the sewer lateral in the street.

For properties below street level, where it is not possible to bury the pipes deep enough, the connection may require a property owner to install a pump to lift the sewage to the collector line (costs \$200-\$300). Other options include running the sewer line to the next lower street by gaining an easement from the neighboring property owner.

If you hire a qualified licensed contractor, he or she should know the requirements and be able to design and build the system. Property owners are allowed to do their own work as long as they comply with the building code standards and the permitting/inspection processes. The District is looking at ways to simplify this

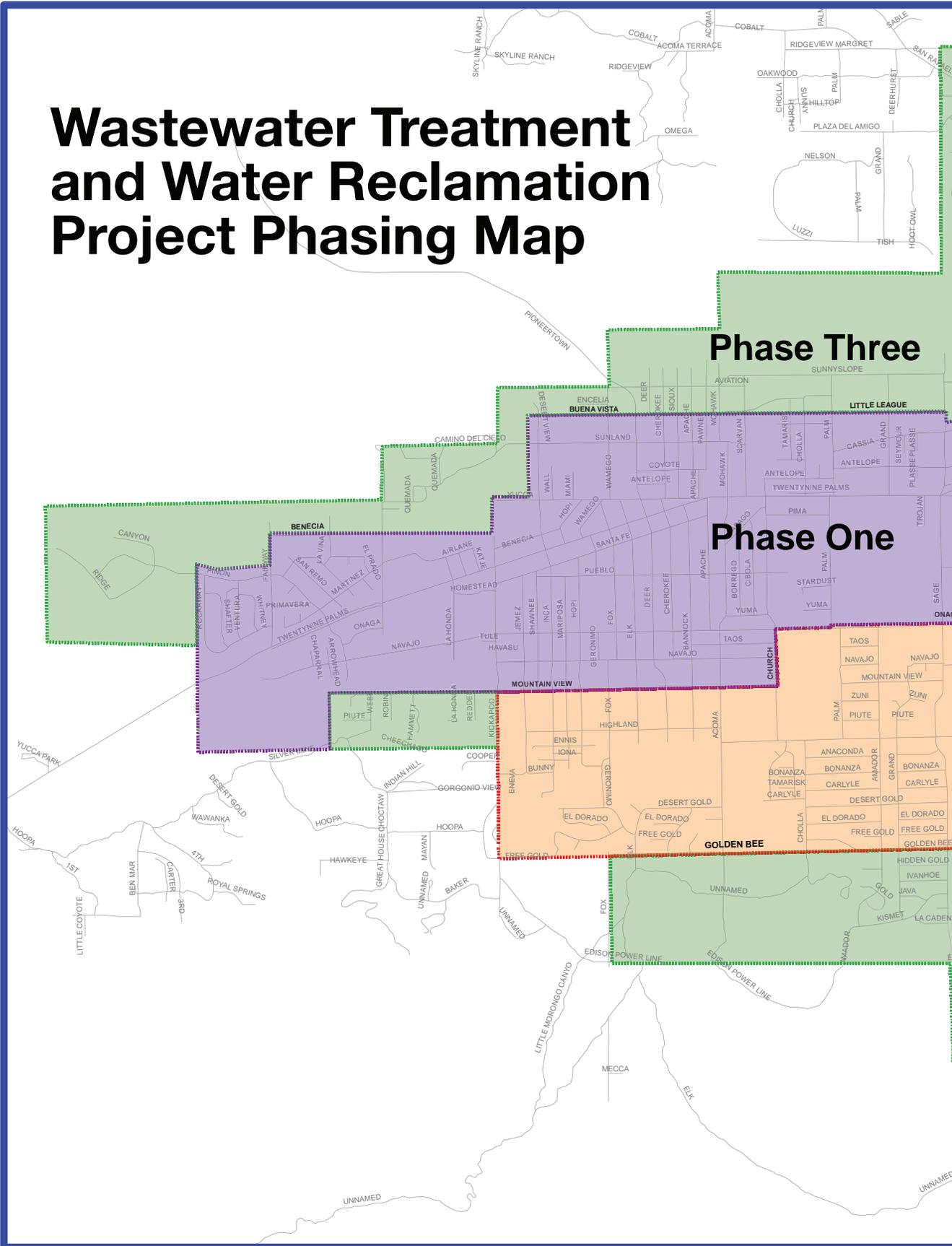


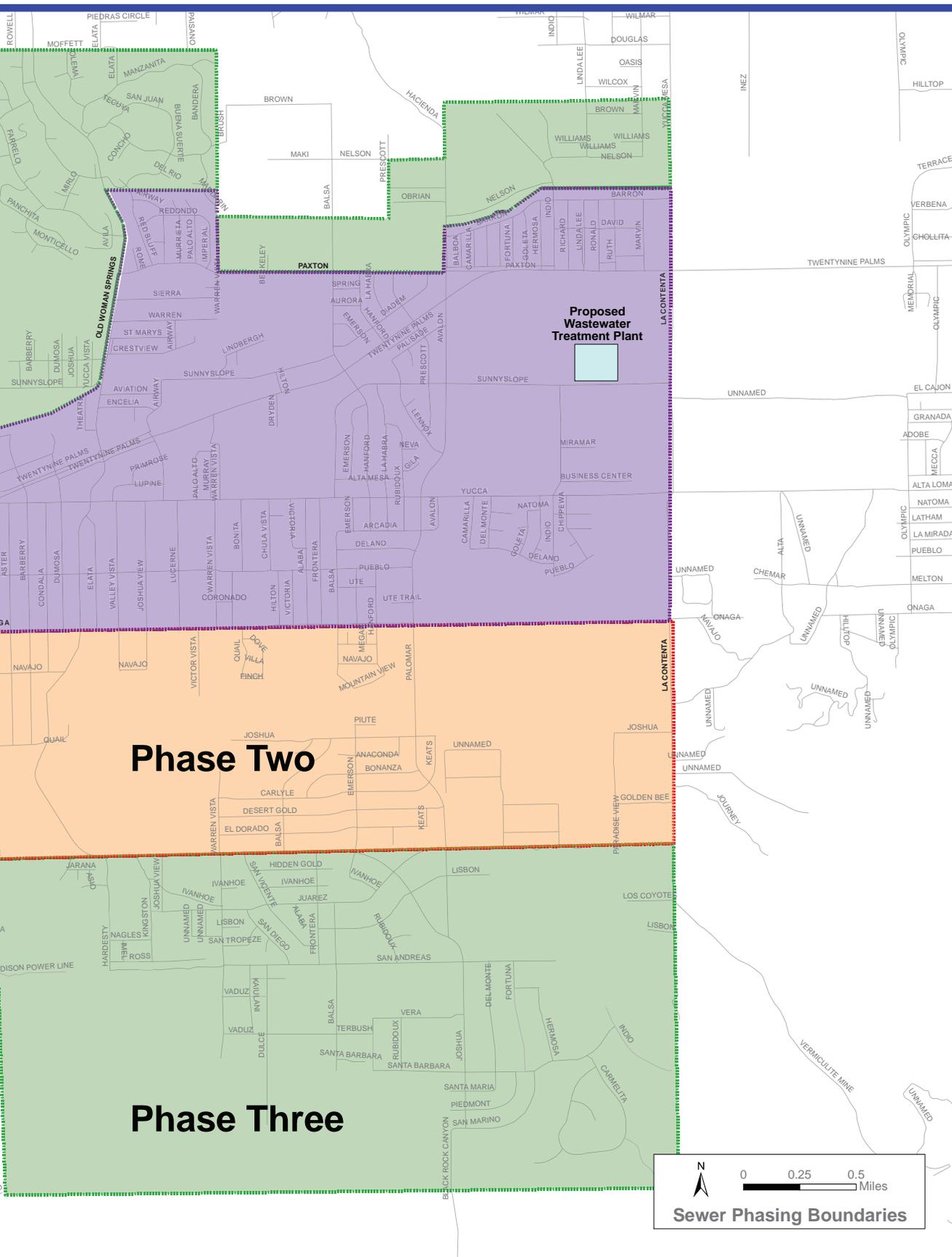


process for property owners by offering financing through Hi-Desert Water District. Participants may use a District-selected contractor.

The Town of Yucca Valley will have the standards for the design of private property connections required as part of the normal permitting process. Hi-Desert Water District will require inspection prior to backfill.

# Wastewater Treatment and Water Reclamation Project Phasing Map





## What will it cost?

There are three cost components:

- Public Infrastructure Cost
- Private Property Cost
- Service Charge

### **Public Infrastructure Cost:**

The Engineer's Estimate for Phase 1 is \$125 million. This includes the cost of planning, financing, construction of the collection system and treatment plant, and a 15% contingency. Additional project cost estimates are required for the completion of phases 2 and 3.

The District is working hard to fund the project so there is the lowest possible monthly cost to property owners.

Federal, state, and local grants, loans, and other resources will offset some of the cost. Grants come from a variety of sources including the U.S. EPA and the Department of Water. The District continues to actively pursue other grant money.

The District is also working closely with the Town of Yucca Valley to further reduce costs to property owners. Under consideration is a local 1% sales tax that would reduce the cost to property owners and provide additional revenue to pay for the project.

If these efforts to raise additional funds succeed, an Assessment District will be formed for the amount that remains unfunded. Grants and other non-repayable sources of funds will be subtracted from the \$125 million to determine how much individual property owners will pay.

The balance will be spread among the property owners based on a formula that evaluates the benefit each property will receive from the completed sewer system. A single family unit is the base for evaluating the benefit. Mobile homes and vacant land owners will pay less than a single family unit and commercial property owners will pay based on the amount of water used on the property.

A loan from the State Revolving Fund will be used to fund the project and the payments by property owners will repay the loan. At this time, the District is working to secure the lowest possible interest rate (between 0% and 2.6%) from the State.

The goal is to keep monthly payments at the lowest possible level and if obtaining grants and assistance from a sales tax is successful, the targeted monthly property assessment cost will range from \$20 to \$40 per month (for a single family home).

A Low Income Assistance Program will help those who still cannot afford the connection (see page 12).

### **Private Property Cost:**

The cost of a private property connection averages \$2,000 (more or less), depending on the length of the line, existing landscaping, and other property characteristics. This includes the permit, pumping the tank, filling it with sand, and constructing the line. In other communities, homeowners have realized significant savings by forming neighborhood groups to negotiate a special rate with a licensed contractor to perform the work.

The District is applying for low interest loans to help finance private property connections over 30 years at 0-2.6% interest. New legislation will allow the District to secure loans for these connections on behalf of the property owners. In other words, the District can secure the loans, the property owners do not have to. Property owners who opt to finance under this program would pay \$4 to \$8 per month.



In some cases, the District may be able to delay connection for low-income qualified property owners until the property sells. An application and approval from the Regional Water Quality Control Board would be applied for and approved on an individual basis.

See page 12 for details on the proposed Low Income Assistance Program.

**Service Charge:**

Customers will pay a monthly service charge to pay for the cost to operate the plant and collection system (electricity, maintenance, and staffing). Phase 1 will receive sewer service and will begin to pay once hooked up (2016).

Single Family Home	\$36.00
Multi-Family Unit	\$27.00
Mobile Home Unit	\$21.60

Commercial accounts are calculated based on estimated wastewater flows and strength of the wastewater. Some small commercial retail stores with one bathroom and few employees may be the same or less than a single family residence, while a restaurant will be more.



## QA What funds does the District have and what is the District doing to get more?

The District continues to actively seek grants, forgivable loans, low-interest loans, and other sources of funds. These resources will reduce the monthly payments for constructing the system.

To date, these available funds total over \$7.5 million. They come from a variety of sources including the U.S. EPA, the Department of Water Resources, U.S. Bureau of Reclamation, a Water Fund Loan, and the State Water Resources Control Board.

### U.S. Bureau of Reclamation Grant

The District has a \$20 million authorization from the U.S. Bureau of Reclamation, of which \$17.5 million remains to be appropriated. The portion we have been granted is used to help fund the planning stages, and the remaining portion could fund construction. This grant requires a 75% local match.



### State Revolving Fund

Hi-Desert Water District is also applying to the State Water Resources Control Board State Revolving Fund (SRF) as a Disadvantaged Community. This is a federally-funded program through the Clean Water Act for water and wastewater projects. This is the preferred source of financing, which also offers debt forgiveness.

Loans to disadvantaged communities under this program are eligible for \$8 million in debt forgiveness, an interest rate between 0% and 3%, and 30 year financing terms. There are limited funds remaining for debt forgiveness (from the Stimulus Package), which will be awarded

on a first-come, first-served basis. In order to apply, the Assessment District must be formed first.

Low interest loans reduce the monthly payment and financing costs. In fact, a 1% interest loan can lower the monthly payment the same amount as receiving a 20% grant. El Rio in Ventura County just received a 1% loan.

### Community Development Block Grants

The District applied last year for Community Development Block Grants (CDBG) to support a low income assistance program. Staff will continue to seek this grant.

### Other Resources

In addition to these known sources, the District may be able to form a non-profit 501(c)3 organization to apply for grants to fund the Low Income Assistance Program through sources that may not be available to public agencies.

## **Q Is there a Low Income Assistance Program?**

**A** A low income assistance program would help those who cannot afford to pay the assessment even after the payments are reduced by grants. The District cannot use revenues generated by charging some customers more to help those with low incomes. As a result, a low income assistance program must be funded through other sources. In order to assist 10% of the property owners, the District would require approximately \$250,000 a year or \$5.5 million. To qualify for the program, property owners would have to demonstrate need and complete an application. The District could defer the payments until the property is sold, at which time the deferred amount would be paid through the sale of the property.

The Regional Board has also provided certain exemptions to delay connection to the system, however, the assessment may still be required to be paid. The District would apply to the Board on the customer's behalf and the Regional Board would be required to approve or deny the application. The goal of the low income assistance program will be to provide assistance where necessary to connect a large majority of the community to the system.

Hi-Desert Water District is currently evaluating the degree of need in the community. The program would be available for application before the first property tax payments are due (approximately 2015-2016).

## **Q How will the Assessment District election work?**

**A** The Assessment District Engineer's Report divides the cost of the project fairly to each parcel according to the benefit to each property. This is the maximum assessment each property owner will pay.

Once the Engineer's Report is complete and adopted by the Board, a notice of the Assessment District election will be mailed to each property owner at the address on file with the San Bernardino County Assessor's Office.

Property owners will receive a ballot at least 45 days prior to the public hearing.

The ballots are weighted according to the cost to each property. In other words, the higher the cost, the greater the weight of the vote. Owners of properties in all three phases will vote, since all three phases would be paying something toward the system.

There are three phases to the project. Phase 1, is the area closest to Twentynine Palms Highway, will receive service first. Phases 2 and 3 will pay initially for the construction of the major pipelines to collect the wastewater and will pay later to add capacity to the treatment plant as they are hooked up to the system. These later phases will require future votes.

Ballots are received and tabulated in an open public meeting and the results will be reported at that time. Property owners may either mail their ballots early enough to make sure they are received by the time of the public hearing or submit them in person at the public hearing.

If a majority support exists—meaning more than 50% of the weighted votes returned support the assessment—the assessment election passes. The cost of the project to each property would then become a lien in the amount of the assessment debt to be repaid beginning in 2016.



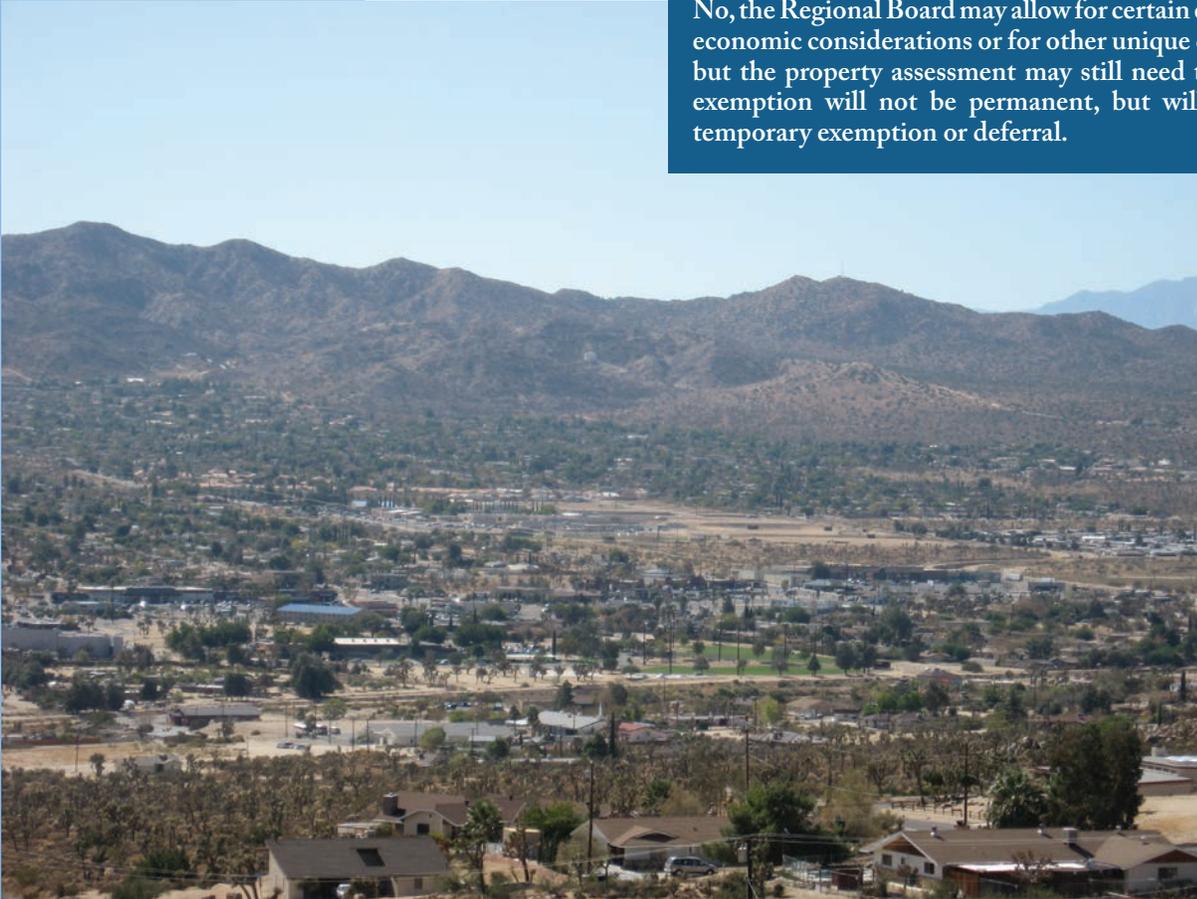
## **Q** Will the District operate the plant & maintain the collection system once it is built?

**A** The District will consider the most cost-effective option for the eventual operation and maintenance of the plant and collection system.

Options under consideration include contracting with the County, a private company, or hiring qualified staff to operate and maintain the collection system and the treatment plant.

## **Will any property be exempt?**

No, the Regional Board may allow for certain exemptions for economic considerations or for other unique circumstances, but the property assessment may still need to be paid. An exemption will not be permanent, but will instead be a temporary exemption or deferral.



## **Q** Can the water that will be recharged be stored in the ground or will it be lost to Joshua Tree?

**A** The Yucca Barrier is a fault that runs north and south and defines the eastern border of the Warren Basin where the groundwater will be recharged. This fault helps to minimize water loss to Joshua Tree.

## Q How did Hi-Desert Water District become responsible for sewer services?

A Hi-Desert Water District volunteered to become the sewerage agency because of the importance of the project to water quality. In 2008, the District applied for authority to build and operate the sewer system through the Local Agency Formation Commission (LAFCO), which is the agency that determines which public agencies will provide services to an area. LAFCO granted the Hi-Desert Water District sewerage authority to construct, operate and maintain the Project on February 17, 2010.



## Q What is the timeline for the Project?

A The District has completed the Sewer Master Plan with phasing map, the Preliminary Design Report, the Rate Study, the California Environmental Quality Act review process, and obtained LAFCO sewerage authority approval. The following is the projected timeline for remaining key tasks:

Assessment District Engineers Report	2011—2012
Obtain Grant Funding	2011—2016
Design & Bid	2012—2013
Construction—Phase 1	2014—2016
Phase 2	by 2019
Phase 3	by 2022

## Q What about construction traffic?

A During the construction phase, the District will have a communication and traffic plan to minimize the impact on traffic and the daily lives of all affected neighborhoods.

## Q How do I get involved and stay informed?

A The public is encouraged to attend Board meetings, Public Advisory Committee meetings, project information meetings and contact District staff directly. The District sends Wastewater Project email updates to those who are interested in receiving Project Updates as they become available.

To add your name to the list, sign up online at [www.yuccavalleywastewater.org](http://www.yuccavalleywastewater.org), email [info@hdwd.com](mailto:info@hdwd.com) or call the Wastewater Project Information Line at (760) 861-8031.

[www.YuccaValleyWastewater.org](http://www.YuccaValleyWastewater.org).

## Resources:

Hi-Desert Water District Project website:  
[www.yuccavalleywastewater.org](http://www.yuccavalleywastewater.org) or [www.hdwd.com](http://www.hdwd.com)

San Bernardino County Local Agency Formation Commission (LAFCO)  
[www.sbclafco.org/role.htm](http://www.sbclafco.org/role.htm).

State Water Resources Control Board and Regional Water Quality Control Board  
Colorado Region 7  
[www.swrcb.ca.gov/rwqcb7/](http://www.swrcb.ca.gov/rwqcb7/)

HDWD is an equal opportunity provider.

## Glossary:

Some terms used in this book may be unfamiliar to readers. Here are some helpful definitions.

**Leach:** to remove soluble matter from a substance by means of percolation.

**Package treatment plant:** a prefabricated, small scale wastewater treatment plant.

**Permeable:** able to be penetrated by water or other liquid.

**Recharge:** a process by which water percolates through permeable soils, soaking in and reaching the groundwater table where it adds to the groundwater supply.

**Tertiary treatment:** The treatment of wastewater beyond the secondary or biological stage. The term normally implies the removal of nutrients, such as phosphorus and nitrogen and of a high percentage of suspended solids. The term is now being replaced by advanced waste treatment.

**Water reclamation:** treating wastewater to a level where it is clean enough for beneficial use.



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## Important Property Owner Information Inside

