

# UTILITIES IMPROVEMENTS ELEMENT

## EXISTING CONDITIONS

### Water

The Village owns and operates the water utility since it accepted the system from the Twining Water and Sanitation District in April 2001. One hundred percent of the Village's drinking water supply comes from the Phoenix infiltration gallery, which produces a maximum flow rate between 1,600 to 2,000 gallons per minute (gpm) of high quality water every day. The lowest flows occur between February and April with approximately 150 gpm. The spring is located on the far southern edge of the Village boundary. The Village also has access to the Gunsight Spring located east of the Kachina subdivision, but it is not developed. The Phoenix Spring feeds an infiltration gallery and a chlorination station before it flows through underground pipes into a 250,000 gallon storage tank located adjacent to Kachina Road. The distribution system is gravity fed through ductile iron piping. A second 250,000 gallon storage tank is buried behind the Pioneer Glade subdivision. This tank serves developments within the Village Core and to the wastewater treatment plant. Amizette is not currently served by the water system. Domestic water in Amizette comes from private wells. See the **Water Utility – Existing Conditions Map** for the locations of the spring, water tanks, and other structures.

The Village manages 167 utility accounts. Accounts are for water, sewer, or water and sewer services. Twelve of the accounts are for commercial developments. All others are residential, including condominiums. Users pay a base rate plus an additional amount based on water use. Rates are based on one EQR, which is derived from the estimate of water use for a single family residence.

### Wastewater

The Village operates and maintains the wastewater treatment plant, including approximately 3.5 miles of sewer lines. The plant was first constructed in 1982 and improved in 2004 with an intended capacity of 200,000 gallons per day. Maximum daily flows are approximately 115,000 gallons per day (gpd) during the winter ski season. The plant is located on Ocean Boulevard within the US Forest Service Special Permit Area. It uses a conventional activated sludge system with integrated fixed film aeration to treat the sewage. Treated water (effluent) is discharged into the Rio Hondo, which is described as a high quality mountain stream, requiring an advanced treatment process to maintain water quality standards. The discharge permit from the New Mexico Environment Department & US Environmental Protection Agency for the discharge of treated wastewater from the plant into the Rio Hondo expires in September, 2016. Discharge permits are renewed every five years. The Village currently transports the solid sludge to the landfill in Rio Rancho,

NM; however, the Village will apply for a new permit to transport the sludge to the regional landfill in Taos County.

Providing sewer lines to all residences and developments is cost prohibitive due to steep slopes. Consequently, there are approximately 40 buildings with private septic tanks. All wastewater in Amizette is stored in vaults until it is pumped and trucked to the Town of Taos wastewater treatment plant. See the **Wastewater Utility – Existing Conditions Map** for the locations of the plant, piping, and other wastewater systems.

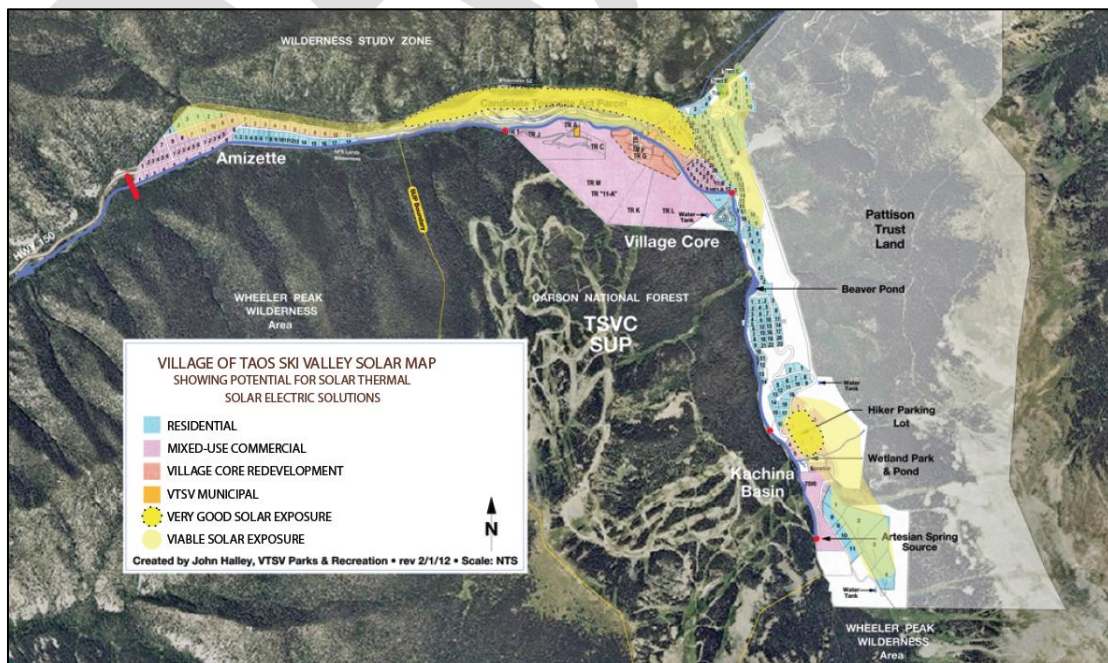
### Electric

Electricity is provided by Kit Carson Electric Cooperative. A single 3-phase above ground transmission line runs parallel to NM 150. The Village suffers from power outages due to fallen trees. The Village negotiates a franchise agreement with Kit Carson, which expired on June 2015 but was renewed for four months. Franchise fees are used to bury power lines underground. See the **Electric Utility – Existing Conditions Map** for the locations of the power lines and other electric utility systems.

### Renewable Energy

Solar energy potential is limited in the Village due to the steep slopes and limited sun exposure. However, there are a few residences and facilities that utilize renewable energy, including the development at Parcel G which is utilizing a geothermal heat system. Mr. John Halley, a property owner in the Kachina Area, produced the following map to illustrate the locations with a solar energy potential.

### **Potential Solar Thermal Energy.**



## Communications

Telephone and internet wireless communication is unreliable and inconsistent within the Village. Many residents, employees, and visitors have expressed the need for improved services. Wireless communications (phone and internet) services are currently provided by Verizon, AT+T, Comnet, and T-Mobile. Taosnet provides internet through a "point to point" wireless system. Taos Ski Valley, Inc. is working with the Village, Kit Carson Electric Cooperative, and New Mexico Gas Company in digging a utility trench along the entire length of NM 150 to provide broadband internet. This work is estimated to cost approximately \$9 million and is expected to be completed by the end of 2018. The Tax Increment Development District (TIDD), Kit Carson Electric Cooperative, NM Gas Company, and the Village are sharing the costs for the trenching project.

## Gas

Natural gas is not yet available. The Village is working with Taos Ski Valley, Inc, the TIDD Board of Directors, and NM Gas Company to extend a natural gas line up NM 150 to service the Village. Gas services are provided by individual liquid propane tanks.

## **PREVIOUS PLANS**

The Village has planned for utility improvements since the Village was first incorporated in 1996. Below is a summary of these plans and a brief description of the utility improvements that have been considered.

### 2001 Comprehensive Plan

The 2001 Comprehensive Plan consisted of several elements. Each element included a number of recommendations to address the needs within the community. Below is an outline of the recommendations related to utility improvements.

1. The Village will develop a plan for the orderly expansion of water and sanitation service to areas not presently served, while also providing for the improvement of the existing infrastructure.
2. All new development will be required to connect to central water and sanitation services where available.
3. The Village will develop a plan to connect existing development to the central water and sanitation services.
4. No new public or private development (residential, commercial, retail and community facilities) will be approved by the Village unless there is adequate water and sanitation service to assure maintenance of downstream water quality.
5. In order to maintain continuation of services during the winter months and to

provide an improved aesthetic environment, new utility lines (electric, telephone, cable, etc.) will be placed underground.

6. In order to provide an improved aesthetic environment, the Village will develop a program to place all existing utility lines underground.

### 2007 Water System Master Plan

This Village Council formally adopted the Water System Master Plan in June 2007. The Master Plan provided an analysis of the existing water facilities and "prediction of future potable water requirements." It recommended a design flow of 1500 Equivalent Residential Unit (EQR) and a design peak daily usage of 450,000 gallons. The Village EQR Schedule, which is a part of the Village System Development Fee Ordinance, defines an EQR as "a unit which exerts approximately equivalent water demands, and discharges approximately equivalent wastewater flows, as expected from an average (small) single family residence."

"Major strengths of the TSV water System include the Village's water rights and the Phoenix Springs physical supply; present problems include old pipelines (too small or poor quality) and lack of storage. Fortunately, the latter can be replaced when funds are available, while water supply and water rights are almost irreplaceable."

**Water System Master Plan. June 2007.**

Following the approval of the Master Plan, the Village re-hired the engineering consultant in December 2007 to prepare an implementation plan, including cost estimates for the proposed improvements. The recommendations included the following:

- 1.** Replace pressure regulating stations to prevent water line breaks (on-going),
- 2.** Provide adequate water supply to the Kachina area for fire protection for new development (anticipated in 2016 - 2017),
- 3.** Complete preventative disinfection at the Phoenix springs (completed),
- 4.** Install a water storage tank at the base area for system reliability and fire suppression (completed),
- 5.** Replace base area distribution lines (on-going).

## 2010 Master Plan

The Planning & Zoning Commission approved the Master Plan on November 8, 2010 by Resolution 11-198. The Master Plan identifies GOALS and ACTIONS for improving utilities within the Village; however, the GOALS and ACTIONS are very unspecific and broad. According to the Master Plan, all properties should have access to water and sewer services, water quality should be protected, and the Village should have access to broadband.

## Tax Increment Development District

The Village Council unanimously approved the formation of the TIDD and Village residents and property owners overwhelmingly approved the TIDD in early 2015. The TIDD is a public finance "mechanism" whereby the developer provides the up-front bond financing for a variety of public infrastructure improvements in return for the dedication of future gross receipts taxes and property tax increments. The tax increments are used to re-pay the debt service of the bonds. A portion of the incremental taxes are dedicated to the local government to pay for the on-going operations and maintenance of the infrastructure after it has been developed and dedicated to the local government. The TIDD estimated over \$52 million in overall infrastructure needs. The following table identifies only the utility improvements of the TIDD.

### **TIDD Projects**

<b>Project</b>	<b>Year</b>	<b>Cost Estimate</b>
Up-Valley Utility Trench		
Trenching	2015-2016	\$3,390,000
Electrical	2015-2016	\$3,575,000
Natural Gas	2015-2016	\$1,485,000
Telecom/Fiber Optic	2015-206	\$550,000
Core Village Improvements		
Water Utility	2015	\$1.1 million
Sanitary Sewer	2015	\$1.1 million
Waste Water Treatment Facility	2018	\$6 million
Kachina Improvements		
Fiber Optic	2018	\$1.1 million
Waterline (Beaver Pond to CC)	2015	\$500,000
Natural Gas	2018	\$1.1 million
Water Tank	2019	\$2.2 million
	<b>TOTAL</b>	<b>\$22.1 million</b>



## Infrastructure Capital Improvements Plan (ICIP)

Every year the Village Council adopts an ICIP. The ICIP is a list of unfunded infrastructure projects presented in priority order for a five year period. The following utility improvement projects have been included in the ICIP since 2011:

<b>Project</b>	<b>Estimated Cost</b>
Design & Construct Kachina Village Water System Improvements	\$1.5 - \$2.2 million
Installation of Kachina Lift Station	\$250,000
Three Phase Electrical Connection to Homes	\$44,000 (per year)
Construction of Phase III of the Community-Wide Wastewater Collection Line Extension	\$328,000
Design New Wastewater Treatment Plant	\$50,000 - \$350,000
Construction of Phase IV of the Community-Wide Wastewater Collection Line Extension (included Amizette)	\$1.3 million
Construct New Wastewater Treatment Plant	\$5 million
Phase II Water Improvements	\$1.2 million
Fiber Optic Utility Trench	Unknown
Phases I-V of Village Core Infrastructure Improvements	\$500,000 - \$750,000 (each phase)
Phases II-IV of Kit Carson Franchise Underground Electric CO-OP	\$125,000 - \$150,000 (each phase)
Map/Delineate Phoenix Spring for Future Development	\$25,000
Purchase WWTP / Community Center USFS Town site Act	\$250,000
Construct Phase III Wastewater System – Bull of the Woods / Snowshoe	\$250,000
Phoenix Spring Infiltration Gallery Upgrades	\$150,000
Block N Water and Sewer Line Extensions	\$1,325,000

## Core Village Parcel Conceptual Plan

TSV, Inc. submitted a Parcel Conceptual Plan for the development of six parcels of land under the requirements of the Zoning Ordinance for the Core Village Zone. Accordingly, they also submitted a plan for improving the wet and dry utilities that serve the six parcels. The Planning & Zoning Commission approved the Parcel Conceptual Plan in June 2012. The utility improvements are being developed through the TIDD with the intention of being dedicated to the Village.

## 2011 Preliminary Engineering Report

The Village hired McLaughlin Water Ltd. to prepare a Preliminary Engineering Report (PER) for the expansion and upgrades to the waste water treatment plant. The primary purpose of the PER is to “provide the preliminary design basis for an optimum next phase, near future, plan expansion/upgrade project.”

The PER states that the existing plant is not amendable to expansion or upgrading for higher levels of water quality. The PER recommends a new sequencing batch reactor (SBR) to be followed by precipitation, multi-media filtration, and UV disinfection for the new facility.

The PER states that a pump station at Amizette is a feasible solution for providing sewer services. The PER recommends a new facility with a capacity of 400,000 gpd to accommodate existing demand and future development potential.

The Village is working with FEI Engineers to update the PER and prepare the preliminary design for the new plant. The PER will include the following components:

1. review of the existing and future organic and hydraulic loading,
2. documentation of the expected growth of the TSVI and VTSV within the next 20 years,
3. estimate effluent discharge limits for the expanded WWTP,
4. complete a technology screening and selection based upon the anticipated effluent discharge limits,
5. complete a conceptual level site layout for the proposed WWTP expansion, include future VTSV building (e.g. public works building).

The Village recently accepted a combination of a grant and loan for a total amount of \$500,000 to pay for the design of the new plant.

## 2015 Wireless Communications Master Plan

In recognizing the need for improved mobile phone services throughout the Village, the Village Council adopted this Master Plan to establish the criteria for locating new wireless towers within the village. The Master Plan identified the criteria for reviewing an application for constructing a new tower and recommends areas within the Village where a new tower will maximize the coverage, capacity, and continuity of wireless communications services.

## **EXISTING ORDINANCES**

- System Development Fees

The Village charges a System Development Fee from all new development to pay for improvements to the water and sewer systems. The fee is based on the estimate of square footage of new construction and the cost of providing utilities to the proposed development.

System Development Fees are separate from the Development Impact Fees. Development Impact fees are charged for four categories of public facilities related to new development, including roadway/pedestrian/drainage infrastructure, parks and recreation / open space, general government facilities and equipment, and public safety.

- Zoning Ordinance

One of the primary purposes of the Village's Zoning Regulations (Ordinance 13-40) is to "facilitate adequate provisions for transportation, water, sewerage, schools, parks and other community requirements."

Several sections of the zoning ordinance address utilities, such as the requirement that all permanent utilities be located underground or inside structures and that propane tanks and satellite dishes blend with the natural surroundings and are shielded from public view.

- Subdivision Ordinance

The Subdivision Ordinance includes provisions for the locations of utility easements and the dedication of utilities and other amenities to the Village after the utilities have been developed.

The ordinance further requires that:

1. All developments shall be connected to the Village's water and sewer systems at subdivider's expense.
2. All extensions and connections shall be paid for by developer and conform to the Village's standards and must be inspected and approved by the Village.
3. All water and sewer service lines shall be installed in the road right of way or appropriate easements accessible to each lot.
4. The applicant provides a surety bond or other acceptable method of payment to ensure the successful completion of utilities required to service the subdivision.
5. The developer and the Village agree to a subdivision improvement agreement.



- Water Ordinance

The Water Ordinance (Ordinance 2015-38) requires all property owners to hook-up to the Village's water system if the building is within 300 feet of an existing water distribution line. Alternatively, an owner may elect to drill a well only if the owner receives a permit from the New Mexico Environment Department and a domestic water well permit from the Village under the condition that the cost of hooking up to the water system exceed the cost of drilling a well.

Section 1.4 of the ordinance states, "The Village shall develop a plan to extend its water lines so that all lands within the Village have water available through the municipal water system subject to the Village's connection charges." This Utilities Improvements Element satisfied this directive from the Village Council.

- Sewer Ordinance

With some exceptions, this ordinance (Ordinance 2015-37) requires all residents located within 150 feet of an existing sewer line request a sewer line extension from the Village prior to generation of wastewater and to abandon their septic system. Commercial buildings are required to hook up to the sewer system if they are located within 300 feet.

Similar to the Water Ordinance, the Sewer Ordinance includes a clear directive toward planning for sewer system improvements:

"The Village of Taos Ski Valley will develop a plan to treat all wastewater generated within the Village and include in the plan methods to encourage the safe treatment of wastewater that is generated on lands not connected to the Village water treatment facility."

The Utilities Improvements Element of the Master Plan satisfies this directive.

- Underground Electric Utility Service Ordinance

Ordinance 2015-51 "mandates the elimination of overhead electrical service and requiring the conversion of underground service for all properties and structures within the municipal boundaries of the Village." The purposes of the mandate are to protect the Village from forest fire caused by overhead power lines, to improve the quality and consistency of service, and to improve the aesthetics and beauty of the Village. The Village utilizes the franchise fees to pay for the cost of converting to underground lines.

- Wireless Towers

The Village Council added a new set of regulations to the existing Zoning Regulations to set criteria and design standards for the construction of new wireless towers and antennas. The ordinance treats all new towers as a Conditional Use in all zones. Towers are prohibited in open space and can only be approved at a Public

Hearing of the Planning and Zoning Commission. These new regulations will implement the goal, policies, and objectives of the Wireless Communications Master Plan.

- Franchise Agreements

The Village Council approved Ordinance 05-32 to grant Kit Carson Electric Cooperative a franchise to utilize the Village's roadways for providing electrical service to the Village. The franchise agreement expired on June 2015. The Village Council approved Resolution 2016-292 to extend the Franchise Agreement, including provisions for broadband, for four months until a long-term agreement could be approved.

## **GOAL, POLICIES, OBJECTIVES**

The goal, policies, and objectives present a framework for evaluating new development proposals and for implementing utility improvement projects.

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# **GOAL**

**Utilities are reliable and affordable while sustaining public health and natural resources.**

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## **Policies**

1. The Village believes that tax payers should not be responsible for the utility costs associated with private developments. Accordingly, land developers and builders should pay for the full cost of utility services to new developments.
2. Utilities improvements should encourage infill development and redevelopment of underutilized land. Infill and redevelopment accommodate more growth in an already developed area rather than using undeveloped land on the periphery of the community. Infill development takes priority over outward growth.
3. Often called a “fix-it-first” policy, the Village will repair existing utilities prior to constructing new utilities. The annual budget and the Infrastructure Capital Improvements Plan will prioritize repairs and upgrades to existing utilities in areas already developed over new construction. This policy encourages infill and re-development. The infill properties are likely to increase in value as a result of higher utility capacity. The higher property values will encourage land owners to develop, reducing development pressure on surrounding areas that possess open space and pristine views.
4. The Village recognizes the economic and environmental benefits of renewable energy resources and energy and water conservation measures in order to capitalize on investments and protect natural resources. The Village will invest in alternative energy development and conservation and encourage private developers to invest and conserve.
5. The Village believes that the proliferation of septic tanks and domestic water wells pose a threat to water quality and human health. The Village will encourage existing developments to hook-up to the centralized water and sewer systems to minimize the potential environmental impacts of domestic wells and septic tanks.
6. The Village will encourage water and energy conservation through public education and outreach initiatives.

## **Objectives**

### Water

1. Kachina Water Tank

The Village and TSV, Inc. have signed a Memorandum of Understanding regarding the location of the Kachina Water Tank.

2. Leak Detection
3. Line Extensions & Replacements, including PRV Replacement
4. Amizette Services

## Wastewater

1. Acquire land from the US Forest Service through the Townsite Act.
2. Design and Construct a new WWTP

The first step to replacing the existing wastewater treatment plant is to amend the existing Preliminary Engineering Report (PER) prepared by McLaughlin in August 2011. The Village's new consultant will complete the amendment to address the needs and design parameters for the new facility. The amendment will be completed by September, 2015.

The new facility will be a hybrid treatment system. The Village will apply for a loan from the NM Finance Authority under the Clean Water Revolving Loan Fund. The site plan for the WWTP should account for future development of a multi-purpose building to provide space for the Public Safety Department and other Village offices.

The design of the new facility will be completed by the summer of 2016. Construction should be completed by the end of 2018.

3. Line Extensions and Replacements
4. Sludge Disposal

## Electric

1. Burry Existing Overhead Lines
2. Approve Franchise Agreement with Kit Carson

## Renewable Energy

1. Complete Energy Audits on Village Facilities
2. Provide referrals and resources for renewable energy tax credits and other financial incentives to private land owners, architects, and developers. These include to (EMNRD, EPA, HUD, US Green Building Council,

## Communications

1. Install Wireless Towers
2. Install Broadband

## Natural Gas

1. Provide underground natural gas lines ( and fiber optic) upgrades along SR 150 from Taos to the Village of Taos Ski Valley.
2. Approve Franchise Agreement.
3. Work with Taos Ski Valley and other property owners to explore the feasibility for creating a Public Improvement District for funding natural gas services.

**TABLE #1 – UTILITY IMPROVEMENTS PROJECTS**

Project	Year(s) Complete	FUNDING SOURCES			
		VILLAGE	TIDD	UTILITY	FRANCHISE
<b>Utility Trenching up NM 150</b>					
Trenching	2015-2016				
Electrical	2015-2016				
Natural Gas	2015-2016				
Telecom/Fiber Optic	2015-2016				
<b>Water</b>					
Install 250,000 Gallon Kachina Water Tank	2016-2017				
Replace Water Line from Beaver Pond to Core Village	2020-2021				
Line Leak Detections	2016-2020				
Block N Line Extension	2017-2020				
<b>Wastewater</b>					
Acquire Property	2016				
Design & Construct New Wastewater Treatment Plant	2016 - 2018				
Block N Line Extension	2017-2020				
Sludge Disposal					
<b>Electric</b>					
Bury Overhead Lines	2016-2020				
<b>Renewable Energy</b>					
Energy Audits of Village Facilities	2017				
<b>Communications</b>					
Install Fiber Optic Cable from Village Core to Kachina Area	2018				
Construct Wireless Towers	2016-2020				
<b>Natural Gas</b>					
Extend Natural Gas Line from Village Core to Kachina	2018 - 2020				
Approve Franchise Agreement	2016				
Public Improvement District	2016				

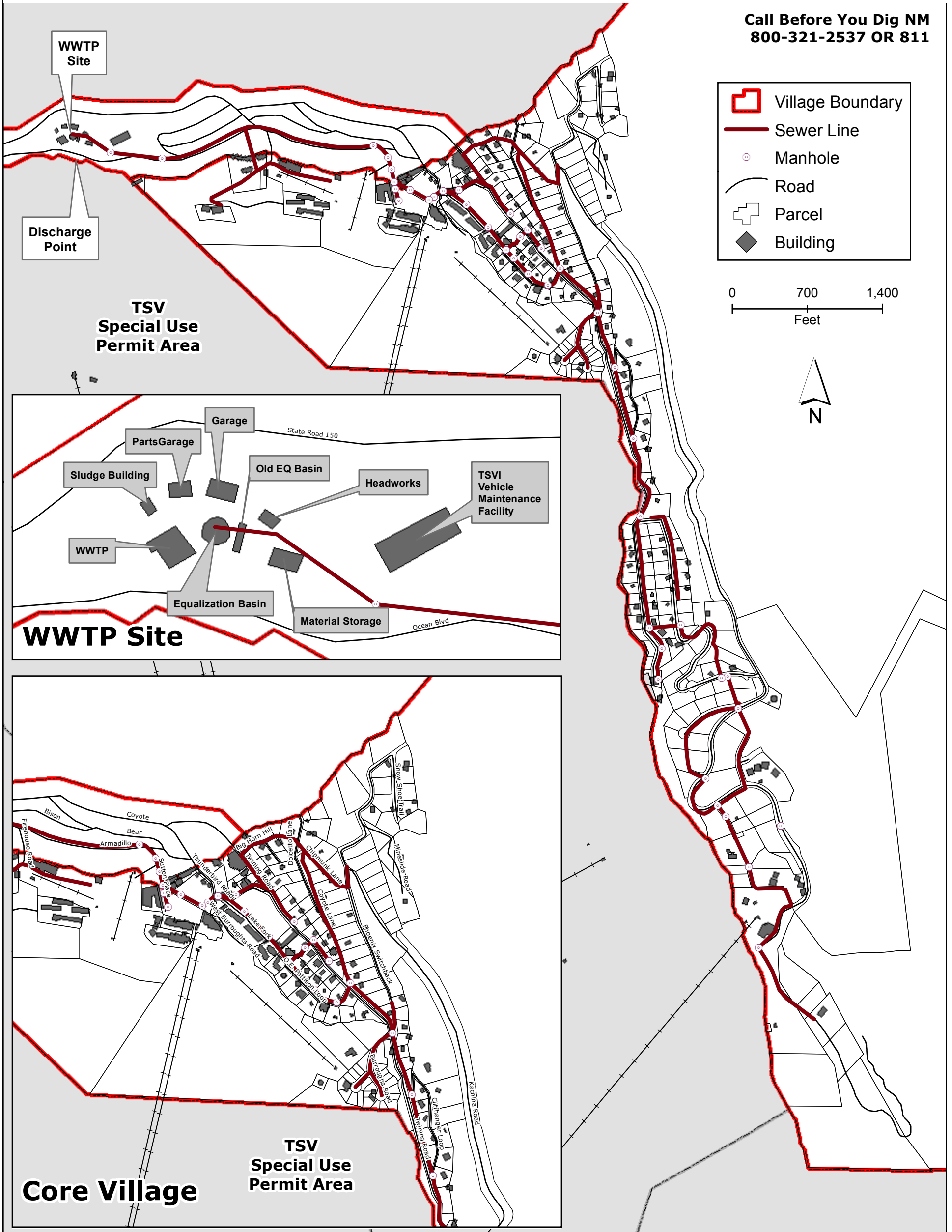
## **CONCLUSIONS**

To be concluded...

# Sewer Utility - Existing Conditions

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**Call Before You Dig NM 800-321-2537 OR 811**

