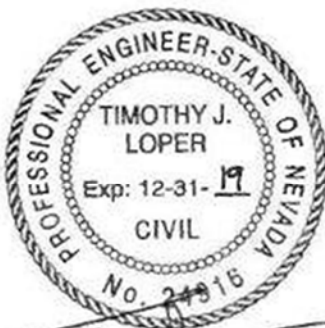




WASHOE COUNTY

**PLEASANT VALLEY INTERCEPTOR REACH 3 AND 4
ALTERNATIVE ALIGNMENT STUDY**

FINAL DRAFT
January 2018



WASHOE COUNTY
PLEASANT VALLEY INTERCEPTOR
REACH 3 AND 4 ALTERNATIVE ALIGNMENT STUDY

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PLEASANT VALLEY INTERCEPTOR REACH 3 AND 4 ALTERNATIVE ALIGNMENT STUDY

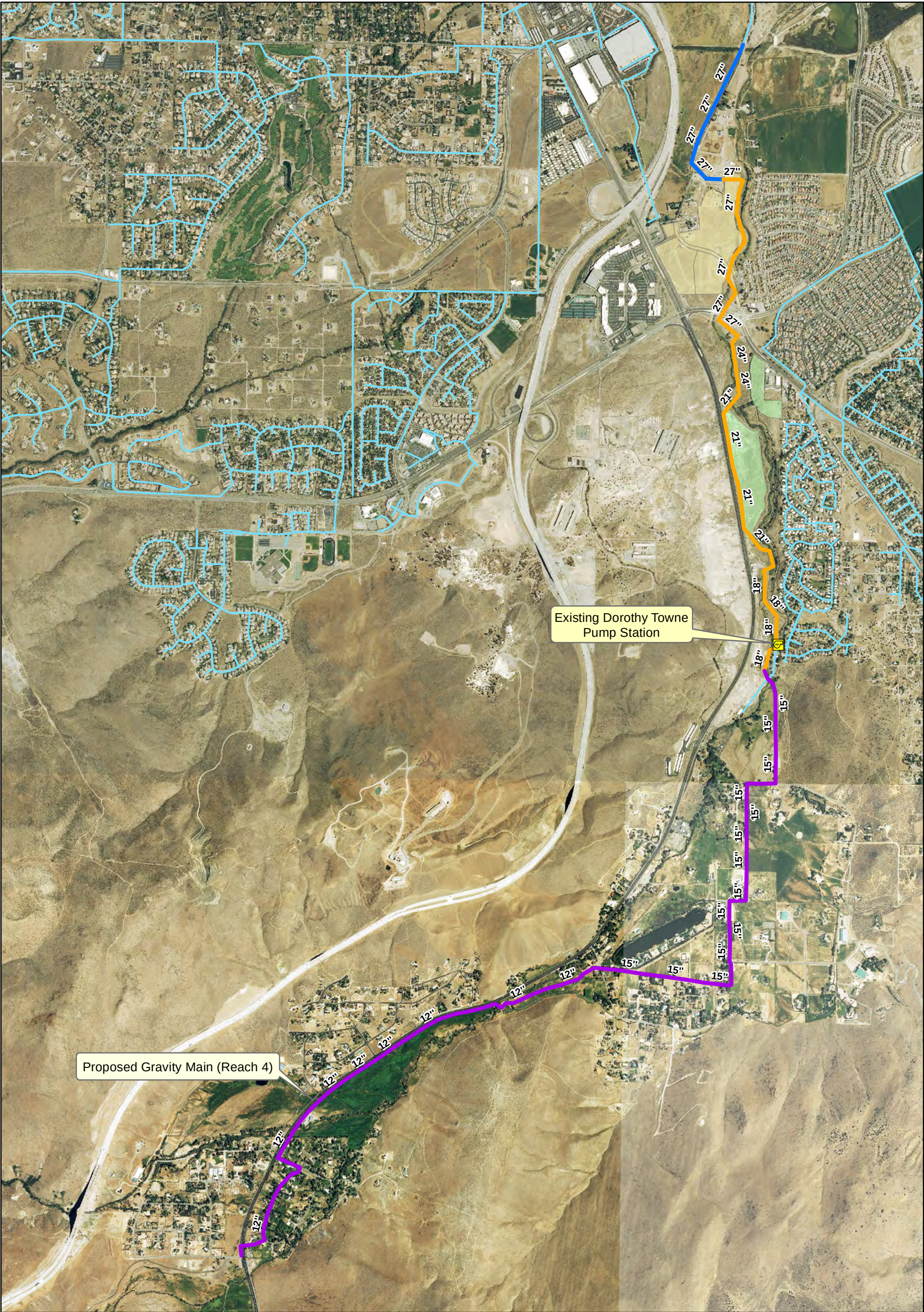
EXECUTIVE SUMMARY

The objective of this study is to document the development and evaluation of alternatives for Reach 3 and Reach 4 of the Pleasant Valley Interceptor (PVI) in the South Truckee Meadows (STM) wastewater collection system, which is operated by the Washoe County (County) Department of Water Resources (DWR).

The PVI has been envisioned to serve the southern portions of Washoe County for over 30 years. The PVI is planned in four Reaches (Reaches 1-4). To date, only the first two reaches have been constructed. Reach 1 originates at South Truckee Meadows Water Reclamation Facility (STMWRF). Reach 2 terminates at Damonte Ranch Parkway, just south of Steamboat Parkway. With the economic downturn in the late 2000s, work on Reach 3 and Reach 4 of the PVI was halted. Reach 3 will extend from the terminus of Reach 2 south towards the County's Dorothy Towne Pump Station (PS), near Towne Drive. The design and construction of Reach 3 is expected to be the responsibility of the County. Reach 4 extends south from the Dorothy Towne PS to Pleasant Valley and is intended to provide sewer service to World Properties Inc. (WPI). The design and construction of Reach 4 will be the responsibility of WPI. Figure ES.1 shows the PVI alignment as originally planned.

Interest in completing Reach 3 and 4 was renewed recently by WPI, which is presently designing and obtaining permits to locate a force main within the US Highway 395A (US-395A) alignment.

The planning and design criteria used to evaluate the alternatives were based on the County's STMWRF Facility Plan Update, County Standards, and other sources. The County's design standards, outlined in Section 5.0, include pipe roughness, acceptable gravity sewer pipe slopes, velocity constraints, and maximum flow depth within a pipeline.



Existing Dorothy Towne
Pump Station

Proposed Gravity Main (Reach 4)

Legend

- Reach 3A
- Reach 3B
- Reach 4
- Pump Station
- Existing Sewer Main
- Pleasant Valley Interceptor Reach Service Areas

**PLEASANT VALLEY INTERCEPTOR
REACH 3 AND 4, 2005 PLAN**

FIGURE ES. 1

PLEASANT VALLEY INTERCEPTOR
REACH 3 AND 4 ALTERNATIVE STUDY
WASHOE COUNTY

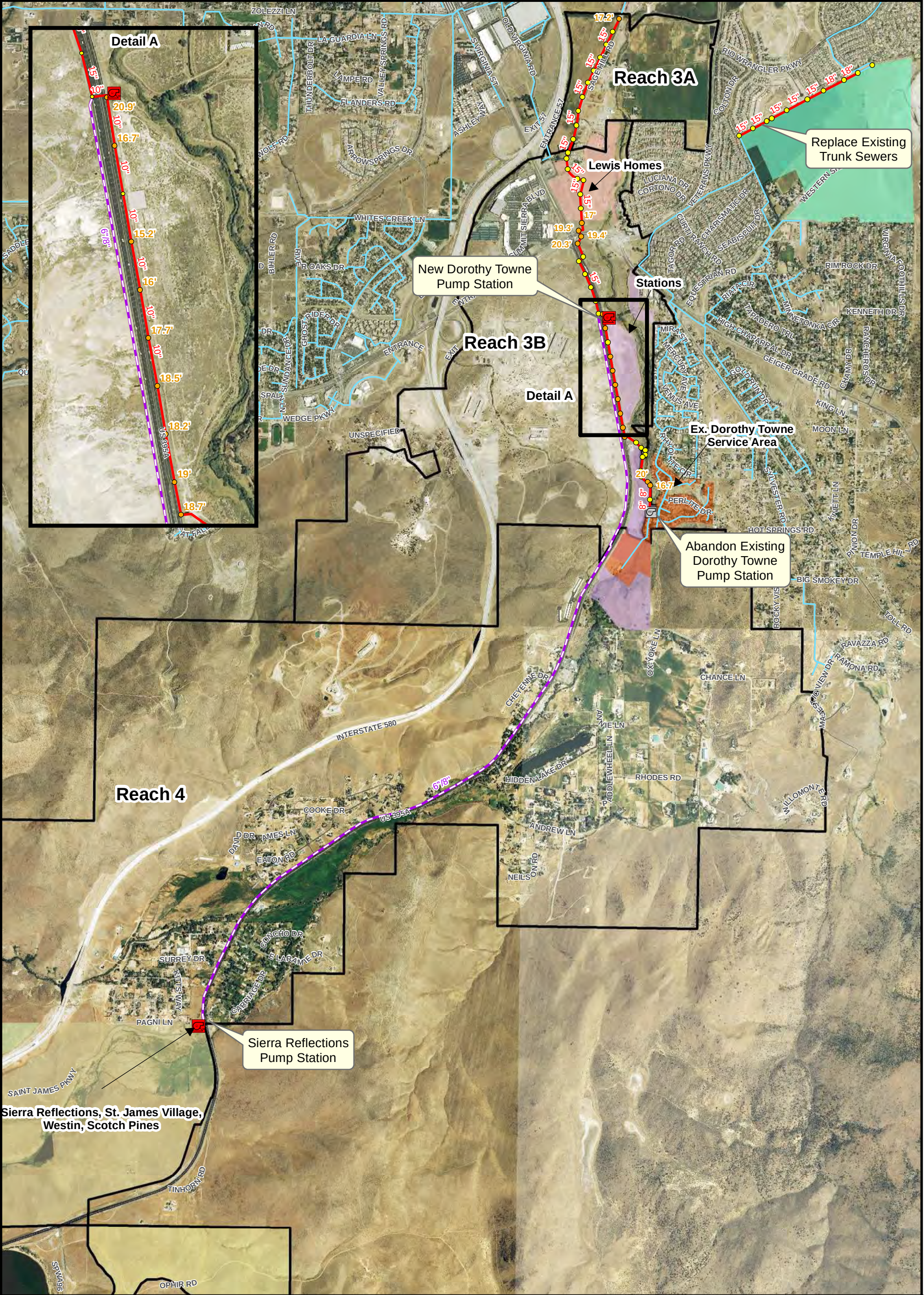


The County has identified specific development areas that are expected to contribute flow to the PVI in the future. These developments include Lewis Corp., the former Stations Casino, Steamboat Meadows, and the developments that will be served by Reach 4 (Sierra Reflections, Westin, St. James Village, and Scotch Pines). In addition, the County asked that Caramella Ranch be considered, depending upon if a PVI alternative impacts Caramella Ranch. Flow estimates were developed for these areas based on a unit flow of 270 gpd/dwelling unit for residential customers, a unit flow of 780 gpd/acre for commercial areas, and a peak hour flow (PHF) peaking factor of 2.5. Based on this, the average dry weather flow expected for Reaches 3A, 3B, and 4 is estimated to be 0.155 mgd, 0.202 mgd, and 0.498 mgd, respectively. The average dry weather flow for Caramella Ranch is approximately 0.222 mgd.

Project alternatives were developed and evaluated during a Brainstorming and Evaluation Workshop (June 30, 2016) with the County and Carollo team members. There is no incentive at this time for septic customers to connect to the PVI. However, each alternative was evaluated with and without the septic customers connected to the PVI. The project alternatives identified in the main body of this report were sized based on the assumption that septic areas would not connect to the PVI. Appendix A documents the required alternative sizing assuming that septic would eventually connect to the PVI. It also includes a conceptual plan to provide sewer service to these areas. The County plans to design and build the PVI such that it is sized for septic, however, the impact fees for the planned developments were estimated based on the required PVI sizing without septic areas connected.

There were four alternatives and multiple sub-alternatives developed for Reach 3. Each alternative was evaluated based on cost and other non-monetary criteria (design and constructability, permitting, hydraulics, phasing, environmental, operations and maintenance, operational flexibility, public impact, and septic service). Based on the results of the cost and non-cost evaluations, Alternative 2C was identified as the preferred alternative. Figure ES.2 shows the proposed alignment for Alternative 2C. Included with Alternative 2C is the relocation of the Dorothy Towne PS, which is in poor condition and in need of repair or replacement. Alternative 2C received the highest weighted score in the non-monetary evaluation, and the total capital cost of (\$17.1 million.).

A proportional cost share per equivalent dwelling unit (EDU) was developed for the recommended alternative. The cost per EDU was calculated by dividing the total cost for each reach by the total number of dwelling units contributing flow to that reach, keeping in mind that some developments contribute flow to more than one reach. Septic users were not included in the total number of dwelling units, because it is unknown if they will ever connect to the PVI, and this study assumes that the cost allocation will be borne by developments planned to be constructed within the next ten years. The interceptor portion surcharge fee per EDU for each known development is summarized in Table ES.1. As shown in Table ES.1, the connection fee ranges from \$761/EDU to \$4,204/EDU.



Legend

Manholes Depth

- Manhole < 15'
- Manhole 15' - 25'
- Manhole > 25'

Proposed Gravity Sewers

Proposed Force Mains

Proposed Pump Station

Abandoned Pump Station

Existing Sewer Main

PVI Reach Service Areas

**ALTERNATIVE 2C -
WITHOUT SEPTIC AREA FLOWS**

FIGURE ES.2

WASHOE COUNTY
PLEASANT VALLEY INTERCEPTOR
REACH 3 AND 4 ALTERNATIVE STUDY

0 1,500 3,000 Feet

carollo



Table ES.1 Recommended Connection Fee by Development Area PVI Reach 3 and 4 Alternative Alignment Study Washoe County			
Development Area	Surcharge Fee Per Reach (\$/EDU)		Total Surcharge Fee (\$/EDU)
	PVI Reach 3A	PVI Reach 3B	
Lewis Corp.	\$761	\$0	\$761
Stations Residential	\$0	\$0	\$0
Stations Commercial	\$761	\$3,443	\$4,204
Washoe County	\$761	\$3,443	\$4,204
Steamboat Meadows	\$761	\$3,443	\$4,204
Scotch Pines	\$761	\$3,443	\$4,204
St James Village	\$761	\$3,443	\$4,204
Sierra Reflection	\$761	\$3,443	\$4,204
Westin	\$761	\$3,443	\$4,204