



**ENGINEERING | SURVEYING | PLANNING**

SMITH ROBERTS BALDISCHWILER, LLC

June 28, 2018

Andy Wilson  
Project Management Division  
Oklahoma Department of Transportation  
200 N.E. 21<sup>st</sup> Street, Rm. 3-C9  
Oklahoma City, Oklahoma 73105

RE: JP 31012(04) SH-51 from Western Rd. to  
Perkins Rd. in Stillwater, Payne County  
Conceptual Design Recommendations

Dear Mr. Wilson,

Pursuant to the Engineering Contract (EC-1850E, Task Order No. 1), SRB was tasked with developing Conceptual Design Plans for a 5-Lane Curb and Gutter Section with sidewalks on both sides, and utility relocation strategies for two alignment options.

**Option 1:** The 5-Lane Section, placed symmetrically along the centerline of the existing alignment for the full length of the project.

**Option 2:** The 5-Lane Section, placed symmetrically along an alignment shifted to avoid the acquisition of any buildings and any other items of interest, and if possible for the full length of the project.

A performance-based design approach was utilized to aide in the development of the Utility Relocation Strategy. The existing utilities in the corridor are not transmission utilities that parallel the highway for the full length of the project, but rather are distribution lines that serve the numerous businesses and residences located on both sides of the corridor. Due to the very nature of the utilities, a common duct bank for utilities is not practical for this project. However, to minimize the amount of required additional Right-of-Way for the project, some utilities are proposed to be relocated beneath the sidewalks where possible. Utilities of like-kind, Fiber Optic Lines, for example, are proposed to be relocated in the same duct, where needed.

Based on the Conceptual Plans for **Option 1**, constructing a 5-Lane Curb and Gutter Section along the existing horizontal alignment with the proposed utility relocation strategy, will not result in the acquisition of any buildings. However, the recently constructed retaining wall associated with the Boomer Creek Bridge Replacement Project would have to be removed and replaced at a slightly increased offset. Also, on the north side of SH-51, adjacent to the hospital, a gas line (644 lin. ft.) and an Overhead Electric (848 lin. ft.) would have to be relocated. The horizontal alignment at these two locations was shifted in **Option 2** to avoid both the retaining wall and the need to relocate these utilities.

Although a complete evaluation of the existing storm sewer was not included in the scope of services, a strategy was developed to improve the drainage east of Hester Street and the associated estimate of costs was established. It should be noted, that to improve the drainage east of Hester Street, the capacity of the existing storm sewer trunk line extending approximately 1350 feet to the south and west will need to be evaluated and potentially upsized. Also, at Lewis Street, the existing storm sewer trunk line extending approximately half a mile to the north, appears to be substantially under-sized to properly drain SH-51 at this location. Replacing this existing storm sewer with an adequate size could be completed to improve the drainage. However, both conceptual design options recommend constructing new storm sewer to the east and connecting with the newly constructed storm sewer associated with the Boomer Creek Bridge Replacement Project.

A comparative chart was developed and is attached to show the major differences between the two options. The construction cost for **Option 1** is estimated to be approximately \$15.6 million, while **Option 2** is estimated at \$15.8 million. Both options will require retaining walls, a potential off-site storm sewer improvement, additional required right-of-way and the relocation of conflicting utilities. Overall, **Option 2**, with the associated utility relocation strategy, has fewer impacts along the corridor.

Sincerely,

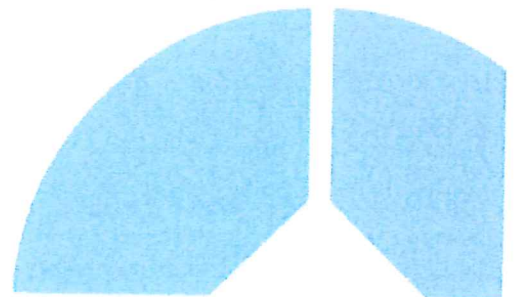
Smith Roberts Baldischwiler, LLC



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Gregory D. Allen, P.E.  
Director of Transportation Engineering

Cc: File #: 115095



### SH-51 Conceptual Design Comparison

		Option 1	Option 2
<b>Construction Cost Estimate</b>	Roadway	\$9,386,000	\$9,369,000
	Storm Sewer	\$1,170,000	\$1,440,000
	Bridge	\$222,000	\$222,000
	Retaining Walls	\$456,000	\$360,000
	Lighting	\$840,000	\$840,000
	Signals	\$1,890,000	\$1,890,000
	Staking	\$90,000	\$90,000
	Mobilization	\$648,000	\$660,000
	6% E&C	\$882,000	\$892,000
	<b>Total</b>	<b>\$15,584,000</b>	<b>\$15,763,000</b>
<b>Retaining Walls (Lin. Feet)</b>	< 2' Tall	1194	1125
	> 5' Tall	270	144
<b>Potential Off-Site Storm Sewer Improvements</b>	Linear Feet	1354	1354
<b>ROW Impacts</b>	Acres	0.936	1.122
<b>Utility Relocations (Lin. Feet)</b>	OHE	1948	1100
	TUG	1589	2205
	FO	2787	2787
	Gas	644	0