

**SCOPE OF WORK  
CITY OF OREGON CITY  
ENGINEERING SERVICES FOR  
OREGON CITY ROADWAY RECONSTRUCTION  
AMENDMENT NO. 4**

**Introduction**

Murray, Smith & Associates, Inc. is currently providing engineering services to the City of Oregon City (City) for pavement rehabilitation work in 2012 and 2013. Previously scoped work, including Amendments No. 1 and No. 2, included design and construction administration services. This amendment is to address supplemental design services in 2013 not previously included.

**Proposed Scope of Services**

The scope of services for the contemplated work is presented below.

**TASK 1 – PROJECT MANAGEMENT**

In addition to the previous scope of work, schedule and attend two (2) additional project scoping meetings (four total) for the 2013 streets.

**TASK 2 – SURVEYING**

*Task 2.1 Preliminary Monument Research*

The Consultant shall complete preliminary monument research for the additional streets beyond those included in the original scope of work as described under Task 4 below.

**TASK 3 – UTILITY COORDINATION**

The Consultant shall complete utility coordination consistent with the previous scope of work for the additional streets beyond those included in the original scope of work as described under Task 4 below.

**TASK 4 – 50% DESIGN**

The original design scope of work called for a baseline number of streets (6,381 feet total length) to be rehabilitated 2013. The previously scoped list was as follows:

- Jackson Street from 7<sup>th</sup> St. to 9<sup>th</sup> St.
- Center Street from 5<sup>th</sup> St. to 7<sup>th</sup> St.

- Washington Street from 5<sup>th</sup> St. to 7<sup>th</sup> St.
- East Street from 3<sup>rd</sup> St. to 4<sup>th</sup> St.
- Glen Oak Road from Hwy 213 to Mossy Meadows Ave.
- Glen Oak Road from Coquille Dr. to Beavercreek Rd.
- Beavercreek Road from Kaen Rd. to 2011 paving limits

The updated list of streets to be rehabilitated (18,190 feet total length), attached as Figure A, is as follows:

- Washington Street from 5<sup>th</sup> St. to 13<sup>th</sup> St.
- 9<sup>th</sup> Street from Washington St. to Taylor St.
- Jackson Street from 7<sup>th</sup> St. to 9<sup>th</sup> St.
- East Street from 3<sup>rd</sup> St. to 4<sup>th</sup> St.
- Brighton Avenue from Ogden Dr. to Jersey Ave.
- Hazel Street from Linn Ave. to East Ave.
- Pearl Street from Linn Ave. to Molalla Ave.
- Molalla Avenue from S Glenn Meadow Dr. to Holmes Ln.
- Clairmont Way from Berta Dr. to Molalla Ave.
- Gaffney Lane from Molalla Ave. to Berta Dr.

Of the streets on the above list, Hazel Street, Molalla Avenue and a portion of Gaffney Lane from Cokeron St. to Molalla Ave. (6,510 feet) are carryovers from work not constructed in 2012. The net additional street length not included in the previous scope of work is approximately 5,300 feet.

Additional streets in addition to the above list may be rehabilitated in 2013 if City budget is available. Potential additional streets are also shown in Figure A. For estimating purposes, it is assumed that only those streets in the updated list above will be rehabilitated in 2013. This amendment addresses the additional design effort to develop rehabilitation designs for extra length of streets not included in the baseline street list or already designed as part of the 2012 work.

In addition to the street list revisions above, the Consultant shall:

- Provide detector loop conduit designs at the intersections of Molalla with Clairmont Way and Gaffney Lane.
- Coordinate with concurrent City project to construct retaining wall on Pearl Street.

## **TASK 5 – 90% DESIGN**

In addition to the previous scope of work, the Consultant shall advance the 50% design for those additional items described above in Task 4 to the 90% design level.

## **TASK 6 – FINAL DESIGN**

In addition to the previous scope of work, the Consultant shall advance the 90% design for those additional items described above in Task 4 to final design.

## **TASK 7 – BIDDING SERVICES**

In addition to the previous scope of work, the Consultant shall provide an electronic PDF version of the bid documents and coordinate appropriate updates to the City's bid documents to allow for electronic download of documents by bidders.

## **TASK 8 – CONSTRUCTION PHASE SERVICES**

No changes to previous scope of work.

## **TASK 9 – PAVEMENT SERVICES (NEW TASK)**

Pavement analysis effort will be split into two analysis groups. One analysis group is identified as A-list (slated for 2013 construction) and B-list (possible 2013 or 2014 construction). In addition, some of the A-List streets (6 through 11 below) were previously investigated by GeoDesign and included in the June 21, 2012 report.

### **A-List Streets**

1. Washington Street from 5<sup>th</sup> Street to 13<sup>th</sup> Street, 2,600 feet
2. Center Street from 5<sup>th</sup> Street to 7<sup>th</sup> Street, 680 feet
3. East Street from 3<sup>rd</sup> Street to 4<sup>th</sup> Street, 250 feet
4. Brighton Avenue from Ogden Drive to Jersey Avenue, 1,530 feet
5. Clairmont Way from Berta Drive to Molalla Avenue, 1,340 feet
6. Gaffney Lane from Berta Drive to Molalla Avenue, 1,140 feet
7. Molalla Avenue from Fir Street to Garden Meadow Drive, 5,800 feet
8. Pearl Street from Molalla Avenue to Linn Avenue, 1,260 feet
9. Hazel Street from Linn Avenue to East Street, 210 feet
10. Jackson Street from 7<sup>th</sup> Street to 9<sup>th</sup> Street, 660 feet
11. 9<sup>th</sup> Street from Taylor Street to Washington Street, 2,720 feet

### **B-List Streets**

1. 15<sup>th</sup> Street from McLoughlin Boulevard to Division Street, 4,140 feet
2. 16<sup>th</sup> Street from End of Jackson Street to Division Street, 1560 feet
3. King Road from Warner-Parrot Road to King Elementary School Parking Lot, 360 feet
4. Beaver Creek Road from Kaen Road to Oregon Health & Human Services driveway, 1,670 feet
5. Clairmont Way from Leland Road to Berta Drive, 3,880 feet
6. Glen Oak Road from Highway 213 to Mossy Meadow Avenue, 1,870 feet
7. Glen Oak Road from Conquille Drive to Beaver Creek Road, 1,570 feet

Additionally, within the two street groups, and based on the City's pavement maintenance system, street sections have been categorized as either standard rehabilitation analysis or structural rehabilitation analysis. Standard analysis streets are identified in the City's pavement maintenance plan as requiring a combination of grind, inlay, and overlay rehabilitation not exceeding two (2) inches of new asphalt concrete. Structural rehabilitation analysis includes street sections in need of thick overlays or reconstruction. The following streets are identified as potential structural rehabilitation:

**A-List Streets (Structural Rehabilitation)**

1. Washington Street from 5<sup>th</sup> Street to 13<sup>th</sup> Street, 3,270 feet
3. East Street from 3<sup>rd</sup> Street to 4<sup>th</sup> Street, 250 feet
5. Clairmont Way from Berta Drive to Molalla Avenue, 1,340 feet
11. 9<sup>th</sup> Street from Taylor Street to Washington Street, 2,720 feet

**B-List Streets (Structural Rehabilitation)**

1. 15<sup>th</sup> Street from McLoughlin Boulevard to Division Street, 4,140 feet
4. Beaver Creek Road from Kaen Road to Oregon Health & Human Services Drway, 1,670 feet
5. Clairmont Way from Leland Road to Berta Drive, 3,880 feet

Investigation and analysis effort will vary as described below depending on the level of effort required for standard rehabilitation and structural rehabilitation. Some extra analysis for a few of the A-List streets previously investigated will also be completed as noted below.

**Standard Rehabilitation Analysis**

For streets not investigated previously (as explained above for A-List 6 through 12), the Consultant will complete GPR testing and coring to evaluate the existing pavement thickness combined with minimal support for pavement design. Specific scope of services will include the following:

- Complete a generalized distress survey of each road section. Provide a qualitative review and summary of pavement conditions.
- Provide traffic control and traffic control plans when required. It is anticipated that permitting requirements and fees will be handled by City personnel.
- Explore subsurface conditions in the proposed sections by completing core borings to depths of up to 3 feet below ground surface (BGS). In standard analysis sections, one core will be completed for each 1,000 feet of road analyzed to compare GPR results with in situ conditions.
- Maintain a detailed log of the explorations. Obtain samples of the pavement, base, and subgrade materials encountered.
- Conduct GPR tests in the outside wheel track of the main travel lanes using a 2 GHz truck-mounted horn antenna on each street.

- Analyze truck-mounted GPR data and provide a plot of estimated asphalt concrete thickness by pavement station. GPR data to be proofed by subsurface exploration data.
- Provide a data report summarizing findings.
- Collaboratively develop pavement designs for each street.

### **Structural Rehabilitation Analysis**

Complete testing and analysis for standard street sections as well as additional testing, analysis, and recommendations associated with structural rehabilitation concerns. Additional scope of services beyond the Standard Rehabilitation Analysis described above includes the following:

- Complete a distress survey of each road section including logging the extent of rutting and identifying areas for potential base repair or global reconstruction.
- Complete one additional core exploration for each 500 feet of road analyzed.
- Conduct additional GPR tests in locations where existing pavement is a concern.
- Provide pavement design support including pavement material recommendations, pavement structural sections, and construction recommendations including potential structural overlay or reconstruction options.

### **Extra Analysis and Project Design Support**

Two of the design projects (9<sup>th</sup> Street and Gaffney Lane) from the 2012 pavement GPR report, will require additional design and project support. For 9<sup>th</sup> Street, rehabilitation options will either be rehabilitation grind and inlay, limited reconstruction, or total reconstruction. As discussed in the 2012 report, there is a legacy PCC pavement in the middle section of the majority of 9<sup>th</sup> Street. If the PCC is not removed, longitudinal cracking and cracking at joints will return a few years after rehabilitation. Consultant will provide design support for reconstruction or mitigation of cracking on 9<sup>th</sup> Street.

For Gaffney Lane, there is a short (approximately 500 foot) section of the alignment that is cracking and identified as thin AC. Additional support will include more GPR testing and analysis to identify the extents of the thin AC layer.

### **Preliminary Sheet List**

The total number of anticipated sheets for 2013 is revised from 16 to 35 to address the added work described above.

### **Proposed Fee Estimate**

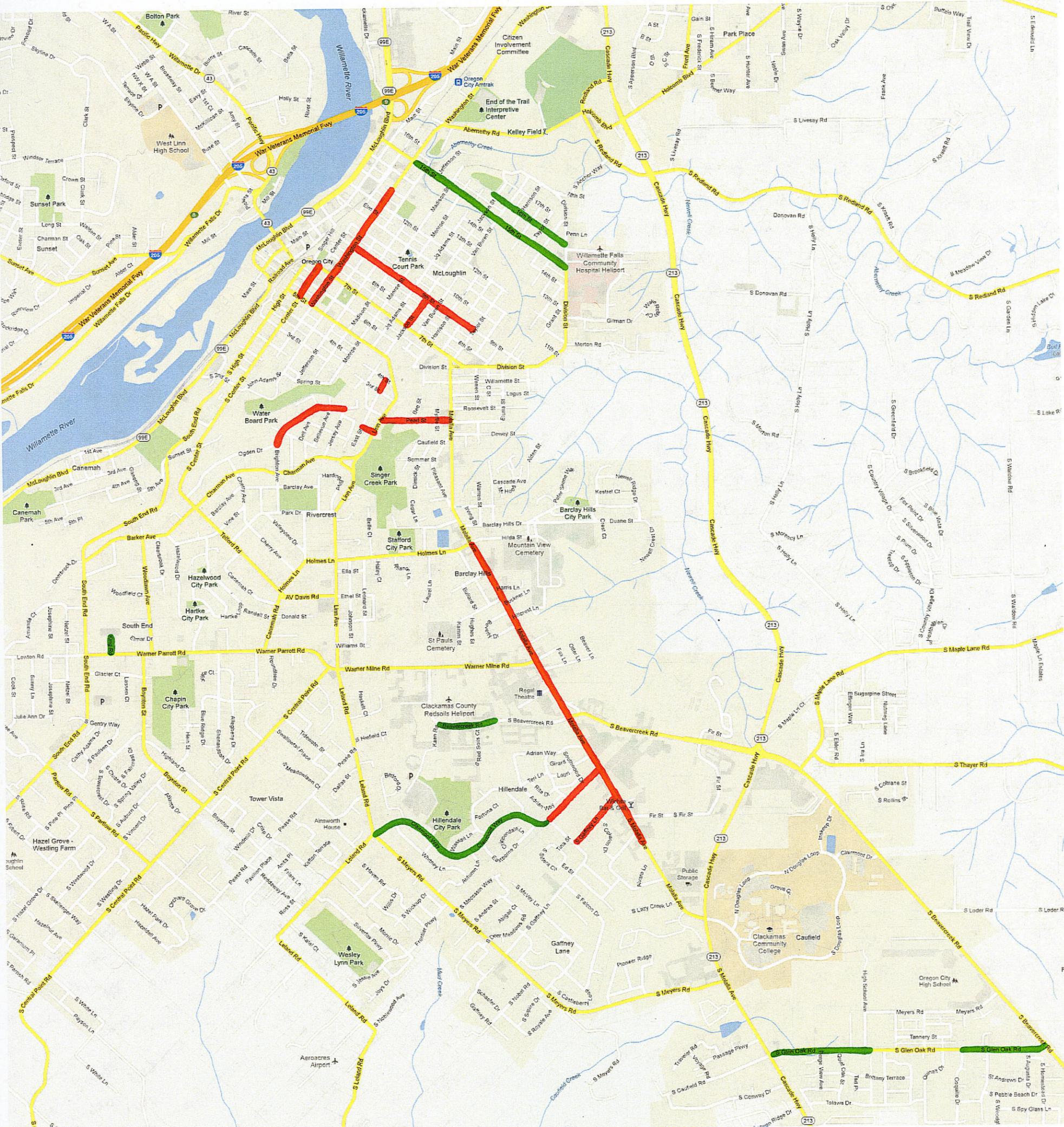
Murray, Smith & Associates, Inc. (MSA) proposes to perform this amended work on a time and expenses basis with a total not to exceed amount of \$96,406. The proposed fee estimate broken down by task for the amended work is shown in Figure B. This work will be

performed in addition to the previously approved \$251,848 for the original scope of work and Amendments 1 and 2 for both the 2012 and 2013 bid packages.

### **Schedule**

The overall project schedule will remain unchanged.

# Oregon City 2013 Pavement Improvements Project



**Streets Included in 2013 Pavement Improvements Project:**

- Washington Street** - 5<sup>th</sup> St. to 13<sup>th</sup> St.
- 9<sup>th</sup> Street** - Washington St. to Taylor St.
- Center Street** - 5<sup>th</sup> St. to 7<sup>th</sup> St.
- Jackson Street** - 7<sup>th</sup> St. to 9<sup>th</sup> St.
- East Street** - 3<sup>rd</sup> St. to 4<sup>th</sup> St.
- Brighton Avenue** - Ogden Dr. to Jersey Ave.
- Hazel Street** - Linn Ave. to East Ave.
- Pearl Street** - Linn Ave. to Molalla Ave.
- Molalla Avenue** - S Glenn Meadow Dr. to Holmes Ln.
- Clairmont Way** - Berta Dr. to Molalla Ave.
- Gaffney Lane** - Molalla Ave. to Berta Dr.

**Streets Not Included in 2013 Pavement Improvements Project:**

- 15<sup>th</sup> Street** - McLoughlin Blvd. to Division St.
- 16<sup>th</sup> Street** - End W of Jackson St. to Division St.
- King Road** - Warner-Parrot Rd. to King Elem. Sch. Parking lot
- Beavercreek Road** - Kaen Rd. to Oregon Health & Human Services driveway
- Clairmont Way** - Leland Rd. to Berta Dr.
- Glen Oak Road** - Hwy 213 to Mossy Meadow Ave.
- Glen Oak Road** - Conquille Dr. to Beavercreek Rd.

**PROFESSIONAL ENGINEERING SERVICES FOR  
OREGON CITY ROADWAY RECONSTRUCTION  
CITY OF OREGON CITY  
PROPOSED FEE ESTIMATE - AMENDMENT NO. 4 (2013 DESIGN)**

**FIGURE B**

TASK								ESTIMATED FEES				
	Principal \$167.54	Engineer V \$114.47	Engr. III \$100.94	Engr. I \$87.41	Tech. \$88.45	Clerical \$62.44	Total Hours	Labor	Subs		Expenses	Total
									HDJ	GeoDesign		
<b>Task 1 - Project Management</b>												
Design Meeting (2 additional, 4 total)		12	12					\$ 2,585			\$ -	\$ 2,585
<i>Task 1 Subtotal</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ 2,585</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,585</b>
<b>Task 2 - Surveying</b>												
2.1 Preliminary Monument Research		4		2				\$ 633	\$ 6,600		\$ -	\$ 7,233
<i>Task 2 Subtotal</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ 633</b>	<b>\$ 6,600</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 7,233</b>
<b>Task 3 - Utility Coordination</b>												
Additional Streets		8	16					\$ 2,531			\$ -	\$ 2,531
<i>Task 3 Subtotal</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ 2,531</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,531</b>
<b>Task 4 - 50% Design</b>												
Additional Streets	8	24	40	60	40			\$ 16,908			\$ 520	\$ 17,428
<i>Task 4 Subtotal</i>	<b>8</b>	<b>24</b>	<b>40</b>	<b>60</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>\$ 16,908</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 520</b>	<b>\$ 17,428</b>
<b>Task 5 - 90% Design</b>												
Additional Streets	4	12	20	30	20			\$ 8,454			\$ 260	\$ 8,714
<i>Task 5 Subtotal</i>	<b>4</b>	<b>12</b>	<b>20</b>	<b>30</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>\$ 8,454</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 260</b>	<b>\$ 8,714</b>
<b>Task 6 - Final Design</b>												
Additional Streets	2	6	10	15	10			\$ 4,227			\$ 130	\$ 4,357
<i>Task 6 Subtotal</i>	<b>2</b>	<b>6</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>\$ 4,227</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 130</b>	<b>\$ 4,357</b>
<b>Task 7 - Bidding Services</b>												
PDF and bid documents update		6	4			4	14	\$ 1,340			\$ -	\$ 1,340
<i>Task 7 Subtotal</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ 1,340</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,340</b>
<b>Task 8 - Construction Phase Services</b>												
<i>Task 8 Subtotal</i>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Task 9 - Pavement Services</b>												
Pavement Investigations and Design	2	16	8	4				\$ 3,324		\$ 48,895	\$ -	\$ 52,219
<i>Task 9 Subtotal</i>	<b>2</b>	<b>16</b>	<b>8</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ 3,324</b>	<b>\$ -</b>	<b>\$ 48,895</b>	<b>\$ -</b>	<b>\$ 52,219</b>
<b>TOTAL - NON-CONTINGENCY TASKS</b>	<b>16</b>	<b>58</b>	<b>78</b>	<b>109</b>	<b>70</b>	<b>0</b>	<b>0</b>	<b>\$ 40,001</b>	<b>\$ 6,600</b>	<b>\$ 48,895</b>	<b>\$ 910</b>	<b>\$ 96,406</b>
							0	\$ -			\$ -	\$ -
<b>TOTAL - CONTINGENCY TASKS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>TOTAL - ALL TASKS</b>	<b>16</b>	<b>58</b>	<b>78</b>	<b>109</b>	<b>70</b>	<b>0</b>	<b>0</b>	<b>\$ 40,001</b>	<b>\$ 6,600</b>	<b>\$ 48,895</b>	<b>\$ 910</b>	<b>\$ 96,406</b>