

APPENDIX J

Preliminary Cost Estimates

| Total Cost Summary | |
|---|---------------------|
| McKay Road Interchange | \$27,300,000 |
| Salem & Lockhart Road widening and crossing | \$17,800,000 |
| Total Cost | \$45,100,000 |

| Unit Costs | | |
|---------------------|---------------|-------------------------|
| | Source | Unit Costs |
| Asphalt | HiCo | \$239.40 m ³ |
| Granular A | HiCo | \$52.80 m ³ |
| Granular B (Type 2) | HiCo | \$33.00 m ³ |
| Rock Excavation | N/A | - m ³ |
| Earth Excavation | HiCo | \$15.00 m ³ |
| Earth Fill | HiCo | \$15.00 m ³ |

Density (Tons/m³)
 2.52
 2.40
 2.20

| McKay EA - Summary of Cost Estimates - McKay Road Interchange | | | | |
|--|----------------|------------------|-----------------|---------------------|
| Item | Unit | Unit Cost | Quantity | Cost |
| Roadway Improvements | | | | |
| McKay Road East - Widening | | | | |
| Asphalt | m ³ | \$239.40 | 2,074 | \$496,475 |
| Granular A | m ³ | \$52.80 | 2,222 | \$117,319 |
| Granular B | m ³ | \$33.00 | 4,738 | \$156,344 |
| Earth Excavation | m ³ | \$15.00 | 4,006 | \$60,097 |
| Earth Fill | m ³ | \$15.00 | 31,641 | \$474,621 |
| Subtotal | | | | \$1,304,857 |
| McKay Road Interchange Ramps | | | | |
| Asphalt | m ³ | \$239.40 | 5,713 | \$1,367,683 |
| Granular A | m ³ | \$52.80 | 4,803 | \$253,606 |
| Granular B | m ³ | \$33.00 | 10,932 | \$360,748 |
| Earth Excavation | m ³ | \$15.00 | 87,370 | \$1,310,547 |
| Earth Fill | m ³ | \$15.00 | 61,013 | \$915,198 |
| Subtotal | | | | \$4,207,782 |
| Total Quantity- Based Cost | | | | |
| | | | | \$5,512,639 |
| SUBTOTAL 1 | | | | |
| | | | | \$5,512,639 |
| Staging (10% of Subtotal 1) | - | 10% | - | \$551,264 |
| Minor Items ex. Illumination and Signals (30% of Subtotal 1) | - | 30% | - | \$1,653,792 |
| Traffic Signals | per leg | \$60,000.00 | 6 | \$360,000 |
| Illumination | per pole | \$30,000.00 | 17 | \$510,000 |
| SUBTOTAL 2 | | | | |
| | | | | \$8,587,694 |
| Utility Relocations (30% of Subtotal 2) | - | 30% | - | \$2,576,308 |
| Construction Contingency (20% of Subtotal 2) | - | 20% | - | \$1,717,539 |
| Structural | | | | |
| McKay Road Overpass Widening | | | | \$8,524,260 |
| Structure Subtotal | | | | |
| | | | | \$8,524,260 |
| Structure Construction Contingency (20% of Structure Total) | - | 20% | - | \$1,704,852 |
| SUBTOTAL 3 (Highway & Structures) | | | | |
| | | | | \$23,110,653 |
| Engineering (6% of Subtotal 3) | - | 6% | - | \$1,386,639 |
| Construction Administration (12% of Subtotal 3) | - | 12% | - | \$2,773,278 |
| PRELIMINARY PROJECT VALUE COST ESTIMATE: | | | | |
| | | | | \$27,270,571 |
| ROUNDED ESTIMATE | | | | |
| | | | | \$27,300,000 |

| McKay EA - Summary of Cost Estimates - Salem Road Crossing | | | | |
|---|----------------|------------------|-----------------|---------------------|
| Item | Unit | Unit Cost | Quantity | Cost |
| Roadway Improvements | | | | |
| Salem Road / Lockhart Road - Widening | | | | |
| Asphalt | m ³ | \$239.40 | 3,901 | \$933,993 |
| Granular A | m ³ | \$52.80 | 4,180 | \$220,707 |
| Granular B | m ³ | \$33.00 | 9,222 | \$304,323 |
| Earth Excavation | m ³ | \$15.00 | 24,044 | \$360,657 |
| Earth Fill | m ³ | \$15.00 | 29,664 | \$444,963 |
| Subtotal | | | | \$2,264,643 |
| Total Quantity- Based Cost | | | | |
| | | | | \$2,264,643 |
| SUBTOTAL 1 | | | | |
| | | | | \$2,264,643 |
| Staging (10% of Subtotal 1) | - | 10% | - | \$226,464 |
| Minor Items ex. Illumination and Signals (30% of Subtotal 1) | - | 30% | - | \$679,393 |
| Traffic Signals | per leg | \$60,000.00 | 3 | \$180,000 |
| Illumination | per pole | \$30,000.00 | 2 | \$60,000 |
| SUBTOTAL 2 | | | | |
| | | | | \$3,410,501 |
| Utility Relocations (30% of Subtotal 2) | - | 30% | - | \$1,023,150 |
| Construction Contingency (20% of Subtotal 2) | - | 20% | - | \$682,100 |
| Structural | | | | |
| Salem Road / Lockhart Road Crossing Structure | | | | \$6,135,240 |
| Retaining Wall / Toe Wall, West of Highway 400 | | | | \$387,000 |
| Structure Subtotal | | | | \$6,522,240 |
| Structure Construction Contingency (20% of Structure Total) | - | 20% | - | \$1,304,448 |
| SUBTOTAL 3 (Highway & Structures) | | | | |
| | | | | \$12,942,439 |
| Engineering (6% of Subtotal 3) | - | 6% | - | \$776,546 |
| Construction Administration (12% of Subtotal 3) | - | 12% | - | \$1,553,093 |
| Item-Based Cost Estimates | | | | |
| Hydro Transmission Corridor Modifications (approximate) | - | - | - | \$2,500,000 |
| PRELIMINARY PROJECT VALUE COST ESTIMATE: | | | | |
| | | | | \$17,772,078 |
| ROUNDED ESTIMATE | | | | |
| | | | | \$17,800,000 |

| Summary of Cost Estimates - Structures | | | | |
|---|-----------------------------------|------------------------------|---------------------|---------------------------------|
| Item | Unit Cost (/m²) | Area (/m²) | Cost (\$) | Structure Type |
| Structure Cost Estimates | | | | |
| McKay Road Overpass Widening | \$2,900 | 2,939 | \$8,524,260 | NU 2400 Precast Concrete Girder |
| Salem Road / Lockhart Road Crossing Structure | \$2,900 | 2,116 | \$6,135,240 | CPCI 2300 Concrete Girder |
| Retaining Wall - Salem Road, west of Highway 400 | \$3,225 | 120 | \$387,000 | RSS Wall |
| Structure Subtotal | | | \$15,046,500 | |
| Structure Construction Contingency (15% of Structure Total) | 15% | | \$2,256,975 | |
| Structure Subtotal | | | \$17,303,475 | |

Unit Cost of \$2,900 for Prestressed Concrete Members (CPCI / NU), Source: MTO Parametric Estimating Guideline 2016

| Summary of Cut and Fill Volumes | | |
|---|---------------------------------------|--------------------------------------|
| Location | Total Fill (m³) | Earth Cut (m³) |
| McKay Road East Widening | | |
| Highway 400 to Eastern Limits | 15,977 | 1,449 |
| Highway 400 to Western Limits | 15,664 | 2,557 |
| Subtotal | 31,641 | 4,006 |
| McKay Road East Interchange at Highway 400 | | |
| N-EW Ramp | 15,279 | 59,030 |
| W-S Ramp | 18,525 | 942 |
| E-N Ramp | 3,549 | - |
| E-S Ramp | 4,571 | 12,792 |
| S-EW Ramp | 8,761 | 3,957 |
| W-N Ramp | 10,329 | 10,648 |
| Subtotal | 61,013 | 87,370 |
| Salem Road Widening | | |
| Salem Road from Highway 400 to Veterans Drive | 29,585 | 18,936 |
| Subtotal | 29,585 | 18,936 |
| Lockhart Road Widening | | |
| Lockhart Road from Highway 400 to Saunders Road | 79 | 5,107 |
| Subtotal | 79 | 5,107 |
| Total Volume | 122,319 | 115,420 |

Note: Surplus earth material will be utilized in slope flattening and landscaping. Details to be confirmed in subsequent design phases.

| Summary of Asphalt and Granular | | | | | | |
|---|------------------|------------------|------------------|------------------|------------------|------------------|
| Location | Asphalt | | Granular A | | Granular B | |
| | m ³ | Tons | m ³ | Tons | m ³ | Tons |
| McKay Road East | | | | | | |
| McKay Road East Widening | 2,073.83 | 5,226.05 | 2,221.96 | 5,332.70 | 4,737.70 | 10,422.94 |
| Subtotal | 2,073.83 | 5,226.05 | 2,221.96 | 5,226.05 | 4,737.70 | 10,422.94 |
| McKay Road East Interchange at Highway 400 | | | | | | |
| N-EW Ramp | 1,399.07 | 3,525.66 | 1,184.38 | 2,842.51 | 1,240.00 | 2,728.00 |
| W-S Ramp | 1,249.23 | 3,148.06 | 1,338.46 | 3,212.30 | 3,566.11 | 7,845.44 |
| E-S Ramp | 865.28 | 2,180.51 | 927.08 | 2,224.99 | 2,461.55 | 5,415.41 |
| S-EW Ramp | 1,316.72 | 3,318.13 | 407.52 | 978.05 | 1,156.82 | 2,545.00 |
| W-N Ramp | 882.66 | 2,224.30 | 945.71 | 2,269.70 | 2,507.28 | 5,516.02 |
| E-N Ramp | | - | | - | | - |
| Subtotal | 5,712.96 | 14,396.66 | 4,803.15 | 11,527.56 | 10,931.76 | 24,049.87 |
| Salem / Lockhart Road Widening | | | | | | |
| Salem / Lockhart Road Widening, from Saunders Road to Veteran's Drive | 3,901.39 | 9,831.50 | 4,180.06 | 10,032.14 | 9,221.91 | 20,288.20 |
| Subtotal | 3,901.39 | 9,831.50 | 4,180.06 | 10,032.14 | 9,221.91 | 20,288.20 |
| Salem Road / Lockhart Road Crossing over Highway 400 | | | | | | |
| Fill / Cut required on approaches to crossing | | | | | | |
| Subtotal | | | | | | |
| Total Volume | 11,688.18 | 29,454.21 | 11,205.17 | 26,785.76 | 24,891.37 | 54,761.01 |

Note: Surplus earth material will be utilized in slope flattening and landscaping. Details to be confirmed in subsequent design phases.

| Traffic Signals Cost Estimation | | | |
|---|-----------------------------------|--------------------------|---------------------|
| Location | Average Cost per Intersection Leg | No. of Intersection Legs | Estimated Cost |
| McKay Interchange Ramp Terminals | | | |
| East Ramp Terminal | \$60,000 | 3 | \$180,000.00 |
| West Ramp Terminal | \$60,000 | 3 | \$180,000.00 |
| Salem Road | | | |
| Norris Drive Intersection | \$60,000 | 3 | \$180,000.00 |
| Total Cost | | | \$540,000.00 |

Source: MTO's Parametric Estimating Guide 2016

| Illumination Cost Estimation - Partial Illumination (Interim Condition) | | | | |
|---|--|-----------------------|--------------|---------------------|
| Location | Description | Average Cost Per Pole | No. of Poles | Estimated Cost |
| McKay Interchange Ramps - Highway 400 Exit Terminals | | | | |
| N-E/W Ramp Exit Terminal | Single lane exit ramp, freeway to sideroad | \$30,000 | 3 | \$90,000.00 |
| S-E/W Ramp Exit Terminal | Single lane exit ramp, freeway to sideroad | \$30,000 | 3 | \$90,000.00 |
| West Ramp Terminal | Parclo A4 ramp terminal | \$30,000 | 7 | \$210,000.00 |
| East Ramp Terminal | Parclo A ramp terminal | \$30,000 | 4 | \$120,000.00 |
| Salem Road | | | | |
| Norris Drive Intersection | T Intersection | \$30,000 | 2 | \$60,000.00 |
| Total Cost | | | | \$570,000.00 |

Source: MTO's Parametric Estimating Guide 2016. Partial illumination utilized during 6-lane Highway 400 condition. Cost of illumination of ultimate configuration to be confirmed in later design phases, with the widening of Highway 400.