APPENDIX 04

Cost Impacts & Analysis
The cost impacts and analysis of the ULMP were developed for the average street conditions found throughout the study area. The lighting developed for the types of streets are estimated for a typical block of 400 or 600 linear feet and do not account for specific granular existing conditions. Costs should not be used for specific street budgets but on an aggregate basis for planning purposes.

Analysis were developed from actual light fixture and pole material costs, local labor and commodity costs and RS Means estimating guides. The costs also include contingencies. However, not included are Smart Pole technology costs, or design and engineering fees.

Lastly, the costs also include data for three years, escalated 3% per year, as many of the actual projects will be funded and budgeted in future years.

For complete street planning information refer to the ‘City Connected’ and ‘Reference Streetscape Lighting Approaches’ sections of the Urban Lighting Master Plan.
**Minor Street - Variant A**

1. Minor street designation; primarily residential, low density development

2. Primarily one-way streets of minimal right-of-way (up to 30'-0")

3. Mid-height/dual purpose luminaire along single side of street, spacing should be 3x - 5x fixture height

_MINOR VARIAN A: illustrative cross-section graphic_

_MINOR VARIAN A: illustrative plan graphic_

*(note: graphic intended for visual purposes of layout, not light distribution)*
<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
<th>Material/Unit</th>
<th>Material Total</th>
<th>Labor/Unit</th>
<th>Labor Total</th>
<th>Total</th>
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<td>6</td>
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<td>$2,750.00</td>
<td>$5,500.00</td>
<td>$500.00</td>
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<tr>
<td>Trenching and Patching</td>
<td>LF</td>
<td>400</td>
<td>$4.00</td>
<td>$1,600.00</td>
<td>$18.95</td>
<td>$7,580.00</td>
<td>$9,180.00</td>
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<tr>
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<td>EA</td>
<td>8</td>
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<tr>
<td>Concrete Cutting and Patching</td>
<td>LF</td>
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<td>$4.00</td>
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| Subtotal                          |      |     | $39,240.00    | $23,820.00    |           | $63,060.00 |

| Bonding, General Conditions       | %    | 5   |               |               |            | $3,153.00  |
| Overhead and Profit               | %    | 26.5|               |               |            | $16,710.90 |
| Contingency                       | %    | 10  |               |               |            | $6,306.00  |

| Base Year Grand Total             |      |     |               |               |            | $89,229.90 |
| First Year Escalation             | %    | 3   |               |               |            | $91,906.80 |
| Second Year Escalation            | %    | 3   |               |               |            | $94,664.00 |
| Third Year Escalation             | %    | 3   |               |               |            | $97,503.92 |

Note: This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes.
For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
**Minor Street - Variant B**

1. Minor street designation; primarily residential, low to medium density development

2. Either wide one-way or bi-directional streets of minimal right-of-way (32'-0" - 45'-0")

3. Mid-height/dual purpose luminaire on staggered, alternate side spacing 4x - 7x's fixture height on ONE side (2x-4x's spacing on stagger)

(note: graphic intended for visual purposes of layout, not light distribution)
### Description

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<tr>
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<th>Unit</th>
<th>Qty</th>
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<th>Material Total</th>
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**Note:** This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes. For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
**Minor Street - Variant C**

1. Minor street designation; primarily commercial, medium to high density development
2. Either one-way or bi-directional streets of minimal right-of-way (32’-0” - 45’-0”)
3. Pedestrian scaled luminaire on aligned, alternate side spacing 3x-5x’s fixture height

(illustrative cross-section graphic)

(note: graphic intended for visual purposes of layout, not light distribution)
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<tr>
<th>Description</th>
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<th>Material Total</th>
<th>Labor/Unit</th>
<th>Labor Total</th>
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</table>

Note: This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes.
For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
**Secondary Street - Variant A**

1. Secondary street designation; primarily residential, medium density developments

2. Either wide one-way or bi-directional streets of typical right-of-way between 40'-0" - 55'-0"

3. Mid-height/dual purpose luminaire plus roadway luminaire

4. Mid-height/dual purpose luminaire on aligned, alternate side spacing 3x - 6x’s fixture height

5. Roadway luminaire on staggered, alternate side spacing; 5x - 8x’s fixture height on ONE side (2.5x-4x’s spacing on stagger)

(secondary variant A, illustrative cross-section graphic)

(secondary variant A, illustrative plan graphic)

(note: graphic intended for visual purposes of layout, not light distribution)
<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
<th>Material/Unit</th>
<th>Material Total</th>
<th>Labor/Unit</th>
<th>Labor Total</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Mid Height Pole 18’ (90’ O.C.)</td>
<td>EA</td>
<td>12</td>
<td>$3,500.00</td>
<td>$42,000.00</td>
<td>$400.00</td>
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<td>$46,800.00</td>
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<tr>
<td>Intersection Street Light 30’ (CPS)</td>
<td>Ea.</td>
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<td>$2,750.00</td>
<td>$5,500.00</td>
<td>$500.00</td>
<td>$1,000.00</td>
<td>$6,500.00</td>
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<td>$6,500.00</td>
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<td>LF</td>
<td>800</td>
<td>$4.00</td>
<td>$3,200.00</td>
<td>$18.95</td>
<td>$15,160.00</td>
<td>$18,360.00</td>
</tr>
<tr>
<td>Foundation for Pole</td>
<td>Ea.</td>
<td>16</td>
<td>$500.00</td>
<td>$8,000.00</td>
<td>$400.00</td>
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<tr>
<td>Concrete Cutting and Patching</td>
<td>LF</td>
<td>800</td>
<td>$4.00</td>
<td>$3,200.00</td>
<td>$5.00</td>
<td>$4,000.00</td>
<td>$7,200.00</td>
</tr>
<tr>
<td>Power circuits Underground</td>
<td>LF</td>
<td>800</td>
<td>$7.85</td>
<td>$6,280.00</td>
<td>$15.10</td>
<td>$12,080.00</td>
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| Subtotal                                         |       |     | $78,480.00    | $47,640.00     |            | $126,120.00|
| Bonding, General Conditions                      | %     | 5   |               |                |            | $6,306.00   |
| Overhead and Profit                              | %     | 26.5|               |                |            | $33,421.80  |
| Contingency                                      | %     | 10  |               |                |            | $12,612.00  |
| Base Year Grand Total                            |       |     |               |                |            | $178,459.80 |
| First Year Escalation                            | %     | 3   |               |                |            | $183,813.59 |
| Second Year Escalation                           | %     | 3   |               |                |            | $189,328.00 |
| Third Year Escalation                            | %     | 3   |               |                |            | $195,007.84 |

Note: This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes. For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
SECONDARY STREET - VARIANT B

1. Secondary street designation; primarily commercial and mixed use, medium to high density developments

2. Either wide one-way or bi-directional streets of typical right-of-way between 40'-0” - 55'-0”

3. Pedestrian luminaire plus roadway luminaire

4. Pedestrian scaled luminaire on aligned, alternate side spacing 3x - 4x’s fixture height

5. Roadway luminaire on staggered, alternate side spacing 4x - 6x’s fixture height on ONE side (2x - 3x’s on stagger)

Secondary Variant B: illustrative cross-section graphic

Secondary Variant B: illustrative plan graphic

(note: graphic intended for visual purposes of layout, not light distribution)
<table>
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<tr>
<th>Description</th>
<th>Unit</th>
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<th>Labor/Unit</th>
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<td>Pedestrian Light (12'-14', 60' O.C.)</td>
<td>EA</td>
<td>12</td>
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Note: This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes. For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
**Intermediate Throughway - Variant A**

1. Intermediate Throughway street designation; mixed multi-family residential plus commercial zoning, low to medium density developments

2. Either wide one-way or bi-directional streets of typical right-of-way between 40'-0” - 65'-0”

3. Pedestrian height pole, aesthetically connected to adjacent mid-height/dual-purpose unit and roadway luminaire

4. Pedestrian scaled luminaire on aligned, alternate side spacing 3x - 4x’s fixture height

5. Roadway luminaire on same side spacing 3x - 5x’s fixture height

(Intermediate Variant A: illustrative cross-section graphic)

(Intermediate Variant A: illustrative plan graphic)

(note: graphic intended for visual purposes of layout, not light distribution)
<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
<th>Material/Unit</th>
<th>Material Total</th>
<th>Labor/Unit</th>
<th>Labor Total</th>
<th>Total</th>
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<tbody>
<tr>
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<td>$3,200.00</td>
<td>$18.95</td>
<td>$15,160.00</td>
<td>$18,360.00</td>
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Note: This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes. For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
**INTERMEDIATE THROUGHWAY - VARIANT B**

1. Intermediate Throughway street designation; mixed multi-family residential plus commercial zoning, medium to high density developments

2. Either wide one-way or bi-directional streets of typical right-of-way between 50'-0" - 65'-0"

3. Pedestrian scaled luminaire on aligned, alternate side spacing 3x - 4x’s fixture height

4. Roadway luminaire on staggered, alternate side spacing 3x - 5x’s fixture height on ONE side (1.5x - 2.5x’s on stagger)

(note: graphic intended for visual purposes of layout, not light distribution)
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<tr>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
<th>Material/Unit</th>
<th>Material Total</th>
<th>Labor/Unit</th>
<th>Labor Total</th>
<th>Total</th>
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<td>$ 18.95</td>
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<td>Power circuits Underground</td>
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Subtotal $ 107,830.00 $ 52,940.00 $ 160,770.00

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Base Year Grand Total $ 227,489.55

First Year Escalation % 3 $ 234,314.24

Second Year Escalation % 3 $ 241,343.66

Third Year Escalation % 3 $ 248,583.97

Note: This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes. For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
**Primary Throughway - Variant A**

1. Primary Throughway street designation; roadway with no median
2. Bi-directional streets of typical right-of-way between 60’-0”+
3. Pedestrian scale pole and luminaire plus roadway scaled pole luminaire
4. Pedestrian scaled luminaire on aligned, alternate side spacing 3x - 4x’s fixture height
5. Roadway luminaire on aligned, alternate side spacing 3x - 5x’s fixture height

*Primary Variant A: illustrative cross-section graphic*

*Primary Variant A: illustrative plan graphic*

(note: graphic intended for visual purposes of layout, not light distribution)
<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
<th>Material/Unit</th>
<th>Material Total</th>
<th>Labor/Unit</th>
<th>Labor Total</th>
<th>Total</th>
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<tbody>
<tr>
<td>Pedestrian Light (12'-14', 45' O.C.)</td>
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<td>26</td>
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Note: This estimate is based on a typical 400 linear foot block. The costs are used for Master Planning purposes. For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.
Primary Throughway -

Variant B

1. Primary Throughway street designation; roadway with median

2. Bi-directional streets of typical right-of-way between 60'-0”+

3. Pedestrian scale pole and luminaire plus roadway scaled pole luminaire, in some instances pedestrian luminaire will mount to the roadway pole.

4. Pedestrian scaled luminaire on aligned, alternate side spacing 3x - 4x’s fixture height

5. Roadway luminaire on aligned, alternate side spacing 3x - 5x’s fixture height

Primary Variant B: illustrative cross-section graphic

Primary Variant B: illustrative plan graphic

(note: graphic intended for visual purposes of layout, not light distribution)
<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
<th>Qty</th>
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<th>Material Total</th>
<th>Labor/Unit</th>
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<tr>
<td>Pedestrian Light (12'-14', 45' O.C.)</td>
<td>EA</td>
<td>26</td>
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Note: This estimate is based on a typical 600 linear foot block. The costs are used for Master Planning purposes. For construction purposes use actual conditions including other utilities, hardscape or landscape and obstacle in existence.