

Technical Memorandum

To: Catherine Tremblay
 Copy: Christopher Gordon
 From: Andrew Harte

Date: 7 May 2018
 Project: 476169 - 01000

Re: Minto Mahogany Stage 2 – Transportation Impact Study – Addendum #1

This addendum has been prepared to support the revised plan of subdivision for the Mahogany Stage 2+ submission by Minto Communities. Subsequent to the submission of the June 2017 TIS, comments have been received from the City of Ottawa (September 2017), Ottawa-Carleton District School Board (August 2017), and local residents (August/September 2017). To address these comments, the plan of subdivision was revised including total unit count, street and intersection layouts, park locations and proposed limits of Phases 2, 3 and 4.

Attached to this Addendum are the May 2017 plan of subdivision and the May 4, 2018 revised plan of subdivision.

REVISED PLAN OF SUBDIVISIONS

The major revisions to the May 4, 2018 plan of subdivision include:

- Conversion of the north-south collectors and Bridgeport Avenue to more linear streets
- Further adherence to the off-set and modified-grid network
- Consolidation of park space to a neighbourhood park adjacent to the school site in Phase 2, and a single parkette near the stormwater management pond in Phase 2
- The Phase limits have been shifted to increase the area and unit count of Phase 3 and 4, reducing the total units planned in Phase 2
- Total units of Phases 2, 3 and 4 reduced by 43 singles and 14 townhomes

Table 1 summarizes the May 2017 plan of subdivision, the revised May 4, 2018 plan of subdivision and the net change in units, per type and in total.

Table 1: Unit Change for Phases 2, 3 and 4

| | May 2017 | | | May 4, 2018 | | | Net Change | | |
|----------------|----------|-----------|-------|-------------|-----------|-------|------------|-----------|-------|
| | Singles | Townhomes | Total | Singles | Townhomes | Total | Singles | Townhomes | Total |
| Phase 2 | 347 | 99 | 446 | 253 | 58 | 311 | -93 | -41 | -134 |
| Phase 3 | 224 | 93 | 317 | 250 | 147 | 397 | 26 | 54 | 80 |
| Phase 4 | 167 | - | 167 | 189 | - | 189 | 22 | - | 22 |
| Total | 738 | 192 | 930 | 692 | 205 | 897 | -45 | 13 | -32 |

REVISED AUTO TRIP GENERATION

As summarized above, the total unit count will be reduced by 45 single family homes and increased by 13 townhomes. The unit distribution has also been shifted from Phase 2 to Phases 3 and 4. The updated trip generations, using the same assumptions as the June 2017 TIS, is summarized in Table 2, and Table 3 summarizes the net change in the auto trip generation between the May 2017 and revised May 4, 2018 plans of subdivision.

Table 2: Revised May 4, 2018 Trip Generation

| | AM | | | PM | | |
|----------------|-----|-----|-------|-----|-----|-------|
| | In | Out | Total | In | Out | Total |
| Phase 2 | 58 | 144 | 202 | 169 | 88 | 257 |
| Phase 3 | 63 | 171 | 234 | 194 | 101 | 295 |
| Phase 4 | 40 | 90 | 130 | 112 | 59 | 171 |
| Total | 160 | 402 | 562 | 473 | 246 | 719 |

Table 3: Net Change in Auto Trip Generation for Phases 2, 3 and 4

| | AM | | | PM | | |
|----------------|-----|-----|-------|-----|-----|-------|
| | In | Out | Total | In | Out | Total |
| Phase 2 | -21 | -55 | -76 | -62 | -32 | -94 |
| Phase 3 | 9 | 28 | 37 | 28 | 15 | 43 |
| Phase 4 | 4 | 10 | 14 | 11 | 7 | 18 |
| Total | -9 | -20 | -29 | -25 | -12 | -37 |

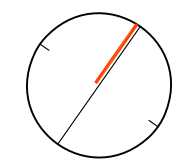
Overall, there will be a reduction of 29 two-way trips during the AM peak, and 37 two-way trips during the PM peak. Phase 2 will see an initial reduction of 76 and 94 two-way trips during the AM and PM peaks, and an increase of 37 and 43 two-way trips during the AM and PM peaks of Phase 3. Phase 4 will have a minor increase of 15 and 18 two-way trips during the AM and PM peaks.

CONCLUSION

The reduction total unit count for Phases 2, 3 and 4 will not represent a significant change to the trip generation and overall traffic impacts during the construction these phases. Therefore, the conclusions presented in the June 2017 TIS remain valid and no additional recommendations are offered at this time.

Attachment A

March 2018 Plan of Subdivision



NORTH

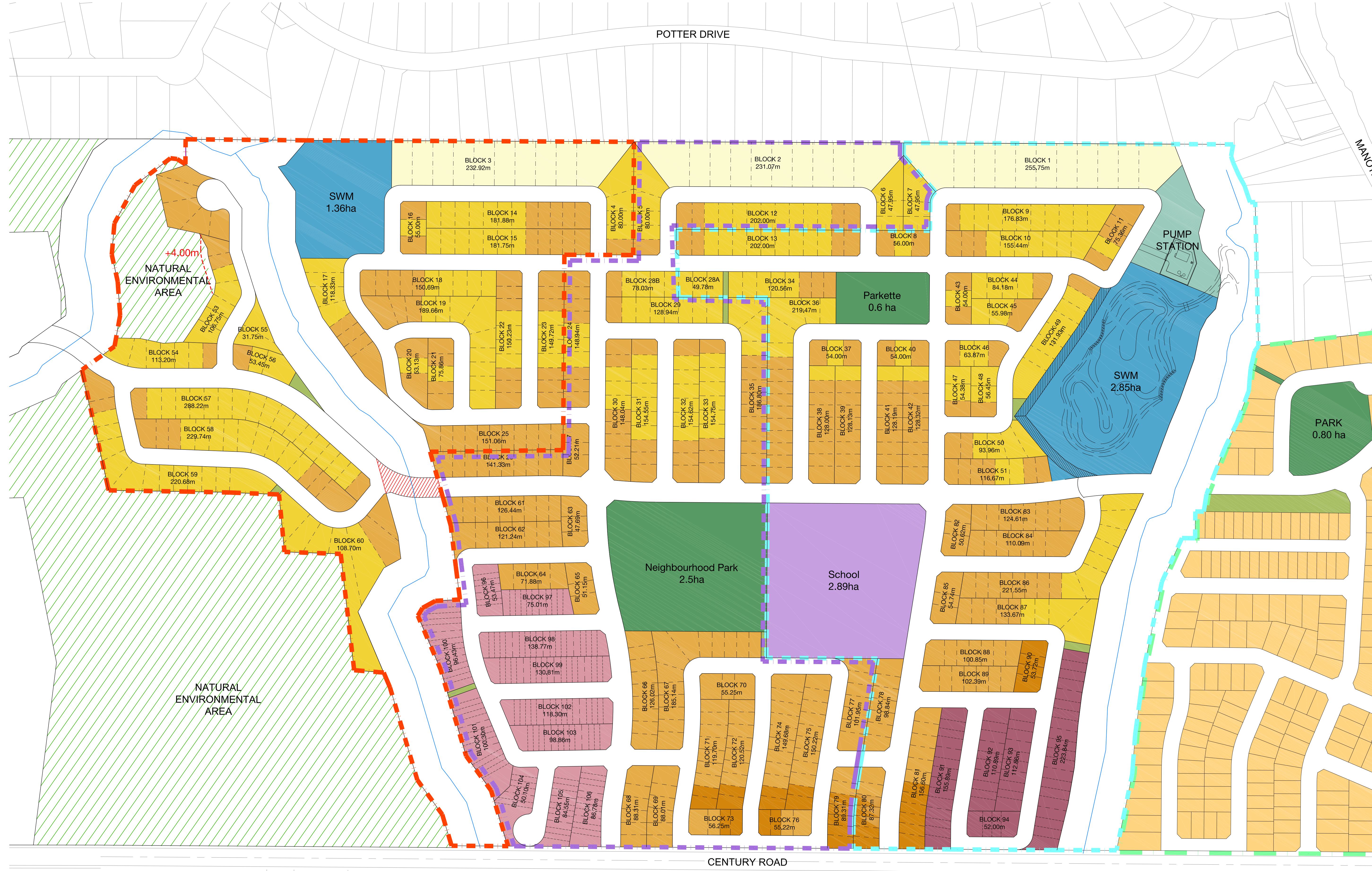
scale | 1:2000

legend

- 72' Single Family
- 52' Single Family
- 45' Single Family
- 38' Single Family
- Bungalow Towns
- Executive Towns
- Stormwater Management

unit count

| | | |
|-------------------|------------|-------------|
| 72' Single Family | 31 | 3.46% |
| 52' Single Family | 244 | 27.20% |
| 45' Single Family | 385 | 42.92% |
| 38' Single Family | 32 | 3.57% |
| Bungalow Towns | 58 | 6.47% |
| Executive Towns | 147 | 16.39% |
| Total | 897 | 100% |



PHASE IV

PHASE III

PHASE II



NAK ■
 design strategies
 421 Roncesvalles Avenue | Toronto, Ontario | M6R 2N1
 tel: 416.340.8700 | fax: 416.340.7100 | info@nak-design.com

MINTO | MAHOGANY
Preliminary Lotting Plan
 Version 5.2
 date | 04 may 2018

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Attachment B

June 2017 Trip Generation Summary

Trip Generation June 2017

ITE Vehicle Trip Generation Rates

| Land Use | Data Source | Trip Rate | |
|---------------------------|-------------|-----------|---------|
| | | AM Peak | PM Peak |
| Single Detached (Phase 2) | ITE 210 | 0.75 | 1.00 |
| Townhomes (Phase 2) | ITE 230 | 0.44 | 0.52 |
| Single Detached (Phase 3) | ITE 210 | 0.75 | 1.00 |
| Townhomes (Phase 3) | ITE 230 | 0.44 | 0.52 |
| Single Detached (Phase 4) | ITE 210 | 0.75 | 1.00 |

Modified Person Trip Generation Rates

| Land Use | Data Source | Person Trip Rate | |
|---------------------------|-------------|------------------|---------|
| | | AM Peak | PM Peak |
| Single Detached (Phase 2) | ITE 210 | 0.98 | 1.30 |
| Townhomes (Phase 2) | ITE 230 | 0.57 | 0.68 |
| Single Detached (Phase 3) | ITE 210 | 0.98 | 1.30 |
| Townhomes (Phase 3) | ITE 230 | 0.57 | 0.68 |
| Single Detached (Phase 4) | ITE 210 | 0.98 | 1.30 |

Note: 1.3 factor to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%

ITE Fitted Curve Equations

| Land Use | Data Source | Fitted Curve Equation | | | | | |
|---------------------------|-------------|-----------------------|-----------|--------|---------|-----------|--------|
| | | AM Peak | | | PM Peak | | |
| Single Detached (Phase 2) | ITE 210 | T= | 0.70(x) | + 9.74 | Ln(T)= | 0.90Ln(x) | + 0.51 |
| Townhomes (Phase 2) | ITE 230 | Ln(T)= | 0.80Ln(x) | + 0.26 | Ln(T)= | 0.82Ln(x) | + 0.32 |
| Single Detached (Phase 3) | ITE 210 | T= | 0.70(x) | + 9.74 | Ln(T)= | 0.90Ln(x) | + 0.51 |
| Townhomes (Phase 3) | ITE 230 | Ln(T)= | 0.80Ln(x) | + 0.26 | Ln(T)= | 0.82Ln(x) | + 0.32 |
| Single Detached (Phase 4) | ITE 210 | T= | 0.70(x) | + 9.74 | Ln(T)= | 0.90Ln(x) | + 0.51 |

Modified Person Trip Generation

| Land Use | Data Source | Area | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---------------------------|-------------|--------------|---------------------------|-----|-------|---------------------------|-----|-------|
| | | | In | Out | Total | In | Out | Total |
| | | Units | 31% | 69% | | 66% | 34% | |
| Single Detached (Phase 2) | ITE 210 | 347 du | 101 | 227 | 328 | 276 | 143 | 419 |
| | | Units | 17% | 83% | | 67% | 33% | |
| Townhomes (Phase 2) | ITE 230 | 99 du | 11 | 56 | 67 | 52 | 26 | 78 |
| | | Units | 31% | 69% | | 66% | 34% | |
| Single Detached (Phase 3) | ITE 210 | 224 du | 67 | 150 | 217 | 186 | 96 | 282 |
| | | Units | 17% | 83% | | 67% | 33% | |
| Townhomes (Phase 3) | ITE 230 | 93 du | 10 | 53 | 63 | 49 | 25 | 74 |
| | | Units | 31% | 69% | | 66% | 34% | |
| Single Detached (Phase 4) | ITE 210 | 167 du | 51 | 114 | 165 | 143 | 74 | 217 |
| | | Total | 240 | 600 | 840 | 706 | 364 | 1,070 |

Total Site Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|--------------------|-------------------------------|---------------------------|------------|------------|---------------------------|------------|------------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 168 | 420 | 588 | 495 | 255 | 750 |
| Auto Passenger | 15% | 36 | 90 | 126 | 106 | 55 | 161 |
| Transit | 5% | 12 | 30 | 42 | 35 | 18 | 53 |
| Non-motorized | 10% | 24 | 60 | 84 | 70 | 36 | 106 |
| Total Person Trips | 100% | 240 | 600 | 840 | 706 | 364 | 1,070 |
| | Total 'New' Auto Trips | 168 | 420 | 588 | 495 | 255 | 750 |

Trip Generation June 2017

4/23/2018 11:14 AM

Single Detached (Phase 2) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|------------|------------|---------------------------|------------|------------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 71 | 159 | 230 | 194 | 101 | 295 |
| Auto Passenger | 15% | 15 | 35 | 50 | 42 | 21 | 63 |
| Transit | 5% | 5 | 11 | 16 | 13 | 7 | 20 |
| Non-motorized | 10% | 10 | 22 | 32 | 27 | 14 | 41 |
| Total Person Trips | 100% | 101 | 227 | 328 | 276 | 143 | 419 |
| Total 'New' Single Detached (Phase 2) Auto Trips | | 71 | 159 | 230 | 194 | 101 | 295 |

Townhomes (Phase 2) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|-----------|-----------|---------------------------|-----------|-----------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 8 | 40 | 48 | 37 | 19 | 56 |
| Auto Passenger | 15% | 2 | 9 | 11 | 8 | 4 | 12 |
| Transit | 5% | 0 | 2 | 2 | 2 | 1 | 3 |
| Non-motorized | 10% | 1 | 5 | 6 | 5 | 2 | 7 |
| Total Person Trips | 100% | 11 | 56 | 67 | 52 | 26 | 78 |
| Total 'New' Townhomes (Phase 2) Auto Trips | | 8 | 40 | 48 | 37 | 19 | 56 |

Single Detached (Phase 3) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|------------|------------|---------------------------|-----------|------------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 47 | 105 | 152 | 131 | 68 | 199 |
| Auto Passenger | 15% | 11 | 23 | 34 | 28 | 15 | 43 |
| Transit | 5% | 3 | 7 | 10 | 9 | 4 | 13 |
| Non-motorized | 10% | 6 | 15 | 21 | 18 | 9 | 27 |
| Total Person Trips | 100% | 67 | 150 | 217 | 186 | 96 | 282 |
| Total 'New' Single Detached (Phase 3) Auto Trips | | 47 | 105 | 152 | 131 | 68 | 199 |

Townhomes (Phase 3) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|-----------|-----------|---------------------------|-----------|-----------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 7 | 38 | 45 | 35 | 18 | 53 |
| Auto Passenger | 15% | 2 | 8 | 10 | 8 | 4 | 12 |
| Transit | 5% | 0 | 2 | 2 | 2 | 1 | 3 |
| Non-motorized | 10% | 1 | 5 | 6 | 4 | 2 | 6 |
| Total Person Trips | 100% | 10 | 53 | 63 | 49 | 25 | 74 |
| Total 'New' Townhomes (Phase 3) Auto Trips | | 7 | 38 | 45 | 35 | 18 | 53 |

Single Detached (Phase 4) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|-----------|------------|---------------------------|-----------|------------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 36 | 80 | 116 | 101 | 52 | 153 |
| Auto Passenger | 15% | 8 | 18 | 26 | 21 | 12 | 33 |
| Transit | 5% | 2 | 5 | 7 | 7 | 3 | 10 |
| Non-motorized | 10% | 5 | 11 | 16 | 14 | 7 | 21 |
| Total Person Trips | 100% | 51 | 114 | 165 | 143 | 74 | 217 |
| Total 'New' Single Detached (Phase 4) Auto Trips | | 36 | 80 | 116 | 101 | 52 | 153 |

Total Site Vehicle Trip Generation

| Travel Mode | AM Peak (veh/hr) | | | PM Peak (veh/hr) | | |
|---|------------------|------------|------------|------------------|------------|------------|
| | In | Out | Total | In | Out | Total |
| Single Detached (Phase 2) Trip Generation | 71 | 159 | 230 | 194 | 101 | 295 |
| Townhomes (Phase 2) Trip Generation | 8 | 40 | 48 | 37 | 19 | 56 |
| Single Detached (Phase 3) Trip Generation | 47 | 105 | 152 | 131 | 68 | 199 |
| Townhomes (Phase 3) Trip Generation | 7 | 38 | 45 | 35 | 18 | 53 |
| Single Detached (Phase 4) Trip Generation | 36 | 80 | 116 | 101 | 52 | 153 |
| Total 'New' Auto Trips | 167 | 420 | 588 | 495 | 255 | 750 |

Attachment C

March 2018 Trip Generation Summary

Revised Trip Generation May 4, 2018

5/7/2018 5:14 PM

ITE Vehicle Trip Generation Rates

| Land Use | Data Source | Trip Rate | |
|---------------------------|-------------|-----------|---------|
| | | AM Peak | PM Peak |
| Single Detached (Phase 2) | ITE 210 | 0.75 | 1.00 |
| Townhomes (Phase 2) | ITE 230 | 0.44 | 0.52 |
| Single Detached (Phase 3) | ITE 210 | 0.75 | 1.00 |
| Townhomes (Phase 3) | ITE 230 | 0.44 | 0.52 |
| Single Detached (Phase 4) | ITE 210 | 0.75 | 1.00 |

Modified Person Trip Generation Rates

| Land Use | Data Source | Person Trip Rate | |
|---------------------------|-------------|------------------|---------|
| | | AM Peak | PM Peak |
| Single Detached (Phase 2) | ITE 210 | 0.98 | 1.30 |
| Townhomes (Phase 2) | ITE 230 | 0.57 | 0.68 |
| Single Detached (Phase 3) | ITE 210 | 0.98 | 1.30 |
| Townhomes (Phase 3) | ITE 230 | 0.57 | 0.68 |
| Single Detached (Phase 4) | ITE 210 | 0.98 | 1.30 |

Note: 1.3 factor to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%

ITE Fitted Curve Equations

| Land Use | Data Source | Fitted Curve Equation | | | | | |
|---------------------------|-------------|-----------------------|-----------|--------|---------|-----------|--------|
| | | AM Peak | | | PM Peak | | |
| Single Detached (Phase 2) | ITE 210 | T= | 0.70(x) | + 9.74 | Ln(T)= | 0.90Ln(x) | + 0.51 |
| Townhomes (Phase 2) | ITE 230 | Ln(T)= | 0.80Ln(x) | + 0.26 | Ln(T)= | 0.82Ln(x) | + 0.32 |
| Single Detached (Phase 3) | ITE 210 | T= | 0.70(x) | + 9.74 | Ln(T)= | 0.90Ln(x) | + 0.51 |
| Townhomes (Phase 3) | ITE 230 | Ln(T)= | 0.80Ln(x) | + 0.26 | Ln(T)= | 0.82Ln(x) | + 0.32 |
| Single Detached (Phase 4) | ITE 210 | T= | 0.70(x) | + 9.74 | Ln(T)= | 0.90Ln(x) | + 0.51 |

Modified Person Trip Generation

| Land Use | Data Source | Area | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---------------------------|-------------|--------------|---------------------------|-----|-------|---------------------------|-----|-------|
| | | | In | Out | Total | In | Out | Total |
| | | Units | | | | | | |
| Single Detached (Phase 2) | ITE 210 | 253 du | 75 | 168 | 243 | 207 | 108 | 315 |
| | | Units | 31% | 69% | | 66% | 34% | |
| Townhomes (Phase 2) | ITE 230 | 58 du | 7 | 36 | 43 | 33 | 17 | 50 |
| | | Units | 31% | 69% | | 66% | 34% | |
| Single Detached (Phase 3) | ITE 210 | 250 du | 74 | 166 | 240 | 205 | 107 | 312 |
| | | Units | 17% | 83% | | 67% | 33% | |
| Townhomes (Phase 3) | ITE 230 | 147 du | 15 | 76 | 91 | 71 | 36 | 107 |
| | | Units | 31% | 69% | | 66% | 34% | |
| Single Detached (Phase 4) | ITE 210 | 189 du | 57 | 128 | 185 | 159 | 83 | 242 |
| | | Total | 228 | 574 | 802 | 675 | 351 | 1,026 |

Revised Trip Generation May 4, 2018

5/7/2018 5:14 PM

Single Detached (Phase 2) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|------------|------------|---------------------------|-----------|------------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 53 | 118 | 171 | 145 | 76 | 221 |
| Auto Passenger | 15% | 12 | 26 | 38 | 32 | 17 | 49 |
| Transit | 5% | 3 | 8 | 11 | 10 | 5 | 15 |
| Non-motorized | 10% | 7 | 16 | 23 | 20 | 10 | 30 |
| Total Person Trips | 100% | 75 | 168 | 243 | 207 | 108 | 315 |
| Total 'New' Single Detached (Phase 2) Auto Trips | | 53 | 118 | 171 | 145 | 76 | 221 |

Townhomes (Phase 2) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|-----------|-----------|---------------------------|-----------|-----------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 5 | 26 | 31 | 24 | 12 | 36 |
| Auto Passenger | 15% | 2 | 6 | 8 | 5 | 3 | 8 |
| Transit | 5% | 0 | 1 | 1 | 1 | 1 | 2 |
| Non-motorized | 10% | 0 | 3 | 3 | 3 | 1 | 4 |
| Total Person Trips | 100% | 7 | 36 | 43 | 33 | 17 | 50 |
| Total 'New' Townhomes (Phase 2) Auto Trips | | 5 | 26 | 31 | 24 | 12 | 36 |

Single Detached (Phase 3) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|------------|------------|---------------------------|-----------|------------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 52 | 117 | 169 | 144 | 75 | 219 |
| Auto Passenger | 15% | 12 | 25 | 37 | 31 | 17 | 48 |
| Transit | 5% | 3 | 8 | 11 | 10 | 5 | 15 |
| Non-motorized | 10% | 7 | 16 | 23 | 20 | 10 | 30 |
| Total Person Trips | 100% | 74 | 166 | 240 | 205 | 107 | 312 |
| Total 'New' Single Detached (Phase 3) Auto Trips | | 52 | 117 | 169 | 144 | 75 | 219 |

Townhomes (Phase 3) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|-----------|-----------|---------------------------|-----------|-----------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 11 | 54 | 65 | 50 | 26 | 76 |
| Auto Passenger | 15% | 3 | 12 | 15 | 11 | 6 | 17 |
| Transit | 5% | 0 | 3 | 3 | 3 | 1 | 4 |
| Non-motorized | 10% | 1 | 7 | 8 | 7 | 3 | 10 |
| Total Person Trips | 100% | 15 | 76 | 91 | 71 | 36 | 107 |
| Total 'New' Townhomes (Phase 3) Auto Trips | | 11 | 54 | 65 | 50 | 26 | 76 |

Single Detached (Phase 4) Trip Generation

| Travel Mode | Mode Share | AM Peak (Person Trips/hr) | | | PM Peak (Person Trips/hr) | | |
|---|------------|---------------------------|-----------|------------|---------------------------|-----------|------------|
| | | In | Out | Total | In | Out | Total |
| Auto Driver | 70% | 40 | 90 | 130 | 112 | 59 | 171 |
| Auto Passenger | 15% | 9 | 20 | 29 | 24 | 12 | 36 |
| Transit | 5% | 3 | 6 | 9 | 8 | 4 | 12 |
| Non-motorized | 10% | 5 | 12 | 17 | 15 | 8 | 23 |
| Total Person Trips | 100% | 57 | 128 | 185 | 159 | 83 | 242 |
| Total 'New' Single Detached (Phase 4) Auto Trips | | 40 | 90 | 130 | 112 | 59 | 171 |

Total Site Vehicle Trip Generation

| Travel Mode | AM Peak (veh/hr) | | | PM Peak (veh/hr) | | |
|---|------------------|------------|------------|------------------|------------|------------|
| | In | Out | Total | In | Out | Total |
| Single Detached (Phase 2) Trip Generation | 53 | 118 | 171 | 145 | 76 | 221 |
| Townhomes (Phase 2) Trip Generation | 5 | 26 | 31 | 24 | 12 | 36 |
| Single Detached (Phase 3) Trip Generation | 52 | 117 | 169 | 144 | 75 | 219 |
| Townhomes (Phase 3) Trip Generation | 11 | 54 | 65 | 50 | 26 | 76 |
| Single Detached (Phase 4) Trip Generation | 40 | 90 | 130 | 112 | 59 | 171 |
| Total 'New' Auto Trips | 161 | 405 | 566 | 475 | 248 | 723 |