# THE CORRADINO GROUP, INC.

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CORRADINO

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| date: | June 4, 2018 |
| to: | Kathryn Lyon, Planning Director |
| from: | Gregory A. Prytyka, P.E., Chief Engineer |
| project #: | 3896*76 |
| subject: | Cutler Gate Traffic Impact Study |

# MEMORANDUM

The Corradino Group, Inc (Corradino) has reviewed the responses to our March 9, 2018 comments for the "Cutler Gate" development submitted by Richard Garcia & Associates (RGA), dated March 16, 2018.  The following outlines our final disposition regarding the responses:

The 2017 Historical AADT Report from the Florida Traffic Online website lists an AADT of 17,700 vehicles per day (vpd), with a K factor of 9%.  Performing the proper calculations on these data indicate that the approximate peak hour traffic on Old Cutler Road should be near 1,593 vph.

Regardless of the historical traffic counts reported by FDOT, if we accept the applicant's turning movement counts at face value, the AM peak hour traffic on Old Cutler Road would be 1,094 times the seasonal factor of 1.01, yielding 1,105 vehicles per hour (vph).  The PM peak hour traffic would be 1,248 times the seasonal factor of 1.01, yielding 1,261 vph.  According to the 2018 FDOT Quality/Level of Service Handbook (Q/LOS), Table 4, the capacity of a two-lane non-state signalized arterial exceeds Level of Service (LOS) "C" above 324 vph (360-10%), exceeds LOS "D" above 1,125 vph (1,250-10%), and exceeds LOS "E" above 1,521 vph (1,690-10%).  Therefore, based on the applicant's traffic counts, Old Cutler Road is currently operating at LOS E during the PM peak hour.

We agree that the proposed retail is out of scale in comparison to data points used to develop both the fitted curve equation as well as the average rate.  However, the average rate always originates at the point 0, 0 on the graph, meaning that the smaller the proposed retail is, the closer it comes to generating no trips at all.  One possible solution is to calculate an average rate based on data points for shopping centers closer to the size of the proposed development.  Another possible solution is to use Land Use Code 814 – Variety Store, which

represents retail uses more in line with the proposed size.  Our recommendation is to follow the Miami-Dade County standard methodology.

Miami-Dade County's standard for trip generation is to use the fitted curve equation given in the Trip Generation Manual when the $R^2$ value is 0.75 or above.  This suggests that the fitted curve equation should be used for LUC 220 in the AM peak ($R^2$=0.90) and PM Peak ($R^2$=0.86), the average rate should be used for LUC 820 in the AM peak ($R^2$=0.50), and the fitted curve equation should be used during the PM peak ($R^2$=0.82).  Allowing for multi-modal trips, internal capture, and pass-by trips, we have calculated 19 AM peak hour trips (6 in, 13 out) and 47 PM peak hour trips (25 in, 22 out).  **Table 1** and **Table 2** (attached) present the calculations for trip generation.  **Table 3** provides the directional distribution for the recalculated trip generation.

Trip assignments and LOS calculations should be revised in accordance with the foregoing.

If you have any questions or comments, please feel free to contact me.

## TABLE 1 - WEEKDAY AM PEAK HOUR TRIP GENERATION

| ITE TRIP GENERATION CHARACTERISTICS | | | | | | DIRECTIONAL DISTRIBUTION | | GROSS VOLUMES | | | MULTIMODAL REDUCTION | | SUBTOTAL EXTERNAL TRIPS | | | INTERNAL CAPTURE FROM NCHRP 684 | | | | | SUBTOTAL EXTERNAL TRIPS | | | PASS-BY TRIPS | | NET EXTERNAL TRIPS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | LUC | Qty | Units | Rate | Calc | Percent | | AM Peak | | | Percent | MM Trips | In | Out | Total | In % | Trips In | Out % | Trips Out | Total Trips | In | Out | Total | Percent | Total Trips | In | Out | Total |
| | | | | | | In | Out | In | Out | Total | | | | | | | | | | | | | | | | | | |
| Multifamily Housing (Mid-Rise) | 220 | 36 | DU | 0.66167 | 23.82 | 26% | 74% | 5 | 13 | 18 | 10% | 2 | 4 | 12 | 16 | 0.00% | 0 | 0.00% | 0 | 0 | 4 | 12 | 16 | 0% | 0 | 4 | 12 | 16 |
| Shopping Center (LUC 820) | 820 | 4,186 | sq ft | 0.00687 | 28.7397 | 62% | 38% | 2 | 1 | 4 | 10% | 0 | 2 | 1 | 4 | 0.00% | 0 | 0.00% | 0 | 0 | 2 | 1 | 4 | 33% | 1 | 1 | 1 | 2 |
| TOTALS | | | | | | | | 7 | 15 | 22 | | 2 | 6 | 13 | 20 | 0.00% | 0 | 0.00% | 0 | 0 | 6 | 13 | 20 | 7% | 1 | 6 | 13 | 19 |

*Source: Institute of Transportation Engineers' Trip Generation Manual, 10th Edition; Institute of Transportation Engineers' Trip Generation Manual, 3rd Edition; National Cooperative Highway Research Program, Report 684.*

## TABLE 2 - WEEKDAY PM PEAK HOUR TRIP GENERATION

| ITE TRIP GENERATION CHARACTERISTICS | | | | | | DIRECTIONAL DISTRIBUTION | | GROSS VOLUMES | | | MULTIMODAL REDUCTION | | SUBTOTAL EXTERNAL TRIPS | | | INTERNAL CAPTURE FROM NCHRP 684 | | | | | SUBTOTAL EXTERNAL TRIPS | | | PASS-BY CAPTURE | | NET EXTERNAL TRIPS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | LUC | Qty | Units | Rate | Calc | Percent | | AM Peak | | | Percent | MM Trips | In | Out | Total | In % | Trips In | Out % | Trips Out | Total Trips | In | Out | Total | Percent | Total Trips | In | Out | Total |
| | | | | | | In | Out | In | Out | Total | | | | | | | | | | | | | | | | | | |
| Multifamily Housing (Mid-Rise) | 221 | 36 | DU | 0.66167 | 23.82 | 61% | 39% | 15 | 9 | 24 | 10% | 2 | 13 | 8 | 21 | 8.41% | 1 | 8.41% | 1 | 2 | 12 | 8 | 19 | 0% | 0 | 12 | 8 | 19 |
| Shopping Center (LUC 820) | 820 | 4,186 | sq ft | 1.13874 | 4766.77 | 48% | 52% | 25 | 27 | 52 | 10% | 5 | 22 | 24 | 47 | 9.63% | 2 | 9.63% | 3 | 5 | 20 | 22 | 42 | 33% | 17 | 13 | 15 | 28 |
| TOTALS | | | | | | | | 39 | 36 | 76 | 10% | 8 | 35 | 33 | 68 | 9.02% | 4 | 9.02% | 3 | 7 | 32 | 29 | 61 | 7% | 17 | 25 | 22 | 47 |

*Source: Institute of Transportation Engineers - Trip Generation Manual, 10th Edition; Institute of Transportation Engineers - Trip Generation Manual, 3rd Edition; National Cooperative Highway Research Program - Report 684.*

## Table 3 - Directional Distribution

### 2010 GROSS Distribution

| Cardinal Direction | Percentage of trips | AM PEAK | | | PM PEAK | | |
|---|---|---|---|---|---|---|---|
| | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| NNE | 25.40% | 1 | 3 | 5 | 6 | 6 | 12 |
| ENE | 1.60% | 0 | 0 | 0 | 0 | 0 | 1 |
| ESE | 0.40% | 0 | 0 | 0 | 0 | 0 | 0 |
| SSE | 6.40% | 0 | 1 | 1 | 2 | 1 | 3 |
| SSW | 7.20% | 0 | 1 | 1 | 2 | 2 | 3 |
| WSW | 21.50% | 1 | 3 | 4 | 5 | 5 | 10 |
| WNW | 13.80% | 1 | 2 | 3 | 3 | 3 | 7 |
| NNW | 23.80% | 1 | 3 | 4 | 6 | 5 | 11 |
| ALL DIRECTIONS | 100.10% | 6 | 13 | 19 | 25 | 22 | 47 |

### 2019 GROSS DISTRIBUTION

| Cardinal Direction | Percentage of trips | AM PEAK | | | PM PEAK | | |
|---|---|---|---|---|---|---|---|
| | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| NNE | 23.78% | 1 | 3 | 4 | 6 | 5 | 11 |
| ENE | 1.27% | 0 | 0 | 0 | 0 | 0 | 1 |
| ESE | 0.46% | 0 | 0 | 0 | 0 | 0 | 0 |
| SSE | 5.74% | 0 | 1 | 1 | 1 | 1 | 3 |
| SSW | 7.32% | 0 | 1 | 1 | 2 | 2 | 3 |
| WSW | 21.95% | 1 | 3 | 4 | 6 | 5 | 10 |
| WNW | 15.18% | 1 | 2 | 3 | 4 | 3 | 7 |
| NNW | 24.37% | 1 | 3 | 5 | 6 | 5 | 12 |
| ALL DIRECTIONS | 100.07% | 6 | 13 | 19 | 25 | 22 | 47 |

### 2040 GROSS DISTRIBUTION

| Cardinal Direction | Percentage of trips | AM PEAK | | | PM PEAK | | |
|---|---|---|---|---|---|---|---|
| | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| NNE | 20.00% | 1 | 3 | 4 | 5 | 4 | 9 |
| ENE | 0.50% | 0 | 0 | 0 | 0 | 0 | 0 |
| ESE | 0.60% | 0 | 0 | 0 | 0 | 0 | 0 |
| SSE | 4.20% | 0 | 1 | 1 | 1 | 1 | 2 |
| SSW | 7.60% | 0 | 1 | 1 | 2 | 2 | 4 |
| WSW | 23.00% | 1 | 3 | 4 | 6 | 5 | 11 |
| WNW | 18.40% | 1 | 2 | 3 | 5 | 4 | 9 |
| NNW | 25.70% | 1 | 3 | 5 | 6 | 6 | 12 |
| ALL DIRECTIONS | 100.00% | 6 | 13 | 19 | 25 | 22 | 47 |