TOWN OF CUTLER BAY
DEVELOPMENT REVIEW COMMENTS

Discipline:	***Traffic Engineering***
Reviewed by:	***Gavin Jones, PE, AICP***
Review Date:	***06/04/19***
Phone:	*(954) 921-7781*
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Application:	***Site Plan Amendment***
Project Name:	***Old Cutler Road Site Traffic Study***
Project Number:	***14-7174***

Comments Based on 3rd Plan Submittal (Traffic Study dated July 2017) and Trip Generation Analysis dated 5-29-19

_____ *No comments*
__X__ *Comments as follows or attached*

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1. Please provide an Engineer's certification for the Engineer of Record who prepared the traffic study for the Old Cutler Road Site.

   DPA 04/18/17 Response: A Professional Engineer Certificate has been provided in the revised report as requested.

   CGA 05/05/17 Response: Addressed.

2. Please provide any comments provided by Miami Dade County Public Works and Waste Management Traffic Engineering Division.

   DPA 04/18/17 Response: MDC comments are provided in Attachment A.

   CGA 05/05/17 Response: Addressed. Please provide a copy of the final approval prior to the public hearing.

   DPA 11/07/17 Response: MDC has stated that they will not require a traffic study for the proposed 30 single family dwelling units since the resulting trip generation is lower than

the previous proposed land uses reviewed by the County. Further County review and approval during platting will be provided by the Town of Cutler Bay.

CGA 11/28/17 Response: Addressed.

3. Please update the traffic volumes used in the traffic analysis to ensure that the peak hour volumes taken from the traffic data collection performed on 01/10/2017 are used. The current traffic analysis uses an average of the two peak hour traffic volumes collected. Please update the intersection capacity and the road segment corridor analysis (Art Plan).

   DPA 04/18/17 Response: Peak period analysis was proposed and approved in the methodology submitted to the village for this study. It is also consistent with previous studies submitted to and accepted by the village and its consultant. This is based on the Cutler Bay Growth Management Plan, which defines roadway level of service standards as follows: "Policy Tl-IA: Adopted roadway LOS standards shall vary depending on the classification of the roadway, roadway location, and availability of transit. Table T-1 ... summarizes the adopted peak-period LOS standards for all local, County and roads in Cutler Bay. " Similar to other municipalities in the county, these level of service standards are based on the MDC Comprehensive Master Development Plan which define peak-period as: "Peak period means the average of the two highest consecutive hours of traffic volume during a weekday. " Therefore, the analysis is consistent with the adopted

   standards in the Village of Cutler Bay and Miami-Dade County.

   CGA 05/05/17 Response: Addressed.

   DPA 05/17/17 Response: Although no further response to reviewer is warranted at this time, the peak hour analysis for future conditions with project, along with supporting documentation, is provided as Attachment A. Findings and conclusions, summarized below, are the same as the ones established in the traffic study.

   - *Peak hour analysis indicates that all roadway segments analyzed are projected to operate within the Town of Cutler Bay Level of Service Standards, and for all roadway segments analyzed, traffic volumes associated with the project are at levels generally considered de minimus.*

   - *Peak hour intersection analysis for future conditions with project results that the overall LOS for the following intersections are projected to operate within the LOS standards adopted by the Town of Cutler Bay:*

     - *Old Cutler Road / SW 168th Street*
     - *Old Cutler Road / SW 184th Street*
     - *SW 184th Street / SW 97th Avenue*
     - *SW 184th Street / SW 87th Avenue*

   Results of the analysis based on the peak hour and peak period show that approaches of the Old Cutler Road / SW 87th Avenue roundabout will experience some delays during the AM and

PM peak hours in the future before project traffic, and will continue to experience delays with the project. Peak hour analysis shows approach delays during both AM and PM peak hours. However, overall operations during the PM peak hour are within the adopted Town of Cutler Bay LOS standards. It should be noted that the project represents less than 0.15% of the total projected intersection volume during the AM peak hours and less than 0.25% during the PM peak hour. The peak period analysis shows that overall intersection delays are increased by 0.3 seconds or less than 0.4% during the AM peak period and by 0.6 or 1.2% during PM peak hour with the addition of project traffic.

CGA 10/08/17 Response: Addressed.

4. Please clarify the trip distribution for the driveway openings on Old Cutler Road and SW 184th Street. Exhibit 13 shows a full access opening on to Cutler Road (not a right-in/right-out as mentioned in the Executive Summary, etc.). Please update the Executive Summary and other narratives of the report respectively.

   DPA 04/18/17 Response: Project access will be provided via a full access driveway accessing Old Cutler Road south of SW 184th Street and a right-turn-in and right-turns out driveway accessing SW 184th Street east of Old Cutler Road. The access description was updated in the study.

   CGA 05/05/17 Response: Addressed.

5. Please review and confirm that there will be sufficient sight distance for eastbound vehicles making a u-turn along SW 184th Avenue (project trips turning right out at SW 184th Street). There are existing trees in the center median at the median break that appears to obstruct the view of vehicles attempting to make this u-turn. Please provide a narrative in the traffic study that discusses any safety issues at this road segment location.

   DPA 04/18/17 Response: Response: Sight distance assessment was performed and supplemented with field observations of the existing geometrics along SW 184th Street for this movement. S.W 184th Street eastbound east of Old Cutler Road is a four-lane divided roadway. Approximately 800' east of its intersection with Old Cutler Road, a wide median opening is available for vehicles desiring to make U-turns. The space for turns is adequate, and approximately 200' of sight clearance is available for this movement. Speeds and volumes along this road are generally low since it provides access to a gated development to the east. Trees and other landscaping features are well groomed and obstructions and/or conflicts were not observed. The road was designed for this purpose and seems adequate to meet the demand. The sight triangle and pictures of actual conditions are provided in Exhibit A.

   CGA 05/05/17 Response: Addressed.

6. Please include the Town of Cutler Bay's Transportation Master Plan service volume tables in Appendix C as mentioned on page 13 of the report. The FDOT LOS Handbook tables are shown but not the Cutler Bay tables.

DPA 04/18/17 Response: The requested documentation has been included in Appendix C, as requested.

CGA 05/05/17 Response: Addressed.

7. Please provide an Exhibit 3B that depicts the locations for the pneumatic tube count locations of the 24 ADT counts.

   DPA 04/18/17 Response: An exhibit graphically portraying the location of the roadway segment 24-hour counts was included in Appendix C.

   CGA 05/05/17 Response: Addressed.

8. Please revise the intersection capacity analysis (including relevant tables and report sections) based on the current traffic signal timing (copy attached) for the signalized intersections. The traffic signal timing sheets provided in the Appendix for Old Cutler Road and SW 168th Street (Asset 3981) and Old Cutler Road and SW 184th Street (Asset 3800) are not current.

   DPA 04/18/17 Response: Intersection analysis for these intersections was revised, as requested.

   CGA 05/05/17 Response: Addressed.

9. Please update Exhibits 4, 11 and 17 to include both directional volumes for each road segment.

   DPA 04/18/17 Response: Exhibits 4, 11 and I7 have been revised, as requested.

   CGA 05/05/17 Response: Addressed. Please utilize directional traffic volumes for the FDOT LOS Handbook (most current version) and not the Transportation Master Plan for the link/segment analysis.

   DPA 05/17/17 Response: Service Volumes used in the report are based on the latest Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas published by FDOT's 2013 Quality/Level of Service Handbook and included in Appendix C. Note 1 in Exhibits 4, 7 and 14 indicates that the Service Volumes for both segments of Old Cutler Road were obtained from the Cutler Bay's Master Plan (excerpts also included in Appendix C). These service volumes are based on the FDOT service volume for LOS E Class II Arterial adjusted by minus 10% to account for Non-State Signalized Roadway (800 vph -10% (80 vph) = 720 vph). Therefore, revisions to the tables are not warranted at this time.

   CGA 10/08/17 Response: Addressed.

10. Please update Exhibit 12 so that it shows both the below 2010 and 2040 cardinal distribution percentages for TAZ 1359. Please provide a footnote that these have been taken from the Directional Distribution Report of the Miami Dade County 2040 Transportation Model and final percentages for the 2018 buildout year have been interpolated between 2010 and 2040.

2010		2040	
• NNE:	29.30%	NNE:	19.60%
• ENE:	0.20%	ENE:	0.00%
• ESE:	0.00%	ESE:	0.00%
• SSE:	0.00%	SSE:	0.00%
• SSW:	0.60%	SSW:	1.20%
• WSW:	17.30%	WSW:	24.50%
• WNW:	17.30%	WNW:	21.00%
• NNW:	35.20%	NNW:	33.90%

DPA 04/18/17 Response: Exhibit I2 has been revised, as requested.

CGA 05/05/17 Response: Addressed.

11. Please add columns to Exhibit 6, Exhibit 10 and Exhibit 17 that includes the 95th percentile queue length for the key turn lanes for each approach. Please provide the Synchro Queue reports for each intersection for each scenario in the resubmitted traffic study. Please also ensure that these exhibits/tables include the most current LOS and delay information from the submitted Synchro reports for each intersection for each scenario. There are delay numbers shown in the exhibits/tables that do not match. Please update the narrative in the traffic study as necessary.

    DPA 04/18/17 Response: Response: Exhibits 6A, 10A and 17A have also been created to show the resulting 95th percentile back of queue, as requested. Revised Synchro reports are included in Appendix D. Exhibits 6, 10 and 17 have been revised to reflect the latest analysis, as requested.

    CGA 05/05/17 Response: Please update the relevant exhibits based on the below specific comments. Please also add a footnote to these exhibits that explains that the lineal feet calculation is based on rounding up to the next whole number vehicle (at 22 LF per vehicle).

    - **Exhibit 10**
        - **Old Cutler Road and SW 184th Street**
            - **PM Peak hour NB LOS A**
            - **PM Peak hour SB LOS B**
        - **Old Cutler Road and SW 87th Avenue**
            - **PM Peak Hour NB Delay is 13.9 sec.**
            - **PM Peak Hour SB Delay is 95.8 sec.**
            - **PM Peak Hour NEB Delay is 19.9 sec.**
            - **PM Peak Hour SWB Delay is 69.7 sec.**

- **PM Peak Hour Overall Delay is 50.4 sec.**

- **Exhibit 10A**
  - **Old Cutler Road and SW 184th Street**
    - **AM Peak Hour NBL BOQ 2.9; 66 LF**
    - **AM Peak Hour SBR BOQ 13.7; 308 LF**
    - **PM Peak Hour NBL BOQ 1.8; 44 LF**
    - **PM Peak Hour SBR BOQ 7.8; 176 LF**

- **Exhibit 17**
  - **Old Cutler Road and SW 87th Avenue**
    - **PM Peak Hour NB Delay is 14.0 sec.**
    - **PM Peak Hour SB Delay is 96.7 sec.**
    - **PM Peak Hour NEB Delay is 20.3 sec.**
    - **PM Peak Hour SWB Delay is 70.9 sec.**
    - **PM Peak Hour Overall Delay is 51.0 sec.**

DPA 05/17/17 Response: Exhibits 10, 10A and 17 have been revised, as requested. The revised tables are included in Attachment B.

CGA 10/08/17 Response: Addressed.

12. Please provide intersection volume worksheets that show the progression from peak hour counts, peak hour count adjustments (peak season factor and growth rate), committed trips and future total project trips for the intersection analysis.

    DPA 04/18/17 Response: Intersection Volume development sheets have been included in Appendix D, as requested.

    CGA 05/05/17 Response: Addressed.

13. Please provide exhibit similar to exhibit 13A that shows the assigned committed trips for the road segments analyzed.

    DPA 04/18/17 Response: Maps graphically depicted the requested information are included in Appendix E.

    CGA 05/05/17 Response: Addressed.

14. Please recommend improvements to mitigate for the LOS deficiency for SW 184th Street between SW 87th Avenue and 97th Avenue and SW 87th Avenue between Old Cutler Road and

SW 184th Street. These road segments do not meet the LOS standard of E in the AM peak hour of the future buildout condition.

DPA 04/18/17 Response: Response: The following improvements are currently underway as part of the Palmer Trinity School expansion to mitigate the increases of traffic due to the increase in students and to alleviate existing congestion in the area:

- *A southbound right turn lane along Old Cutler Road onto SW 184th Street will provide additional capacity to through traffic by channeling the heavy right turns into a separate lane;*
- *Turn lanes at the new driveway along SW 184th Street will minimize the school traffic impacts on through traffic along this road.*

In addition, the 2005 Palmetto Bay Comprehensive Plan considers the widening of SW 184th Street between US 1 and Old Cutler Road as a possible improvement to alleviate congestion. However, this improvement is not reflected in the Miami-Dade Transportation Plan.

CGA 05/05/17 Response: Addressed.

15. Please recommend improvements to mitigate for the LOS deficiency for the roundabout at Old Cutler Road and SW 87th Avenue. The roundabout operates at a LOS F in the AM and PM peak hour condition and does not meet the Town of Cutler Bay's LOS criteria and there are traffic operational issues for some of the movements. Roundabouts should be designed to operate at no more than 85 percent of their estimated capacity. When traffic flows on an approach exceed approximately 85 percent of capacity, delays and queue lengths very significantly about their mean values. Please provide field observations during the peak hours to confirm the traffic conditions for these concerning movements in the AM peak hour (NB left- 95th percentile queue of 37 vehicles) and the PM peak hour (SB left- 95th percentile queue of 21 vehicles and WB left- 95th percentile queue of 20 vehicles).

DPA 04/18/17 Response: Aerial drone photographs of the area do not support the results of the Synchro analysis for this roundabout, especially as it predicts queues. The following observations were made and can be validated in the drone photographs:

- ***AM Peak:** The northbound approach along SW 87th Avenue peaks between 7:30 and 8:15 AM while the eastbound along Old Cutler Road peaks between 7:45 and 8:30 AM. Traffic flows were steadily.*
- ***PM Peak:** Eastbound traffic along Old Cutler Road peaked between 4:30 and 6:00 PM. Flow remained stable.*

It should also be noted that for unsignalized intersections (including roundabouts), the software (which is based on Highway Capacity Manual theories) tends to overestimate delay and queue measurements. The actual delays observed in the field are within the range of operations for other facilities in the area.

CGA 05/05/17 Response: Addressed.

16. The Art Plan analysis for the road corridors should look at the segments independently and not for multiple segments of a corridor which will yield a weighted analysis of all of the segments.

    DPA 04/18/17 Response: The ArtPlan analysis for Old Cutler Road has been broken down into sections, as requested.

    CGA 05/05/17 Response: Addressed.

17. The Art Plan corridor analysis in the traffic impact study should include a sourcing of each of the input values that were used for each scenario. Please provide documentation in the Appendix for standard FDOT values for certain inputs if applicable (reference attached input reference sheet for typical inputs). Please ensure that data from the traffic counts collected (24-hour tube counts, manual turning movement counts) have been used to tailor each of the LOS corridor segment analysis. For instance, the percentage of left turns and right turns should correspond to the number of turns observed during the peak hour turning movement counts. The standard values per FDOT's

    DPA 04/18/17 Response: A table has been prepared showing all the input values used in the ArtPlan analysis and is included in Appendix D. The analysis was revised to reflect these factors.

    CGA 05/05/17 Response: Please update data in table for the %Turns from Exclusive Turn Lanes table.

    DPA 05/17/17 Response: The requested data is included as Attachment B. The ArtPlan reflecting these factors is also attached.

    CGA 10/08/17 Response: Addressed.

18. Please verify the thru g/C values used in the Art Plan corridor analysis. The thru g/c values used are higher than the standard range of 0.40 and 0.55 provided in the standard Art Plan inputs provided by FDOT. There is an error being given that reads "Facility weighted g/c exceeds normally acceptable upper range (0.5); verify that g/C inputs are correct.

    DPA 04/18/17 Response: It is acknowledged that several area roadways g/C are higher than the typical roadways. This is not uncommon when a roadway serves as the major traffic carrier for an area, such as Old Cutler Road. The situation is further emphasized by the fact that traffic volumes crossing Old Cutler Road from the east are low, and, therefore, require much less green times than through traffic and/or traffic from the west accessing Old Cutler Road. g/C calculations are included in Appendix D. Signal timing worksheets are included in Appendix C.

    CGA 05/05/17 Response: The ArtPlan results for existing conditions for each road segment corridor needs to be checked against the "Here data" available from FDOT for state roads and Miami Dade County for County facilities. Please reference the below "Here data" for the SW 184th Street corridor received from FDOT. Please include a narrative in your report in your segment analysis the discusses the average travel

speeds from this data and the related Arterial LOS thresholds outlined in the 2013 FDOT LOS Handbook.

David Plummer & Associates 05/17/17 Response: The Florida Department of Transportation (FDOT) was contacted regarding this request, and their response was: "HERE data available via the Unified Basemap Repository (UBR) is licensed data for State of Florida Government Entities and their contractors." As this is not a FDOT contract, access is not allowed to process this request.

***CGA 10/08/17 Response: If FDOT and Miami Dade County will not provide the travel time and delay data along the applicable State roadway facilities, a travel time and delay study will be required as a condition of approval to evaluate the existing travel speeds and the subsequent LOS values. This includes* providing a travel time and delay study for the road segments of SW 87th Avenue (Galloway Road) between SW 216th Street and SW 212th Street and SW 212th Street and Old Cutler Road during a normal school day. The travel time and delay study should be conducted per the criteria in the FDOT Manual of Uniform Traffic Studies Chapter 13.**

DPA 11/07/17 Response: In lieu of this information that is currently unavailable, the applicant shall perform traffic monitoring of the trips generated by the development the year after the final certificate of occupancy is issued. Should the actual number of vehicle trips generated by the project is exceeded by 10% of the number of vehicle trips projected in the Applicant's original traffic study, the applicant will research supplemental mitigation. The City and the Applicant shall jointly pursue the approvals necessary to implement the mitigation. The cost of mitigation shall be paid by the applicant.

CGA 11/28/17 Response: Addressed. A condition of approval will be developed for the staff report. The Applicant shall pursue the approvals necessary to the implement the mitigation. The cost of the mitigation and consulting services for the permit approval shall be paid for by the applicant.

19. Please verify the AADT and hourly volumes used in the Art Plan corridor analysis. The daily and hourly volumes do not seem to align with the 24-hour tube counts collected particularly for the existing conditions. Please provide clarification.

    DPA 04/18/17 Response: The ArtPlan analysis reflects the hourly volume for the AM and PM peak periods as shown in Exhibits 4, 7 and 14. Since the results are for peak period, the daily volumes reflected in the worksheets are provided as reference only and do impact the results.

    CGA 05/05/17 Response: Addressed.

20. Please revise the FFS input in the Art Plan corridor analysis to be the posted speed limit. The roadway segments being analyzed are two lane facilities and the free flow speed will most likely top out at the posted speed limit and not 5 miles over the posted speed limit.

    DPA 04/18/17 Response: The ArtPlan analysis reflects the following posted speed limits: Old Cutler Road – 40 mph; SW 184th Street - 40 mph; and, SW 87th Avenue - 35 mph.

    CGA 05/05/17 Response: Please update ArtPlan analysis to include the posted speed limit in the input for the free flow speed (FFS).

    DPA 05/17/17 Response: The posted speed limit is included in the Segment (auto) input of the software. The output coverts the speed limit to free flow speed automatically.

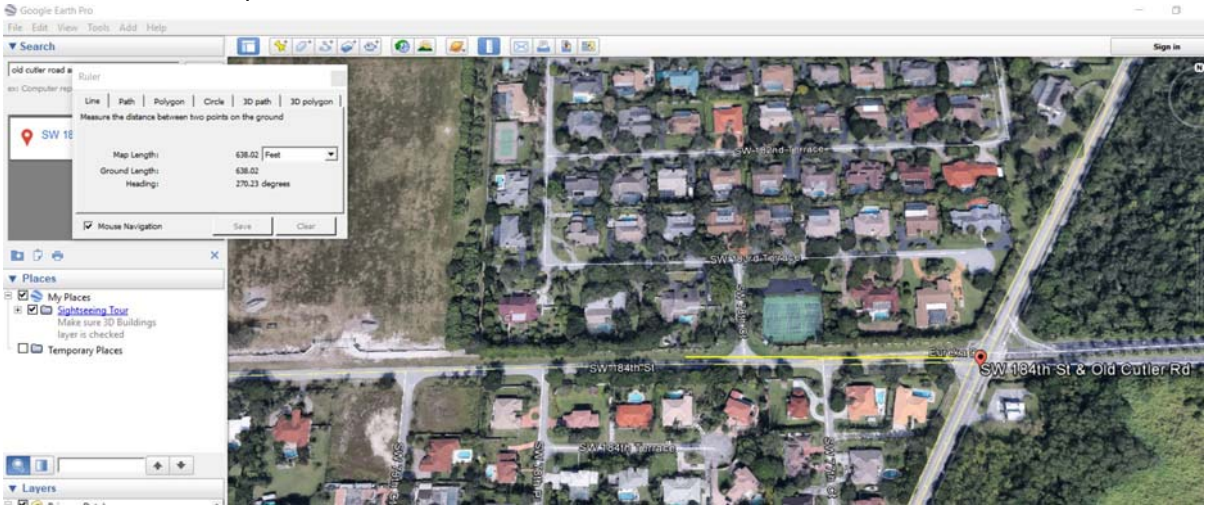
    CGA 10/08/17 Response: Addressed.

21. As requested in the traffic study methodology and as outlined in the traffic study on page 7, please provide a traffic operational qualitative assessment for the intersections/road segments studied based on field observations. This should include providing aerial drone images documenting the roadway conditions (vehicle queue stacking at intersections) during peak hours.

    DPA 04/18/17 Response: Response: Section 2.6 describing both observed and drone photographed field conditions is included in the report. Drone images of the intersections studied are included in Appendix C-5.

    CGA 05/05/17 Response: Addressed.

22. The back of vehicle queue stacking identified in Exhibit 17 for the eastbound left turn (EBL) at the intersection of Old Cutler Road and SW 184th Street in AM peak hour is 396 LF and 638 LF in the PM peak hour in the future condition scenario. The existing storage length for this turn lane is currently only 160 LF. This will cause eastbound vehicles to queue/stack past SW 78th Court. Please provide potential intersection and/or road segment improvements to mitigate for this traffic operational issue.



DPA 11/07/17 Response: The back of queue extending past the provided turn lane storage for the eastbound left turn lane on SW 184th Street onto Old Cutler Road is a condition that occurs in the future without project conditions for the AM and PM peak. Furthermore, project traffic is not anticipated to contribute to the left turn volume at this approach of the intersection. It is recommended that signal timing be re-evaluated once committed developments in the area are built to improve this condition.

CGA 11/28/17 Response: Addressed. A traffic study evaluating field conditions of this intersection will be required post development which addressed this traffic condition. A condition of approval will be developed for the staff report.

23. Please ensure that the demand volumes in the Synchro analyses that accompanied the Trip Generation Analysis (5-29-19) are consistent with the final version of the full Traffic Study at the conclusion of the series of comments and report modifications that occurred in 2017 (i.e. the only differences are due to the revision in the trip generation and the change in site access). A July 2017 version of that study contains Synchro reports of analyses of the intersection of SW 184th Street at Old Cutler Road produced on July 20, 2017. The Trip Generation Analysis contains Synchro analyses of that intersection whose demand volumes are significantly lower (particularly movements along Old Cutler Road) than those in the July 2017 version of the Traffic Study, discrepancies that cannot be due to changes in trip generation and site access alone.

DPA 06/XX/19 Response:

CGA 06/XX/19 Response:

Date: June 4, 2019

Gavin Jones, PE, AICP

Traffic