

PRINCIPALS

Joseph J. DeSantis, P.E., PTOE

John S. DePalma

Casey A. Moore, P.E.

Gary R. McNaughton, P.E., PTOE

Christopher J. Williams, P.E.

ASSOCIATES

John J. Mitchell, P.E.

R. Trent Ebersole, P.E.

Matthew M. Kozsuch, P.E.

Maureen Chlebek, P.E., PTOE

Dean A. Carr, P.E.

Jason T. Adams, P.E., PTOE

Christopher K. Bauer, P.E., PTOE

FOUNDER

Joseph W. McMahon, P.E.

June 24, 2019

Mr. Jose L. Rodriguez, P.E.

City of Oakland Park

3650 NE 12th Avenue

Oakland Park, FL 33334

**RE: Oak Tree Traffic Analysis
McMahon Project No. L17218.01**

Dear Mr. Rodriguez:

McMahon Associates, Inc. (McMahon) is in receipt of the Review of Oak Tree Development Traffic Report markups provided by you on May 10, 2019. Please accept this letter as our written response. For your convenience we have prepared our responses in bold, underlined italics.

REVIEW**CHAPTER 1 INTRODUCTION (Page 1)****KCI Comments:***None***CHAPTER 2 EXISTING (2018) CONDITIONS ANALYSIS (Page 3)****Section 2.1 Roadway Characteristics (Page 3)****KCI Comments:**

1. The segment of NW 44th Street west of NW 29th Avenue should also be included in the description for NW 44th Street. This segment consists of a four-lane divided roadway.

Response: Acknowledged. Text was added to the report to detail this segment.

2. Report text (Page 4) says there are no exclusive bike lanes along NW 31st Avenue. However, field review and Google Earth view dated 12/16/2018 show exclusive bike lanes along NW 31st Avenue. Please correct text as necessary.

Response: Acknowledged. Text was revised.

3. Figure 2 Existing Lane Geometry (Page 5):

a. Eastbound approach of NW 44th Street at NW 31st Avenue is depicted as one exclusive right-turn lane, one thru lane and one shared right-thru lane. Actual configuration is one exclusive right-turn lane, one thru lane and one exclusive right-turn lane. Please correct figure and corresponding SYNCHRO 10 analyses.

Response: Acknowledged. At the intersection of NW 44th Street at NW 31st Avenue, the eastbound shared through plus right turn lane was modified to an exclusive right turn lane in both Figure 2 and in all Synchro analyses.

Section 2.2 Data Collection – Turning Movement Counts (Page 4)

KCI Comments:

1. The intersection of Commercial Boulevard and Prospect Road is included as one of the intersections where traffic movement counts were conducted. However, as per the approved methodology letter, this intersection was not included, and as such, does not need to be included in the text.

Response: Acknowledged. Reference was removed from the text.

2. The data sheets for Prospect Road and Oak Tree are missing in Appendix B.

Response: The data sheets for Prospect Road and Oak Tree are attached in Appendix B. They are immediately after the data for Prospect Road at NW 26th Terrace. To provide further clarification, the data is in the form of a table.

Section 2.3 Data Collection – Vehicular Queues (Page 6)

KCI Comments:

None

Section 2.4 Traffic Volumes (Page 7)

KCI Comments:

None

Section 2.4 Traffic Volumes (Page 7)

KCI Comments:

None

Section 2.5 Intersection Capacity Analysis (Page 7)

KCI Comments:

1. Please clarify what version (or versions) of the HCM modules of SYNCHRO 10 was applied at each intersection. Recommend using HCM 6th Edition unless specific conditions warrant use of other version. The differences in outputs may not be sufficiently significant to change LOS results but analysis should be consistent. Please revise as necessary.

The adopted LOS for the City (D) should be stated in the text.

Response: Synchro 10 reports were used for the signalized intersections and HCM 2010 was used for the unsignalized intersections. HCM 2010 and 6th edition do not consider U-turns at signalized intersections. Furthermore, the intersection of NW 44th Street and NW 31st Avenue has a phasing conflict between the overlap westbound right turn and southbound U-turns which prevents HCM 2010 & 6th edition analysis.

HCM analysis at the unsignalized intersections was updated to HCM 6th edition; all tables and text was updated as necessary. Synchro 10 reports were still applied for the signalized intersections for consistency. The adopted LOS was added to the text.

CHAPTER 3 EXISTING (2018) CONDITIONS ANALYSIS (Page 10)

Section 3.1 Background Growth Rate (Page 10)

KCI Comments:

None

Section 3.2 Committed Development Traffic (Page 10)

KCI Comments:

None

Section 3.3 Intersection Capacity Analysis (Page 10)

KCI Comments:

1. Please see comments for Section 2.5.

In addition, the signalized intersections should not be optimized for background conditions. The objective of the study is to compare conditions before and after the proposed project development. The exception would be any programmed intersection improvements not related to the proposed project. Please revise analyses to reflect operations based solely on background traffic without optimization or other improvements

Response: Please refer to response to comment for Section 2.5.

Per correspondence with John Kleinedler, P.E. with Broward County, signal timings may change as frequently as once per year. As such, it would be more accurate to compare optimized future scenarios to get a better "before and after" comparison. This correspondence is attached to this response letter.

CHAPTER 4 TOTAL (2024) CONDITIONS ANALYSIS (Page 13)

Section 4.1 Project Trip Distribution (Page 13)

KCI Comments:

None

Section 4.2 Project Driveway Access (Page 13)

KCI Comments:

None

Section 4.3 Project Trip Distribution (Page 13)

KCI Comments:

None

Section 4.4 Project Trip Distribution (Page 13)

KCI Comments:

None

Section 4.5 Intersection Capacity Analysis (Page 18)

KCI Comments:

1. Please see comments for Sections 2.5 and 3.3.

The signalized intersections should not be optimized. The objective of the study is to compare the background conditions and the conditions with the addition of the proposed project trips. Please revise analyses and LOS comparisons to reflect operations based solely on background traffic versus total traffic without optimization. Any mitigation, including lane additions and optimization, will be addressed in Chapter 5 Site Mitigation.

A summary comparative table showing the LOS both without and with the proposed project is strongly recommended.

Response: Please refer to response to comment for Section 2.5 and Section 3.3.

A comparative table showing the overall LOS and delay between background and total was included in the report as Table 5. Table for 'Trip Generation Analysis –Peak of the Generator' is now Table 6.

CHAPTER 5 SITE MITIGATION (Page 20)

Section 5.1 Recommended Modifications (Page 20)

KCI Comments:

The mitigation efforts seem reasonable as presented. However, the following should be addressed:

1. Although a reduced graphic of the proposed improvements to the intersection of Prospect Road and NW 21st Avenue is embedded in the site plan (Appendix A), it is recommended that the full graphic be provided within Chapter 5. This should also include drawings of the improvements to the segment of NW 21st Avenue between Prospect Road and NW 44th Street.

Response: Acknowledged. A full graphic of the proposed improvements is provided within Section 5.1 as Figure 8. Proposed Lane Geometry is now Figure 9.

2. It is our understanding that the Applicant has coordinated efforts with Broward County Traffic Engineering (BCTE) to provide the previously described mitigation. Please include documentation with respect to BCTE's review and/or approval of the proposed mitigations.

Response: See attached email from Broward County.

3. Conceptual layouts of the proposed improvements to the Prospect Road and NW 44th Street driveways should also be provided in more detail than shown in Appendix A.

Response: Acknowledged. This information will be included in the revised plans.

4. There is no mention in this section of the two programmed roadway improvements that will coincide with the proposed mitigation. The two projects which are included in the Broward County Transportation Improvement Program are:

a. The Complete Streets project (managed by FDOT) along NW 21st Avenue from Oakland Park Boulevard to Commercial Boulevard. This project includes widening of NW 21st Avenue to provide bike lanes on both sides of the road; and

b. Addition of bike lanes along both sides of Prospect Road between Commercial Boulevard and Dixie Highway (managed by FDOT).

How will these two projects be incorporated with the proposed mitigations?

Response: The recommended improvements consider the roadway improvements proposed in the projects listed above. The recommended modifications can be accommodated, in addition to these programmed roadway improvements. This information has been included in Section 5.1 of the revised report.

Section 5.2 Intersection Capacity Analysis (Page 20)

KCI Comments:

1. Please see comments for Sections 2.5

Response: Please refer to response to comment for Section 2.5 and Section 3.3.

CHAPTER 6 GATE QUEUING ANALYSIS (Page 22)

KCI Comments:

1. This section presents a reasonably detailed calculation of the expected queue operations at the two site access driveways with gate controls. Other than a minor discrepancy in the calculation of the queue at Driveway B (to be corrected) and other noted item below, the section is relatively complete.

Nonetheless, please provide gate driveway plans (at least conceptual) indicating driveway dimensions (for both Driveways A and B), especially the location of the gate arms relative to control box and end of queue.

Response: Acknowledged. These dimensions will be included in revised plans.

Section 6.1 Gate Queue Methodology (Page 23)

KCI Comments:

1. Queuing methodology is acceptable; however, please provide source materials and/or documentation of processing times for residents and visitors.

Response: Acknowledged. Email correspondence regarding processing times for visitors is attached in Appendix G. For residents, a conservative processing time of 15 seconds was assumed.

Section 6.2 Gate Queuing for Prospect Road at Driveway A (Page 24)

KCI Comments:

None

Section 6.3 Gate Queuing for NW 44th Street at Driveway B (Page 25)

KCI Comments:

1. Calculation of p_{resident} appears to be incorrect -- $(43 \text{ vehicles/hr.}) / (1 \times 240 \text{ process/hr.}) = .01792$. Please revise calculations accordingly.

Response: Out of the 228 total inbound trips, 180 will be entering through Driveway A. Therefore, the "43" number on page 25 was a typo that should instead be "48." This typo was corrected in the text.

CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS (Page 26)

KCI Comments:

Overall, the traffic report provides a detailed assessment of the impacts of the proposed Oak Tree Development on the local roadway network. The conclusions and recommendations are consistent with the analysis as presented.

However there are a few elements that have not been addressed in this report:

1. There is no mention of the Broward County Transit services within the immediate study area. Currently there is a stop for Route 11 on NW 21st Avenue just south of Prospect Road. Will this stop be enhanced as part of the proposed project? Here is a potential for a bus stop near the project's Prospect Road access. Has the Applicant approached BCT as part of the development process? Please provide documentation confirming BCT involvement and response.

2. The City is currently looking at options to apply traffic calming along NW 44th Street. This project also involves the dedication of at least 40 feet of frontage along its entire length along NW 44th Street. The Applicant may be required to provide a speed study for NW 44th Street.

The comments provided in this review are geared towards primarily towards clarification of several elements of the process and seeking supportive explanations and/or documentations. Final approval of the traffic report will be contingent on the completeness of the responses to our comments and other City requirements that may be requested of the Applicant.

Response: Transit stop enhancements are also proposed based on coordination with Broward County Transit. A bus stop landing pad is being proposed along the west side of Prospect Road just south of the proposed driveway connection. A bus stop landing pad is also proposed along the west side of NW 21st Avenue between Prospect Road and NW 44th Street. Traffic calming is also being considered along NW 44th Street generally between NW 21st Avenue and NW 31st Avenue. Concepts for traffic calming are in the process of being coordinated/discussed with City staff and Broward County. This information has been included in Section 5.1 of the revised report.

Should you have any questions regarding the responses, please do not hesitate to contact me at 561-840-8650 or email me at nlercari@mcmahonassociates.com

Sincerely,



Natalia T. Lercari, P.E.
Senior Project Manager

NTL/cc
Attachment

From: [Cynthia Pasch](#)
To: [Lercari, Natalia](#); andrew.maxey@pultegroup.com; [Patrick Gonzalez \(Patrick.Gonzalez@Pulte.com\)](mailto:Patrick.Gonzalez@Pulte.com); [Dennis Mele](#); ["Ken DeLaTorre"](#); [Jeffrey T. Schnars \(jeff@schnars.com\)](mailto:Jeffrey.T.Schnars@jeff@schnars.com)
Subject: Good news from the County
Date: Wednesday, December 19, 2018 10:36:54 AM
Attachments: [image002.jpg](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)
[image010.jpg](#)

See the email from Andrew Sebo below.



Greenspoon Marder LLP
Cynthia A. Pasch, AICP
Land Planner
200 East Broward Boulevard, Suite 1800
Fort Lauderdale, Florida 33301
Telephone: 954-527-6266
cynthia.pasch@gmlaw.com

From: Sebo, Andrew <ASEBO@broward.org>
Sent: Tuesday, December 18, 2018 9:04 PM
To: Blake Boy, Barbara <BBLAKEBOY@broward.org>
Cc: Caratozzolo, Carmelo <CCARATOZZOLO@broward.org>; Kleinedler, John <JKLEINEDLER@broward.org>; Von Stetina, Deanne <DVONSTETINA@broward.org>; Zhu, Charlie <CZHU@broward.org>; Teetsel, Dawn <DTEETSEL@broward.org>
Subject: RE: Oak Tree

Good Evening Barbara,
Please see our findings as follow - thanks:

The Broward County Traffic Engineering Division has reviewed the traffic assessment and agrees with the study's recommendations.

A synopsis of the geometric and signalization proposals (capacity improvements) from the traffic study are understood to be:

1. Prospect Road and NW 21 Ave: Construct a dual westbound left-turn lanes with at least 300 feet (more if possible) of storage.
 - Add corresponding signalization displays to accommodate this dual westbound-left.
2. Prospect Road and NW 21 Avenue: Install a corresponding protected-only eastbound-left turn

phase. Alternatively, if a sufficient sightline offset can be achieved with respect to new dual westbound left-turn lanes noted in Item 1 above, this may be omitted.

3. Prospect Road and NW 21 Avenue: Construct a 200-foot eastbound right-turn storage lane.
4. Prospect Road and NW 21 Ave: Add a protected-to-permissive northbound left-turn signal phase.
5. On NW 21 Avenue from Prospect Road to NW 44 Street: Create a continuous second through lane linking Prospect Road and NW 44 Street. This will become a southbound drop lane ending at NW 44 Street.

Based on the study and our internal verification of the traffic simulation presented, the above-noted proposed capacity improvements submitted by McMahon will adequately mitigate the impacts of the Oak Tree development.



Andrew G. Sebo, P.E., PTOE, Interim Director
Broward County Traffic Engineering Division
2300 West Commercial Boulevard, Fort Lauderdale, FL 33309
Office Tel. No.: 954.847.2600, Facsimile Transmittal No.: 954.847.2700
asebo@broward.org www.broward.org



From: Blake Boy, Barbara <BBLAKEBOY@broward.org>

Sent: Thursday, December 06, 2018 11:12 AM

To: 'Lercari, Natalia' <nlercari@mcmahonassociates.com>; Von Stetina, Deanne <DVONSTETINA@broward.org>

Cc: Sebo, Andrew <ASEBO@broward.org>; Caratozzolo, Carmelo <CCARATOZZOLO@broward.org>; Dennis Mele <dennis.mele@gmlaw.com>; Patrick Gonzalez <Patrick.Gonzalez@Pulte.com>; Bradley Kesselman <Bradley.Kesselman@Pulte.com>; 'Andrew Maxey' <Andrew.Maxey@PulteGroup.com>; Ken DeLaTorre <ken@designandentitlement.com>; 'jeff@schnars.com' <jeff@schnars.com>; Cynthia Pasch <cynthia.pasch@gmlaw.com>; Kleinedler, John <JKLEINEDLER@broward.org>

Subject: RE: Oak Tree

Thank you. Received and will be distributed as appropriate.

From: Lercari, Natalia <nlercari@mcmahonassociates.com>

Sent: Thursday, December 6, 2018 10:22 AM

To: Blake Boy, Barbara <BBLAKEBOY@broward.org>; Von Stetina, Deanne <DVONSTETINA@broward.org>

Cc: Sebo, Andrew <ASEBO@broward.org>; Caratozzolo, Carmelo <CCARATOZZOLO@broward.org>; Dennis Mele <dennis.mele@gmlaw.com>; Patrick Gonzalez <Patrick.Gonzalez@Pulte.com>; Bradley

Kesselman <Bradley.Kesselman@Pulte.com>; 'Andrew Maxey' <Andrew.Maxey@PulteGroup.com>; Ken DeLaTorre <ken@designandentitlement.com>; 'jeff@schnars.com' <jeff@schnars.com>; Cynthia Pasch <cynthia.pasch@gmlaw.com>; Kleinedler, John <JKLEINEDLER@broward.org>

Subject: Oak Tree

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Good Morning Barbara,

Last week we had a meeting at Broward County Traffic Division regarding proposed mitigation for the Oak Tree Development Land Use Plan Amendment.

Attached please find the traffic study we have prepared for the Oak Tree project. I am also attaching the Synchro files that were requested by the County.

Please feel free to call me with any questions.

Can you please confirm receipt of email.

Thanks,

Natalia Lercari, P.E., LEED Green Associate | Senior Project Manager

O: 561.840.8650 x 4105

2090 Palm Beach Lakes Blvd., Suite 400

West Palm Beach, FL 33409

nlercari@mcmahonassociates.com

www.mcmahonassociates.com



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From: [Kleinedler, John](#)
To: [Lercari, Natalia](#)
Subject: [CAUTION: SUSPECT SENDER] RE: Signal timings
Date: Wednesday, May 29, 2019 9:33:29 AM
Attachments: [image001.png](#)
[image008.png](#)
[image010.png](#)
[image012.png](#)
[image014.png](#)
[image016.png](#)

Natalia –

We routinely change signal timings sometimes as frequently as once a year; not just here but everywhere as a normal course of our operations.

This signal was last adjusted about two or three months ago along with the subsequent two signals to the south, I personally did them actually.

John Kleinedler, PE
Broward County Traffic Engineering
954.847.2753
jkleinedler@broward.org

From: Lercari, Natalia <nlercari@mcmahonassociates.com>
Sent: Wednesday, May 22, 2019 1:58 PM
To: Kleinedler, John <JKLEINEDLER@broward.org>
Subject: Signal timings

External Email: Do not reply, click links, or open attachments unless you recognize the sender's **email address** as legitimate and know the content is safe.

John,

I am working on the Oak Tree Project that we previously met about. This is the one located along Prospect Road, just north of NW 21st Avenue. We ran Synchro scenarios for existing, background (future without project) and total (future with project scenarios).

For background conditions, we optimized the signal timings. It is my understanding that the County would optimize timings as volumes change. Is this accurate? Reason I ask is because the reviewer is questioning whether or not existing signal timings should be used for future volume scenarios. I don't think they should but I wanted to confirm with you.

Thanks,

Natalia Lercari, P.E., LEED Green Associate | Senior Project Manager
O: 561.840.8650 x 4105

2090 Palm Beach Lakes Blvd., Suite 400
West Palm Beach, FL 33409
nlercari@mcmahonassociates.com
www.mcmahonassociates.com



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