

MEMORANDUM

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Date: September 4, 2023 Project #: 29311.002  
To: Diana Spriggs, P.E.  
Regulatory Division Director  
City of Port St. Lucie Public Works Dept.  
121 SW Port St. Lucie Blvd, Building B  
Port St. Lucie, FL 34984

CC: Mary Savage-Dunham, Colt Schwerdt, Bridget Kean, Heath Stocton  
From: Kok Wan Mah, P.E.  
Project: Oak Ridge Ranch FLU TIA  
Subject: Traffic Impact Study 2<sup>nd</sup> Sufficiency Review (TIA dated August 30, 2023)

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A revised Traffic Impact Analysis was conducted to support the Future Land Use Amendment for the proposed Oak Ridge Ranch project. The site is approximately 3,229.24 acres located north of Glades Cut-Off Road, south and adjacent to the C-24 canal, and west side of Range Line Road in St. Lucie County. Parcel IDs for the property include the following:

- 3223-111-0002-000-9
- 3236-311-0021-000-2
- 3223-431-0001-000-5
- 4201-111-0015-000-8
- 3226-111-0001-000-1
- 4202-111-0001-000-0
- 3225-111-0001-000-8
- 4202-212-0003-000-4
- 3235-212-0001-000-9
- 4202-331-0001-000-6
- 3235-111-0001-000-9
- 4203-441-0001-000-7
- 3236-311-0021-010-5
- 3236-411-0001-000-3
- 3236-111-0001-000-2
- 3236-444-0030-000-7

The petition requests to change the Future Land Use designation from AG-5 (Agricultural-5) to MXD (Mixed Use Development). The project will be located in the "Oak Ridge Ranches" MXD District. A revised development program by use is provided in the TIA and shown below producing a net trip generation of 67,861 daily, 4,431 AM peak-hour, and 6,515 PM peak-hour trip ends. This is an increase from the original trip generation from the August 2, 2023 study that included 62,661 daily, 4,325 AM peak-hour, and 6,015 PM peak-hour trip ends:

- 5,300 single-family dwelling units
- 1,900 multi-family dwelling units
- 1,400 senior adult housing
- 600,000 sf of commercial
- 3,200 student K-8 school(s)

Conversely, the prior submittal included the following development program with a total of 58,031 daily, 4,231 AM peak-hour, and 5,935 PM peak-hour trip ends:

- 600,000 sf retail
- 9,688 residential dwelling units (3 du per gross acre)

- 650,000 sf of commercial
- Minimum of 35% open space

Buildout for the property is proposed for 2045. Parcels adjacent to the site have Future Land Use designations of Agriculture and Industrial.

Kittelsohn & Associates, Inc. (KAI) has provided a sufficiency review of the revised Traffic Analysis prepared by MacKenzie Engineering & Planning that is dated August 30, 2023. Our review comments are provided below providing a comparison of the two traffic studies dated August 2, 2023 and August 30, 2023.

1. Overall, internal capture of their development has been reduced, resulting in a higher net external trip generation:
  - a. 67,817 (new) vs 60,748 (previous) daily trips,
  - b. 4422 vs 4153 AM peak-hour trips,
  - c. 6506 vs 5843 PM peak-hour trips
2. The prop share calculation and their contribution both increase by approximately \$10M, however, as before, the prop share does not include the Oak Ridge Ranch spine road, which it should since they are depending on it to offset the impacts to the segments of Glades and Range Line that are adjacent to their site. This would increase their prop share by \$39M.
3. The Applicant is proposing to construct a new 2-lane road (East-West Collector Road) from western project boundary to Oak Ridge Ranch Road. Previously, they were donating 80-foot right-of-way only.
4. Timing of the 4-lane widening of Range Line Road from Crosstown Parkway to Glades Cut-Off Road has been pushed from 1,669 trips to 2,169 PM peak-hour net external trips. The improvement year is 2031.
5. Timing to construct 2- and 4-lane Crosstown Parkway from Rangeline Road to N/S A has been pushed from 835 and 3,617 trips to 929 and 4,028 trips, respectively.
6. Timing to 4-lane widening of Crosstown Parkway from N/S A to Village Parkway has been pushed from 3,895 trips to 4,028 trips, respectively.
7. Advisory to City staff: The triggers for the improvements in Comments #4 through #6 assume the use of the capacities in the 2023 FDOT LOS Handbook, which reflects significant increases in capacities for some roads based on context classifications. If the City has not adopted the use of these capacities, then it may be more appropriate for the Applicant to use the previous 2020 version.
8. A multi-use path will be located within the Right-of-way of each roadway that borders the property to provide non-automobile mobility.
9. The modeling procedure was the same between the two versions, but the 2045 background volumes have changed. Not sure why. In some cases, they have gone down, in others, they have gone up.
10. The needed improvements for future background no longer list Glades Cut-Off from E-W 6/Reserve to Wylder. The v/c has dropped from 1.02 to 0.74, which is quite a drop. In fact, the

background volumes on Glades between Rangeline and Midway all drop. Rangeline has also dropped from the project to Becker. The segment just south of Glades dropped from 0.85 v/c to 0.56 v/c. No explanation of the reduction in background traffic is provided.

11. The future conditions Synchro analysis for the intersection of Glades Cut-Off Road at Range Line Road for improved conditions shows an overall LOS of D with a delay of 45.3 seconds. However, the phasing is not viable and includes many conflicts. Adjusting the signal to a viable NEMA phasing results in an overall LOS of F with an intersection delay of 101.9 sec/veh for the PM pk-hr condition. Moreover, four lane groups show v/c greater than 1.0 and some movements have excessive 95<sup>th</sup> percentile queues (northbound left with 1,265 vehicles in the peak-hour shows a 95<sup>th</sup> percentile queue of 1,168 feet).
12. Consideration should be given by the County on the long-term viability of the proposed geometrics at the intersections of Oak Ridge Ranch Road (spine road) at Glades Cut-Off Road and Range Line Road, respectively. For the intersection of Glades Cut-Off Road at ORR Road, the AM peak-hour volumes show 1,281 southbound left turns at buildout with minimal eastbound and westbound through volumes. As development continues to the west, this intersection will quickly degrade. Similarly, the intersection of Range Line Road at ORR Road shows 1,189 northbound left turns for the buildout condition with no background traffic. This would preclude any extension or development to the north without a major reconstruction of this intersection to accommodate such a heavy northbound left volume.
13. The intersection of Range Line Road at Cross Town Parkway shows very heavy turning movement volumes for buildout conditions. Deficiencies are limited due to low background volumes. Lane groups of concern include:
  - a. 1,245 southbound left turns (AM),
  - b. 1,466 westbound right turns (PM)

With the revised traffic study, the Applicant has addressed many of the original comments. There are still comments which need to be addressed as well as two new comments. A plan to mitigate impacts has been included, which includes a prop share payment and timing. The main concerns with this most recent submittal centers around three areas:

- Does the future analysis accurately reflect the background trips from approved developments? The revised traffic analysis does not provide detail on the model validation used for the background developments such as Wilson Groves, Riverland, Verano, Western Grove, and Southern Grove. It should be pointed out that the traffic study conducted for Southern Grove in July 2020 shows higher volumes on multiple segments for buildout conditions (Table 34) compared to the one in the revised traffic study for Oak Ridge Ranches. Although this is plausible, with the approval of other projects after Southern Grove, **more information is needed to understand the model validation that was done and accept the volumes presented for future background conditions in the revised Oak Ridge Ranch traffic study.**
- The project impacts and prop share mitigation are identified in the study. However, the Applicant has provided an alternative list of improvements which include some from the impacted list and other alternatives (Table 15). Therefore, it should be noted that **some of the**

**impacted roads and subsequent deficiencies are not addressed.** These include but not limited to the following roadway improvements needed to address the deficiencies identified in the traffic study:

- Rangeline Road from Tradition Parkway to Crosstown Parkway (2L to 4L)
  - Rangeline Road from Crosstown Parkway to Glades Cut-Off Road (4L to 6L; Table 15 only includes 2L to 4L)
  - Rangeline Road from Glades Cut-Off Road to Site Entrance (2L to 4L; Table 15 only includes 2L construction)
  - Glades Cut-Off Road from Rangeline Road to Reserve Boulevard (2L to 4L)
- Due to the needed information related to comment 3, comment 9, and the first bullet above, the City of Port St. Lucie roadways where a significance check was not performed to ensure that all roadways where the project represent 5% or more of the adopted capacity were included, and roadways where the future background volumes on City roads do not adequately model vested trips from approved developments.
  - The Applicant team has provided a timing for improvements, given by both a trip threshold and an estimated year. **It is recommended that the local governments include a bond agreement for these improvements or a payment/construction schedule based on the trip thresholds with a date-certain time for the improvement to be in place.** These thresholds of development and year may also change dependent on the outcome of the first bullet above. With all of the development planned in this area, travel patterns may change in the future, so consideration should be given to the Applicant to provide an updated traffic study, similar to the Monitoring and Modeling studies that were conducted for DRIs. It is also likely that as new developments in this area get approved, the responsibility for mitigating the deficiencies may shift earlier than the years outlined in the traffic study and as a result, will be the responsibility of the new development, removing the mitigation need from Oak Ridge Ranches.
  - It will be important that if this significant regional development is approved on 9/19/23, adequate checks are put into place to monitor the roadway segment capacities and intersection deficiencies resulting from this development and that there are mechanisms in place for the City and County to require mitigation.

We appreciate the opportunity to provide these sufficiency comments to the City of Port St. Lucie. It will be important for the City and County to understand the long-term impacts to this area based on the findings and recommendations of the revised traffic study. The Applicant addressed the original comments and has included significant changes in the revised study, which is appreciated. However, some of the original comments were not addressed sufficiently. If you have any questions or concerns, please contact me at [kmah@kittelton.com](mailto:kmah@kittelton.com) or 407.373.1127. I am happy to discuss my comments further as necessary.

