

Memorandum

To: City of Walker Planning Commission
Frank Wash, Planning Director

From: Peter C. LaMourie, P.E., PTOE

Date: September 18, 2006

Re: Proposed Orchard Park Development
Traffic Impact Study Review

File No: 51270201/002

Copy: Grand Valley Metro Council – Chris Dingman
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MDOT (GR TSC) – Keith Skilton
City of Walker – Scott Connors



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Progressive has completed the review of the traffic impact study (dated September 2006) that was submitted for the proposed mixed use planned unit development to be located north of I-96 between Walker Road and Bristol Road. Our comments and concerns regarding the impact study are outlined in the following sections.

Introduction

The proposed 240-acre mixed use development site is bounded by I-96 on the south, Walker Avenue on the west, Four Mile Road on the north, and Bristol Avenue on the east. In addition to the three latter surface streets, access to/from the site will be provided by an extension of Northridge Drive to Bristol Avenue and an extension of Baumhoff Avenue south to the Northridge Drive extension. The only roadways or locations that are not under City of Walker jurisdiction are Four Mile Road (KCRC) and the I-96/Walker Road interchange (MDOT).

As required for all developments of this size, a traffic impact study was required. The focus of this type of study is primarily to define expected roadway conditions before and after the project is developed and occupied. More importantly, the study results identify what type and level of roadway improvements are needed to allow the road system to accommodate the expected heavier future traffic volumes. It should be noted that several discussions were held with the applicants and their traffic consultant over the last several months to help define the specific study parameters that were required for this analysis and report.

The following sections summarize the findings outlined in the report, our comments and concerns regarding the study findings, and any related recommendations regarding additional/revised analyses.

Study Report Findings

Based upon pre-study and subsequent discussions, the traffic impact study was completed that analyzed the overall impact study area. That study area encompasses eleven intersections in addition to numerous proposed site access points. Peak-hour analyses were required for three timeframes; morning peak hour, afternoon peak hour, and Saturday peak hour. The findings discussed in the impact study report include those outlined below.

- The study area intersections are currently operating acceptably during the three peak hours with the exception of one or more movements at the Walker/4 Mile, Walker/I-96 eastbound off-ramp, Walker/3 Mile, and 4 Mile/Alpine (M-37)

intersections (note – new I-96/Walker interchange improvements assumed in place).

- Future “no build” analyses (year 2011 without the development) resulted in roughly the same results as existing conditions with slightly more congestion at the locations mentioned above.
- Suggested roadway improvements needed prior to the development include adding a signal and left-turn lanes at Walker/4 Mile, left turn lanes at 4 Mile/Bristol, and installation of a signal at the new I-96 eastbound off-ramp/Walker intersection.
- The proposed Orchard Park uses would be expected to generate approximately 2,370 new trips onto the adjacent roadway system during the morning peak hour, 4,750 new trips during the afternoon peak hour, and 6,250 new trips during the Saturday peak hour.
- The expected distribution of the site-generated trips varies depending upon the type (i.e., commercial versus residential) but in either case the largest distribution will be to/from I-96 at Walker Road (70 – 80 percent). This is mostly due to the regional nature of the higher generating commercial uses.
- In addition to the construction of the Northridge Drive and Baumhoff Avenue extensions, numerous other roadway improvements will be needed to accommodate project traffic at most of the study area intersections.
- The movements at the proposed access points onto the future public street system will function within acceptable levels except for left-turn delays/ congestion at several locations.
- The extension of Northridge Drive further east to 4 Mile/Cordes is not expected to result in significant operational changes on study area intersections, with the clear exceptions of the 4 Mile/Cordes and Northridge/Bristol intersections, and the 4 Mile/Bristol intersection (signalization may no longer be warranted).

In addition to the summary report, software simulations of the key intersections were provided and reviewed. Those simulations appear to support the findings discussed in the report.

Impact Study Review Comments/Recommendations

Based upon our review, it appears that the techniques and analyses used by the applicant’s consultant follow standard impact study guidelines and the criteria set during pre-study discussions. However, there are several clarifications or revisions that need to be addressed and subsequently reviewed prior to any full acceptance of the impact study findings. Those are noted below, along with responses from the applicant’s consultant on the more pressing issues (noted in italics).

Existing and Future No Build Analyses Comments

1. Walker/4 Mile – The findings that there are, and will be, poor levels of service at a few peak hour movements with 4-way stop sign control are acceptable. However, that and just meeting Warrant 3 (peak-hour) is not likely going to justify installation of a signal (and the required slight NB/SB re-alignment) to either the city or KCRC. Additional analyses may be required on this issue to confirm that such improvements will be strictly pre-project warranted.

2. Walker/EB I-96 off-ramp – Recent discussions with MDOT staff indicate that the city should not assume that MDOT will install a signal at this location, given the relatively low ramp approach low volumes (most of which are currently right turns). The applicant may need to be prepared to include that in the Future Build improvements. Further input from MDOT will help clarify this issue.
3. Walker/3 Mile – The existing and Future No Build scenarios use incorrect signal phasing that results in an apparent need for a second eastbound left turn lane prior to project development. That analysis will need to be revised to reflect actual conditions.

Metro has made corrections to the signal timing parameters in the original analysis. The left-turn phases were changed to lagging and some minor issues with red times and recall modes were corrected and the intersection was re-analyzed. After these changes, it was determined that the eastbound left-turn lane is not necessary in the future no build scenario. However, this improvement will now be necessary to mitigate the project impact. With the additional eastbound left-turn lane implemented in the future build scenario, it is anticipated that the intersection will operate at acceptable levels of service and delay for all peak hours.

4. 4 Mile/Bristol – The Future No Build analyses calls for a 4-way stop and EB/WB left turn lanes, but the LoS does not seem to indicate those are needed under background conditions. Also, a 4-way stop will not work well with an offset intersection. Why these are needed prior to the development of the project needs to be clarified.

The implementation of EB and WB left-turn lanes on 4 Mile Road has been removed in the Future No Build scenario and added to the Future Build scenario as a project improvement. Alignment of this intersection requires right-of-way not under the developer's direct control. However, we recognize that there are project impacts at this intersection and will work with Road Commission towards a solution. Additionally, the impacts at this location may change with the extension of Northridge to the east from Bristol to Cordes.

Future Build Analyses Comments:

1. Site traffic assignment to/from the east on 4 Mile is too oriented to using Bristol and not continuing on 4 Mile (e.g., inbound PM site traffic – 260 turn left onto Bristol, only 33 continue on 4 Mile, even though the latter would be more direct to large Zone 1 uses). The distribution should be corrected. (Note – may become less of an issue if Northridge extension is completed/assumed.)
2. There appears to be a volume discrepancy at the PM southbound Walker Road through movement at the I-96 westbound ramps – 1,590 is shown on Figure 8 (and used in LoS), but No Build (502) plus Site Traffic (1272) SB volumes would indicate 1,774 is the correct number to use. This will need to be clarified or revised.

Metro has corrected the southbound through volumes to show 1,774 vehicles. This value was changed in the analysis and the results of the analysis indicate that the additional traffic has a negligible impact on the intersection. All approaches at the intersection are still anticipated to operate at acceptable levels of service and delay.

3. Figure 9 shows the left turn lanes on 4 Mile at Baumhoff and the site driveways as No Build improvements – will need to be revised. Also, any driveways coming

out of the site onto 4 Mile should assume two outbound lanes (graphically and LoS), especially at Baumhoff.

Left-turn lanes are proposed as a project improvement along 4 Mile Road at the project driveways and at the intersections of 4 Mile/Baumhoff and 4 Mile/Bristol. These changes will be reflected in future revisions to the report.

4. Walker/Northridge – Since Alternative 1 does not appear to be a valid option, clarification and further data on Alternative 2 (3 signals/intersections) is needed. Simple graphic of layout and volume splits at each “intersection” would help clarify exactly what is being proposed.

A sample aerial photograph of a similar configuration at the intersection of Brown Road and Joslyn Road in Orion Township, Michigan, was submitted. A graphic depicting lane configurations and volumes will be included in future revisions to the report.

5. Walker/WB ramps – The recommendation to make westbound-to-northbound right turns off the ramp into a channelized free-flow lane may be a good solution, but will need to address weaving concerns on Walker north of that point (e.g., drivers coming from further south on northbound Walker trying to right turn into the Dreamscape development, or WB off-ramp traffic weaving over to turn left into Northridge west (latter not an issue with roundabout alternative at Northridge). MDOT will be asked for input on this issue too.
6. Walker/3 Mile – This intersection may need more substantial improvement since dual eastbound lefts are not apparently needed under No Build conditions. (Note this issue has now been addressed in Comment No. 3 in the No Build section above.)
7. 4 Mile/Bristol – It’s highly unlikely that the city or KCRC is going to allow a signal at any offset intersection, split phasing or not. Signalization of the intersection will need to assume alignment of the northbound and southbound legs.

As noted earlier, alignment of this intersection requires right-of-way not under the developer’s direct control. However, we recognize that there are project impacts at this intersection and will work with Road Commission towards a solution. Additionally, the impacts at this location may change with the extension of Northridge to the east from Bristol to Cordes.

8. 4 Mile/Alpine – It’s clear that this intersection has existing and background problems, but this project will certainly contribute to projected worsening conditions. Additional comments from the KCRC and MDOT will help confirm this development’s impacts and mitigation needs for this location.
9. Walker/Drive 7 (just north of Northridge) – The projected outbound left-turn level of service at F is a concern given its 150-180 vehicle volume (wouldn’t be at lesser volume). This expected low level of service will need to be addressed further.
10. Northridge/Bristol – Clarification is needed as to why southbound rights and eastbound lefts in Figure 8A are significantly higher than expected, based upon volumes shown in Figure’s 6A and 7. Is there assumed non-project traffic? (Note – will likely not change recommendations in any case.)

With the linking of Northridge Drive from Walker Avenue to Bristol Avenue, it is anticipated that greater capacity and less delay along the Northridge Drive corridor may pull traffic from 4 Mile Road headed to and from Walker

Avenue via Bristol Avenue. Therefore, some traffic on 4 Mile Road was distributed to Northridge Drive in the future build scenario. Future revisions to the report will contain a graphic and a description of the exact percentages of traffic that was assumed to use Northridge Drive as an alternative route to 4 Mile Road.

11. The proposed roundabouts within the site's Northridge Drive system all appear to function well within acceptable standards during peak hours. Given the recent history of crash reductions and capacity improvement characteristics, this type of intersection design is valid. However, the applicant will likely need to be prepared to discuss this relatively new design option further with staff and others.

Summary

The analyses and report submitted to date go a long way towards answering the major questions regarding the roadway system's ability to accommodate project traffic. There are a significant number of improvements that will be needed to do so, but the data indicate that the proposed mitigation measures, with some further refinement, will allow the system to function acceptable during peak hours. Of special interest is further refinement of potential improvements on Walker Road from Northridge Drive to the interchange.

We recommend that all of the above comments and concerns be addressed completely prior to any overall site plan approval process. Please let us know if you have any questions or comments on the above review.