



INNOVATIVE IDEAS  
EXCEPTIONAL DESIGN  
UNMATCHED CLIENT SERVICE

## OFFICE MEMORANDUM

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**DATE:** August 13, 2014

**TO:** Steven Roach, P.E. and Todd Sneathen, P.E.  
City of East Lansing

**FROM:** Daniel Helou and Wes Butch

**SUBJECT:** Traffic Impact Study Review for the Proposed Park District Development

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### INTRODUCTION

At the request of the City of East Lansing (City), DLZ reviewed the *Traffic Impact Study (TIS) for the Proposed Park District Development for the DTN Management Company*, dated July 2014. This TIS was prepared by Traffic Engineering Associates, Inc. (TEA or “the consultant”) for a proposed multi-use development called the Park District Development (project). The project is proposed to be constructed by two developers, Park District Investment Group, LLC (PDIG) and DTN Management Company (DTN), with each developer constructing a portion of the single site plan. PDIG is slated to develop two buildings for the first phase of the project, and DTN would then construct the remaining three buildings in the site plan during a subsequent stage.

The City provided DLZ with two separate TIS reports. The first TIS included only the portion of the site plan being developed by PDIG (two buildings). The TIS for the DTN development included analysis of the traffic generated by both the PDIG and the DTN developments (i.e., the entire site plan). The City requested that DLZ would review the TIS for DTN which includes the total anticipated traffic from all proposed new development at the site.

Reviewing only the DTN TIS presents challenges since this TIS builds upon some of the information in the PDIG TIS (i.e., the DTN TIS is not an independent “stand alone” document, but rather the two studies are linked or tiered to each other). For this reason, portions of the PDIG TIS need to be considered in order to accurately assess the traffic impacts of the total project build out, which is presented in the DTN TIS. The two main areas where this is a complicating factor are: (a) the “background” scenario in the DTN TIS assumes that the PDIG development is already constructed with the PDIG traffic present on the road network; and (b) the recommended mitigation measures for the PDIG TIS are assumed to be already implemented as part of the “background” scenario evaluated in the DTN TIS. In an ideal situation, the developers would have contracted the consultant to prepare one independent stand alone TIS report for the entire development, rather than the fragmented approach that has been used here.

Considering the information noted in the preceding paragraph, there are two very important ideas that should be kept in mind as this memo is reviewed:

1. Although we have recommended the City consider asking the developers to provide an updated/revised TIS, it is our belief that if the City moves the project ahead without such information, the associated risks are likely low.
2. Based on our review of both TIS reports, the findings and conclusions presented in the DTN TIS are unlikely to substantially change if a revised TIS were prepared. Because we performed some independent evaluations that would not be typically undertaken for a TIS review, we are reasonably confident that the conclusions/results presented in the DTN TIS accurately reflect the impacts of both projects.

## PROPOSED SITE PLAN

The PDIG development consists of two buildings, referred to as Buildings A and B. Building A will be constructed at the northwest corner of Grand River Avenue (M-43) and Abbot Road, and will be bordered on the north by Albert Avenue and on the west by People's Church. Building B will be located at the northeast corner of the realigned Albert Avenue and Valley Court.

Building A will consist of a ten-story building with approximately 24,359 square feet of retail, an 8,500 square foot restaurant on the first floor, a 120 room hotel on two floors, 102 apartments units, and two levels of underground parking with 283 parking spaces. Building B will be a four story building and will consist of an approximately 11,020 square feet of retail and 42 apartments. The proposed development is expected to be completed in the fall of 2016.

The two level parking garage in Building A will be valet parking only and will have approximately 283 parking spaces. The underground parking garage will have a single access driveway with direct access onto Albert Avenue, just west of Abbot Road. Building B will not have onsite parking available; however, on-street parking is available adjacent to the site.

The DTN development consists of three buildings, referred to as Buildings C, D, and E. Building C will be located at the northwest corner of Abbot Road and Albert Avenue. Building D will be located west of and adjacent to the existing alley west of Abbot Road, just north of Albert Avenue. Building E will be located on Abbot Road north of Albert Avenue across from the City of East Lansing parking lot.

Building C will consist of an eight story building with approximately 2,130 square feet of retail, a 6,770 square foot restaurant and 84 apartments units. Building D will consist of an eight story building with a four level, 437 space parking deck structure. Access to the parking deck will be via two access points, one on Albert Avenue and one on Abbot. Building D will also contain a 5,430 square foot retail space with 137 apartment units. Building E will contain 25 apartment units with an additional approximately 20 parking spaces. Access to the parking spaces will be via Abbot Road. The proposed development is expected to be completed in the summer of 2017.

It is noted by the consultant that at the time the TIS was completed the most up-to-date site plan was used

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and that the Park District site plan could have minor changes and small additions or omissions in the proposed uses of the development.

## **TIS “SIGNIFICANT FINDINGS”**

For reference, this section presents a summary of the “Significant Findings” section from the DTN TIS.

The consultant indicates the existing geometrics and traffic control devices for the majority of the roadway system are sufficient to handle the background traffic plus the total additional project traffic. The consultant identified needed improvements to traffic controls at specific locations in order to handle the additional project traffic and reduce vehicle delay.

The consultant states the traffic signal at the intersection of Grand River Avenue (M-43) and Michigan Avenue is expected to see lengthy delays, during the future PM Peak Hour, for eastbound traffic along Michigan Avenue with the current signal timing. The consultant recommends adjusting the green time at this signal which will significantly reduce the expected delays. When all developments are complete, a corridor analysis should be conducted to determine if new coordination and timings for this corridor are necessary.

The final site plan is proposing to change the lane configuration on Abbot Road between Albert Avenue and Grand River Avenue (M-43). The southbound approach on Abbot Road at Grand River Avenue (M-43) should be designed as a three lane approach with one left turn lane, one thru-right turn lane, and one right turn lane. This design will require adjusting the north approach at the intersection of Albert Avenue and Abbot Road, as the current configuration will not align the southbound thru lane with the receiving lane south of Albert Avenue.

The consultant states the existing traffic signal at the intersection of Albert Avenue and Abbot Road should be redesigned from the current timing and phasing to a permissive/protected left turn phasing for both peak periods to provide for the new eastbound left turn lane and additional traffic, which will improve the overall level of service and decrease the vehicle delay at this intersection.

The consultant found that under future conditions, with the final site plan fully constructed the northbound left turning traffic into the Building A valet parking driveway on Abbot Road is expected to create significant vehicle queues backing up into the Grand River Avenue (M-43) and Abbot Road intersection. Therefore, the consultant recommends that the northbound left turn movement into the valet driveway should be eliminated. The simulation analysis shows that due to the change in traffic volume, allowing the northbound left turn will create gridlock on northbound Abbot Road. Under the Future Mitigated analysis, this northbound left turning traffic was redirected to Delta Court and MAC Avenue.

The consultant recommends to construct the proposed driveways with two lanes, which includes one inbound and one outbound lane in accordance with the City of East Lansing and Michigan Department of Transportation (MDOT) standards and guidelines.

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## DLZ REVIEW COMMENTS

The analysis performed by the consultant in general appears to follow accepted traffic engineering principles, and we find it to be of high quality overall. DLZ reviewed the DTN TIS report and supplemental information and made the following findings which are provided for consideration by the City. Significant findings/comments which may require further investigation or action by the consultant are shaded in gray. Our review comments are ordered similar to the progression of the TIS.

The TIS was checked for conformity with the City of East Lansing's Ordinance Number 1162, 4-17-2007 Section 50-105. This ordinance section leaves considerable discretion to the City as to what analysis/information may be required in any particular TIS, based on a pre-application conference with the City Engineer. In this context, some items we have noted below as not consistent with the City's ordinance may in fact be acceptable to the City with no further analysis needed.

### Traffic Counts

1. The traffic counts were performed during typical weekday peak hours of adjacent street traffic following standard practices.
2. The appendices indicate that counts were taken on a Tuesday, Wednesday, and Thursday which are acceptable days to gather traffic counts. The consultant should consider adding a statement to this effect into the body of the report.
3. The consultant's selection of intersections to include in the study is appropriate based on the location of the site and the configuration of the surrounding roadways.

### Capacity Analysis

1. DLZ confirms that the consultant followed accepted practices in setting up the SYNCHRO network and performing the capacity analyses, and we are in agreement with the delay/LOS results presented for all scenarios, unless noted otherwise in the following sections.
2. It appears that signal timing permits were provided for the following signalized intersections:
  - a. Albert Avenue at Abbot Road
  - b. Albert Avenue at MAC Avenue
  - c. Grand River Ave (M-43) at Abbot Road
  - d. Grand River Ave (M-43) at Hillcrest Avenue
  - e. Grand River Ave (M-43) at MAC Avenue
  - f. Grand River Ave (M-43) at Michigan Avenue

We confirm that the consultant properly input the signal timings into SYNCHRO for use in the capacity analyses.

3. MDOT recommends a range for Peak Hour Factors (PHFs) of minimum 0.60 to maximum 0.95. The consultant calculated existing PHFs to within this range. Also, the consultant inputted the PHFs by approach as recommended by MDOT.
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### Existing Conditions

1. Volume balancing was conducted for the existing turning movement counts. DLZ agrees with this balancing as the balanced traffic volumes are within 3-5% between nodes.
2. DLZ agrees with the results and conclusions of the existing conditions capacity analysis.
3. According to Section 50-105 (7) of the TIS Ordinance – “Traffic crash data and analysis covering the most recent three (3) years for the study area or proximity to site access points” is listed as an item that may need to be included in a TIS (if determined applicable by the City Engineer or his/her designee). This information was not included in the TIS. If not already done, it is recommended that the City would confer with the consultant and discuss whether this analysis is to be added.

### Background Conditions

1. The consultant utilized a 0.5% annual traffic growth rate based on census estimates of the population of the City of East Lansing and population growth rate estimates from Tri-County Regional Planning Commission. This growth rate appears to be reasonably conservative and acceptable given recent economic conditions.
2. The DTN TIS report states that there are two other developments planned in the study area that were included in the background traffic projections: the proposed Gateway Development and the PDIG development phase of the subject project (i.e., Buildings A and B). The consultant properly incorporated the generated site traffic, traffic distribution models, and recommended mitigation measures of these planned developments into the background traffic analysis.
3. The background traffic scenario for the DTN TIS assumes that the PDIG development is already constructed, with the PDIG traffic present on the road network, and also that mitigation measures are implemented to address the PDIG traffic. This situation makes it very difficult to evaluate the background conditions scenario in the DTN TIS as a “baseline” against which the impacts of the entire proposed development can be compared. In an ideal situation, the developers would have contracted the consultant to prepare one independent stand alone TIS report for the entire development, rather than the segmented approach that has been used here. We recommend that the City consider whether requesting a revised TIS would be appropriate under the circumstances (the revised TIS would have a background conditions scenario that does not include the PDIG development buildings or any associated mitigation, and the future mitigation scenario would include all mitigation needed to address the entire development).

### Future Conditions

1. The TIS report followed standard practice in developing trip generation and trip distribution estimates for the proposed project, and the results are acceptable.
  2. As noted above, the DTN TIS assumed the traffic generated by the PDIG development and related mitigation measures are reflected in the background conditions scenario. DLZ recommends that the City consider whether a revised TIS would be appropriate under the circumstances (the revised TIS would have all new traffic from the entire development generated and evaluated as part of the future conditions scenario, and all mitigation would be included in the future mitigation scenario).
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3. The consultant correctly implemented internal trip reductions, assuming the report accurately summarizes the results of coordination with the City of East Lansing Planning Department.
  4. The TIS does not specify how the CATA Route 1 bus system might affect the number of new trips to and from the project site. DLZ recommends the consultants consider a modal split analysis to determine the trip reduction generated by the existing CATA Route 1 bus system.
  5. According to Section 50-105 (15) of the TIS Ordinance – “Description of site circulation and available sight distances at site driveways” is listed as an item that may need to be included in a TIS (if determined applicable by the city engineer or his/her designee). This information was not included in the TIS. If not already done, it is recommended that the City would confer with the consultant and discuss whether this analysis is to be added.
  6. The capacity analysis performed by the consultant for the Future Build scenario (with PDIG TIS mitigation already implemented) showed that all movements in the study area will continue to operate at an acceptable level of service (LOS D or better), with the exception of the following:
    - a. Northbound thru movement at the intersection of Grand River Avenue (M-43) and Michigan Avenue – (PM-F/127.9s).
    - b. Southbound thru movement at the intersection of Grand River Avenue (M-43) and Michigan Avenue – (PM-F/110.7s).
    - c. Eastbound left turn movement at the intersection of Grand River Avenue (M-43) and Abbot Road – (PM-F/81.0s).
    - d. Westbound thru-right movement at the intersection of Grand River Avenue (M-43) and Abbot Road – (PM-E/64.4s).
    - e. Southbound left-thru movement at the intersection of Abbot Road and Grand River Avenue (M-43) – (AM-F/114.4s, PM-E/70.5s).
    - f. Westbound left turn movement at the intersection of Albert Avenue and Abbot Road – (AM-E/68.5s, PM-F/98.3s).
    - g. Northbound thru movement at the intersection of Albert Avenue and Abbot Road – (reported as PM-E/91.1s). Note: on page 34 of the TIS report, this delay and LOS are reported (E/91.1s). We believe that the delay is correct, but that the LOS should be LOS F. We further note that table 4 on page 36 appears to reflect the correct LOS. The TIS should be revised to address this discrepancy.
  7. The consultant recommends updating the signal timing at the intersection of Grand River Avenue (M-43) and Michigan Avenue during the PM peak hour. Because this signal is part of the coordinated system, the consultant recommends adjusting existing green times while maintaining the existing cycle length. Any changes to this timing will need to consider how the proposed signal operations could affect the operations of the entire corridor. This situation will likely require coordination with MDOT.
  8. The consultant recommends changing the three lane southbound configuration on Abbot Road at Grand River Avenue (M-43) from the existing left-thru lane and dual right turn lanes to a left turn lane, a thru-right turn lane, and a right turn lane. This design will require adjusting the north approach alignment/geometrics at the intersection of Albert Avenue and Abbot Road because the current configuration will not align the southbound thru lane with the receiving lane south of Albert Avenue. DLZ agrees with this assessment.
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9. The consultant recommends updating the signal timing at the intersection of Albert Avenue and Abbot Road to a permissive/protected left turn phasing for both peak periods to provide for the new eastbound left turn lane. DLZ agrees with this recommendation.
10. The consultant advises prohibiting the northbound left turn movement on Abbot Road into the valet driveway at Building A. With the additional traffic from the DTN development, the northbound left turn into the proposed valet driveway would create lengthy delays on Abbot Road and vehicles queuing into the intersection of Abbot Road and Grand River Avenue (M-43). DLZ agrees with this recommendation and advises the project site plan would be revised to implement this prohibition.
11. The DTN TIS report states that under future mitigated conditions, it is anticipated that all movements will operate at an acceptable level of service (LOS D or better), except for the following:
  - a. Westbound left turn movement at the intersection of Albert Avenue and Abbot Road – (PM-E/55.9s).
  - b. Northbound thru movement at the intersection of Albert Avenue and Abbot Road – (PM-F/72.8s).
  - c. Northbound thru movement at the intersection of Grand River Avenue (M-43) and Michigan Avenue – (PM-E/70.1s).

We compared the delay and LOS for each of these movements against the background conditions delay/LOS presented in the PDIG TIS. The reason that we evaluated the PDIG TIS background conditions scenario is because it does not include any of the Park District Development improvements, whereas the background scenario for the DTN TIS includes Buildings A and B. For all three of the above-noted movements, the background delays/LOS in the PDIG TIS background conditions scenario are at LOS D or better. Specifically, the following delays/LOS are from the PDIG TIS background conditions:

- a. Westbound left turn movement at the intersection of Albert Avenue and Abbot Road – (PM-D/45.5s).
- b. Northbound thru movement at the intersection of Albert Avenue and Abbot Road – (PM-C/25.3s).
- c. Northbound thru movement at the intersection of Grand River Avenue (M-43) and Michigan Avenue – (PM-C/24.1s).

Because the proposed development would result in substantial degradation of these movements and they are projected to operate below LOS D (the typical threshold for mitigating impacts from a development), we are recommending that the City should consider whether additional mitigation needs to be evaluated and implemented by the developer.

#### Other Comments

1. The TIS report indicates existing geometrics and traffic control devices for the majority of the roadway system are sufficient to handle the background traffic and the additional traffic from the DTN project. DLZ agrees with the consultant's recommendations regarding those locations that do not need evaluation for potential mitigation.
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2. The DTN TIS recommends that the proposed driveways and site plan road network should be constructed as shown on the site plan and in accordance with the MDOT and the City of East Lansing's design standards and guidelines. DLZ concurs with this recommendation.
3. DLZ recommends reevaluating the future mitigation analysis for the Albert Avenue and Abbot Road intersection. For the AM and PM scenario, there is a "Phase conflict between lane groups" error that needs to be addressed. It is recommended that the consultant revise the eastbound and westbound movements. The lead EB left should be on phase 7 for the protected phase (EB Left-turn protected phase is not needed) and phase 4 for the permitted phase. The lead WB left should be on phase 3 for the protected phase and phase 8 for the permitted phase. Furthermore, the EB and WB thru movements should be on phases 4 and 8, respectively. By correcting the phase conflicts, the delays for the PM peak hour fall to a LOS F for the WB left-turn movement and a LOS E for the NB thru movement.
4. DLZ recommends that the TIS should also be reviewed by MDOT against their TIS guidelines/standards and the City would, as a condition of TIS approval, require the consultant to adjust the TIS per MDOT's review comments. Given the concerns we have noted regarding having two separate TIS reports, it may be beneficial to discuss the matter in detail with MDOT before they perform their review.
5. Although we have recommended the City consider asking the developers to provide an updated/revised TIS, it is our belief that if the City moves the project ahead without such information, the associated risks are likely low. Based on our review of both TIS reports, the findings and conclusions presented in the DTN TIS are unlikely to substantially change if a revised TIS were to be prepared. Because we performed some independent evaluations that would not be typically undertaken for a TIS review, we are reasonably confident that the conclusions/results presented in the DTN TIS accurately reflect the impacts and needed mitigation for both projects.
6. DLZ recommends the consultant would revise pages 24, 30, 34, and 36 the TIS; the last line on these pages currently are beyond the printable space.

If you have any questions or need additional clarification, please feel free to contact us.