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MEMORANDUM

TO: Michele Rosenfeld

FROM: Joe Mehra, P.E. PTOE

SUBJECT: Takoma Metro Station Joint Development Traffic Study Review

DATE: February 20, 2014 **JOB:** J-835

A new residential apartment development is being proposed at the existing Kiss & Ride site to the northeast of the Takoma Park Metro station in the Washington Metropolitan Area Transit System (WMATA). A traffic report dated November 2013 was prepared for the purpose (1) of documenting existing traffic conditions in the vicinity of the Takoma Metro Station ("Existing Conditions Analysis"); (2) assessing expected traffic conditions in 2020 if the project is not built ("2020 No-Build Conditions"); and the projected traffic conditions resulting from the proposed Joint Development at its projected opening date of the year 2020 ("2020 Build Conditions").

In my opinion the traffic analysis and the findings, as documented in the Technical Memorandum, have deficiencies, errors and omissions that make the study results invalid.

Existing Conditions Analysis—

The WMATA study contains conclusions about existing conditions at the intersection of Eastern Avenue and Piney Branch Road that appear to be materially inconsistent with other recent traffic studies in the vicinity:

- a. The WMATA Study concludes that the intersection of Eastern Avenue and Piney Branch Road is operating at a Level of Service (hereinafter “LOS”) C during both the morning and evening peak hours; and
- b. That the eastbound and westbound approaches to this intersection are operating at LOS E during the evening peak hour.

These conclusions are inconsistent with the conclusions of the *Traffic Impact Study Walter Reed Local Redevelopment Authority Reuse Plan, Final Draft*, dated August 15, 2012, which conclude:

- a. The intersection of Eastern Avenue and Piney Branch Road is operating at LOS **D** (not C) during the evening peak hours; and
- b. The eastbound approach is operating at LOS **E** during the morning peak hour (the WMATA report shows LOS C for this approach during the morning peak hour); and
- c. The eastbound and westbound approaches both are operating at LOS **F** (not E) during the evening peak hour.

These discrepancies must be clarified and, if the WMATA study is flawed, WMATA’s analysis must be corrected before this project is allowed to proceed to the next phase.

The WMATA study also contains the following conclusions about existing conditions at the intersection of Blair Road, Cedar Street and 4th Street:

- a. The intersection is operating at LOS D during the morning peak hours; and
- b. The intersection is operating at LOS E during the evening peak hours.

However, a November 1, 2013 study prepared by Legion Design concluded that this intersection is operating at LOS **F** (not E) during the evening peak hour (with a delay of 82.5 seconds per vehicle). This discrepancy must be clarified and, if the WMATA study is flawed, WMATA’s analysis must be corrected before this project is allowed to proceed to the next phase.

2020 No-Build Conditions – The methodology for projecting normal growth in traffic to 2020, as described in the Technical Memorandum is as follows:

“MWCOC 2.3 model was used to project the traffic growth from 2013 to 2020 (excluding the development at the Takoma Metro Station). MWCOC model indicates that three of the local jurisdictions including Washington D.C., Prince George’s County, and Montgomery County are showing more than 10% total increase in households and employment from 2010 to 2020. Silver Spring, which is located to the northeast of the Takoma Metro Station, expects significant growth in both jobs and number of residents. This study, assumed a total growth of 15% from 2013 to 2030 in the AM and PM peak period that is equivalent to an annual traffic growth rate of 2%.”

First of all, I am assuming that the 2030 is a typographical error and should be 2020. Secondly, this methodology is for a macro level study and not applicable to a micro level traffic impact study such as for this development. A typical traffic impact study involves a two-step process to develop future traffic without the development. The first step consists of developing annual growth rates in traffic based on a historic traffic data and trends. This annual growth rate is applied to the existing counts to develop future traffic based on normal growth rates. The second step is to identify planned and approved developments in the vicinity of the site and estimate their traffic generation. This traffic is then assigned to the various study intersections. The addition of the existing traffic, the normal growth in traffic and the traffic from the adjacent developments result in future traffic without the proposed development. While the ITE Recommended Practice for Transportation Impact Analyses for Site Development recommends this approach for a *macro* analysis, it is not applicable to a *micro* analysis when trying to establish traffic impacts in a narrowly circumscribed geographic area. Instead, the traffic report should (1) establish an annual traffic growth rate; and (2) *additionally* identify planned and approved developments in the vicinity of the site and estimate the traffic volumes associated with those planned and approved developments and allocate them to surrounding intersections. The study should then quantify the *cumulative* impact of the overall traffic growth rate and the additional traffic from specific projects to get an accurate assessment of the background traffic conditions, against which the new project can be evaluated.

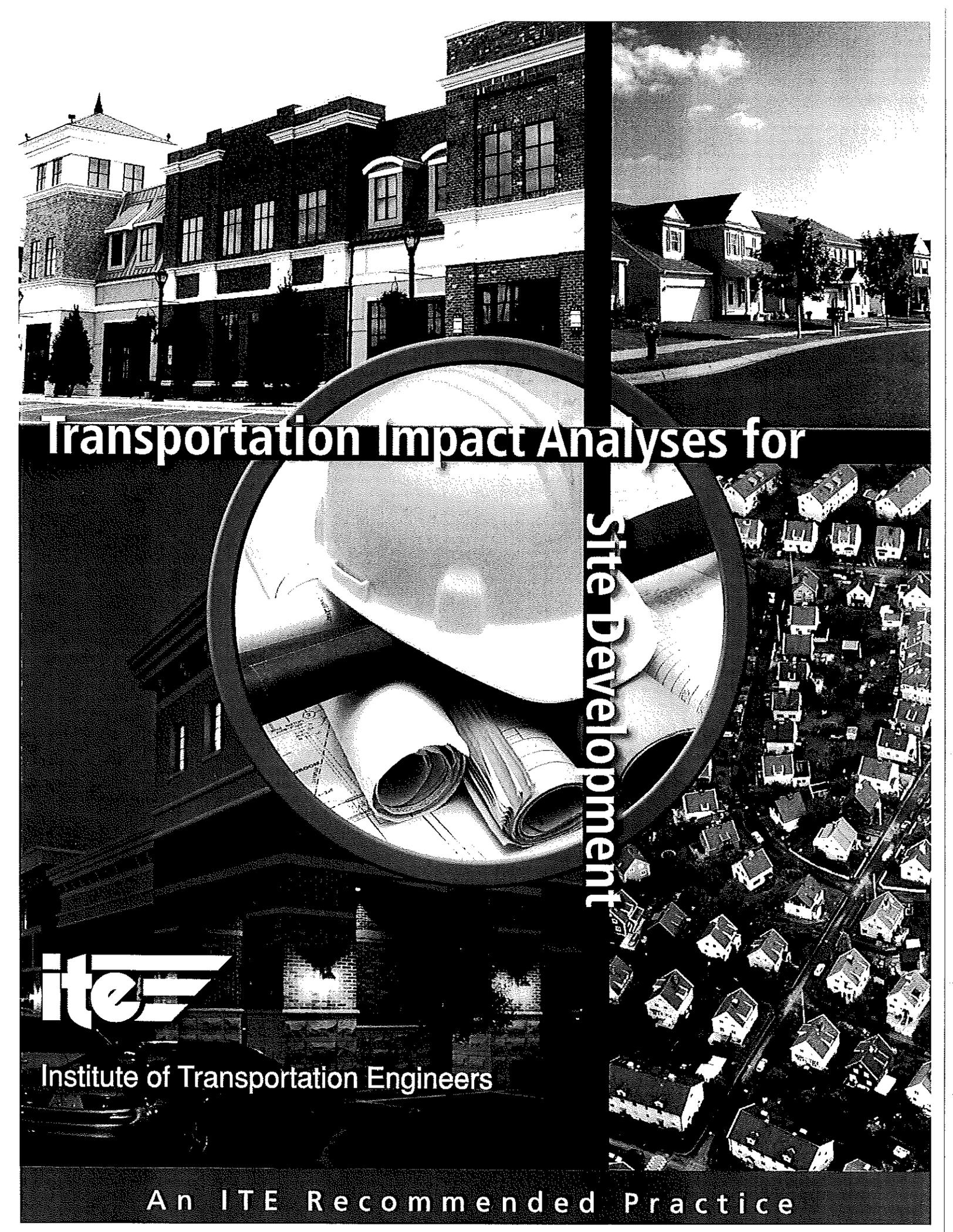
This is a significant error in the methodology. There are several planned and approved developments in the vicinity of the site and they include the following:

1. Walter Reed Reuse which is estimated to generate 2,197 vehicle trips during the PM peak hour.
2. Takoma Central – 235-255 Carroll Street. The proposed redevelopment of a former Brownfield site consists of 160 rental apartments and approximately 8,300 square feet of on-street retail located near the Takoma Red Line Metro Station.
3. Takoma Park – 6924 Willow Street. The proposed development consists of two apartment buildings totaling 76 units.
4. Spring Place residential development consisting of 150 apartment units in Squares 3185 and 3186 with access on to Spring Place.
5. 18,710 sq feet of new retail under construction on the first floor of an existing three-story office building at 6856 Eastern Ave.-- Under Construction
6. Douglas Development Apartments at Willow & Maple, NW. This project is currently approved for two buildings with 44 units per building.
7. Theological Seminary at 6896 Laurel St., NW - Closed about a year ago, renovations underway, Leased to a school for English As A Foreign Language at 68,929 square feet.
8. Republic Restaurant located at Laurel Street and Carroll Avenue. This restaurant with over 100 seats opened in early December and would not be included in the traffic counts conducted in September 2013.

The impact of these planned/approved and under construction developments would be more pronounced at some intersections and less at others depending upon the location of the development. Only by including the traffic associated with these developments in the transportation analysis can there be a true projection of the 2020 traffic conditions. The methodology used in the study fails to do this analysis.

2020 Build Conditions – Table 5 of the WMATA study (page 12) includes a summary of LOS shows that the levels of service at the intersection of Carroll Street and Cedar Avenue improves from a LOS C to a LOS B during the PM peak hour after adding the proposed development traffic. How was that achieved without making any further improvements to the roadway network without the development in 2020 (comparing to the three no-build scenarios in 2020).

Conclusions – The critical errors in the forecasting methodology results in erroneous traffic projections. All scenario analysis conducted subsequent to the forecasting process are meaningless, since they are based on erroneous traffic forecasts. The study should be redone using the industry standard procedures.



Transportation Impact Analyses for

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4. Non-Site Traffic Forecast

Estimates of non-site traffic are required to complete the analysis of horizon-year conditions. These estimates characterize the "base" conditions—that is, without the subject site being developed (or re-developed). Figure 4-1 shows the interrelationships of transportation system data and transportation demand data for existing, background and "total-future" (with project site) traffic conditions.

Components of Background Traffic

Non-site traffic consists of two components:

- Through traffic, consisting of all movements through the study area, without either an origin or a destination in the study area (sometimes referred to as "background growth"); and
- Traffic generated by all other developments in the study area, with an origin and/or a destination in the study area (sometimes referred to as "background development" or "pipeline development").

The latter category is particularly important, since conditions associated with nearby developments may be affected by traffic generated by the new site, or may generate traffic that affects the site being studied. Figure 4-2 shows an example of estimated future non-site traffic. A comparison of Figure 3-3 with Figure 4-2 shows how existing traffic volumes differ from future background traffic conditions.

Methodology

There are three principal methods of projecting non-site traffic:

- Build-up method, using specific developments;
- Use of area or sub-area transportation plan or modeled volumes; and
- Trends or growth rate method.

Each has its appropriate use, and each is based on data that may be available or generated as part of the site transportation impact study.

Advantages and concerns of each technique are as follows.

1. Build-up method, using specific developments:
 - Typically appropriate in areas of moderate growth;
 - Usually used when the project has a horizon of 5 years or less; and
 - Often the best method when there is good local information on development approvals.
2. Use of area or sub-area transportation plan or modeled volumes:
 - Often used with large, regional projects that will develop over a long period;
 - Often appropriate for areas of high growth; and
 - Locally credible transportation plan data that are adaptable to the study year must be available.
3. Trends or growth rate method:
 - Typically used for small projects that will be built within a year or two;
 - Local recordkeeping of traffic counts must be good;
 - At least 5 years of data showing stable growth should be available;
 - Simple, straightforward approach;
 - Not appropriate for long-range horizons; and
 - May result in over- or undercounting of non-site traffic growth.

These methods should be carefully considered based on study issues and objectives, available data and reviewing agency preferences or requirements. The final selection should be made only after discussions with the reviewing agency. A brief summary of these methods is presented below. For more detailed discussions, see references listed at the end of this chapter and report.