May 17, 2019

Mr. John Piccin, PE, PS
Delaware County Engineer's Office
50 Channing Street
Delaware, OH 43015

Re: Schanck-Roll Properties Traffic Study REV 1 Addendum 1
Berlin Township, Delaware County, Ohio

Please consider this letter an addendum to the Schanck-Roll Properties Traffic Study REV 1 dated November 2, 2016 which was approved as noted by the Delaware County Engineer’s Office (DCEO) on January 26, 2017.

BACKGROUND

The Schanck-Roll Properties Traffic Study REV 1 considered three separate sites that were proposed to be developed with single family homes. The sites are in the vicinity of the intersection of Cheshire Road & Piatt Road. The following are the proposed changes covered in this Addendum:

● Eaststone Crossing site (NE-79 Dwelling Units)
  ○ Now “Piatt Preserve East” with 22 dwelling units proposed. May still have original property tributary to this access.
  ○ Originally proposed to have access to the Piatt Road Extension when built. A temporary additional access is proposed on Cheshire Road and will be closed when the Piatt Road extension is complete.
  ○ The temporary to Cheshire Road will not be needed because the Piatt Road Extension will be built by the time of development.

● Westfield Lakes site (NW-75 Dwelling Units)
  ○ Now “Piatt Preserve West” with 82 dwelling units proposed.
  ○ Originally proposed to have access to Gregory Road and Cheshire Road.
  ○ Now proposed to have access to the Piatt Road extension and not Cheshire Road.

● The Southwoods site (SE-30 Dwelling Units)
  ○ Originally proposed to have access to Piatt Road.
  ○ No changes are proposed.

For any Addendum 1 Analysis, all references including the edition of the Trip Generation Manual, the average rates, and the Opening Day year/Design Year will be retained from the Schanck-Roll Properties Traffic Study REV 1 for consistency.
PROJECTED SITE TRAFFIC

Trip Generation
The revised site traffic was computed using *Trip Generation, 9th Edition*, published by the Institute of Transportation Engineers (ITE). The land use “Single Family Detached Housing” (ITE Code #210) was used for the traffic. The rates were established in the REV 1 study based on the regression equations for the 184 lots. The revised Table 2 is attached and shows a summary of the trip generation calculations.

2038 TRAFFIC/RIGHT TURN LANE WARRANT

Since Gregory Road will be a cul-de-sac, the only calculation in the addendum is a southbound right turn lane on the Piatt Road Extension at the Piatt Preserve West Access. The DCEO provided a 2038 ADT on the Piatt Road extension. Based on this, the southbound through volume in the PM Peak would be estimated as follows:

\[ 7200 \times (K=0.10) \times (1-D=0.55) = 324 \]

REV 1 of the study did not have traffic assigned from the north. For evaluating the right turn lane warrant, 10% of the site traffic coming to Piatt Preserve West in the PM Peak was assumed to come from the north on the Piatt Road Extension. This results in a volume of 5 cars.

The DCEO right turn lane requirements are per the ODOT graphs found in the *ODOT L&D Manual*. Plotting (329,5) developed above on the right turn lane warrant graph indicates a right turn lane is not warranted. The graph is attached.

CHANGES TO CONCLUSIONS

The following is a summary of the changes to the conclusions for each analysis condition (Strike-through items are no longer applicable and bold items are new):

**2017 ‘Build’ & 2027 ‘Build’**

- Gregory Road & Prop. Piatt Preserve West (N) Westfield Lakes Access
  - A southbound left turn lane is not warranted. *(Cul-de-sac Street)*
  - A northbound right turn lane is not warranted. *(Cul-de-sac Street)*

- Gregory Road & Prop. Piatt Preserve West (S) Access
  - A southbound left turn lane is not warranted. *(Cul-de-sac Street)*
  - A northbound right turn lane is not warranted. *(Cul-de-sac Street)*

- Cheshire Road & Prop. Westfield Lakes Access
  - An eastbound left turn lane is warranted. The length of the lane is 175 feet which includes the 50 foot diverging taper.
  - A westbound right turn lane is not warranted.
**Piatt Road Extension & Prop. Piatt Preserve West-Access**
- Since the Piatt Road Extension is three lanes, pavement will exist for a northbound left turn lane.
- A southbound right turn lane is not warranted.
- When this access is built, a cul-de-sac will be required at the end of Gregory Road.

**Piatt Road Extension & Prop. Piatt Preserve East Eaststone Crossing Access**
- The southbound left turn movement has three or fewer peak hour left turns which does not meet the DCEO’s ten vehicle threshold for criterion 3. Because design traffic has not been developed yet for the Piatt Road extension, criterion 1 could not be analyzed but there are a minor number of left turns.
- Since design traffic was not available for the Piatt Road extension, the right turn lane warrant analysis could not be performed. However, based on the 46 (this volume will be fewer since there are fewer lots) right turning vehicles in the PM Peak, the through movement threshold is approximately 325 through vehicles. On Piatt Road south of Cheshire Road, the northbound approach volume is 199 vehicles so it is unlikely the volume north of Cheshire would exceed the threshold.

**Cheshire Road & Prop. Eaststone Crossing Access**
- Until the Piatt Road extension is open to traffic (expected in 2019), an access on Cheshire Road will be allowed with no associated improvements. When the Piatt Road extension is open, the Cheshire Road access will be closed.

**Piatt Road & Prop. Southwoods Access**
- A southbound left turn lane is not warranted.
- A northbound right turn lane is not warranted.

**Cheshire Road & Piatt Road**
- The public project will have a design year at least 10 years beyond the 2027 traffic developed for this project. The approach 2037 ‘No Build’ volumes are higher than the 2027 ‘Build’ volumes so the site traffic will not have an impact on the intersection.

**DEVELOPER IMPACTS**

**Mitigation**
This section summarizes the developer mitigation based on the design year unless noted otherwise. All necessary public roadway improvements associated with the development, including any required off-site improvements, shall be constructed with the first phase of construction, except as agreed upon by the Delaware County Engineer.
• Gregory Road & Prop. Piatt Preserve West (N) Access
  ○ No Improvements

• Gregory Road & Prop. Piatt Preserve West (S) Access
  ○ No Improvements

• Piatt Road Extension & Prop. Piatt Preserve West-Access
  ○ When this access is built, a cul-de-sac will be required at the end of Gregory Road.

• Cheshire Road & Prop. Eaststone Crossing Access
  ○ No Improvements

• Piatt Road & Prop. Southwoods Access
  ○ No Improvements

• Cheshire Road & Piatt Road
  ○ No Improvements

Please let me know if you have any questions. Thank you.

Sincerely,
SMART SERVICES, INC.

Registered Engineer No. E-64507, Ohio
Todd J. Stanhope, PE, PTOE
Director of Traffic Engineering

Ce: J. Watkins - Watcon Consulting Engineers & Surveyors
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Piatt Preserve West (NW)</td>
<td>Single-Family Detached Housing (Based on 184 Dwelling Units) (Non ITE Source)</td>
<td>Daily</td>
<td>Weekday</td>
<td>False Average Rate= 10.00</td>
<td>Average Rate= 0.76</td>
<td>820</td>
<td>50%</td>
<td>410</td>
<td>50%</td>
<td>410</td>
</tr>
<tr>
<td>AM Peak</td>
<td>Peak Hour of Adj. Street Traffic, One Hour between 7 &amp; 9 AM</td>
<td>62</td>
<td>25%</td>
<td>16</td>
<td>75%</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM Peak</td>
<td>Peak Hour of Adj. Street Traffic, One Hour between 4 &amp; 6 PM</td>
<td>81</td>
<td>63%</td>
<td>51</td>
<td>37%</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piatt Preserve East (NE)</td>
<td>Single-Family Detached Housing (Based on 184 Dwelling Units) (Non ITE Source)</td>
<td>Daily</td>
<td>Weekday</td>
<td>False Average Rate= 10.00</td>
<td>Average Rate= 0.76</td>
<td>220</td>
<td>50%</td>
<td>110</td>
<td>50%</td>
<td>110</td>
</tr>
<tr>
<td>AM Peak</td>
<td>Peak Hour of Adj. Street Traffic, One Hour between 7 &amp; 9 AM</td>
<td>17</td>
<td>25%</td>
<td>4</td>
<td>75%</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM Peak</td>
<td>Peak Hour of Adj. Street Traffic, One Hour between 4 &amp; 6 PM</td>
<td>22</td>
<td>63%</td>
<td>14</td>
<td>37%</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southwoods (SE)</td>
<td>Single-Family Detached Housing (Based on 184 Dwelling Units) (Non ITE Source)</td>
<td>Daily</td>
<td>Weekday</td>
<td>False Average Rate= 10.00</td>
<td>Average Rate= 0.76</td>
<td>300</td>
<td>50%</td>
<td>150</td>
<td>50%</td>
<td>150</td>
</tr>
<tr>
<td>AM Peak</td>
<td>Peak Hour of Adj. Street Traffic, One Hour between 7 &amp; 9 AM</td>
<td>23</td>
<td>25%</td>
<td>6</td>
<td>75%</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM Peak</td>
<td>Peak Hour of Adj. Street Traffic, One Hour between 4 &amp; 6 PM</td>
<td>30</td>
<td>63%</td>
<td>19</td>
<td>37%</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>Daily</td>
<td>False Average Rate= 10.00</td>
<td>1340</td>
<td>670</td>
<td>670</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM Peak</td>
<td>102</td>
<td>26</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM Peak</td>
<td>133</td>
<td>84</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 2 - SITE TRIP GENERATION SUMMARY**
## 2-Lane Highway Right Turn Lane Warrant

> 40 mph or 70 kph Posted Speed

### Warrant Summary

<table>
<thead>
<tr>
<th>ID</th>
<th>Intersection [Movement] - Volume Set</th>
<th>AM Peak (A)</th>
<th>PM Peak (P)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Piatt Road Extension &amp; Prop. Piatt Preserve West Access [SB RT] - 2037 'BUILD'</td>
<td>(329,5)</td>
<td>NOT MET</td>
<td></td>
</tr>
</tbody>
</table>

### Diagram

- Right Turn Lane Required
- Right Turn Lane Not Required

---

**Schanck-Roll Properties**

**Traffic Access Study**

Prepared by:

**Appendix**

2 Lane Highway Right Turn Lane Warrant (> 40 MPH)