

# Traffic



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BY CHET SKWARCAN



## Traffic Engineering Analysis

### **Semi-Truck/Trailer Sale and Lease Facility**

Industrial Development

*Brownsburg, Indiana*

#### **Submitted by:**

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**April 21, 2023**

**Certification**

I certify this Traffic Analysis has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering.



Chet M. Skwarcan, P.E., President  
Traffic Engineering, Inc.  
04/21/2023



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## Executive Summary

The proposed industrial development, semi-truck/trailer sales and lease facility, is situated on the west side of Raceway Road between CR 200N and CR 300N in Brownsburg, Indiana (see page 7). The facility is comprised of office space (8 KSF), maintenance space (10 KSF), and parts storage (11 KSF).

The preliminary site plan consists of two access points along Raceway Road for the proposed facility. These accesses are created by adding a west leg where Raceway Road intersects Tansel Creek Drive and Robey Glen Drive.

Study scenarios for the AM and PM peak hours include:

1. Existing Traffic (2023)
2. Existing Traffic plus Background Growth (2028)
3. Existing Traffic plus Background Growth plus Projected Site Traffic (2028)

### Raceway Road at CR 200N (existing traffic signal)

All approaches are projected to have acceptable peak hour Level of Service (LOS) and peak hour queueing based on projected 2028 full build-out<sup>1</sup> traffic volumes (see pages 16-18).

Please note, in order to maintain intersection optimization, signal timings are generally reviewed and updated every three to five years or when significant changes to traffic patterns or volumes occur.

### Raceway Road at Tansel Creek Drive/Site Driveway (proposed two-way stop control)

Left and right turn lanes along Raceway Road are not warranted based on INDOT guidelines (see pages 11 & 13) or LOS analysis (see pages 16-19).

Dual exit lanes for the proposed site driveway are not required based on INDOT guidelines (see page 15). However, dual exit lanes are often included to allow right turning vehicles to exit without delay behind a vehicle waiting to turn left.

All approaches at this intersection are projected to have an acceptable LOS and peak hour queueing based on projected 2028 full build-out<sup>1</sup> traffic volumes (see pages 16-19).

### Raceway Road at Robey Glen Drive/Site Driveway (proposed two-way stop control)

Left and right turn lanes along Raceway Road are not warranted based on INDOT guidelines (see pages 12 & 14) or LOS analysis (see pages 16-18).

Dual exit lanes for the proposed site driveway are not required based on INDOT guidelines (see page 15). However, dual exit lanes are often included to allow right turning vehicles to exit without delay behind a vehicle waiting to turn left.

All approaches at this intersection are projected to have an acceptable LOS and peak hour queueing based on projected 2028 full build-out<sup>1</sup> traffic volumes (see pages 16-18).

### Raceway Road at CR 300N (existing two-way stop control)

All approaches at this intersection are projected to have an acceptable LOS and peak hour queueing based on projected 2028 full build-out<sup>1</sup> traffic volumes (see pages 16-18).

### Raceway Road at US 136 (existing traffic signal)

The south approach of this signalized intersection is projected to perform at an unacceptable LOS during the PM PH evaluating projected 2028 traffic volumes<sup>2</sup> without site traffic (see pages 16 & 18). Adjusting signal timings during the PM peak hour can provide acceptable LOS results without roadway improvements (see page 19).

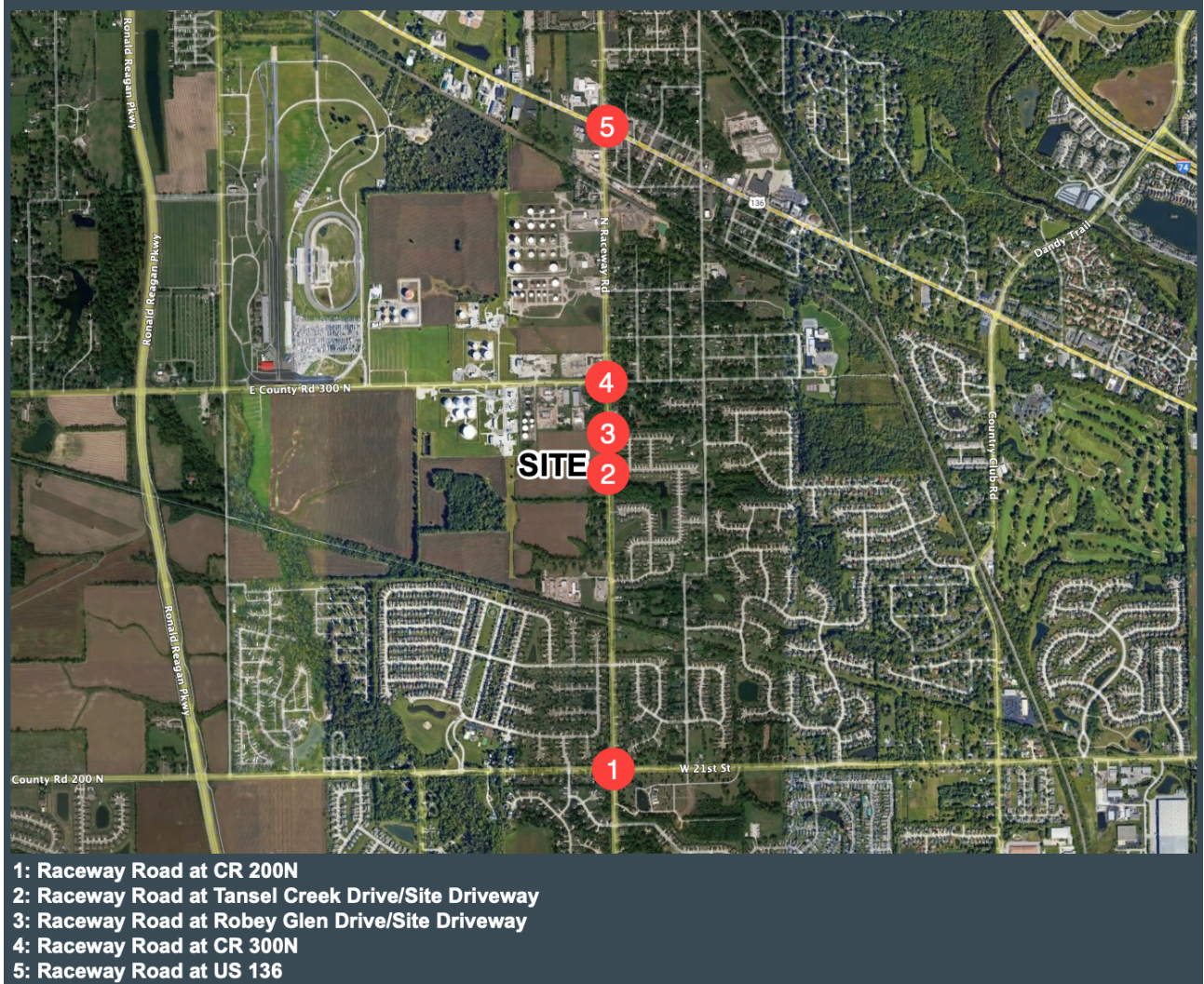
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<sup>1</sup> Existing traffic plus background growth (5 years at an annual growth rate of 1%) plus projected site traffic

<sup>2</sup> Existing traffic plus background growth (5 years at an annual growth rate of 1%)

## Existing Traffic Information Study Locations Map

As part of this analysis, existing AM and PM peak hour traffic data<sup>3</sup> was collected at the following locations in Brownsburg, Indiana:



<sup>3</sup> Bi-directional volumes were collected between locations #20 & #30 and used to generate peak hour turning movements at locations #20 & #30

**Existing Traffic Information (continued)**

**Peak Hour Turning Movements for All Vehicles (Non-trucks plus Trucks)**

The following traffic data was collected during the week of March 13, 2023:

<b>Raceway Road at CR 200N</b>													
<b>Total Vehicles - AM Peak Hour</b>													
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
0715 - 0730	9	28	15	7	63	14	29	42	4	9	132	8	360
0730 - 0745	13	36	11	10	61	23	14	28	5	5	111	12	329
0745 - 0800	15	24	13	10	85	33	20	37	1	8	82	15	343
0800 - 0815	13	30	10	12	50	15	16	31	9	4	117	9	316
<b>Totals</b>	<b>50</b>	<b>118</b>	<b>49</b>	<b>39</b>	<b>259</b>	<b>85</b>	<b>79</b>	<b>138</b>	<b>19</b>	<b>26</b>	<b>442</b>	<b>44</b>	<b>1348</b>
PHF	0.83	0.82	0.82	0.81	0.76	0.64	0.68	0.82	0.53	0.72	0.84	0.73	0.94
% Trucks	0%	3%	0%	0%	1%	0%	0%	1%	0%	4%	0%	0%	1%
<b>Total Vehicles - PM Peak Hour</b>													
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
1700 - 1715	23	70	15	16	127	35	36	58	18	8	105	22	533
1715 - 1730	15	57	24	14	147	43	33	57	10	10	117	23	550
1730 - 1745	18	56	17	10	120	34	37	50	21	10	96	17	486
1745 - 1800	22	55	14	14	121	36	30	55	16	99	76	13	551
<b>Totals</b>	<b>78</b>	<b>238</b>	<b>70</b>	<b>54</b>	<b>515</b>	<b>148</b>	<b>136</b>	<b>220</b>	<b>65</b>	<b>127</b>	<b>394</b>	<b>75</b>	<b>2120</b>
PHF	0.85	0.85	0.73	0.84	0.88	0.86	0.92	0.95	0.77	0.32	0.84	0.82	0.96
% Trucks	3%	1%	1%	0%	0%	1%	0%	0%	2%	0%	1%	0%	1%

<b>Raceway Road at CR 300N</b>													
<b>Total Vehicles - AM Peak Hour</b>													
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
0715 - 0730	17	32	0	4	3	1	4	71	6	2	9	17	166
0730 - 0745	22	46	2	0	6	1	1	64	4	2	5	24	177
0745 - 0800	11	40	2	1	4	2	5	68	4	2	1	20	160
0800 - 0815	13	40	0	3	0	0	4	54	2	2	6	16	140
<b>Totals</b>	<b>63</b>	<b>158</b>	<b>4</b>	<b>8</b>	<b>13</b>	<b>4</b>	<b>14</b>	<b>257</b>	<b>16</b>	<b>8</b>	<b>21</b>	<b>77</b>	<b>643</b>
PHF	0.72	0.86	0.50	0.50	0.54	0.50	0.70	0.90	0.67	1.00	0.58	0.80	0.91
% Trucks	25%	2%	0%	0%	0%	0%	0%	1%	0%	25%	0%	23%	7%
<b>Total Vehicles - PM Peak Hour</b>													
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
1630 - 1645	31	91	1	0	6	2	8	61	9	7	5	13	234
1645 - 1700	27	106	2	2	5	6	7	68	6	12	8	16	265
1700 - 1715	51	93	1	1	3	2	8	61	3	7	10	21	261
1715 - 1730	41	94	2	1	3	4	3	78	6	11	7	18	268
<b>Totals</b>	<b>150</b>	<b>384</b>	<b>6</b>	<b>4</b>	<b>17</b>	<b>14</b>	<b>26</b>	<b>268</b>	<b>24</b>	<b>37</b>	<b>30</b>	<b>68</b>	<b>1028</b>
PHF	0.74	0.91	0.75	0.50	0.71	0.58	0.81	0.86	0.67	0.77	0.75	0.81	0.96
% Trucks	4%	2%	0%	0%	0%	0%	0%	1%	4%	0%	3%	9%	2%

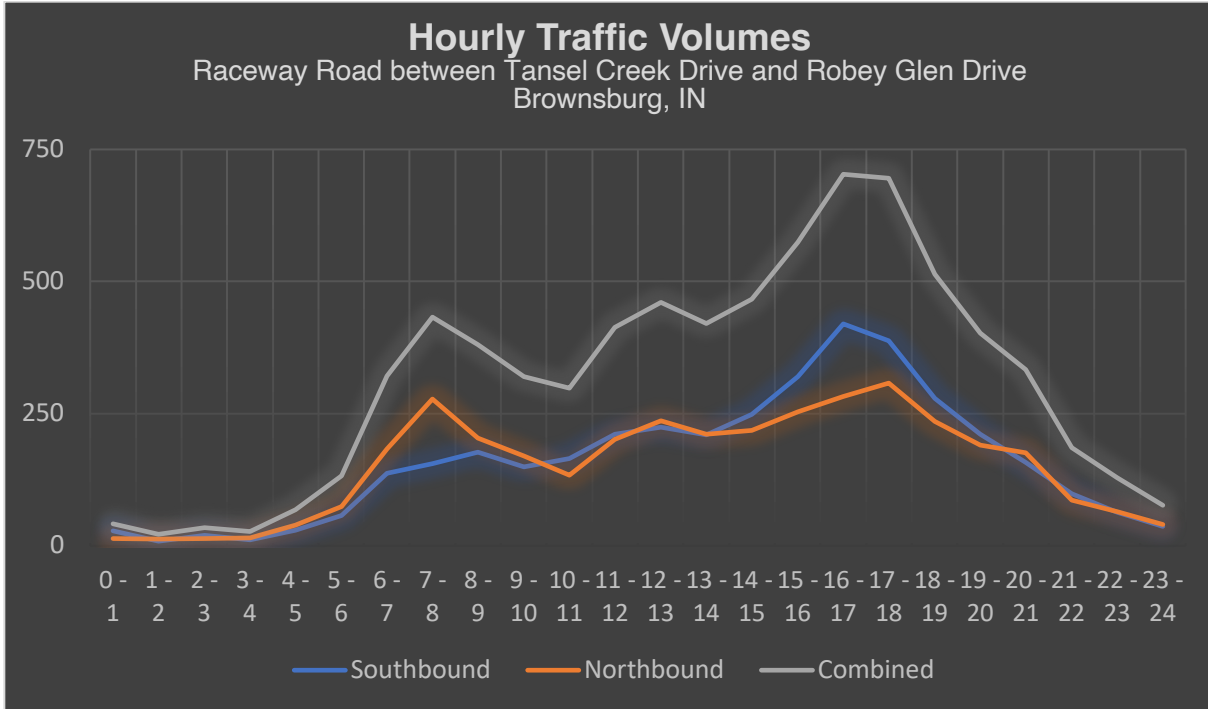
  

<b>Raceway Road at US 136</b>													
<b>Total Vehicles - AM Peak Hour</b>													
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
0730 - 0745	8	32	33	19	54	24	45	27	22	9	67	2	342
0745 - 0800	4	18	36	14	71	30	36	23	27	8	42	7	316
0800 - 0815	8	18	32	12	39	23	41	23	16	11	60	4	287
0815 - 0830	7	19	23	12	43	27	31	19	27	11	66	10	295
<b>Totals</b>	<b>27</b>	<b>87</b>	<b>124</b>	<b>57</b>	<b>207</b>	<b>104</b>	<b>153</b>	<b>92</b>	<b>92</b>	<b>39</b>	<b>235</b>	<b>23</b>	<b>1240</b>
PHF	0.84	0.68	0.86	0.75	0.73	0.87	0.85	0.85	0.85	0.89	0.88	0.58	0.91
% Trucks	0%	1%	1%	9%	3%	22%	18%	3%	5%	0%	5%	9%	7%
<b>Total Vehicles - PM Peak Hour</b>													
Time	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL	Total
1630 - 1645	16	30	27	31	113	67	28	32	21	23	87	15	490
1645 - 1700	10	47	19	27	100	67	38	33	20	22	83	14	480
1700 - 1715	12	40	22	34	88	60	29	31	22	17	74	24	453
1715 - 1730	9	47	21	30	90	65	48	33	20	23	64	13	463
<b>Totals</b>	<b>47</b>	<b>164</b>	<b>89</b>	<b>122</b>	<b>391</b>	<b>259</b>	<b>143</b>	<b>129</b>	<b>83</b>	<b>85</b>	<b>308</b>	<b>66</b>	<b>1886</b>
PHF	0.73	0.87	0.82	0.90	0.87	0.97	0.74	0.98	0.94	0.92	0.89	0.69	0.96
% Trucks	4%	1%	2%	2%	2%	5%	10%	1%	0%	0%	3%	0%	3%

**Existing Traffic Information (continued)**

**Bi-directional Hourly Traffic Volumes for All Vehicles (Non-trucks plus Trucks)**

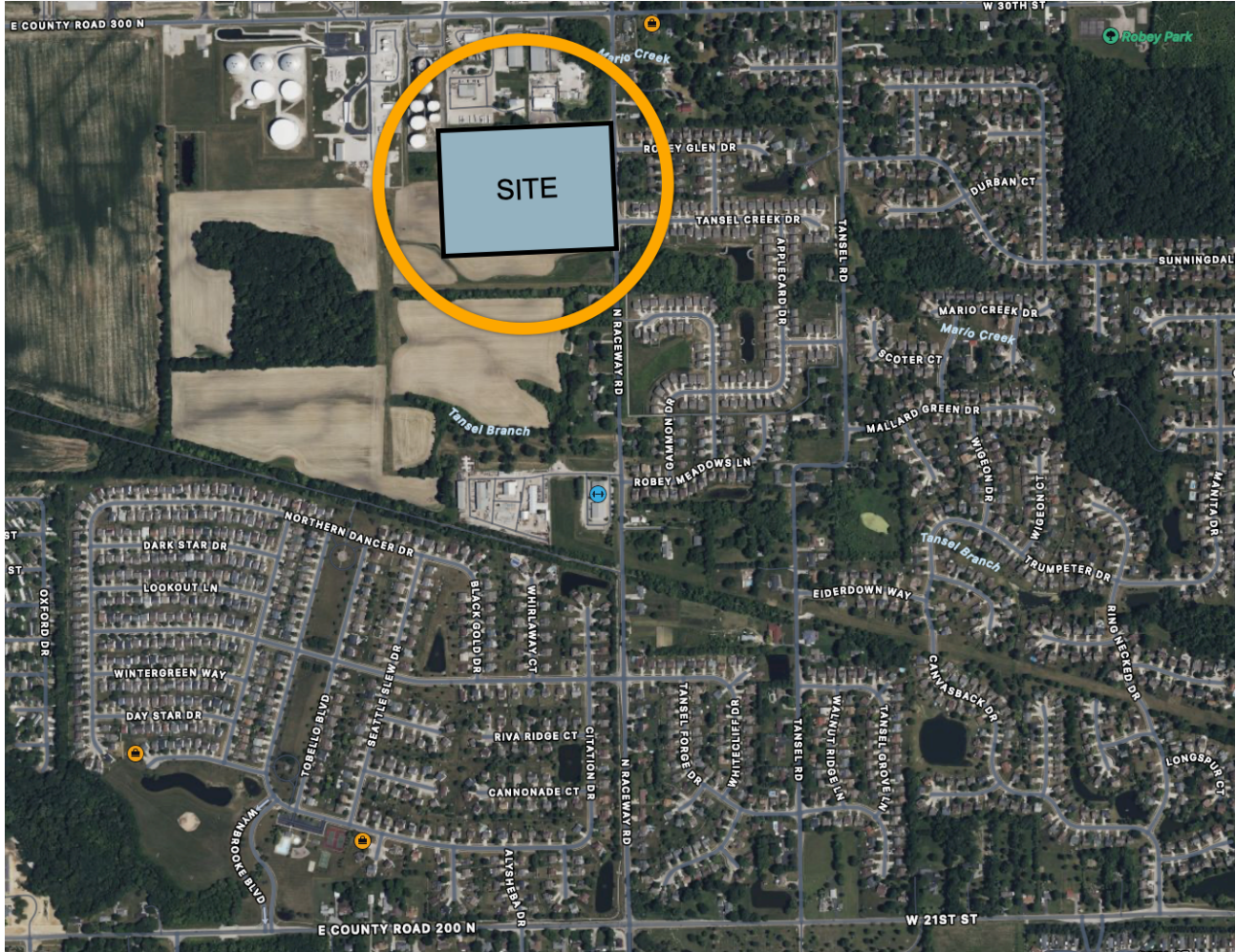
The following traffic data was collected during the week of March 13, 2023:



Hour	Southbound	Northbound	Combined
0 - 1	28	14	42
1 - 2	9	13	22
2 - 3	20	14	34
3 - 4	12	15	27
4 - 5	30	39	69
5 - 6	58	75	133
6 - 7	138	184	322
7 - 8	155	278	433
8 - 9	177	204	381
9 - 10	150	170	320
10 - 11	165	134	299
11 - 12	211	202	413
12 - 13	224	237	461
13 - 14	210	211	421
14 - 15	249	218	467
15 - 16	320	254	574
16 - 17	420	283	703
17 - 18	388	308	696
18 - 19	279	235	514
19 - 20	211	191	402
20 - 21	158	176	334
21 - 22	99	87	186
22 - 23	64	65	129
23 - 24	37	40	77
<b>TOTAL</b>	<b>3812</b>	<b>3647</b>	<b>7459</b>

**Proposed Development**  
**Development and Land Use Details**

The proposed semi-truck/trailer sale and lease facility is situated on the west side of Raceway Road between CR 200N and CR 300N in Brownsburg, Indiana:



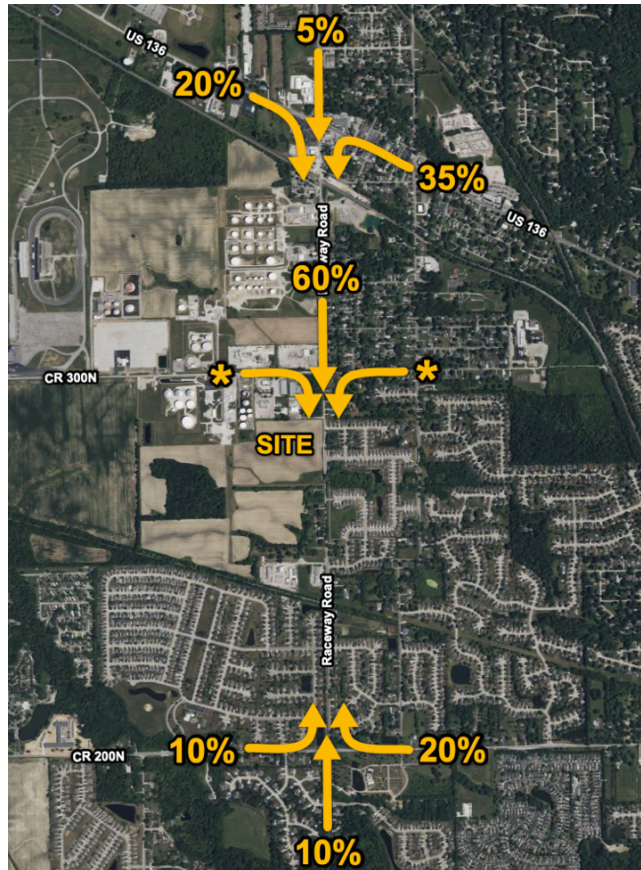
Based on the proposed land use, the projected AM and PM peak hour trips<sup>4</sup> at full build-out are tabulated below:

Semi-Truck/Trailer Sale and Lease Facility	Trip Generation			
	AM Peak Hour		PM Peak Hour	
	Entry	Exit	Entry	Exit
General Office Building	17	2	3	17
Maintenance and Parts	5	1	2	30
<b>TOTAL SITE TRAFFIC</b>	<b>22</b>	<b>3</b>	<b>5</b>	<b>47</b>

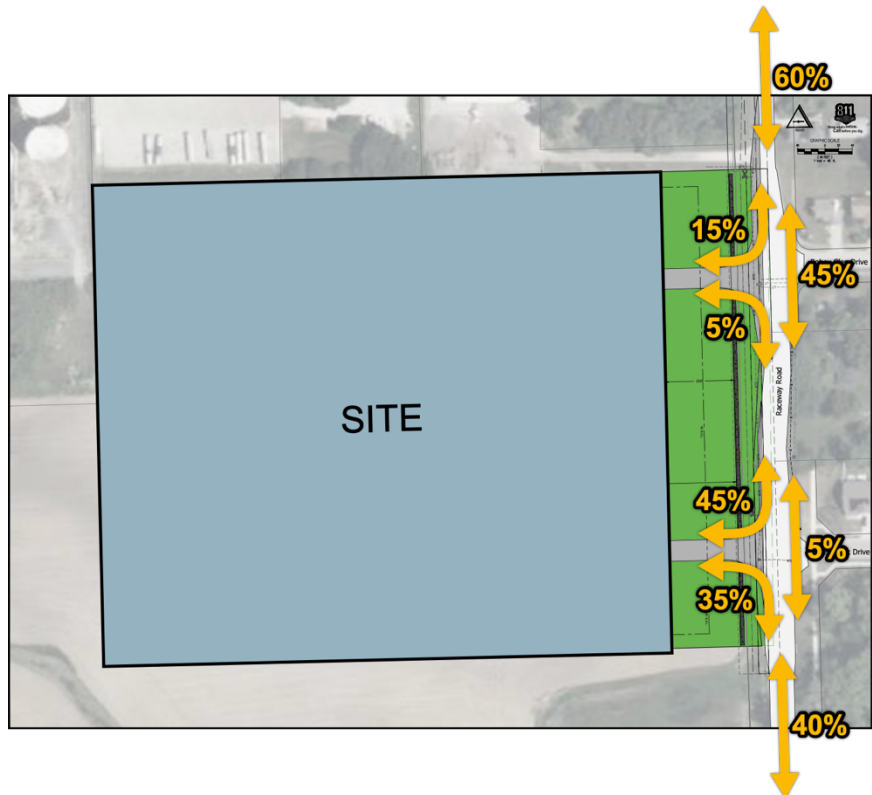
<sup>4</sup> Derived from historical data for similar land uses and the Institute of Transportation Engineers, Trip Generation Manual, 11<sup>th</sup> Edition

**Proposed Development (continued)**  
**Distribution of Site Traffic**

The distribution of new site traffic is based on the nature of the proposed development, existing traffic patterns in this area, and proximity to population centers. This graphic depicts the portion of traffic whose *destination* is the proposed development:



This graphic depicts the projected distribution of site traffic at the proposed site driveways:



# Projected Full Build-out Turning<sup>5</sup> Movements – Summary

## AM Peak Hour – 2028 with Site Traffic

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Raceway Rd at CR 200N	Final Base	19	138	79	49	118	50	44	442	26	85	259	39	1348
		Growth Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		Net New Trips	0	2	0	1	0	0	2	0	0	0	0	4	9
		<b>Future Total</b>	<b>20</b>	<b>147</b>	<b>83</b>	<b>52</b>	<b>124</b>	<b>53</b>	<b>48</b>	<b>464</b>	<b>27</b>	<b>89</b>	<b>272</b>	<b>45</b>	<b>1424</b>
20	Raceway Rd at Tansel Creek Dr	Final Base	0	254	8	12	143	0	0	0	0	16	0	24	457
		Growth Factor	1.00	1.05	1.00	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		Net New Trips	7	1	0	0	0	10	2	0	1	0	0	0	21
		<b>Future Total</b>	<b>7</b>	<b>268</b>	<b>8</b>	<b>12</b>	<b>150</b>	<b>10</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>16</b>	<b>0</b>	<b>24</b>	<b>498</b>
30	Raceway Rd at Robey Glen Dr	Final Base	0	270	8	12	139	0	0	0	0	16	0	24	469
		Growth Factor	1.00	1.05	1.00	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		Net New Trips	1	2	0	0	10	3	0	0	0	0	0	0	16
		<b>Future Total</b>	<b>1</b>	<b>286</b>	<b>8</b>	<b>12</b>	<b>156</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>24</b>	<b>506</b>
40	Raceway Rd at CR 300N	Final Base	16	257	14	4	158	63	77	21	8	4	13	8	643
		Growth Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		Net New Trips	0	2	0	0	13	0	0	0	0	0	0	0	15
		<b>Future Total</b>	<b>17</b>	<b>272</b>	<b>15</b>	<b>4</b>	<b>179</b>	<b>66</b>	<b>81</b>	<b>22</b>	<b>8</b>	<b>4</b>	<b>14</b>	<b>8</b>	<b>690</b>
50	Raceway Rd at US 136	Final Base	92	92	153	124	87	27	23	235	39	104	207	57	1240
		Growth Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		Net New Trips	1	0	1	0	1	0	0	4	8	0	0	0	15
		<b>Future Total</b>	<b>98</b>	<b>97</b>	<b>162</b>	<b>130</b>	<b>92</b>	<b>28</b>	<b>24</b>	<b>247</b>	<b>45</b>	<b>117</b>	<b>217</b>	<b>60</b>	<b>1317</b>

## PM Peak Hour – 2028 with Site Traffic

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	Raceway Rd at CR 200N	Final Base	65	220	136	70	238	78	75	394	127	148	515	54	2120
		Growth Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		Net New Trips	0	1	0	9	5	5	1	0	0	0	0	1	22
		<b>Future Total</b>	<b>68</b>	<b>232</b>	<b>143</b>	<b>83</b>	<b>255</b>	<b>87</b>	<b>80</b>	<b>414</b>	<b>133</b>	<b>155</b>	<b>541</b>	<b>58</b>	<b>2249</b>
20	Raceway Rd at Tansel Creek Dr	Final Base	0	268	20	30	390	0	0	0	0	10	0	15	733
		Growth Factor	1.00	1.05	1.00	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		Net New Trips	3	0	0	0	3	2	22	0	16	0	0	0	46
		<b>Future Total</b>	<b>3</b>	<b>281</b>	<b>20</b>	<b>30</b>	<b>413</b>	<b>2</b>	<b>22</b>	<b>0</b>	<b>16</b>	<b>10</b>	<b>0</b>	<b>15</b>	<b>812</b>
30	Raceway Rd at Robey Glen Dr	Final Base	0	263	20	30	410	0	0	0	0	10	0	15	748
		Growth Factor	1.00	1.05	1.00	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		Net New Trips	0	22	0	0	2	1	6	0	3	0	0	0	34
		<b>Future Total</b>	<b>0</b>	<b>298</b>	<b>20</b>	<b>30</b>	<b>433</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>3</b>	<b>10</b>	<b>0</b>	<b>15</b>	<b>816</b>
40	Raceway Rd at CR 300N	Final Base	24	268	26	6	384	150	68	30	37	14	17	4	1028
		Growth Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		Net New Trips	0	28	0	0	3	0	0	0	0	0	0	0	31
		<b>Future Total</b>	<b>25</b>	<b>309</b>	<b>27</b>	<b>6</b>	<b>406</b>	<b>158</b>	<b>71</b>	<b>32</b>	<b>39</b>	<b>15</b>	<b>18</b>	<b>4</b>	<b>1110</b>
50	Raceway Rd at US 136	Final Base	83	129	143	89	164	47	66	308	85	259	391	122	1886
		Growth Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	-
		Net New Trips	9	2	17	0	0	0	0	0	1	2	0	0	31
		<b>Future Total</b>	<b>96</b>	<b>137</b>	<b>167</b>	<b>93</b>	<b>172</b>	<b>49</b>	<b>69</b>	<b>323</b>	<b>90</b>	<b>274</b>	<b>411</b>	<b>128</b>	<b>2009</b>

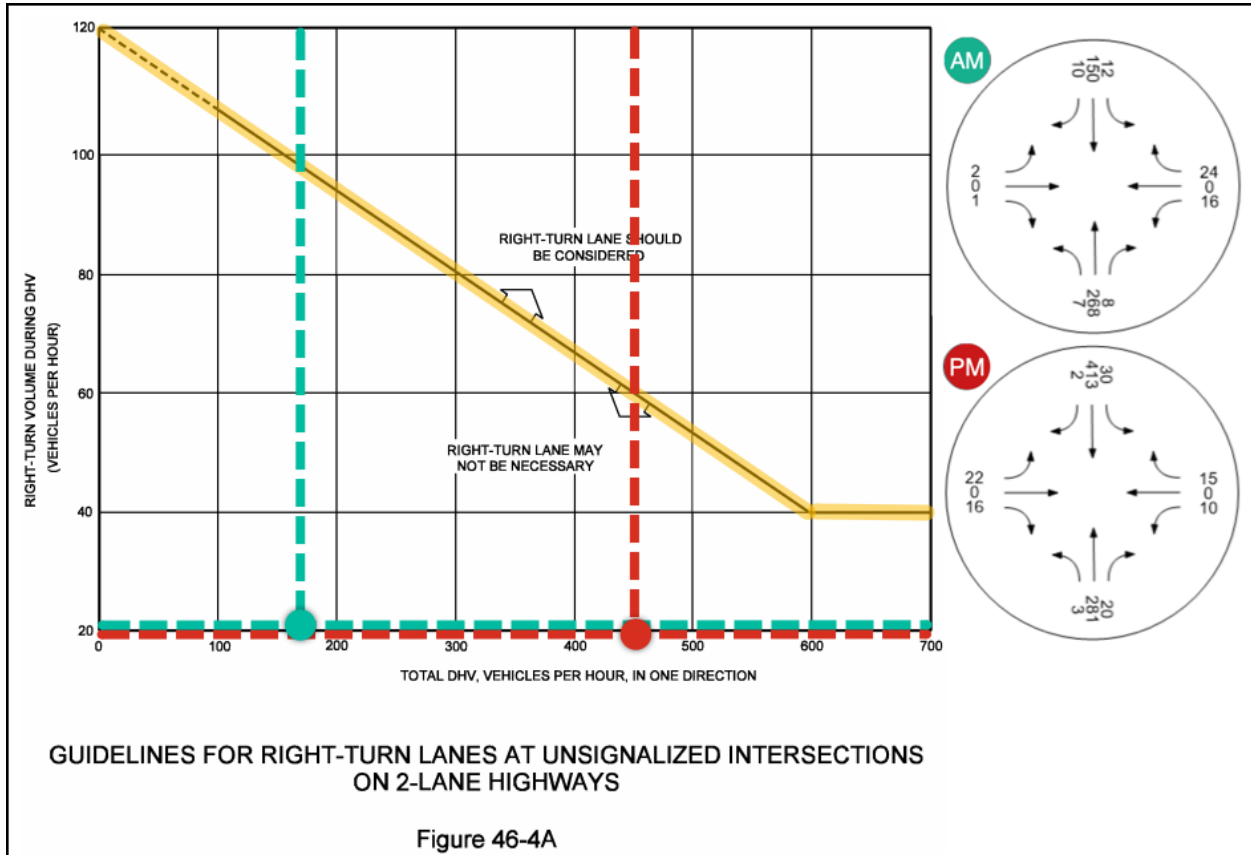
<sup>5</sup> Existing traffic ("Final Base") plus 5 years of background at an annual growth rate of 1% ("Growth Factor") plus projected site traffic ("Net New Trips")

## Right-Turn Lane Warrants – Summary

### Raceway Road at Tansel Creek Drive/Site Driveway

#### Proposed Facility

A southbound right-turn lane need not be considered<sup>6</sup> based on INDOT<sup>7</sup> guidelines below:



Note there is an existing northbound right-turn lane for vehicles entering the existing residential neighborhood.

<sup>6</sup> Using projected 2028 turning movements (existing traffic plus background growth plus projected site traffic)

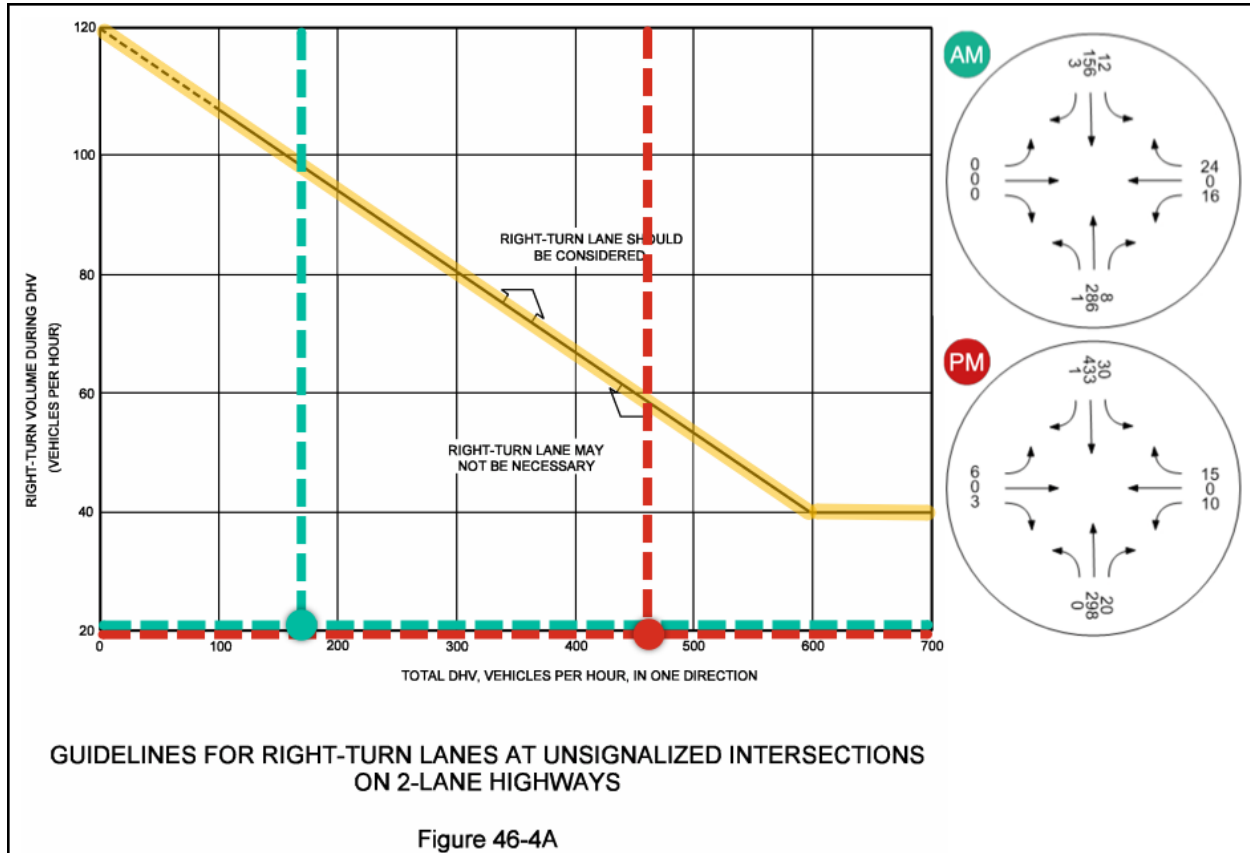
<sup>7</sup> Indiana Department of Transportation (INDOT) – *INDOT Driveway Manual 2018*

## Right-Turn Lane Warrants – Summary (continued)

### Raceway Road at Robey Glen Drive/Site Driveway

#### Proposed Facility

A southbound right-turn lane need not be considered<sup>8</sup> based on INDOT<sup>9</sup> guidelines below:



Note there is an existing northbound right-turn lane for vehicles entering the existing residential neighborhood.

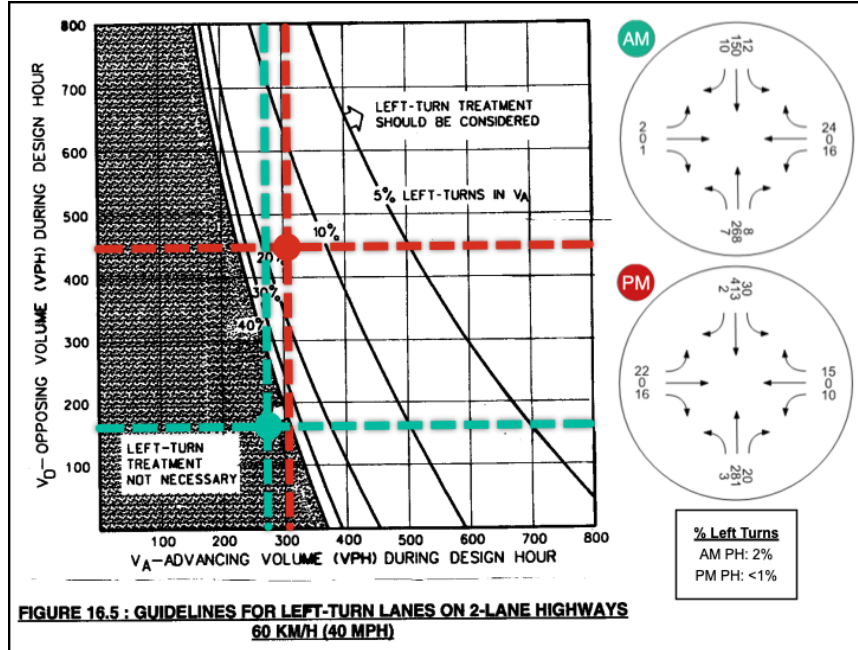
<sup>8</sup> Using projected 2028 turning movements (existing traffic plus background growth plus projected site traffic)

<sup>9</sup> Indiana Department of Transportation (INDOT) – *INDOT Driveway Manual 2018*

**Left-Turn Lane Warrants – Summary**  
**Raceway Road at Tansel Creek Drive/Site Driveway**

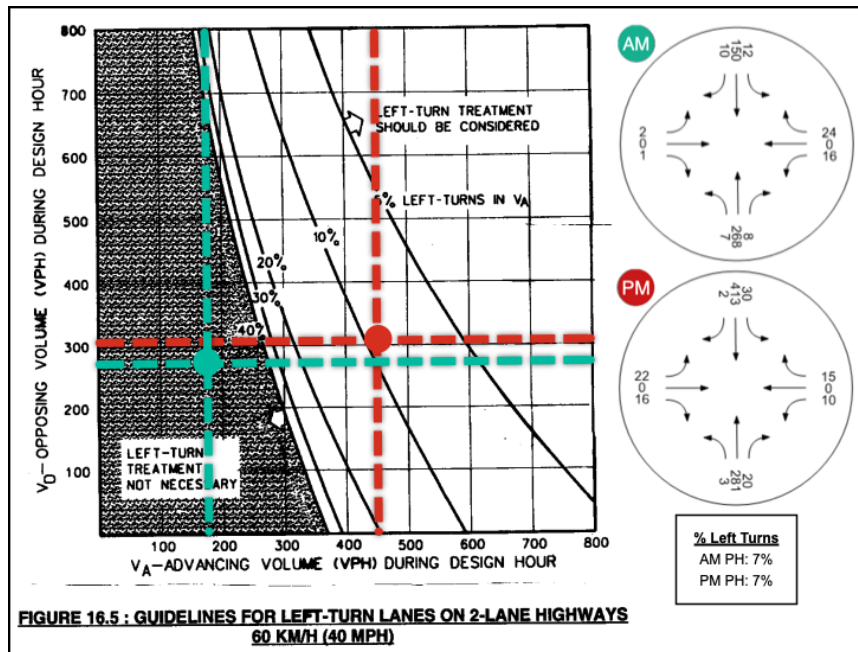
**Proposed Facility**

A northbound left-turn lane treatment is not necessary<sup>10</sup> based on INDOT<sup>11</sup> guidelines below:



**Existing Residential Neighborhood**

A southbound left-turn lane treatment is not necessary<sup>10</sup> based on INDOT<sup>11</sup> guidelines below:



<sup>10</sup> Using projected 2028 turning movements (existing traffic plus background growth plus projected site traffic)

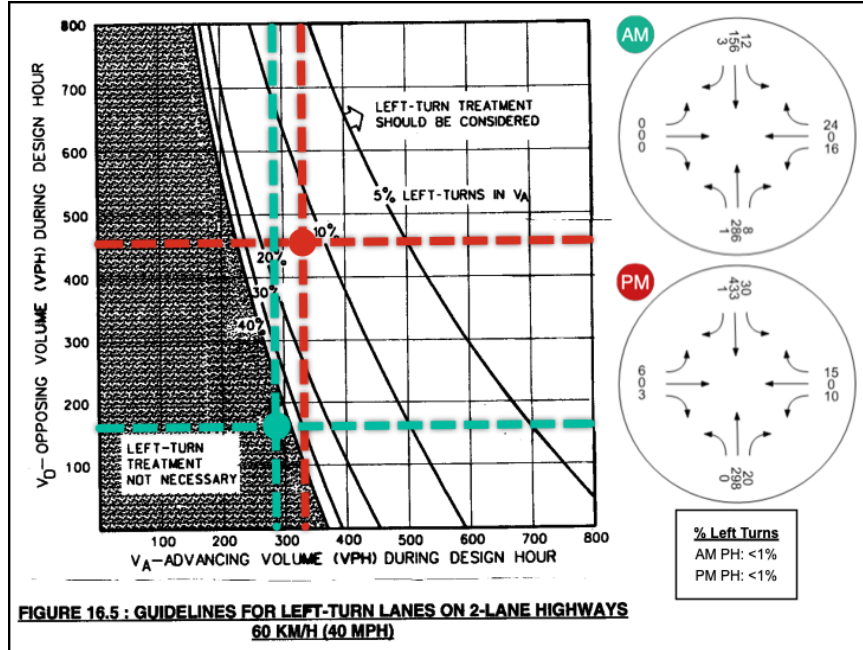
<sup>11</sup> Indiana Department of Transportation (INDOT) – *INDOT Driveway Manual 2018*

## Left-Turn Lane Warrants – Summary (continued)

### Raceway Road at Robey Glen Drive/Site Driveway

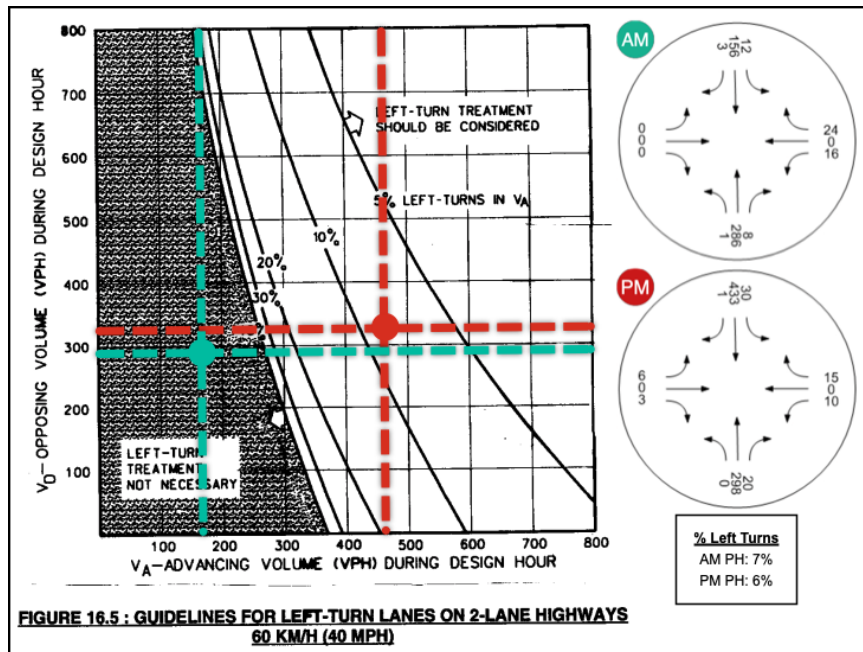
#### Proposed Facility

A northbound left-turn lane treatment is not necessary<sup>12</sup> based on INDOT<sup>13</sup> guidelines below:



#### Existing Residential Neighborhood

A southbound left-turn lane treatment is not necessary<sup>12</sup> based on INDOT<sup>13</sup> guidelines below:



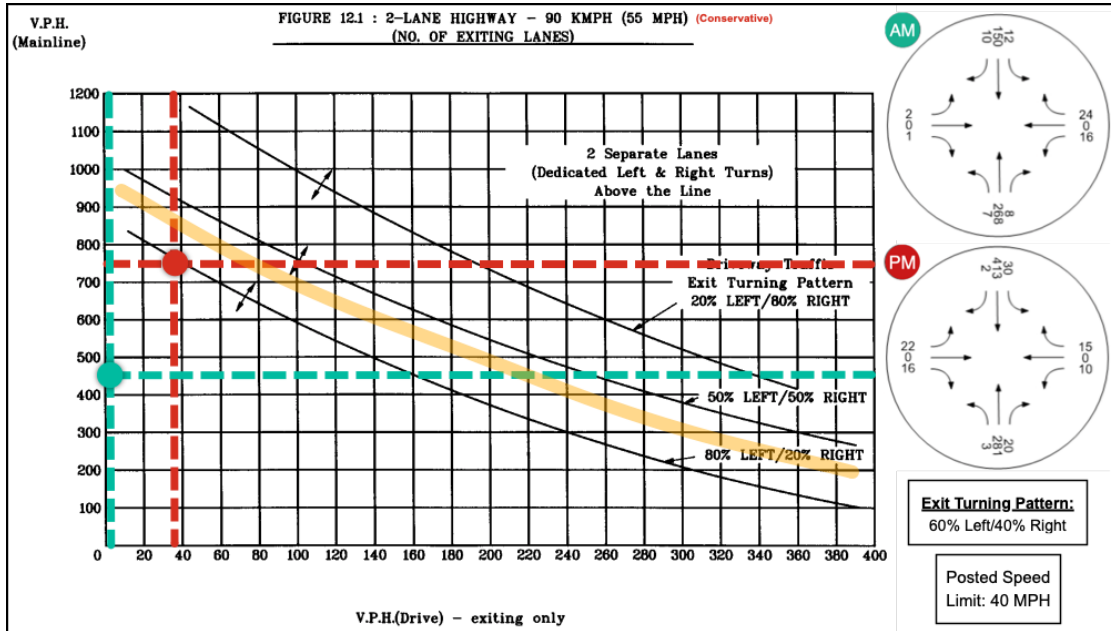
<sup>12</sup> Using projected 2028 turning movements (existing traffic plus background growth plus projected site traffic)

<sup>13</sup> Indiana Department of Transportation (INDOT) – *INDOT Driveway Manual 2018*

## Dual Exit Lanes Warrants – Summary

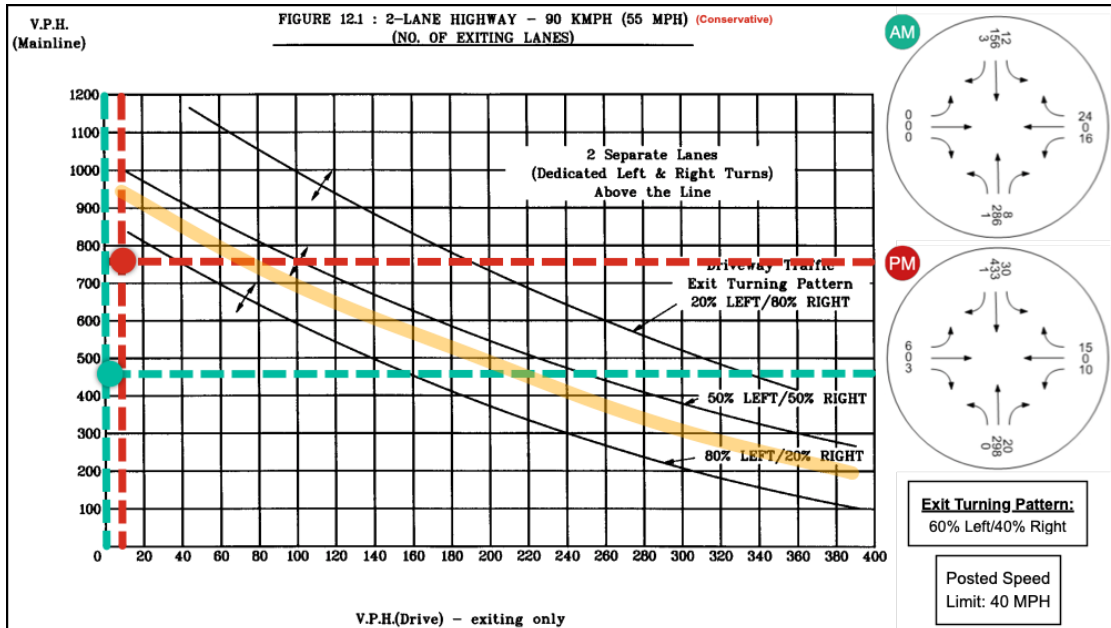
### Raceway Road at Tansel Creek Drive/Site Driveway – Proposed Facility

Dual exit lanes<sup>14</sup> are not necessary<sup>15</sup> based on INDOT<sup>16</sup> guidelines below:



### Raceway Road at Robey Glen Drive/Site Driveway – Proposed Facility

Dual exit lanes<sup>14</sup> are not necessary<sup>15</sup> based on INDOT<sup>16</sup> guidelines below:



<sup>14</sup> Regardless of requirements, dual exit lanes are often included to allow right turning vehicles to exit without delay behind a left turning vehicle

<sup>15</sup> Using projected 2028 turning movements (existing traffic plus background growth plus projected site traffic)

<sup>16</sup> Indiana Department of Transportation (INDOT) – *INDOT Driveway Manual 2018*

## Level of Service Summary

### Overview

Results are provided for each individual turning movement at the study intersections (see following pages). The individual turning movements are provided in terms of Level of Service (LOS). In general, LOS D is considered acceptable while LOS E/F suggest volume exceeding the capacity of the intersection, approach, or turning movement:

LOS	Signalized Intersection	Unsignalized Intersection
A	≤10 sec	≤10 sec
B	10–20 sec	10–15 sec
C	20–35 sec	15–25 sec
D	35–55 sec	25–35 sec
E	55–80 sec	35–50 sec
F	>80 sec	>50 sec

#### Raceway Road at CR 200N:

This signalized<sup>17</sup> intersection, including all approaches, is projected to perform at an acceptable LOS of “D” or better during the AM peak hour (PH) and PM PH evaluating projected 2028 full build-out<sup>18</sup> traffic volumes.

#### Raceway Road at Tansel Creek Drive/Site Driveway:

The projected maximum queue for the north/south, Raceway Road, approaches is one (1) vehicle while operating at a LOS of “A” during the AM PH and PM PH evaluating projected 2028 full build-out<sup>18</sup> traffic volumes.

The projected maximum queue for the east/west approaches, Tansel Creek Drive and Site Driveway, is one (1) vehicle while operating at a LOS of “C” or better during the AM PH and PM PH evaluating projected 2028 full build-out<sup>18</sup> traffic volumes.

#### Raceway Road at Robey Glen Drive/Site Driveway:

The projected maximum queue for the north/south, Raceway Road, approaches is one (1) vehicle while operating at a LOS of “A” during the AM PH and PM PH evaluating projected 2028 full build-out<sup>18</sup> traffic volumes.

The projected maximum queue for the east/west approaches, Robey Glen Drive and Site Driveway, is one (1) vehicle while operating at a LOS of “C” or better during the AM PH and PM PH evaluating projected 2028 full build-out<sup>18</sup> traffic volumes.

#### Raceway Road at CR 300N:

The projected maximum queue for the north/south, Raceway Road, approaches is one (1) vehicle while operating at a LOS of “A” during the AM PH and PM PH evaluating projected 2028 full build-out<sup>18</sup> traffic volumes.

The projected maximum queue for the east/west approaches, CR 300N, is three (3) vehicles while operating at a LOS of “D” or better during the AM PH and PM PH evaluating projected 2028 full build-out<sup>18</sup> traffic volumes.

#### Raceway Road at US 136:

The south approach of this signalized intersection is projected to perform at an unacceptable LOS during the PM PH evaluating projected 2028 traffic volumes<sup>19</sup> without site traffic. Adjusting signal timings during the PM PH can provide acceptable LOS results without roadway improvements (see page 19).

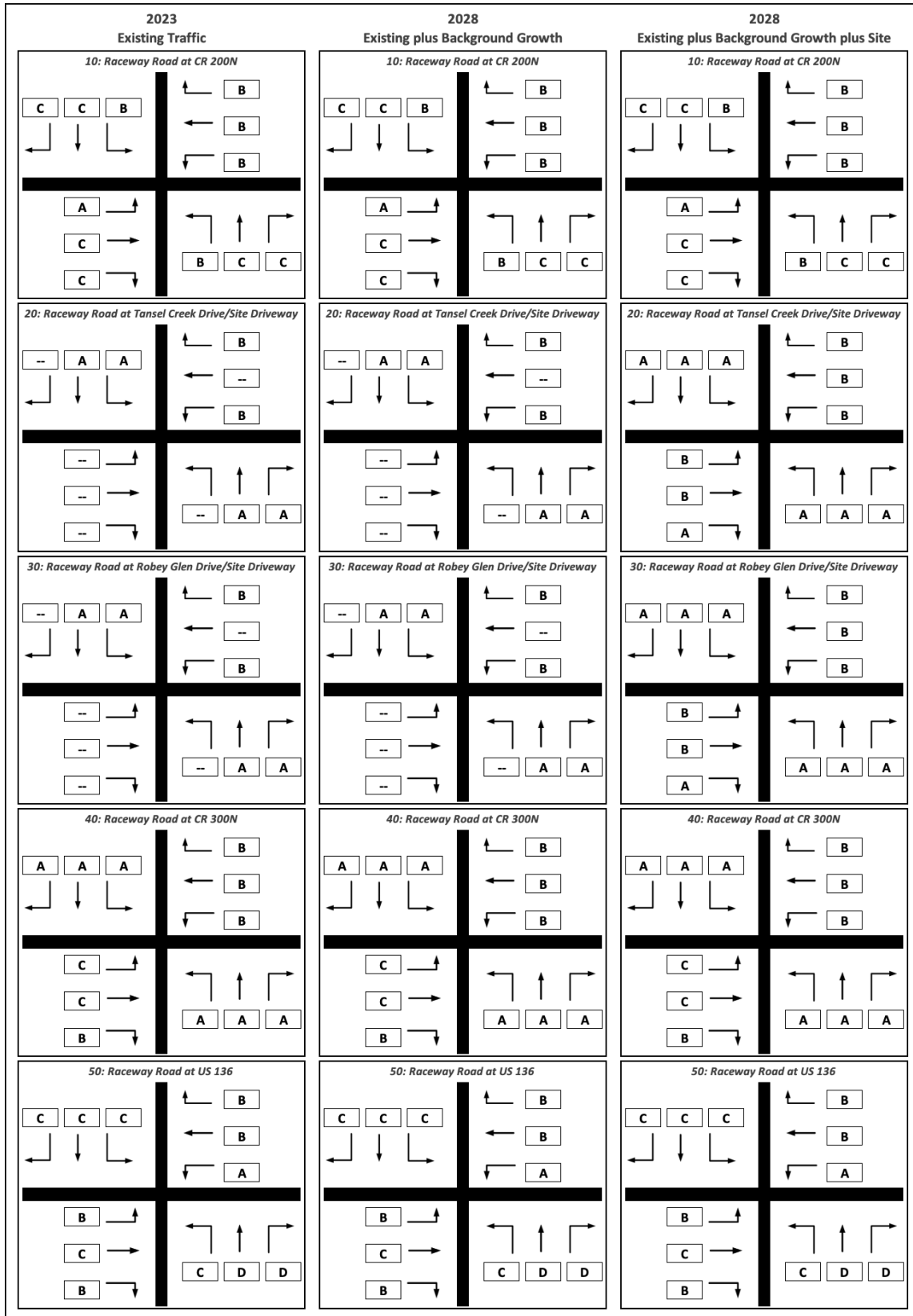
<sup>17</sup> In general, it is important to note that signal timings should be regularly reviewed and updated in order to maintain optimal traffic flow

<sup>18</sup> Existing traffic plus background growth (5 years at an annual growth rate of 1%) plus projected site traffic

<sup>19</sup> Existing traffic plus background growth (5 years at an annual growth rate of 1%)

# Level of Service Summary (continued)

## AM Peak Hour



# Level of Service Summary (continued)

## PM Peak Hour

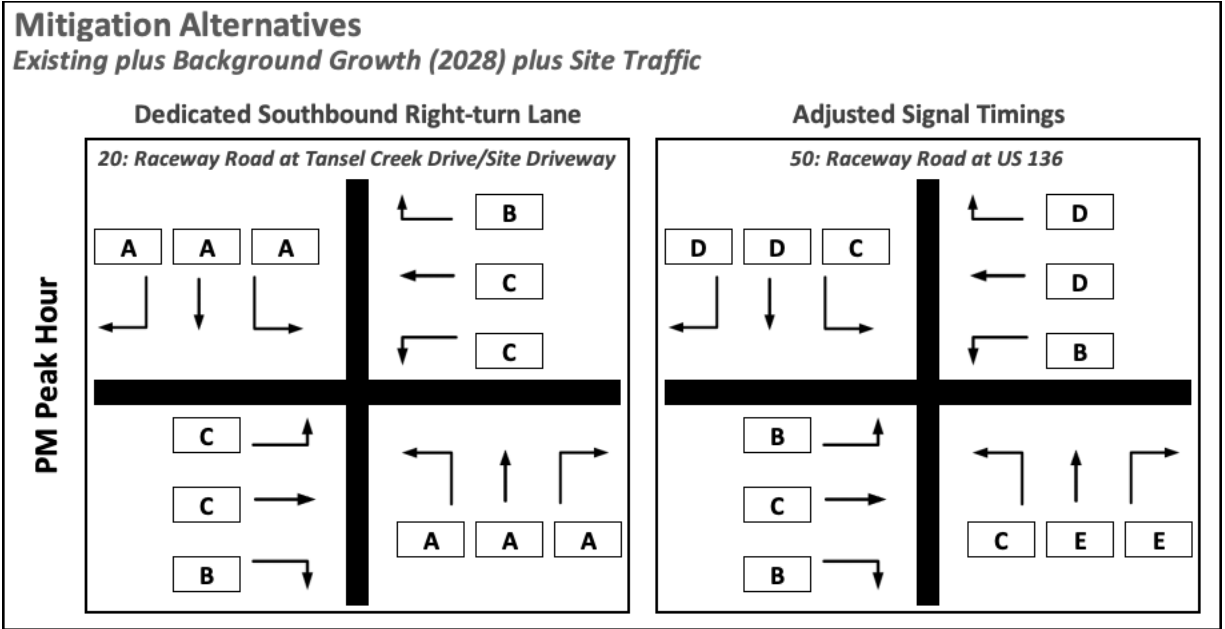
2023 Existing Traffic	2028 Existing plus Background Growth	2028 Existing plus Background Growth plus Site
<p>10: Raceway Road at CR 200N</p>	<p>10: Raceway Road at CR 200N</p>	<p>10: Raceway Road at CR 200N</p>
<p>20: Raceway Road at Tansel Creek Drive/Site Driveway</p>	<p>20: Raceway Road at Tansel Creek Drive/Site Driveway</p>	<p>20: Raceway Road at Tansel Creek Drive/Site Driveway</p>
<p>30: Raceway Road at Robey Glen Drive/Site Driveway</p>	<p>30: Raceway Road at Robey Glen Drive/Site Driveway</p>	<p>30: Raceway Road at Robey Glen Drive/Site Driveway</p>
<p>40: Raceway Road at CR 300N</p>	<p>40: Raceway Road at CR 300N</p>	<p>40: Raceway Road at CR 300N</p>
<p>50: Raceway Road at US 136</p>	<p>50: Raceway Road at US 136</p>	<p>50: Raceway Road at US 136</p>

**Level of Service (continued)**

**Mitigation**

Alternate geometry options were analyzed to quantify elective/future improvements:

- Raceway Road at Tansel Creek Drive/Site Driveway – an existing southbound passing blister can be re-stripped to serve as a southbound right-turn lane for vehicles entering the proposed facility.
- Raceway Road at US 136 – adjusted signal timings during the PM peak hour.



## **Level of Service Analysis**

*[submitted as separate document]*

## **Preliminary Site Plan**

*[submitted as separate document by client]*