TRIP GENERATION

The trip generation equations for the proposed warehouse were obtained from the *Trip Generation Manual*, 11th Edition, an Institute of Transportation Engineers (ITE) Informational Report. The data are categorized by Land Use Codes, with total vehicular trips for a given land use estimated using an independent variable and statistically generated rates or equations.

For the proposed warehouse development, Land Use Code 150 (Warehousing) from the *Trip Generation Manual* was used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. peak hour and (3) weekday P.M. peak hour.

Table 1 shows the trip generation equations and directional split for the analyzed time periods.

TABLE 1
ITE TRIP GENERATION DATA – TOTAL SITE TRIPS

Land Use	ITE #	Time Period	Average Rate	Directional Splits	
				Enter %	Exit %
Warehousing	150	Average Weekday	T = 1.58 * (X) + 38.29	50%	50%
		A.M. Peak Hour	T = 0.12*(X) + 23.62	77%	23%
		P.M. Peak Hour	T = 0.12*(X) + 26.48	28%	72%

T = number of site-generated trips *X = independent variable (1000 s.f. of gross floor area)*

Truck Trips

The truck trip generation for the proposed warehouse development was calculated utilizing Land Use Code 150 from the Trip Generate Manual, 11th Edition. The truck traffic volumes were deducted from the total warehouse trip generation to yield the passenger car traffic volumes. The proposed truck trip generation rates for this analysis are summarized in **Table 2**.

TABLE 2
ITE TRUCK TRIP GENERATION RATES: WAREHOUSING

Land Use	ITE #	Time Period	Average Rate	Directional Splits	
				Enter %	Exit %
Warehousing	150	Average Weekday	T = 0.60 * (X)	50%	50%
		A.M. Peak Hour	T = 0.02 * (X)	52%	48%
		P.M. Peak Hour	T = 0.03* (X)	52%	48%

T = number of site-generated truck trips *X = independent variable (1000 s.f. of gross floor area)*

The calculated trip generation for the proposed development is shown in **Table 3**.

TABLE 3
TRIP GENERATION SUMMARY

Land Use	Time Period	Trips: Total			Trips: Trucks			Trips: Passenger Cars		
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
1322 Cloverleaf Rd Building (1,006,880 s.f.)	Average Weekday	1629	815	814	605	302	303	1024	513	511
	A.M. Peak Hour	144	111	33	20	10	10	124	101	23
	P.M. Peak Hour	147	41	106	30	16	14	117	25	92
2483 Mt. Pleasant Building #1 (1,006,880 s.f.)	Average Weekday	1629	815	814	605	302	303	1024	513	511
	A.M. Peak Hour	144	111	33	20	10	10	124	101	23
	P.M. Peak Hour	147	41	106	30	16	14	117	25	92
2483 Mt. Pleasant Building #2 (364,560 s.f.)	Average Weekday	614	307	307	219	109	110	395	198	197
	A.M. Peak Hour	67	52	15	7	4	3	60	48	12
	P.M. Peak Hour	70	20	50	11	6	5	59	14	45
1311 Schwanger Rd Building (322,560 s.f.)	Average Weekday	548	274	274	194	97	97	354	177	177
	A.M. Peak Hour	62	48	14	6	3	3	56	45	11
	P.M. Peak Hour	65	18	47	10	5	5	55	13	42
Total (2,826,320 s.f.)	**Average Weekday**	**4420**	**2211**	**2209**	**1623**	**810**	**813**	**2797**	**1401**	**1396**
	A.M. Peak Hour	**417**	**322**	**95**	**53**	**27**	**26**	**364**	**295**	**69**
	P.M. Peak Hour	**429**	**120**	**309**	**81**	**43**	**38**	**348**	**77**	**271**

As shown in **Table 3**, the proposed development is anticipated to result in 417 new trips during the weekday A.M. peak hour and 429 new trips during the weekday P.M. peak hour.

TRIP DISTRIBUTION

New Trips (Passenger Cars)

The distribution of passenger car trips generated by the proposed warehouse development was calculated based on a gravity model of where workers who are employed in the Township reside.

New Trips (Trucks)

The distribution of truck trips was calculated based on the existing heavy vehicle traffic patterns at the Route 283 interchange. It is anticipated that truck traffic will exclusively use Cloverleaf Road to Route 283 based on the proposed site locations.

The new vehicle trips for the proposed warehouses will be distributed to the local roadway network based on the percentages shown in **Table 4**.

TABLE 4
TRIP DISTRIBUTION PERCENTAGES – NEW TRIPS

Direction To/From	Assignment (To/From)	Distribution Percentage (%)	
		Passenger Cars	Trucks
East	via Route 283	34%	55%
	via Main Street (SR 0230)	6%	--
	via Mt. Pleasant Road (SR 4010)	4%	--
West	via Route 283	19%	45%
	via Schwanger Road	6%	--
	via Main Street (SR 0230)	9%	--
North	via Cloverleaf Road (SR 4025)	8%	--
South	via Colebrook Road (SR 4025)	14%	--

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Home Destination Report - Where Workers Live Who are Employed in the Selection Area

Selection Area: Mount Joy Township, Lancaster County

Home (Destination) ZIP Code	Count	Percentage	To/From East			To/From West			To/From North	To/From South
			via Mt. Pleasant Rd	via Route 283	via Main St. (SR 0230)	via Route 283	via Schwanger Road	via Main St. (SR 0230)	via Cloverleaf Road	via Colebrook Road
17022	649	17.41%				30%	20%	30%	10%	10%
17552	324	8.69%	10%	40%	30%				10%	10%
17545	193	5.18%	20%	70%						10%
17601	120	3.22%		100%						
17603	103	2.76%		100%						
17547	100	2.68%								100%
17543	95	2.55%	10%	70%					20%	
17502	78	2.09%					20%	20%		60%
17057	77	2.07%				60%		40%		
17512	71	1.91%	10%	50%	40%					
17042	69	1.85%		100%						
17602	69	1.85%		100%						
17078	59	1.58%				70%			30%	
17046	47	1.26%							100%	
17112	43	1.15%				100%				
17111	39	1.05%				100%				
17404	36	0.97%		30%		30%				40%
17406	36	0.97%		40%						60%
17402	35	0.94%		30%	30%					40%
17538	33	0.89%		70%	30%					
17033	31	0.83%				60%	10%	10%	20%	
17036	29	0.78%				100%				
17522	28	0.75%		100%						
17356	27	0.72%		30%	20%					50%
17003	26	0.70%				100%				
Total	**2,417**	**65%**								

Note: For zip code 17022 (Elizabethtown) trips to/from west were weighted based on travel time/shortest travel path to Elizabethtown. If it is assumed that each route is taken to the approximate center of Elizabethtown the anticipated drive-time of each route is between 8-12 minutes with Route 283 taking the longest time and Schwanger/Main St taking about the same amount of drive-time. However, the Schwanger Road route includes multiple all-way stop intersections and traffic calming measures (i.e. speed humps) as it approaches Elizabethtown College, thus this route is not as desirable as Main St.

Weighted Trip Distributions

	To/From East			To/From West			To/From North	To/From South
	via Mt. Pleasant Rd	via Route 283	via Main St. (SR 0230)	via Route 283	via Schwanger Road	via Main St. (SR 0230)	via Cloverleaf Road	via Colebrook Road
	0%	0%	0%	5%	3%	5%	2%	2%
	1%	3%	3%	0%	0%	0%	1%	1%
	1%	4%	0%	0%	0%	0%	0%	1%
	0%	3%	0%	0%	0%	0%	0%	0%
	0%	3%	0%	0%	0%	0%	0%	0%
	0%	0%	0%	0%	0%	0%	0%	3%
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	0%	1%	0%	0%	0%	0%	0%	0%
	0%	0%	0%	0%	0%	0%	0%	0%
	0%	0%	0%	1%	0%	0%	0%	0%
Raw Total (65%)	**2%**	**22%**	**4%**	**12%**	**4%**	**7%**	**5%**	**9%**

	To/From East			To/From West			To/From North	To/From South	
	via Mt. Pleasant Rd	via Route 283	via Main St. (SR 0230)	via Route 283	via Schwanger Road	via Main St. (SR 0230)	via Cloverleaf Road	via Colebrook Road	
Total Weighted to 100%	4%	34%	6%	19%	6%	9%	8%	14%	100%

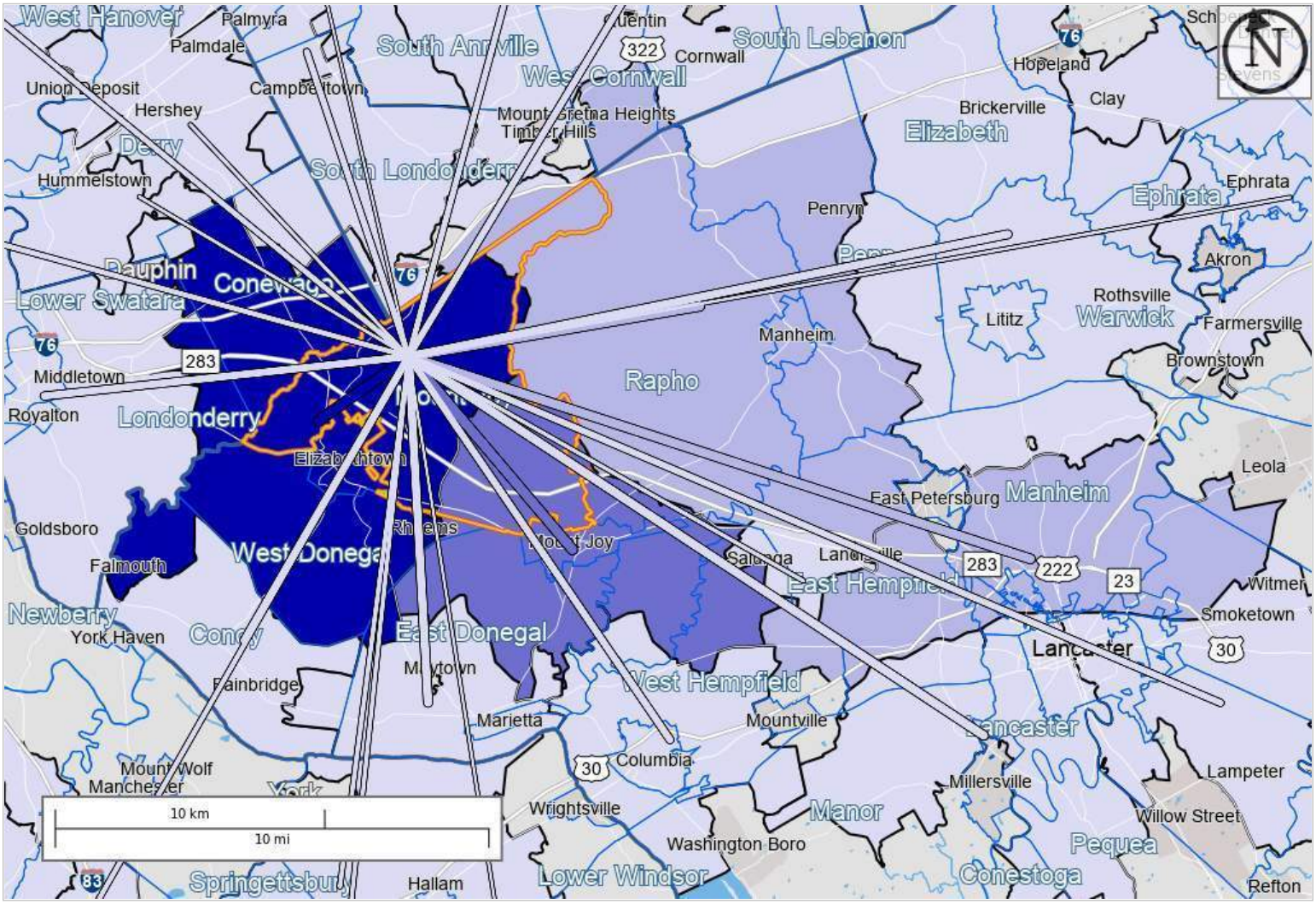
Home Destination Report - Work Selection Area to Home ZIP Codes (ZCTA)

All Jobs for All Workers in 2019

Created by the U.S. Census Bureau's OnTheMap `https://onthemap.ces.census.gov` on 03/29/2022

Counts of All Jobs from Work Selection Area to Home ZIP Codes (ZCTA) in 2019

All Workers



Map Legend

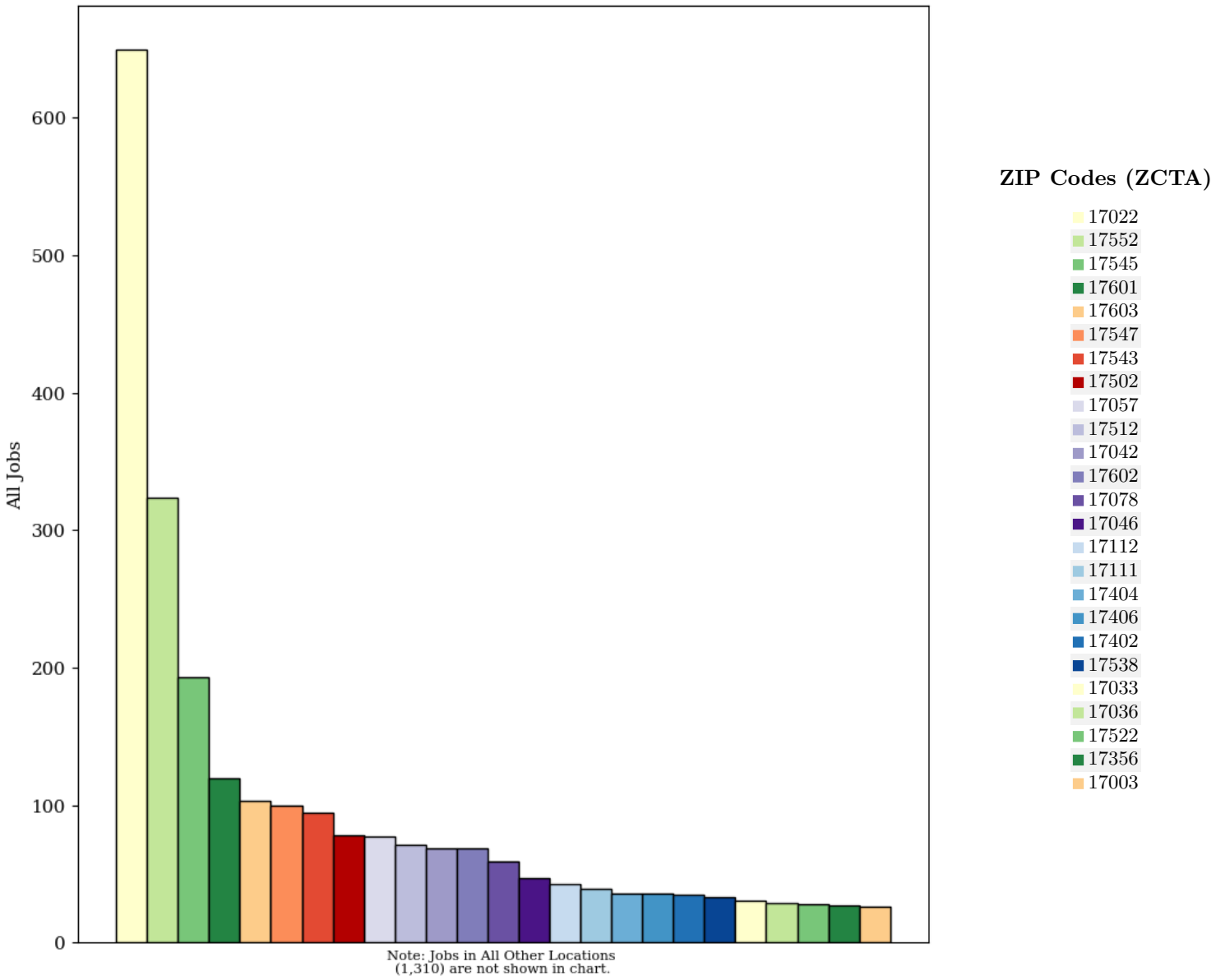
Job Count
- 561 - 649
- 472 - 560
- 383 - 471
- 294 - 382
- 205 - 293
- 116 - 204
- 26 - 115

Selection Areas
- Analysis Selection

Job Count
- 561 - 649
- 472 - 560
- 383 - 471
- 294 - 382
- 205 - 293
- 116 - 204
- 26 - 115

All Jobs from Work Selection Area to Home ZIP Codes (ZCTA) in 2019

All Workers



All Jobs from Work Selection Area to Home ZIP Codes (ZCTA) in 2019

All Workers

ZIP Codes (ZCTA) as Home Destination Area	2019 Count	2019 Share
All ZIP Codes (ZCTA)	3,727	100.0
17022	649	17.4
17552	324	8.7
17545	193	5.2
17601	120	3.2
17603	103	2.8
17547	100	2.7
17543	95	2.5
17502	78	2.1
17057	77	2.1
17512	71	1.9

ZIP Codes (ZCTA) as Home Destination Area	2019 Count	Share
17042	69	1.9
17602	69	1.9
17078	59	1.6
17046	47	1.3
17112	43	1.2
17111	39	1.0
17404	36	1.0
17406	36	1.0
17402	35	0.9
17538	33	0.9
17033	31	0.8
17036	29	0.8
17522	28	0.8
17356	27	0.7
17003	26	0.7
All Other Locations	1,310	35.1

Additional Information

Analysis Settings

Analysis Type	Destination
Destination Type	ZIP Codes (ZCTA)
Selection area as	Work
Year(s)	2019
Job Type	All Jobs
Selection Area	Mount Joy township (Lancaster, PA) from County Subdivisions
Selected Census Blocks	217
Analysis Generation Date	03/29/2022 14:42 - OnTheMap 6.8.1
Code Revision	f9358819d46a60bb89052036516a1c8fe8bbbeac
LODES Data Version	20211018_1647

Data Sources

Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2019).

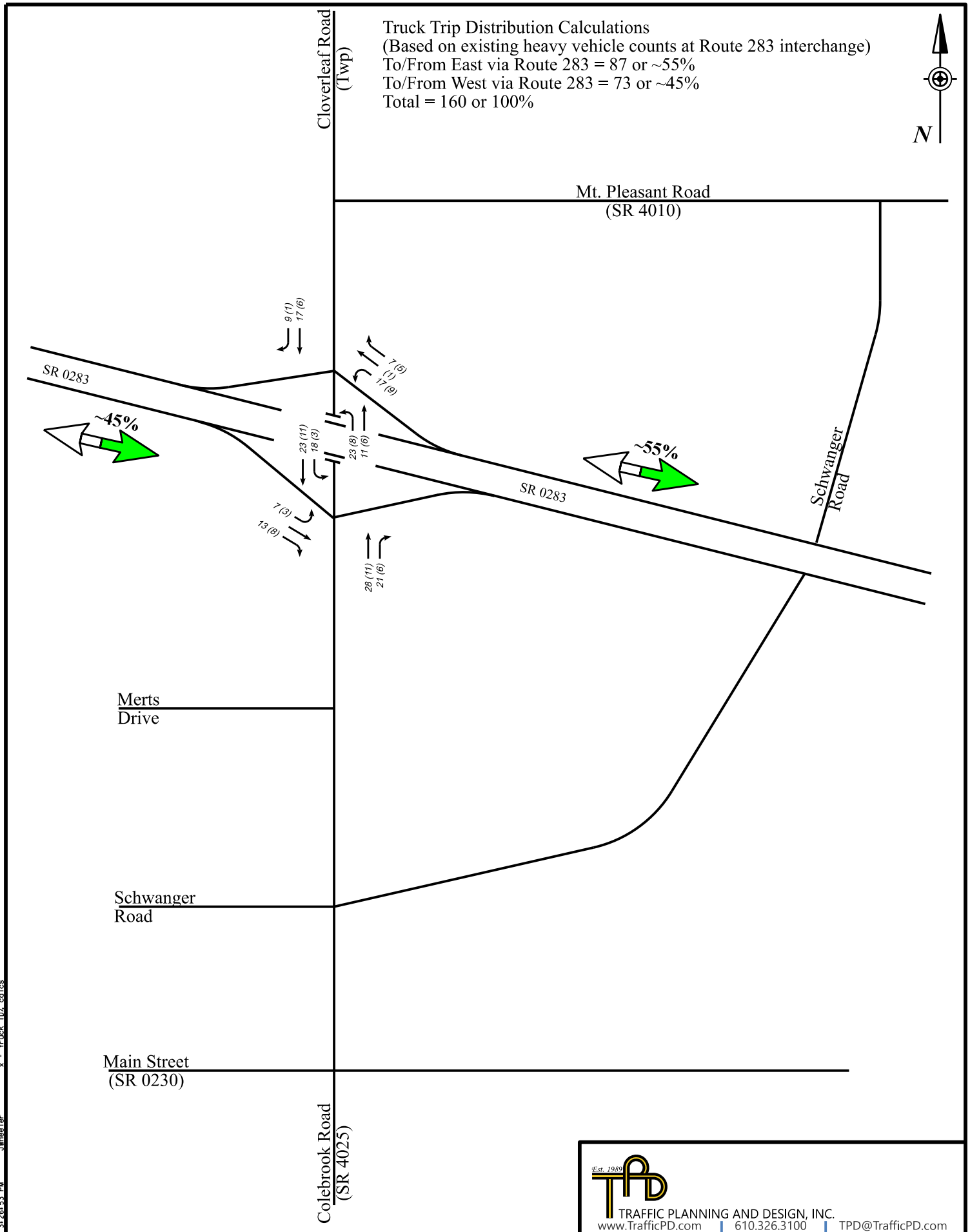
Notes

1. Race, Ethnicity, Educational Attainment, and Sex statistics are beta release results and are not available before 2009.
2. Educational Attainment is only produced for workers aged 30 and over.
3. Firm Age and Firm Size statistics are beta release results for All Private jobs and are not available before 2011.

Analysis Type	Destination
Destination Type	ZIP Codes (ZCTA)
Selection area as	Home
Year(s)	2019
Job Type	All Jobs
Selection Area	West Hanover township (Dauphin, PA) from County Subdivisions
Selected Census Blocks	219
Analysis Generation Date	04/06/2022 10:51 - OnTheMap 6.8.1
Code Revision	f9358819d46a60bb89052036516a1c8fe8bbbeac
LODES Data Version	20211018_1647

Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistic
Notes:

1. Race, Ethnicity, Educational Attainment, and Sex statistics are beta release results and are not availa
2. Educational Attainment is only produced for workers aged 30 and over.
3. Firm Age and Firm Size statistics are beta release results for All Private jobs and are not available bef



KEY:

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FIGURE

EXISTING CONDITIONS
WEEKDAY A.M.(P.M.) PEAK HOURS
HEAVY VEHICLE TRAFFIC VOLUMES

c:\pwworkingprojectwise\jwheeler\d1888645\2022-09-08 Scope App Figs.dgn
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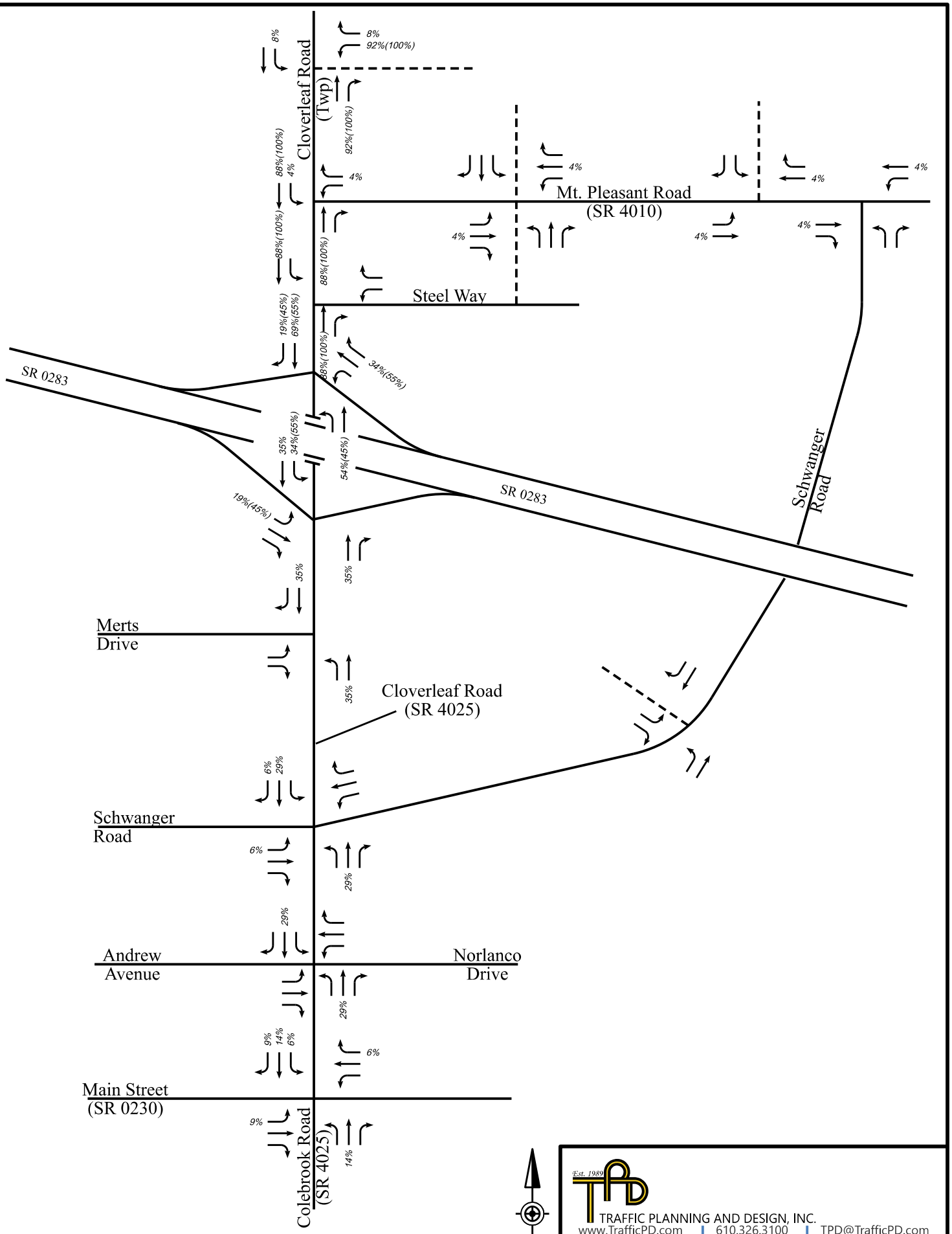

KEY:

- - - - - PROPOSED DRIVEWAY

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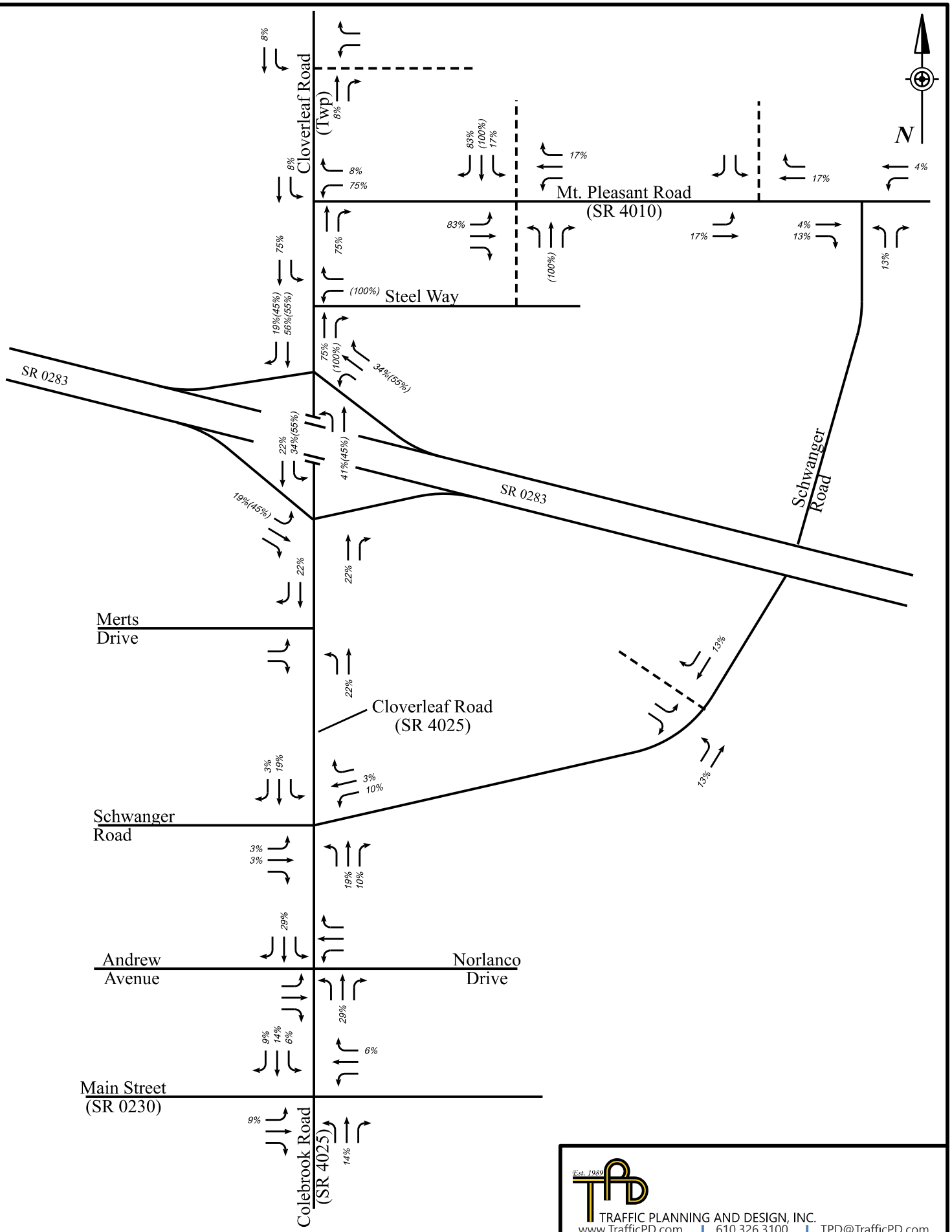
FIGURE 4

1322 CLOVERLEAF RD WAREHOUSE
CAR(TRUCK) TRIP DISTRIBUTION AND
ASSIGNMENT PERCENTAGES



KEY:

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FIGURE 5

2843 MT. PLEASANT RD WAREHOUSE #2
CAR(TRUCK) TRIP DISTRIBUTION AND
ASSIGNMENT PERCENTAGES

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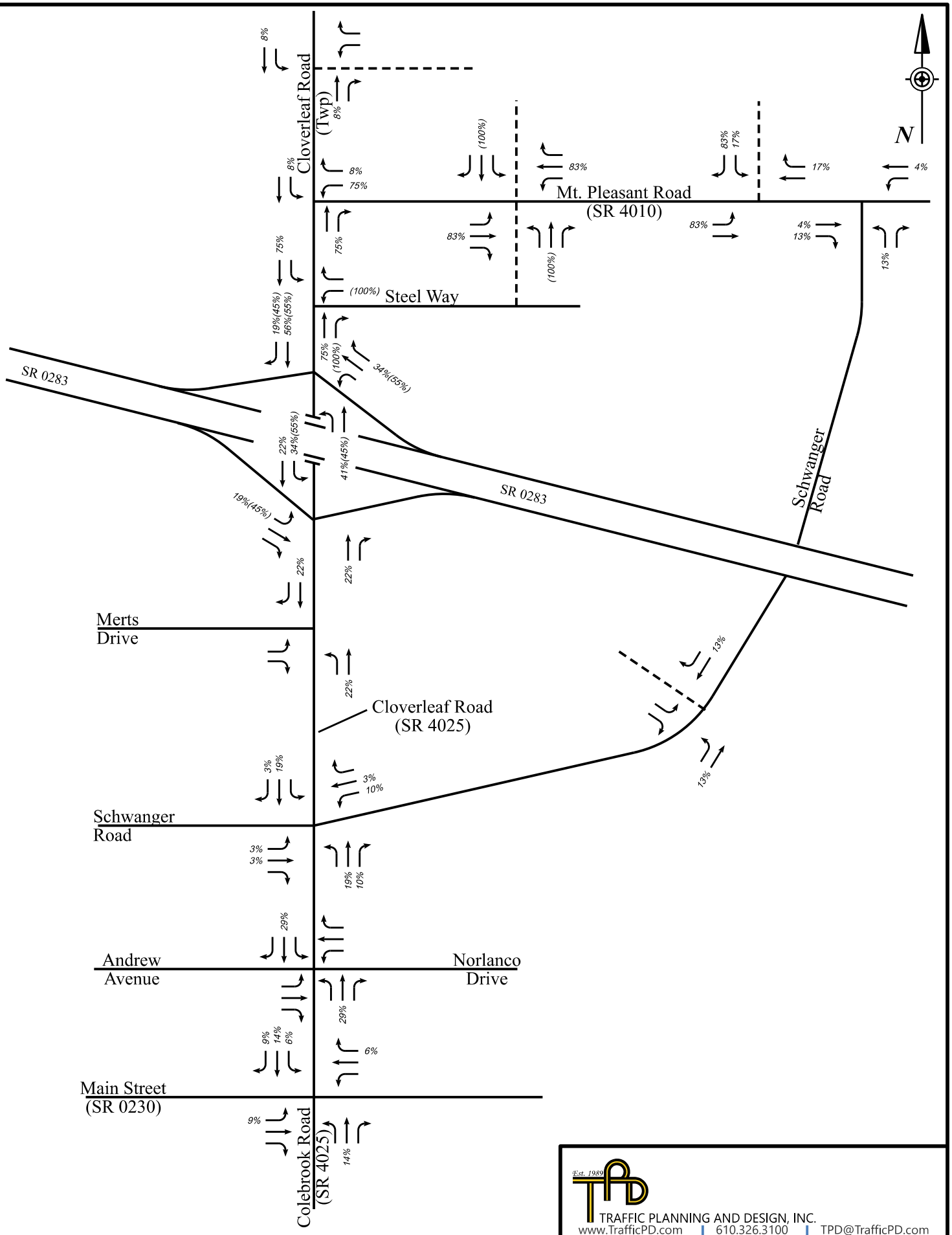
1/4/2023 3:43:33 PM jwheeler
07 - building 3 1dz



KEY:

- - - - - PROPOSED DRIVEWAY

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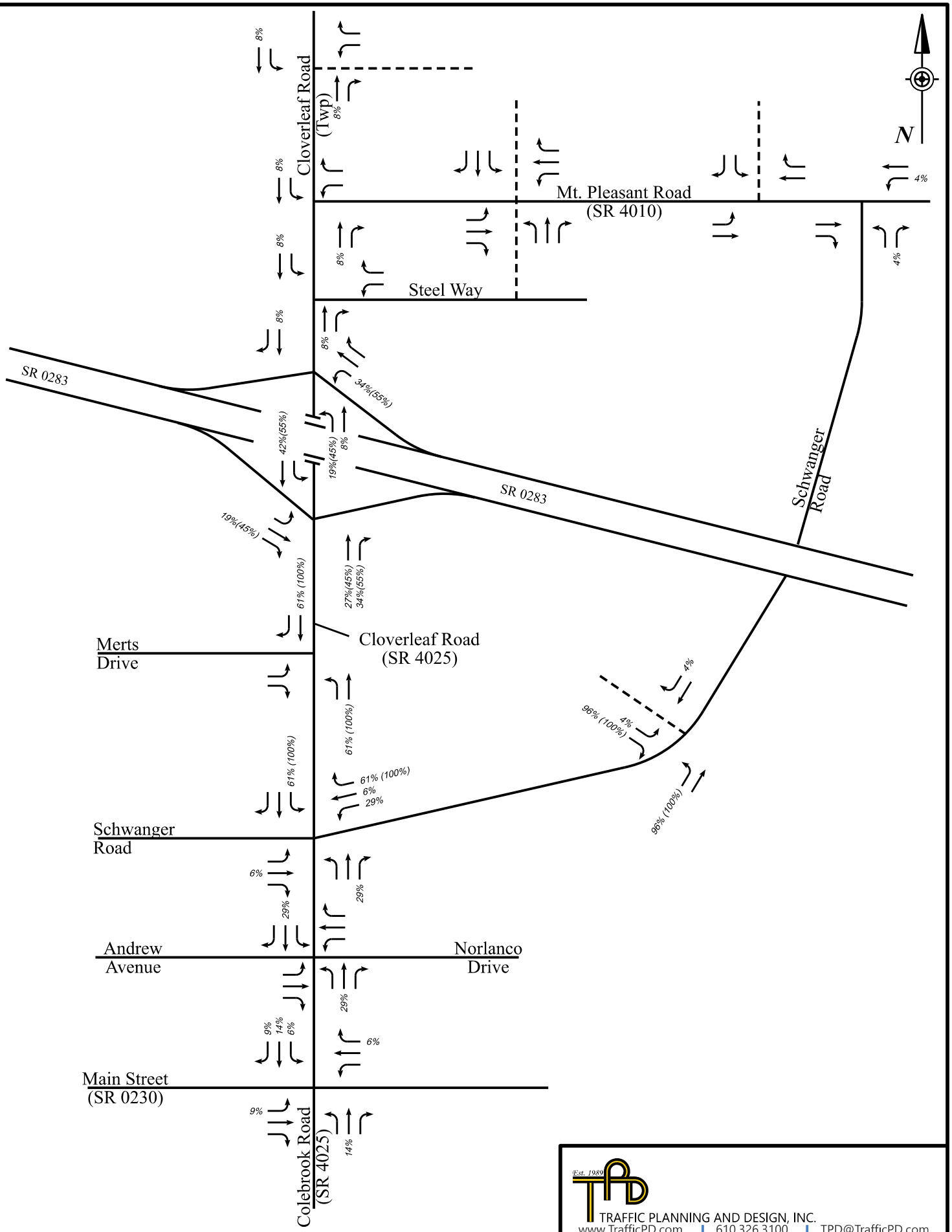
FIGURE 6

2843 MT. PLEASANT RD WAREHOUSE #1
CAR(TRUCK) TRIP DISTRIBUTION AND
ASSIGNMENT PERCENTAGES



KEY:

- - - - - PROPOSED DRIVEWAY

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FIGURE 7

1311 SCHWANGER ROAD WAREHOUSE
CAR(TRUCK) TRIP DISTRIBUTION AND
ASSIGNMENT PERCENTAGES