



McMAHON ASSOCIATES, INC.,  
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Exton, PA 19341  
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PRINCIPALS

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May 19, 2017

Mr. Chris Patriarca  
Zoning Officer  
Westtown Township  
1039 Wilmington Pike  
West Chester, PA 19382

RE: **Crebilly Residential Development  
Transportation Impact Study  
McMahon Project No. 816451.11**

Dear Mr. Patriarca:

McMahon Associates, Inc. is in receipt of Kimley Horn's comment letter dated April 3, 2017 with regard to the Transportation Impact Study for the above referenced project. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

**General**

*Comment #1: As previously noted several comments from the review letter dated December 27, 2016 remain outstanding. Specifically, formal responses have not been provided the following Conditional Use Subdivision Plan comments:*

- a. The network of internal roadways should be revised to provide a more continuous connection between PA 926 and West Pleasant Grove Road generally consistent with the Township Growth Management Plan except as noted below. {§149-102}*
- b. The intersections of the continuous connection between PA 926 and West Pleasant Grove Road should be aligned with Bridlewood Boulevard at PA 926 and the future road extension through the Arborview Commercial parcel at West Pleasant Grove Road. {§149-300}*
- c. It is acknowledged that the Township Growth Management Plan shows an access between the internal connection roadway and US 202 within the Crebilly Farm. Based on the current scope of PennDOT improvements (Arterial in lieu of Limited Access and minor improvements to the intersection of US 202 and PA 926) this access may no longer be appropriate. Consideration should be given to removing the proposed access/road extension to US 202. {§170-1512.B}*
- d. The internal roadways appear to provide the minimum 24-foot paved width for a Minor Street. Consideration should be given to requiring additional width or adjacent sidewalks to accommodate pedestrian traffic. {§149-916}*

A-35

- e. *The plans should reflect the applicable elements of the Township Trails Plan. (§149-102)*

*If these are to be addressed by a consultant other than the applicant's traffic engineer than we would request being copied on the relevant correspondence.*

- Response:
- a. The proposed internal roadways provide a connection between PA 926 and West Pleasant Grove Road that is appropriate through a residential development and for use by local traffic, which is generally consistent with the Township Traffic Growth Management Plan.
  - b. As directed by PennDOT, the PA 926 site access to the Crebilly development must be located opposite Bridlewood Boulevard. It is our understanding that the Arborview site access is proposed to be located along West Pleasant Grove Road, opposite the Westminster Presbyterian Church property, and therefore, the Crebilly site access along West Pleasant Grove Road cannot be located opposite the Arborview access.
  - c. Through coordination with the Township and PennDOT, consideration will be given to eliminate the site access to US 202.
  - d. The proposed roadway widths satisfy the Township requirements. Sidewalks will be provided along the internal roadways.

Comment #2: *As previously noted the materials provided to the Township do not clearly demonstrate that peak traffic will be accommodated in a safe and efficient manner, or identify improvements that the applicant is committed to complete or fund. (Â§170-2009 D(1)(h)) Specifically:*

- a. *The revised analyses of US 202 and PA 926 provided as part of the January 20, 2017 submission indicate that the southbound queues will extend beyond the proposed US 202 access during both morning and evening peak periods, and beyond West Pleasant Grove Road during the evening peak. This will have a significant impact on the arrival and departure patterns of project traffic, as entering traffic is anticipated to show a preference for West Pleasant Grove and exiting traffic for PA 926. The response provided in the March 3, 2017 correspondence addresses the improvements proposed by the applicant to mitigate impacts at the site-adjacent intersection of US 202 and PA 926; however, these improvements do not address the underlying queuing and associated limitations on the proposed access to US 202. Two potential approaches to address this issue include the applicant:*
  - i. *Identifying additional improvements for US 202 and PA 926 and submitting revised analysis demonstrating the proposed US 202 access will operate in an acceptable manner.*
  - ii. *Committing to remove the US 202 access and submitting revised analyses demonstrating that the remaining accesses and related transportation facilities will operate compliance with applicable standards.*
- b. *The location of the revised eastern access to West Pleasant Grove Road:*
  - i. *Does not address previous comments regarding continuity with the future road extension through the Arborview Commercial parcel.*

- ii. *Must be verified relative to the recently completed residential access (not shown on the submitted illustration).*
- iii. *Does not provide any tolerance for entering left turns and will require detailed field verification.*

Response:

- a. The applicant has committed to complete roadway improvements to mitigate the traffic impact of the development, in accordance with PennDOT criteria, as outlined in the study. If coordination with the Township and PennDOT results in modifications to the development plan, the traffic analyses will be revised accordingly.
- b. As previously noted, it is our understanding that the Arborview site access is proposed to be located along West Pleasant Grove Road, opposite the Westminster Presbyterian Church property, and therefore, the Crebilly site access along West Pleasant Grove Road cannot be located opposite the Arborview access.

**Transportation Impact Study**

*Comment #3: As previously noted the counted 2016 traffic volumes should be reviewed to verify the decreased through volumes along US 202 compared to the most recent previous study of the subject site. The explanation provided in the two resubmissions do not address the long-term trends along the corridor and the relationship to other study assumptions such as "regional" growth. This intersection has been the subject of numerous studies over the last several decades by PennDOT, various developers, and the Regional Planning Commission. This data should be assembled and reviewed to ensure that the volumes utilized to assess the site accesses and impacts are reasonably accurate.*

Response: Historical traffic volumes along US 202 within the study area have been compiled and reviewed. **Table 1** provides three years of average annual daily traffic (AADT) for US 202 obtained from PennDOT's Internet Traffic Monitoring System (iTMS) website. The AADT along US 202 shows a minimal increase in traffic from August 2013 to March 2017 as documented by PennDOT. It is noted that the base year in which the traffic data was collected for all three years of data was 2012, and PennDOT applied growth factors to estimate the change in AADT.

**Table 1. U.S. Route 202 Historical Traffic Data**  
**Average Annual Daily Traffic (AADT)<sup>1</sup>**

Year Collected	US 202 Northbound	US 202 Southbound	Total Change from 2013
August 2013	23,252	22,932	-
October 2016	23,374	23,053	+ 0.53%
March 2017	23,514	23,191	+ 1.13%

1 – Average annual daily traffic (AADT) volumes obtained from PennDOT’s Internet Traffic Monitoring System (iTMS) website. The base year in which the traffic data was collected was 2012.

Additionally, raw daily traffic volumes and AADTs were also obtained from DVRPC’s Travel Monitoring System. **Table 2** provides four years of traffic data along US 202 within the study area. The raw daily traffic volumes and the AADTs both show a decrease in traffic from September 2003 to August 2012. PennDOT’s iTMS data and DVRPC’s traffic count data are provided in **Attachment 1**.

**Table 2. US 202 Historical Traffic Data  
 DVRPC Traffic Counts<sup>1</sup>**

Year Collected	US 202 Northbound		US 202 Southbound		Total Change from 2003 (Raw Daily Traffic Volumes)
	Raw Daily Traffic Volumes	Adjusted AADT	Raw Daily Traffic Volumes	Adjusted AADT	
September 2003	30,678	26,702	29,858	25,988	-
November 2006	28,642	28,371	28,995	28,720	- 4.79%
November 2009	29,938	28,335	28,192	26,682	- 3.97%
August 2012	28,627	22,631	28,233	22,319	- 6.07%

1 – Daily traffic volumes and adjusted average annual daily traffic (AADT) volumes obtained from DVRPC’s Travel Monitoring system.

*Comment #4: As previously noted, existing condition peak hour traffic counts are to be collected on a Thursday or Friday during any month from April to November. {§149-804.A(3)(g)}. As part of the Land Development Approval process, the applicant should request a waiver from the Township for the counts of New Street and West Pleasant Grove Road. If the applicant chooses to complete the counts during compliant periods that would also address this issue.*

**Response:** Traffic counts were completed at the intersection of New Street and West Pleasant Grove Road on Thursday, April 6, 2017 in accordance with Westtown Township’s Ordinance Chapter 149-804.A(3)(g). These traffic counts are provided in **Attachment 2**.

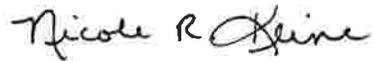
*Comment #5: The turn lane warrant analyses for Alternative A indicate that the project will contribute to the need for turn lanes at the following intersections:*  
*a. US 202 and West Pleasant Grove Road*  
*b. PA 926 and New Street*

**Response:** Turn lanes are warranted at these two study intersections based on existing conditions, and the same turn lanes are warranted with the development.

Mr. Chris Patriarca  
May 19, 2017  
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If there are any questions or if additional information is needed, please feel free to contact me at 610-594-9995, extension 5107 or at [nkline@mcmahonassociates.com](mailto:nkline@mcmahonassociates.com).

Sincerely,



Nicole R. Kline, P.E., PTOE  
Senior Project Manager

NRK

Attachment

cc: Albert Federico, P.E., PTOE, Kimley-Horn  
Robert Pingar, P.E., Westtown Township  
Andrew Semon, Toll Brothers  
Michael Downs, P.E., Toll Brothers  
Gregg Adelman, Esq., Kaplin Stewart

## **ATTACHMENT 1**

<b>SITE NO: 24453</b>	
County	CHESTER (15)
Route	0202
Segment	0060
Dir	N
Current Avg Daily Traffic	23252
Current Avg Daily Truck Volume	1860
K Factor	9
D Factor	55
T Factor	3
Truck Percent	8
Base Traffic Year	2012
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



**August 2013 iTMS Data  
U.S. Route 202 Northbound**

<b>SITE NO: 24453</b>	
County	CHESTER (15)
Route	0202
Segment	0061
Dir	S
Current Avg Daily Traffic	22932
Current Avg Daily Truck Volume	917
K Factor	9
D Factor	55
T Factor	3
Truck Percent	4
Base Traffic Year	2012
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



**August 2013 iTMS Data  
U.S. Route 202 Southbound**

<b>SITE NO: 24453</b>	
County	CHESTER (15)
Route	0202
Segment	0050
Dir	N
Current Avg Daily Traffic	23374
Current Avg Daily Truck Volume	1870
K Factor	9
D Factor	55
T Factor	3
Truck Percent	8
Base Traffic Year	2012
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



**October 2016 iTMS Data  
U.S. Route 202 Northbound**

<b>SITE NO: 24453</b>	
County	CHESTER (15)
Route	0202
Segment	0051
Dir	S
Current Avg Daily Traffic	23053
Current Avg Daily Truck Volume	922
K Factor	9
D Factor	55
T Factor	3
Truck Percent	4
Base Traffic Year	2012
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



**October 2016 iTMS Data**  
**U.S. Route 202 Southbound**

<b>SITE NO: 24453</b>	
County	CHESTER (15)
Route	0202
Segment	0050
Dir	N
Current Avg Daily Traffic	23514
Current Avg Daily Truck Volume	1881
K Factor	9
D Factor	55
T Factor	3
Truck Percent	8
Base Traffic Year	2012
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



**March 2017 iTMS Data  
U.S. Route 202 Northbound**

<b>SITE NO: 24453</b>	
County	CHESTER (15)
Route	0202
Segment	0051
Dir	S
Current Avg Daily Traffic	23191
Current Avg Daily Truck Volume	928
K Factor	9
D Factor	55
T Factor	3
Truck Percent	4
Base Traffic Year	2012
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



**March 2017 iTMS Data  
U.S. Route 202 Southbound**

# DVRPC - Travel Monitoring

**TAKEN BY:** JD                      **DATE:** 9/25/2003                      **PROJECT:** PAC03                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0060/0958  
**JM:** PLEASANT GROVE RD                      **TO:** RAMPS TO STETSON MIDDLE SCHOOL  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** NORTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 34341                      **COUNTER #:** 0340                      **WEATHER:** FAIR                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour	Wednesday 9/24/2003	Thursday 9/25/2003	Friday 9/26/2003
Beginning			
12 AM		226	231
1 AM		152	127
2 AM		144	185
3 AM		141	131
4 AM		243	215
5 AM		655	570
6 AM		1,649	1,537
7 AM		2,105	2,035
8 AM		1,914	1,875
9 AM		1,720	1,799
10 AM		1,633	1,673
11 AM		1,739	1,816
12 PM	1,733	1,793	
1 PM	1,554	1,707	
2 PM	1,764	1,787	
3 PM	2,089	2,146	
4 PM	2,282	2,293	
5 PM	2,176	2,303	
6 PM	2,002	2,017	
7 PM	1,470	1,433	
8 PM	1,200	1,032	
9 PM	889	846	
10 PM	586	592	
11PM	357	408	
<b>Total</b>		<b>30,678</b>	

**AXLE CORR. FACTOR:** 0.943                      **AADT:** 26,702                      **AM Peak %:** 6.9                      **Hour Beginning:** 7:00 AM  
**SEASONAL FACTOR:** 0.923                      **PM Peak %:** 7.5                      **Hour Beginning:** 5:00 PM

# DVRPC - Travel Monitoring

**TAKEN BY:** JD                      **DATE:** 9/25/2003                      **PROJECT:** PAC03                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0061/0608  
**DM:** PLEASANT GROVE RD                      **TO:** RAMPS TO STETSON MIDDLE SCHOOL  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** SOUTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 34343                      **COUNTER #:** 0340                      **WEATHER:** FAIR                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour	Wednesday 9/24/2003	Thursday 9/25/2003	Friday 9/26/2003
Beginning			
12 AM		212	293
1 AM		149	180
2 AM		124	144
3 AM		128	157
4 AM		211	219
5 AM		601	568
6 AM		1,497	1,501
7 AM		2,292	2,158
8 AM		2,087	2,061
9 AM		1,762	1,764
10 AM		1,464	1,601
11 AM		1,588	1,669
12 PM	1,660	1,518	
1 PM	1,603	1,681	
2 PM	1,722	1,778	
3 PM	1,917	1,904	
4 PM	1,976	1,967	
5 PM	2,016	2,038	
6 PM	1,972	2,019	
7 PM	1,487	1,456	
8 PM	1,155	1,125	
9 PM	993	961	
10 PM	658	850	
11 PM	407	446	
<b>Total</b>		<b>29,858</b>	

**AXLE CORR. FACTOR:** 0.943                      **AADT:** 25,988                      **AM Peak %:** 7.7                      **Hour Beginning:** 7:00 AM  
**SEASONAL FACTOR:** 0.923                      **PM Peak %:** 6.8                      **Hour Beginning:** 5:00 PM

# DVRPC - Travel Monitoring

**TAKEN BY:** JD                      **DATE:** 11/7/2006                      **PROJECT:** 06-PAC-042                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0060/0958  
**FROM:** PLEASANT GROVE RD                      **TO:** SKILES BLVD  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** NORTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 40377                      **COUNTER #:** 0343                      **WEATHER:** FAIR                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour Beginning	Monday 11/6/2006	Tuesday 11/7/2006	Wednesday 11/8/2006
12 AM		206	197
1 AM		132	134
2 AM		102	103
3 AM		132	138
4 AM		258	193
5 AM		714	689
6 AM		1,655	1,558
7 AM		2,174	2,053
8 AM		2,045	1,945
9 AM		1,753	1,824
10 AM		1,571	1,588
11 AM		1,602	1,649
12 PM	1,509	1,522	
1 PM	1,588	1,696	
2 PM	1,619	1,655	
3 PM	1,760	1,876	
4 PM	1,739	1,971	
5 PM	2,043	2,113	
6 PM	1,812	1,774	
7 PM	1,223	1,147	
8 PM	952	840	
9 PM	759	800	
10 PM	589	566	
11PM	317	338	
<b>Total</b>		<b>28,642</b>	

**AXLE CORR. FACTOR:** 0.938                      **AADT:** 28,371                      **AM Peak %:** 7.6                      **Hour Beginning:** 7:00 AM  
**SEASONAL FACTOR:** 1.056                      **PM Peak %:** 7.4                      **Hour Beginning:** 5:00 PM

# DVRPC - Travel Monitoring

**TAKEN BY:** JD                      **DATE:** 11/7/2006                      **PROJECT:** 06-PAC-042                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0061/0608  
**FM:** PLEASANT GROVE RD                      **TO:** SKILES BLVD  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** SOUTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 40379                      **COUNTER #:** 0328                      **WEATHER:** FAIR                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour	Monday 11/6/2006	Tuesday 11/7/2006	Wednesday 11/8/2006
Beginning			
12 AM		216	192
1 AM		114	134
2 AM		126	109
3 AM		130	128
4 AM		269	256
5 AM		629	596
6 AM		1,494	1,520
7 AM		2,186	1,940
8 AM		2,033	2,053
9 AM		1,682	1,499
10 AM		1,477	1,270
11 AM		1,610	1,616
12 PM	1,590	1,640	
1 PM	1,554	1,639	
2 PM	1,799	1,762	
3 PM	1,988	2,064	
4 PM	2,049	2,168	
5 PM	2,059	2,221	
6 PM	1,748	1,816	
7 PM	1,180	1,167	
8 PM	943	920	
9 PM	733	777	
10 PM	526	516	
11PM	334	339	
<b>Total</b>		<b>28,995</b>	

**AXLE CORR. FACTOR:** 0.938                      **AADT:** 28,720                      **AM Peak %:** 7.5                      **Hour Beginning:** 7:00 AM  
**SEASONAL FACTOR:** 1.056                      **PM Peak %:** 7.7                      **Hour Beginning:** 5:00 PM

# DVRPC - Travel Monitoring

**TAKEN BY:** JC                      **DATE:** 11/5/2009                      **PROJECT:** 09-PAC-                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0060/0958  
**JM:** PLEASANT GROVE RD                      **TO:** SKILES BLVD  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** NORTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 56394                      **COUNTER #:** 0803                      **WEATHER:** FAIR                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour	Wednesday 11/4/2009	Thursday 11/5/2009	Friday 11/6/2009
Beginning			
12 AM		240	211
1 AM		117	91
2 AM		103	109
3 AM		102	155
4 AM		244	234
5 AM		674	638
6 AM		1,774	1,601
7 AM		2,730	2,125
8 AM		2,879	2,386
9 AM		2,100	2,222
10 AM		1,489	1,933
11 AM		1,426	2,117
12 PM	1,536	1,517	
1 PM	1,522	1,535	
2 PM	1,613	1,630	
3 PM	1,845	1,707	
4 PM	2,088	1,911	
5 PM	2,017	2,063	
6 PM	1,847	1,851	
7 PM	1,408	1,300	
8 PM	881	915	
9 PM	683	815	
10 PM	507	552	
11PM	273	264	
<b>Total</b>	<b>14,684</b>	<b>29,938</b>	<b>34,186</b>

**AXLE CORR. FACTOR:** 0.938                      **AADT:** 28,335                      **AM Peak %:** 9.6                      **Hour Beginning:** 8:00 AM  
**SEASONAL FACTOR:** 1.009                      **PM Peak %:** 6.9                      **Hour Beginning:** 5:00 PM

# DVRPC - Travel Monitoring

**TAKEN BY:** JC                      **DATE:** 11/5/2009                      **PROJECT:** 09-PAC-                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0061/0608  
**FM:** PLEASANT GROVE RD                      **TO:** SKILES BLVD  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** SOUTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 56396                      **COUNTER #:** 0803                      **WEATHER:** FAIR                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour	Wednesday 11/4/2009	Thursday 11/5/2009	Friday 11/6/2009
Beginning			
12 AM		269	209
1 AM		107	139
2 AM		97	131
3 AM		137	151
4 AM		226	255
5 AM		524	544
6 AM		1,434	1,366
7 AM		2,240	2,044
8 AM		2,087	1,954
9 AM		1,541	1,565
10 AM		1,502	1,556
11 AM		1,488	1,778
12 PM	1,444	1,458	
1 PM	1,591	1,554	
2 PM	1,681	1,741	
3 PM	2,009	1,964	
4 PM	2,267	2,128	
5 PM	2,198	1,999	
6 PM	1,828	1,904	
7 PM	1,226	1,253	
8 PM	952	951	
9 PM	703	755	
10 PM	458	511	
11 PM	329	322	
<b>Total</b>		<b>28,192</b>	

**AXLE CORR. FACTOR:** 0.938                      **AADT:** 26,682                      **AM Peak %:** 7.9                      **Hour Beginning:** 7:00 AM  
**SEASONAL FACTOR:** 1.009                      **PM Peak %:** 7.5                      **Hour Beginning:** 4:00 PM

# DVRPC - Travel Monitoring

**TAKEN BY:** PR                      **DATE:** 8/29/2012                      **PROJECT:** 12-PAC                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0060/0958  
**OM:** PLEASANT GROVE RD                      **TO:** SKILES BLVD  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** NORTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 91308                      **COUNTER #:** 0701                      **WEATHER:** F                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour Beginning	Tuesday 8/28/2012	Wednesday 8/29/2012	Thursday 8/30/2012
12 AM		245	231
1 AM		159	148
2 AM		111	118
3 AM		136	144
4 AM		204	193
5 AM		622	617
6 AM		1,448	1,380
7 AM		2,067	2,167
8 AM		2,065	1,990
9 AM		1,788	1,848
10 AM		1,443	1,462
11 AM		1,466	1,449
12 PM		1,446	1,479
1 PM		1,462	1,684
2 PM		1,563	1,517
3 PM		1,716	1,828
4 PM		1,911	1,838
5 PM	1,488	1,965	1,971
6 PM	1,804	1,886	1,933
7 PM	1,276	1,417	
8 PM	1,064	1,090	
9 PM	821	953	
10 PM	626	903	
11PM	460	561	
<b>Total</b>		<b>28,627</b>	

**AXLE CORR. FACTOR:** 0.940                      **AADT:** 22,631                      **AM Peak %:** 7.2                      **Hour Beginning:** 7:00 AM  
**SEASONAL FACTOR:** 0.841                      **PM Peak %:** 6.9                      **Hour Beginning:** 5:00 PM

# DVRPC - Travel Monitoring

**TAKEN BY:** PR                      **DATE:** 8/29/2012                      **PROJECT:** 12-PAC                      **STATION ID:** 24453  
**ROAD:** US 202 WILMINGTON PK                      **SR/SEG/OFF:** 0202/0061/0608  
**JM:** PLEASANT GROVE RD                      **TO:** SKILES BLVD  
**STATE:** PA                      **COUNTY:** CHESTER                      **MCD:** 4202984104 - WESTTOWN TWP  
**COUNT DIR:** SOUTH                      **TRAFFIC DIR:** BOTH                      **SPEED LIMIT:** 45                      **FC:** 14  
**DVRPC FILE #:** 91310                      **COUNTER #:** 0635                      **WEATHER:** F                      **DATA SOURCE:** INTERNAL  
**COMMENTS:**

Hour	Tuesday 8/28/2012	Wednesday 8/29/2012	Thursday 8/30/2012
Beginning			
12 AM		192	211
1 AM		151	157
2 AM		97	116
3 AM		105	106
4 AM		244	261
5 AM		527	573
6 AM		1,370	1,407
7 AM		1,921	1,985
8 AM		1,814	1,861
9 AM		1,532	1,526
10 AM		1,460	1,477
11 AM		1,564	1,517
12 PM		1,519	1,596
1 PM		1,485	1,567
2 PM		1,634	1,812
3 PM		1,884	2,112
4 PM		2,176	2,022
5 PM	2,151	2,107	1,335
6 PM	1,802	1,939	
7 PM	1,382	1,514	
8 PM	1,062	1,210	
9 PM	752	856	
10 PM	517	589	
11 PM	324	343	
<b>Total</b>		<b>28,233</b>	

**AXLE CORR. FACTOR:** 0.940                      **AADT:** 22,319                      **AM Peak %:** 6.8                      **Hour Beginning:** 7:00 AM  
**SEASONAL FACTOR:** 0.841                      **PM Peak %:** 7.7                      **Hour Beginning:** 4:00 PM

## **ATTACHMENT 2**

# McMahon Associates, Inc.

425 Commerce Drive, Suite 200  
Fort Washington, P A 19034

Municipality: Westtown Township  
Location: New Street &  
W. Pleasant Grove Road  
Counter/Board #: BW

File Name : pleasant01w  
Site Code : 00004321  
Start Date : 4/6/2017  
Page No : 1

## Groups Printed- Passenger Vehicles - Heavy Vehicles

Start Time	New St Southbound		W. Pleasant Grove Rd Westbound		New St Northbound		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00	1	9	7	6	11	0	34
07:15	4	23	22	3	22	1	75
07:30	2	33	18	7	35	0	95
07:45	2	30	29	7	37	2	107
Total	9	95	76	23	105	3	311
08:00	6	33	18	8	30	0	95
08:15	7	33	15	5	15	0	75
08:30	3	25	13	7	20	2	70
08:45	15	16	18	8	28	10	95
Total	31	107	64	28	93	12	335
16:00	2	40	21	7	17	2	89
16:15	3	40	22	13	16	2	96
16:30	2	41	28	8	22	4	105
16:45	5	41	34	11	29	2	122
Total	12	162	105	39	84	10	412
17:00	2	43	25	10	25	2	107
17:15	5	31	10	5	30	1	82
17:30	3	19	18	13	38	2	93
17:45	1	45	42	10	42	1	141
Total	11	138	95	38	135	6	423
Grand Total	63	502	340	128	417	31	1481
Apprch %	11.2	88.8	72.6	27.4	93.1	6.9	
Total %	4.3	33.9	23	8.6	28.2	2.1	
Passenger Vehicles	62	494	338	122	409	31	1456
% Passenger Vehicles	98.4	98.4	99.4	95.3	98.1	100	98.3
Heavy Vehicles	1	8	2	6	8	0	25
% Heavy Vehicles	1.6	1.6	0.6	4.7	1.9	0	1.7

Zero Pedestrians were observed during this study.

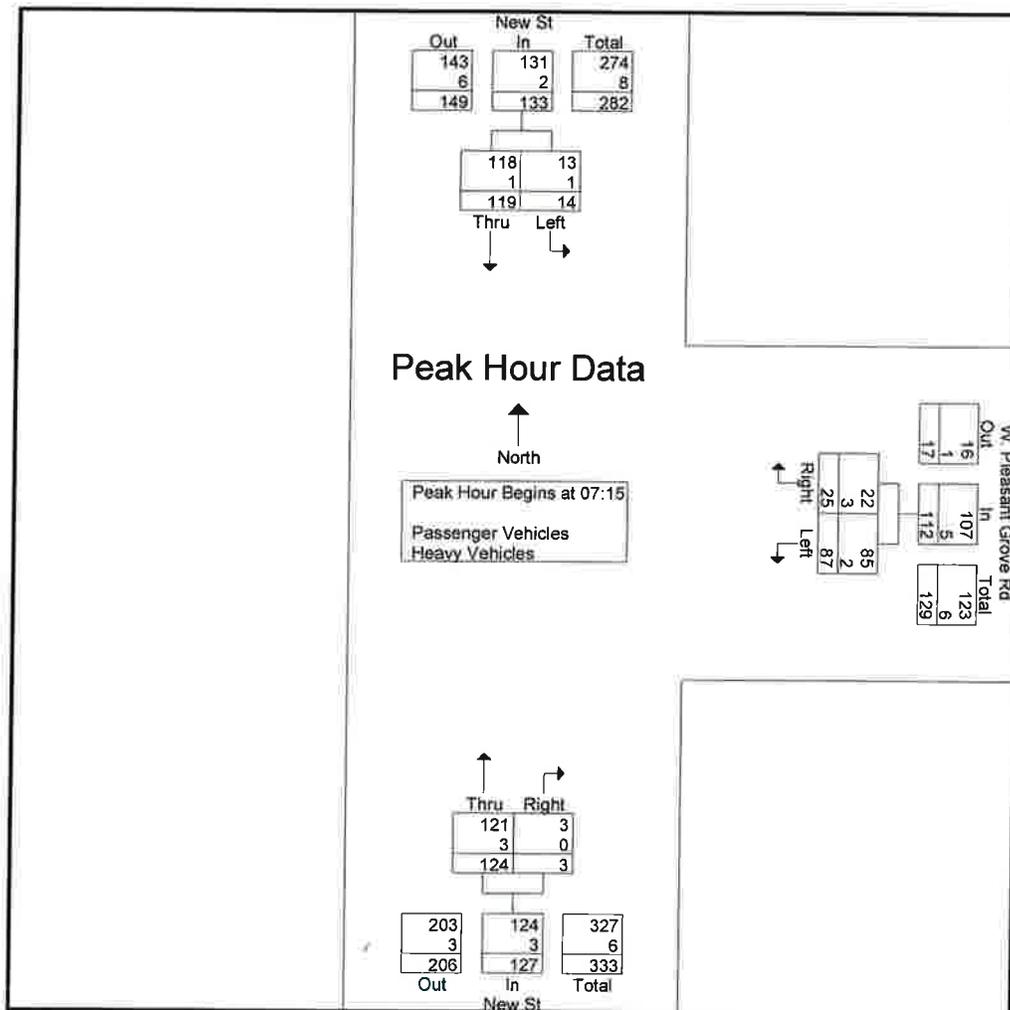
# McMahon Associates, Inc.

425 Commerce Drive, Suite 200  
Fort Washington, P A 19034

Municipality: Westtown Township  
Location: New Street &  
W. Pleasant Grove Road  
Counter/Board #: BW

File Name : pleasant01w  
Site Code : 00004321  
Start Date : 4/6/2017  
Page No : 2

Start Time	New St Southbound			W. Pleasant Grove Rd Westbound			New St Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15										
07:15	4	23	27	22	3	25	22	1	23	75
07:30	2	33	35	18	7	25	35	0	35	95
07:45	2	30	32	29	7	36	37	2	39	107
08:00	6	33	39	18	8	26	30	0	30	95
Total Volume	14	119	133	87	25	112	124	3	127	372
% App. Total	10.5	89.5		77.7	22.3		97.6	2.4		
PHF	.583	.902	.853	.750	.781	.778	.838	.375	.814	.869
Passenger Vehicles	13	118	131	85	22	107	121	3	124	362
% Passenger Vehicles	92.9	99.2	98.5	97.7	88.0	95.5	97.6	100	97.6	97.3
Heavy Vehicles	1	1	2	2	3	5	3	0	3	10
% Heavy Vehicles	7.1	0.8	1.5	2.3	12.0	4.5	2.4	0	2.4	2.7



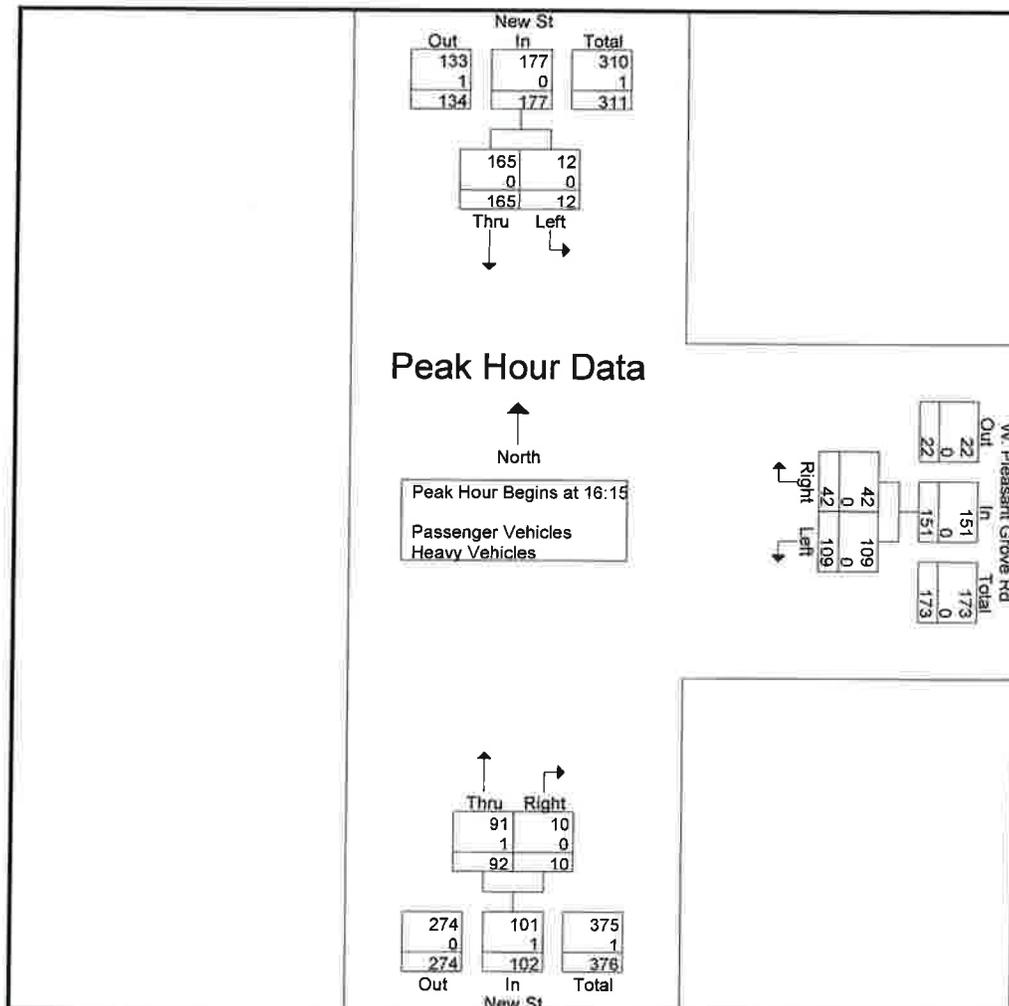
# McMahon Associates, Inc.

425 Commerce Drive, Suite 200  
Fort Washington, P A 19034

Municipality: Westtown Township  
Location: New Street &  
W. Pleasant Grove Road  
Counter/Board #: BW

File Name : pleasant01w  
Site Code : 00004321  
Start Date : 4/6/2017  
Page No : 3

Start Time	New St Southbound			W. Pleasant Grove Rd Westbound			New St Northbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:15										
16:15	3	40	43	22	13	35	16	2	18	96
16:30	2	41	43	28	8	36	22	4	26	105
16:45	5	41	46	34	11	45	29	2	31	122
17:00	2	43	45	25	10	35	25	2	27	107
Total Volume	12	165	177	109	42	151	92	10	102	430
% App. Total	6.8	93.2		72.2	27.8		90.2	9.8		
PHF	.600	.959	.962	.801	.808	.839	.793	.625	.823	.881
Passenger Vehicles	12	165	177	109	42	151	91	10	101	429
% Passenger Vehicles	100	100	100	100	100	100	98.9	100	99.0	99.8
Heavy Vehicles	0	0	0	0	0	0	1	0	1	1
% Heavy Vehicles	0	0	0	0	0	0	1.1	0	1.0	0.2



# McMahon Associates, Inc.

425 Commerce Drive, Suite 200  
Fort Washington, P A 19034

Municipality: Westtown Township  
Location: New Street &  
W. Pleasant Grove Road  
Counter/Board #: BW

File Name : pleasant01w  
Site Code : 00004321  
Start Date : 4/6/2017  
Page No : 1

### Groups Printed- Heavy Vehicles

Start Time	New St Southbound		W. Pleasant Grove Rd Westbound		New St Northbound		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00	0	0	0	1	1	0	2
07:15	0	0	0	1	0	0	1
07:30	1	1	2	0	2	0	6
07:45	0	0	0	1	1	0	2
<b>Total</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>11</b>
08:00	0	0	0	1	0	0	1
08:15	0	1	0	1	0	0	2
08:30	0	4	0	0	1	0	5
08:45	0	0	0	1	1	0	2
<b>Total</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>10</b>
16:00	0	2	0	0	1	0	3
16:15	0	0	0	0	1	0	1
<b>Total</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>4</b>
<b>Grand Total</b>	<b>1</b>	<b>8</b>	<b>2</b>	<b>6</b>	<b>8</b>	<b>0</b>	<b>25</b>
Apprch %	11.1	88.9	25	75	100	0	
Total %	4	32	8	24	32	0	

# McMahon Associates, Inc.

425 Commerce Drive, Suite 200  
Fort Washington, P A 19034

Municipality: Westtown Township  
Location: New Street &  
W. Pleasant Grove Road  
Counter/Board #: BW

File Name : pleasant01w  
Site Code : 00004321  
Start Date : 4/6/2017  
Page No : 1

### Groups Printed- Passenger Vehicles

Start Time	New St Southbound		W. Pleasant Grove Rd Westbound		New St Northbound		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00	1	9	7	5	10	0	32
07:15	4	23	22	2	22	1	74
07:30	1	32	16	7	33	0	89
07:45	2	30	29	6	36	2	105
<b>Total</b>	<b>8</b>	<b>94</b>	<b>74</b>	<b>20</b>	<b>101</b>	<b>3</b>	<b>300</b>
08:00	6	33	18	7	30	0	94
08:15	7	32	15	4	15	0	73
08:30	3	21	13	7	19	2	65
08:45	15	16	18	7	27	10	93
<b>Total</b>	<b>31</b>	<b>102</b>	<b>64</b>	<b>25</b>	<b>91</b>	<b>12</b>	<b>325</b>
16:00	2	38	21	7	16	2	86
16:15	3	40	22	13	15	2	95
16:30	2	41	28	8	22	4	105
16:45	5	41	34	11	29	2	122
<b>Total</b>	<b>12</b>	<b>160</b>	<b>105</b>	<b>39</b>	<b>82</b>	<b>10</b>	<b>408</b>
17:00	2	43	25	10	25	2	107
17:15	5	31	10	5	30	1	82
17:30	3	19	18	13	38	2	93
17:45	1	45	42	10	42	1	141
<b>Total</b>	<b>11</b>	<b>138</b>	<b>95</b>	<b>38</b>	<b>135</b>	<b>6</b>	<b>423</b>
<b>Grand Total</b>	<b>62</b>	<b>494</b>	<b>338</b>	<b>122</b>	<b>409</b>	<b>31</b>	<b>1456</b>
<b>Apprch %</b>	<b>11.2</b>	<b>88.8</b>	<b>73.5</b>	<b>26.5</b>	<b>93</b>	<b>7</b>	
<b>Total %</b>	<b>4.3</b>	<b>33.9</b>	<b>23.2</b>	<b>8.4</b>	<b>28.1</b>	<b>2.1</b>	