CHESTERFIELD TWP BURLINGTON COUNTY, NJ.

FATAL SCHOOL BUS TRUCK COLLISION

THURSDAY, FEBRUARY 16, 2012; 8:15 A.M.

HWY-12-MH-007

ATTACHMENT 1, BURLINGTON COUNTY ENGINEERING DOCUMENTS

51 PAGES

Board of Chosen Freeholders
Of The County of Burlington

MOUNT HOLLY, NEW JERSEY

08060

OFFICE OF
COUNTY ENGINEER
TRAFFIC SECTION
1500 Briggs Road
Mount Laurel, NJ 08054
Mailing Address
P.O. Box 6000
Mount Holly N.J. 08060

Telephone # (856) 642-3720
Fax # (856) 642-3730

MEMORANDUM

TO: Peter J. Kotowski, NTSB Investigator In Charge

FROM: Michael Nei, Principal Engineer

RE: **School Bus Accident**
Intersection of CR 528 & CR 660
Chesterfield Township

DATE: February 18, 2012

In response to your email request on February 17th 2012, please find attached copies of the following documents:

- Roadway resurfacing plans for both CR 528 and CR 660. County Route 528 was last resurfaced in September 2005 and County Route 660 was last resurfaced in August 2010.
- Design plans and documentation regarding the installation of the flashing beacon. The beacon was first activated on July, 8 2008.
- Copies of ATR counts and intersection turning movement counts.
- Speed survey data for CR 528 is attached. We do not have any speed survey data available for CR 660 in the vicinity of this intersection.
- Old York Village Development- Excerpts from Traffic Impact Analysis related to the intersection of CR 528 and CR 660.
- A five year accident history analysis including summary sheets, NJTR-1 reports and collision diagrams.
- The New Jersey State statute regarding the adoption of the MUTCD.

cc: J. Brickley, County Engineer
M. Livingston, Traffic Engineer

39:4-183.6 Determination of signage.

The commissioner may determine the character, type, location, wording or symbol, and use of all traffic signs on the highways of this State; may adopt a manual and specifications for a uniform system of traffic signs consistent with the provisions of this act for use upon public highways within the State. Such uniform system shall correlate with and so far as possible conform to the system then current as specified in the "Manual on Uniform Traffic Control Devices for Streets and Highways."
L.1941,c.345,s.7; amended 1951, c.23, s.82; 2003,c. 13, s.53

HEREBY CERTIFY THAT THE FOREGOING IS A
TRUE, FULL AND CORRECT COPY OF RESOLUTION
NO. 770 ADOPTED BY THE BOARD OF CHOSEN
FREEHOLDERS OF THE COUNTY OF BURLINGTON,
NJ, AT ITS MEETING DATED SEP 1 3 2006

[redacted]
CLERK OF THE BOARD

RECEIVED

SEP 1 8 2006

COUNTY ENGINEER'S OFFICE
BURLINGTON COUNTY

RESOLUTION

WHEREAS, the Board of Chosen Freeholders of the County of Burlington and the Township of Chesterfield recognize the need for the installation of a traffic control signal at the intersection of Bordentown-Chesterfield Road (CR528) & Old York Road (CR660); and

WHEREAS, the Board of Chosen Freeholders of the County of Burlington did on September 26, 1990 adopt Resolution #572 setting forth the policy and procedures whereby the County of Burlington would participate in the installation, operation and maintenance of traffic control signals; and

WHEREAS, the attached proposed written agreement between the Township of Chesterfield and this Board, providing for the implementation of the County policy enumerated in this aforementioned resolution, has been approved and executed by the Township of Chesterfield; now, therefore, be it

RESOLVED, by the Board of Chosen Freeholders of the County of Burlington, that the attached written agreement between this Board and the Township of Chesterfield for the installation of a traffic control signal at the intersection of Bordentown-Chesterfield Road (CR528) & Old York Road (CR660) is hereby approved; and

FURTHER RESOLVED, that the County Administrator is hereby authorized and directed to execute, attest, seal and deliver the same on behalf of the Board.

VINCENT R. FARIAS

ADOPTED September 7, **2006**

AUGUSTUS M. ROSCA, **CLERK**

CC: MCL

Ex. 77

AGREEMENT

BETWEEN
THE TOWNSHIP OF CHESTERFIELD
and
THE COUNTY OF BURLINGTON
for
FLASHING BEACON
at
BORDENTOWN-CHESTERFIELD ROAD (CR528)
and
OLD YORK ROAD (CR660)

THIS AGREEMENT, made this _____ day of _____, 2006, between the TOWNSHIP OF CHESTERFIELD in the County of Burlington, a municipal corporation of the State of New Jersey, with offices located at 300 Bordentown Chesterfield Road, Trenton, New Jersey 08620 (hereinafter referred to as "TOWNSHIP"), and the BOARD OF CHOSEN FREEHOLDERS OF THE COUNTY OF BURLINGTON, a body politic and corporate, with offices located at 49 Rancocas Road, Mount Holly, New Jersey 08060 (hereinafter referred to as "COUNTY");

WITNESSETH:

WHEREAS, the Township and County recognize the need for the installation of a traffic signal at the intersection of Bordentown-Chesterfield Road (CR528) & Old York Road (CR660) Road located in the Township of Chesterfield, County of Burlington in order to promote and provide for the safety and convenience of the public; and

WHEREAS, by Resolution #572 adopted September 26, 1990, the County adopted certain procedures and policies regarding the installation, operation and maintenance of traffic signals; and

WHEREAS, N.J.S.A. 40:23-14 et.seq. authorizes joint County and municipal action regarding such public improvements;

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants and agreements contained herein, the Township and the County agree as follows:

cc: MCL

COUNTY RESPONSIBILITIES

1. The County, at its own cost and expense, will obtain the required State approvals.

2. The County, at its own cost and expense, shall prepare all necessary preliminary design plans and cost estimates, final construction plans and contract specifications and, if required, shall prepare all Right-of-Way plans.

3. At the request of the Township, the County Engineer, or his representative, will forward to the Township officials a set of plans for their review upon completion of the design.

4. The County will take action to install the traffic signal at no cost to the Township.

5. The County will provide all maintenance service for the traffic signal installation and will also cause the signal to be insured against loss or damage from any cause.

6. The County will pay all costs for the future relocation or removal and reinstallation of any portion of the aforesaid traffic signal or related detection equipment, if the relocation or removal and reinstallation of this equipment is made necessary at the intersection by changes made by the County, ie., excavations, resurfacing, widening, corner radius changes, etc.

7. The County shall indemnify and save harmless the Township, its officers, employees, servants and agents from all claims, suits or actions of every kind or character made upon or brought against the Township, its officers, employees, servants and agents for or on account of any injuries or damages which shall arise out of, in the course of, or in consequence of any willful or negligent act or omission or tortious act or omission of the County, its employees, agents, engineers or subcontractors, in the performance of the County's duties and responsibilities as set forth in this Agreement, or by or on account of any act or omission of the County, its servants, employees,

agents, engineers or subcontractors. This indemnity shall include attorneys' fees and costs and all other expenses incurred in the defense of any suit.

TOWNSHIP RESPONSIBILITIES

1. The Township will provide, at no cost to the County, police officers as needed to provide traffic control for emergency of routine traffic signal maintenance activities. This provision shall apply to all County maintained traffic signals in the Township.

2. The Township will provide, at its own expense and cost, all electrical power necessary to operate the traffic signal.

3. The Township will provide, at its own expense and cost, any telephone service necessary to operate the traffic signal.

4. The Township will pay all costs for the future relocation or removal and reinstallation of any portion of the aforesaid traffic signal or related detection equipment, if the relocation or removal and reinstallation of this equipment is made necessary at the intersection by changes made by the Township, ie., excavations, resurfacing, widening, corner radius changes, etc.

5. The Township shall indemnify and save harmless the County, its officers, employees, servants and agents from all claims, suits or actions of every kind or character made upon or brought against the County, its officers, employees, servants and agents for or on account of any injuries or damages which shall arise out of, in the course of, or in consequence of any willful or negligent act or omission or tortious act or omission of the Township, its employees, agents, engineers or subcontractors, in the performance of the Township's duties and responsibilities as set forth in this Agreement, or by or on account of any act or omission of the Township, its servants, employees, agents, engineers or subcontractors. This indemnity shall include attorney's fees and costs and all other expenses incurred in the defense of any suit.

IN WITNESS WHEREOF, the parties have caused this Agreement to be duly signed, executed and sealed by their respective proper officials the day and year first written above.

[redacted]

(SEAL)

THE TOWNSHIP OF CHESTERFIELD
IN THE COUNTY OF BURLINGTON

Attest: [redacted]

By:

[redacted]

(SEAL)

BOARD OF CHOSEN FREEHOLDERS
OF THE COUNTY OF BURLINGTON

Attest: [redacted]

By:

STATE OF NEW JERSEY)

TOWNSHIP OF CHESTERFIELD)

COUNTY OF BURLINGTON)

BE IT REMEMBERED, that on this day of 2006, before me the subscriber, personally appeared Bonnie Haines being by me duly sworn on his/her oath doth dispose and make proof to my satisfaction, that he/she is the Clerk of the Township of Chesterfield in the County of Burlington, the Municipality named in the within instrument; that is the Mayor of said Municipality; that the execution as well as the making of this instrument has been duly authorized by a proper resolution of the Council of said Municipality; that deponent well knows the official seal of said Municipality; and the official seal affixed to said instrument is such official seal and was thereto affixed and said instrument is signed and delivered by said Mayor, as and for his/her voluntary act and deed and as and for the voluntary act and deed of said Municipality; in presence of deponent, who thereupon subscribed his/her name thereto as witness.

Clerk

Sworn to and Subscribed this

_____ day of _____ 2006

STATE OF NEW JERSEY)

COUNTY OF BURLINGTON)

BE IT REMEMBERED, that on this day of 2006, before me, a Notary Public of the State of New Jersey, personally appeared who being by me duly sworn on his/her oath said that he/she is a Secretary in the Office of the Board of Chosen Freeholders of the County of Burlington, the party of the second part within named, and that Augustus Mosca is the Administrator; that deponent knows the common or corporate seal of said corporation, and that the seal annexed to the within agreement is such common or corporate seal; that the said agreement was signed by the said Administrator and the seal of said corporation affixed thereto in the presence of the deponent; that said agreement was signed, sealed and delivered as and for the voluntary act and deed of said corporation for the uses and purposes therein expressed, pursuant to a resolution of the Board of Chosen Freeholders of said corporation; and at the execution thereof this deponent subscribed his/her name thereto as witness.

[redacted] Title: Deputy Clerk

Sworn to and Subscribed this

20 day of September 2006

GINA M. WHEATLEY
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 11/6/2007

TOWNSHIP OF CHESTERFIELD

County of Burlington – State of New Jersey
www.chesterfieldtwp.com

300 Bordentown-Chesterfield Road
Chesterfield, New Jersey 08515
Phone: (609) 298-2311 Fax: (609) 298-0469

August 11, 2006

Martin C. Livingston, Traffic Engineer
Post Office Box 6000
Mount Holly, New Jersey 08060

Ref: Flashing Beacon
County Route 528 and County Route 660

Dear Mr. Livingston:

Enclosed please find the executed agreements and the Resolution approving the agreements for the installation of a flashing beacon at the intersection of Bordentown-Chesterfield Road (County Route 528) and Old York Road (County Route 660).

Should you need additional information, please do not hesitate to ask.

Sincerely,

[redacted]

Bonnie J. Haines, RMC
Township Clerk

Board of Chosen Freeholders
Of The County of Burlington
MOUNT HOLLY, NEW JERSEY
08060

OFFICE OF
COUNTY ENGINEER
TRAFFIC SECTION
1900 Briggs Road
Mount Laurel, NJ 08054
Mailing Address
P.O. Box 6000
Mount Holly, N.J. 08060

Telephone # (856) 642-3720
Fax # (856) 642-3730

July 17, 2006

Bonnie Haines, Clerk
Chesterfield Township
300 Bordentown-Chesterfield Rd.
Trenton, NJ 08620

Re: Flashing Beacon -
Bordentown-Chesterfield Rd.(CR528) & Old York Rd.(CR660)
Chesterfield Township

Dear Ms. Haines:

Burlington County has determined a Flashing Beacon should be installed at the above referenced intersection.

In accordance with Freeholder policy established by Resolution #572, we are enclosing five (5) copies of an agreement for the subject traffic signal between Chesterfield Township and Burlington County for the installation, maintenance and electrical power to operate this traffic signal.

If you find the agreement in order, please have all copies executed and returned to our office so that we may recommend their execution by the Board of Chosen Freeholders. Please do not date the agreement at this time.

Upon execution of the agreement by the Township, a copy of the fully executed agreement will be returned to your office. If you have any questions, please do not hesitate to call me at (856)642-3720.

Very truly yours,

[redacted]

Martin C. Livingston
Traffic Engineer

MCL/da
Encl.
cc: File

Burlington County Engineer's Office

CR 528 GEORGETOWN-CHESTERFIELD RD
100 FT S/O CHESTERFIELD MAIN SCHOOL DWAY
CHESTERFIELD TWP. # 07
Counted By: JOSEPH W. CLAYTON SR

06-528-07-18C GEORGETOWN-CHESTERFIELD RD S-O CHESTERFIELD MAIN SCHOOL DWAY VOL.
P.O. Box 6000
Mount Holly, New Jersey 08060
Site Code: 528007006012
Station ID: 06-528-07-18C

Latitude: 40° 7.060' North
Longitude: 74° 38.360' West

Start Time	Mon 25-Dec-06	Tue 26-Dec-06	Wed 27-Dec-06	Thu 28-Dec-06	Fri 29-Dec-06	Average Day	Sat 30-Dec-06	Sun 31-Dec-06	Week Average
12:00 AM	-	-	-	-	-	-	49	74	62
01:00	-	-	-	-	-	-	36	32	34
02:00	-	-	-	-	-	-	17	23	20
03:00	-	-	-	-	-	-	12	10	11
04:00	-	-	-	-	-	-	20	8	14
05:00	-	-	-	-	-	-	42	31	36
06:00	-	-	-	-	-	-	72	57	64
07:00	-	-	-	-	-	-	139	75	107
08:00	-	-	-	-	-	-	177	124	150
09:00	-	-	-	-	-	-	219	175	197
10:00	-	-	-	-	-	-	252	218	235
11:00	-	-	-	-	-	-	**296**	**246**	**271**
12:00 PM	-	-	-	-	-	-	316	**305**	310
01:00	-	-	-	-	-	-	267	271	269
02:00	-	-	-	-	-	-	320	302	311
03:00	-	-	-	-	377	377	261	271	303
04:00	-	-	-	-	**392**	**392**	**326**	230	**316**
05:00	-	-	-	-	336	336	271	170	259
06:00	-	-	-	-	273	273	200	174	216
07:00	-	-	-	-	165	165	182	207	185
08:00	-	-	-	-	145	145	137	150	144
09:00	-	-	-	-	118	118	134	138	130
10:00	-	-	-	-	129	129	123	111	121
11:00	-	-	-	-	89	89	100	51	80
Day Total	0	0	0	0	2024	2024	3958	3453	3945
% Avg WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg Week	0.0%	0.0%	0.0%	0.0%	52.6%	52.6%	103.2%	89.6%	
AM Peak							11:00	11:00	11:00
Vol.							296	246	271
PM Peak					16:00	16:00	16:00	12:00	16:00
Vol.					392	392	326	305	316

Burlington County Engineer's Office

CR 528 GEORGETOWN-CHESTERFIELD RD
100 FT S/O CHESTERFIELD MAIN SCHOOL DWAY
CHESTERFIELD TWP # 07
Counted By: JOSEPH W CLAYTON SR

05-528-07-18C GEORGETOWN-CHESTERFIELD RD S-O CHESTERFIELD MAIN SCHOOL DWAY VOL
P.O. Box 6000
Mount Holly, New Jersey 08060

Site Code: 528007005012
Station ID: 05-528-07-18C

Latitude: 40° 7.050' North
Longitude: 74° 38.360' West

Start Time	Mon 01-Jan-07	Tue 02-Jan-07	Wed 03-Jan-07	Thu 04-Jan-07	Fri 05-Jan-07	Average Day	Sat 06-Jan-07	Sun 07-Jan-07	Week Average
12:00 AM	108	26	16	19	27	39	38	55	41
01:00	78	11	11	12	15	25	45	46	31
02:00	38	14	14	13	11	16	23	22	19
03:00	33	10	16	7	24	18	21	13	18
04:00	15	28	30	26	26	25	24	19	24
05:00	22	110	112	128	115	97	40	35	80
06:00	27	254	261	258	251	218	91	62	178
07:00	27	**467**	**487**	**477**	**465**	**385**	146	129	**314**
08:00	56	414	451	443	401	353	222	196	303
09:00	86	256	298	264	301	241	286	218	244
10:00	126	242	299	222	288	223	319	**244**	240
11:00	**155**	238	260	242	277	234	**375**	244	256
12:00 PM	160	262	282	273	303	252	336	**315**	273
01:00	191	290	310	259	319	272	**395**	276	290
02:00	185	313	324	350	312	297	356	253	300
03:00	**192**	403	428	**496**	420	388	336	257	362
04:00	185	410	**490**	457	**444**	**397**	340	239	**366**
05:00	131	**411**	420	427	404	359	309	153	322
06:00	142	285	279	277	292	255	219	112	229
07:00	139	187	215	180	221	188	194	100	177
08:00	93	149	180	170	161	151	154	157	152
09:00	76	86	128	107	141	108	160	92	113
10:00	42	79	84	84	108	79	150	57	85
11:00	16	45	49	46	75	47	106	33	53
Day Total	2325	4980	5364	5277	5403	4669	4684	3276	4471
% Avg WkDay	49.8%	106.7%	114.9%	113.0%	115.7%				
% Avg Week	52.0%	111.4%	120.0%	118.0%	120.8%	104.4%	104.8%	73.3%	
AM Peak	11:00	07:00	07:00	07:00	07:00	07:00	11:00	10:00	07:00
Vol.	155	467	487	477	465	385	375	244	314
PM Peak	15:00	17:00	15:00	15:00	16:00	16:00	13:00	12:00	16:00
Vol.	192	411	490	496	444	397	395	315	366

Burlington County Engineer's Office

CR 528 GEORGETOWN-CHESTERFIELD RD
100 FT S/O CHESTERFIELD MAIN SCHOOL DWAY
CHESTERFIELD TWP. # 07
Counted By: JOSEPH W. CLAYTON SR

05-528-07-18C GEORGETOWN-CHESTEFIELD RD S-O CHESTERFIELD MAIN SCHOOL DWAY VOL.
P.O. Box 6000
Mount Holly, New Jersey 08060

Site Code: 528007005012
Station ID: 05-528-07-18C

Latitude: 40° 7.060' North
Longitude: 74° 38.260' West

Start Time	Mon 05-Jan-07	Tue 09-Jan-07	Wed 10-Jan-07	Thu 11-Jan-07	Fri 12-Jan-07	Average Day	Sat 13-Jan-07	Sun 14-Jan-07	Week Average
12:00 AM	17	32	20	35	26	26	58	56	35
01:00	5	20	8	7	21	12	39	34	19
02:00	13	6	9	25	20	15	27	25	18
03:00	13	24	24	21	31	23	19	18	21
04:00	34	35	45	55	46	43	31	6	37
05:00	122	188	223	156	171	172	76	41	140
06:00	325	391	436	373	396	384	118	56	300
07:00	**503**	**636**	**661**	**701**	**605**	**621**	214	114	**491**
08:00	472	499	562	565	511	522	236	149	428
09:00	269	261	316	324	349	308	324	226	298
10:00	278	248	263	312	313	268	293	**259**	284
11:00	262	299	297	289	323	298	**385**	256	304
12:00 PM	246	338	339	290	336	310	**363**	**330**	320
01:00	264	365	334	300	346	322	334	267	316
02:00	345	371	381	371	447	363	282	266	352
03:00	442	535	489	463	**526**	491	302	252	430
04:00	**513**	**609**	**594**	**528**	503	**549**	315	261	**475**
05:00	408	435	478	443	490	451	288	204	392
06:00	281	337	360	328	353	332	232	167	297
07:00	171	206	225	208	254	213	172	135	196
08:00	116	209	187	173	214	180	127	130	165
09:00	137	143	165	148	149	148	125	82	135
10:00	77	97	91	120	124	102	110	76	90
11:00	46	45	57	60	62	56	98	50	63
Day Total	5400	6330	6589	6297	6637	6251	4566	3484	5615
% Avg. Wk Day	86.4%	101.3%	105.4%	100.7%	106.2%				
% Avg Week	96.2%	112.7%	117.3%	112.1%	118.2%	111.3%	81.4%	62.0%	
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	11:00	10:00	07:00
Vol.	503	636	661	701	605	621	385	259	491
PM Peak	16:00	16:00	16:00	16:00	15:00	16:00	12:00	12:00	16:00
Vol.	513	609	594	528	526	549	363	330	475

Burlington County Engineer's Office

CR 528 GEORGETOWN-CHESTERFIELD RD
100 FT S/O CHESTERFIELD MAIN SCHOOL DWAY
CHESTERFIELD TWP # 07
Counted By: JOSEPH W. CLAYTON SR.

06-528-07-18C GEORGETOWN-CHESTEFIELD RD S-O CHESTERFIELD MAIN SCHOOL DWAY VOL.
P.O. Box 6000
Mount Holly, New Jersey 08060

Site Code: 528007006012
Station ID: 06-528-07-18C

Latitude: 40° 7.060 North
Longitude: 74° 38.360 West

Start Time	Mon 15-Jan-07	Tue 16-Jan-07	Wed 17-Jan-07	Thu 18-Jan-07	Fri 19-Jan-07	Average Day	Sat 20-Jan-07	Sun 21-Jan-07	Week Average
12:00 AM	25	16	*	*	*	20	*	*	20
01:00	20	15	*	*	*	18	*	*	18
02:00	23	23	*	*	*	23	*	*	23
03:00	13	15	*	*	*	14	*	*	14
04:00	22	49	*	*	*	36	*	*	36
05:00	110	196	*	*	*	153	*	*	153
06:00	234	394	*	*	*	314	*	*	314
07:00	267	**678**	*	*	*	**472**	*	*	**472**
08:00	**321**	505	*	*	*	413	*	*	413
09:00	277	348	*	*	*	312	*	*	312
10:00	259	294	*	*	*	276	*	*	276
11:00	277	247	*	*	*	262	*	*	262
12:00 PM	289	*	*	*	*	289	*	*	289
01:00	304	*	*	*	*	304	*	*	304
02:00	328	*	*	*	*	328	*	*	328
03:00	353	*	*	*	*	353	*	*	353
04:00	**369**	*	*	*	*	**369**	*	*	**369**
05:00	329	*	*	*	*	329	*	*	329
06:00	241	*	*	*	*	241	*	*	241
07:00	164	*	*	*	*	164	*	*	164
08:00	117	*	*	*	*	117	*	*	117
09:00	113	*	*	*	*	113	*	*	113
10:00	66	*	*	*	*	66	*	*	66
11:00	38	*	*	*	*	38	*	*	38
Day Total	4559	2781	0	0	0	5024	0	0	5024
% Avg. WkDay	90.7%	55.4%	0.0%	0.0%	0.0%				
% Avg. Week	90.7%	55.4%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	08:00	07:00				07:00			07:00
Vol.	321	678				472			472
PM Peak	16:00					16:00			16:00
Vol.	369					369			369
Grand Total	12284	14091	11953	11574	14064	17968	13220	10213	18955
ADT		ADT 4,894		AADT 4,894					

Burlington County Engineer's Office
P.O. Box 6000
Mount Holly, N.J. 08060

05-528-07-27C BORBENTOWN-CHESTERFIELD RD W-O NJ TURNPIKE OVERPASS
Site Code: 528007005003
Station ID: 05-528-07-27C

C.R. 528 BORDENTOWN-CHESTERFIELD RD.
250 FT. W/O N.J. TURNPIKE OVERPASS
CHESTERFIELD TWP. #07
Counted By: Joseph W. Clayton Sr.

Latitude: 40° 8.290 North
Longitude: 75° 40.500 West

Start	19-Sep-05		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	E/B	W/B	E/B	W/B	E/B	W/B	E/B	W/B	E/B	W/B	E/B	W/B	E/B	W/B	E/B	W/B
12:00 AM	*	*	25	5	24	5	16	6	26	6	44	26	21	55	26	17
01:00	*	*	9	5	1	3	9	4	9	7	13	8	10	12	8	6
02:00	*	*	6	7	4	2	5	5	4	4	13	8	17	5	8	5
03:00	*	*	9	7	7	6	7	5	6	4	8	6	5	5	7	6
04:00	*	*	9	17	6	20	8	26	12	24	6	21	11	19	9	21
05:00	*	*	32	60	30	60	27	72	38	79	19	30	15	36	26	63
06:00	*	*	104	266	98	266	107	253	101	232	56	70	22	56	81	190
07:00	*	*	146	**404**	145	**421**	154	**424**	135	**386**	97	137	70	76	124	**308**
08:00	*	*	124	317	127	286	**163**	284	149	208	151	153	95	130	142	245
09:00	*	*	137	159	137	196	155	188	158	184	162	202	161	165	152	182
10:00	*	*	**153**	151	**148**	155	147	194	155	176	202	207	166	**196**	162	180
11:00	*	*	136	102	146	157	157	151	**160**	165	**218**	**230**	**171**	196	**165**	177
12:00 PM	*	*	150	153	168	170	176	165	168	175	193	223	**191**	**233**	174	186
01:00	166	153	170	135	174	165	166	173	173	165	178	204	149	174	168	167
02:00	195	172	184	166	178	178	222	205	217	180	168	181	160	145	189	175
03:00	257	**190**	202	**201**	258	211	272	210	265	213	181	155	140	162	234	195
04:00	336	184	300	199	340	184	**321**	**233**	**335**	**240**	164	**229**	142	128	277	**200**
05:00	**359**	165	**326**	180	**373**	**216**	312	211	324	222	**194**	190	160	169	**293**	196
06:00	244	169	184	168	212	174	245	195	208	168	127	164	125	127	192	175
07:00	161	144	137	135	160	155	171	121	150	119	95	116	125	135	143	132
08:00	113	69	116	74	104	82	140	71	128	99	84	95	108	91	115	83
09:00	95	45	84	55	105	56	99	73	117	65	76	90	78	52	93	62
10:00	53	28	81	31	72	38	57	40	77	70	79	58	43	23	66	41
11:00	29	17	40	13	34	21	48	13	51	30	49	37	25	16	39	21
Lane Day	2008	1376	2936	3110	3051	3247	3184	3320	3164	3331	2617	2838	2210	2426	2893	3033
	3384		6046		6298		6504		6495		5455		4636		5926	
AM Peak			10:00	07:00	10:00	07:00	08:00	07:00	11:00	07:00	11:00	11:00	11:00	10:00	11:00	07:00
Vol			153	404	148	421	163	424	160	386	218	230	171	196	165	308
PM Peak	17:00	15:00	17:00	15:00	17:00	17:00	16:00	16:00	16:00	16:00	17:00	16:00	12:00	12:00	17:00	16:00
Vol	359	190	320	201	373	216	321	233	335	240	194	229	191	233	293	200

Burlington County Engineer's Office
P.O. Box 6000
Mount Holly, N.J. 08060

05-528-07-27C BORBENTOWN-CHESTERFIELD RD W-O NJ TURNPIKE OVERPASS
Site Code: 528007005003
Station ID: 05-528-07-27C

C.R. 528 BORDENTOWN-CHESTERFIELD RD.
250 FT. W/O NJ.J. TURNPIKE OVERPASS
CHESTERFIELD TWP. #07
Counted By: Joseph W. Clayton Sr.

Latitude: 40' 8.290 North
Longitude: 75' 40.500 West

Start Time	26-Sep-05 E/B	26-Sep-05 W/B	Tue E/B	Tue W/B	Wed E/B	Wed W/B	Thu E/B	Thu W/B	Fri E/B	Fri W/B	Sat E/B	Sat W/B	Sun E/B	Sun W/B	Week Average E/B	Week Average W/B
12:00 AM	9	6	8	7	21	3	16	8	13	10	32	10	26	25	18	11
01:00	5	3	4	0	8	2	6	2	3	1	14	6	25	10	9	3
02:00	3	3	5	2	6	3	3	4	7	4	12	6	14	6	7	4
03:00	5	3	5	7	8	14	6	5	6	8	11	7	14	7	8	7
04:00	8	21	12	23	11	24	9	26	11	23	13	14	10	17	11	21
05:00	38	82	30	102	38	94	45	97	44	85	22	38	15	18	33	74
06:00	85	270	103	269	91	262	90	280	99	267	52	72	35	63	79	210
07:00	137	**411**	118	**417**	130	**421**	143	**441**	**153**	**408**	117	138	79	73	125	**330**
08:00	148	273	**154**	302	147	317	149	293	132	328	132	160	90	149	136	263
09:00	115	155	126	163	**150**	180	135	182	138	178	157	199	148	171	138	175
10:00	125	151	114	154	123	143	118	158	133	160	165	225	167	196	135	170
11:00	**165**	158	134	141	141	174	**152**	167	153	160	**195**	**229**	**170**	**225**	**159**	179
12:00 PM	154	177	146	164	197	151	143	167	175	204	188	230	**225**	**256**	175	193
01:00	174	185	150	135	128	154	183	160	171	151	**228**	**268**	207	231	177	182
02:00	176	180	179	168	178	175	181	161	228	220	201	196	176	192	188	184
03:00	246	**209**	240	**198**	306	180	261	191	288	199	212	202	197	161	252	191
04:00	**329**	200	310	187	**338**	**223**	303	**193**	**361**	221	223	195	168	165	**290**	**198**
05:00	308	173	**320**	191	322	216	**324**	172	331	**225**	168	201	146	142	274	189
06:00	213	142	219	162	242	200	225	171	245	179	144	163	112	145	200	166
07:00	120	106	148	123	149	118	137	123	156	102	135	119	102	112	135	115
08:00	100	59	123	70	105	105	134	65	112	97	101	88	82	89	108	82
09:00	102	38	90	60	135	68	94	62	100	80	87	87	67	38	96	59
10:00	50	39	68	37	66	42	64	30	87	55	78	65	50	29	66	42
11:00	34	11	42	11	40	21	43	22	55	36	48	44	25	20	41	24
Lane Day	2651	3055	2849	3091	3078	3288	2954	3166	3211	3401	2735	2972	2350	2540	2850	3072
	5906		5933		6366		6120		6612		5707		4890		5932	
AM Peak	11:00	07:00	08:00	07:00	09:00	07:00	11:00	07:00	07:00	07:00	11:00	11:00	11:00	11:00	11:00	07:00
Vol	165	411	154	417	150	421	152	441	153	408	195	229	170	225	159	330
PM Peak	16:00	15:00	17:00	15:00	16:00	16:00	17:00	16:00	16:00	17:00	13:00	13:00	12:00	12:00	16:00	16:00
Vol	329	209	320	198	338	223	324	193	361	225	228	268	225	256	290	198

Burlington County Engineer's Office
P.O. Box 6000
Mount Holly, N.J. 08060

05-528-07-27C BORDENTOWN-CHESTERFIELD RD W/O NJ TURNPIKE OVERPASS
Site Code: 528007005003
Station ID: 05-528-07-27C

C.R. 528 BORDENTOWN-CHESTERFIELD RD.
250 FT. W/O N.J. TURNPIKE OVERPASS
CHESTERFIELD TWP. #07
Counted By: Joseph W. Clayton Sr.

Latitude: 40° 8.290 North
Longitude: 75° 40.500 West

Start Time	03-Oct-05 E/B	03-Oct-05 W/B	Tue E/B	Tue W/B	Wed E/B	Wed W/B	Thu E/B	Thu W/B	Fri E/B	Fri W/B	Sat E/B	Sat W/B	Sun E/B	Sun W/B	Week Average E/B	Week Average W/B
12:00 AM	11	9	*	*	*	*	*	*	*	*	*	*	*	*	11	9
01:00	11	2	*	*	*	*	*	*	*	*	*	*	*	*	11	2
02:00	2	3	*	*	*	*	*	*	*	*	*	*	*	*	2	3
[redacted]																
04:00	10	29	*	*	*	*	*	*	*	*	*	*	*	*	10	29
[redacted]																
06:00	87	272	*	*	*	*	*	*	*	*	*	*	*	*	87	272
[redacted]	150	415	*	*	*	*	*	*	*	*	*	*	*	*	150	415
08:00	148	309	*	*	*	*	*	*	*	*	*	*	*	*	148	309
09:00	148	193	*	*	*	*	*	*	*	*	*	*	*	*	148	193
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12:00 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lane Day	613	1329	0	0	0	0	0	0	0	0	0	0	0	0	613	1329
	1942		0		0		0		0		0		0		1942	
AM Peak	07:00	07:00													07:00	07:00
Vol	150	415													150	415
PM Peak																
Vol																

Comb Total	11232	11985	12664	12624	13107	11152	9528	13800

ADT ADT 5,932 AADT 5,932

Shropshire Associates
709 Stokes Road, Medford, NJ 08055

N/S Route: Old York Road (CR 660)
E/W Route: Bordentown-Chesterfield Rd.
Chesterfield/Burlington Co. NJ
:ar/Thurs./LLE/2585

File Name : 4002000:
Site Code : 4002000:
Start Date : 01/08/20(
Page No : 1

Groups Printed- Unshifted

	Old York Road Southbound			Bordentown-Chesterfield Road Westbound			Old York Road Northbound			Bordentown-Chesterfield Road Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00	0	3	6	2	60	1	4	4	3	2	21	6	112
07:15	0	2	3	5	101	0	3	6	5	1	23	6	155
07:30	0	7	5	8	94	1	9	6	4	4	25	0	164
07:45	0	2	6	4	81	0	2	2	7	1	30	4	139
Total	0	14	21	19	336	2	18	18	19	8	99	16	570
08:00	1	9	5	9	63	2	4	4	9	1	30	2	139
08:15	1	2	3	5	63	1	9	6	9	3	23	3	128
08:30	1	3	4	6	62	1	7	6	4	3	19	3	119
08:45	0	6	5	3	44	0	1	2	2	1	15	2	81
Total	3	20	17	23	232	4	21	18	24	8	87	10	467
--- BREAK ---													
16:00	0	7	1	2	38	0	6	7	10	2	71	7	151
16:15	1	8	6	9	44	1	3	4	13	3	64	8	164
16:30	1	4	3	3	38	0	4	2	7	4	66	6	138
16:45	1	3	4	3	36	1	5	6	14	5	70	8	156
Total	3	22	14	17	156	2	18	19	44	14	271	29	609
17:00	1	4	5	7	34	0	3	3	0	4	79	4	152
17:15	0	5	5	3	27	1	6	5	6	4	57	4	123
17:30	2	1	3	5	31	1	7	4	8	5	50	5	122
17:45	4	4	1	6	26	1	0	8	9	6	58	6	129
Total	7	14	14	21	118	3	16	20	31	19	244	19	526
Grand Total	13	70	66	80	842	11	73	75	110	49	701	74	2172
Apprch %	8.7	47.0	44.3	8.6	90.2	1.2	27.4	28.2	44.4	5.9	85.1	9.0	
Total %	0.6	3.2	3.0	3.7	38.8	0.5	3.4	3.5	5.4	2.3	32.3	3.4	

	Old York Road Southbound				Bordentown-Chesterfield Road Westbound				Old York Road Northbound				Bordentown-Chesterfield Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:15																
Volume	1	20	20	41	26	339	3	368	18	18	25	61	7	108	12	127	597
Percent	2.4	48.8	48.8		7.1	92.1	0.8		29.5	29.5	41.0		5.5	85.0	9.4		
Volume	1	20	20	41	26	339	3	368	18	18	25	61	7	108	12	127	597
Volume	0	7	6	13	8	94	1	103	9	6	4	19	4	25	0	29	164
Peak Factor																	
High Int.	08:00				07:15				07:30				07:45				0.910
Volume	1	9	5	15	5	101	0	106	9	6	4	19	1	30	4	35	
Peak Factor				0.683				0.868				0.803				0.907	
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	16:15																
Volume	4	19	18	41	22	152	2	176	15	15	42	72	16	279	26	321	610
Percent	9.8	46.3	43.9		12.5	86.4	1.1		20.8	20.8	58.3		5.0	86.9	8.1		
Volume	4	19	18	41	22	152	2	176	15	15	42	72	16	279	26	321	610
Volume	1	8	6	15	9	44	1	54	3	4	13	20	3	64	8	75	164
Peak Factor																	
High Int.	16:15				16:15				16:45				17:00				0.930
Volume	1	8	6	15	9	44	1	54	5	6	14	25	4	79	4	87	
Peak Factor				0.683				0.815				0.720				0.922	

A-5

Shropshire Associates
709 Stokes Road
Medford, New Jersey 08055

Site Code: 251100005361
Station ID: 251100005361
Volume
ATR 5361

A-10

Study: Old York Road (CR 660)
Location: Between CR 528 & CR 677
Chesterfield/Burlington Co. NJ
File # 2511

Start	05-Aug-02		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou	Westbo	Eastbou
12:00 AM	-	-	-	-	-	-	-	-	9	11	9	11	5	6	8	10
01:00	-	-	-	-	-	-	-	-	4	3	2	5	10	5	5	4
02:00	-	-	-	-	-	-	-	-	3	6	4	6	3	6	3	7
03:00	-	-	-	-	-	-	-	-	2	1	1	3	4	2	2	2
04:00	-	-	-	-	-	-	-	-	3	2	6	3	3	6	4	4
05:00	-	-	-	-	-	-	-	-	8	5	2	2	1	2	4	3
06:00	-	-	-	-	-	-	-	-	21	19	8	13	12	6	14	13
07:00	-	-	-	-	-	-	-	-	39	13	29	17	22	17	30	16
08:00	-	-	-	-	-	-	-	-	42	30	24	18	19	10	28	19
09:00	-	-	-	-	-	-	-	-	44	45	39	38	34	28	39	37
10:00	-	-	-	-	-	-	-	-	40	35	43	40	30	31	38	35
11:00	-	-	-	-	-	-	-	-	43	28	41	46	33	31	39	35
12:00 PM	-	-	-	-	-	-	-	-	35	47	43	51	45	38	41	45
01:00	-	-	-	-	-	-	37	25	39	42	34	32	36	48	36	37
02:00	-	-	-	-	-	-	31	43	39	37	35	39	29	43	34	40
03:00	-	-	-	-	-	-	32	41	33	42	27	35	30	19	30	34
04:00	-	-	-	-	-	-	44	36	52	49	42	45	26	31	41	40
05:00	-	-	-	-	-	-	47	60	50	58	32	44	32	42	40	51
06:00	-	-	-	-	-	-	40	48	39	40	29	30	35	34	36	38
07:00	-	-	-	-	-	-	32	39	31	41	21	27	38	34	30	35
08:00	-	-	-	-	-	-	30	35	25	31	19	25	25	25	25	29
09:00	-	-	-	-	-	-	17	23	7	25	18	17	22	10	16	19
10:00	-	-	-	-	-	-	13	20	6	15	10	18	12	7	10	15
11:00	-	-	-	-	-	-	7	6	7	19	6	12	4	7	6	11
Lane	0	0	0	0	0	0	330	376	621	644	524	577	510	492	559	579
Day	0		0		0		706		1265		1101		1002		1138	
AM Peak									09:00	09:00	10:00	11:00	09:00	10:00	09:00	09:00
Volume									44	45	43	46	34	31	39	37
PM Peak							17:00	17:00	16:00	17:00	12:00	12:00	12:00	13:00	12:00	17:00
Volume							47	60	52	58	43	51	45	48	41	51

Shropshire Associates
709 Stokes Road
Medford, New Jersey 08055

Site Code: 251100005361
Station ID: 251100005361
Volume
ATR 5361

Study: Old York Road (CR 660)
Location: Between CR 528 & CR 677
Chesterfield/Burlington Co. NJ
File # 2511

Start Time	12-Aug-02 Westbo	Eastbou	Tue Westbo	Eastbou	Wed Westbo	Eastbou	Thu Westbo	Eastbou	Fri Westbo	Eastbou	Sat Westbo	Eastbou	Sun Westbo	Eastbou	Week Average Westbo	Eastbou
12:00 AM	5	4	6	6	5	1	6	5	4	2	6	10	*	*	5	5
01:00	0	7	1	2	2	3	1	8	1	9	2	4	*	*	1	6
02:00	2	1	0	1	0	1	0	0	1	2	3	3	*	*	1	1
03:00	1	0	0	0	1	0	1	0	0	2	0	1	*	*	0	0
04:00	6	4	8	5	4	3	4	4	7	5	4	0	*	*	6	4
05:00	4	3	7	3	5	5	4	2	9	3	0	5	*	*	5	4
06:00	22	16	32	16	19	26	27	27	20	18	10	8	*	*	22	19
07:00	44	16	53	24	45	14	45	17	46	15	14	13	*	*	41	16
08:00	37	22	44	30	40	35	41	33	40	33	45	18	*	*	41	28
09:00	30	29	39	35	37	21	36	34	27	32	36	44	*	*	35	32
10:00	27	23	31	17	34	21	31	30	34	30	49	42	*	*	34	27
11:00	22	33	39	27	24	36	29	21	37	30	40	29	*	*	32	29
12:00 PM	49	41	33	33	35	30	30	34	42	32	4	5	*	*	32	29
01:00	39	25	20	30	31	27	36	32	29	35	54	25	*	*	35	29
02:00	30	40	42	35	23	20	29	36	30	15	*	*	*	*	31	30
03:00	33	35	36	40	16	39	29	37	27	32	*	*	*	*	29	37
04:00	43	48	46	62	56	44	45	42	64	41	*	*	*	*	51	45
05:00	51	51	42	49	48	49	46	47	43	45	*	*	*	*	48	48
06:00	36	45	33	50	36	40	43	40	42	43	*	*	*	*	38	44
07:00	26	26	33	42	29	36	41	34	31	30	*	*	*	*	32	34
08:00	23	33	31	33	31	31	22	29	17	30	*	*	*	*	25	31
09:00	15	12	12	16	17	31	20	21	21	24	*	*	*	*	17	21
10:00	5	12	14	11	10	13	9	13	19	19	*	*	*	*	11	14
11:00	7	6	4	8	1	6	12	3	3	8	*	*	*	*	5	6
Lane	559	532	608	567	549	532	589	551	594	535	269	207	0	0	575	539
Day	1091		1175		1081		1140		1129		476		0		1114	
AM Peak	07:00	11:00	07:00	09:00	07:00	11:00	07:00	09:00	07:00	08:00	10:00	09:00			07:00	09:00
Volume	44	33	53	35	45	36	45	34	46	33	49	44			41	32
PM Peak	17:00	17:00	16:00	16:00	16:00	17:00	17:00	17:00	16:00	17:00	13:00	13:00			16:00	17:00
Volume	51	51	48	62	56	49	46	47	64	45	54	25			51	48
Comb. Total	1091		1175		1081		1846		2394		1577		1002		2252	

ADT Not Calculated

Memo

To: Martin C. Livingston

From: Harry Klatt

CC: File

Date: February 1, 2006

Re: Radar Survey for CR #528, Chesterfield Township

Radar speed surveys were conducted on County Route #528 in Chesterfield Township in the area of #95 - #97 CR 528. The following results reflect the data that was collected and the observations of this writer while on location.

50 MPH Zone: Eastbound Traffic

The data collected for CR 528, in the area of #95 - #97 CR 528, for the Eastbound traffic shows that the 85th percentile for all vehicles is 54 MPH with the 10 MPH pace speed at 44 – 53 MPH.

50 MPH Zone: Westbound Traffic

The data collected for CR 528, in the area of #95 - #97 CR 528, for the Westbound traffic shows that the 85th percentile for all vehicles is 54 MPH with the 10 MPH pace speed 43 – 52 MPH.

Observations:

While at the above mentioned location I did observe several marked Police vehicles, both Municipal and State Police, drive by on routine patrol. No other Police activity was observed.

It should be mentioned that there were numerous 12 – 14 wheeled heavy duty construction vehicles, along with other commercial truck traffic traveling in both directions. It is my understanding that there are active construction sites in the area. This would account for the high truck volume in this neighborhood.

Burlington County
PO Box 6000
Mount Holly, NJ 08060

COUNTY ROUTE 528
\FO #97 COUNTY ROUTE 528
EASTBOUND: 50 MPH ZONE
END TIME: 1205 CLOUDY AND DRY

File Name : untitled2
Site Code : 52800206
Start Date : 02/01/200
Page No : 1

#	CARS	TRUCKS	BUSES
1	55	56	44
2	47	49	
3	60	54	
4	49	60	
5	49	51	
6	51	50	
7	53	44	
8	46	49	
9	48	49	
10	41	46	
11	50	47	
12	47	46	
13	39	46	
14	43	45	
15	02	46	
16	57	52	
17	53	55	
18	52	54	
19	58	40	
20	48	56	
21	47	50	
22	48	52	
23	45	53	
24	50	35	
25	47	52	
26	45	51	
27	41	45	
28	40	49	
29	40	48	
30	41	47	
31	41	41	
32	40	44	
33	42	46	
34	41	53	
35	39	60	
36	35	44	
37	58	44	
38	48		
39	51		
40	51		
41	48		
42	47		
43	39		
44	53		
45	54		
46	47		
47	45		
48	42		
49	51		
50	52		
51	50		
52	44		
53	44		
54	50		
55	56		
56	57		
57	46		
58	57		
59	58		
60	55		
61	50		

Class	Vehicle Count	Average Speed	True Median (50th Percentile)	85 Percentile	10 MPH Pace Speed	Number in Pace	Percent in Pace	Number of Vehicles Over 55 MPH	Percent of Vehicles Over 55 MPH
CARS	61	48	48	55	44 - 53	35	57	8	13
TRUCKS	37	49	49	54	44 - 53	27	73	4	11
BUSES	1	44	44	44	35 - 44	1	100	0	0
Summary	99	48	48	54	44 - 53	63	64	12	12

Burlington County
PO Box 6000
Mount Holly, NJ 08060

COUNTY ROUTE 528
IFO #97 COUNTY ROUTE 528
WESTBOUND: 50 MPH ZONE
END TIME: 1205 CLOUDY AND DRY

File Name : untitled2
Site Code : 52800206
Start Date : 02/01/2006
Page No : 1

#	CARS	TRUCKS	BUSES
1	46	50	
2	52	49	
3	45	49	
4	45	59	
5	52	50	
6	44	49	
7	47	50	
8	49	54	
9	51	50	
10	48	47	
11	55	53	
12	52	53	
13	56	50	
14	58	46	
15	52	57	
16	49	48	
17	49	52	
18	43	58	
19	49	57	
20	48	48	
21	47	55	
22	47	40	
23	49	44	
24	54	43	
25	48	42	
26	48	50	
27	51	42	
28	57	50	
29	48	56	
30	33	44	
31	49	49	
32	51	45	
33	48	47	
34	54	43	
35	44	42	
36	43	26	
37	45	49	
38	53	48	
39	43	45	
40	44	48	
41	38		
42	50		
43	51		
44	60		
45	47		
46	58		
47	52		
48	49		
49	47		
50	51		
51	52		
52	48		
53	48		
54	48		
55	45		
56	44		
57	43		
58	57		
59	40		
60	45		
61	47		
62	52		
63	46		
64	47		
65	38		
66	37		
67	39		
68	51		
69	49		
70	55		
71	27		

Burlington County
PO Box 6000
Mount Holly, NJ 08060

File Name : untitled2
Site Code : 52800206
Start Date : 02/01/2006
Page No : 2

#	CARS	TRUCKS	BUSES
72	54		
73	60		
74	49		
75	41		
76	45		
77	47		
78	50		
79	52		
80	51		
81	46		
82	49		
83	52		
84	43		
85	58		
86	54		
87	51		
88	45		
89	44		
90	38		
91	40		
92	51		
93	40		
94	49		
95	55		
96	54		
97	54		
98	44		
99	50		
100	61		

Class	Vehicle Count	Average Speed	True Median (50th Percentile)	85 Percentile	10 MPH Pace Speed	Number In Pace	Percent in Pace	Number of Vehicles Over 55 MPH	Percent of Vehicles Over 55 MPH
CARS	100	48	49	54	43 - 52	71	71	8	8
TRUCKS	40	48	49	54	41 - 50	28	70	5	12
BUSES	0	0	0	0	0 - 9	0	0	0	0
Summary	140	48	49	54	43 - 52	97	69	13	9

Board of Chosen Freeholders
County of Burlington
New Jersey

OFFICE OF:
COUNTY ENGINEER

Mailing Address
P.O. Box 6000
Mount Holly, New Jersey 08060

Physical Location
1900 Briggs Road
Mt. Laurel, NJ 08054

Telephone # (856) 642-3700
Fax # (856) 642-3710

January 24, 2006

Douglas Bartlett, Manager
Bureau of Traffic Engineering and Safety Programs
New Jersey Department of Transportation
1035 Parkway Ave. CN 613
Trenton, NJ 08625

RE: SPEED LIMITS
County Route 528, Burlington County

Dear Mr. Bartlett:

The County of Burlington has adopted the enclosed speed limit resolution for County Route 528, Bordentown-Chesterfield Road, in accordance with NJSA Title 39:4-8b. This resolution establishes speed limits across four zones between U.S. Route 206 and municipal boundaries between Chesterfield and North Hanover Townships.

Based on data collected by the Engineer's Office the following changes are being made:

Zone 1: 35 MPH East and Westbound; The existing speed limit is 35 MPH and is being extended to the new Zone 2 limit of Holloway Drive to include the remainder of the residential frontage and the Derby Fire Company.

Zone 2: 45 MPH Eastbound: 44-53 MPH (10 MPH Pace)
45 MPH Westbound: 43-52 MPH (10 MPH Pace)

Zone 3: 35 MPH Eastbound: 34-43 MPH (10 MPH Pace)
35 MPH Westbound: 36-45 MPH (10 MPH Pace)

Zone 4: 45 MPH; East and Westbound; The existing 45 MPH is being extended from he North Hanover Township line to the Zone 3 limit west of Sykesville Road.

This section of roadway traverses both rural and suburban areas and has both flat and rolling terrain. The County has reevaluated speed limits in this area due to the ongoing construction of a 1200 home subdivision in the vicinity of County Route 528. The proposed speed limits are reasonable based on the radar data collected, the roadway geometry, intersection site distance and the adjacent land use.

Burlington County certifies that it has conducted the speed survey in accordance with Title 39:4-8b, and that the speed limits established are reasonable and safe. Enclosed is Resolution 919, adopted by the Board of Chosen Freeholders of the County of Burlington, NJ, at its meeting dated October 25, 2006.

Please forward NJDOT concurrence for the enclosed speed limit resolution, based on our certification and resolution.

If you have any questions, please call this office at 856-642-3700.

Very truly yours,

[redacted]

R. Thomas Jaggard, P.E.
Assistant County Engineer

Martin C. Livingston
Traffic Engineer

(Seal)

N.J. PE License #29013

cc: File

I HEREBY CERTIFY THAT THE FOREGOING IS A TRUE, FULL AND CORRECT COPY OF RESOLUTION NO. 919 ADOPTED BY THE BOARD OF CHOSEN FREEHOLDERS OF THE COUNTY OF BURLINGTON, NJ, AT ITS MEETING DATED OCT 25 2006

[redacted]
CLERK OF THE BOARD

RESOLUTION

WHEREAS, the Board of Chosen Freeholders of the County of Burlington, is empowered under N.J.S.A. 39:4-201, N.J.S.A. 39:4-197, and N.J.S.A. 39:4-8b to establish speed limits along County Roads in order to protect the public and ensure safe roads within Burlington County; and

WHEREAS, County Route 528, commonly known as Crosswicks Street/Bordentown-Chesterfield Road in Chesterfield and Bordentown Townships, is a County Road under the jurisdiction of the Board of Chosen Freeholders of Burlington County; and

WHEREAS, the Burlington County Engineering Department has conducted a speed survey along County Route 528, commonly known as Crosswicks Street/Bordentown-Chesterfield Road; and

WHEREAS, speed zones set forth by the Burlington County Engineering Department have been substantiated by the aforementioned traffic investigation as realistic and reasonable; now, therefore be it

RESOLVED, by the Board of Chosen Freeholders of the County of Burlington in the State of New Jersey, that the speed limits for both directions of traffic along County Route 528 (Crosswicks Street/Bordentown-Chesterfield Road) in Chesterfield and Bordentown Townships are established at:

Zone 1 - 35 MPH – Between Route U.S. 206 and 905' east of Holloway Drive, except for 30 MPH when passing through the Holy Cross Lutheran School zone during recess when the presence of children is clearly visible from the roadway or while children are going to or leaving school, during opening and closing hours.

Zone 2 - 45 MPH – Between 905' east of Holloway Drive and 2075' west of Chesterfield-Crosswicks Road (County Route 677), except for 35 MPH when passing through the Meadow View School zone during recess when the presence of children is clearly visible from the roadway or while children are going to or leaving school, during opening and closing hours.

Zone 3 - 35 MPH – Between 2075' west of Chesterfield Crosswicks Road (County Route 677) and 1700' west of Sykesville Road, except for 30 MPH when passing through the Chesterfield Township School zone during recess when the presence of children is clearly visible from the roadway or while children are going to or leaving school, during opening and closing hours.

ADOPTED _____, **2006**

_____
CLERK

RESOLUTION

Zone 4 - 45 MPH – Between 1700' west of Sykesville Road and the North Hanover Township/Chesterfield Township line.

and, be it

FURTHER RESOLVED, by the Board of Chosen Freeholders of the County of Burlington, that Regulatory and Warning signs shall be erected and maintained by the Burlington County Engineering Department, to effect the above designated speed limits as empowered by N.J.S.A. 39:4-8b; and, be it

FURTHER RESOLVED, by the Board of Chosen Freeholders of the County of Burlington that all Regulatory and Warning signs erected shall be in conformance with the current federal Manual on Uniform Traffic Control Devices.

VINCENT R. FARIAS

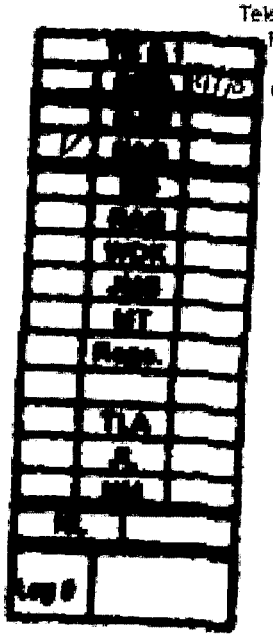
ADOPTED October 25 **, 2006**

AUGUSTUS M. MOSCA, **CLERK**

Board of Chosen Freeholders
Of The County of Burlington
MOUNT HOLLY, NEW JERSEY
08060

OFFICE OF
COUNTY ENGINEER
TRAFFIC SECTION
1900 Briggs Road
Mount Laurel, NJ 08054
Mailing Address
P.O. Box 6000
Mount Holly, N.J. 08060

Telephone # (856) 642-3720
Fax # (856) 642-3730



September 6, 2007

Douglas Bartlett, Manager
Bureau of Traffic Engineering and Safety Programs
New Jersey Department of Transportation
1035 Parkway Ave. - CN 613
Trenton, NJ 08625

RE: County Route 528, Burlington County

Dear Doug:

This letter and the attached documents provide additional support for County resolution no. 919 which established speed limits on County Route 528. As we discussed, Zones 1, 2, and 3 are self contained sections of County roadway and were certified in accordance with NJSA. 39:4-8b. Zone 4 in the resolution is not subject to NJSA 39:4-8b since this section crosses into Ocean County.

The speed zones along this section of roadway have been reevaluated for the following reasons:

- Ongoing construction of a 1200 home subdivision in the vicinity of County Route 528 which has significantly increased traffic volumes and turn movements.
- Volume of school related traffic has significantly increased. Adding to the three existing school zones along this roadway, Bordentown Township opened a new high school in 2006 with approximately one-third of the newly generated traffic using the intersection of County Route 528 and Hogback Rd. The sight distance at this intersection is limited to the east by the NJ Turnpike overpass and a two-story single family home.
- In 2006, Chesterfield Township reported to the County five speed related crashes. Four of the accidents were same direction involving a vehicle slowing for a turning movement.

- New construction of single family homes along the frontage of County Route 528 has also occurred between Georgetown Rd. and Sykesville Rd. increasing the number of driveways.

County Route 528 (Bordentown-Chesterfield Rd.)- Self Contained

Zone 1: 35 MPH Eastbound: 33-42 MPH (10 MPH Pace)
35 MPH Westbound: 30-39 MPH (10 MPH Pace)

The existing speed limit is 35 MPH and is being extended to the new Zone 2 limit of Holloway Drive to include the remainder of the residential frontage and the Derby Fire Company. The area where the speed zone is being extended is within the 10 MPH pace for 35 MPH and is of the same roadway character and land use as the existing section.

Zone 2: 45 MPH Eastbound: 44-53 MPH (10 MPH Pace)
45 MPH Westbound: 43-52 MPH (10 MPH Pace)

Zone 3: 35 MPH Eastbound: 31-40 MPH (10 MPH Pace)
35 MPH Westbound: 33-42 MPH (10 MPH Pace)

To the west of Georgetown Road, CR 528 is fronted by a township park, emergency squad and deli along the southerly curb line; a playground, elementary school, baseball field, bank, florist, pocket park and the Chesterfield Inn along the northerly curb line. Several homes with driveways have been constructed immediately to the east of Georgetown Road adjacent to both sides. In addition, a large garden center located adjacent to the Chesterfield Inn along the north side is now thriving due to the influx of residents from the new developments in the township.

County Route 528 (Chesterfield-Jacobstown Rd.)- Non-Self Contained

Zone 4: 45 MPH Eastbound: 38-47 MPH (10 MPH Pace)
45 MPH Westbound: 39-48 MPH (10 MPH Pace)
The existing 45 MPH is being extended from the North Hanover Township line to Zone 3 limit west of Sykesville Road. Our evaluation of the roadway geometry, stop control for westbound CR 528 and speed data for the existing 50MPH zone concluded that it is not compatible between the 45 MPH zones.

The enclosed map details the topographic features of this roadway including driveways and summarizes the speed survey data.

Burlington County certifies that it has conducted the speed surveys in accordance with Title 39:4-8b, and that the speed limits established are reasonable and safe. Enclosed is Resolution 919, adopted by the Board of Chosen Freeholder of the County of Burlington, NJ, at its meeting dated October 25, 2006.

Please forward NJDOT concurrence for the previously submitted speed limit resolution for the self contained section of CR 528 (Bordentown-Chesterfield Road) and approval for the section of CR 528 (Chesterfield-Jacobstown Road) that is not self contained.

If you have any additional questions regarding this matter, please contact this office at 856-642-3700.

Very truly yours,

[redacted]

oseph G. Caruso, P.E.
County Engineer

(Seal)
N.J. PE License [redacted]

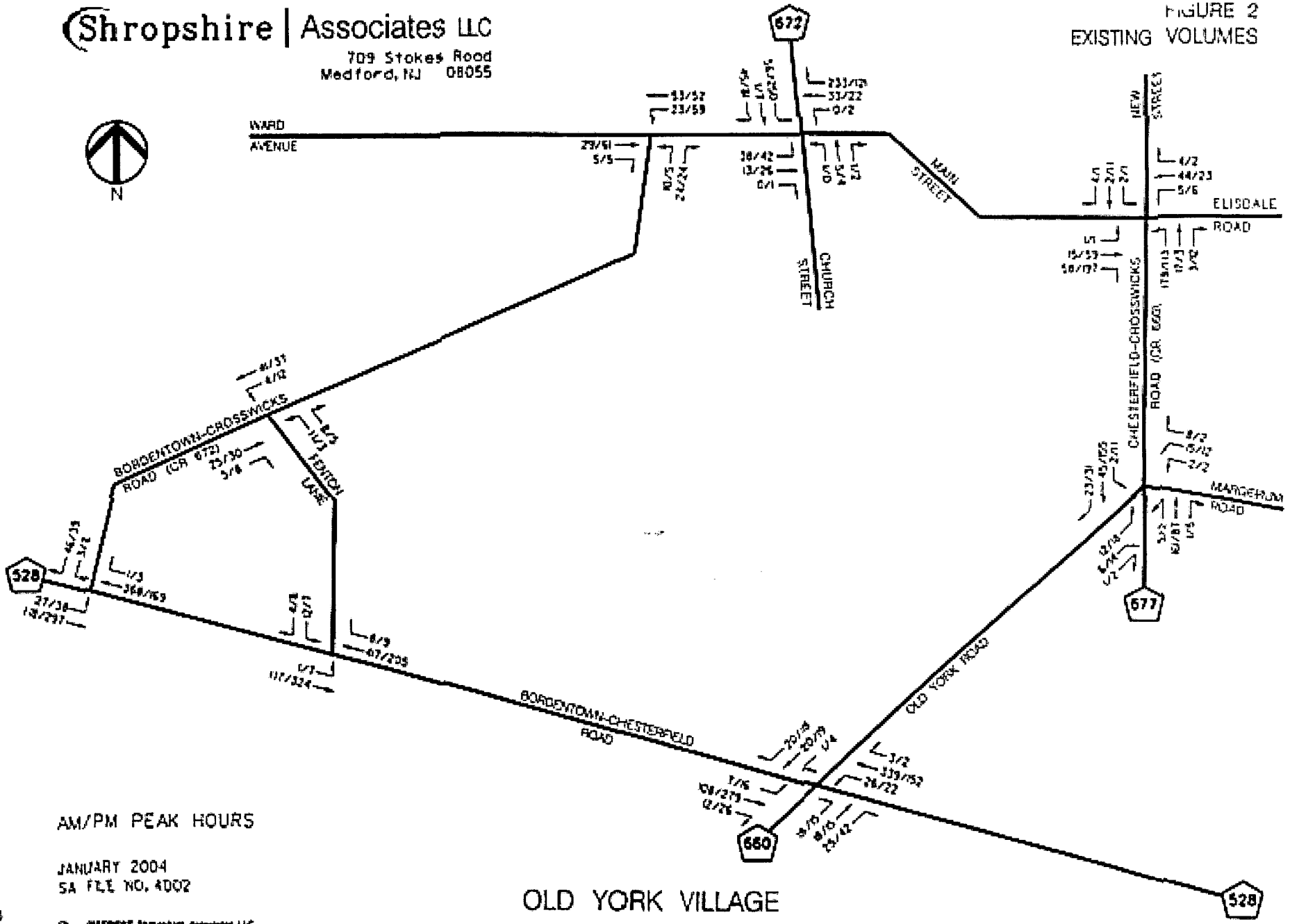
Enclosures

JGC/mjn

C:\Documents and Settings\kmcdermott\Desktop\528 speed response 09-07-07.doc

Shropshire | Associates LLC
709 Stokes Road
Medford, NJ 08055

FIGURE 2
EXISTING VOLUMES



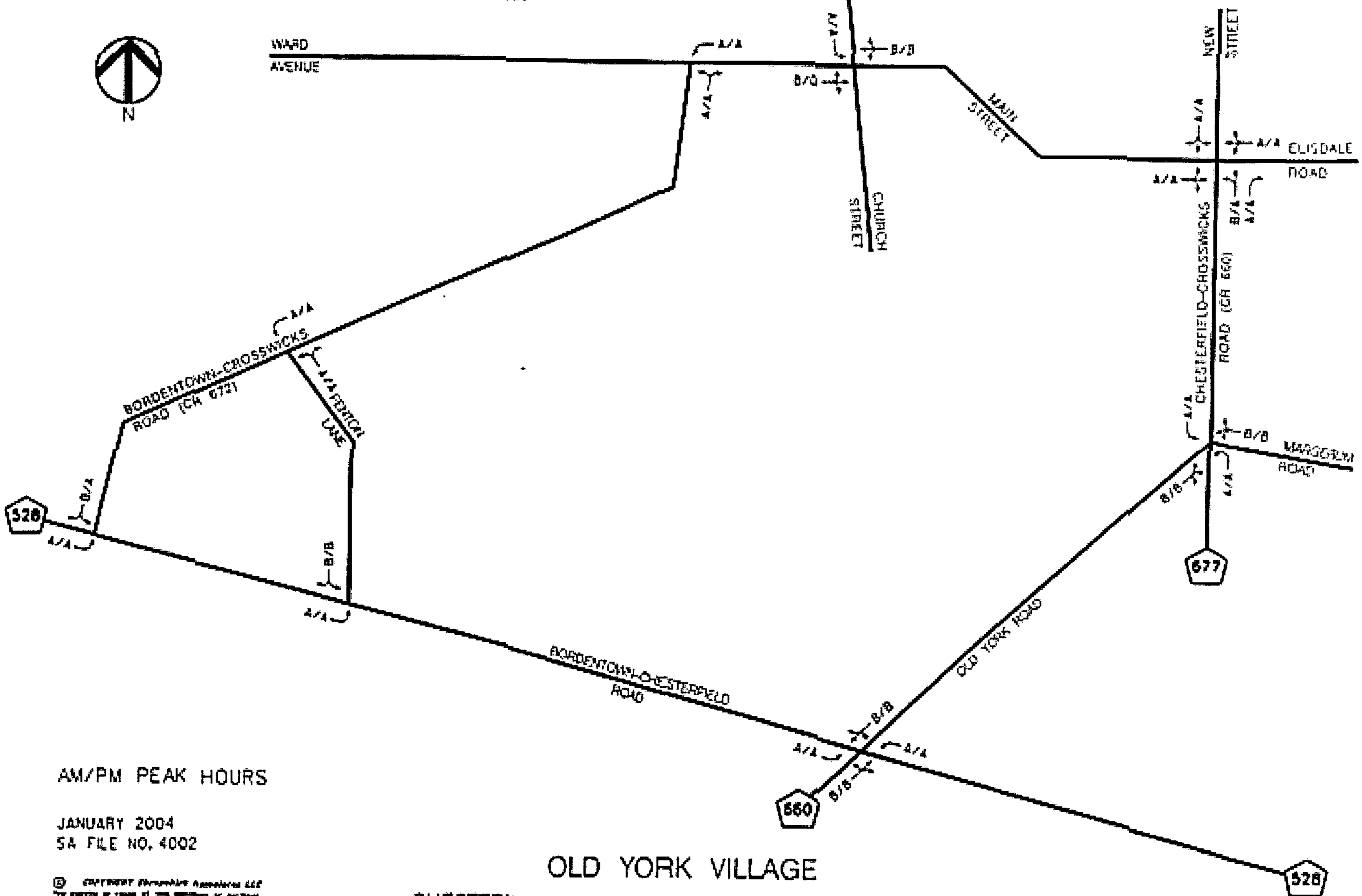
AM/PM PEAK HOURS

JANUARY 2004
SA FILE NO. 4002

OLD YORK VILLAGE
CHESTERFIELD TOWNSHIP, BURLINGTON COUNTY, NJ

Shropshire | Associates LLC
709 Stokes Road
Medford, NJ 08055

FIGURE 3
EXISTING LEVELS OF SERVICE



AM/PM PEAK HOURS

JANUARY 2004
SA FILE NO. 4002

24

OLD YORK VILLAGE
CHESTERFIELD TOWNSHIP, BURLINGTON COUNTY, NJ

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	nbm ea4	Intersection	CR 528/Old York Road
Agency/Co.	Shropshire Associates LLC	Jurisdiction	Chesterfield Twp/Burlington Co
Performed	1/9/2004	Analysis Year	2004
Analysis Time Period	Existing AM Peak Hour		

Project Description: 4002 - Old York Village

East/West Street: Bordentwn-Chesterfield CR 528	North/South Street: Old York Road (CR 660)
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	108	12	26	339	3
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87
Hourly Flow Rate (veh/h)	7	118	13	29	389	3
Proportion of heavy vehicles, P_{HV}	2	–	–	2	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	18	18	25	1	20	20
Peak-hour factor, PHF	0.80	0.80	0.80	0.68	0.68	0.68
Hourly Flow Rate (veh/h)	22	22	31	1	29	29
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
Volume, v (vph)	7	29		75			59	
Capacity, c_m (vph)	1167	1454		503			498	
v/c ratio	0.01	0.02		0.15			0.12	
Queue length (95%)	0.02	0.06		0.52			0.40	
Control Delay (s/veh)	8.1	7.5		13.4			13.2	
LOS	A	A		B			B	
Approach delay (s/veh)	–	–	13.4			13.2		
Approach LOS	–	–	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	nbm ep4
Agency/Co.	Shropshire Associates LLC
Performed	1/9/2004
Analysis Time Period	Existing PM Peak Hour

Site Information

Intersection	CR 528/Old York Road
Jurisdiction	Chesterfield Twp/Burlington Co
Analysis Year	2004

Project Description: 4002 - Old York Village

East/West Street: Bordentwn-Chesterfield CR 528 | North/South Street: Old York Road (CR 660)

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	16	279	26	22	152	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82
Hourly Flow Rate (veh/h)	17	303	28	26	185	2
Proportion of heavy vehicles, P_{HV}	2	–	–	2	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	15	15	42	4	19	18
Peak-hour factor, PHF	0.72	0.72	0.72	0.68	0.68	0.68
Hourly Flow Rate (veh/h)	20	20	58	5	27	26
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
Volume, v (vph)	17	26		98			58	
Capacity, c_m (vph)	1387	1228		529			513	
v/c ratio	0.01	0.02		0.19			0.11	
Queue length (95%)	0.04	0.06		0.67			0.38	
Control Delay (s/veh)	7.6	8.0		13.3			12.9	
LOS	A	A		B			B	
Approach delay (s/veh)	–	–	13.3			12.9		
Approach LOS	–	–	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	nbm bp4	Intersection	CR 528/Old York Road
Agency/Co.	Shropshire Associates LLC	Jurisdiction	Chesterfield Twp/Burlington Co
Date Performed	1/9/2004	Analysis Year	2012 FUTURE NEEDS ANALYSIS
Analysis Time Period	Build PM Peak Hour		

Project Description: 4002 - Old York Village

East/West Street: Bordentwn-Chesterfield CR 528 | North/South Street: Old York Road (CR 660)

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	53	392	36	31	219	118
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82
Hourly Flow Rate (veh/h)	57	426	39	37	267	143
Proportion of heavy vehicles, P_{HV}	2	–	–	2	–	–
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	21	55	58	92	57	47
Peak-hour factor, PHF	0.72	0.72	0.72	0.85	0.85	0.85
Hourly Flow Rate (veh/h)	29	76	80	108	67	55
Proportion of heavy vehicles, P_{HV}	2	2	2	2	2	2
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Control Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
Volume, v (vph)	57	37		185			230	
Capacity, c_m (vph)	1149	1096		259			176	
v/c ratio	0.05	0.03		0.71			1.31	
Queue length (95%)	0.16	0.10		4.90			13.26	
Control Delay (s/veh)	8.3	8.4		47.4			224.1	
LOS	A	A		E			F	
Approach delay (s/veh)	–	–	47.4			224.1		
Approach LOS	–	–	E			F		

HCS2000™

Version 4.1

SHORT REPORT

General Information

Analyst	nbm ba4 (Signalized)
Agency or Co.	Shropshire Associates LLC
Date Performed	1/14/2004
T Period	Build AM Peak Hour

Site Information

Intersection	CR 528/Old York Road
Area Type	All other areas
Jurisdiction	Chesterfield Twp/Burlington Co
Analysis Year	2012

FUTURE NEEDS ANALYSIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	30	158	17	36	474	65	25	54	35	103	45	52
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ped/Bike/RTOR Volume	0		2	0		9	0		4	0		5
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
	G = 30.0	G =	G =	G =	G = 18.0	G =	G =	G =
	Y = 6	Y =	Y =	Y =	Y = 6	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 60.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	33	193		40	611		28	94		114	102	
Lane group cap.	291	980		632	973		429	587		432	573	
v/c ratio	0.11	0.20		0.06	0.63		0.07	0.16		0.26	0.18	
Green ratio	0.53	0.53		0.53	0.53		0.33	0.33		0.33	0.33	
Unif. delay d1	7.0	7.3		6.8	9.8		13.6	14.1		14.6	14.2	
Delay factor k	0.50	0.50		0.50	0.50		0.04	0.04		0.04	0.04	
Increm. delay d2	0.8	0.4		0.2	3.1		0.0	0.0		0.1	0.1	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	7.7	7.7		7.0	12.9		13.7	14.1		14.7	14.2	
Lane group LOS	A	A		A	B		B	B		B	B	
Apprch. delay	7.7			12.5			14.0			14.5		
Approach LOS	A			B			B			B		
Intersec. delay	12.1			Intersection LOS						B		

SHORT REPORT

General Information		Site Information	
Analyst	nbm bp4 (Signalized)	Intersection	CR 528/Old York Road
Agency or Co.	Shropshire Associates LLC	Area Type	All other areas
Date Performed	1/14/2004	Jurisdiction	Chesterfield Twp/Burlington Co
T Period	Build PM Peak Hour	Analysis Year	2012 FUTURE NEEDS ANALYSIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	53	392	36	31	219	118	21	55	58	92	57	47
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ped/Bike/RTOR Volume	0		4	0		12	0		6	0		5
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
T ng	G = 30.0	G =	G =	G =	G = 18.0	G =	G =	G =
	Y = 6	Y =	Y =	Y =	Y = 6	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 — Cycle Length C = 60.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	59	472		34	361		23	119		102	110	
Lane group cap.	491	982		398	945		426	576		423	581	
v/c ratio	0.12	0.48		0.09	0.38		0.05	0.21		0.24	0.19	
Green ratio	0.53	0.53		0.53	0.53		0.33	0.33		0.33	0.33	
Unif. delay d1	7.0	8.8		6.8	8.2		13.6	14.3		14.5	14.2	
Delay factor k	0.50	0.50		0.50	0.50		0.04	0.04		0.04	0.04	
Increm. delay d2	0.5	1.7		0.4	1.2		0.0	0.1		0.1	0.1	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	7.5	10.5		7.3	9.4		13.6	14.4		14.6	14.3	
Lane group LOS	A	B		A	A		B	B		B	B	
Apprch. delay	10.1			9.2			14.3			14.4		
Approach LOS	B			A			B			B		
Intersec. delay	11.0			Intersection LOS			B					

Board of Chosen Freeholders
Of The County of Burlington
MOUNT HOLLY, NEW JERSEY
08060

OFFICE OF
COUNTY ENGINEER
TRAFFIC SECTION
1900 Briggs Road
Mount Laurel, NJ 08054
Mailing Address
P.O. Box 6000
Mount Holly, N.J. 08060

Telephone # (856) 642-3720
Fax # (856) 642-3730

MEMORANDUM

TO: Peter J. Kotowski, NTSB Investigator In Charge

FROM: Michael Nei, Principal Engineer [redacted]

RE: **School Bus Accident**
Intersection of CR 528 & CR 660
Chesterfield Township

DATE: February 19, 2012

In response to our meeting on February 19th, 2012 with David Rayburn, please find attached copies of the following documents:

- AASHTO Roadside Design Guide requirements regarding the installation of traffic signal supports.
- NJDOT Design Manual requirements for the installation of traffic signal standards.
- Design details for the steel pole foundations and catalog details for the steel pole, mast arm and anchor bolts.
- MUTCD requirements regarding STOP LINES
- The New Jersey State statute regarding the Stopping or Yielding– Right of Way
- The New Jersey State statute regarding the clearing of brush/hedges at intersections.

In addition, as we discussed at the meeting the following is the functional classification of the roadways:

- County Route 528 west of the intersection is classified as Urban Collector.
- County Route 528 east of the intersection is classified as Rural Collector.
- County Route 660 is a collector road and divides the Rural and Urban boundary in Chesterfield Township.

cc: J. Brickley, County Engineer
M. Livingston, Traffic Engineer

Roadside Design Guide

3rd Edition 2006, with updated Chapter 6

American Association of State Highway and Transportation Officials

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structure. Upon knockdown, the electricity in the support/structure should disconnect as close to the foundation as possible.

When luminaire supports are located near a traffic barrier, breakaway bases may or may not be applicable, depending upon the type and characteristics of the barrier. Luminaire supports should not be placed within the deflection distance of a barrier. For the most part, the impact performance of barriers interacting with a luminaire support breakaway device during a crash has not been determined. This situation should be avoided unless crash testing of a particular combination of devices indicates that the performance is acceptable. If the support must be within the design deflection distance of the barrier, it should be a breakaway design or the railing should be stiffened locally to minimize the resultant deflection. Details on traffic barrier types and characteristics can be found in Chapters 5 and 6.

Several state agencies mount luminaires on top of concrete median barriers, a practice that often requires modification to the luminaire support or median barrier or both. This type of installation generally does not use breakaway supports because of the risk a downed pole might present to opposing traffic. A consideration in this design is the likelihood of truck impacts with the barrier, since a truck bed will typically overhang short barriers during an impact and could snag on the support that is located there. The resultant vehicle deceleration may be unacceptable.

A final consideration on roadway lighting is a reduction in the total number of luminaires used along a section of highway. Higher mounting heights may significantly reduce the total number of supports needed. The ultimate design in this respect is the use of tower or high-mast lighting that requires far fewer supports located much farther from the roadway. From a roadside safety perspective, this is a preferred method for lighting major interchanges.

4.6 SUPPORTS FOR TRAFFIC SIGNALS AND MISCELLANEOUS TRAFFIC SERVICE DEVICES

Other relatively narrow objects that are usually located adjacent to the roadway include traffic signals, motorist-aid callboxes, railroad warning devices, fire hydrants, and mailboxes. These are discussed in the following sections.

4.6.1 Traffic Signals

Traffic signal posts present a special situation where a breakaway support may not be practical or desirable. As with luminaire supports, a fallen signal post may become an obstruction. However, the potential risks associated with the temporary loss of full signalization at the intersection should be considered.

When traffic signals are installed on high-speed facilities (generally defined as those having speed limits of 80 km/h [50 mph] or greater), the signal supports, and the signal support box if not mounted on one of the signal support poles, should be placed as far away from the roadway as practicable. Shielding these supports can be considered if they are within the clear zone for that particular roadway. Consideration should be given to using breakaway supports for post-mounted signals installed in wide medians.

4.6.2 Motorist-Aid Callboxes

Motorist-aid callboxes should be treated as roadside obstacles. Their proximity to the traveled way warrants the use of crashworthy breakaway supports. Because of their size and weight, they can usually be designed to meet vehicle change-in-velocity requirements. A callbox must be securely attached to its support to prevent its separating and penetrating the windshield.

To the extent possible, callboxes should be located behind traffic barriers warranted for other reasons. Not only does this make them less likely to be hit, but it also reduces the risk of a motorist using a callbox being struck by a vehicle. Callboxes must be accessible to wheelchair users.

4.6.3 Railroad Crossing Warning Devices

Highway and railroad officials must cooperatively decide on the type of warning device needed at a particular crossing, e.g., crossbucks, flashing light signals, or gates. As a minimum, crossbucks are required and should be installed on an acceptable sign support. Other warning device supports, such as signals or gates, can cause an increase in the severity of injuries to vehicle occupants if struck at high speeds. In these cases, if the support is located in the clear zone, consideration should be given to shielding the support with a crash cushion. Longitudinal barrier is not often used because there is seldom sufficient space for a proper downstream end treatment, a longer obstacle is created by installing a guardrail, and a vehicle striking a longitudinal barrier when a train is occupying the crossing may be redirected into the train. The designer must also be aware of the immediate risk to other motorists just after the devices are knocked down by impacting vehicles.

The controller is the most important component of the traffic signal; therefore, the designer must use extreme care in choosing a location for the controller at the intersection. As a minimum, the following criteria shall be adhered to:

1. The controller shall be offset as far as possible from the traveled roadway within the right-of-way, allowing adequate work area for maintenance.

2. The controller location shall provide the maintainer the best possible visibility of the signal indications when working on the cabinet.

3. The controller location shall be the least vulnerable to vehicular accidents and shall not restrict sidewalk areas.

12-03.3 Traffic Signal Standards

Types, designs and certain typical installation details for traffic signal standards and their foundations are included in the NJDOT *Standard Electrical Details*.

Traffic signal standards and transformer bases shall be of aluminum alloy to support traffic signal mast arms with a length of 25 feet or less. When the mast arm exceeds 25 feet, the traffic signal standard shall be steel. They shall be mounted on foundations as follows:

Traffic Signal Standard	Foundation
Type "C"	Type "SFT"
Type "K"	Type "SFK"
Type "S"	Type "STF"
Type "T"	Type "SFT"
Type "SC"	Type "STF"

Foundation Type "SFX" shall be installed in center barriers only and shall be used in special cases only. The designer must justify its use and obtain approval in writing. In conjunction with the installation, a small transformer base, Part No. NJTB-30 as shown on NJDOT *Standard Electrical Details* No. L-1501, shall be used. The Traffic Signal Standard Type "C" shall also be used when 12" signal face(s) of three sections or more are suspended at the end of the mast arm to obtain the minimum roadway overhead clearance.

When 12" signal face(s) of four sections or more are suspended at the end of the mast arm, the Traffic Signal Standard Type "T" shall not be used. The roadway overhead clearance of the signal head shall be examined and calculated when a traffic signal standard, particularly Type "T", is installed at the low side of a banked section of roadway.

When a single free swinging indication is to be installed at the end of a mast arm, an aluminum signal head shall be used.

Traffic Signal Standard Type "K" shall be used for 25 foot mast arms.

The designer is responsible for loading calculations necessary to verify that the standard and arm will support the signal indications and signs. When the loading of a traffic signal standard or traffic signal arm is approaching its limit, a warning note "consult Traffic Signal & Safety Engineering for additional load" shall be shown near the installation on the plan.

Mast arm signs shall be free swinging in accordance with the standard details.

Traffic signal standards shall be located as follows:

1. The minimum offset shall be 32" from face of curb or edge of pavement to center of the standard.

2. Steel traffic signal standards should be located as far off the roadway as possible. A minimum of 5 feet from the face of the curb to the center of the steel traffic signal standard should be maintained.

3. Traffic signal standards shall not be located in areas of handicap ramps nor shall they obstruct the crosswalks.

4. Traffic signal standards, where feasible, shall also be used to support pedestrian signals and push buttons.

5. Traffic signal standards shall not be located on the traffic side of (in front of) the guide rail or any natural or manmade deflecting barrier. The location should provide the distance necessary for rail deflection when struck and a reachable distance for pedestrians to push the pedestrian push button. Exceptions on a case by case basis may be made only with approval of the Electrical Engineer in the Office of Traffic Signal and Safety Engineering.

6. Traffic signal standards shall not be located near the curve of:

   A. A corner with a radius of less than 15 feet, or;

   B. A corner with a radius of less than 30 feet provided where trucks and buses turn right occasionally, or;

   C. A corner with a radius of less than 50 feet provided where large truck combinations and buses frequently turn right.

7. The designer is responsible for locating and identifying the horizontal and vertical clearances of the utility companies primary (750 volts or more) and secondary power lines and shall assure that the minimum clearances are in accordance with the NEW JERSEY ADMINSTRATIVE CODE CHAPTER 25 UTILITY ACCOMMODATION, Section 16:25-5.3 (c) and Section 10 of the NJDOT *Procedures Manual*. The designer shall coordinate the electrical design work with the present and future plans of the utility companies. All overhead and underground utilities must be shown on the plans. There shall be no conflicts with the lighting installation. See Figure 11-C.

Section 3B.15 Transverse Markings

Standard:

01 ***Transverse markings, which include shoulder markings, word and symbol markings,* arrows, stop lines, yield lines, crosswalk lines, speed measurement markings, speed reduction markings, speed hump markings, parking space markings, and others, shall be white unless otherwise provided in this Manual.**

Guidance:

02 *Because of the low approach angle at which pavement markings are viewed, transverse lines should be proportioned to provide visibility at least equal to that of longitudinal lines.*

Section 3B.16 Stop and Yield Lines

Guidance:

01 *Stop lines should be used to indicate the point behind which vehicles are required to stop in compliance with a traffic control signal.*

Option:

02 **Stop lines may be used to indicate the point behind which vehicles are required to stop in compliance with a STOP (R1-1) sign,** a Stop Here For Pedestrians (R1-5b or R1-5c) sign, or some other traffic control device that requires vehicles to stop, except YIELD signs that are not associated with passive grade crossings.

03 Yield lines may be used to indicate the point behind which vehicles are required to yield in compliance with a YIELD (R1-2) sign or a Yield Here To Pedestrians (R1-5 or R1-5a) sign.

Standard:

04 **Except as provided in Section 8B.28, stop lines shall not be used at locations where drivers are required to yield in compliance with a *YIELD (R1-2)* sign or a Yield Here To Pedestrians (R1-5 or R1-5a) sign or at locations on uncontrolled approaches where drivers are required by State law to yield to pedestrians.**

05 **Yield lines shall not be used at locations where drivers are required to stop in compliance with a STOP (R1-1) sign, a Stop Here For Pedestrians (R1-5b or R1-5c) sign, a traffic control signal, or some other traffic control device.**

06 **Stop lines shall consist of solid white lines extending across approach lanes to indicate the point at which the stop is intended or required to be made.**

07 **Yield lines (see Figure 3B-16) shall consist of a row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made.**

Guidance:

08 ***Stop lines should be 12 to 24 inches wide.***

09 *The individual triangles comprising the yield line should have a base of 12 to 24 inches wide and a height equal to 1.5 times the base. The space between the triangles should be 3 to 12 inches.*

10 *If used, stop and yield lines should be placed a minimum of 4 feet in advance of the nearest crosswalk line at controlled intersections, except for yield lines at roundabouts as provided for in Section 3C.04 and at midblock crosswalks. **In the absence of a marked crosswalk, the stop line or yield line should be placed at the desired stopping or yielding point, but should not be placed more than 30 feet or less than 4 feet from the nearest edge of the intersecting traveled way.***

11 *Stop lines at midblock signalized locations should be placed at least 40 feet in advance of the nearest signal indication (see Section 4D.14).*

12 *If yield or stop lines are used at a crosswalk that crosses an uncontrolled multi-lane approach, the yield lines or stop lines should be placed 20 to 50 feet in advance of the nearest crosswalk line, and parking should be prohibited in the area between the yield or stop line and the crosswalk (see Figure 3B-17).*

Standard:

13 **If yield (stop) lines are used at a crosswalk that crosses an uncontrolled multi-lane approach, Yield Here To (Stop Here For) Pedestrians (R1-5 series) signs (see Section 2B.11) shall be used.**

Guidance:

14 *Yield (stop) lines and Yield Here To (Stop Here For) Pedestrians signs should not be used in advance of crosswalks that cross an approach to or departure from a roundabout.*

Support:

15 When drivers yield or stop too close to crosswalks that cross uncontrolled multi-lane approaches, they place pedestrians at risk by blocking other drivers' views of pedestrians and by blocking pedestrians' views of vehicles approaching in the other lanes.

NJSA

39:4-141. Placing of Signs

The official, board or body charged with the maintenance of a highway or section thereof designated as a through street, or of an intersection designated as a stop intersection or a yield intersection, as provided in section 39:4-140 of this Title shall place "stop" signs or "yield right of way" signs, as in the designation provided, on the near right side of each highway intersecting the through street or of each entrance to the intersection where such sign is deemed necessary; except that on one-way streets, such signs may be placed on either or both near sides of the intersecting street or entrance, if approved by the director.

39:4-143. Intersecting Through Streets

When through streets intersect each other the director shall determine the highway to be known as the through street and cause the board or body having control of the highways to post only one of the highways.

39:4-144. Stopping or Yielding - Right of Way

No driver of a vehicle or street car shall enter upon or cross an intersecting street marked with a "stop" sign unless he has first brought his vehicle or street car to a complete stop at a point within 5 feet of the nearest crosswalk or stop line marked upon the pavement at the near side of the intersecting street and shall proceed only after yielding the right of way to all traffic on the intersecting street which is so close as to constitute an immediate hazard. No driver of a vehicle or street car shall enter upon or cross an intersecting street marked with a "yield right of way" sign without first slowing to a reasonable speed for existing conditions and visibility, stopping if necessary, and the driver shall yield the right of way to all traffic on the intersecting street which is so close as to constitute an immediate hazard; unless, in either case, he is otherwise directed to proceed by a traffic or police officer or traffic control signal, or as provided in section 39:4-145 of this Title.

39:4-145. Entering Intersection After Stopping

One or more vehicles or street cars following directly in line with another vehicle or street car and coming to a complete stop, caused by the first vehicle or street car nearest the intersection complying with section 39:4-144 of this Title, may proceed into or across the intersecting street without again coming to a complete stop. No driver of a vehicle or street car approaching the intersection on the intersecting street shall fail to yield to the vehicle so proceeding into or across the intersecting street.

ARTICLE 18A. HIGHWAY AND TRAFFIC SIGNS

A. GENERAL PROVISIONS

See

of the place of amusement for which it was issued (plus the tax lawfully due on such original sale), but in no event shall the additional charge on the resale thereof exceed fifty per centum (50%) of the original charge, and each ticket or other device for admission shall have printed or stamped on the back thereof the name of the licensee making such resale and the original price of issue and the resale price thereof together with the tax thereon. Such licensee shall have prominently displayed at his place of business schedules showing tickets or other devices of admission offered for resale by him, together with the original prices of issue and the prices at which they are offered for resale. L.1947, c. 385, p. 1223, § 6, eff. July 3, 1947.

Library References

Theaters and Shows ⇐2. C.J.S. Theaters and Shows ¶ 4–16.

40:48–2.24 Enforcement of ordinance; penalties; suspension or revocation of license

The governing body of the municipality is authorized and empowered to enforce the provisions of any such ordinance and to fix penalties for violations, and further, to suspend or revoke any license which may be granted thereunder. L.1947, c. 385, p. 1223, § 7, eff. July 3, 1947.

Library References

Theaters and Shows ⇐1. C.J.S. Theaters and Shows § 3.

40:48–2.25 Penalties

The governing body of the municipality may provide penalties not in excess of one hundred dollars ($100.00) for each offense and to recover all penalties in appropriate proceedings in respective municipal courts, and to fix terms of imprisonment for failure to pay penalties imposed. L.1947, c. 385, p. 1223, § 8, eff. July 3, 1947.

40:48–2.26 Brush and hedges near roadways and intersections, cutting of

The governing body of every municipality shall have power to make, enforce, amend and repeal ordinances requiring the owner or tenant of lands lying within the limits of such municipality to keep all brush, hedges and other plant life, growing within ten feet of any roadway and within twenty-five feet of the

intersection of two roadways, cut to a height of not more than two and a half feet where it shall be necessary and expedient for the preservation of the public safety, within ten days after notice to cut the same, and to provide for the cutting of the same by or under the direction of some officer of the municipality, to be designated in said ordinance, in cases where the owner or tenant shall have refused or neglected to cut the same in the manner and within the time provided above and to provide for the imposition of penalties for the violation of any such ordinance. L.1949, c. 152, p. 535, § 1, eff. May 19, 1949.

Historical Note

Title of Act:

An Act concerning municipalities, and supplementing chapter forty-eight of Title 40 of the Revised Statutes. L.1949, c. 152, p. 535.

Library References

Municipal Corporations ⇐665. C.J.S. Municipal Corporations ¶ 1701 et seq.

40:48–2.27 Cost of cutting brush and hedges; charging against lands; lien

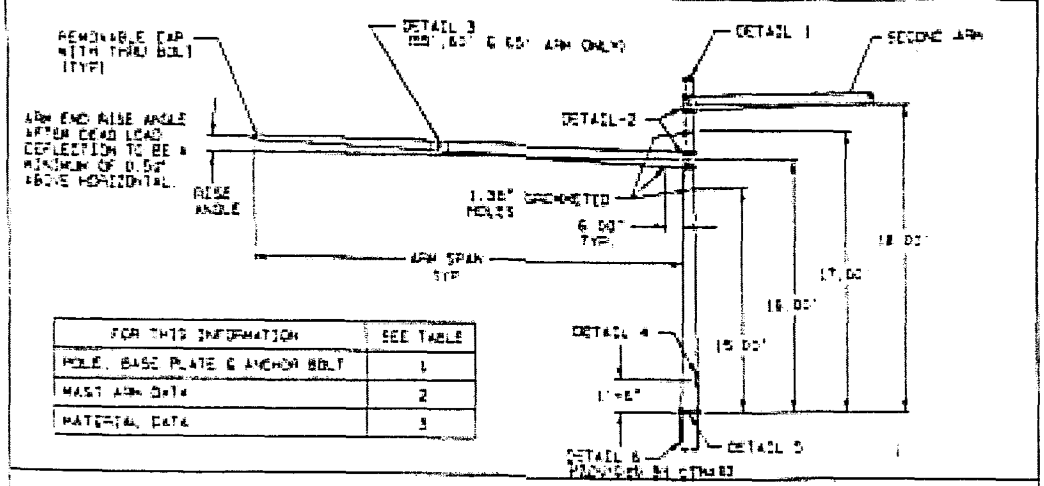
In all cases where brush, hedges and other plant life are cut from any lands within the limitations of section one hereof under any such ordinance, by or under the direction of an officer of the municipality, such officer shall certify the cost thereof to the governing body, which shall examine the certificate and if found correct shall cause the cost as shown thereon to be charged against said lands, or in the event that such cost is excessive to cause the reasonable cost thereof to be charged against said lands. The amount so charged shall forthwith become a lien upon such lands and shall be added to and become and form part of the taxes next to be assessed and levied upon such lands, the same to bear interest at the same rate as other taxes and shall be collected and enforced by the same officers and in the same manner as taxes. L.1949, c. 152, p. 535, § 2, eff. May 19, 1949.

Library References

Municipal Corporations ⇐665. C.J.S. Municipal Corporations ¶ 1701 et seq.

40:48–2.28 Fire prevention ordinances authorized

In addition to powers granted pursuant to article 1 of chapter 48 of Title 40 of the Revised Statutes, the governing body of any



FOR THIS INFORMATION	SEE TABLE
POLE, BASE PLATE & ANCHOR BOLT	1
MAST ARM DATA	2
MATERIAL DATA	3

STATE OF NEW JERSEY

TABLE 1 POLE, BASEPLATE, AND ANCHOR BOLTS

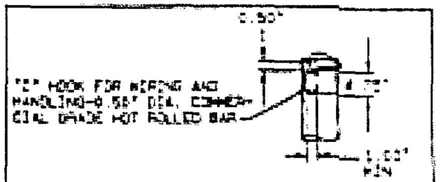
[illegible]	QTY	POLE TUBE: BASE DIA (IN)	POLE TUBE: TOP DIA (IN)	POLE TUBE: LENGTH (FT)	POLE TUBE: GAUGE OR THICK (IN)	POLE BASE: SQUARE (IN)	POLE BASE: BOLT CIRCLE (IN)	POLE BASE: THK (IN)	POLE BASE: BOLT SLOT (IN)	ANCHOR BOLT: DIA. (IN)	ANCHOR BOLT: LENGTH (IN)	ANCHOR BOLT: HOOK (IN)	ANCHOR BOLT: THREAD LENGTH (IN)
S1		12.50	9.56	21.00	0.3125	17.50	17.25	1.75	2.00 x 2.25	1.75	84.00	6.00	6.00

NOTES

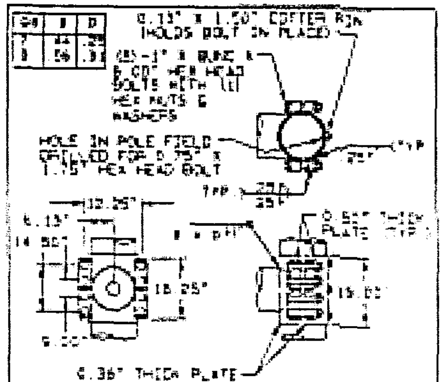
1. STRUCTURES ARE TO BE DESIGNED IN ACCORDANCE WITH THE 1994 AASHTO (STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES AND TRAFFIC SIGNALS) FOR 90 M.P.H. WIND ZONE TO SUPPORT THE FOLLOWING
2. ARMS WILL SUPPORT ALL OF THE FOLLOWING
   FIXED SIGNALS AT THE END OF ARM-WT. 100# PROJ. AREA 8.4 S.F.
   FIXED SIGNALS 1/3 OF LENGTH FROM END-WT. 100# PROJ. AREA 8.4 S.F.
   FIXED SIGN MIDWAY BETWEEN SIGNALS-WT. 70# PROJ. AREA 12 S.F.
3. POLE TYPE S1 WILL SUPPORT ONE 45' AND ONE 30' MAST ARM WITH ABOVE LOADING AND A MINIMUM ARM SEPARATION OF 45°, OR ONE 65' ARM WITH ABOVE LOADING.
4. CLAMPS FOR ALL MAST ARMS MUST BE CAPABLE OF ACCOMMODATING VARIOUS POLE DIAMETERS (9.7" TO 10.2") WITHOUT AFFECTING LOAD CHARACTERISTICS OF ASSEMBLED UNIT. ALL CLAMPS MUST BE DESIGNED FOR ATTACHMENT TO ROUND OR MULTISIDED POLES. CLAMPS MUST BE CAPABLE OF ROTATIONAL ADJUSTMENT RIGHT AND LEFT FROM VERTICAL PLANE AND 360° ROTATIONAL ADJUSTMENT ABOUT MAST ARMS.

TABLE 2 MAST ARMS

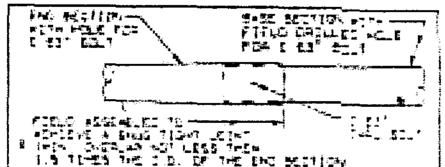
ARM TYPE	SIGNAL ARM TUBE: FIXED END DIA (IN)	WALL END DIA (IN)	GAUGE OR THICK (IN)	SPAN (FT)	RISE ANGLE DEGREES
325	9.00	4.80	7	30.00	1.50
355	9.00	4.10	7	35.00	2.50
405	10.00	4.40	7	40.00	2.50
455	10.50	4.20	7	45.00	3.50
505	11.00	4.00	7	50.00	4.00
555	10.14	3.81	3	45.25	6.50
	4.37	3.68	11	11.37	
605	11.00	4.00	3	50.00	6.50
	4.47	2.84	11	11.64	
655	11.75	5.50	3	44.64	8.50
	6.12	3.00	7	23.18	



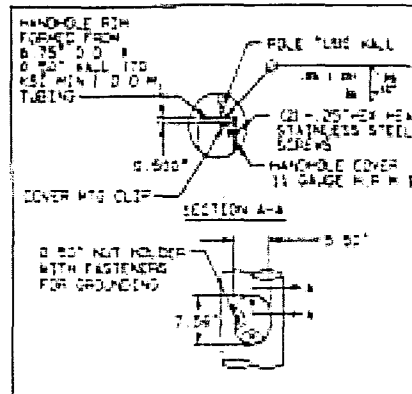
DETAIL-1 POLE TOP



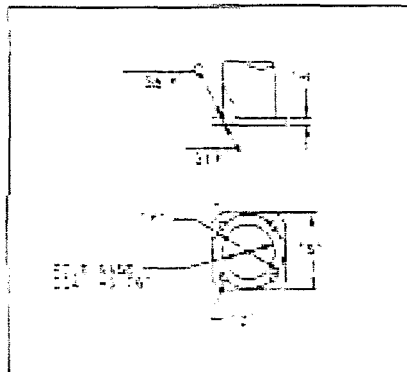
DETAIL-2 SIGNAL ARM ATTACHMENT



DETAIL-3 SIGNAL ARM SLIP JOINT



DETAIL-4 HANDHOLE



DETAIL-5 POLE BASE

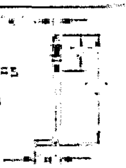
TABLE 3 MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE TUBE	A572 GR 65	65
BASE PLATE	A36	36
ARM TUBE	A595 GR A	55
CLAMP	A36	36
BOLTS	A325 [1]	92
ANCHOR BOLTS	F1554 GR 55	55
GALVANIZING (TUBES)	A123	NA
GALVANIZING (ACCESSORIES)	A153	NA

1. LUBRICATE IN FIELD IF NECESSARY IN LIEU OF THE REQUIREMENT IN A325.
2. RISE ANGLE IS FOR MAXIMUM DESIGN LOADS ONLY.

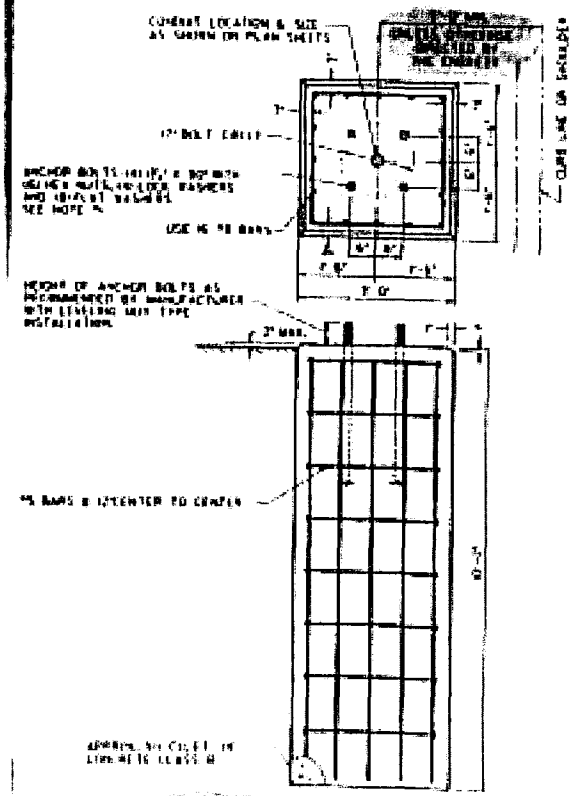
(A) ANCHOR BOLTS WITH (4) HEX NUTS, (2) FLAT WASHERS AND (1) LOCK WASHER PER BOLT WITH THREADED END GALVANIZED AT LEAST 12"

PROVIDED BY OTHERS

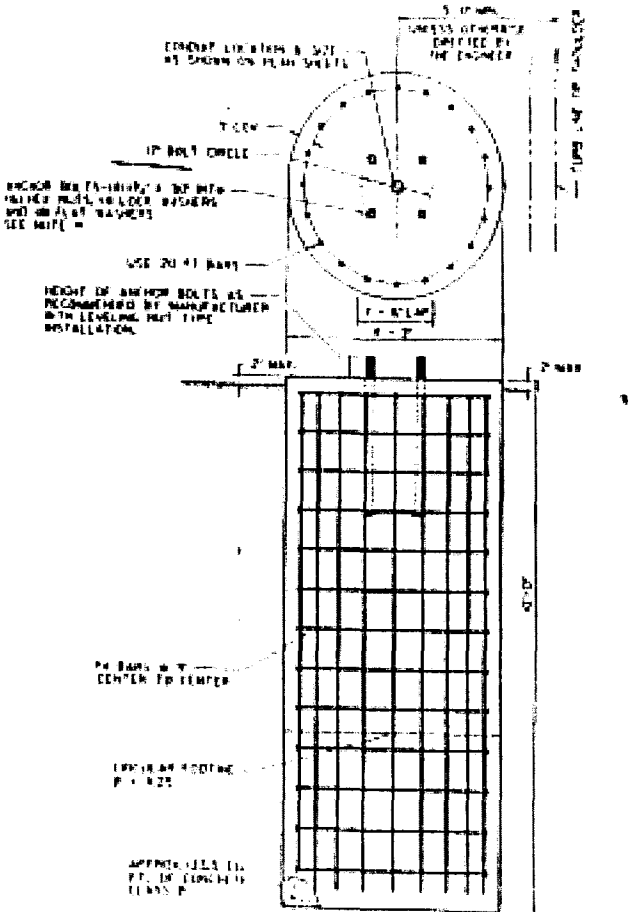


DETAIL-6 ANCHOR BOLT

VALMONT
SIGNAL CONTROL
NEW JERSEY TRAFFIC SIGNAL STRUCTURES



STEEL TRAFFIC SIGNAL POLE FOUNDATION
TYPE "STF"



ALTERNATE STEEL TRAFFIC SIGNAL POLE FOUNDATION

ROUTE 528 EAST

LANE 1

Dry Testing

Rte	Dir	MP	SN40 LANE 1
528	E	0.00	74.9
528	E	0.03	76.2
528	E	0.07	74.1
528	E	0.10	75.7
528	E	0.14	69.4
528	E	0.17	78.1

Wet Testing

Rte	Dir	MP	SN40 RUN 1	SN40 RUN 2	SN40 RUN 3	SN40 AVERAGE
528	E	0.00	44.8	46.1	46.8	45.9
528	E	0.03	43.0	45.7	45.1	44.6
528	E	0.07	44.3	44.5	44.7	44.5
528	E	0.10	43.4	45.4	45.1	44.6
528	E	0.14	41.8	41.9	42.7	42.1
528	E	0.17	37.6	41.0	37.9	38.8

Test Date: 2/22/12

Note: All skid numbers are reported at a speed of 40 MPH.
The posted speed limit for this section of roadway is 45 MPH.
The recommended minimum skid number for wet test results at 45 MPH is 35
All skid numbers exceed the minimum requirements for wet testing.

Ambient Air Temperature = 48° F