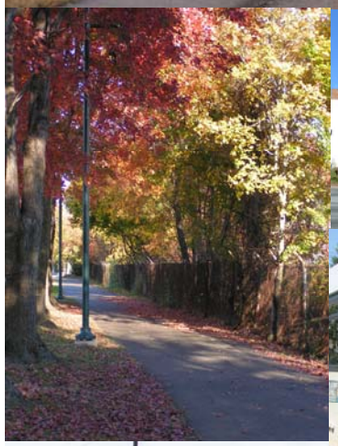

WILMAPCO

New Castle County Intersection Operations Analysis Summary 2012

October 2012

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INTERSECTION OPERATIONAL ANALYSIS

To create a process which brings both the planning and operating communities together in developing cohesive solutions for congested corridors, this report has added a feature that not only looks at how intersections are performing through measures of delay, but also by the measurement of vehicle throughput of each intersection. In order to accomplish this, a capacity analysis was done using the Critical Movement Summation (CMS). This method focuses on "raw" intersection capacity, that is, the ability for an intersection to process a given traffic demand with a given lane use configuration and given phase sequence.

Traffic signal phasing is one component of the analysis, but it is important to note that most of the subtleties of traffic signal phasing and operation are not included in the analysis. The analyst can use this simple hands-on approach to get right to the point of an intersection's ability to handle traffic demands. CMS looks at each of the "critical" movements at an intersection. It is a volume-based measure.

The maps to the right show all of the intersections where the volume-based level of service is calculated using the Critical Movement Summation analysis tool, which measures the peak hour traffic volume movements though each leg of the intersection. The LOS breakdown is shown below.

Table 1: Intersection Level of Service (Volume-Based)

Level of Service Critical Movement Summation (CMS)
LOS A Less than 1,000 vehicles/hour
LOS B 1,000 to 1,150 vehicles/hour
LOS C 1,151 to 1,300 vehicles/hour
LOS D 1,301 to 1,450 vehicles/hour
LOS E 1,451 to 1,600 vehicles/hour
LOS F More than 1,600 vehicles/hour

Figure 1: Volume-Based Intersection Level of Service AM Peak

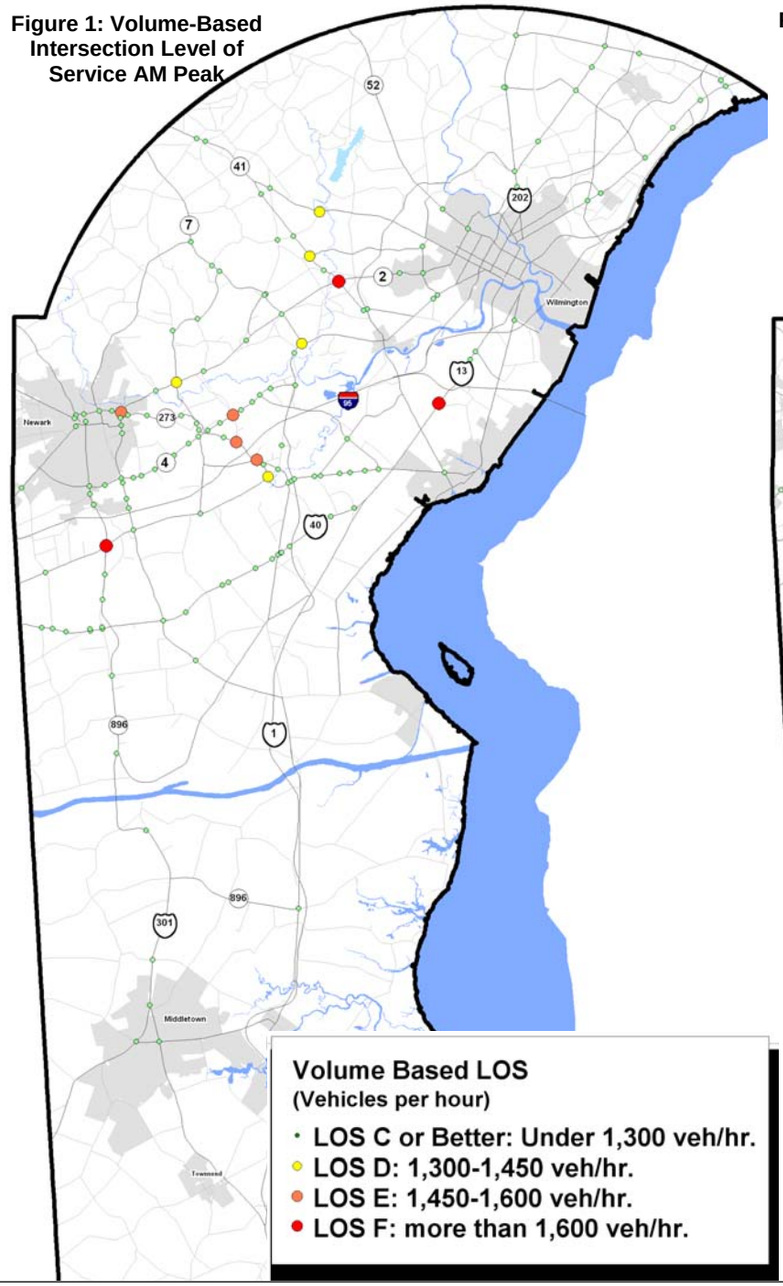
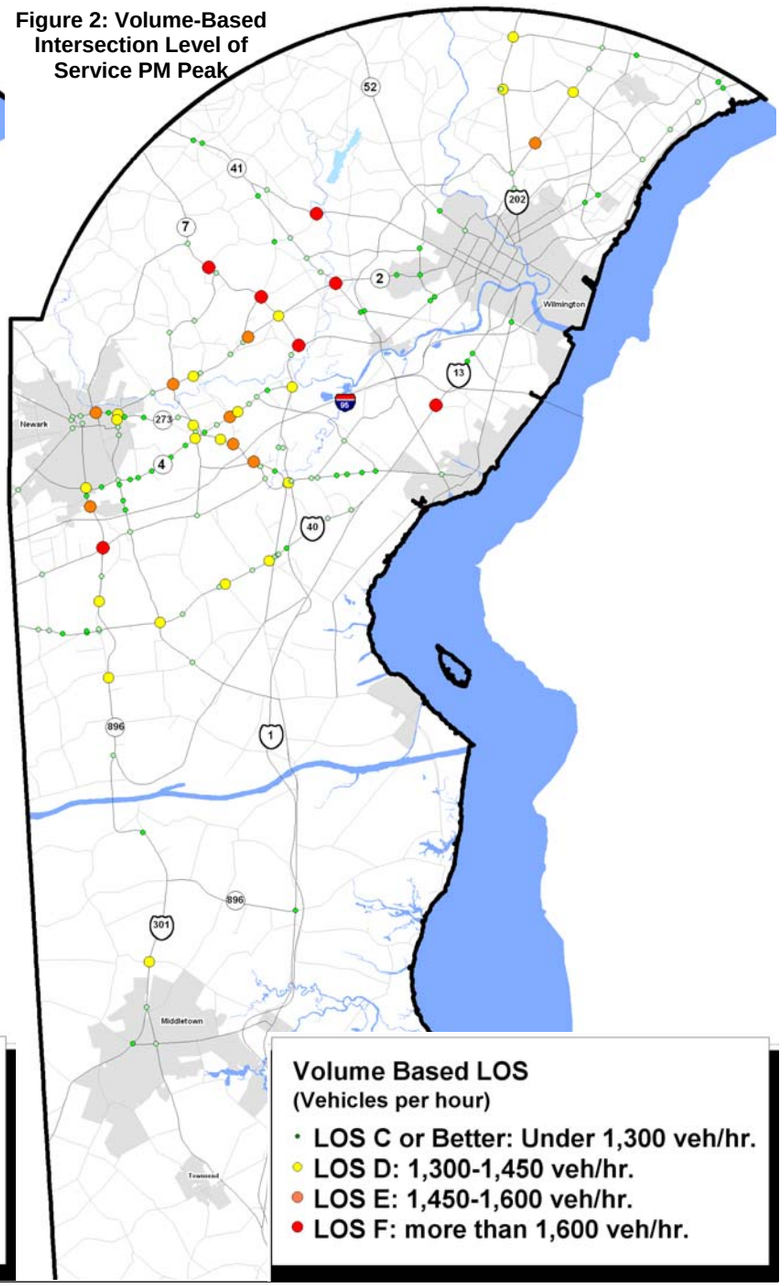


Figure 2: Volume-Based Intersection Level of Service PM Peak



INTERSECTION OPERATIONAL ANALYSIS (cont.)

To take the analysis a little further, each of the intersections determined deficient through the delay-based analysis were studied using the Critical Movement Summation (CMS) methodology which allows us to see which intersections not only have issues with delay, but have capacity problems as well. The purpose of this is to be able to determine whether a deficient intersection is suffering from a signal timing issue or if it has truly reached a level of volume in which it requires capital improvements. This effort will help determine the extent of demand reduction or capital improvements that are needed to provide an acceptable LOS and provide more efficient traffic flows for commuters and bus transit services.

Results of this effort can be used to provide a performance-based analysis to provide a prioritized list of needed improvements into the statewide Transportation Improvement Program listed each year in the Delaware Capital Transportation Program.

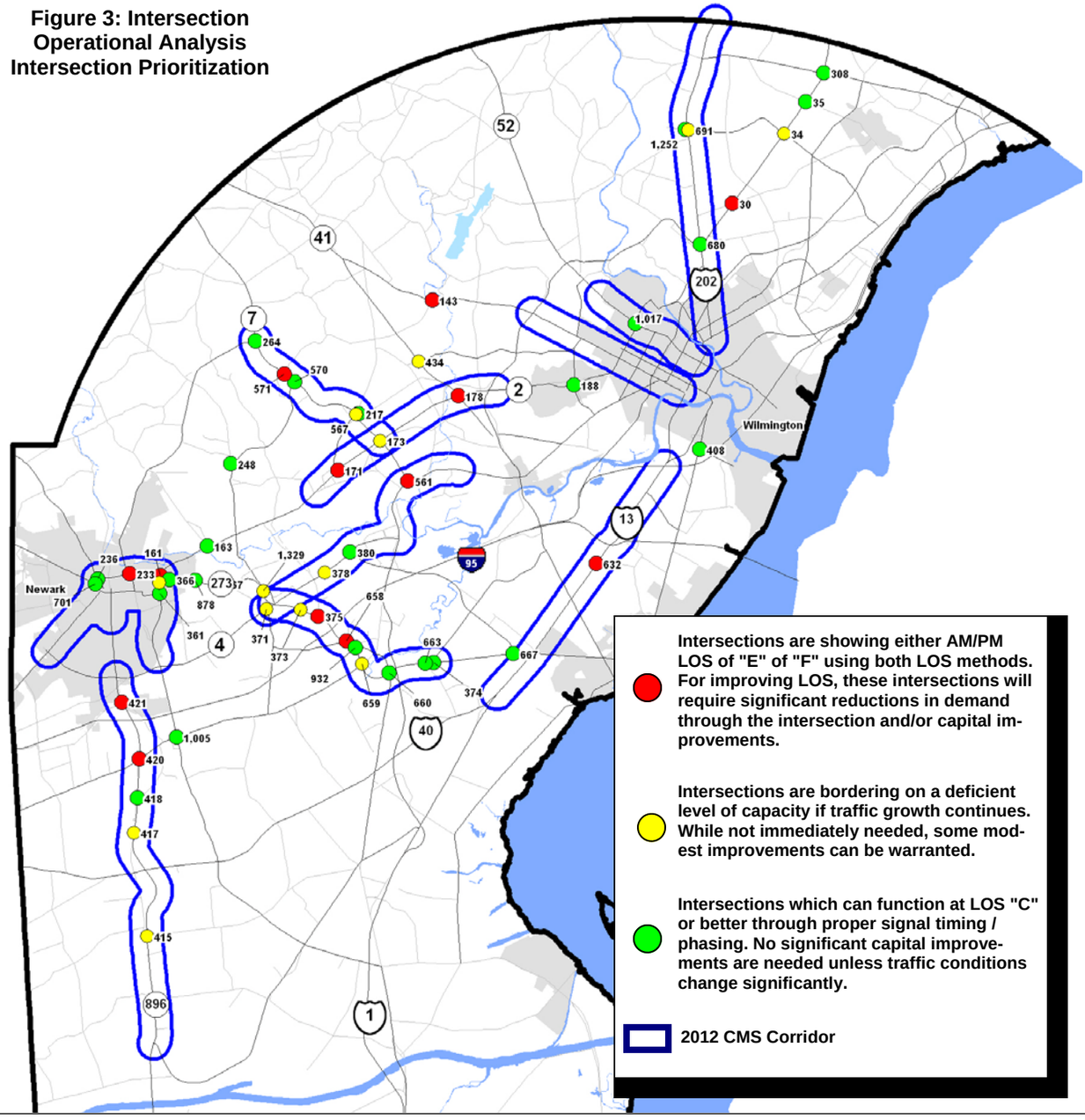
Intersections shown in RED are ones that are showing LOS E of F during the AM or PM peak period. These intersections have issues with capacity and will require strategies that will reduce demand through the intersection or will need capital improvements to improve LOS.

Intersections in YELLOW are bordering on a deficient level of capacity if traffic demand grows. While not immediately needed, some modest improvements can be made to the intersection.

Intersections in GREEN can function at LOS "C" or better through proper signal timing / phasing. No significant capital improvements are needed unless traffic demand increases.

ID numbers next to each intersection correspond to the chart on page 4.

Figure 3: Intersection Operational Analysis Intersection Prioritization



Intersection Operational Analysis

The table to the right shows the LOS data for each intersection that was included in the Intersection Operational Analysis. The analysis was conducted in two parts:

1. Using delay-based LOS analysis, all intersections that were showing an LOS of “E” or “F” in the AM or PM peak were identified

2. Of those that were identified, a capacity –based LOS analysis was performed to determine the amount of capacity remains at that intersection.

“Delay –Based” Intersection Level of Service

LOS	Delay Measure
A	under 10 seconds
B	10-20 seconds
C	20-35 seconds
D	35-55 seconds
E	55-80 seconds
F	over 80 seconds

“Volume-Based” Intersection Level of Service

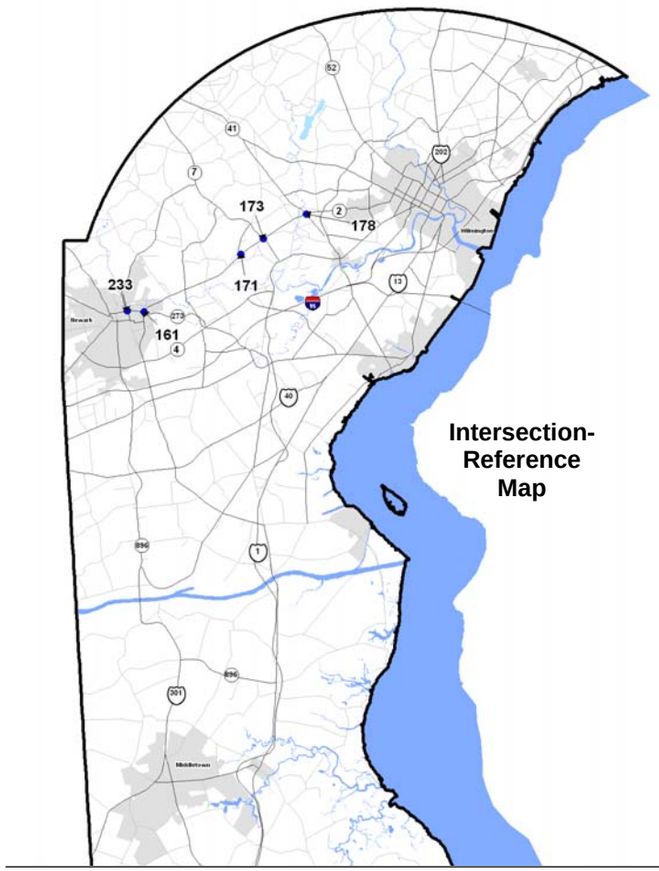
Level of Service Critical Movement Summation (CMS)
LOS A Less than 1,000 vehicles/hour
LOS B 1,000 to 1,150 vehicles/hour
LOS C 1,151 to 1,300 vehicles/hour
LOS D 1,301 to 1,450 vehicles/hour
LOS E 1,451 to 1,600 vehicles/hour
LOS F More than 1,600 vehicles/hour

			LOS Determined Through Delay-Based Analysis (i.e. Synchro)			LOS Determined Through Volume-Based Analysis (Critical Movement Summation)				
ID	Intersection	Delay Year Count	AM Delay LOS	PM Delay LOS	Vol. Year Count	AM Volume LOS	PM Volume LOS	Demand Overage (AM)	Demand Overage (PM)	Notes
161	SR 2 & Cleveland Ave.	2012	F	F	2010	F	F	334	315	**Intersections are showing either AM/PM LOS of "E" of "F" using both LOS methods. For improving LOS, these intersections will require significant reductions in demand through the intersection and/or capital improvements.**
233	Cleveland Ave. & Paper Mill Rd./ N. Chapel St.	2005	E	F	2010	B	E	-	151	
30	Foulk Rd. & Murphy Rd.	2010	E	C	2010	C	E	-	205	
421	SR 896 & Welsh Tract Rd.	2009	D	E	2009	C	E	-	155	
375	SR 273 & Harmony Rd.	2011	F	F	2011	E	E	151	155	
658	SR 273 & Chapman Rd (Eagle Run)	2011	F	F	2011	E	E	160	242	
171	SR 2 & Milltown Rd.	2010	D	F	2010	B	E	-	202	
571	SR 7 & Skyline Dr.	2010	D	F	2010	C	F	-	337	
143	SR 48 & Hercules Rd.	2009	D	E	2009	D	F	-	305	
561	SR 7 (Limestone Rd) & SR 4 (Main St.) Stanton	2011	D	E	2011	D	F	-	205	
178	SR 2 & SR 41	2010	F	F	2010	F	F	368	456	
420	SR 896 & Old Baltiomore Pk.	2010	F	F	2010	F	F	406	403	
632	US 13 & Bacon Ave/Boulden Blvd.	2011	F	F	2011	F	F	391	370	
567	SR 7 & Milltown Rd.	2010	F	F	2010	C	D			**Intersections are bordering on a deficient level of capacity if traffic growth continues. While not immediately needed, some modest improvements can be warranted.**
434	SR 41 & Faulkland Rd.	2011	E	E	2011	D	B			
691	US 202 & Silverside Rd.	2009	C	E	2009	A	D			
34	SR 261 (Foulk Rd.) & Silverside Rd.	2010	D	E	2010	B	D			
371	SR 4 & Salem Church Rd.	2010	E	D	2010	B	D			
378	SR 4 & Samoset Dr.	2010	F	F	2010	B	D			
415	SR 896 (Glasgow Ave.E) & Porter Rd.	2010	D	E	2010	B	D			
417	SR 896 (S. College Ave.) & Corporate Blvd. (GBC	2011	C	F	2011	B	D			
1005	SR 273 & Main St.	2008	F	E	2010	B	D			
1329	SR 273 & Old Ogletown Rd./Paradise Ln.	2012	F	F	2012	B	D			
173	SR 2 (Kirkwood Hwy) & SR 7 (Limestone Rd.)	2011	E	E	2011	C	D			
373	SR 273 & Brownleaf Dr.	2012	F	F	2012	C	C			**Intersections which can function at LOS "C" or better through proper signal timing / phasing. No significant capital improvements are needed unless traffic conditions change significantly.**
659	SR 273 & Old Balt. Pike	2011	E	D	2011	C	C			
188	SR 2 & SR 100	2009	D	E	2009	A	A			
217	Milltown Rd. &Mc Kennans Church Rd.	2010	F	E	2010	A	A			
366	SR 273 &Marrows Rd.	2012	D	E	2012	A	A			
367	SR 273 & Lowes Entrance	2012	F	F	2012	A	A			
408	New Castle Ave. & Terminal Ave.	2009	F	F	2009	A	A			
442	US 13 & Boyds Corner Rd.	2010	F	C	2010	A	A			
667	SR 273 & Churchmans Rd.	2010	C	E	2012	A	A			
878	SR 273 & White Clay Center Dr.	2012	F	F	2012	A	A			
35	Foulk Rd. & Grubb Rd.	2010	E	E	2010	A	B			
236	SR 896 & Hillside Rd.	2010	E	F	2010	A	B			
264	SR 7 & SR 72	2010	F	E	2010	A	B			
1252	US 202 (SB) & Garden of Eden Rd.	2009	E	E	2009	A	B			
570	SR 7 & Linden Hill Rd.	2010	E	E	2010	B	B			
663	SR 273 & Appleby Rd.	2011	F	F	2011	B	B			
680	US 202 & Foulk Rd.	2008	F	D	2010	B	B			
701	SR 273 (W. Main St.) & Hillside Rd.	2009	E	E	2010	B	B			
308	SR 92 / Naamans Rd. & Foulk Rd.	2010	D	F	2010	A	C			
361	SR 72 & E Delaware Ave	2008	E	F	2010	A	C			
380	SR 4 & Churchman's Rd.	2010	E	F	2010	A	C			
1018	PENNSYLVANIA AVE & UNION ST	2008	D	E	2010	A	C			
163	SR 2 & Possum Park Rd.	2009	C	F	2009	B	C			
418	SR 896 & Four Seasons Parkway	2011	C	E	2011	B	C			
248	LInden Hill Rd. & Polly Drummond Rd.	2010	E	F	2010	C	C			
374	SR 273 & Airport Rd.	2011	F	F	2011	C	C			
660	SR 7 & SR 273	2011	E	E	2011	C	C			
932	SR 273 & Browns Lane	2012	F	D	2012	C	C			
1005	SR 72 & Old Balt. Pike	2011	E	F	2011	C	C			

Potential Improvement Options

The table to the right contains a breakdown of a detailed analysis conducted on each intersection that was shown to have an AM/PM peak hour LOS of “E” or “F” and have an LOS of “D” or worse in either the AM/PM peak hour when measured using the capacity based analysis. Where applicable, the intersections were studied to look for possible configuration changes or additional lanes in order to improve the intersection.

Also added to each intersection is the demand overage for each intersection with a peak period LOS of D or worse. The purpose is to illustrate the total number of trips that need to be reduced during the peak hour in order to achieve an LOS of C.

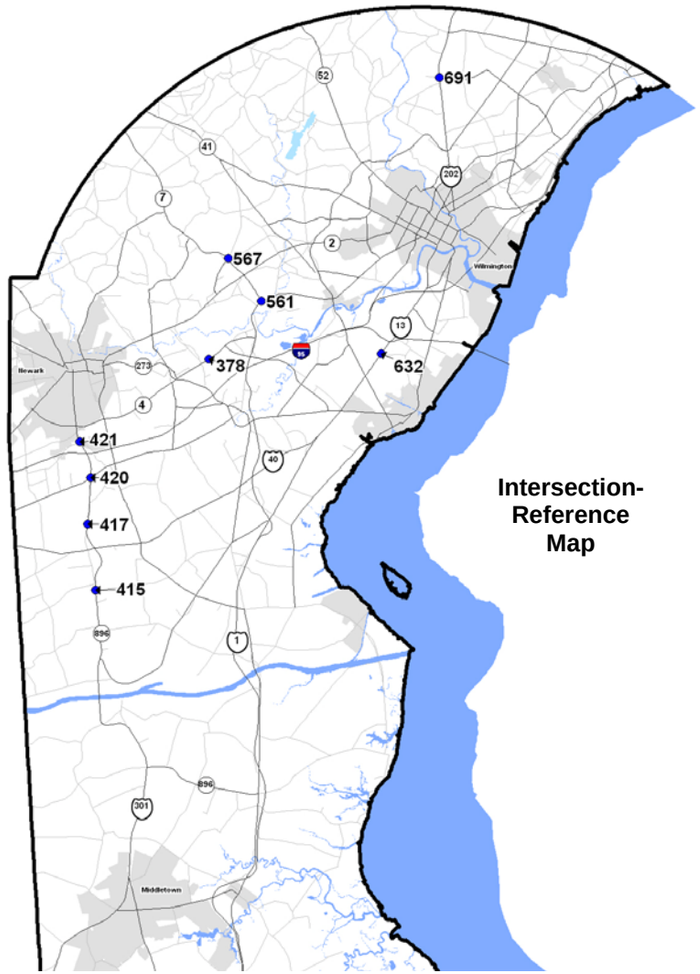


Improvement Options Analysis for Priority Intersections—New Castle

Map ID #	PERMIT #	INTERSECTION	EXISTING VOLUME LOS		DEMAND OVERAGE		IMPROVED VOLUME LOS		OPTIONS	COMMENTS
			AM	PM	AM	PM	AM	PM		
233	N432T	Cleveland Ave & Paper Mill Rd/ N Chapel St	B	E	-	151	B	D	1. Provide dual left turn lanes for EB Cleveland Avenue vehicles turning on to Paper Mill Road.	
							B	D	2. Remove the low volume Margaret Street phase (one way in only on Margaret).	2. Margaret Street vehicles can exit from two other locations (Creek View Road on to Paper Mill Rd) and (Dean Drive to Christopher Lane to Cleveland Avenue). However, vehicles can only turn right from Creek View Road.
							B	E	3. Provide 2 thru lanes for EB Cleveland Avenue.	3. Due to variations in peak period traffic volumes, WB Cleveland Avenue is the critical movement in the PM peak hour and addding EB lanes does not improve the PM LOS.
							B	C	4. Provide 2 thru lanes for WB Cleveland Avenue.	4. Due to variations in peak period traffic volumes, EB Cleveland Avenue is the critical movement in the AM Peak and addding WB lanes does not improve the AM LOS. However, this movment is currently a LOS B and does not require improvement.
161	N422T	SR-2 & Cleveland Ave	F	F	334	315	D	D	1. Provide dual left turn lanes for NB vehicles on SR 2 turning on to Cleveland Avenue.	DSTEP project recommended another option to restripe Cleveland Ave, which would provide LOS E/D (AM/PM).
							D	C	2. Provide a channelized right turn lane for EB vehicles on Cleveland Avenue.	
							C*	B*		* If both improvements are made
171	N152	SR-2 & Milltown Rd	B	E	-	202	B	D	1. Provide dual left turn lanes for EB SR 2 vehicles turning left on to Milltown Rd	1. Left turn volumes exceed 300 VPH in both peak periods.
							B	C	2. Provide 3 thru lanes for WB SR 2	2. Adding a 3rd thru lane in the EB direction provides a modest benefit in the AM (LOS B to LOS A) but no benefit in the PM peak.
173	N165	SR-2 (Kirkwood Hwy) & SR-7 (Limestone Rd)	C	D	-	73	B	C	1. Provide 3 thru lanes for NB & SB direction.	1. Intersection already has dual left turns all the way around and 3 thru lanes on Kirkwood Hwy (DE 2).
178	N162	SR-2 & SR-41	F	F	368	456	C	C	1. Provide 4 thru lanes in EB & WB direction (currently 3 thru), 3 left turn lanes SB, 2 thru lanes SB, 1 thru lane NB (currently shared L/LT)	1. Trying to pick and choose the improvements to get to a LOS D did not work because something that helped in the AM did not help in the PM and vice versa. So all improvments are shown in one CMS.

Potential Improvement Options

The table to the right contains a breakdown of a detailed analysis conducted on each intersection that was shown on page 4 to have an AM/PM peak hour LOS of “E” or “F” and have an LOS of “D” or worse in either the AM/PM peak hour when measured using the capacity based analysis.



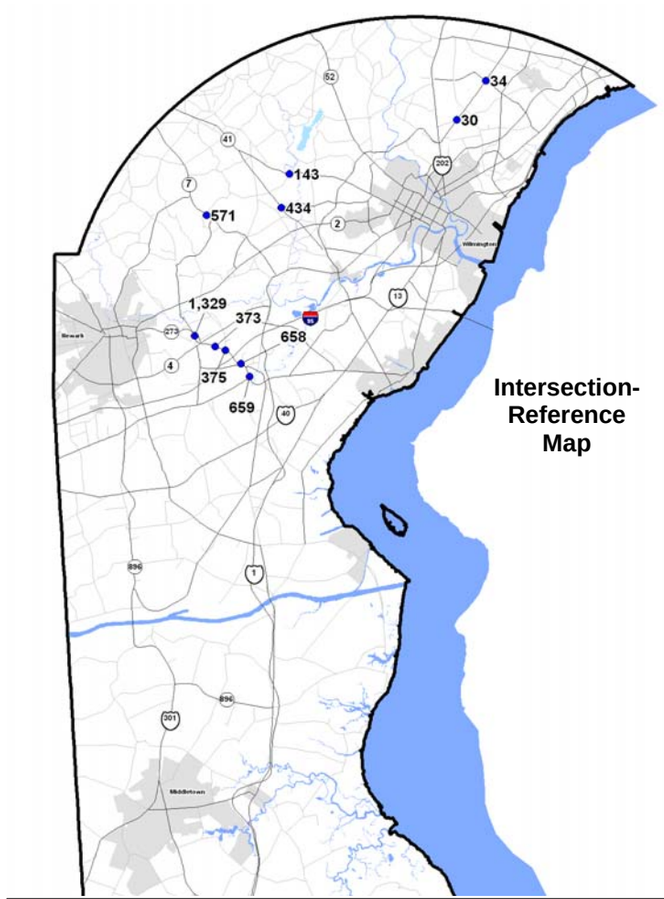
Intersection-Reference Map

Improvement Options Analysis for Priority Intersections—New Castle

Map ID #	PERMIT #	INTERSECTION	EXISTING VOLUME LOS		DEMAND OVERAGE		IMPROVED VOLUME LOS		OPTIONS	COMMENTS
			AM	PM	AM	PM	AM	PM		
434	N268	SR-41 & Faulkland Rd	D	B	11	-	C	B	1. Provide 2 thru lanes for EB Faulkland Rd (T/TR) current alignment is TR.	
34	N147	SR-261 (Foulk Rd) & Silverside Rd	B	D	-	125	A	C	1. Provide channelized right turns for NB & SB Foulk Rd.	
30	N236	SR-261 (Foulk Rd) & Murphy Rd/Wilson Rd	C	E	-	205	C	C	1. Provide a channelized right turn lane for SB DE 261 (Foulk Rd).	1. On Foulk Road the right turns are made from a shared thru/right lane in both directions. Providing a channelized right turn for SB DE 261 (Foulk Rd) would provide a benefit to the PM peak period.
							B	E	2. Provide a channelized right turn lane for NB DE 261 (Foulk Rd).	2. Providing a channelized right turn for NB DE 261 (Foulk Rd) would provide a benefit to the AM peak period (LOS C to LOS B), but does not improve the PM peak period.
*	N423T	**SR-273/Main St & SR-72	B	D	-	39	B	C	1. Provide 3 thru lanes for NB direction.	* Duplicate ID # assigned, new ID number needed. ** After reviewing location with UD and WILMAPCO, determined this is the intersection of DE72, DE 273 (Ogletown Rd and Main St)
1329	N590	SR-273 & Old Ogletown Rd/Red Mill Rd	B	D	-	122	A	C	1. Provide dual left turns for SB movement, exceeds 300 VPH in both peak periods.	
373	N315	SR-273 & Brownleaf Dr	C	C	-	-	-	-	1. Using the CMS method both peak periods are a LOS C.	
375	N337	SR-273 & Harmony Rd	D	E	121	155	B	C	1. Provide 3 thru lanes in each direction for SR 273.	1. This section of SR 273 has an AADT approaching 50,000. Immediately adjacent to I-95, adding a lane in only one direction would not provide a benefit since the critical movement would always be the direction that hadn’t been widened.
658	N367	SR-273 & Chapman Rd (Eagle Run)	E	E	160	242	C	C	1. Provide 3 thru lanes in each direction for SR 273.	1. This section of SR 273 has an AADT approaching 50,000. Immediately adjacent to I-95, adding a lane in only one direction would not provide a benefit since the critical movement would always be the direction that hadn’t been widened.
							D	E	2. Change lane assignment to triple left turn for Chapman Rd.	
659	N351	DE-273 & Old Baltimore Pk	C	C	-	-	-	-	1. Using the CMS method both peak periods are a LOS C.	
143	N157	SR-48 & Hercules Dr	D	F	12	305	D*	A	1. Provide 2 thru lanes for WB SR 48.	* Does not improve AM LOS since this is not the critical movement.
571	N261	SR-7 & Skyline Dr	C	F	-	337	B	C	1. Provide 1 thru lane in EB & WB direction (both approaches currently have L/LT lane assignment)	

Potential Improvement Options

The table to the right contains a breakdown of a detailed analysis conducted on each intersection that was shown on page 4 to have an AM/PM peak hour LOS of “E” or “F” and have an LOS of “D” or worse in either the AM/PM peak hour when measured using the capacity based analysis.



Intersection-Reference Map

Improvement Options Analysis for Priority Intersections—New Castle

Map ID #	PERMIT #	INTERSECTION	EXISTING VOLUME LOS		DEMAND OVERAGE		IMPROVED VOLUME LOS		OPTIONS	COMMENTS
			AM	PM	AM	PM	AM	PM		
567	N233	SR-7 & Milltown Rd	C*	D*	-	30	-	-		*AM & PM CMS were completed for this intersection using updated counts (10/28/2010) as part of the Newport Viaduct project. The LOS reported using these updated counts (AM - C & PM - D) removed this intersection from the Major Modifications list.
561	N366	SR-7 & SR 4	C	E	-	205	B	D	1. Provide 3 thru lanes in WB direction.	1. Adding an additional WB lane may be possible by restriping existing roadway since there are 3 thru lanes on DE 4/7 WB past this intersection.
378	N465	SR-4 & Samoset Dr	B	D	-	95	A	B	1. Provide 3 thru lanes in EB & WB direction.	1. No improvement on any minor approaches was substantial enough to reduce the LOS to below a D.
421	N434T	SR-896 & Welsh Tract Rd	C	E	-	155	C	D	1. Provide dual left turn lanes for NB SR 896 vehicles turning left on to Welsh Tract Road.	1. There are two receiving lanes which quickly taper to a single lane which immediately crosses a bridge.
							B	C	2. Provide 3 thru lanes for SB SR 896.	2. This section of SR 896 has an AADT greater than 30,001. With close proximity to I-95, SB is critical movment in both peak periods.
420	N188	SR-896 & Old Baltimore Pk	F	F	406	403	D	D	1. Provide 3 thru lanes in NB & SB direction and 1 thru lane in the WB direction (currently L/LT)	1. Providing 3 thru lanes in NB & SB direction by itself was not enough to reduce LOS to a D in either AM or PM peak periods.
							F	E	2. Analyzed as 8 - phase operation.	2. Did not improve either peak to a LOS D.
							E	F	3. Change lane assignment to triple left turn for Old Baltimore Pike EB.	3. Did not improve either peak to a LOS D.
417	N489	SR-896 (S College Ave) & Corporate Blvd (GBC DR)	B	D	-	95	A	B	1. Provide 3 thru lanes in NB & SB direction.	
415	N454	SR-896 & Glasgow Ave E/Porter Rd	B	D	-	6	A	C	1. Change WB lane assignment to L/T	1. Current lane assignment for WB movement is L-LT. The thru movement is higher than the left turns in both peak periods.
632	N217	US-13 & Bacon Ave/Boulden Blvd	F	F	391	370	D	D	1. Provide 4 thru lanes in NB & SB direction.	1. No improvement on any minor approaches was substantial enough to reduce the LOS to a D.
691	N102	US-202 NB & Silverside Rd	A	D	-	65	A	C	1. Provide 3 thru lanes on Silverside.	

Advanced Traffic Signal Control Improvements: Through coordination with the DelDOT, TMC and WILMAPCO, an effort was made to use the performance measures developed through the corridor identification process to help the operations community to prioritize their efforts to address the corridors which are in need of installing traffic signal improvements, including retiming and/or installing Traffic Responsive Signalization (TRS).

Traffic responsive signalization is a method of signal management that uses advanced technology to adjust timing to meet the needs of the current traffic volume. The signals used in this method optimize signal timing according to traffic volume in each direction. Sensors are used to detect vehicular traffic in a certain direction at a particular point and an algorithm is used to predict when and where the traffic will be. The signal controller utilizes these algorithms to adjust the length of green time to allow the maximum amount of vehicles through the intersection. This method can react to fluctuating traffic volume in order to reduce congestion.

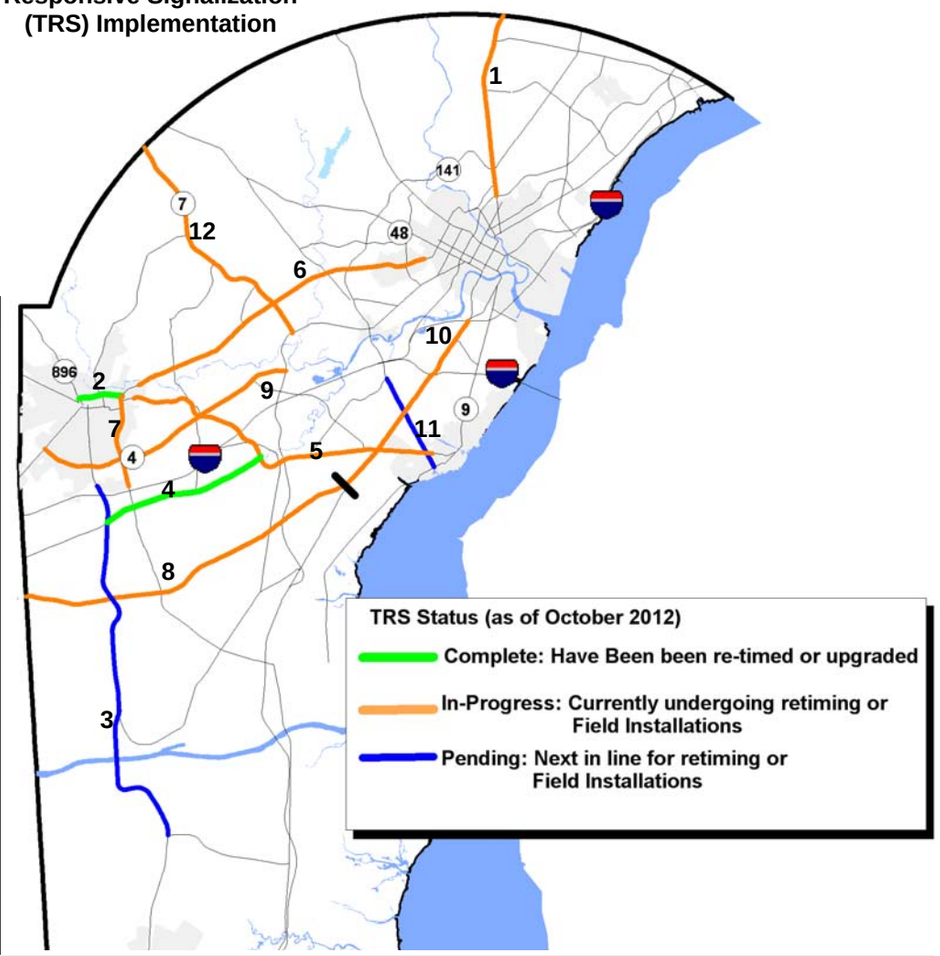
As an aid to the TMC, the University of Delaware Signal Timing Enhancement Partnership (DSTEP) has performed data collection and engineering. DSTEP is a partnership between the Delaware Department of Transportation and the University of Delaware. The partnership has laid out a work plan for the corridors identified, including analyzing the best signal timing sequence along each. Using the resources of the University of Delaware GPS travel time probes, each corridor can then be driven to measure how much improvement was made as a result of each retiming project.

The TMC's corridor work plan correlates very well with the identified 2012 CMS corridors. As a strategy to mitigate congestion, select corridors will be studied for further implementation.

Table 2: Status of TRS/DSTEP Corridors (as of October 2012)

Map ID	Corridor	Length (mi)	TRS/DSTEP	Status	Year Completed
1	US 202	5.1	TRS	In Progress—undergoing retiming and/or field installations for traffic responsive operation	
2	Cleveland Avenue	1.2	DSTEP	Completed in2010	2010
3	DEL. 896	10.8		Pending— next in line for retiming and/or field installations for traffic responsive operation	
4	Old Baltimore Pike	4.7	TRS	Completed in 2011	2012
5	DEL. 273, Christiana	9.2	TRS & DSTEP	In Progress—undergoing retiming and/or field installations for traffic responsive operation	
6	DEL. 2, Kirkwood HW	8.8		In Progress—undergoing retiming and/or field installations for traffic responsive operation	
7	DEL. 72	2.6	TRS & DSTEP	In Progress—undergoing retiming and/or field installations for traffic responsive operation	
8	US 40, Pulaski HW	9.9	TRS	In Progress—undergoing retiming and/or field installations for traffic responsive operation	
9	DEL. 4	7.6	TRS & DSTEP	In Progress—undergoing retiming and/or field installations for traffic responsive operation	
10	US 13	5.4	TRS	In Progress—undergoing retiming and/or field installations for traffic responsive operation	
11	DEL. 141, Basin Rd.	2.8		Pending— next in line for retiming and/or field installations for traffic responsive operation	
12	DEL. 7, Limestone Rd	6.9	TRS	In Progress—undergoing retiming and/or field installations for traffic responsive operation	

Figure 4: Status of Traffic Responsive Signalization (TRS) Implementation



Traffic Responsive Signalization (TRS) Planning Priorities

Through a joint effort with the DelDOT Traffic Management Center (TMC) and WILMAPCO, a technical exercise was performed to look at which corridors are priorities for applying Traffic Responsive Signalization technology. The CMS network was analyzed using traffic signal density, average traffic volumes, crashes, and failing signals to create a prioritized list of corridors for the TMC to consider for TRS implementation.

Traffic responsive signalization is a method of signal management that uses advanced technology to adjust timing to meet the needs of current traffic volume. The signals used in this method optimize signal timing according to traffic volume in each direction. Sensors are used to detect vehicular traffic in a certain direction at a particular point and an algorithm is used to predict when and where the traffic will be. The signal controller utilizes these algorithms to adjust the length of green time to allow the maximum amount of vehicles through the intersection. This method can react to fluctuating traffic volume in order to reduce congestion.

ID	Route	Segment limits	Segment Length	Road Type (FC)	Avg AADT	# Signals	Signals/ mile	# Failing Intersections (LOS E or F in AM or PM)	Crashes/ Mile	AADT Rank	Signal Rank	Crash Rank	Int. Fail Rank	Overall	Priority
12	US 202	Wilmington Line to PA line	5.1	Principal Arterial	51,261	23	4.5	8	193	2	2	2	2	0	High
27	SR 2 (Kirkwood Highway)	Newark to Wilmington Line	9.54	Principal Arterial	35,200	32	3.4	12	181	3	7	3	1	1.5	High
8	SR 4	SR 7 to Wilmington Line	5.79	Principal Arterial	23,239	37	6.4	2	159	11	1	5	14	5.75	High
2	SR 7	SR 273 to US 40	1.93	Minor Arterial	25,732	7	3.6	2	177	9	4	4	14	5.75	High
16	SR 273	SR 273(Newark) to SR 141	9.4	Principal Arterial	30,781	25	2.7	5	156	6	15	6	5	6	High
10	US 13	South of Wilmington, I-495 to US 40 split	5.25	Principal Arterial	65,238	16	3.0	2	222	1	11	1	14	6.75	High
7	SR 4	Elkton Rd. to SR 7	7.48	Principal Arterial	23,214	20	2.7	3	128	12	15	9	7	8.75	High
11	US 40	MD line to US 13 split	9.93	Principal Arterial	33,251	23	2.3	3	149	5	21	7	7	10	High
1	SR 7	SR 4 Split to PA Line	6.65	Principal Arterial	28,670	21	3.2	1	126	8	10	10	20	10	High
13	Churchmans Rd.	SR 4 to SR 273	3.89	Minor Arterial	15,536	14	3.6	2	123	21	4	12	14	10.75	High
25	SR 141	SR 37 to SR 9	2.76	Principal Arterial	16,341	10	3.6	1	133	17	4	8	20	11.25	Moderate
15	SR 92 (Naamans Rd.)	US 202 to US 13	5.7	Principal Arterial	23,395	20	3.5	1	109	10	7	15	20	13	Moderate
29	SR 141	SR 2 to US 202	6.00	Principal Arterial	28,722	12	2.0	6	63	7	22	24	3	13	Moderate
22	Old Baltimore Pike	SR 896 to SR 273	4.62	Minor Arterial	16,550	12	2.6	2	118	16	18	13	14	13.25	Moderate
19	Foulk Rd.	US 202 to Naaman's Road	3.99	Minor Arterial	15,972	11	2.8	3	81	19	14	19	7	13.75	Moderate
14	Chapman Rd.	Salem Church Rd. to SR 273	1.43	Minor Arterial	11,269	5	3.5	2	112	26	7	14	14	14.25	Moderate
28	Silverside Rd	US 202 to US 13	4.56	Minor Arterial	16,213	12	2.6	3	76	18	18	22	7	14.25	Moderate
20	Milltown Rd.	SR 2 to SR 41	2.94	Minor Arterial	34,021	6	2.0	1	124	4	22	11	20	14.25	Moderate
6	SR 896	South of Newark to Boyd's Corner	12.92	Principal Arterial	22,433	23	1.8	6	78	13	25	21	3	14.5	Moderate
21	SR 41	PA line to SR 2	6.15	Minor Arterial	15,098	15	2.4	3	79	22	20	20	7	15.25	Low
4	SR 72	South of Newark to US 13	9.06	Minor Arterial	18,194	17	1.9	3	95	15	24	16	7	15.5	Low
26	SR 48	SR 41 split to Wilmington border	4.83	Principal Arterial	18,531	8	1.7	4	55	14	27	26	6	16.25	Low
9	US 13	North of Wilmington to PA line	5.89	Minor Arterial	11,656	22	3.7	0	90	25	3	17	27	18	Low
18	SR 299	US 301 to US 13	3.71	Minor Arterial	6,969	11	3.0	0	85	28	11	18	27	19	Low
17	SR 9	Terminal Ave. to Chesnut St.	4.17	Minor Arterial	15,696	12	2.9	1	73	20	13	23	20	19	Low
3	SR 72	North of Newark	5.61	Minor Arterial	11,719	10	1.8	3	34	24	25	27	7	20.75	Low
24	SR 52	Wilmington border to PA line	5.51	Principal Arterial	14,968	15	2.7	1	60	23	15	25	20	20.75	Low
5	SR 896	North of Newark	2.92	Minor Arterial	11,179	3	1.0	1	25	27	28	29	20	25	Low
23	SR 71	US 13 to SR 896	4.73	Major Collector	2,792	2	0.4	0	32	29	29	28	27	28.25	Low