

Congestion Management Process for the Mid-Hudson Valley Transportation Management Area

Step 2 Report: Congested Roads

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Orange County Transportation Council (OCTC)

1887 County Building
124 Main Street
Goshen, NY 10924
Phone: (845) 291-2318
Fax: (845) 291-2533
Email: Planning@co.orange.ny.us
Internet: <http://www.orangecountygov.com/planning>

Poughkeepsie-Dutchess County Transportation Council (PDCTC)

27 High Street, 2nd Floor
Poughkeepsie, NY 12601
Phone: (845) 486-3600
Fax: (845) 486-3610
Email: pdctc@co.dutchess.ny.us
Internet: <http://www.dutchessny.gov/pdctc.htm>

Ulster County Transportation Council (UCTC)

244 Fair Street
PO Box 1800
Kingston, NY 12402
Phone: (845) 340-3340
Fax: (845) 340-3429
Email: ddoy@co.ulster.ny.us
Internet: <http://www.co.ulster.ny.us/planning>

1. Forward

Federal transportation law¹ requires that a Metropolitan Planning Organization located within a Transportation Management Area institute a Congestion Management Process. Such a process demonstrates how the organization will quantify, evaluate, and manage congestion throughout the region's transportation network. Effective October 1, 2005, the three Metropolitan Planning Organizations (MPOs) of the Mid-Hudson Valley Transportation Management Area (TMA) – the Orange County Transportation Council, Poughkeepsie-Dutchess County Transportation Council, and Ulster County Transportation Council – adopted a single Congestion Management Process (CMP) for the TMA, which was subsequently accepted by the Federal Highway Administration. This CMP outlines the overall commonalities among the three MPOs, such as a single definition for congestion and common types of data collection, but provides enough flexibility to allow for locally derived methods to mitigate congestion in individual communities. The CMP achieves this through a four step process that began with the first step of using the three respective travel demand models to measure congestion against a single set of parameters. This report details the second step in the CMP: locating the areas of congestion in the Mid-Hudson Valley TMA.

Metropolitan Planning Organization (MPO): Federal regulations require that all Urbanized Areas, U.S. Census defined metropolitan areas with over 50,000 people, be represented by a MPO, which is responsible for ensuring that Federal transportation dollars (highway and transit) are committed through a locally driven, comprehensive planning process.

2. The Mid-Hudson Valley TMA

The Mid-Hudson Valley TMA spans the boundaries of three counties: Dutchess, Orange, and Ulster, covering a population of almost 352,000 people. The TMA designation arose from the creation of the Poughkeepsie-Newburgh Urbanized Area (UA) by the U.S. Census Bureau in May 2002. This designation combined the previously separate Poughkeepsie UA and Newburgh UA, forming a single UA with a population exceeding the 200,000 person threshold used to establish a TMA. A third MPO, the Ulster County Transportation Council (UCTC), received its formal designation as the MPO for the newly created Kingston UA. Though each is a separate, independent organization, the three MPOs work together in managing the TMA, since each share a portion of the larger Poughkeepsie-Newburgh UA.

3. Types of Congestion

There are two basic types: recurring and non-recurring. Recurring congestion refers to congestion that arises on a routine basis at the same place and generally at the same time, a condition that may hint at a systemic imbalance between roadway capacity and existing demand – otherwise known as a “bottleneck.” Some refer to this as volume based congestion.

¹ On August 10, 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) was signed into law, continuing the tradition of federal transportation investment implemented under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21). SAFTEA maintains the requirement that a TMA actively measure and manage congestion; however, the law uses the new term: Congestion Management Process (CMP).

Non-recurring congestion, the second type, describes those atypical times when a vehicle crash, road construction, or poor weather impedes traffic. This also includes traffic resulting from heavy demand associated with a special event, such as a County fair or holiday shopping; this is sometimes referred to as incident based congestion.

Our ability to formulate viable management solutions begins with an understanding of these two types of congestion. It also underscores the complexities of trying to measure and manage congestion, especially with regard to non-recurring or incident based congestion, which can be extremely difficult to predict. For the short term, Step 2 focuses on recurring, peak hour congestion.

4. Summary of Step 1

Step 1 in the CMP establishes a set of Volume-to-Capacity (V/C) ratios to define moderate, heavy, and severe roadway congestion in the three counties. V/C ratios measure congestion from the standpoint of supply and demand. A particular road has a finite capacity or limit to the number of vehicles that can safely travel on it at any one time. Sometimes, the number of vehicles using the road exceeds its capacity, thus creating congestion. This condition is most prevalent during morning and evening peak commuting periods; though, there are exceptions.

To calculate a V/C ratio – or percent of use – travel demand models take existing traffic volume data and dividing it by roadway capacity, which is based on the road type (functional classification). The OCTC, PDCTC, and UCTC each maintain a travel demand model for their respective county.

For Step 1, this CMP classifies recurring weekday, peak hour (4:00-5:00 pm) congestion into three categories: moderate, heavy, and severe (Table 1). The categories relate to three ranges of V/C ratios. A facility operating between 80 to 89-percent of its capacity during peak periods is classified as having moderate congestion, while a facility operating at 90 to 99-percent of capacity is classified as having heavy congestion. When the measured V/C ratio exceeds the 100-percent threshold, the facility is classified as having severe congestion.

Table 1. Vehicle-to-Capacity Ratio Designations for the Mid-Hudson Valley TMA CMP

Level of Congestion	Vehicle-to-Capacity Ratio¹
Moderate	V/C ratio = 0.80 – 0.89
Heavy	V/C ratio = 0.90 – 0.99
Severe	V/C ratio \geq 1.00

¹ As calculated for weekday peak hour volume.

V/C ratios present some limitations, because they do not fully account for speed variations, maneuverability, or travel time. The OCTC, PDCTC, and UCTC intend to use travel time measurements in future iterations of this CMP. These time measurements will likely be used to better understand travel patterns on severely congested roads.

5. Step 2: Congested Roads in the Mid-Hudson Valley TMA

As stipulated in the main CMP document, Step 2 focuses on the identification of roads with moderate, heavy, and severe congestion during the weekday afternoon, peak hour period (4:00-5:00 pm). The OCTC, PDCTC, and UCTC identified these congested roads through their individual travel demand models; and though a very useful tool, a model may overlook some areas of congestion due to changes in travel patterns or other variables. The MPOs will attempt to mitigate these occurrences as they gain more experience with the CMP process. The long range strategy of using travel time surveys to measure congestion on high volume roads will help in this effort.

Tables 2, 3, and 4 list congested road segments in Dutchess, Orange and Ulster Counties, while Figures 1, 2, and 3 map their locations.

Dutchess County

For Dutchess County, the PDCTC identified 33 lane miles of congested roads. Of this total, 20.96 lane miles are under NYS jurisdiction, 8.11 under Dutchess County jurisdiction, and 3.94 under local jurisdiction. As for the type of congestion identified, 7.26 lane miles were categorized as severely congested, 5.54 as heavily congested, and 20.21 as moderately congested. With a V/C ratio of 1.27 during the peak hour, CR 77 (Vassar Rd.), between Spring Rd. and CR 110 (Jackson Rd.), in the Town of Poughkeepsie stands as the most congested road segment in Dutchess County. Other severely congested roads include portions of CR 44 (Red Oaks Mill Rd.) in the Town of Poughkeepsie and portions of NYS Route 55 in the Town of LaGrange. Of those road segments identified as severely congested, 3.6 lane miles are under NYS jurisdiction, 3.08 lane miles are under Dutchess County jurisdiction, and only 0.58 lane miles under local jurisdiction (Town of Poughkeepsie and Village of Wappingers Falls).

Orange County

The OCTC identified over 31 lane miles of congested roads. Of this total, 29 miles are under NYS jurisdiction and roughly 2 miles under Orange County jurisdiction. In terms of congestion, 4.8 miles experienced heavy congestion, while 26.4 miles fell under moderate congestion. The on ramp from US 9W onto eastbound I-84 in the Town of Newburgh experienced the highest level of congestion with a V/C ratio of 0.97. Other heavily congested roads include the off ramp from I-87 northbound to US 17 westbound in the Town of Woodbury, and NYS 211 from Wisner Ave. to Beattie Ave. in the City of Middletown. The OCTC also identified 42 congested intersections in Orange County, with 11 experiencing heavy congestion and 31 experiencing moderate congestion. With V/C ratios of 0.99, NYS 17K at CR 23 (Rockcut Rd.) in the Town of Newburgh and NYS 94 at North St. in the Village of Washingtonville are the two most congested intersections identified in Orange County.

Ulster County

A number of State, County and local road segments, park-and-ride lots, and railroad crossings in Ulster County were identified as experiencing either severe recurring or non-recurring congestion. Road segments experiencing the most severe recurring congestion include the US 9W corridor at the Mid Hudson Bridge area, NYS Thruway exit areas at both Kingston and New Paltz, and several local street corridors in the Kingston area such as the Broadway corridor and the Route 9W corridor in Port Ewen and the Town of Ulster mall area. Park-and-ride lots at both

the Kingston and New Paltz Thruway exits (Exits 19, and 18) experience serious recurring congestion as demand exceeds the supply of parking spaces nearly every day of the week. Finally, serious non-recurring vehicle, pedestrian, and transit congestion exists along the CSX railroad corridor in the City of Kingston and Saugerties areas. Regional CSX freight movements cause lengthy and unpredictable road closures seriously affecting the reliability of the roadway system and for emergency responders. In the Kingston area, the most problematic at-grade railroad crossings include Flatbush Avenue, Gage Street, Foxhall, Ten Broeck, and Smith Avenues, and Boices Lane in the Town of Ulster. In Saugerties, the Route 212 at-grade railroad crossing can be problematic for vehicles, transit, pedestrians, and emergency responders, particularly during special events.

6. Next Steps

Having identified those road segments with weekday peak hour congestion, the OCTC, PDCTC, and UCTC can better target their resources to develop appropriate countermeasures. This simple accomplishment satisfies the goal set forth for Step 2 in the main CMP document. For Step 3, the three MPOs will investigate ways to mitigate congestion problems in their counties, including project based solutions. Pursuant to the schedule established in the CMP, the MPOs will identify and promote possible solutions in conjunction with the project solicitation process for their respective 2008-2012 Transportation Improvement Programs (TIP); currently scheduled to begin in the fall of 2006.

Table 2. Location of Congested Road Segments in Dutchess County

Congestion Level	Road Name	From	To	Maximum V/C Ratio	Total Congested Lane Miles
Severe	CR 77 (Vassar Rd)	Spring Rd	CR 110 (Jackson Rd)	1.27	0.62
	CR 44 (Red Oaks Mill Rd)	Romca Rd	CR 49 (Titusville Rd)	1.19	0.76
	CR 44 (Red Oaks Mill Rd)	Walker Rd	Romca Rd	1.19	0.34
	NYS 55	Stringham Rd	Ramp from TSP SB	1.15	0.50
	NYS 376	Degarmo Hills Rd	CR 104 (New Hackensack Rd)	1.11	0.92
	Spring Rd	US 9	Kerr Rd	1.10	0.29
	NYS 55	Ramp from TSP SB	Ramp to TSP SB	1.09	0.06
	North Mesier Ave	East Main St	High St	1.09	0.29
	NYS 55	Arlington High School	Stringham Rd	1.06	0.19
	NYS 55	TSP Ramps	TSP Ramps	1.06	0.26
	NYS 55	Ramp to TSP SB	Ramp from TSP SB	0.92	0.01
	NYS 55	Ramp from TSP SB	Ramp to TSP NB	0.97	0.11
	NYS 55	Ramp to TSP NB	Ramp from TSP NB	0.97	0.09
	CR 44 (New Hackensack Rd)	NYS 376	Walker Rd	1.05	0.36
	NYS 55	CR 49 (Titusville Rd)	Mandalay Rd	1.05	0.59
	CR 49 (Titusville Rd)	CR 44 (Red Oaks Mill Rd)	Daley Rd	1.04	0.96
	NYS 55	CR 47 (Freedom Rd)	Driveway	1.04	0.69
	NYS 55	Driveway	Arlington High School	1.03	0.19
CR 104 (New Hackensack Rd)	CR 94 (All Angels Hill Rd)	NYS 376	1.00	0.05	
Heavy	North Mesier Ave	High St.	US 9	0.96	0.68
	CR 49 (Titusville Rd)	Daley Rd	Ramp to CR 21 (Noxon Rd)	0.95	0.88
	CR 49 (Titusville Rd)	Ramp to CR 21 (Noxon Rd)	CR 21 (Noxon Rd)	0.93	0.09
	NYS 52	Ramp to/from TSP NB	CR 29 (Carpenter Rd)	0.93	0.72
	CR 114 (Main St)	South Grand Ave	Jones St	0.92	0.32
	NYS 55	Ramp from TSP NB	NYS 82	0.90	2.50
	CR 104 (New Hackensack Rd)	CR 110 (Jackson Rd)	St. Nicholas Rd	0.90	0.34
Moderate	NYS 52	CR 29 (Carpenter Rd)	NYS 216	0.88	1.52
	NYS 82	Orchard Pl	CR 9 (Beekman Rd)	0.88	0.49
	NYS 376	Ramp to NYS 376	Lake Walton Rd	0.87	0.73
	NYS 376	CR 29 (Hillside Lake Rd)	Ramp to NYS 376	0.87	0.06
	Hooker Ave	South Grand Ave	Park Ave	0.87	0.14
	South Grand Ave	Fulton Ave	US 44/ NYS 55 EB (Haight Ave)	0.87	0.29
	NYS 9G	CR 41 (Crum Elbow Rd)	Lister Dr	0.86	1.84
	Hooker Ave	Park Ave	Wilbur Blvd	0.86	0.14
	NYS 52	Ramp to I-84 WB	Ramp from I-84 EB	0.86	0.03
	Main St	Knolls Blvd	South Grand Ave	0.86	0.17
	NYS 82	NYS 376 SB	NYS 376 NB	0.86	0.17
	NYS 52	Old Glenham Rd	Ramp from I-84 EB	0.86	0.31
	NYS 55	Mandalay Dr	CR 47 (Freedom Rd)	0.85	2.85
	NYS 113 (Spackenkill Rd) EB	CR 74 (Cedar Ave) SB	CR 74 (Cedar Ave) NB	0.85	0.01
	Fishkill Ave	Main St	Verplank Ave	0.85	0.33
	NYS 9G	Lister Dr	Greentree Dr	0.85	0.88
	NYS 113 (Spackenkill Rd)	Spackenkill Rd	Ramp from Wilbur Blvd	0.85	0.59
	NYS 113 (Spackenkill Rd)	Ramp from Wilbur Blvd	Wilbur Blvd	0.85	0.03
	Spring Rd	Kerr Rd	CR 77 (Vassar Rd)	0.85	1.10
	Main St	South Hamilton St	South Clinton St	0.84	0.28
	NYS 113 (Spackenkill Rd)	Wilbur Blvd	Hagan Dr	0.84	0.69
	NYS 113 (Spackenkill Rd)	Hagan Dr	CR 74 (Cedar Ave)	0.84	0.76
	NYS 113 (Spackenkill Rd) EB	Ramp from CR 74 (Cedar Ave)	CR 74 (Cedar Ave) SB	0.83	0.02
	NYS 52	Ramp from I-84 EB	Ramp to I 84 EB	0.83	0.06
	South Grand Ave	College Ave	Fulton Ave	0.82	0.24
	NYS 82	NYS 55	CR 89 (Waterbury Hill Rd)	0.82	2.12
	US 44 (Dutchess Tpk)	CR 43 (Degarmo Rd)	Barnes Rd	0.81	0.86
	CR 104 (New Hackensack Rd)	St. Nicholas Rd	CR 94 (All Angels Hill Rd)	0.81	1.53
	CR 110 (Jackson Rd)	CR 104 (New Hackensack Rd)	Sherwood Dr	0.80	1.55
	CR 110 (Jackson Rd)	Sherwood Dr	CR 77 (Vassar Rd)	0.80	0.31
	NYS 52	Ramp to I-84 EB	Ramps to I-84 WB	0.80	0.12

Table 3. Location of Congested Road Segments in Orange County

Congestion Level	Road Name	From	To	Maximum V/C ratio	Total Congested Lane Miles
Heavy	I-84 EB On-Ramp	US 9W	I-84	0.97	0.16
	I-87 NB Off-Ramp	I-87 NB	US 17 WB/Harriman Toll	0.94	0.74
	NYS 211 (Wicham Ave)	Wisner Ave	Beattie Ave	0.94	0.07
	NYS 32	US 9W	I-84 Ramps	0.92	0.21
	US 6	NYS 293	US 17	0.92	2.78
	NYS 94	NYS 208	North St	0.90	0.06
	CR 72 (Sterling Mine Rd)	Rockland County Line	CR 84 (Sterling Lake Rd)	0.90	0.75
Moderate	NYS 32	North Galleria Dr	CR 9 (Smith Clove Rd)	0.89	0.95
	US 6	Queensboro Circle	NYS 293	0.89	2.96
	US 9W	NYS 32	Ulster County Line	0.87	4.87
	US 6	River Rd	Pennsylvania Line	0.87	0.19
	NYS 17K	Wisner Ave	Westbrook RD	0.87	0.31
	CR 72 (Eagle Valley Rd)	New Jersey Line	CR 84 (Sterling Lake Rd)	0.87	0.35
	US 17 EB On-Ramp	NYS 211	US 17 EB	0.85	0.12
	NYS 207	Church St	CR 84 (Scotchtown Ave)	0.85	0.27
	US 6/NYS 17M	US 17	I-84 Ramps	0.84	4.07
	CR 107 (Quacker Ave)	NYS 32	US 9W	0.84	0.40
	NYS 208	US 17 WB Ramps	CR 27 (Clove Rd)	0.83	2.74
	US 6	CR 15	Jersey Ave	0.83	0.58
	NYS 207	NYS 300	Riley Rd	0.83	0.19
	NYS 17K	CR 23 (Rockcut Rd)	I-84 WB Ramps	0.83	0.48
	NYS 17M	CR 5 (Lakes Rd)	CR 19 / CR 44 (Freeland)	0.83	0.90
	Kings Hwy (CR 13)	CR 45 (Laroe Rd)	NYS 17M	0.83	0.41
	NYS 208	I-84	NYS 17K	0.83	1.07
	US 17 WB	Exit 131B	Exit 128 (CR 54 Craigville Rd)	0.82	4.49
	NYS 52/208 Overlap	NYS 52 (Main St)	NYS 208 (Ulster Ave)	0.81	0.01
	I-84 WB Off-Ramp	I-84 WB	NYS 32	0.81	0.19
	NYS 17M	CR 13 (Kings Hwy)	Main St	0.81	0.20
	NYS 17M	Genung St	Bennet St	0.80	0.08
	I-87 SB On-Ramp	Harriman Toll (NYS 32/US 17)	I-87	0.80	0.50
	CR 5 (Lakes Rd)	NYS 17M	High St	0.80	0.06

Table 4. Location of Congested Intersections in Orange County

Congestion Level	Intersection Name	Maximum V/C Ratio
Heavy	NYS 17K/CR 23 (Rockcut Rd)	0.99
	NYS 94/North St	0.99
	NYS 32/I-84 WB Ramps	0.98
	NYS 17K/Lakeside Rd	0.97
	NYS 32/CR 107 (Quacker St)	0.94
	NYS 300/NYS 94/NYS 32	0.93
	NYS 17K/NYS 300	0.93
	US 6/CR 15 (Clove Rd)	0.93
	US 6/ River Rd	0.93
	NYS 208/Peddler Hill Rd	0.91
	CR 13 (Kings Hwy)/CR 45 (Laroe Rd)	0.90
Moderate	US 9W/ I-84 EB Off-Ramp	0.89
	NYS 17K/Fullerton St	0.88
	NYS 32/ Gardenertown	0.88
	NYS 300/NYS 207	0.87
	NYS 17M/CR 13 (Kings Hwy)	0.87
	US 9W/Mill St	0.86
	NYS 300/I-84 EB On-Ramps	0.86
	NYS 300/Stewart Ave	0.86
	CR 107 (Quacker St)/CR 32 (Willow Ave)	0.86
	NYS 32/NYS 17K	0.85
	US 9W/North St	0.85
	NYS 300/NYS 52	0.84
	NYS 211/Wisner Ave	0.84
	NYS 17M/CR 5 (Lakes Rd)	0.84
	NYS 208/Museum Village Rd	0.84
	NYS 17K/Racquet Rd	0.83
	US 9W/Lattentown Rd	0.83
	NYS 32/CR 9 (Smith Clove Rd)	0.82
	NYS 32/Washington St	0.82
	NYS 94/NYS 208	0.82
	US 9W/ NYS 17K	0.82
	NYS 211 / NYS 17M / CR 11	0.81
	NYS 17M / CR 40 / CR 19	0.81
	US 6/Jersey Ave	0.81
	NYS 208/NYS52	0.81
	NYS 208/CR 44 (Seven Spring Rd)	0.80
	NYS 32/CR 20 (Orrs Mills Rd)	0.80
	US 9W/Old Albany Post Rd	0.80
	NYS 211 / Highland Ave	0.80
	NYS 211 / NYS 17M / Center St	0.80
	US 9W/NYS 32	0.80
NYS 208/NYS17K	0.80	

Table 5. Location of Congested Road Segments in Ulster County

Congestion Level	Road Name	From	To	Maximum V/C Ratio	Total Congested Lane Miles
Severe	US 44/NYS 55	Mid-Hudson Bridge	Mid-Hudson Bridge	1.47	0.31
	N Front St	Frog Alley	Washington Ave	1.34	0.16
	US 9W E Chester St	N of Van Kleeks Ln	Ulster Ave	1.34	0.21
	US 44/NYS 55	US 44/NYS 55 EB	US 9W Overpass	1.31	0.28
	N Front St	Washington Ave	Frog Alley	1.30	0.09
	US 44/NYS 55	Ramp from US 9W	US 44/NYS 55 EB	1.30	0.28
	US 44/NYS 55	US 9W Overpass	US 44/NYS 55 EB	1.30	0.16
	Traffic Circle Ramp	I-87	NYS 28 W	1.29	0.06
	Broadway	Railroad Ave	Grand St	1.28	0.14
	Albany Ave	Clinton St	Maiden Ln	1.27	0.20
	Clinton St	Pearl St	Main St	1.26	0.07
	Clinton St	Main St	John St	1.26	0.07
	NYS 209	Ulster Landing Road	Rhinecliff Bridge	1.19	0.58
	US 44/NYS 55 EB	US 44/NYS 55 EB	Mid-Hudson Bridge	1.18	0.30
	Broadway	Liberty St	Franklin St	1.12	0.04
	Washington Ave	N Front St	Hurley Ave	1.12	0.06
	Broadway	St. James St	Liberty St	1.10	0.13
	US 9W	Horton La	Sunset Dr	1.08	0.05
	NYS 299	Ramp to I 87	Ramp from I-87	1.04	0.01
	Broadway	Franklin St	Downs St	1.03	0.05
	Broadway	Downs St	Oneil St	1.03	0.08
	Broadway	Oneil St	Field Ct	1.03	0.07
	Delaware Ave	Hasbrouck Ave	Ramp to US 9W	1.02	0.04
	US 9W NB	Ramp from NYS 209	Ramp from NYS 209	1.02	0.07
US 9W NB	Frank Sottile Blvd	Ramp to NYS 209	1.01	0.02	
Broadway	Cornell St	Thomas St	1.00	0.04	
Broadway	Thomas St	Railroad Ave	1.00	0.04	
Heavy	US 9W	Tuytenbridge Rd	Leggs Mill rd	0.99	0.28
	Broadway	Grand St	E O'Reilly St	0.98	0.08
	NYS 28	Jockey Hill Rd	Hurley Mtn Rd	0.98	0.80
	Broadway	Delaware Ave	Stuyvesant St	0.97	0.15
	US 9W	Carle Terrace	Tuytenbridge Rd	0.97	0.27
	NYS 299	N Putt Corners Rd	I 87	0.95	0.15
	US 9W	Miron La	E Chester St	0.94	0.07
	US 9W	S of Frank Sottile Blvd	Frank Sottile Blvd	0.92	0.55
	Traffic Circle	I-587	I-87	0.90	0.07
	US 9W	Mall Ct	Mall Ct	0.90	0.15
Moderate	Broadway	Field Ct	Cornell St	0.89	0.06
	NYS 299	I-87 Overpass	Entrance to I-87	0.89	0.15
	US 9W NB	Milton Ave	White St	0.89	0.03
	US 9W NB	Macks La	S Roberts Rd	0.89	0.56
	US 9W	Ulster Ave	Mall Ct	0.88	0.15
	US 9W	Salem St	Horton La	0.87	0.21
	US 9W NB	S Roberts Rd	Ramp to US 44/NYS 55 EB	0.87	0.12
	US 9W NB	Ramp to US 44/NYS 55	US 44/NYS 55 Overpass	0.87	0.11
	Broadway	Mcentee St	Stuyvesant St	0.86	0.09
	Ramp to US 9W SB	Delaware Ave	US 9W	0.86	0.15
	Broadway	E Chester St	Delaware Ave	0.84	0.10
	Washington Ave	Kingston City Line	Sawkill Rd	0.84	0.11
	Main Street / NYS 299	S Manheim Blvd	Duzine Rd	0.83	0.27
	NYS 28	Jockey Hill Rd	Spillway Rd	0.83	0.76
	NYS 28	Spillway Rd	Beesmer Rd	0.83	1.25
	NYS 28	Beesmer Rd	Zena Rd	0.83	0.73
	Washington Ave	Hurley Ave	Kingston City Line	0.83	0.26
	Pearl St	Fair St	W of Clinton Ave	0.81	0.05
	NYS 299	Duzine Rd	N Putt Corners Rd	0.81	0.35
	US 44/NYS 55 WB	US 44/NYS 55	Mid-Hudson Bridge	0.81	0.69
	US 44/NYS 55 WB	US 44/NYS 55	Ramp to US 9W NB	0.81	0.30
Greenkill Ave	S Wall St	Fair St	0.80	0.01	
I-587	Albany Ave	Broadway	0.80	0.05	
US 9W	Leggs Mill Rd	Katrine La	0.80	0.12	
US 9W	Katrine La	Old Stage Rd	0.80	0.43	

Figure 1: Congested Road Segments in Dutchess County

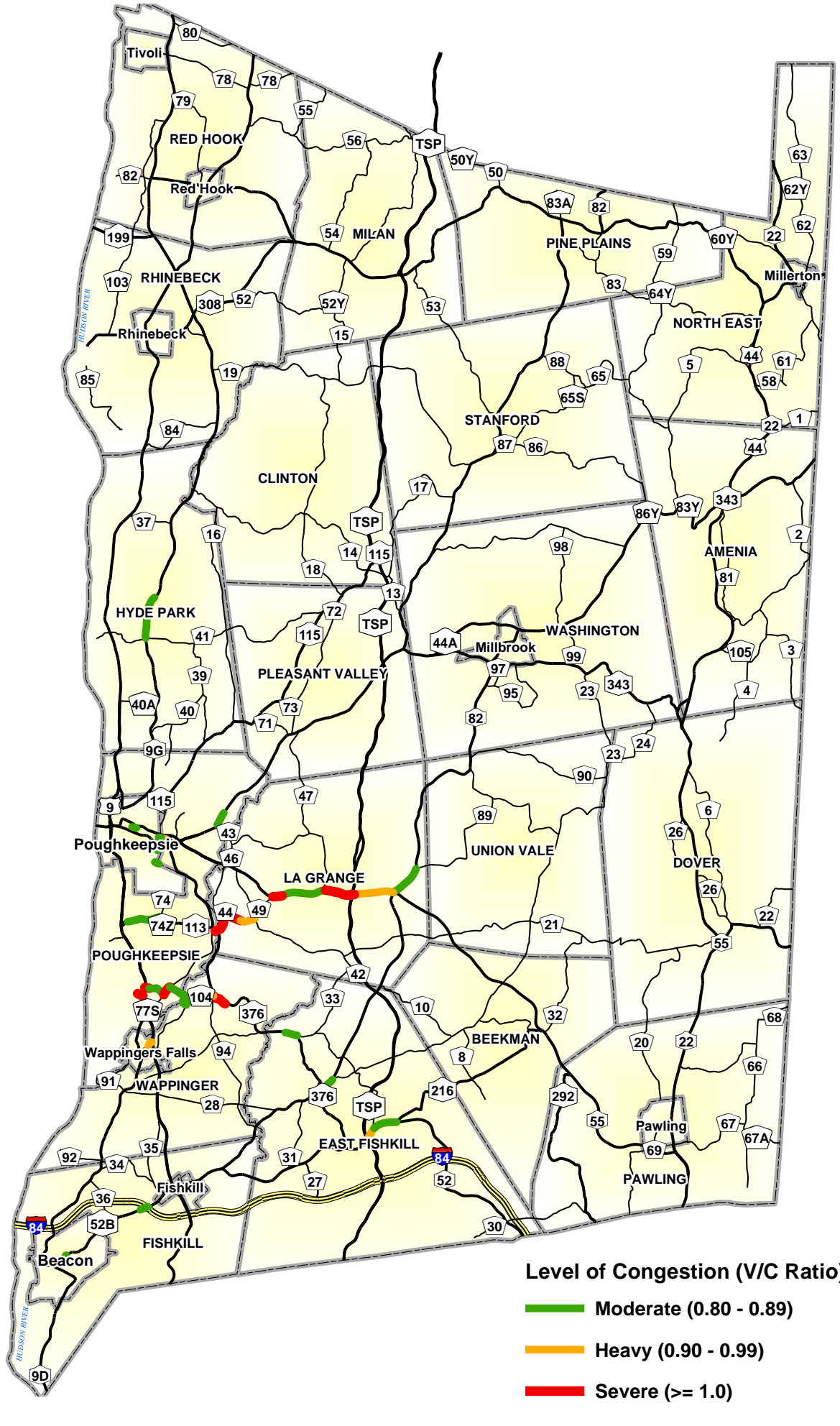


Figure 2: Congested Road Segments and Intersections in Orange County

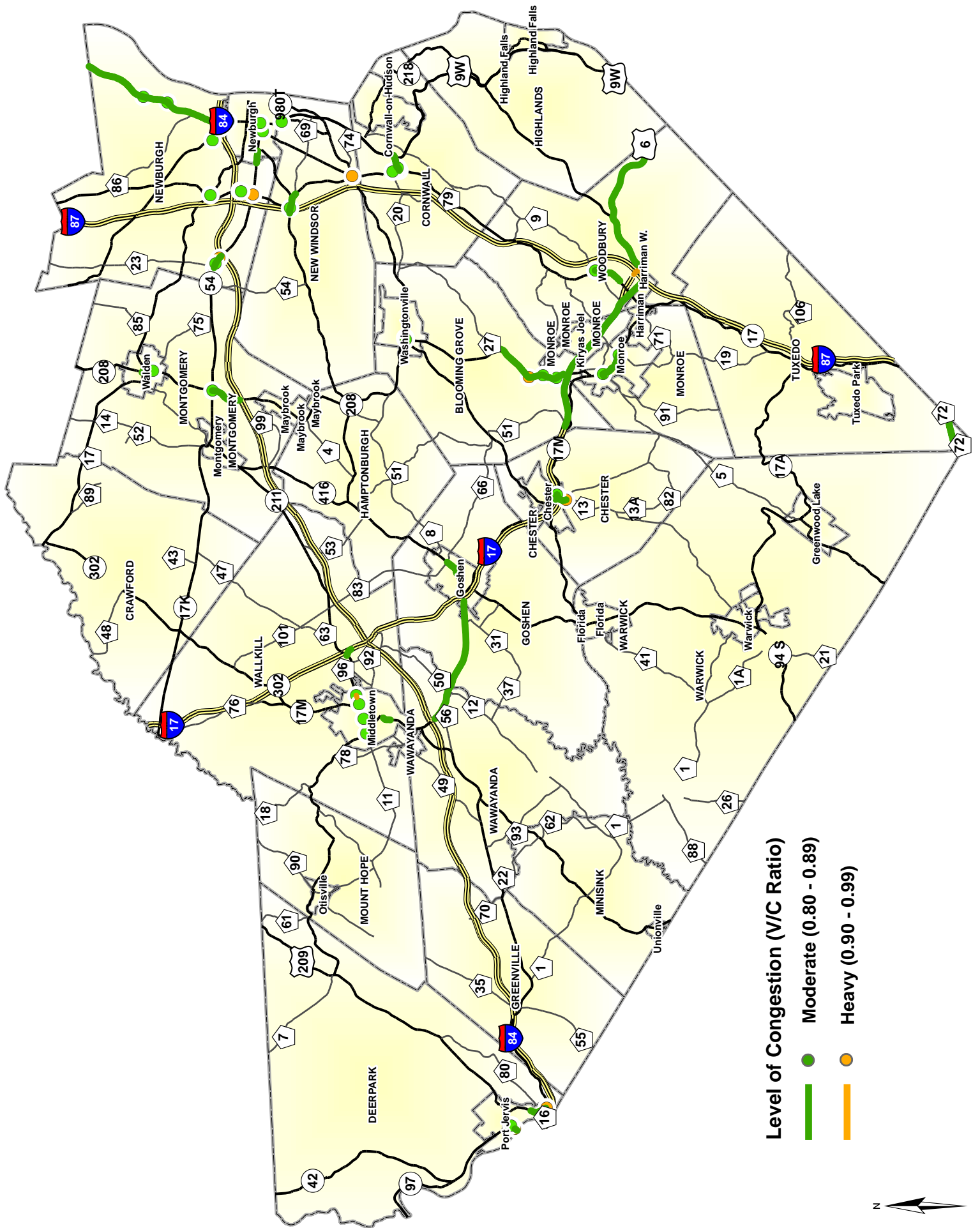
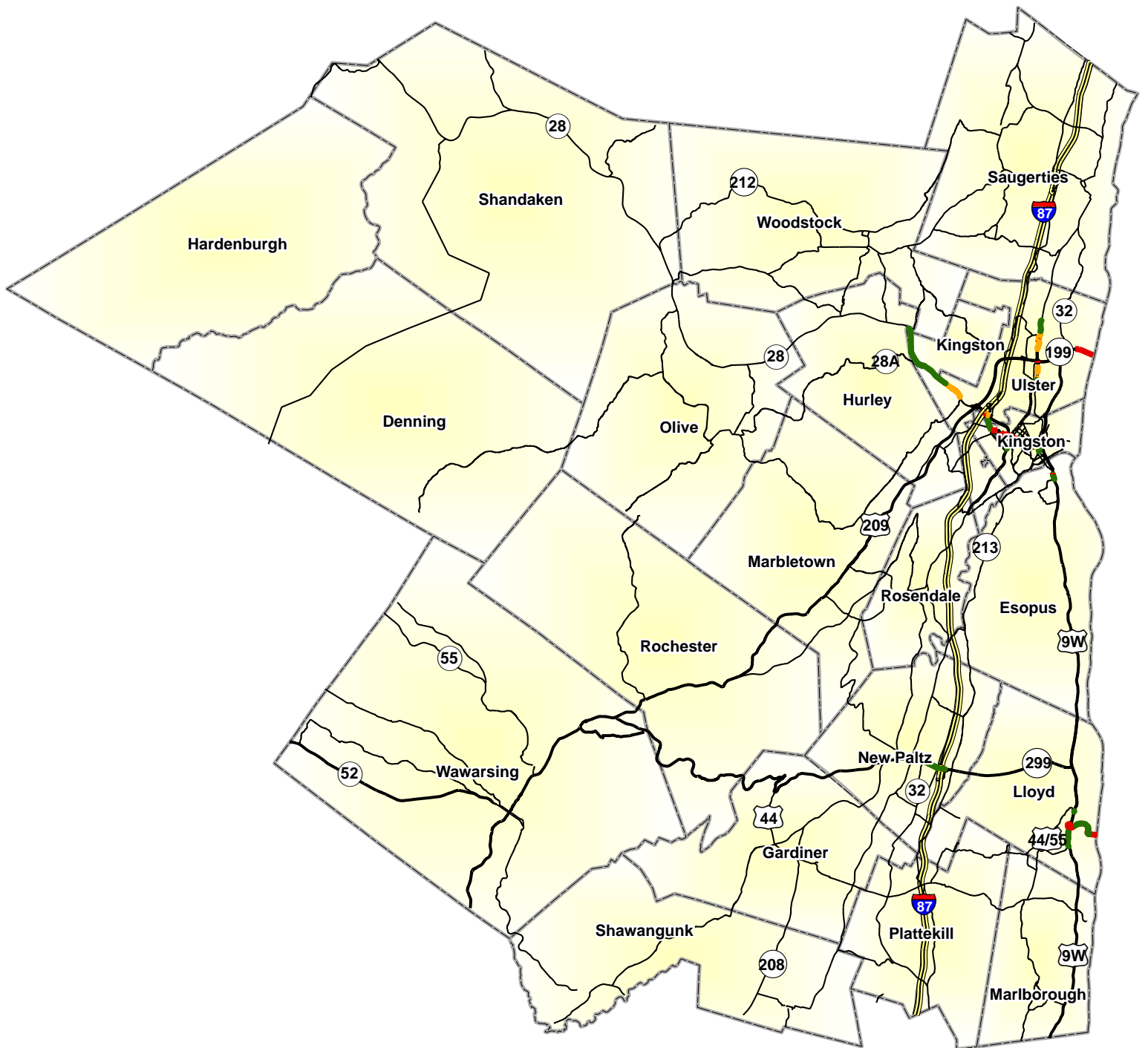


Figure 3: Congested Road Segments in Ulster County



Level of Congestion (V/C Ratio)

— Moderate (0.80 - 0.89)

— Heavy (0.90 - 0.99)

— Severe (≥ 1.0)

