



STATE OF DELAWARE  
**DEPARTMENT OF TRANSPORTATION**  
800 BAY ROAD  
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NICOLE MAJESKI  
SECRETARY

**MEMORANDUM**

**To:** All Users of the Delaware Manual on Uniform Traffic Control Devices

**From:** Aaron Hunt, Guide Signs Manager

**Date:** February 8, 2023

**SUBJECT:** Pavement Markings Reflectivity Program for 2022

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Effective on September 6, 2022, Federal Highway Administration (FHWA) established a final rule (link is below) to update the Manual on Uniform Traffic Control Devices (MUTCD) to provide standards, guidance, options, and supporting information relating to maintaining minimum levels of retroreflectivity for pavement markings. To maintain compliance with this requirement as well as to ensure the continued safety of Delaware's roadways, the Delaware Department of Transportation's Pavement Markings Section has published the following document for the 2022 Reflectivity Program.

Maintaining Pavement Marking Retroreflectivity:

<https://www.federalregister.gov/documents/2022/08/05/2022-16781/national-standards-for-traffic-control-devices-the-manual-on-uniform-traffic-control-devices-for>

**Program Structure**

Night time visual inspections are completed by our inspectors within two weeks after each road is striped. Epoxy and thermoplastic striping is checked by handheld LTL-X reflectometer.

**Reflectivity Assessment Methods**

The FHWA MUTCD final rule has 5 approved methods (listed below) for maintain pavement marking reflectivity. Delaware uses a combination of those methods.

- 1) Measured Retroreflectivity Method
- 2) Nighttime Visual Inspection Method
- 3) Service Life Based on Historical Data Method

- 4) Service Life Based on Monitored Markings Method
- 5) Other Methods

The Pavement Markings Section maintains a statewide database and GIS system for long line striping for all of the state maintained roadways. This database is inspected annually and continually updated throughout the year as needed. The current condition and reflectivity of the long line striping is assessed and recorded. However, latex striping is done annually and epoxy striping has a three year life cycle. During our inventory process we are able to determine condition of the epoxy and create a schedule for when it should be restriped. Working in the field also allows us to confirm the current paving status of roadways and update the information we otherwise would not have. Using our database and GIS system for mapping allows us to prepare for our striping season accordingly.

The latex reflectivity program has always been completed by our inspectors and done by a nighttime visual inspection. These inspections are continuous throughout the striping season. Each road that is striped by the contractor is inspected by our staff and if any parts of the roadway that does not meet our requirements are marked out and noted. The locations that failed night inspections are then restriped by the contractor at no cost to the Department. Latex and Epoxy roads have also been inspected using a LTL-X reflectometer in accordance with the Delaware Standard Specifications Section 817.3.1 J.

<b>Reflectivity Requirements in Millicandellas</b>		
<b>Material</b>	<b>White</b>	<b>Yellow</b>
Latex	150	125
Epoxy	450	325
Thermoplastic	300	200
Tape	500	500

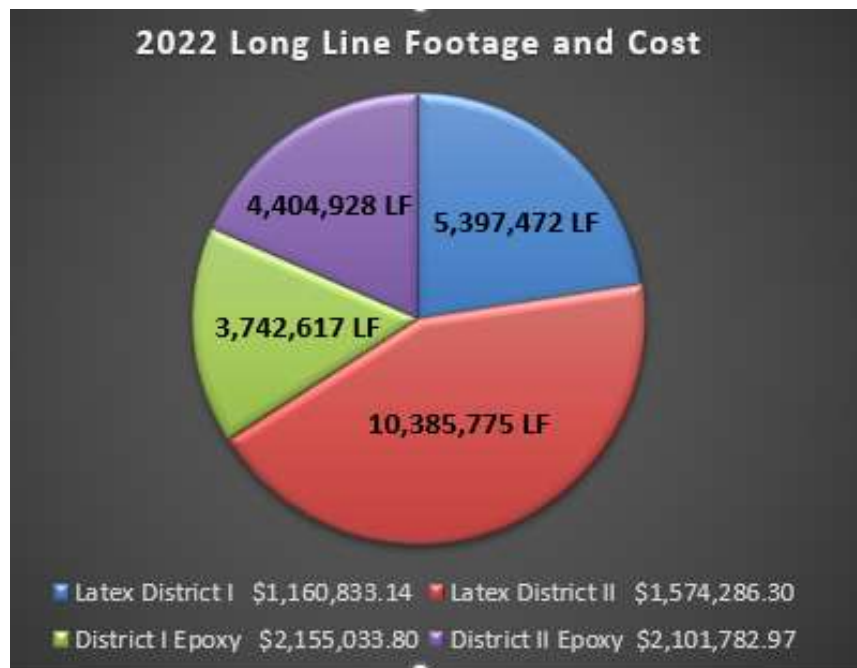
### **2022 Pavement Marking Season**

The 2022 season was full of challenges, such as material shortages, but below are summaries of the programs accomplishments.

- Completed a total of 15,783,247 LF of latex striping for a total cost of \$2,735,119.94
  - Striping maintenance staff and contractors installed 2,990 miles of latex striping
  - 929 miles of roadway
  - An estimated 605 miles (4,623,013 LF of striping) of roadway were unstriped in District II due to locations being on a pave and rehab list. At times the contractor

had multiple crews working in District II and they still struggled throughout the year and ultimately were not able to complete the footage in District II.

- Completed a total of 8,147,545 LF of Epoxy Striping for a total cost of \$4,256,816.77
  - Striping maintenance staff and contractors installed 1,543 miles of epoxy striping
  - 500 miles of roadway
- Short Line Contract worked at 244 locations with a Total Cost of \$1,369,395.38
  - \$6,646.00 billed to HEP T202000401
  - Pending work queue is based on the ever-changing Maximo workflow
  - Short line pavement markings on US 202 is programmed for FY24
  - Short line pavement markings on SR 1 in Sussex County is tentatively programmed for FY25



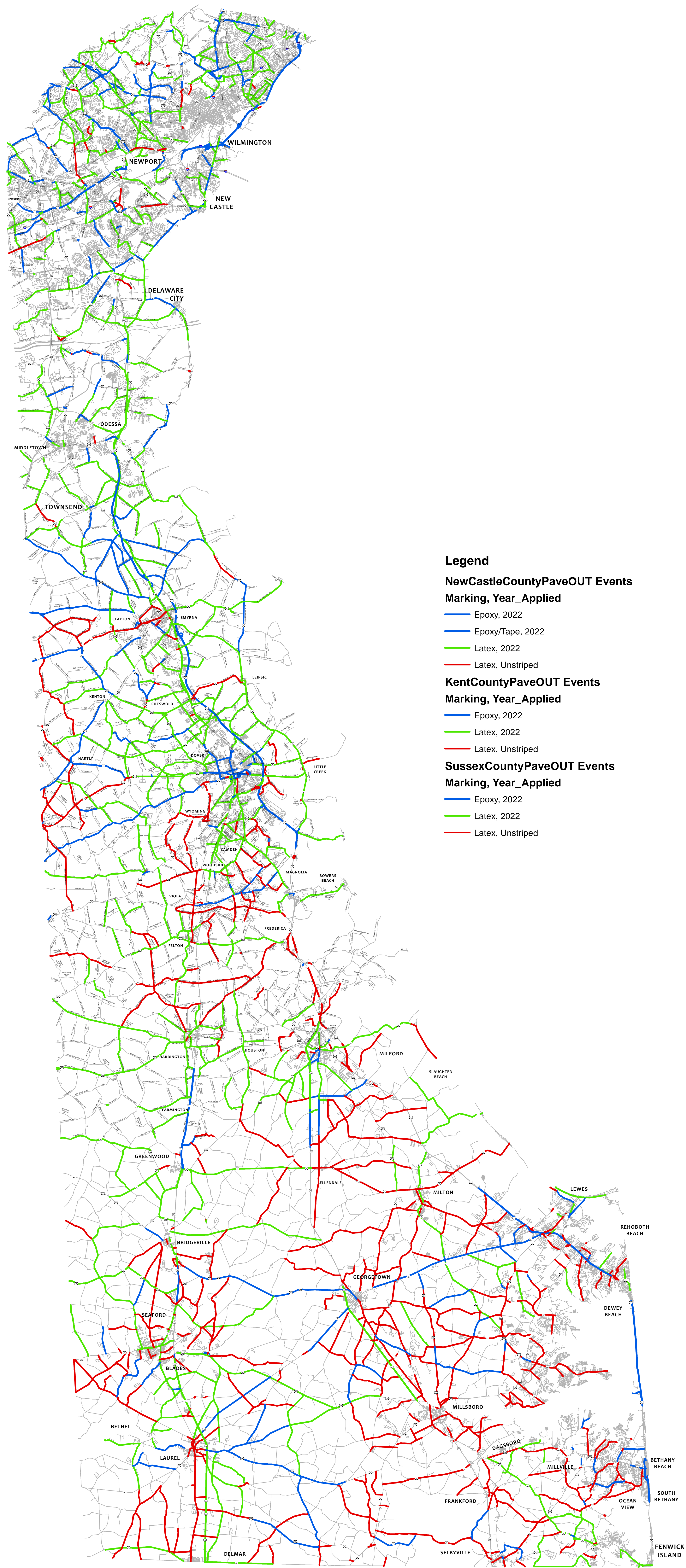
#### Future Goals:

- Mobile reflectivity program using a vehicle mounted reflectometer on 100 miles of state roads.
- Adding epoxy reflectivity dates into striping inventory
- Establish reflectivity database on thermoplastic striping locations

#### Attachments:

- Please note that the provided map does NOT include pave and rehab locations. Some of the latex roads that were not painted (shown in red) this year may not have been completed due to the fact it was on a pave and rehab schedule.
- Short Line Locations and cost







ID	County	Location	Cost
1	Kent	Warner Rd.	\$4,414.00
2	Sussex	Signature Blvd/Americana Bayside	\$4,602.50
3	Kent	Church Hill Rd.	\$8,349.00
4	New Castle	McCoy Rd.	\$9,936.00
5	Kent	Pearsons Corner Rd.	\$2,120.00
6	Kent	Honeysuckle Rd.	\$2,260.00
7	Kent	Sharon Hill Rd. @ W. Denneys Rd.	\$3,375.00
8	Kent	Rose Valley School Rd.	\$3,450.00
9	Sussex	Americana Bayside	\$1,600.00
10	Kent	Hartly Rd. @ Slaughter Station Rd.	\$9,959.00
11	Sussex	Americana Bayside	\$20,733.50
12	New Castle	Delaplane Ave	\$766.00
13	New Castle	Wardel @ Glen Berne Dr.	\$1,488.00
14	New Castle	Bridleshire Rd. @ North Star Rd.	\$742.50
15	New Castle	Holy Angles School Possum Park Rd.	\$2,878.00
16	Sussex	Rt. 113 @ Clayton Rd.	\$1,345.00
17	Sussex	Clayton Rd. @ Rt. 113	\$325.00
18	Sussex	Shortly Rd. @ Piney Grove Rd.	\$160.00
19	Sussex	Shortly Rd. @ Piney Grove Rd.	\$351.00
20	Sussex	Rt. 113 @ Clayton Rd./Nine Foot Rd	\$11,622.00
21	Kent	McKee Rd. @ Hughes Crossing Rd.	\$7,307.00
22	Kent	Mc Kee Rd. @ Hughes Crossing Rd.	\$82.00
23	Kent	Hillyard Rd.	\$2,576.00
24	Kent	Underwoods Corner Rd. @ Blackiston Rd.	\$574.00
25	Kent	Firetower Rd.	\$3,146.00
26	Kent	Evens Rd.	\$6,458.00
27	Kent	Turkey Point Rd.	\$3,150.00
28	New Castle	Meadowbrook Development Speed Humps	\$8,184.00
29	New Castle	Rothwell Dr. Speed Humps	\$6,408.00
30	New Castle	Wardel Rd. @ Glen Berne Dr.	\$2,976.00
31	New Castle	Three Rivers Dr. @ Wellington Dr.	\$390.00
32	New Castle	Rysing Dr. Speed Humps	\$1,488.00
33	New Castle	Saienni Blvd @ Chaddwyck Blvd.	\$6,184.00
34	New Castle	Brandywine Blvd @ Haines Ave	\$964.00
35	New Castle	Saienni Blvd @ Chanddwyck Blvd	\$1,490.00
36	New Castle	Rysing Dr. Speed Humps	\$744.00
37	New Castle	Mt. Lebanon Rd. @ Black Gates Rd.	\$1,640.00
38	New Castle	Brandywood Development Speed Humps	\$5,952.00
39	Sussex	Cemetery Rd.	\$6,890.00
40	Sussex	Shortly Rd. @ Piney Grove Rd.	\$11,200.00
41	Sussex	Rt. 1 SB From Rt. 24 to Miller Rd.	\$1,782.50
42	Sussex	Savannah Rd.	\$3,961.00
43	Sussex	Rt. 1 Sb From Blue Bird Ln to 1A	\$19,815.50
44	Sussex	Coastal Hwy from Rt. 26 to Central Blvd	\$3,607.00
45	Sussex	Coastal Highway from Central Blvd to 5th St.	\$13,370.00
46	Sussex	Coastal Highway from Hollywood St to Wellington Pkwy	\$3,866.00

47	Sussex	Coastal Highway from Rt. 26 to 361A	\$16,416.00
48	Sussex	Coastal Highway from 26 to 361A	\$4,108.00
49	Sussex	Chaplains Chapel Rd. @ Deer Forest Rd.	\$2,514.50
50	Sussex	Rt. 1 NB Right Lane from Rt. 26 to 4th St.	\$13,818.50
51	Sussex	Rt. 1 Sb Right Lane from 5th St. to Rt. 26	\$15,103.92
52	Sussex	Rt. 1 Sb Left Lane from 5th St. to Rt. 26	\$12,611.96
53	Sussex	Rt. 1 Sb from Miller Rd. to Blue Bird Ln	\$17,165.00
54	Sussex	Rt. 1 Coastal Highway Nb from Blue Bird Ln. to Rt. 24	\$22,171.50
55	Sussex	NB Rt. 1 from 1A to Rt. 24	\$21,768.00
56	New Castle	Rt. 273 @ Rt. 896	\$12,720.50
57	New Castle	Rt. 896 @ Rt. 273	\$16,666.50
58	New Castle	Shipley Rd. @ Springer Middle School	\$3,450.00
59	New Castle	Shipley Rd.	\$8,902.00
60	New Castle	Silverside and Grinnel Rd.	\$4,295.00
61	New Castle	Wilton Blvd	\$29,437.00
62	New Castle	Old Baltimore Pike	\$20,368.00
63	New Castle	Middletown Warwick Rd. @ Strawberry Ln	\$1,825.00
64	New Castle	Churchtown from Meadow to Dickerson	\$1,226.00
65	New Castle	Lorewood Grove Rd.	\$10,526.00
66	Sussex	Cubbage Pond Rd.	\$105.00
67	Sussex	Johnson Rd. @ Cubbage Pond Rd.	\$3,150.00
68	Sussex	Gordy Rd. @ Old Stage Rd.	\$3,639.00
69	Sussex	Gordy Rd.	\$379.00
70	Sussex	Salt Barn @ Old Stage Rd.	\$362.00
71	Sussex	Coastal Hwy from 361A to Rt. 26	\$14,364.25
72	New Castle	Caldwell Corner Rd. @ Grears Corner Rd.	\$6,966.00
73	New Castle	Levels Rd. @ St. Annes Blvd	\$5,098.00
74	Kent	Rt. 14 @ Killens Pond rd.	\$6,587.50
75	New Castle	McCoy Rd	\$6,141.00
76	Sussex	Coastal Hwy	\$8,720.50
77	New Castle	Rt. 13 @ I-295	\$4,845.00
78	Kent	Bowman Rd. @ Churchill Rd.	\$1,512.00
79	Sussex	Rt. 16 @ Union Church Rd.	\$1,512.00
80	New Castle	Landers Ln.	\$5,619.00
81	New Castle	Beaver Dam Rd.	\$11,906.50
82	New Castle	Marsh Rd. @ Silverside Rd.	\$22,437.50
83	New Castle	Thompson Bridge Rd. @ Woodlawn Rd.	\$10,110.00
84	New Castle	Creek Rd. @ Ramsey Rd.	\$19,240.00
85	New Castle	Geisler Park	\$13,405.00
86	New Castle	Smalleys Dam Rd.	\$1,936.00
87	New Castle	Bear Christiana Rd.	\$750.00
88	New Castle	Rt. 13 @ Shannon Blvd	\$8,001.00
89	New Castle	Mt. Lebanon Rd. @ YMCA	\$1,361.50
90	New Castle	Mt. Lebanon Rd. @ Rockland Rd.	\$3,490.00
91	New Castle	Thompson Bridge Rd.	\$4,350.00
92	New Castle	Shannon Blvd. @ Rt. 13	\$3,677.00
93	Sussex	Beach Hwy	\$5,869.75

94	Sussex	Union Church Rd. @ Webbs Rd.	\$237.75
95	Sussex	Statonville Rd.	\$680.00
96	Kent	N. Rehoboth Ave.	\$7,824.00
97	Kent	Rt. 1 @ Williamsburg Rd.	\$2,115.00
98	Kent	Rt. 1 @ williamsburg Rd.	\$702.00
99	New Castle	Rt. 896 @ Denny Rd.	\$1,900.00
100	New Castle	Rt. 72 @ Rt. 7	\$4,389.50
101	New Castle	Rt. 7 @ Hockessin Dr.	\$678.00
102	New Castle	Rt. 7 @ Hockessin Dr.	\$1,571.00
103	New Castle	Rt. 4 @ McGovern Terrace	\$1,383.00
104	New Castle	S. Dupont Hwy @ Old Dupont Pkwy	\$2,476.00
105	Sussex	Tatnam Farm Rd.	\$10,966.50
106	Kent	Canterbury Rd. @ Carpenter Bridge Rd.	\$11,970.00
107	New Castle	Rt. 2 @ Rt. 141	\$9,030.50
108	New Castle	Rt. 7 @ Brackenville Rd.	\$5,199.25
109	New Castle	Rt. 7 @ Brackenville Rd.	\$2,309.50
110	New Castle	Rt. 7 @ Sheringham Rd.	\$1,094.50
111	Kent	Rt. 13 @ Rt. 8	\$20,354.00
112	New Castle	Centerville Rd. @ Greenbank Rd.	\$9,453.00
113	Kent	Canterbury Rd. @ Carpenter Bridge Rd.	\$1,095.00
114	Kent	Killens Pond Rd. @ Carpenter Bridge Rd.	\$4,027.50
115	Kent	Midstate Rd. @ Canterbury Rd.	\$13,096.50
116	New Castle	Lexington Parkway @ Pegasus Place	\$345.00
117	New Castle	Lexington Parkway @ Eaton Place	\$1,682.50
118	New Castle	McCoy Rd.	\$19,254.00
119	Kent	Rt. 13 From E. Division St. to Kings Hwy	\$1,524.00
120	Kent	Rt. 13 at E. Division St.	\$5,476.00
121	Kent	Carter Rd.	\$12,706.50
122	New Castle	Capitol Trail	\$1,050.00
123	Sussex	Hopkins Rd.	\$8,864.75
124	Sussex	Fisher Rd. @ Hopkins Rd.	\$463.50
125	New Castle	Limestone Rd. @ Lantana Rd.	\$4,481.00
126	New Castle	Rt. 7 Bicycle Markings	\$4,133.50
127	New Castle	Rt. 7 Bicycle Markings	\$3,562.00
128	New Castle	Rt. 7 Valley Rd. to Lantana Rd.	\$12,796.00
129	New Castle	Rt. 7 Lantana to Brackenville Rd.	\$4,822.00
130	Kent	Carter Rd. from 136 to Manor Dr.	\$10,778.25
131	New Castle	Rt. 7 Bicycle Markings	\$2,903.00
132	Kent	Carter Rd. 136 to 41	\$10,241.00
133	New Castle	Rt. 7 @ Brackenville Rd.	\$1,021.00
134	Sussex	Rt. 24 @ Jolyns Way	\$1,800.00
135	New Castle	Rt. 7 Bicycle Markings	\$1,695.50
136	New Castle	Rt. 7 @ Rt. 72	\$10,599.00
137	New Castle	Rt. 41 from 294 to 251	\$206.00
138	New Castle	Lancaster Pike Bicycle Markings	\$4,846.00
139	Kent	Carter Rd. @ Sunnyside Rd.	\$12,983.75
140	Kent	Saulsbury Rd. School Markings	\$4,190.00

141	Kent	Cater Rd. @ Sunnyside	\$11,848.75
142	Kent	Saulsbury Rd. @ Carver Rd.	\$8,151.00
143	Kent	Carter Rd. Sheridan Ln. to Villanova Ln.	\$7,853.75
144	New Castle	Rt. 48 Bicycle Markings	\$2,976.50
145	New Castle	Rt. 48 @ Centerville Rd.	\$15,608.50
146	New Castle	Rt. 48 Bicycle Markings	\$2,264.50
147	New Castle	Rt. 48	\$15,782.00
148	Kent	Rt. 13 from 49 to 3	\$4,942.75
149	Kent	Dupont Hwy From 3 to Townsend Blvd.	\$13,662.00
150	New Castle	Rt. 48 Bicycle Markings	\$1,994.50
151	New Castle	Rt. 48 from 21 to 272	\$2,739.00
152	Kent	Kings Hwy	\$5,051.00
153	Kent	N. Dupont Hwy @ Kings Hwy	\$10,134.00
154	Kent	Dupont Hwy From 66 to Centre Dr.	\$16,119.00
155	Kent	N. Dupont Hwy from Kings Hwy to E. Locherman St.	\$10,259.00
156	Kent	MLK Blvd @ Rt. 13	\$15,491.00
157	Kent	MLK Blvd @ Rt. 13	\$16,949.00
158	Kent	N. Dupont Hwy from MLK Blvd to Townsend Blvd	\$14,847.25
159	Kent	Rt. 13 from Lakeview Dr. to College Rd.	\$6,528.00
160	Kent	Main St. Magnolia	\$561.50
161	Kent	N. Dupont Hwy NB from Lakeview Dr. to College Rd.	\$8,747.00
162	Kent	Autumn Moon Rd. @ Millchop Ln	\$6,050.00
163	Kent	Autumn Moon Rd. @ Millchop Ln.	\$287.00
164	Kent	Webbs Ln. @ Rt. 13	\$2,220.00
165	New Castle	EB Lancaster Pike from Coffee Run to Harlech Dr.	\$3,780.25
166	Kent	Commerce St. @ Main St.	\$1,864.00
167	Kent	Rt. 13 from College Rd. to Garden In.	\$999.75
168	Kent	N. Dupont Hwy	\$9,658.50
169	New Castle	EB Lancaster Pike	\$3,078.00
170	Kent.	N. Dupont Hwy	\$6,385.75
171	New Castle	Rt. 202	\$1,287.00
172	New Castle	Duncan Rd. @ River Rd.	\$1,782.50
173	New Castle	New Castle Ave @ Knotts Inc.	\$229.50
174	New Castle	Rt. 40 WB @ Rt. 896	\$2,050.50
175	New Castle	S. College Ave @ Welsh Tract Rd.	\$1,772.00
176	New Castle	Rt. 896 @ Rt. 4	\$624.00
177	New Castle	College Ave @ Rt. 4	\$3,544.00
178	New Castle	Limestone Rd. @ Kickwood Hwy	\$624.00
179	New Castle	Kirkwood Hwy @ Limestone Rd.	\$2,014.50
180	New Castle	Kirkwood Hwy @ Rt. 41	\$753.50
181	New Castle	Rt. 2 EB @ Redmill Rd.	\$468.00
182	New Castle	Rt. 41 NB @ Rt. 2	\$312.00
183	New Castle	Rt. 41 @ Rt. 2	\$468.00
184	New Castle	Rt. 41 @ Rt. 2	\$6,329.00
185	New Castle	Rt. 2 @ Polly Dummond Hill Rd.	\$1,741.50
186	Kent	Old Lebanon Rd.	\$3,750.00
187	Kent	Rabbit Chase Rd. @ Brenford Rd.	\$1,029.00



188	Kent	Rabbit Chase Rd. @ Brenford Rd.	\$1,821.00
189	Kent	Old Lebanon Rd.	\$2,903.00
190	New Castle	Rt. 13 @ Roosevelt Ave.	\$468.00
191	Sussex	Cave Neck Rd. @ Hudson Rd.	\$11,669.25
192	Sussex	Cave Neck Rd. @ Hudson Rd.	\$199.50
193	Sussex	Stockley Rd. @ Cool Springs	\$11,832.00
194	Sussex	Stockley Rd. @ Cool Springs	\$138.00
195	Sussex	10th St. @ RXR	\$7,030.75
196	Kent	Bryants Corner Rd.	\$1,643.00
197	Kent	Halltown Rd.	\$819.00
198	Sussex	E. Robbins Rd. @ RXR	\$5,157.00
199	Sussex	North Union Church Rd. @ Abbotts Pond Rd.	\$235.75
200	Sussex	Staytonville Rd. @ Memory Rd.	\$813.50
201	Sussex	Gravel Hill Rd. @ Shingle Point Rd.	\$8,411.50
202	Sussex	Gravel Hill Rd. @ Shingle Point Rd.	\$351.00
203	Sussex	Seashore Hwy. @ Coverdale Rd.	\$1,536.50
204	Sussex	Seashore Hwy. @ Oak Rd.	\$4,114.00
205	New Castle	Griffin Dr. @ Muggleton Rd.	\$4,212.00
206	New Castle	Rt. 4 @ Marrows Rd.	\$675.50
207	New Castle	Rt. 4 @ Marrows Rd.	\$675.50
208	Sussex	Rt. 2 @ Evergreen Rd.	\$4,412.00
209	Sussex	Rt. 1 SB @ Old Landing Rd.	\$443.00
210	Sussex	Rt. 1 SB @ Old Landing Rd.	\$819.00
211	Sussex	Rt. 1 SB @ Old Landing Rd.	\$2,309.50
212	Sussex	Rt. 1 NB @ Old Landing Rd.	\$1,772.00
213	Sussex	Rt. 9 WB @ Rt. 1	\$312.00
214	Sussex	Rt. 10 WB @ Bay Rd.	\$4,176.00
215	New Castle	Rt. 40 @ Rockwood Rd.	\$2,012.00
216	New Castle	Rt. 58 @ Rt. 1	\$760.50
217	New Castle	Rt. 2 @ Delaware Park	\$3,157.50
218	New Castle	Rt. 52 @ Pyles Ford Rd.	\$1,268.50
219	New Castle	Rt. 4 @ Salem Church Rd.	\$2,694.00
220	Kent	Hourglass Rd. @ Halltown Rd.	\$1,773.50
221	Sussex	Sussex Hwy @ East Market St.	\$850.00
222	Sussex	Rt. 13 SB @ Rt. 54	\$1,588.00
223	Sussex	Rt. 13 SB @ Rt. 54	\$443.00
224	Kent	Everetts Corner Rd. @ Sudlersville Rd,	\$1,680.50
225	New Castle	Carr Rd.	\$3,950.00
226	New Castle	School Ln. @ Foulk Rd.	\$188.00
227	New Castle	School Ln. @ Foulk Rd.	\$1,200.00
228	New Castle	Limestone Gardens	\$3,702.00
229	New Castle	Old Kennett Rd.	\$7,645.75
230	New Castle	Limestone Gardens	\$3,720.00
231	New Castle	Village Dr. @ Quail Hallow Dr.	\$4,005.00
232	New Castle	Centerville Rd. @ Faulkland Rd.	\$11,461.75
233	Kent	Rt. 13	\$2,733.00
234	New Castle	Barley Mill Rd. @ Tatnall School	\$1,650.00

235	New Castle	Sharpless Rd.	\$17,709.00
236	Kent	N. Dupont Hwy	\$5,830.00
237	Kent	N. Dupont Hwy	\$5,962.00
238	Sussex	Asbury Rd. @ Hardscrabble Rd.	\$7,116.50
239	Sussex	Asbury Rd. @ Hardscrabble Rd.	\$1,257.00
240	Kent	Rt. 13 NB	\$7,082.25
241	Kent	Rt. 13	\$10,530.00
242	Kent	N. Dupont Hwy.	\$7,285.50
243	Kent	N. Dupont Hwy.	\$3,246.00
244	Sussex	Roxana Rd. @ Daisey Rd.	\$10,014.00