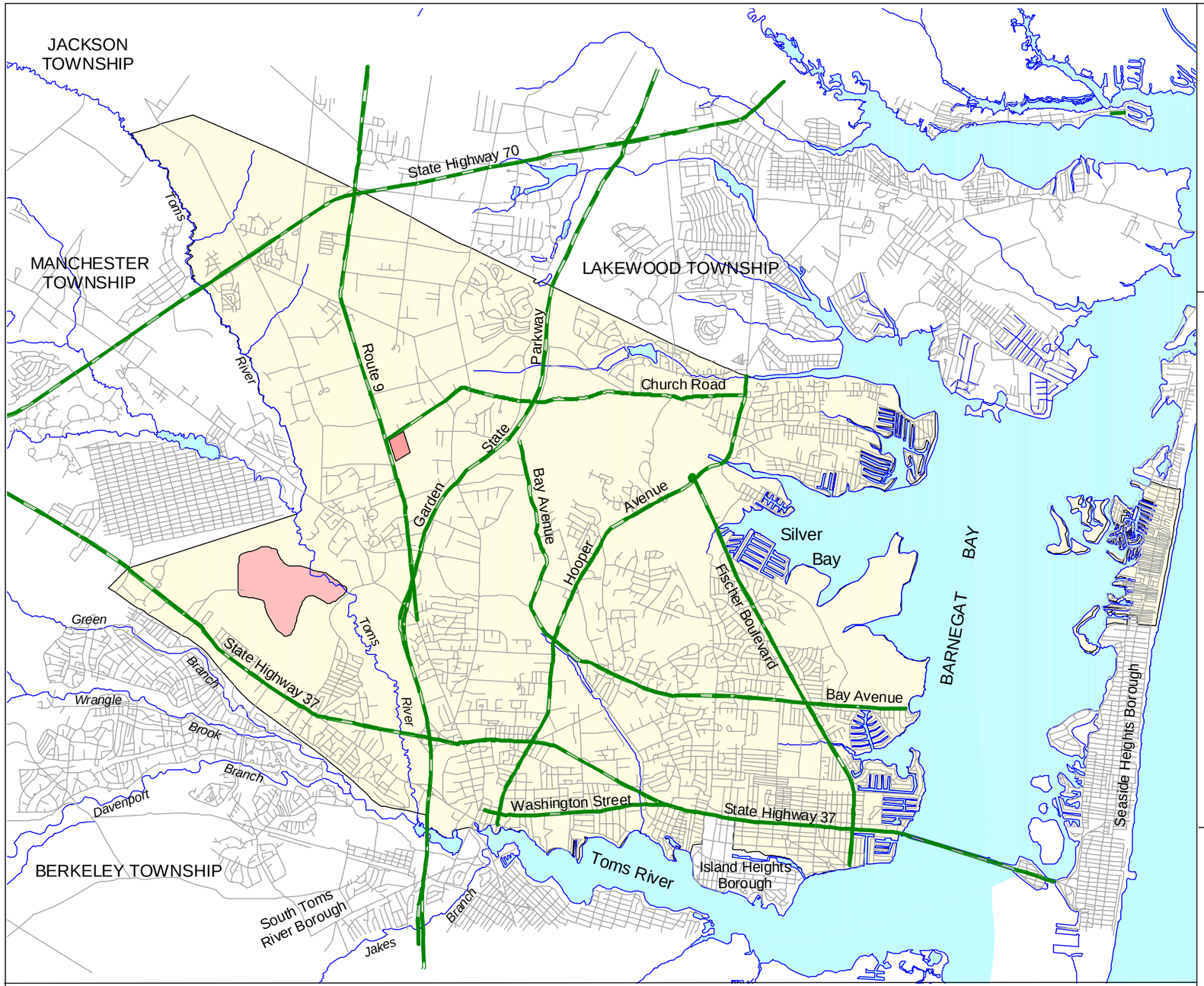
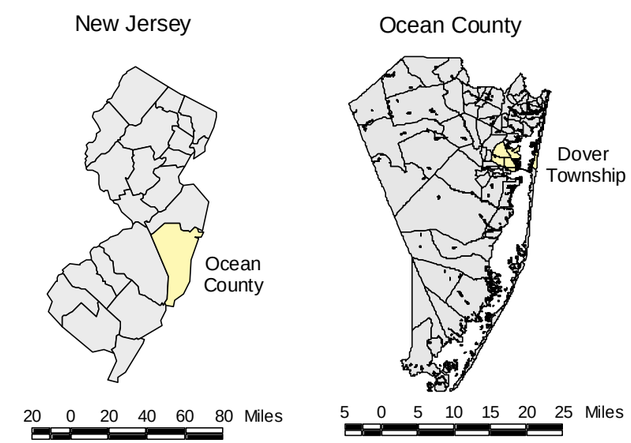


EXPLANATION

- Streets
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

0.5 0 0.5 1 1.5 2 2.5 3 Miles

N



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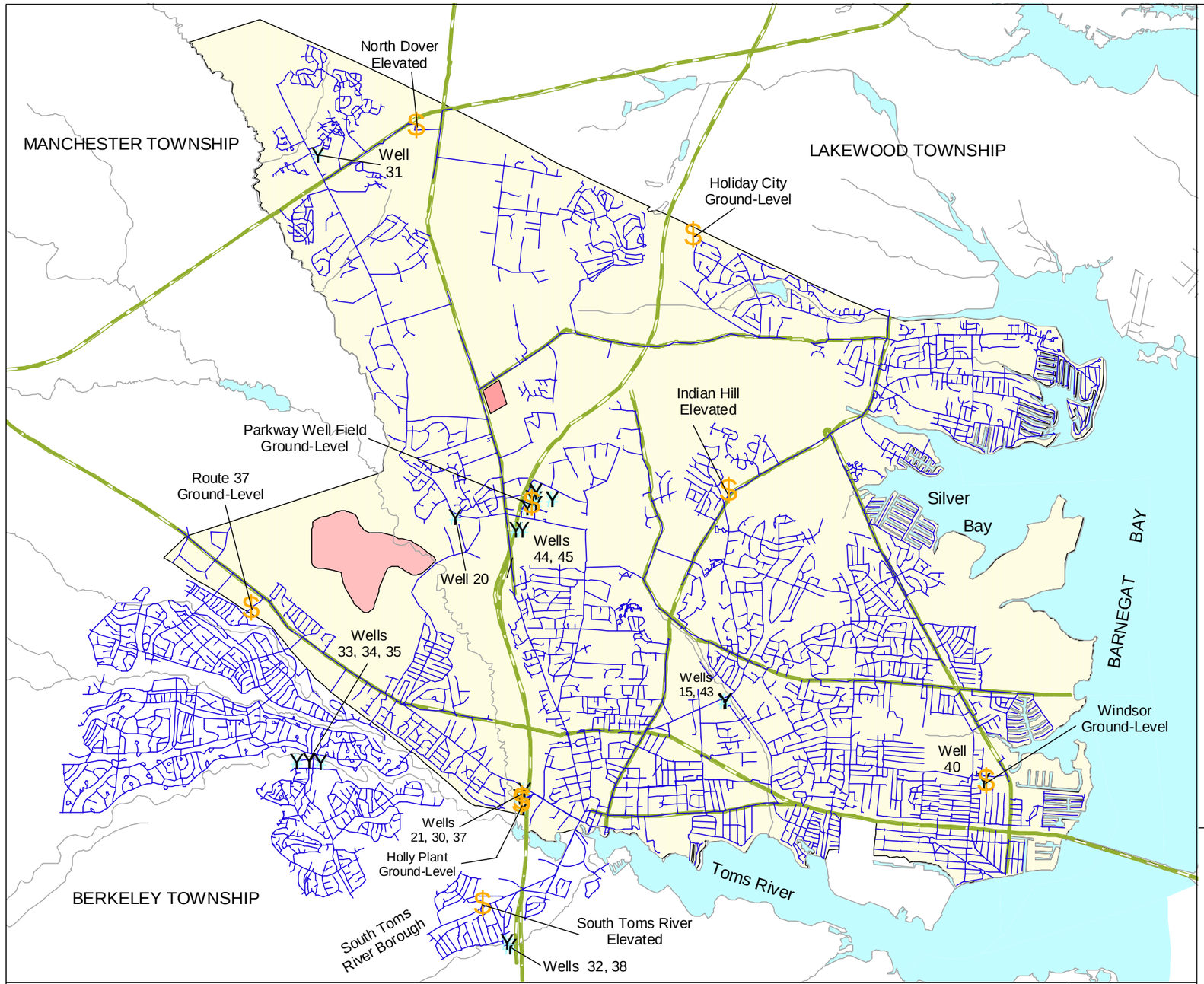
Dover Township Area, New Jersey
Water-Distribution System Model

Maslia ML, Sautner JB, Aral MM. 2000. Analysis of the 1998 water-distribution system serving the Dover Township area, New Jersey: field-data collection activities and water-distribution system modeling. Atlanta: Agency for Toxic Substances and Disease Registry, June 2000.

PLATE 1. LOCATION OF AREA OF INVESTIGATION, DOVER TOWNSHIP, OCEAN COUNTY, NEW JERSEY

by Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral



EXPLANATION

- Municipal Well
- Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- ater Body

Note: Water pipelines range in diameter from 2 inches to 16 inches

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 2. WATER-DISTRIBUTION SYSTEM SERVING THE DOVER TOWNSHIP AREA, NEW JERSEY, 1998

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey
Water-Distribution System Model

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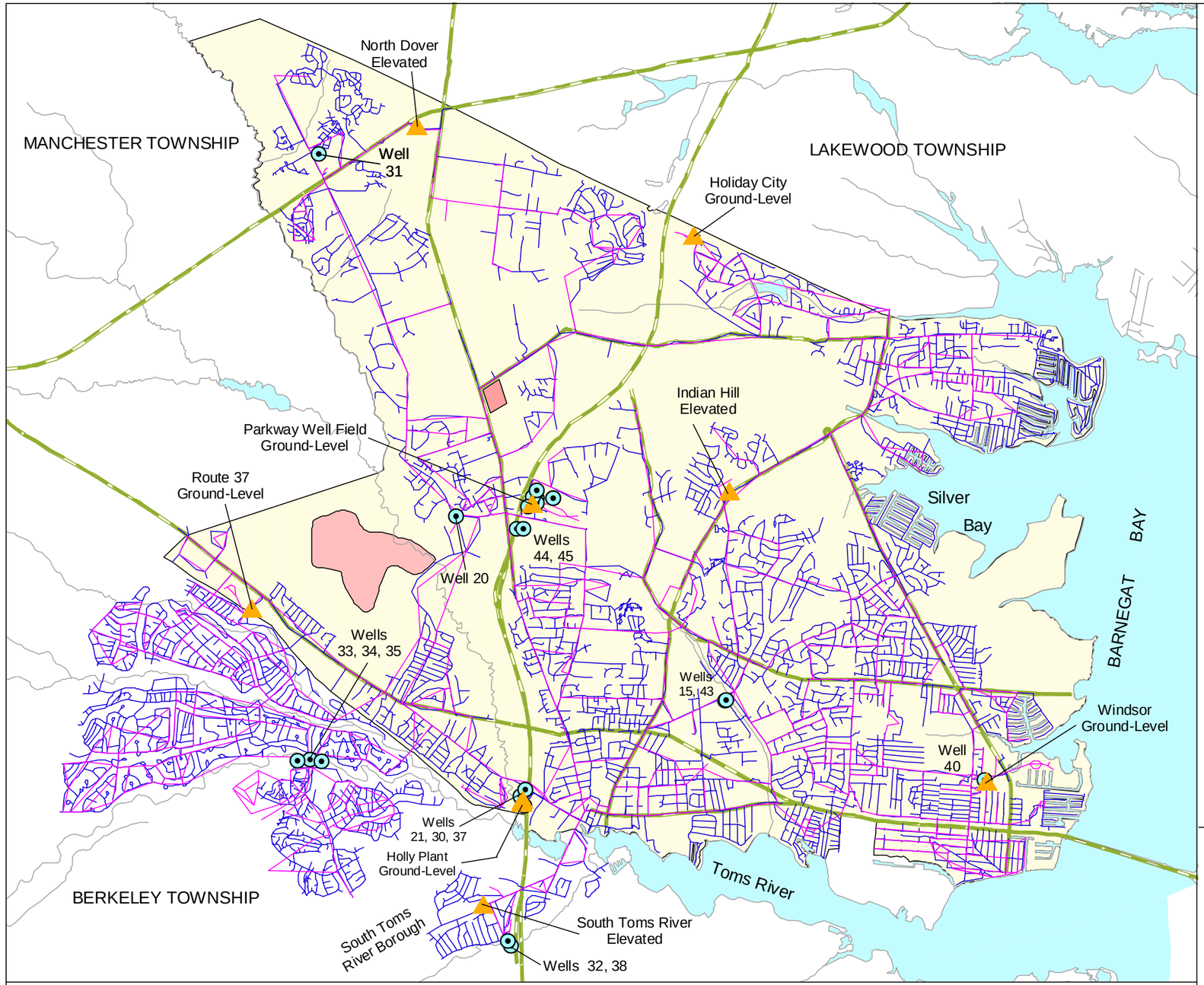

EXPLANATION

- Municipal Well
- Storage Tank
- Water Pipeline, 1998
- Equivalent Network Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Notes: Water pipelines (1998) range in diameter from 2 to 16 inches
Equivalent network pipelines range in diameter from 6 to 16 inches

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 3. EQUIVALENT HYDRAULIC NETWORK USED FOR INITIAL SIMULATION OF THE WATER-DISTRIBUTION SYSTEM SERVING THE DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Water-Distribution System Model

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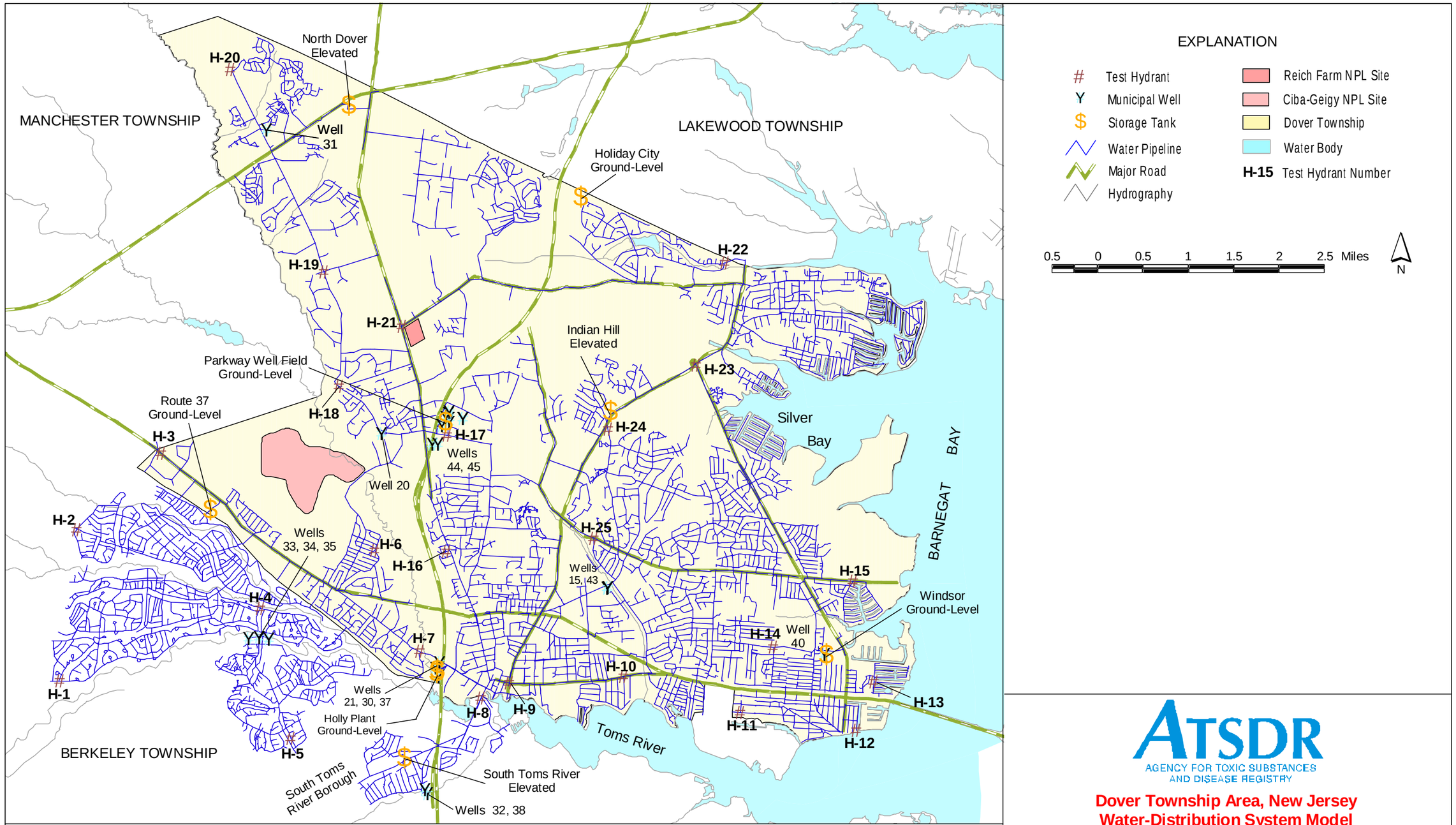

PLATE 4. LOCATIONS OF PROPOSED TEST HYDRANTS FOR COLLECTING SYSTEM-WIDE PRESSURE DATA DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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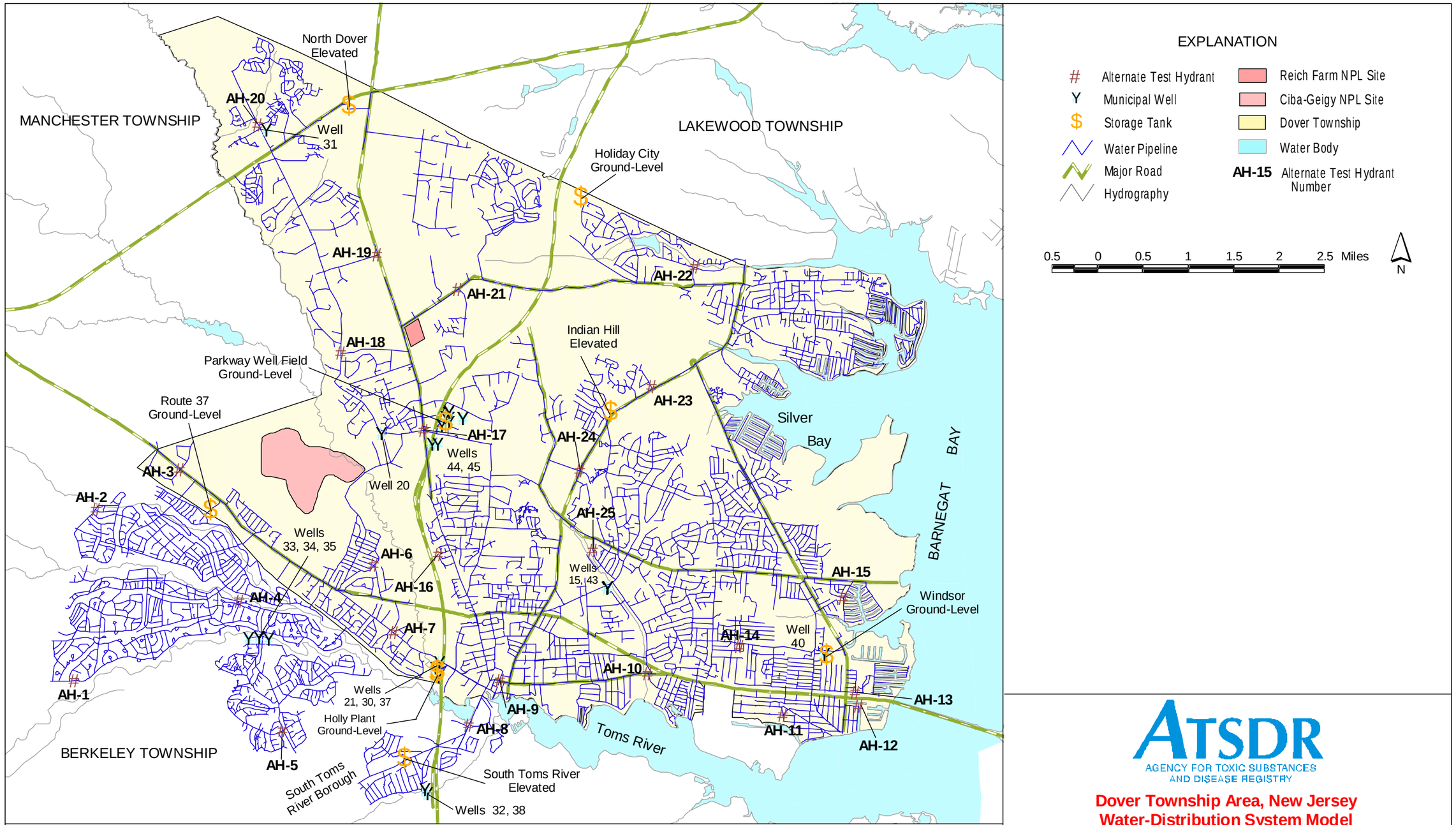

PLATE 5. LOCATIONS OF PROPOSED ALTERNATE TEST HYDRANTS FOR COLLECTING SYSTEM-WIDE PRESSURE DATA, DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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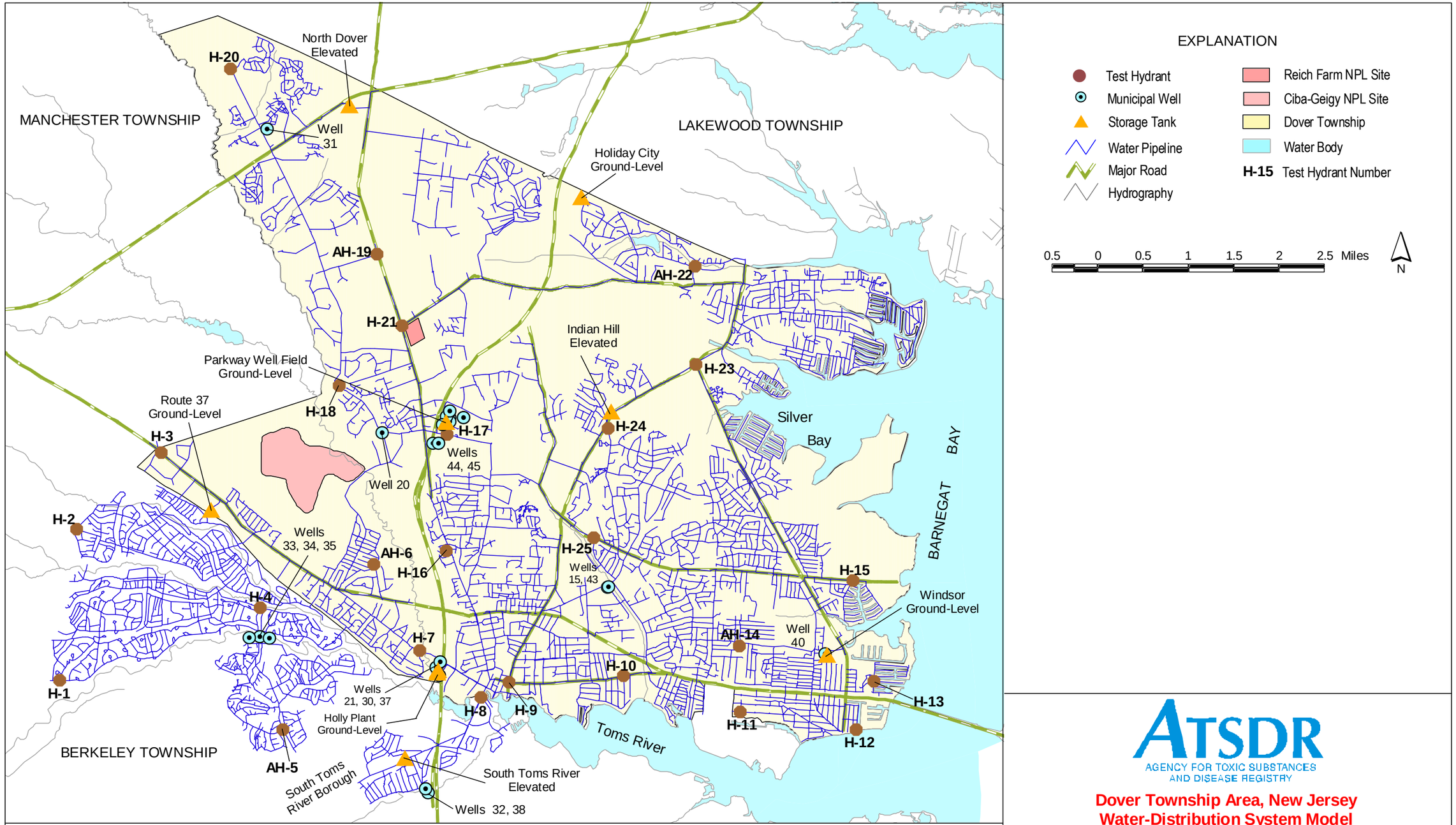

PLATE 6. LOCATIONS OF TEST HYDRANTS USED FOR INSTALLATION OF PRESSURE DATA LOGGERS TO COLLECT SYSTEM-WIDE PRESSURE DATA, DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey
Water-Distribution System Model

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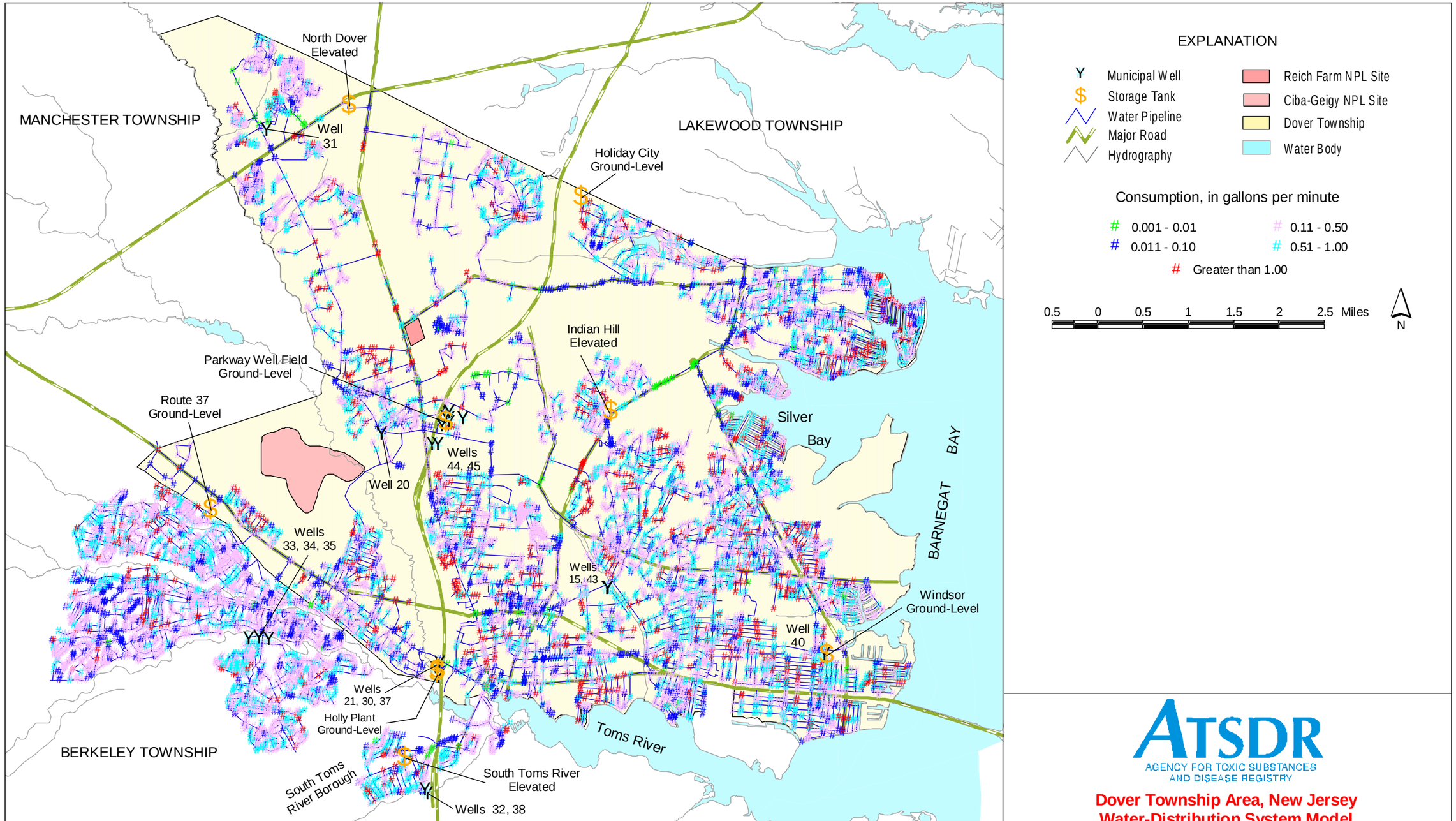

PLATE 7. DISTRIBUTION OF NODAL VALUES OF AVERAGE CONSUMPTION USED TO MODEL THE 1998 WATER-DISTRIBUTION SYSTEM SERVING THE DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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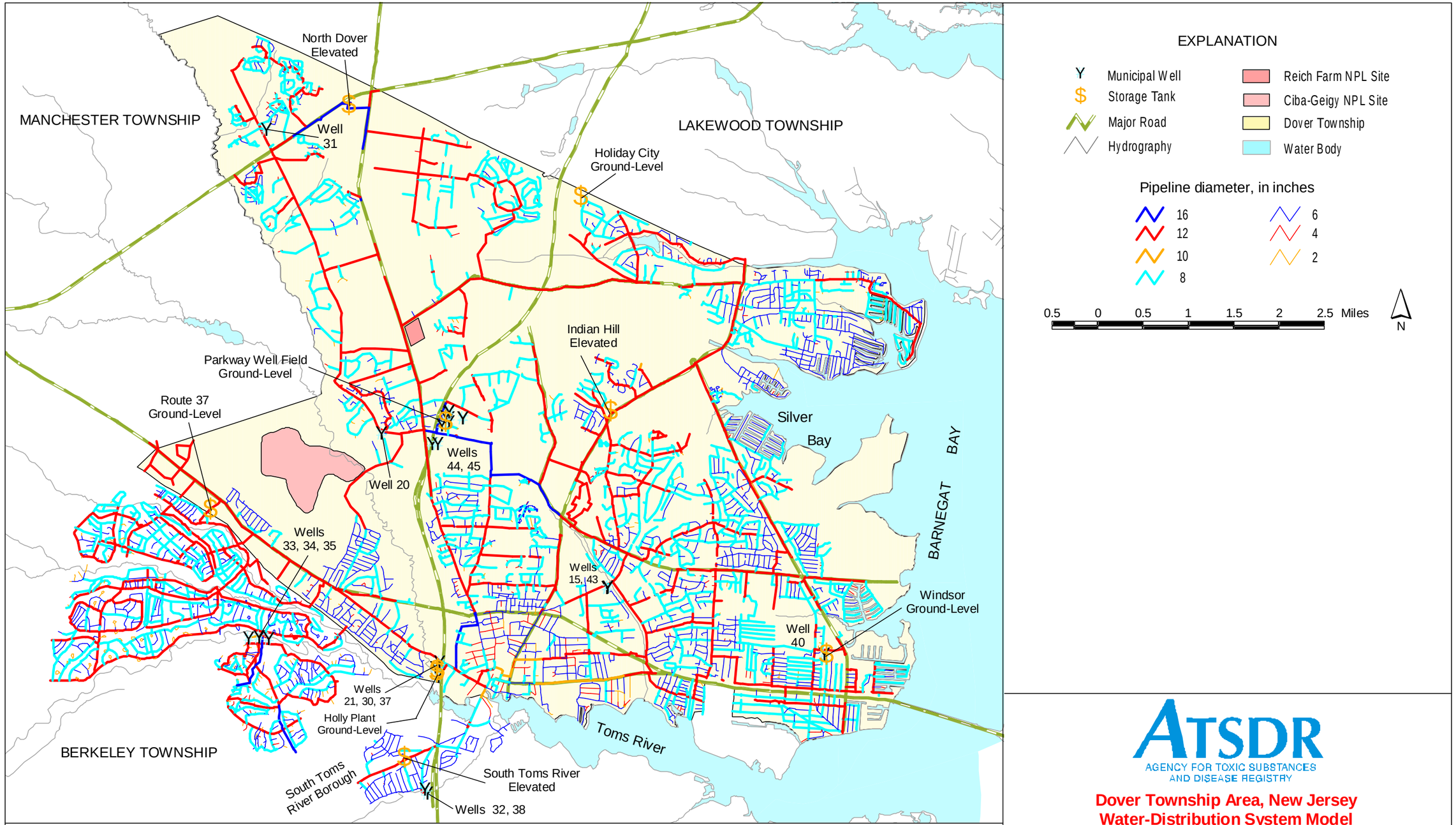

PLATE 8. DISTRIBUTION OF PIPELINE DIAMETERS USED TO MODEL THE 1998 WATER-DISTRIBUTION SYTEM SERVING THE DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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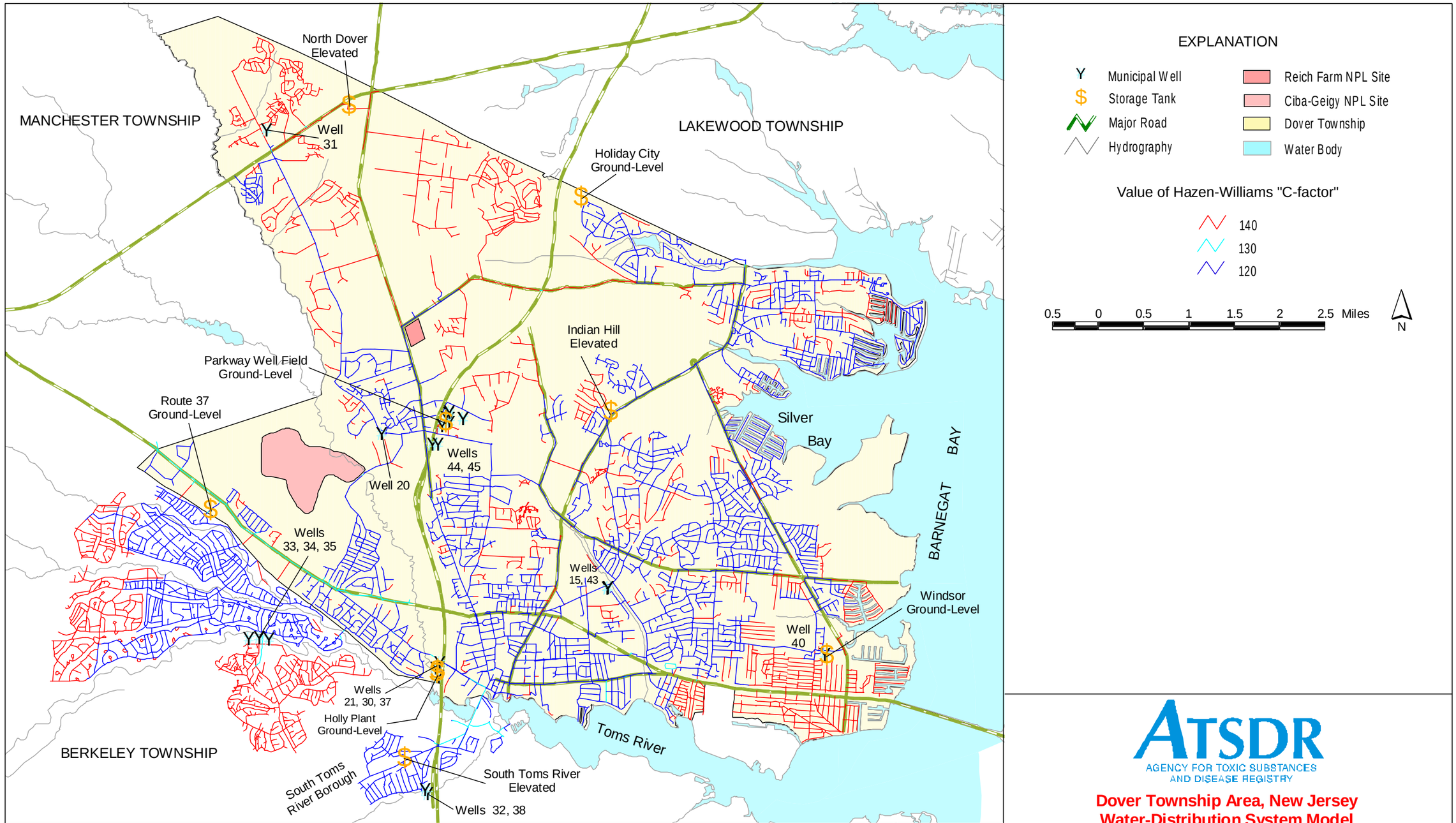

PLATE 9. DISTRIBUTION OF HAZEN-WILLIAMS "C-FACTORS" ASSIGNED TO PIPELINES USED TO MODEL THE 1998 WATER-DISTRIBUTION SYSTEM SERVING THE DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey
Water-Distribution System Model

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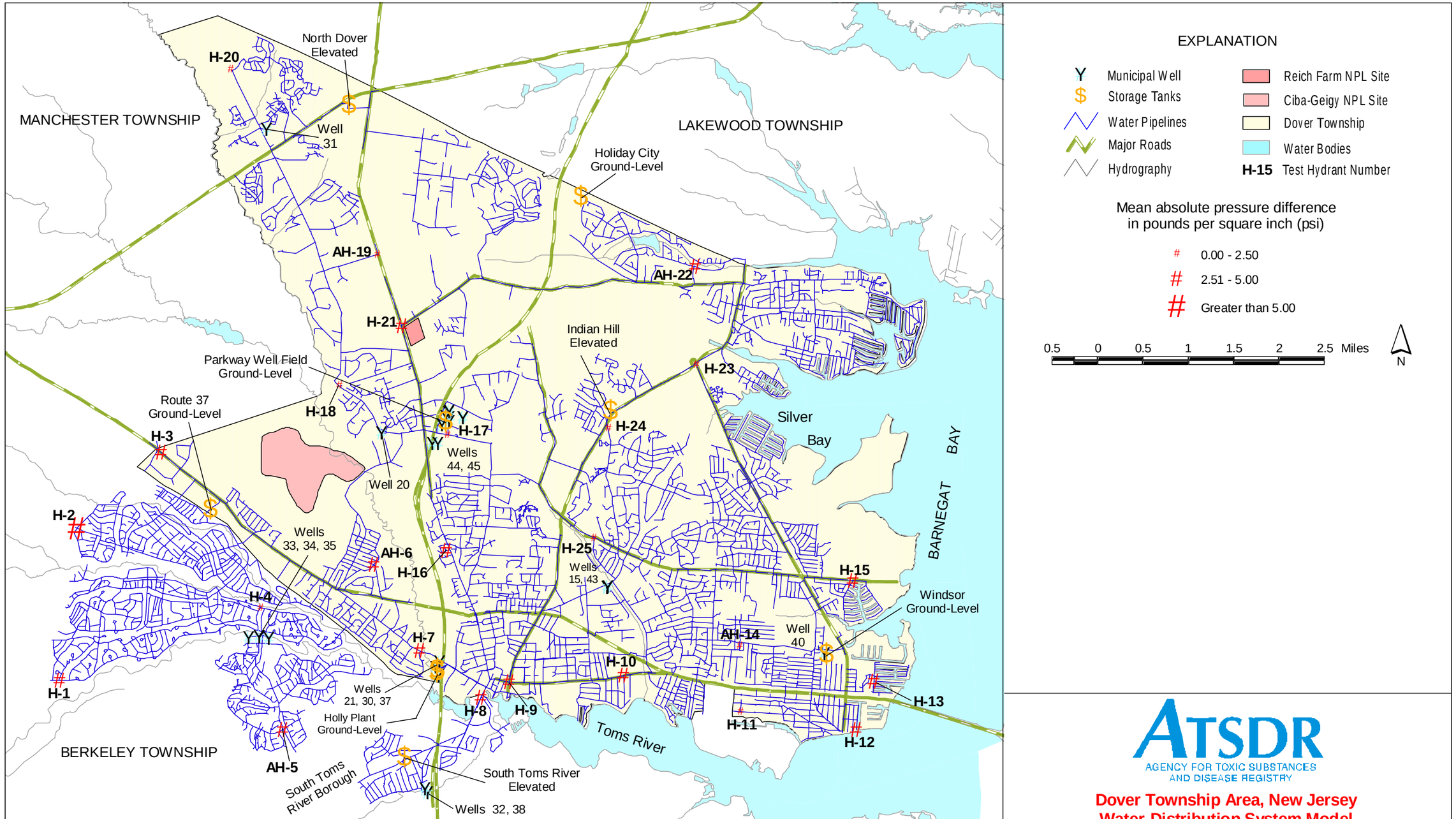

PLATE 10. AREAL DISTRIBUTION OF MEAN ABSOLUTE PRESSURE DIFFERENCE BETWEEN MARCH 1998 TEST DATA AND SIMULATION, DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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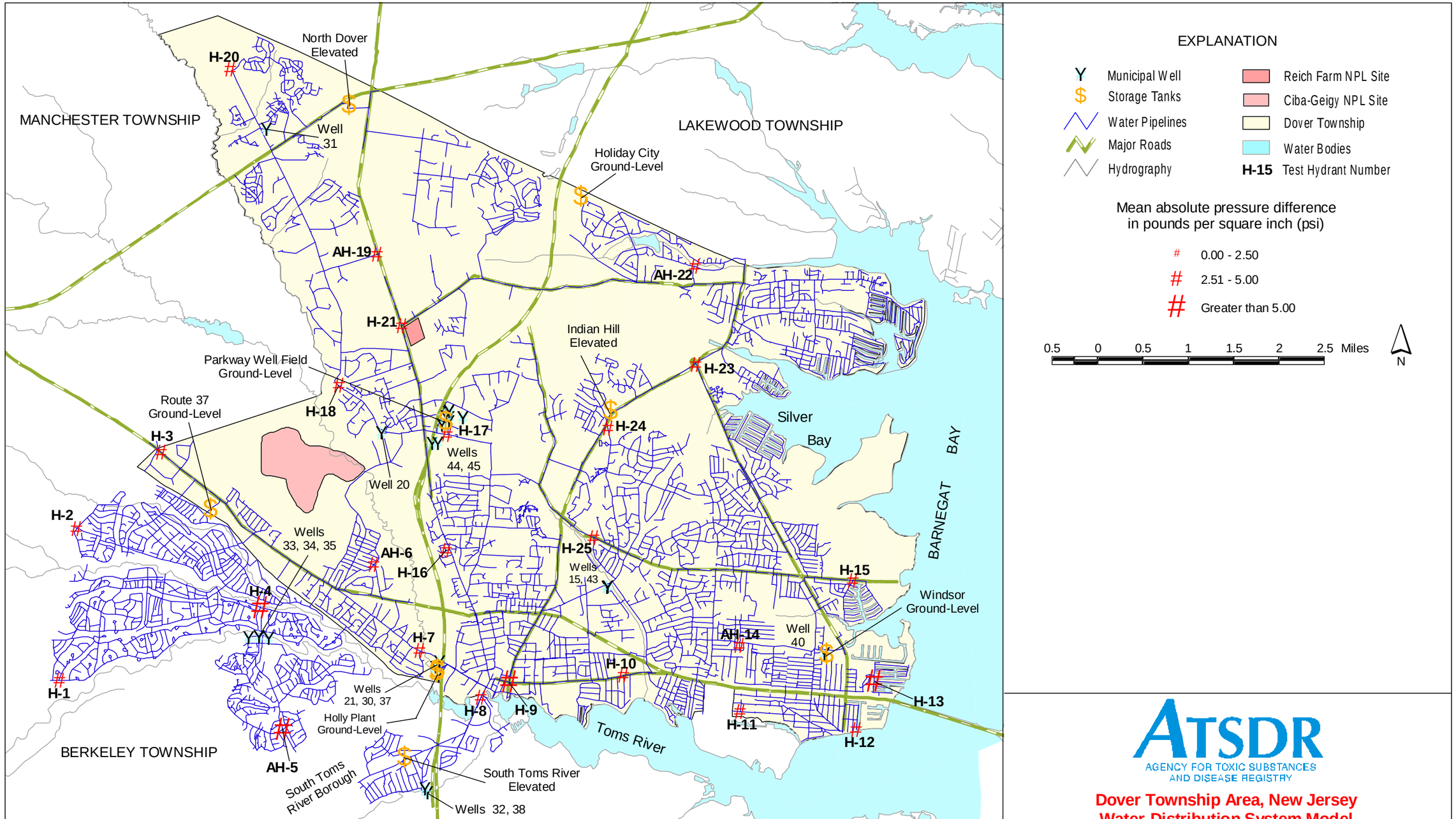

PLATE 11. AREAL DISTRIBUTION OF MEAN ABSOLUTE PRESSURE DIFFERENCE BETWEEN AUGUST 1998 TEST DATA AND SIMULATION, DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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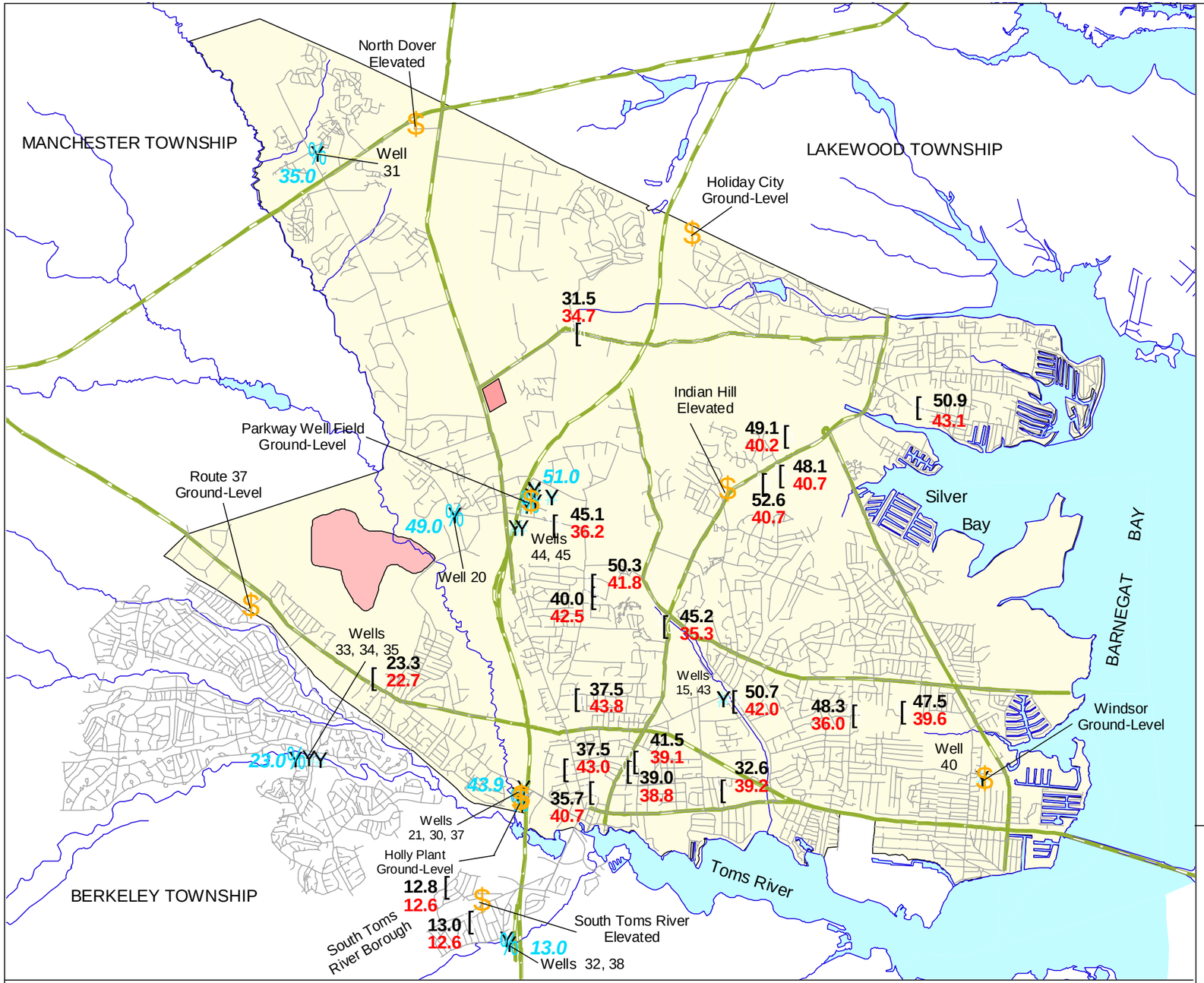

EXPLANATION

- Y Municipal Well
- $ Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Barium concentration, in micrograms per liter

[47.5 / 39.6 — Top number is measured value; bottom number is simulated value at 08:00 hours on March 28, 1996.

% 13.0 — Point of entry (source) for barium; number is measured value for April 4 and 24, 1996 (see text for explanation)

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 12. AREAL DISTRIBUTION OF MEASURED AND SIMULATED BARIUM CONCENTRATIONS MARCH AND APRIL 1996, DOVER TOWNSHIP AREA, NEW JERSEY

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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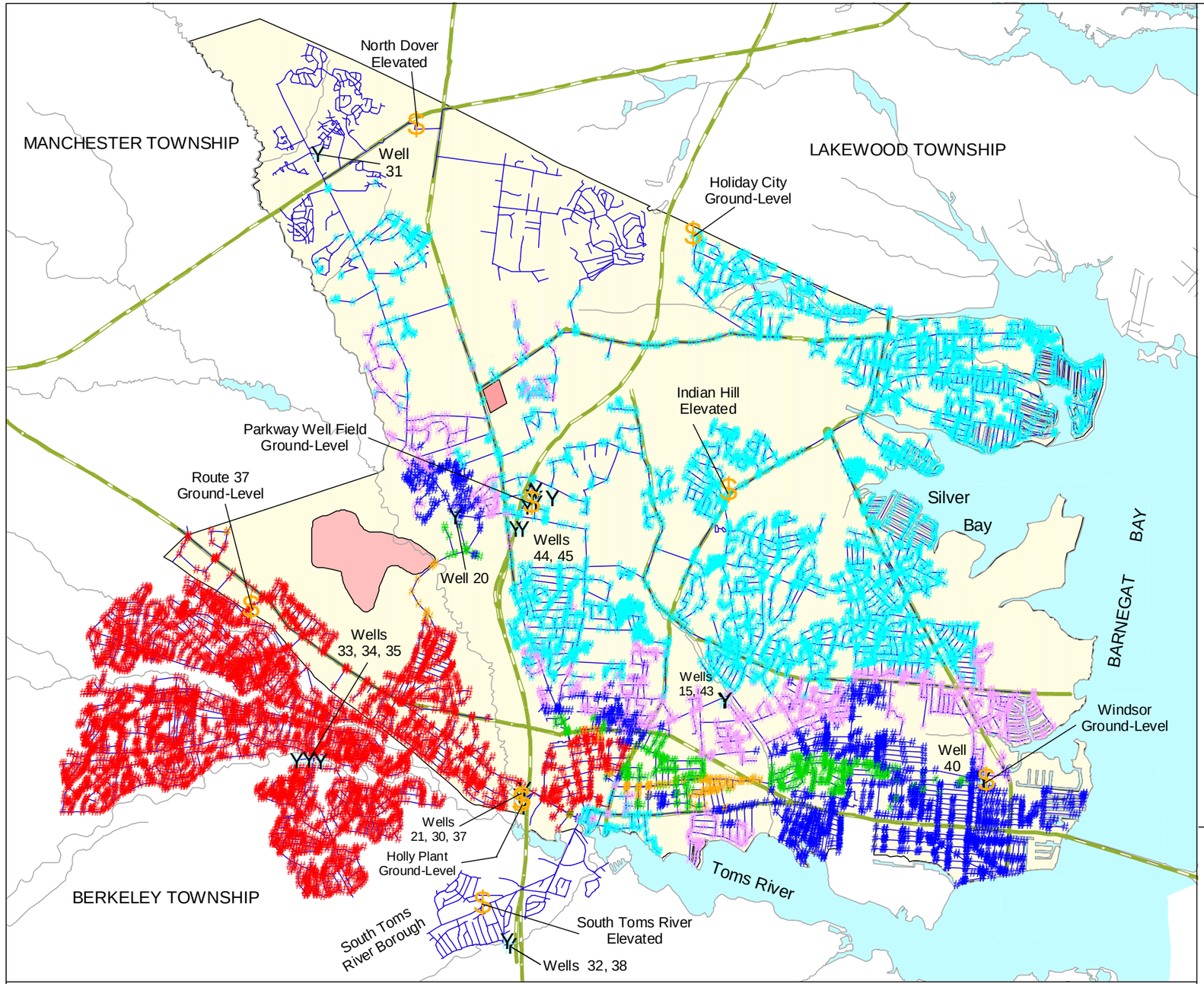

EXPLANATION

- Municipal Well
- Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Percentage of water contributed by the Berkeley wells (33, 34, 35), 24-hour average

- 1 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 90
- 90 - 100

Note: Percentage of water based on calibrated model reaching dynamic equilbrium after 1,000 hours of simulation time

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 13. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE BERKELEY WELLS (33, 34, 35) TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY MARCH 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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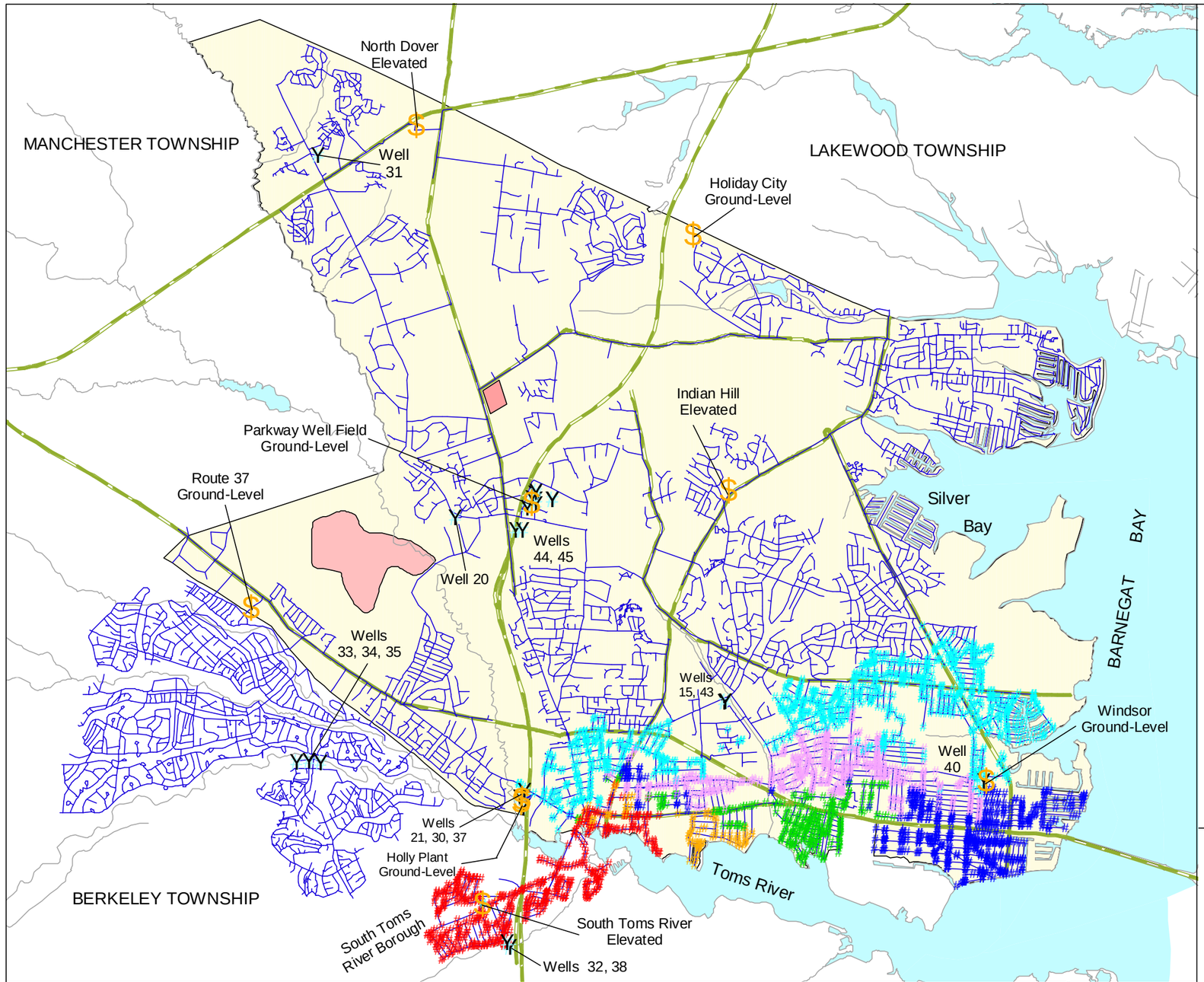

EXPLANATION

- Municipal Well
- Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Percentage of water contributed by the South Toms River well (32), 24-hour average

- 1 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 90
- 90 - 100

Note: Percentage of water based on calibrated model reaching dynamic equilbrium after 1,000 hours of simulation time

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 14. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE SOUTH TOMS RIVER WELL (32) TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY MARCH 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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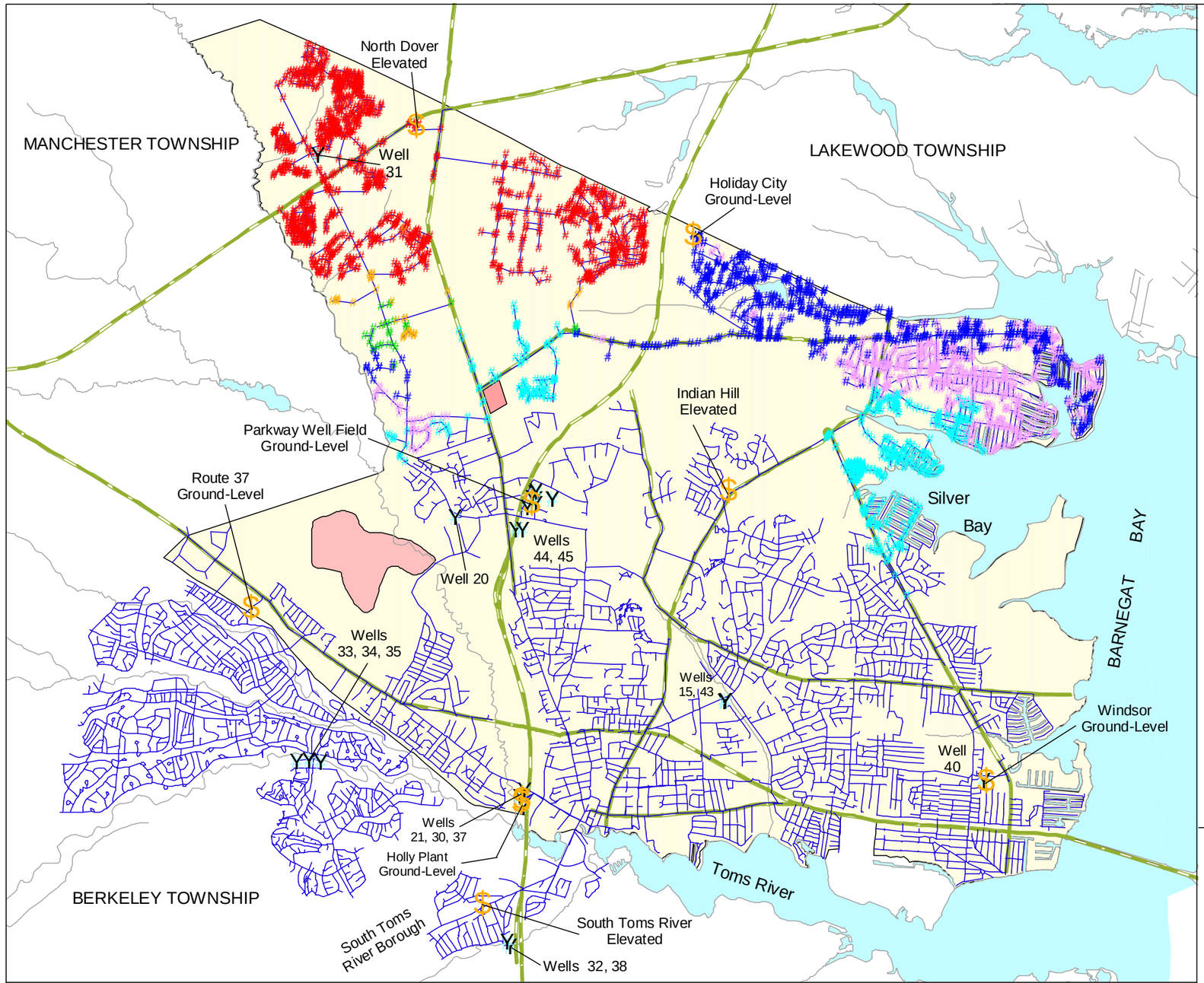

EXPLANATION

Y Municipal Well
$ Storage Tank
Water Pipeline
Major Road
Hydrography
Reich Farm NPL Site
Ciba-Geigy NPL Site
Dover Township
Water Body

Percentage of water contributed by the Route 70 well (31) 24-hour average

1 - 10
10 - 25
25 - 50
50 - 75
75 - 90
90 - 100

Note: Percentage of water based on calibrated model reaching dynamic equilbrium after 1,000 hours of simulation time

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 15. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE ROUTE 70 WELL (31) TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY MARCH 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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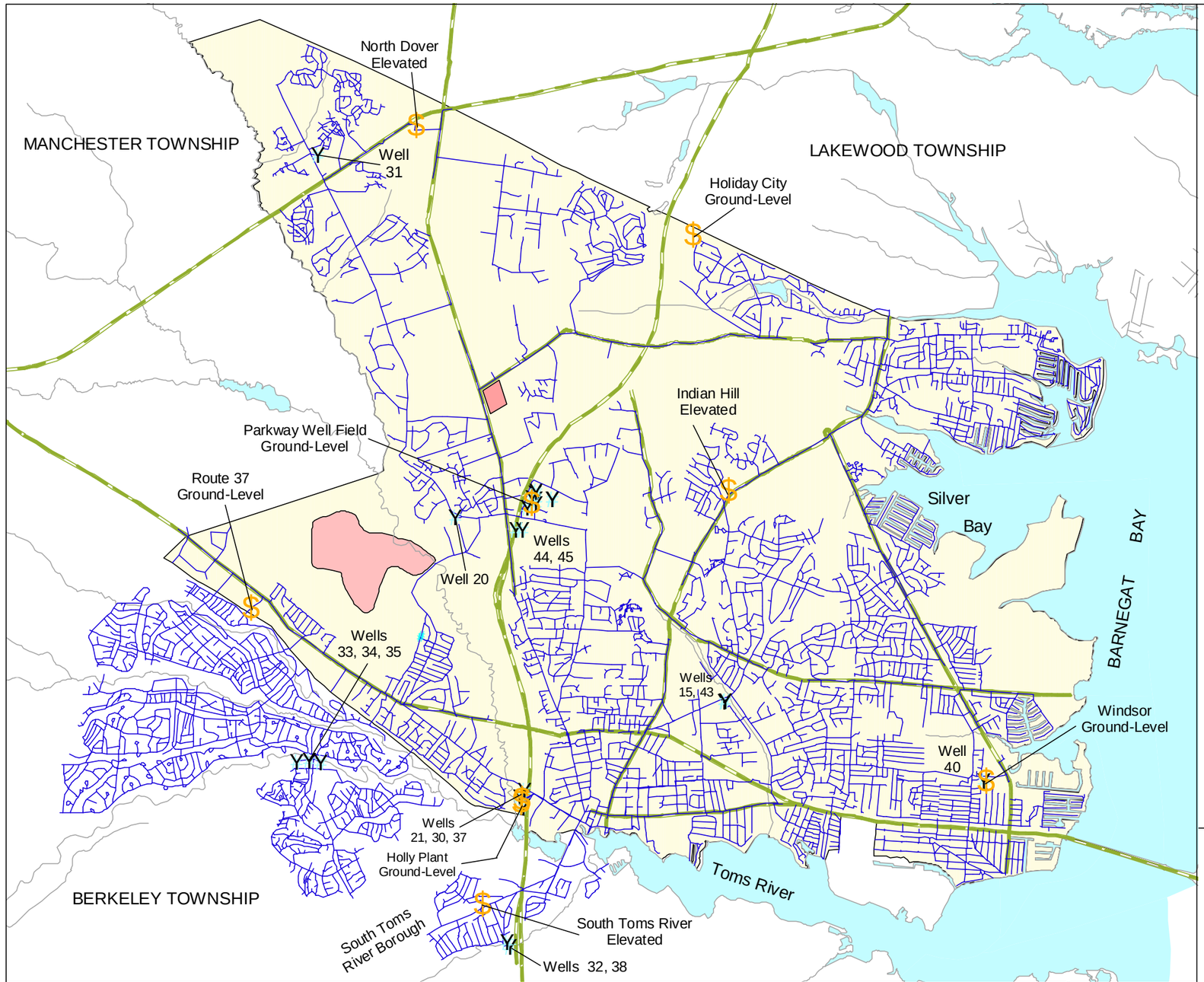

EXPLANATION

- Y Municipal Well
- $ Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Percentage of water contributed by the Parkway well field ground-level storage tank, 24-hour average

- # 1 - 10
- # 10 - 25
- # 25 - 50
- # 50 - 75
- # 75 - 90
- # 90 - 100

Note: Percentage of water based on calibrated model reaching dynamic equilbrium after 1,000 hours of simulation time

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 16. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE PARKWAY WELL FIELD GROUND-LEVEL STORAGE TANK TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY MARCH 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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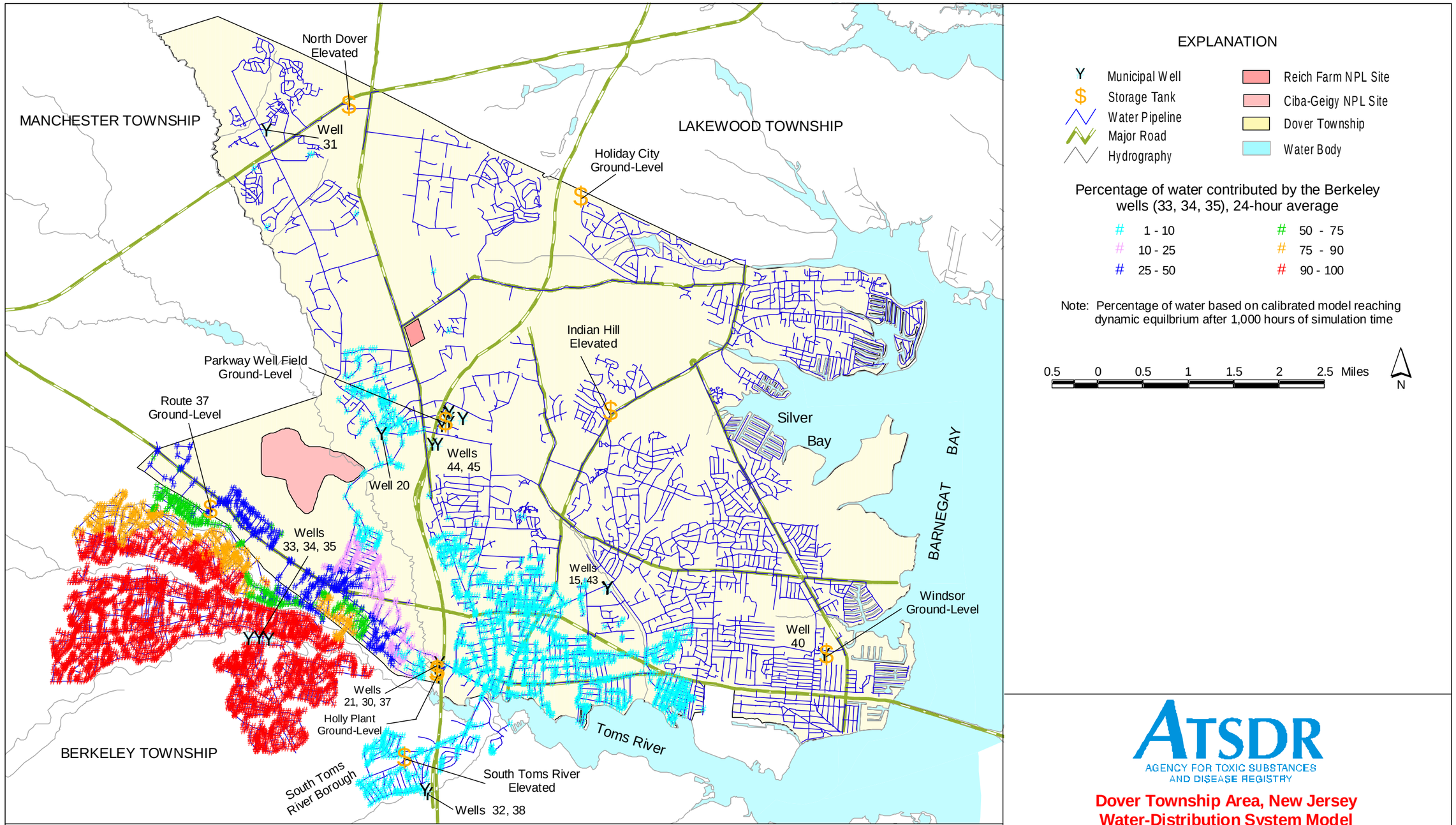

PLATE 17. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE BERKELEY WELLS (33, 34, 35) TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY AUGUST 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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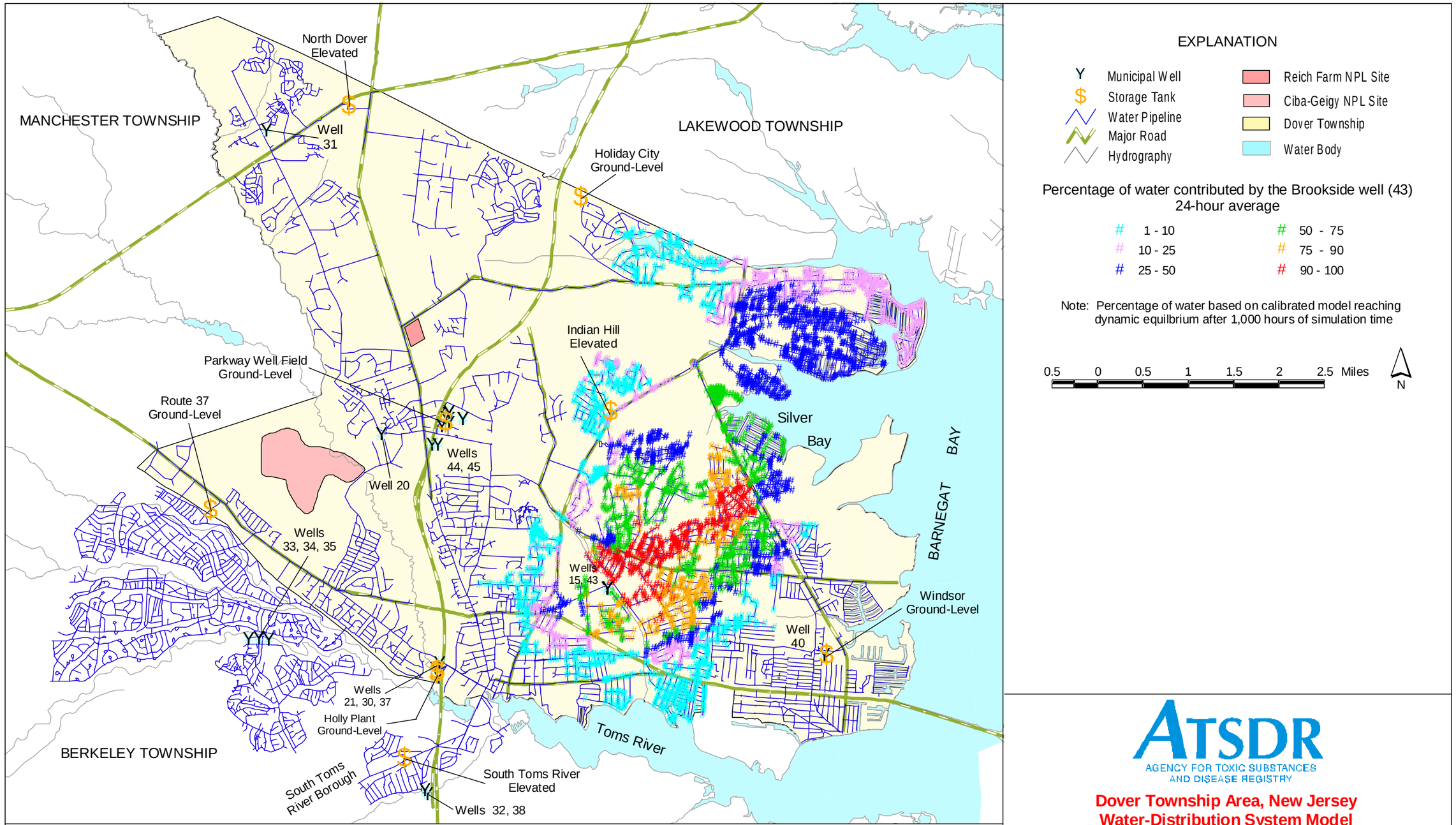

PLATE 18. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE BROOKSIDE WELL (43) TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY AUGUST 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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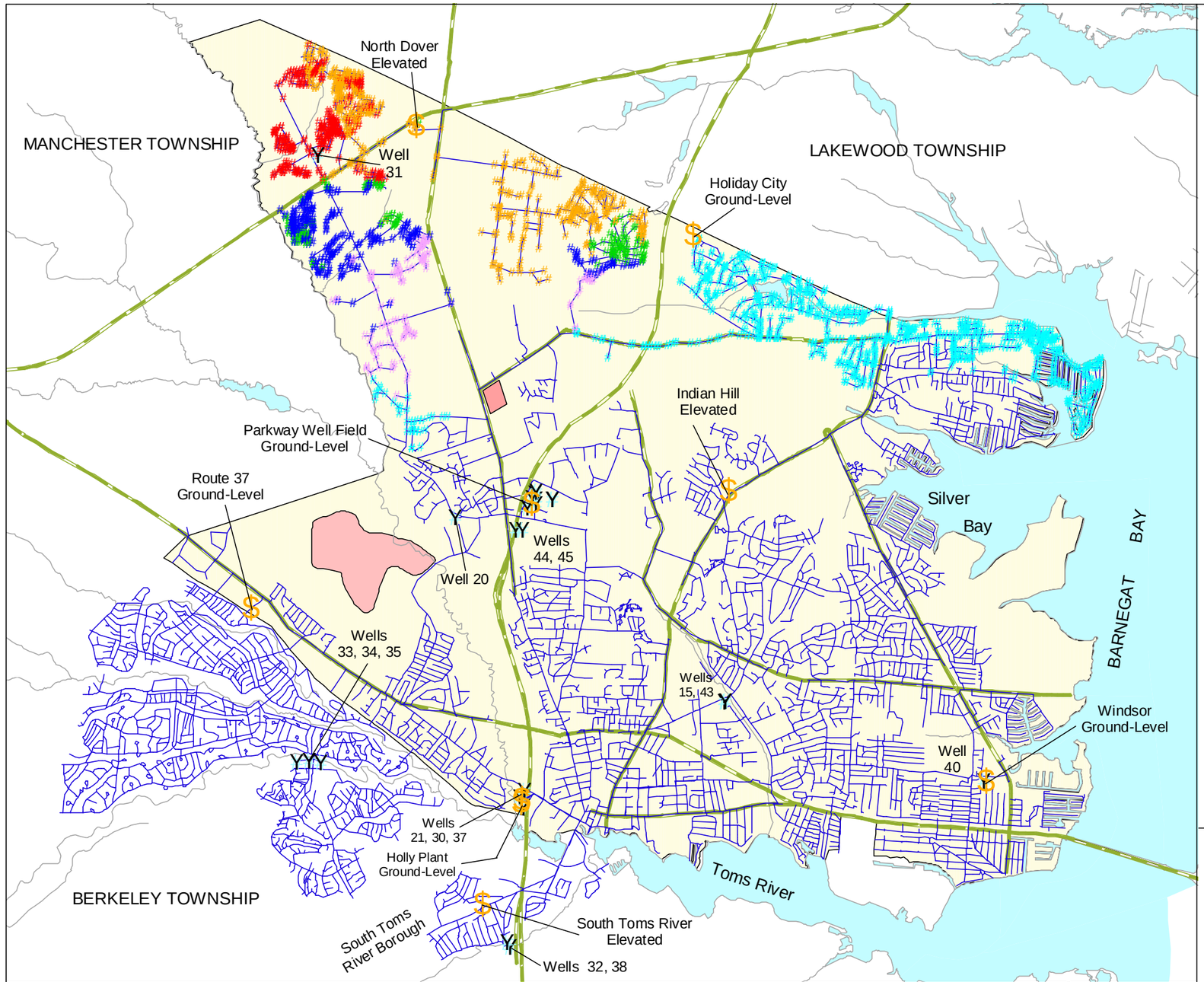

EXPLANATION

- Y Municipal Well
- $ Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Percentage of water contributed by the Route 70 well (31) 24-hour average

- # 1 - 10
- # 10 - 25
- # 25 - 50
- # 50 - 75
- # 75 - 90
- # 90 - 100

Note: Percentage of water based on calibrated model reaching dynamic equilbrium after 1,000 hours of simulation time

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 19. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE ROUTE 70 WELL (31) TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY AUGUST 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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Dover Township Area, New Jersey Water-Distribution System Model

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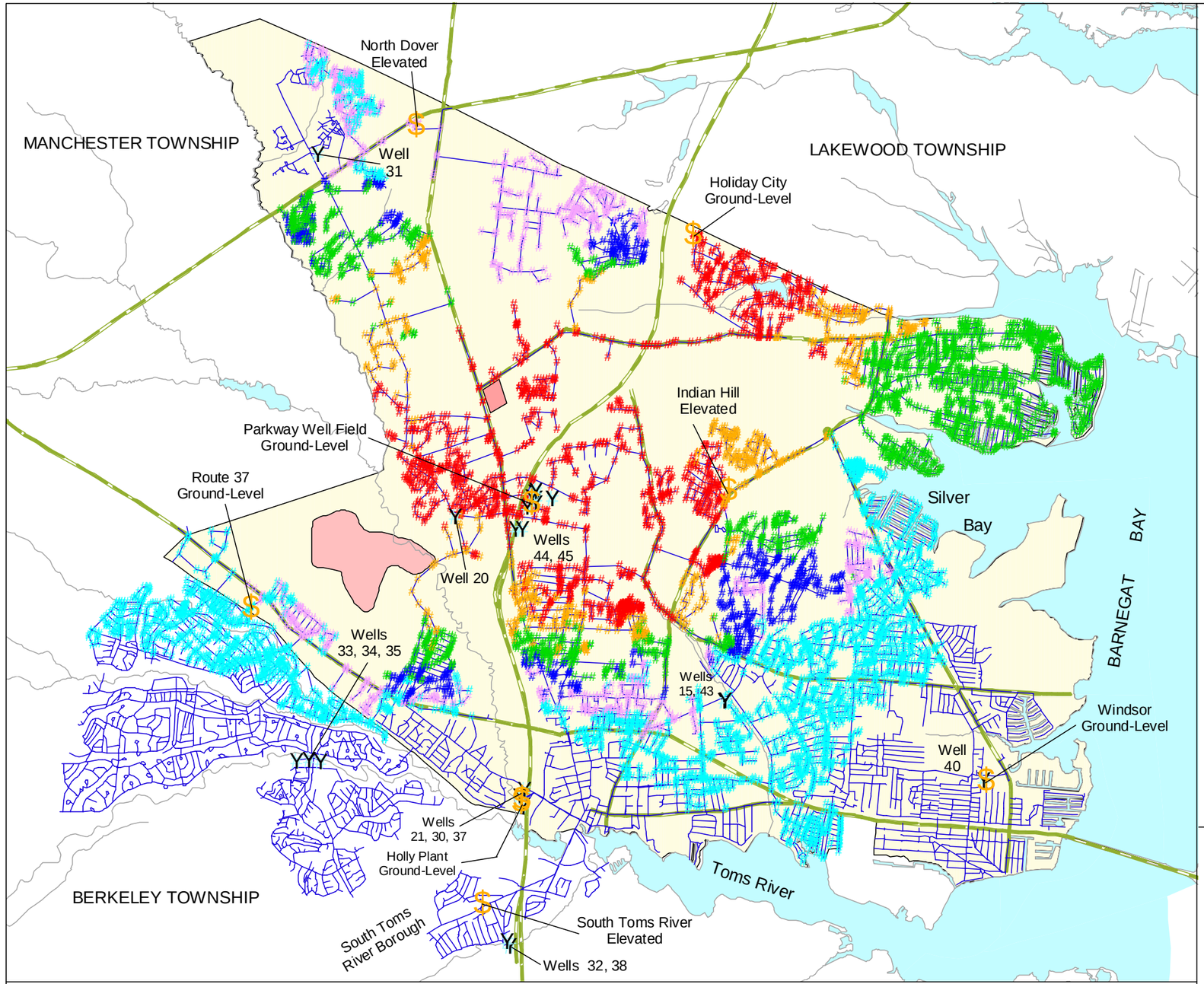

EXPLANATION

- Y Municipal Well
- $ Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Percentage of water contributed by the Parkway well field ground-level storage tank, 24-hour average

- # 1 - 10
- # 10 - 25
- # 25 - 50
- # 50 - 75
- # 75 - 90
- # 90 - 100

Note: Percentage of water based on calibrated model reaching dynamic equilbrium after 1,000 hours of simulation time

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 20. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE PARKWAY WELL FIELD GROUND-LEVEL STORAGE TANK TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY AUGUST 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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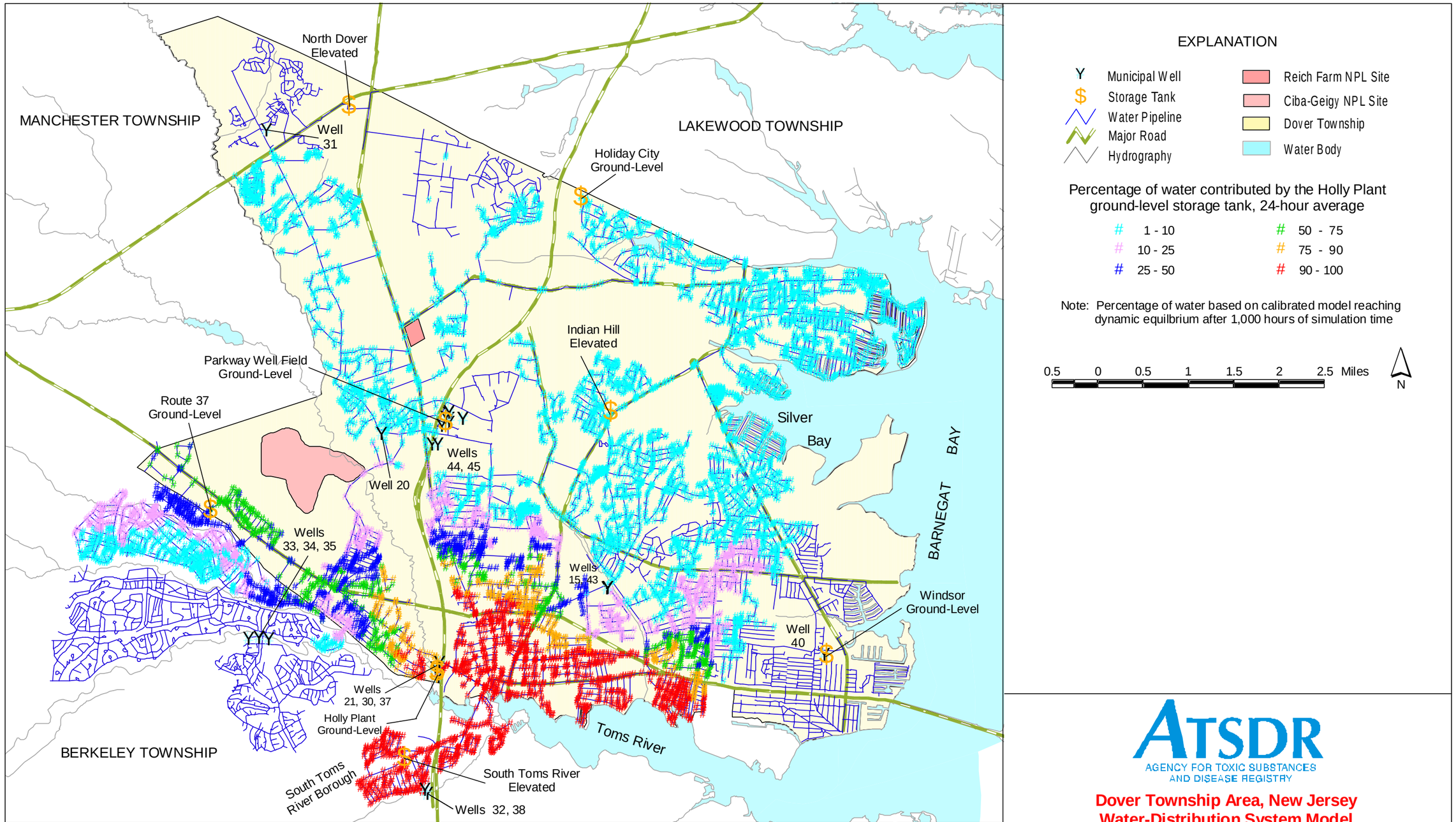

PLATE 21. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE HOLLY PLANT GROUND-LEVEL STORAGE TANK TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY AUGUST 1998 CONDITIONS

By Morris L. Maslia, Jason B. Sautner, and Mustafa M. Aral

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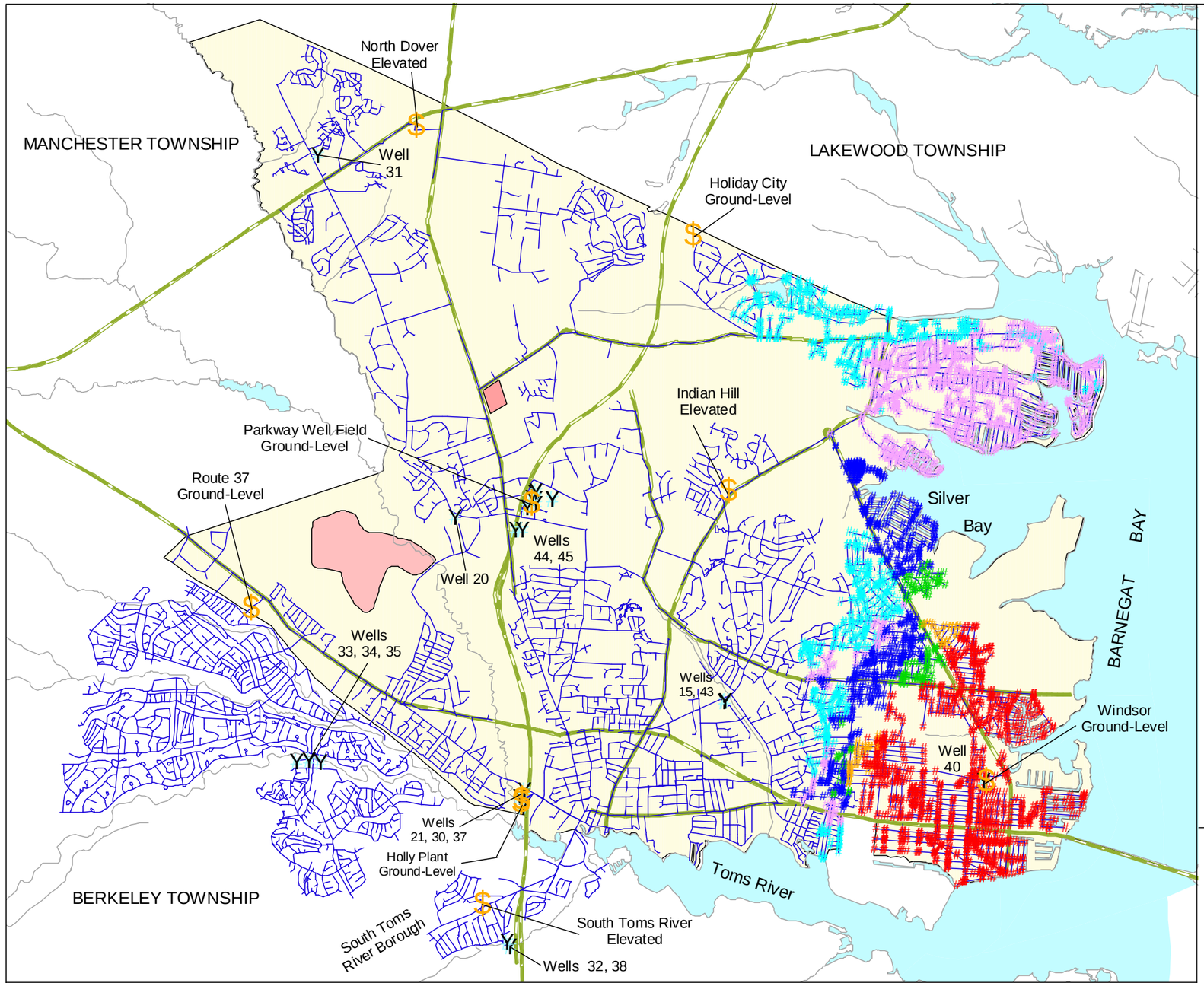
Dover Township Area, New Jersey Water-Distribution System Model

Maslia ML, Sautner JB, Aral MM. 2000. Analysis of the 1998 water-distribution system serving the Dover Township area, New Jersey: field-data collection activities and water-distribution system modeling. Atlanta: Agency for Toxic Substances and Disease Registry, June 2000.



EXPLANATION

- Municipal Well
- Storage Tank
- Water Pipeline
- Major Road
- Hydrography
- Reich Farm NPL Site
- Ciba-Geigy NPL Site
- Dover Township
- Water Body

Percentage of water contributed by the Windsor ground-level storage tank, 24-hour average

- 1 - 10
- 10 - 25
- 25 - 50
- 50 - 75
- 75 - 90
- 90 - 100

Note: Percentage of water based on calibrated model reaching dynamic equilbrium after 1,000 hours of simulation time

0.5 0 0.5 1 1.5 2 2.5 Miles

N

PLATE 22. AREAL DISTRIBUTION OF SIMULATED PROPORTIONATE CONTRIBUTION OF WATER FROM THE WINDSOR GROUND-LEVEL STORAGE TANK TO LOCATIONS IN THE DOVER TOWNSHIP AREA, NEW JERSEY AUGUST 1998 CONDITIONS

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