University at Buffalo
The State University of New York

Tonawanda Coke Soil Study

Phase 2 Maps

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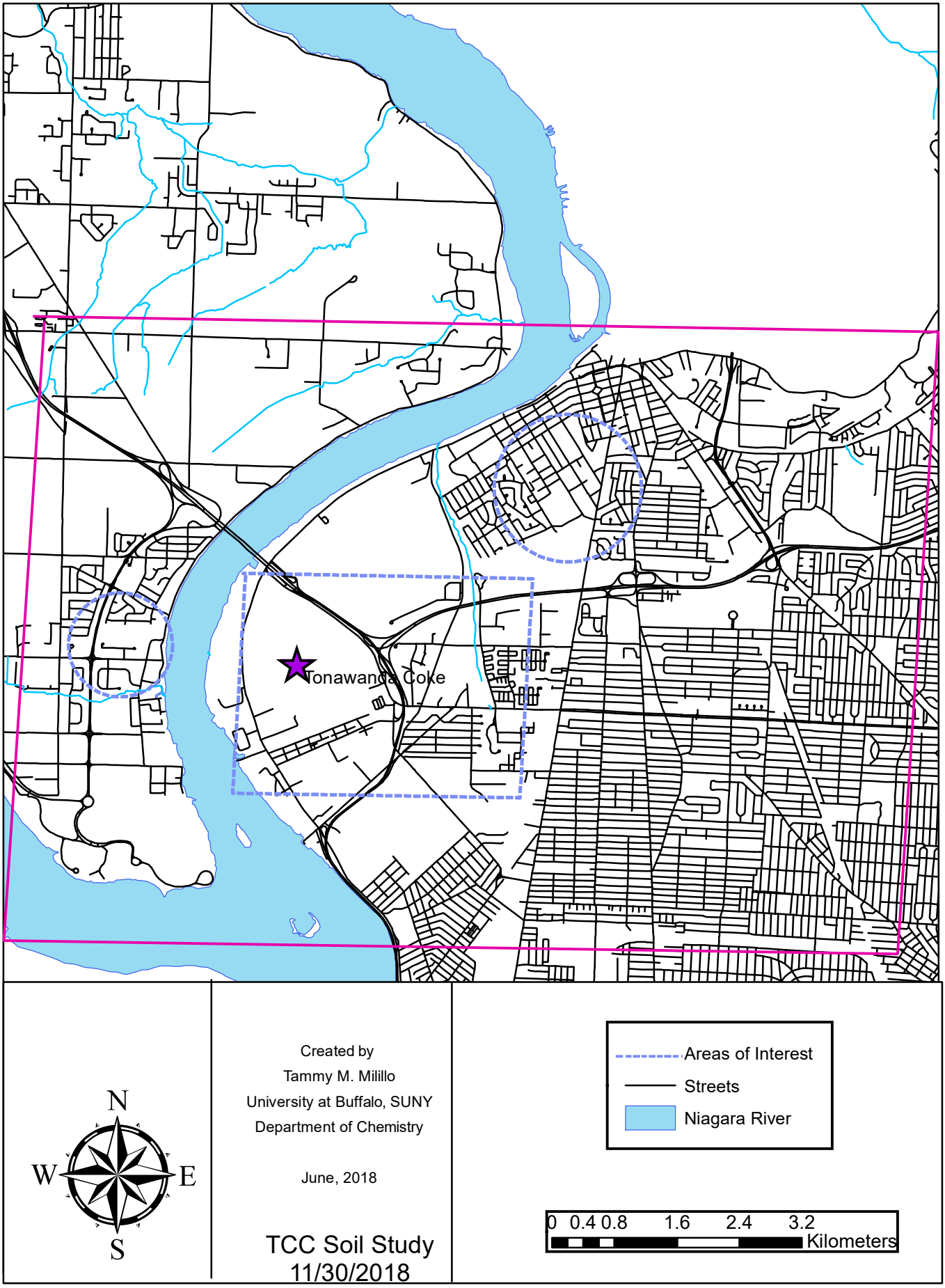
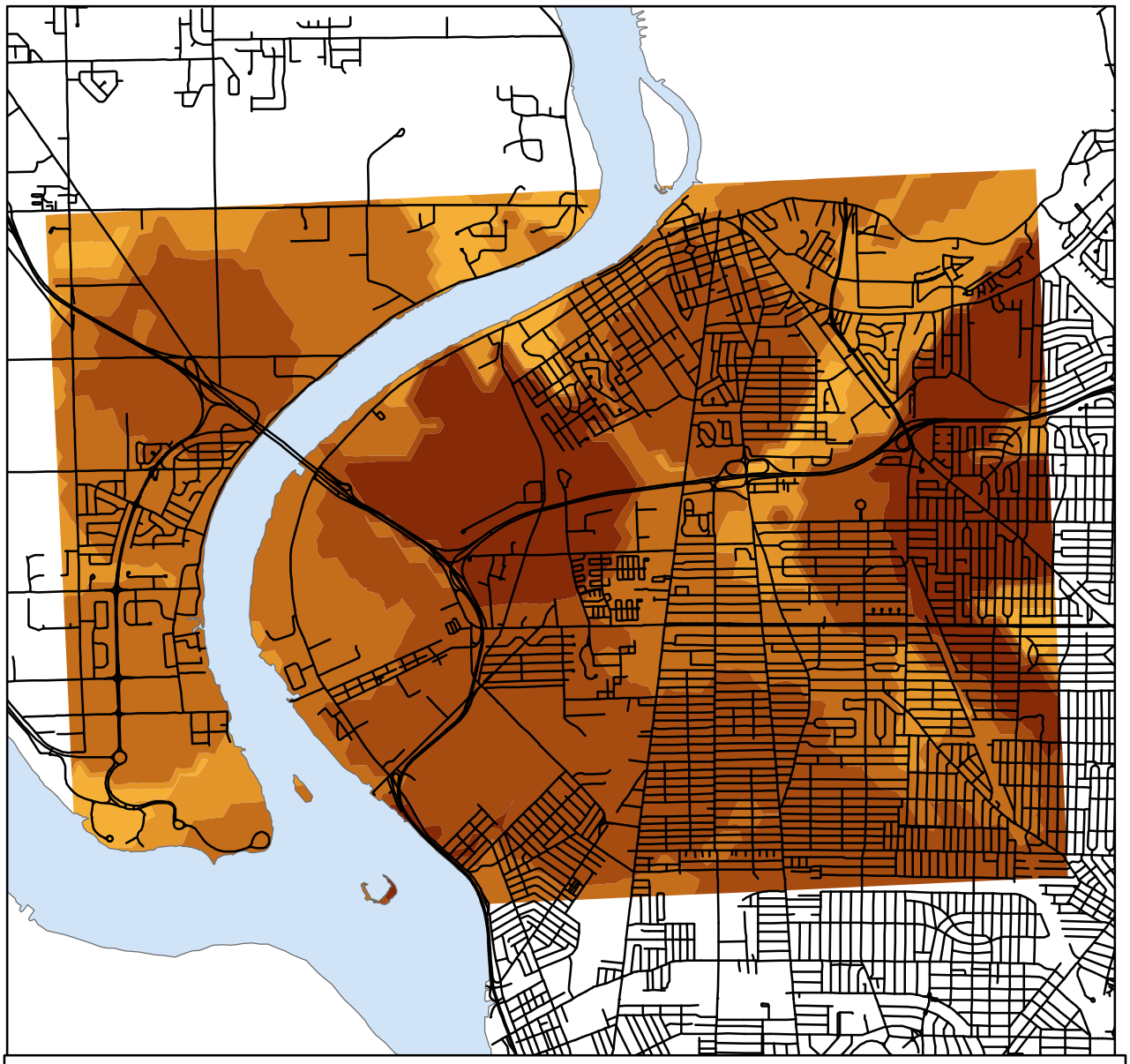
On the following page 3 is a map showing the Tonawanda Coke Soil Study area. The Tonawanda Coke Plant is marked with a star. The solid pink line indicates the boundary of the study area, where soil samples have been taken in Phase I sampling. Dashed blue lines indicated regions of interest (ROIs) that soil study researchers investigated in Phase II sampling based on mapping results in Phase I. The boundaries of the ROIs were tested in Phase II sampling by taking samples on both sides of the boundaries. Credit: Dr. Tammy Milillo/Tonawanda Coke Soil Study


Tonawanda Coke
N
W
E
S
Created by
Tammy M. Milillo
University at Buffalo, SUNY
Department of Chemistry
June, 2018
TCC Soil Study
11/30/2018
Areas of Interest
Streets
Niagara River
0 0.4 0.8 1.6 2.4 3.2
Kilometers

On the following page 5 is a map of Benzo[a]pyrene (BAP) equivalents in mg/kg. The map shows the modeled surface, as the color darkens, the predicted concentration of BAP equivalents increases. Samples taken on properties owned by the Town of Tonawanda and the City of Tonawanda are excluded, due to lack of permission from elected officials. BAP equivalents are a measure used by the EPA to evaluate polycyclic aromatic hydrocarbon (PAH) concentrations. The TCC soil study used an SCO of 1 mg/kg for BAP equivalents. Intervals below the SCO are of no immediate concern to residents. Intervals which contain values above the SCO do not directly correlate to risk. Credit: Dr. Tammy Milillo/Tonawanda Coke Soil Study



BAP Equivalent Prediction Map

Tonawanda Coke
Soil Study

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Department of Chemistry
April 2019

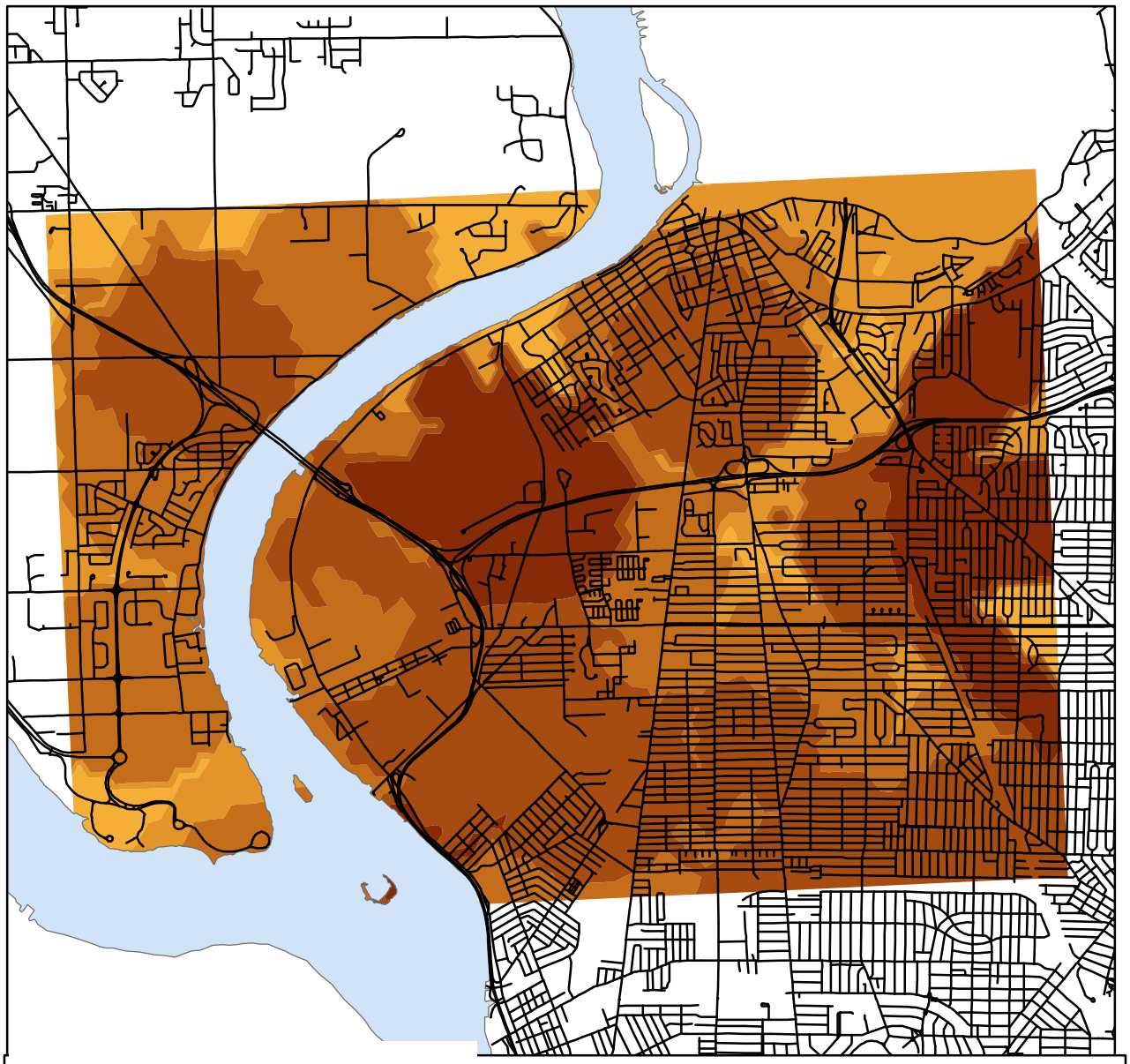
Filled Contours

- 0.07296 – 0.08849112
- 0.08849112 – 0.092899995
- 0.092899995 – 0.094151559
- 0.094151559 – 0.098560433
- 0.098560433 – 0.114091554
- 0.114091554 – 0.168802948
- 0.168802948 – 0.361534485
- 0.361534485 – 1.04046884
- 1.04046884 – 3.43214725
- 3.43214725 – 11.8573

N
W E
S

0 0.75 1.5 3 4.5 6
Kilometers

On the following page 7 is a Map of Benzo[a]pyrene (BAP) in µg/kg. The map shows the modeled surface, as the color darkens, the predicted concentration of BAP increases. Samples taken on properties owned by the Town of Tonawanda and the City of Tonawanda are excluded, due to lack of permission from elected officials. The TCC soil study used an SCO of 1,000 µg/kg for BAP, Intervals below the SCO are of no immediate concern to residents. Intervals which contain values above the SCO do not directly correlate to risk. Credit: Dr. Tammy Milillo/ Tonawanda Coke Soil Study



Benzo(a)pyrene Prediction Map

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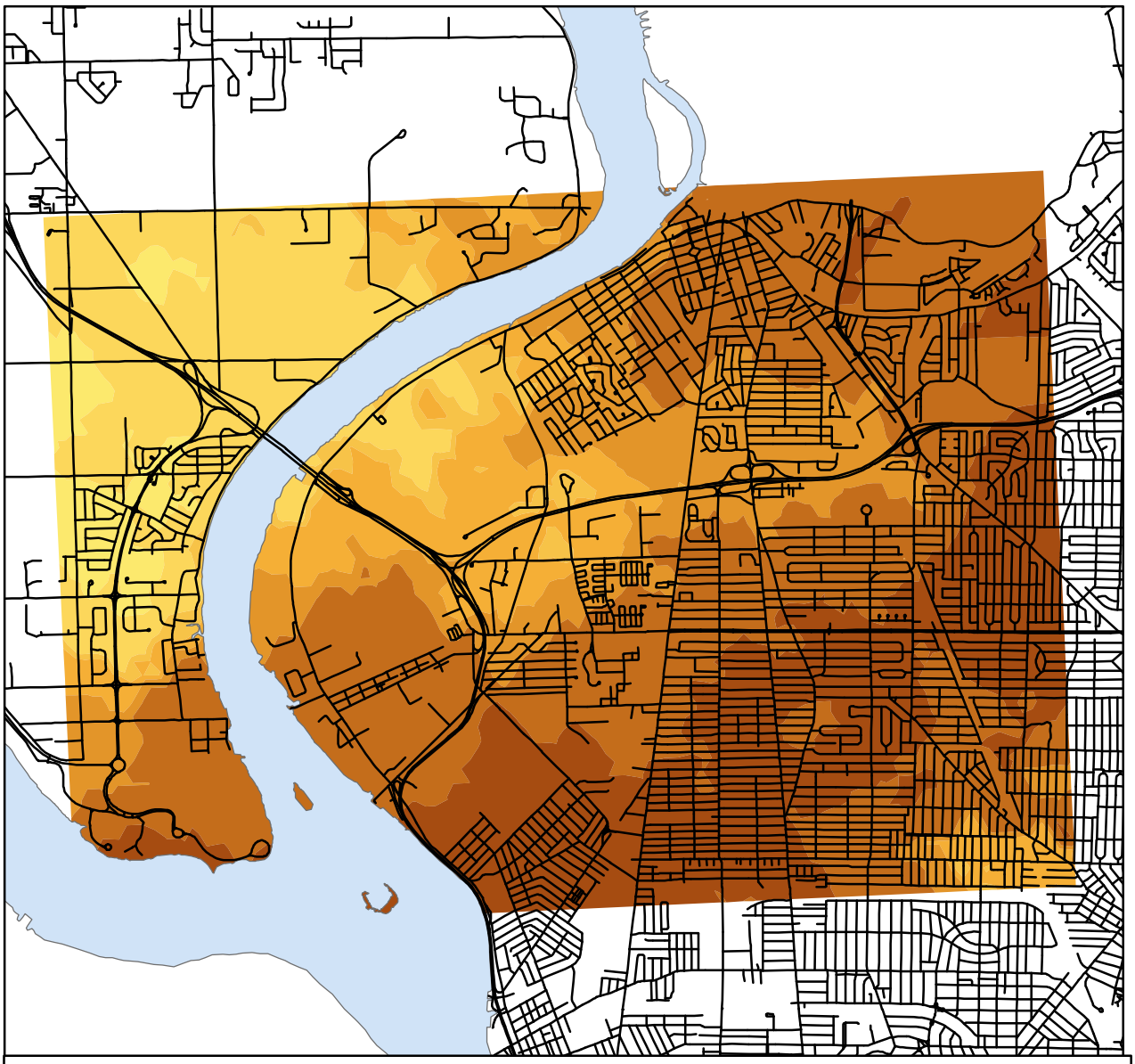
Filled Contours

- 68 – 78.4539453
- 78.4539453 – 81.4215444
- 81.4215444 – 82.2639674
- 82.2639674 – 85.2315665
- 85.2315665 – 95.6855118
- 95.6855118 – 132.511569
- 132.511569 – 262.238524
- 262.238524 – 719.226975
- 719.226975 – 2,329.05775
- 2,329.05775 – 8,000

N
W E
S

0 0.75 1.5 3 4.5 6
Kilometers

On the following page 9 is a map of arsenic in mg/kg. The map shows the modeled surface, as the color darkens, the predicted concentration of arsenic increases. The TCC soil study used an SCO of 8 mg/kg for arsenic. Intervals below the SCO are of no immediate concern to residents. Intervals which contain values above the SCO do not directly correlate to risk. Credit: Dr. Tammy Milillo/Tonawanda Coke Soil Study



Arsenic Prediction Map

Filled Contours

- 3 – 5.01561672
- 5.01561672 – 5.95869304
- 5.95869304 – 6.39994406
- 6.39994406 – 6.60639869
- 6.60639869 – 7.04764972
- 7.04764972 – 7.99072604
- 7.99072604 – 10.0063428
- 10.0063428 – 14.314277
- 14.314277 – 23.521532
- 23.521532 – 43.2

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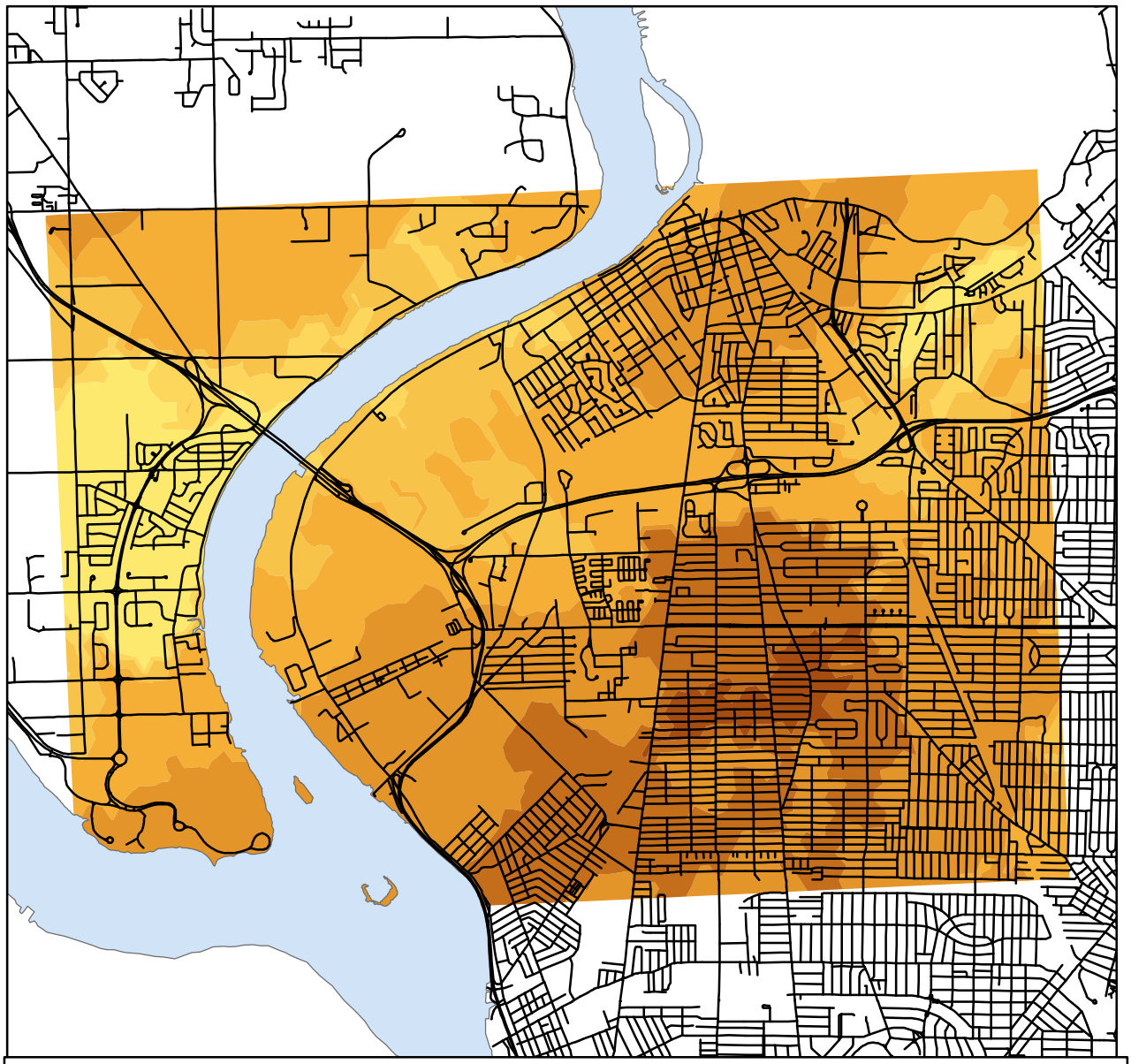
N
W E
S

0 0.75 1.5 3 4.5 6
Kilometers

On the following page 11 is a map of mercury in mg/kg. The map shows the modeled surface, as the color darkens, the predicted concentration of mercury increases. The TCC soil study used an SCO of 0.1 mg/kg for mercury. Intervals below the SCO are of no immediate concern to residents. Intervals which contain values above the SCO do not directly correlate to risk. Credit: Dr. Tammy Milillo/Tonawanda Coke Soil Study



Mercury Prediction Map

Filled Contours

- 0.011 – 0.045527031
- 0.045527031 – 0.059855995
- 0.059855995 – 0.065802617
- 0.065802617 – 0.080131581
- 0.080131581 – 0.114658612
- 0.114658612 – 0.197854849
- 0.197854849 – 0.398324265
- 0.398324265 – 0.881374802
- 0.881374802 – 2.04533201
- 2.04533201 – 4.85

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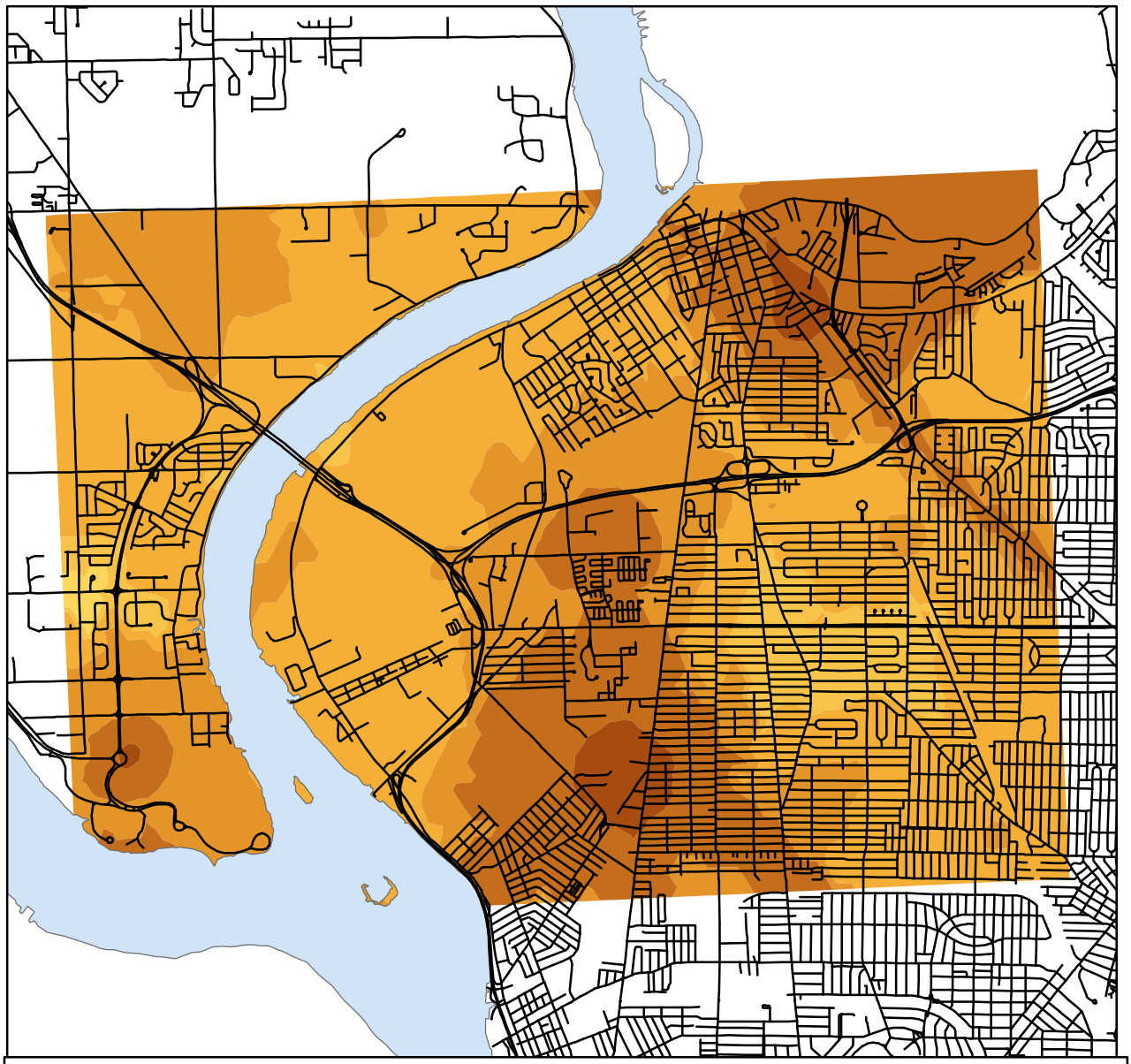
N
W E
S

0 0.75 1.5 3 4.5 6
Kilometers

On the following page 13 is a map of cyanide in mg/kg. The map shows the modeled surface, as the color darkens, the predicted concentration of cyanide increases. The TCC soil study used an SCO of 27 mg/kg for cyanide. Intervals below the SCO are of no immediate concern to residents. Intervals which contain values above the SCO do not directly correlate to risk. Cyanide is not a suspected contaminant from Tonawanda Coke, but it may provide necessary information for distinguishing Tonawanda Coke Corporation impact compared to other industries in the area. Credit: Dr. Tammy Milillo/Tonawanda Coke Soil Study



Cyanide Prediction Map

Filled Contours

- 0.096 – 0.149988526
- 0.149988526 – 0.174749049
- 0.174749049 – 0.18610486
- 0.18610486 – 0.210865382
- 0.210865382 – 0.264853909
- 0.264853909 – 0.382571981
- 0.382571981 – 0.639247712
- 0.639247712 – 1.19891055
- 1.19891055 – 2.41921485
- 2.41921485 – 5.08

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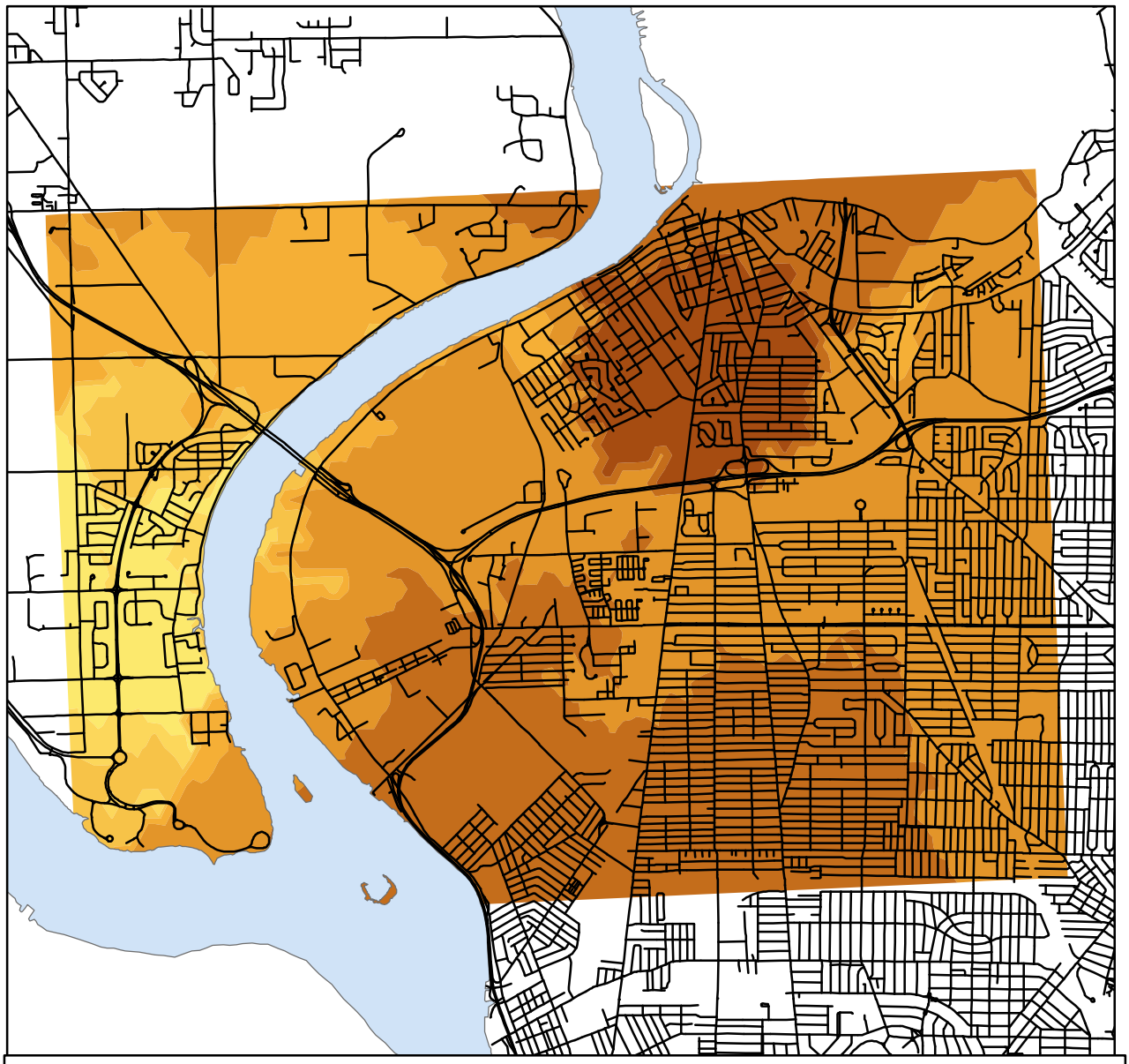
N
W E
S

0 0.75 1.5 3 4.5 6
Kilometers

On the following page 15 is a map of lead in mg/kg. The map shows the modeled surface, as the color darkens, the predicted concentration of lead increases. The TCC soil study used an SCO of 200 mg/kg for lead. Intervals below the SCO are of no immediate concern to residents. Intervals which contain values above the SCO do not directly correlate to risk. Credit: Dr. Tammy Milillo/Tonawanda Coke Soil Study



Lead Prediction Map

Filled Contours

- 11.3 – 24.5194597
- 24.5194597 – 29.2893169
- 29.2893169 – 31.0103809
- 31.0103809 – 35.7802381
- 35.7802381 – 48.9996978
- 48.9996978 – 85.6368779
- 85.6368779 – 187.175291
- 187.175291 – 468.58476
- 468.58476 – 1,248.49934
- 1,248.49934 – 3,410

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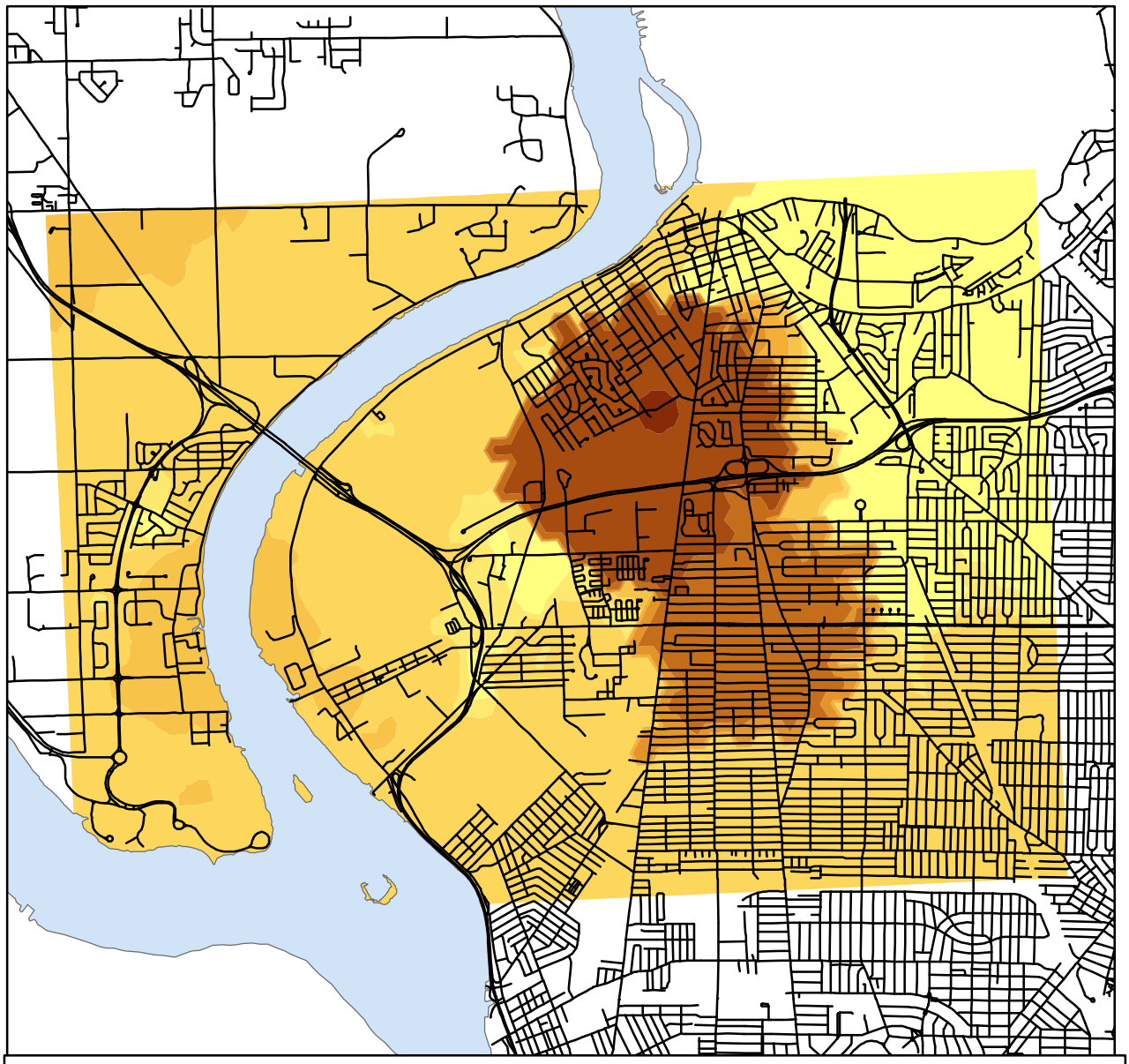
N
W E
S

0 0.75 1.5 3 4.5 6
Kilometers

On the following page 17 is a map of Arochlor 1016 (a polychlorinated biphenyl (PCB) in µg/kg. The map shows the modeled surface, as the color darkens, the predicted concentration of Arochlor 1016 increases. The TCC soil study used an SCO of 9000 µg/kg for Arochlor 1016. Intervals below the SCO are of no immediate concern to residents. Intervals which contain values above the SCO do not directly correlate to risk. Credit: Dr. Tammy Milillo/Tonawanda Coke Soil Study



Archlor 1016 Prediction Map

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Filled Contours

- 36 – 39.1519045
- 39.1519045 – 40.1019398
- 40.1019398 – 43.2538443
- 43.2538443 – 53.7108269
- 53.7108269 – 88.4036561
- 88.4036561 – 203.503054
- 203.503054 – 585.365004
- 585.365004 – 1,852.25737
- 1,852.25737 – 6,055.38959
- 6,055.38959 – 20,000

N
W E
S

0 0.75 1.5 3 4.5 6
Kilometers