EXHIBIT 3

Declaration of Jared Webb

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

CONCERNED PASTORS FOR SOCIAL ACTION, et al.,

Plaintiffs,

v.

NICK A. KHOURI, et al.,

Defendants.

/

Case No. 16-10277

Hon. David M. Lawson

DECLARATION OF JARED WEBB

I, Jared Webb, declare as follows:

1. I am a data scientist and applied mathematician. I hold an M.S. in mathematics from Brigham Young University. I also hold a B.S. in mathematics, with a minor in computer science, from Brigham Young University.

2. My expertise is in data analysis and mathematics. I have worked as a data scientist for the past six years. As a data scientist, I have a comprehensive understanding of the math behind predictive models, which are algorithmic computer models that use statistics to predict outcomes, like the location of a lead or galvanized steel service line. I have extensive experience using computer

programs to clean, process, and analyze data so that it can be used for predictive modeling. I have published several papers in the field of data science.

3. Currently, I serve as the Chief Data Scientist at BlueConduit, a water infrastructure analytics consulting company that uses data and machine learning, including through predictive models, to improve public health. BlueConduit primarily helps cities and utilities locate and remove lead service lines. BlueConduit was co-founded in 2019 by Dr. Eric Schwartz and Dr. Jacob Abernethy, with whom I previously collaborated to create a statistical model that predicts the likely material of water service lines in Flint, Michigan. My *curriculum vitae* is attached as Exhibit A to this Declaration.

4. I have been analyzing Flint service line excavation and replacement data since 2016, first as a researcher at University of Michigan, and now in my role as a data scientist at BlueConduit.

5. In 2015, I began working with Drs. Abernethy and Schwartz to build a statistical model to predict the locations of lead and galvanized steel water service lines in Flint, Michigan. The model, described in further detail in a declaration filed by Dr. Schwartz in this case on October 1, 2018 (ECF No. 203-4), works by generating a probability (between 0 and 1) that a lead or galvanized steel service line is present at a home. The model generates those probabilities based on information about that home, including its address, age, assessed value, the zoning

of the property, the type of fire hydrant closest to the home (if available), and old City records of the home's service line composition (if available). The model has an Area Under the Receiver Operating Characteristic (AUROC) score of nearly 0.92, which means that, if you considered a home with a lead or galvanized steel service line and a home with a copper service line and asked the model to tell you which one is which, the model would be correct 92% of the time. A peer-reviewed paper published in 2018 describing the Flint model in more detail can be found at ECF No. 203-4, Exhibit B.

6. In 2016, we began helping the City of Flint (City) with the initial stages of its service line replacement program. In 2016 and 2017, I understand that the City used our statistical model to help guide its service line excavation and replacement work. As part of our collaboration with the City, we received data from the City on 55,893 homes in Flint, including addresses, parcel identifiers, property values, home age, and information concerning what the City's records said, if anything, about each home's service line material. A "parcel identifier" is a unique number assigned to a home by the local tax assessment office for tax, title, and deed purposes. We used this data to help build our predictive model.

7. It is my understanding that the City stopped using the model to predict the location of lead and galvanized steel service lines in 2018. However, pursuant to an order issued by this Court in March 2019 (ECF No. 208), I understand that

the City is required to use our model to prioritize service line work at about 4,000 homes that our model predicted to have the highest likelihood of having a lead or galvanized steel service line. I helped generate the list of roughly 4,000 addresses that Plaintiffs provided to the City in spring 2019 pursuant to the Court's March 2019 Order.

8. Plaintiffs regularly send me service line excavation and replacement data that they receive from the City of Flint pursuant to the Settlement Agreement in this case.

9. It is my understanding that I have all service line excavation and replacement data Plaintiffs have received from the City as of August 27, 2020, which includes all excavation and replacement data through July 14, 2020. The data I received from Plaintiffs typically includes, for each home where the City reports a service line excavation and/or replacement, the parcel identifier and address of the home, the date the home's service line was excavated or replaced, and the original material on the public side and private side of the service line. For certain addresses reported in these datasets, some of these informational elements have been left blank.

10. If I have not received any service line excavation or replacement data for a home, I assume that home has not yet received a service line excavation or replacement. For purposes of this analysis, I have also assumed that if I do not

have a date of excavation or replacement for a home, the home has not yet received an excavation or replacement.

11. In addition to service line excavation and replacement data, I also received the following information from Plaintiffs:

- a spreadsheet listing addresses of homes in the University Park and Smith Village neighborhoods in Flint, file titled, "University Park Smith Village Addresses.xlsx" (the "University Park/Smith Village spreadsheet");

- several spreadsheets that I understand, together, comprise all of the data reported to Plaintiffs by the City concerning outreach visits the City has conducted at homes in Flint to obtain permission to conduct a service line excavation;

- a spreadsheet labeled, "2020-06-30 Non-Responsive Addresses" (the "Non-Responsive List"), which I understand to be a list of homes where the City has made outreach attempts to obtain residents' permission to conduct a service line excavation, but where the City has not yet received a response from the resident; and

- a spreadsheet labeled, "2020.08.31 Consent Attempt Summary," which I understand to be an annotated version of the Non-Responsive List. Certain homes on the spreadsheet are highlighted. Plaintiffs informed me that the highlighted homes represent homes that did not receive the in-person outreach required by the Settlement Agreement.

12. Plaintiffs asked me to analyze the data I received from Plaintiffs and the City and provide the following information: (1) a list of all residential addresses in Flint that are eligible to receive a service line excavation under the Settlement Agreement and have not yet received a service line excavation,

including each home's probability of having a lead or galvanized steel service line; (2) a list of all addresses on the Non-Responsive List, including each home's probability of having a lead or galvanized steel service line; (3) a list of all addresses on the Consent Attempt Summary spreadsheet, including each home's probability of having a lead or galvanized steel service line; (4) a list of all addresses on the University Park/Smith Village spreadsheet that are eligible to receive a service line excavation under the Settlement Agreement, including each home's probability of having a lead or galvanized steel service line, and whether it was on the prioritization list Plaintiffs provided to the City pursuant to the Court's March 2019 Order; and (5) the total number of excavations and replacements that have been completed by the City as of July 14, 2020, the latest date for which I have data.

13. The information requested by Plaintiffs is described in further detail below. The results of my analysis reflect the data that I received from the City (either directly or through Plaintiffs). However, I cannot verify the accuracy or completeness of the underlying data that was provided by the City.

14. To create a list of all residential addresses (including probabilities) in Flint that are eligible to receive a service line excavation under the Settlement

Agreement[1] that have not yet received a service line excavation, I used a computer program to extract parcel identifiers for all eligible homes for which I do not have any data showing a date of service line excavation or replacement for that home. I input these parcel identifiers into the model, and the model provided a probability (from 0 to 1) that each home has a lead or galvanized steel service line.[2] To create a list of all residential addresses (including probabilities) in Flint that received a service line excavation but have not yet received a service line replacement even though the excavation uncovered a lead or galvanized steel service line, I used a computer program to extract parcel identifiers for all homes for which I have data showing an excavation date and data showing that the service line material is lead

[1] I understand that a home is eligible to receive a service line excavation and replacement under the Settlement Agreement if the resident had an active water account as of March 2017 or currently has an active water account. For purposes of the analysis in this Declaration, I assumed that a home is eligible for a service line excavation if it was listed in a spreadsheet I received from Plaintiffs titled "FAST START ACCOUNTS 08-10-20 – ACTIVE," which I understand to be a list of all Flint addresses with active water accounts as of August 10, 2020. I also assumed that a home is eligible for a service line excavation if it was listed in two spreadsheets provided by the City as part of the data exchange pursuant to the Court's 2019 Order (titled "Post-3.28.17 Shutoff List" and "Phase VI Addresses – Para 13 Data"), which I understand to be lists of all unexcavated Flint homes eligible for a service line excavation as of February 2019.

[2] For purposes of the analysis in this Declaration, the probabilities are based on the most updated version of the model. The model "learns" from observed data about the actual composition of service lines in Flint discovered from excavations, and the model refines its predicted probabilities over time. For this reason, the probabilities that inform the analysis here may be slightly modified from the probabilities that informed the list of 4,000 addresses provided to the City in 2019.

or galvanized steel but for which I do not have data showing a date of replacement.

15. The results of my analysis show that there are 91 homes in Flint that received an excavation that uncovered a lead or galvanized steel service line, but for which there is no date of service line replacement. There are 4,714 homes in Flint that are eligible to receive a service line excavation under the Settlement Agreement that have not yet received a service line excavation. Of those 4,714 homes, the model predicts that 1,237 homes have a greater than 50% probability of having a lead or galvanized steel service line. The model predicts that 583 homes have a greater than 90% probability of having a lead or galvanized steel service line.

16. The model predicts that there are 1,540 remaining lead or galvanized steel service lines in Flint at homes that are eligible to receive a service line excavation under the Settlement Agreement. I calculated this total by adding the probabilities for all eligible homes in Flint that have not yet received a service line replacement.

17. To create a list of probabilities for all addresses on the Non-Responsive List, I used a computer program to extract the parcel identifiers for all homes on the list. I then input these parcel identifiers into the model, and the model provided a probability (from 0 to 1) that each home has a lead or galvanized steel service line.

18. The results of my analysis show that 207 homes on the Non-Responsive List have a greater than 25% probability of having a lead or galvanized steel service line. Of those, the model predicts that 165 homes have a greater than 75% probability of having a lead or galvanized steel service line.

19. To create a list of probabilities for all addresses on the Consent Attempt Summary spreadsheet, I used a computer program to extract the parcel identifiers for all homes on the list. I then input these parcel identifiers into the model, and the model provided a probability (from 0 to 1) that each home has a lead or galvanized steel service line.

20. The results of my analysis show that 87 homes on the Consent Attempt Summary spreadsheet have a greater than 25% probability of having a lead or galvanized steel service line. Of those, the model predicts that 63 homes have a greater than 75% probability of having a lead or galvanized steel service line.

21. To create a list of probabilities for all addresses on the University Park/Smith Village spreadsheet, I first used geospatial data and a computer program tool to obtain the parcel identifier for each address on the spreadsheet, because the spreadsheet did not include the parcel identifier for each home. This step allows me to match the addresses on the spreadsheet to the information in the model. I then used a computer program to remove any addresses that are not

eligible to receive a service line excavation under the Settlement Agreement. The City's spreadsheet listed 307 homes, but after I removed homes that are not eligible to receive a service line excavation under the Settlement Agreement, 180 homes remained. I input these 180 remaining parcel identifiers into the model, and the model provided a probability (from 0 to 1) that each home has a lead or galvanized steel service line.

22. Out of the 180 homes listed in the University Park/Smith Village spreadsheet that are eligible to receive a service line excavation under the Settlement Agreement, the model predicts that 54 have a greater than 25% probability of having a lead or galvanized steel service line. Of those, the model predicts that 20 homes have a greater than 50% probability of having a lead or galvanized steel service line.

23. Considering all 180 addresses on the University Park/Smith Village spreadsheet that are eligible to receive a service line excavation under the Settlement Agreement, the model predicts that there are 48 unexcavated lead or galvanized steel service lines. I calculated this total by adding the probabilities for all eligible homes on the University Park/Smith Village spreadsheet that have not yet received a service line excavation. The model expects to find 132 copper service lines at eligible addresses on the University Park/Smith Village spreadsheet.

24. The service line excavation and replacement data I received from the City shows that eight homes listed on the University Park/Smith Village spreadsheet have received service line excavations. Three of those homes needed their service lines replaced because the service lines were made of lead or galvanized steel.

25. In 2016, I received a spreadsheet from the City containing parcel identifiers for each home in Flint and a column with service line material information for each home, if known. I understand that the service line material information on the spreadsheet is based on certain historical records, including maps and other documents. According to this 2016 spreadsheet, 65 homes on the University Park/Smith Village spreadsheet that are eligible to receive a service line excavation under the Settlement Agreement have records showing that the service line material is "galvanized steel or other." This 2016 spreadsheet also shows that 54 homes on the University Park/Smith Village spreadsheet that are eligible to receive a service line excavation under the Settlement Agreement have records showing that the service line material is "unknown."

26. To determine the total number of service line excavations that the City has completed as of July 14, 2020, which I understand to be the latest date for which I have service line excavation data, I used a computer program to add the total number of parcel identifiers for which the data shows a service line excavation has been completed. I used a similar method to determine the total number of service line replacements as of July 14, 2020, using the data for service line replacements.

27. The results of my analysis show that the City has completed about 25,910 service line excavations as of July 14, 2020, and has completed about 9,613 service line replacements as of July 14, 2020.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: September 3, 2020

Jared Webb

EXHIBIT A

JARED WEBB

Berkeley, CA
(801) 709-0637 jared@blueconduit.com

EDUCATION

Brigham Young University
M.S Mathematics *August 2013*
Thesis: A Topics Analysis Model for Health Insurance Claims

B.S. Mathematics *December 2011*
Minor Computer Science

EXPERIENCE

Chief Data Scientist, BlueConduit *2019-Present*
BlueConduit uses machine learning to improve public health. We primarily help cities and utilities locate and remove lead service lines. I lead a team of several analysts and data scientists executing this work.

Data Scientist, University of Michigan *2016-Present*
I develop predictive models that locate lead service lines with my colleagues for the City of Flint and Natural Resources Defense Council. Our work has been utilized by the city and is an exhibit in *Concerned Pastors et al vs. Khousi*, a lawsuit filed by the NRDC. Our recent paper was awarded Best Paper for Applied Data Science at KDD 2018.

Data Scientist, Conscious Insights *2017-2018*
I worked as a consultant for mindfulness technology companies. I analyzed time series data from wearable hardware and click by click user activity on mobile apps. I communicated my results in C-level technical reports.

Doctoral Research, Brigham Young University *2013-2018*
I did research on mathematical foundations of deep neural networks, pseudospectral properties of large graphs, and differential decision trees as output layers for deep networks. I also validated and reproduced results of other students and faculty in my research group.

Curriculum Developer, Brigham Young University *2014-2017*
I developed curriculum for the Applied Mathematics program at BYU. Material covered implementing data structures, optimization methods, and machine learning algorithms from scratch.

Intern Analyst, SavvySherpa *2012-2013*
I developed health insurance cost prediction tools using techniques from Natural Language Processing. I also trained and mentored other interns.

Graduate Teaching Assistant, Brigham Young University *2011-2017*
I taught first year calculus and laboratory sections for applied mathematics majors. I also ran office hours for advanced probability and advanced linear algebra sections.

MACHINE LEARNING SKILLS

Fluent	Classification, Regression, Clustering, Natural Language Processing
Conversant	Bayesian Modeling, Computer Vision, Active Learning, Bandit Problems
Libraries	Numpy, Scipy, Pandas, Scikit-Learn, XGBoost, TensorFlow
General	AWS, Google Compute Engine, BigTable, Firebase, Linux, Bash, Git, SQL, JavaScript

CITIZENSHIP

Executive Board, Michigan Data Science Team *2015-2018*
I have served as a team captain and finance chair for MDST. Our projects included predicting lead contamination in Flint, analyzing highway fatalities, and predicting blight compliance in Detroit. I also lead a team that placed in the top 2% of the Kaggle Springleaf Marketing Competition (34th out of 2,226 teams).

Tutor for Non-Traditional Students
I have tutored several non-traditional students that are returning to school for degrees in mathematics and data science.

Pro Bono Data Analyst
I helped researchers from the BYU Political Science Department clean and analyze raw text message data from the UNICEF uReport program in Uganda.

PUBLICATIONS AND PATENTS

1. Flints Data Story: a Government, Corporate, and University Collaboration
   Bloomberg Data for Good Exchange Conference. Sept-2018, New York City, NY, USA.
2. ActiveRemediation: The Search for Lead Pipes in Flint, Michigan
   KDD '18 The 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining. Aug-2018, London, England. **Awarded Best Applied Data Science Paper.**
3. Understanding Blight Ticket Compliance in Detroit
   Data Science for Social Good Conference. Sept-2017, Chicago, IL, USA.
4. Driving with Data: Modeling and Forecasting Vehicle Fleet Maintenance in Detroit
   Bloomberg Data for Good Exchange Conference. Sept-2017, New York City, NY, USA.
5. A Data Science Approach to Understanding Residential Water Contamination in Flint
   KDD '17 The 23rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining. Aug-2017, Halifax, NS, Canada.
6. Flint Water Crisis: Data-Driven Risk Assessments From Residential Water Testing Data.
   Bloomberg Data for Good Exchange Conference. 25-Sep-2016, New York City, NY, USA.
7. Robust Watermarking For Digital Media. U.S. Patent 8,588,461, Issued November 19, 2013.

PERSONAL

I love spending time with my wife, son, and daughter.

I enjoy bread making, fermentation, and bicycle repair.

I lived in Mexico for two years and have decent Spanish.