

DATA TRANSFER AND USE AGREEMENT

THIS DATA TRANSFER AND USE AGREEMENT ("Agreement") is entered into as of the date last signed by a party hereto ("Effective Date") by and between the City of Santa Cruz, ("CITY"), and the Board of Trustees of the Leland Stanford Junior University, on behalf of its School of Engineering, Civil Engineering Operations Division (collectively, "Stanford") with a place of business at 450 Jane Stanford Way, Stanford, California, USA 94305.

WITNESSETH

WHEREAS, CITY's mission includes the support and conduct of research activities to improve the health and wellness of the communities it serves;

WHEREAS, Dr. Sarah Fletcher, Assistant Professor of Civil and Environmental Engineering and Center Fellow at the Woods Institute for the Environment at Stanford ("Stanford Investigator") is conducting a research study entitled, "*Drought Planning and Urban Water Affordability & Access*" (the "Study");

WHEREAS, CITY has agreed to supply Stanford Investigator with certain personally identifiable information ("PII") for purposes of the Study; and

WHEREAS, CITY and Stanford are entering into this Agreement to set forth the parties' obligations with respect to the use of the PII, which constitutes non-clinical, non-medical information (the "Data") as further described in Exhibit A to this Agreement (the "Research Program"), attached hereto and hereby incorporated by reference.

NOW, THEREFORE, for mutual consideration, the sufficiency of which is acknowledged by both parties, the parties incorporate the foregoing recitals and agree as follows:

1. LICENSE GRANT

- 1.1 **License Grant.** Subject to the terms and conditions of this Agreement, CITY grants the Stanford a nonexclusive right to use the Data solely for the Study under the terms of this Agreement and for no other purpose, which shall commence on the Effective Date and conclude on the three (3) year anniversary therefrom (the "Term").
- 1.2 **License Term.** The CITY will make the Data available to Stanford during the Term, which Term may be extended only by advance written agreement of both parties.
- 1.3 **No Other Rights.** This Agreement does not constitute, grant nor confer any license under any patents or proprietary interests of one party to the other, except as explicitly stated herein.

2. DATA

- 2.1 **Personally Identifiable Information (PII).** "Personally Identifiable Information" or "PII" means information or data that (i) identifies an individual, including by name, signature, address, telephone number or other unique identifier, (ii) can be used to identify or authenticate an individual, including passwords, PINs, biometric data, unique identification numbers (e.g., social security numbers), answers to security questions or other personal identifiers, and/or (iii) can be used in combination with other information or data to identify an individual, including but not limited to the individual's gender, race, income, date of birth, geographic location, school or workplace name, group affiliations, mental, emotional or physical characteristics, or other indirect identifiers.
- 2.2 **Ownership.** CITY retains ownership of its Data, including any PII contained therein. CITY retains all rights to distribute the Data to other commercial or non-commercial entities.

3. STANFORD USE OF DATA

- 3.1 **Restrictions.** Stanford will use the Data only for the Study and for no other purpose. If Stanford desires to use or disclose any Data for purposes other than the Study, Stanford must obtain prior written consent from the CITY, either by an amendment to this Agreement or a new agreement.
- 3.2 **Stanford's Confidentiality Obligations.** Stanford agrees to hold and maintain the Data in strictest confidence. Stanford agrees not to disclose or divulge the Data (except as required by law) and shall not use any Data other than as necessary strictly for use as described in this Agreement.

Stanford shall be responsible for Stanford's employees' and agents' compliance with this Agreement. Stanford shall inform its employees and agents of the confidentiality obligations herein and the employees and agents shall limit their access to the Data as is reasonably required. Stanford agrees to have any of its employees and agents who have access to the Data execute an acknowledgement in the form of Exhibit B, indicating their understanding of the nondisclosure restrictions in this Agreement.

- 3.3 **No Further Access or Transfer.** Stanford will not disclose or transfer the Data to any third party, including but not limited to other individuals at Stanford not involved with the Study, without prior written consent from CITY.
- 3.4 **No Re-identification or Contact.** Stanford acknowledges and agrees that: (1) Stanford will not attempt to contact any such individuals whose information comprises the PII or Data for any purpose, and (2) considerable harm may ensue if Stanford (or any recipient of the Data) intentionally or negligently allows the disclosure, release or publication of the PII. In the event Stanford inadvertently receives identifiable information or otherwise identifies an individual the CITY did not wish to disclose, Stanford will promptly notify the CITY and follow CITY's reasonable written instructions, which may include return or destruction of the PII.

3.5 **Data Security.** Stanford will follow data security best practices for receipt, storage and use of Data, and specifically agrees that it will:

- (1) implement and maintain commercially reasonable and appropriate physical, technical, and organizational security measures designed to protect the Data against accidental or unlawful loss, destruction, alteration, unauthorized disclosure or access, and all other unlawful forms of collection or use, consistent with Stanford's Minimum Security Standards set forth at <https://uit.stanford.edu/guide/securitystandards>;
- (2) assist CITY as reasonably requested to respond to requests from government authorities, data subjects, or others to provide information (including details of the activities performed by Stanford) related to Stanford's processing of the Data;
- (3) only process the Data on its systems or facilities to the extent necessary to perform its obligations contemplated by the parties under this Agreement;
- (4) maintain reasonably accurate and up-to-date logs and records of the processing of the Data;
- (5) not lease, sell, distribute, or otherwise encumber the Data for any purpose; and
- (6) promptly notify the CITY of any investigation, litigation, arbitrated matter, or other dispute relating to Stanford's security or privacy practices as it may directly and materially relate to Stanford's performance of its obligations to CITY under this Agreement.

3.6 **Notice of Data Incidents.** Stanford shall without undue delay notify the CITY if any of the following occur:

- (1) any unmitigated, material security vulnerability, or weakness of which Stanford has actual knowledge, in either CITY's or the Stanford's systems or networks that has compromised the Data;
- (2) any successful, imminent or significant threat of unauthorized access, use, disclosure, breach, modification, theft, loss, corruption or destruction of information, or any interference with information technology or system operations, that negatively impacts the confidentiality, integrity, and availability of the Data; or
- (3) any known failure or inability to maintain material compliance with requirements of this Agreement or any applicable law.

3.7 **Reporting.** In consideration of CITY having provided Data, Stanford will report the results of its research with Data to the CITY.

3.8 **Compliance with Law and Policy.** Stanford's use of Data will comply with all applicable federal, state and local laws and regulations. In addition, Stanford represents that all relevant Stanford or institutional policies have been followed, including the completion of any IRB or ethics review or approval that may be required.

4. PUBLICATION

Any publication or presentation of Study results will appropriately cite the contributions of the CITY, using customary standards of scientific attribution. Stanford will provide the CITY with draft publications or presentations of previously unpublished results thirty (30) days before submission for presentation or publication, to enable the CITY to identify and request removal of PII or confidential information, if applicable.

5. GENERAL PROVISIONS

- 5.1 **Publicity.** Stanford acknowledges and understands that the PII contained in the Data is not to be disclosed or reproduced in any manner, or shared with any third party, in any form of media, including any social media network, absent the express prior written consent of CITY. Neither party will use the name or trademark of the other party, or the names of the other party's employees, students or agents in any publicity, advertising or announcement related to this Agreement without the prior written consent of the other party's authorized officials.
- 5.2 **No Warranties.** Data is provided by CITY AS IS, WITHOUT ANY WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.
- 5.3 **Liability.** In no event shall CITY be liable for any use by Stanford of Data or results or for any loss, claim, damage, or liability, of any kind or nature (including attorneys' fees and costs), that may arise from or in connection with this Agreement or Stanford's use, handling, or storage of Data.
- 5.4 **Insurance.** Stanford hereby represents and undertakes to CITY that it maintains an adequate program of insurance and/or self-insurance to cover its activities under this Agreement, including but not limited to Data Security and Privacy Liability covering information theft and release of private information. Stanford will maintain commercial general and product liability insurance and/or self-insurance with deductibles and minimum limits of liability in amounts commensurate with industry standards and sufficient to satisfy its obligation hereunder. Evidence of insurance will be provided to CITY upon request.
- 5.5 **Termination.** Either party may terminate this Agreement at any time upon thirty (30) days prior written notice. Within thirty (30) days after the effective date of termination, Stanford will discontinue all use of the Data and related information and return or destroy the Data in accordance with the CITY's reasonable written instructions. Stanford's duty to hold the City's Data in confidence shall survive the completion of work or authorized use relating to this Agreement.
- 5.6 **Notice.** All notices under this Agreement are deemed fully given when written, addressed, and sent as follows:

All notices to CITY are e-mailed or mailed to:

City of Santa Cruz Water Department
Attn: Heidi Luckenbach, Interim Director
212 Locust Street, Suite A
Santa Cruz, CA 95060
hluckenbach@cityofsantacruz.com
831-420-5220

All notices to Stanford are e-mailed or mailed to:

Office of Sponsored Research
485 Broadway
Floor 3
Redwood City, CA 94063
Osr_intake@stanford.edu
Ref. No. AGR879183

- 5.7 **Severability.** If any paragraph, term, condition or provision of this Agreement is found by a court of competent jurisdiction to be invalid or unenforceable, or if any paragraph, term, condition or provision is found to violate or contravene the substantive laws of the State of California, then the paragraph, term, condition or provision so found will be deemed severed from this Agreement, but all other paragraphs, terms, conditions and provisions will remain in full force and effect.
- 5.8 **Integration.** This Agreement, including attached Exhibits, supersedes all prior oral and written proposals and communications, if any, and sets forth the entire agreement of the parties with respect to the subject matter hereof, and may not be altered or amended except in writing, signed by an authorized representative of each party. This Agreement may only be modified in writing by consent of all parties.
- 5.9 **Governing Law.** This Agreement shall be governed and construed in accordance with the laws of the State of California with jurisdiction by the Santa Cruz County Superior Court.
- 5.10 **Authority to Execute Agreement.** The parties to this Agreement, and each of them, represent and warrant that each has the right, power, and authority to execute this Agreement.
- 5.11 **Electronic Copy.** The parties to this document agree that a copy of the original signature (including an electronic copy) may be used for any and all purposes for which the original signature may have been used. The parties further waive any right to challenge the admissibility or authenticity of this document in a court of law based solely on the absence of an original signature.
- 5.12 **Counterparts.** This Agreement may be executed on one or more copies and each counterpart will be considered as original and binding to the party executing it.

[intentionally left blank]

The duly authorized party representatives execute this Agreement.

CITY (CITY OF SANTA CRUZ)

**THE BOARD OF TRUSTEES OF THE
LELAND STANFORD JUNIOR
UNIVERSITY**

Signature:

Signature:

Name:

Name:

Title:

Title:

Date:

Date:

Approved By:

Approved as to form and legality:

Name: _____ Date _____

Name: _____ Date _____

Title:

Title:

I acknowledge that I have read this Agreement in its entirety and will uphold my obligations and responsibilities under this Agreement.

STANFORD INVESTIGATOR

Signature:

Name: **Prof. Sarah Fletcher**

Title: Assistant Professor of Civil and Environmental Engineering &
Center Fellow at the Woods Institute for the Environment

Date:

Exhibit A

Research Program

Data being transferred from Santa Cruz:

The City will provide all available water utility billing data for Santa Cruz Municipal Utilities (“SCMU”) customers over the past decade to Stanford. This dataset will consist of the as-found bill print export file.

Data Management and Security Protocol:

Data Receipt and De-Identification: Performed by Postdoctoral Associate Dr. Ben Rachunok under direct supervision of PI Prof. Sarah Fletcher

- (1) Raw data will be received onto a local machine (endpoint) which meets Stanford’s guidelines for storing High-Risk data, including current BigFix software patches, whole disk encryption, and malware protection. This endpoint will be stored in an access-controlled on-campus location throughout the de-identification process.
- (2) Immediately upon receiving the raw data, we will permanently remove utility account numbers. Each billing entry will have the census block number of its billing and service address added to the data where each Census-designated block contains approximately 500-3000 people.
- (3) Billing addresses and service addresses will be replaced with randomly-generated IDs. A database matching IDs to addresses will be kept on a high-risk compliant endpoint and will be additionally encrypted.
- (4) After anonymizing addresses, we will perform a check for identifiability. If users are still identifiable based on their location (e.g. only one address occurs in a given census block), we will remove the identifiable data. If users are still identifiable based on outlier values of water use or rate paying (e.g. a small handful of accounts use a distinct amount more than others), we will perform [rank-proximity swapping](#) to preserve privacy. RPS is the current standard used by the US Census bureau to maintain privacy for sensitive data such as reported household income. This step will result in a de-identified dataset.

Personnel data security training: Led by PI Fletcher with support from Dr. Rachunok

- (5) Training: Graduate student research assistants under the supervision of Prof. Fletcher will contribute to research analyses but only work with de-identified data; they will not work with PII at any point in the project. Before graduate student research assistants commence work on the de-identified dataset, they will be trained on this data security protocol by Prof. Fletcher and Dr. Rachunok.
- (6) Hardware compliance: All endpoints used by graduate research assistants will be brought compliance with Stanford's high risk data guidelines. This process will be overseen by Prof. Fletcher and Dr. Rachunok.

Analysis and storage of de-identified data: Performed by graduate student research assistants and Dr. Rachunok under supervision of PI Fletcher

- (7) The de-identified dataset meets the University IT definitions of Low-Risk data; however, we will continue to store the data only on high-risk compliant endpoints in access-controlled locations.
- (8) Should additional computation needs be required (e.g. access to high-performance computing), we will utilize Stanford's Sherlock Computing Cluster which is authorized for use with low-risk and moderate-risk data. Only the de-identified data will be transferred and stored temporarily on Sherlock. Additionally, only relevant data fields will be included for any analysis on Sherlock. All data will be deleted from Sherlock after analysis.

Research Overview:

We are receiving residential water billing data from the City of Santa Cruz for the period of approximately a decade. Data will contain monthly residential water use and amount billed for the water use, as well as names and addresses of the account holders (see fields above). This data will be used to model residential water consumption, and identify the factors which influence residential water consumption during droughts. We have two research goals this data will be used to support.

Research objective: Exploratory analysis and predictive modeling of patterns in residential water use

We aim to understand trends in residential water use in households in Santa Cruz and how factors including local hydrology, water policy, and socio-economics influence residential behavior around water use (i.e how much water households use each month). For example, during a drought, Santa Cruz sometimes asks residential users to reduce their water consumption and also charges a higher price for water. We will analyze the data to quantify how much users do reduce their data during droughts. We

are interested in understanding the variation in water use across households, and explaining those variations using public data from external sources such as socio-economic information, housing information, hydrologic data, historical policy changes, etc.

Spatial Scale of Analysis:

Research will be completed at two scales of analysis: household and census block.

At the household-level, we will develop statistical models that quantify and predict variation in household water use and billing as a function of household characteristics and drought conditions. In this analysis, households will be the smallest unit of measure (i.e. the observations in a regression model will be households). However, the location of the household will not be included in the analysis; location data will only be used to identify housing and socio-economic information from other public datasets that will be included in the statistical model. The results of this scale of analysis will be reported in aggregate form. Results will focus on the characteristics of the households and drought conditions which lead to water use and will not include specific geographical information. At no time in the research process will we analyze or report geo-located water use information.

Census block level analysis will be performed to quantify how socio-economic information from census data contribute to household water use and changes in water use in response to droughts. Results will be reported at a census block level, aggregating over many households.

Data fields used in these research objectives:

Data fields used	Role in analysis
Water bill cost per rate-tier	Used to calculate the volumetric water use per month
Meter Read Date, Bill Date	Used to link water use to calendar month
Ready-to-Serve Charges, Rate Stabilization Fees, Water Franchise Taxes, Total Bill Amount	These will be used to calculate the water rate(s) charged to assess the impact of different rates on water use

Service location, Billing Address	<p>We will use location data to identify the census-block of each household so that we can assess the relationship between water use and socio-economic information at the census-block scale.</p> <p>Additionally, we will use the service location to link water bills to data on household characteristics available from external, public datasets (e.g. Zillow) to assess the role of housing size, quality, age, etc. on water use</p>
Dwelling type (Single-family vs. Multi-family), Water user per rate-tier	We will use information about the type of household and number of people living in the household as potential predictors of water use
Previous Balance (past-due account balance)	We will utilize previous balances to assess the extent to which households are behind on paying their water bills, an indicator of unaffordability.

Deliverables and Publications:

The City of Santa Cruz has not requested any specific deliverables. We plan to meet with them regularly to update them on our progress and findings. We will publish the results from our analyses in academic journals and policy briefs. We will only include the results from research analysis in publications. No PII, individual household data, or geo-located household data will be published.


Exhibit B

**ACKNOWLEDGEMENT AND AGREEMENT TO BE BOUND BY TERMS OF
THE DATA TRANSFER AND USE AGREEMENT**

The undersigned declare they have read in its entirety the Data Transfer and Use Agreement entered into between the City of Santa Cruz and Board of Trustees of the Leland Stanford Junior University and fully understand their obligation to adhere to and be bound by its terms.

A scanned, electronic, facsimile or other copy of the undersigned's signature shall be accepted and valid as an original.

Date: 2021/12/06

By: 
(Ben Alexander Rachunok)

Title: Postdoctoral Scholar, Civil and Environmental Engineering

Date: _____

By: _____
(Name)

Title: _____

Date: _____

By: _____
(Name)

Title: _____

Date: _____

By: _____
(Name)

Title: _____