

File No. 210536

Committee Item No. 2

Board Item No. _____

COMMITTEE/BOARD OF SUPERVISORS

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Date: July 8, 2021

Board of Supervisors Meeting:

Date: _____

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Prepared by: John Carroll

Date: July 2, 2021

Prepared by: John Carroll

Date: _____

Prepared by: John Carroll

Date: _____

1 [Health, Business and Tax Regulations Codes - Alternate Water Sources for Non-Potable
2 Applications]

3 **Ordinance amending the Health Code to 1) lower the threshold, from 250,000 to 100,000**
4 **square feet of gross floor area, for requiring that new buildings be constructed,**
5 **operated, and maintained using specified alternate water sources for required non-**
6 **potable uses; 2) exempt certain affordable housing projects and property uses from**
7 **that requirement; 3) require that certain categories of new buildings use specific**
8 **sources of nonpotable water for specific purposes; 4) modify certain administrative**
9 **review fees; 5) require the payment of excess use charges and penalties for failure to**
10 **properly use and maintain alternate water source systems; and 6) the completion of**
11 **reports on purified water, recycled water, and Non-potable District Systems; amending**
12 **the Business and Tax Regulations Code to update certain annual license fee amounts**
13 **for operating alternate water source systems; and affirming the Planning Department’s**
14 **determination under the California Environmental Quality Act.**

15 NOTE: **Unchanged Code text and uncodified text** are in plain Arial font.
16 **Additions to Codes** are in *single-underline italics Times New Roman font*.
17 **Deletions to Codes** are in *strikethrough italics Times New Roman font*.
18 **Board amendment additions** are in double-underlined Arial font.
19 **Board amendment deletions** are in ~~strikethrough Arial font~~.
20 **Asterisks (* * * *)** indicate the omission of unchanged Code
21 subsections or parts of tables.

22 Be it ordained by the People of the City and County of San Francisco:

23 Section 1. Environmental Findings.

24 The Planning Department has determined that the actions contemplated in this
25 ordinance comply with the California Environmental Quality Act (California Public Resources

1 Code Sections 21000 et seq.). Said determination is on file with the Clerk of the Board of
2 Supervisors in File No. 210536 and is incorporated herein by reference. The Board affirms
3 this determination.

4 Section 2. The Health Code is hereby amended by revising Article 12C, Sections
5 12C.1 through 12C.9 and 12C.11 through 12C.13, to read as follows:

6 **SEC. 12C.1. PURPOSE AND FINDINGS.**

7 The Board of Supervisors finds that:

8 (a) All California water users are responsible for making effective use of the available
9 water resources.

10 (b) The development of alternate water source systems will assist in meeting future
11 water requirements of the City and lessen the impacts of new developments on the City's
12 sewer system.

13 (c) Establishing a regulatory structure that provides administrative efficiency and a
14 streamlined project approval process will assist developers who opt to design, install, operate,
15 and maintain alternate water source systems.

16 (d) Adoption of Article 12C by the Board of Supervisors and adoption of rules and
17 regulations by the Department of Public Health will help achieve the City's goals for water
18 supply use and preservation by:

19 (1) Promoting the values and benefits of non-potable water use while
20 recognizing the need to invest water and other resources as efficiently as possible;

21 (2) Encouraging the use of non-potable water for non-potable applications; and

22 (3) Replacing potable water use for toilet and urinal flushing and irrigation to
23 the maximum extent possible with alternative water sources.

24 (e) It shall be City policy that within five years of the effective date of Ordinance No.
25 109-15, adding this subsection (e) to Article 12C, the City shall use only non-potable water for

1 the purpose of irrigating and cleaning parks, streets, and other public spaces. Within two
2 years of the effective date of that ordinance, the City Administrator, in consultation as
3 appropriate with other City departments, boards, and commissions, including, among others,
4 the Recreation and Park Department, Department of Public Works, Port of San Francisco,
5 San Francisco International Airport, ~~Department~~ Division of Real Estate, and Capital Planning
6 Committee, shall study what will be required to accomplish this policy, including associated
7 costs, and report the results of the study to the Mayor and Board of Supervisors. Upon
8 receiving this study, the Board of Supervisors intends to evaluate any changes to the law and
9 Capital Plan needed to implement this policy.

10 (f) The General Manager of the San Francisco Public Utilities Commission shall submit a
11 report to the Board of Supervisors by December 31, 2021, evaluating the challenges of, and
12 opportunities for requiring the construction, operation and maintenance of Non-potable District
13 Systems at District Development Projects. The report shall also identify the opportunities for the
14 expansion of water heating systems including, but not limited to thermal solar hot water preheating
15 systems, graywater preheating systems, wastewater heat recovery systems, and geo-thermal hot water
16 preheating systems.

17 (g) In order to further determine opportunities to maximize and expand the use of nonpotable
18 sources of water, the General Manager of the San Francisco Public Utilities Commission shall submit
19 to the Board of Supervisors by June 1, 2022, a report evaluating opportunities to develop a recycled
20 water and purified water supply for San Francisco.

21 (h) The General Manager of the San Francisco Public Utilities Commission shall submit a report
22 to the Board of Supervisors by December 31, 2022, identifying the opportunities for biogas utilization
23 and energy recovery from the San Francisco Public Utilities Commission's Biosolids Digester
24 Facilities Project.

25 **SEC. 12C.2. DEFINITIONS.**

1 The terms used in this Article 12C have the meaning set forth below:

2 **100% Affordable Housing Project:** a building where 100% of the residential units (not
3 including a manager's unit) have (1) a maximum affordable purchase price or affordable rent set at
4 120% of the unadjusted area median family income as determined by the Mayor's Office of Housing
5 and Community Development on an annual basis and derived from the HUD Metro Fair Market Rent
6 Area that contains San Francisco; (2) a rent that does not exceed 30% of the applicable household
7 income limit for a rental unit, or a purchase price with an annual housing cost that does not exceed
8 33% of the applicable income limit for an owner-occupied unit, as may be adjusted for household size
9 and bedroom count; and (3) a recorded regulatory agreement, consistent with any applicable federal,
10 state, or City government regulatory requirements, to assure that the residential units are sold or
11 rented in accordance with the above criteria for the life of the project or a minimum of 55 years,
12 whichever is shorter.

13 **100% Permanent Supportive Housing Project:** a new building where 100% of the residential
14 units (not including a manager's unit) are (1) owned by a nonprofit charitable organization or qualified
15 related legal entity, (2) used for permanent supportive housing to formerly homeless households subject
16 to a recorded declaration of restriction, and (3) funded through a subsidy agreement with the
17 Department of Homelessness and Supportive Housing.

18 **Alternate Water Source:** a source of ~~non~~Non-potable water that includes Graywater,
19 on-site treated ~~non~~Non-potable water, Rainwater, Stormwater, Foundation Drainage, Blackwater,
20 and any other source approved by the Director.

21 **Alternate Water Source System:** The system of facilities necessary for providing Non-
22 potable Water for use in a Development Project, including but not limited to all collection,
23 treatment, storage, and distribution facilities. Non-potable Water System shall have the same
24 meaning.

1 **Blackwater:** wastewater containing bodily or other biological wastes, as from toilets,
2 dishwashers, kitchen sinks, and utility sinks.

3 **City:** the City and County of San Francisco.

4 **Commercial Building:** a building with a commercial use as defined in Planning Code Section
5 102, amended from time to time.

6 **Condensate:** water vapor collected from air conditioning systems.

7 **Development Project:** Construction of a new *building or* buildings. Development
8 Projects are Large Development Projects and Small Development Projects. Development
9 Project does not include rehabilitation of buildings constructed prior to August 1, 2015 ~~the~~
10 ~~effective date of this Article 12C.~~ Development Project does not include (1) any 100% Affordable
11 Housing Project, 100% Permanent Supportive Housing Project, or any housing project funded or
12 constructed pursuant to the HOPE SF Program sponsored and developed by the San
13 Francisco Housing Authority and either the Mayor's Office of Housing and Community
14 Development or the Office of Community Investment and Infrastructure; (2) Hospital Buildings,
15 Health Service Buildings, and Institutional Healthcare Use Buildings; (3) Industrial Use Buildings; (4)
16 Production, Distribution, and Repair Use Buildings; (5) construction of a new building that will
17 receive water service from the San Francisco Public Utilities Commission through no larger
18 than a 5/8" domestic water meter or a 5/8" recycled water domestic meter, as determined in
19 accordance with the San Francisco Public Utilities Commission's rules for water service; (6)
20 for District projects located within the boundaries of the Reclaimed Water Use Map,
21 construction of new buildings subject to a disposition and development agreement or similar
22 contractual agreement approved before November 1, 2015, that includes in its applicable
23 infrastructure plan the construction and operations of water treatment facilities within the
24 project boundaries that would provide recycled water to the project; (7) for District projects
25 located within the boundaries of the Reclaimed Water Use Map, construction of new buildings

1 subject to a development agreement or similar contractual agreement, within a development
2 phase or subphase, a street improvement plan, or a tentative map or vesting tentative map
3 approved before November 1, 2015; or ~~(85)~~ for District projects located outside the boundaries
4 of the Reclaimed Water Use Map, construction of new buildings subject to a development
5 agreement or similar contractual agreement, within a development phase or subphase, a
6 street improvement plan, or a tentative map or vesting tentative map approved before
7 November 1, 2017.

8 **Director:** the Director of Health or any individual designated by the Director to act on
9 ~~his or her~~ the Director's behalf.

10 **District Development Project:** a Large Development Project consisting of two or more
11 buildings a group of two or more parcels that share Alternate Water Sources.

12 **District System:** An Alternate Water Source System serving a District Development
13 Pproject.

14 **First Certificate of Occupancy:** either a temporary certificate of occupancy or a
15 Certificate of Final Completion and Occupancy as defined in San Francisco Building Code
16 Section 109A, whichever is issued first.

17 **Foundation Drainage:** nuisance groundwater that is extracted to maintain a building's
18 or facility's structural integrity and would otherwise be discharged to the City's sewer system.
19 Foundation Drainage does not include non-potable groundwater extracted for a beneficial use
20 that is subject to City groundwater well regulations.

21 **General Manager:** the General Manager of the San Francisco Public Utilities
22 Commission, or any individual designated by the General Manager to act on his or her behalf.

23 **Graywater:** untreated wastewater that has not been contaminated by any toilet
24 discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and
25 does not present a threat from contamination by unhealthful processing, manufacturing, or

1 operating wastes. "Graywater" includes, but is not limited to, wastewater from bathtubs,
2 showers, bathroom sinks, lavatories, clothes washing machines, and laundry tubs, but does
3 not include wastewater from toilets, kitchen sinks, utility sinks, or dishwashers.

4 **Gross Floor Area:** The floor area of a Development Project as defined in Planning
5 Code Section 102, as amended from time to time.

6 **Health Service Building:** A building with a health service use as defined in Planning Code
7 Section 102, as amended from time to time.

8 **Hospital Building:** A building with a hospital use as defined in Planning Code Section 102, as
9 amended from time to time.

10 **Industrial Use Building:** A building with an industrial use as defined in Planning Code Section
11 102, as amended from time to time.

12 **Institutional Healthcare Use Building:** A building with an institutional healthcare Use as
13 defined in Planning Code Section 102, as amended from time to time.

14 **Large Development Project:**

15 (a) Prior to January 1, 2022, a Large Development Project is the construction ~~Construction of~~
16 a single building, or construction of multiple buildings on one or more parcels in accordance
17 with a phased plan or approval, with a total ~~gross floor area~~ Gross Floor Area for the single
18 building or the multiple buildings of 250,000 square feet or more:

19 ~~(a)~~ (1) located within the boundaries of the Reclaimed Water Use Map
20 designated in accordance with Sections 1203 and 1209 of the Public Works Code and subject
21 to a site permit or building permit that is final and effective after November 1, 2015; or

22 ~~(b)~~ (2) located outside the boundaries of the Reclaimed Water Use Map
23 designated in accordance with Sections 1203 and 1209 of the Public Works Code and subject
24 to a site permit or building permit that is final and effective after November 1, 2016.

1 (b) On or after January 1, 2022, a Large Development Project is the construction of a single
2 building, or construction of multiple buildings on one or more parcels in accordance with a phased
3 plan or approval, with a total Gross Floor Area for the single building or the multiple buildings of
4 100,000 square feet or more.

5 (c) Large Development Projects ~~are not limited to buildings constructed by individuals or~~
6 ~~non-governmental entities but, to the extent allowed by law, also include, to the extent allowed by law,~~
7 buildings constructed and operated by any local, state, or federal government entity, including
8 the City ~~and County of San Francisco.~~

9 **Large Development Project Applicant:** The person or entity applying for
10 authorization to construct and operate a Large Development Project.

11 **Mixed-Use Residential Building:** A building with both a residential use and a commercial use as
12 defined in Planning Code Section 102.

13 **Multi-Family Residential Building:** A building that contains three or more dwelling
14 units.

15 **Non-potable Water:** ~~Non-potable~~ water collected from ~~alternate water sources,~~ Alternate
16 Water Sources ~~treated, and intended to be used on the Project Applicant's site or District parcels and is~~
17 ~~suitable for direct beneficial use.~~

18 **Non-potable Water Engineering Report:** Report submitted by the Project Applicant to
19 the Director describing the Alternate Water Source ~~system~~ System in accordance with the rules
20 and regulations adopted by the Department of Health.

21 **Nonpotable Water System:** The same meaning as Alternate Water Source System.

22 **~~Non-residential~~ Residential Building:** A building with a non-residential use as defined in
23 Planning Code Section 102. ~~that contains occupancies other than dwelling units.~~

1 ~~**NSF 350 System:** Any treatment system certified by NSF International to meet NSF/ANSI~~
2 ~~Standard 350 for Onsite Residential and Commercial Reuse Treatment Systems, as amended from time~~
3 ~~to time.~~

4 **Permittee:** The Project Applicant, or any subsequent owner, assignee, successor in interest or
5 any other transferee subject to this Article 12C, including, but not limited to, operations and
6 maintenance of an Alternative Water Source System. Permittee includes, but is not limited to, the
7 owner of the common areas within a District Development Project and any homeowners association or
8 similar entity that maintains the common areas within a District Development Project. Permittee does
9 not include the Project Applicant, subsequent owners, assignees, successors in interests, transferees,
10 owners of a common area, homeowners associations, or any other person or entity associated with a
11 Development Project serviced by an Alternative District System dedicated to the City in accordance
12 with Section 12C.4(h) of this Article 12C.

13 ~~The operator of an Alternate Water Source System under this Article 12C, including, but not~~
14 ~~limited to, a third party contractor obtained for the purpose of operating and maintaining all or any~~
15 ~~portion of the Alternate Water Source System.~~

16 **Production, Distribution, Repair Use Building:** A building with production, distribution, repair
17 Use as defined in Planning Code Section 102.

18 **Project Applicant:** the person or entity applying for authorization to install and use an
19 Alternate Water Source System~~project~~.

20 **Rainwater:** precipitation collected from roof surfaces or other manmade, aboveground
21 collection surfaces.

22 ~~**Responsible Party:** The Project Applicant, or any subsequent owners, assignees, successors in~~
23 ~~interest or any other transferees responsible for compliance with this Article 12C. Responsible Party~~
24 ~~includes, but is not limited to, the owner of the common areas within a District Development Project~~
25 ~~and any homeowners association or similar entity that maintains the common areas within a District~~

1 ~~Development Project. Responsible Party does not include the Project Applicant, subsequent owners,~~
2 ~~assignees, successors in interests, transferees, owners of common area, homeowners associations, or~~
3 ~~any other person or entity associated with a Development Project serviced by an Alternative District~~
4 ~~System as described in Section 12C.4(d).~~

5 **Small Development Project:**

6 (a) Prior to January 1, 2022, a Small Development Project is the construction ~~Construction~~ of
7 a single building, or construction of multiple buildings on one or more parcels in accordance
8 with a phased plan or approval, with a total ~~gross floor area~~ Gross Floor Area for the single
9 building or the multiple buildings of 40,000 square feet or more, but less than 250,000 square
10 feet.

11 (b) On or after January 1, 2022, a Small Development Project is the construction of a single
12 building, or construction of multiple buildings on one or more parcels in accordance with a phased
13 plan or approval, with a total Gross Floor Area for the single building or the multiple buildings of
14 40,000 square feet or more, but less than 100,000 square feet.

15 (c) Small Development Projects ~~are not limited to buildings constructed by individuals or~~
16 ~~non-governmental entities but, to the extent allowed by law, also include,~~ to the extent allowed by law,
17 buildings constructed and operated by any local, state, or federal government entity, including
18 the City ~~and County of San Francisco.~~

19 **Small Development Project Applicant:** The person or entity applying for authorization
20 to construct and operate a Small Development Project.

21 **Small Residential Building:** A building that contains no more than two dwelling units.

22 **Stormwater:** Precipitation collected from at-grade or below-grade surfaces.

23 **Water Budget:** The calculation of the potential volume of onsite ~~alternate water~~ Alternate
24 Water Source supplies and demands of a Development Project and any other building subject
25 to this Article 12C.

1 **Water Budget Calculator:** The water use calculation ~~application~~ tool approved by the
2 General Manager that provides for the assessment of a proposed onsite water system,
3 ~~alternate water source~~ Alternate Water Source, and the end uses of the Alternate Water Source.

4 **Water Budget Documentation:** An in-depth assessment of the Project Applicant’s
5 non-potable water use, including survey information, water meter readings, water service
6 billing information, Alternate Water Source schematic drawings, or any other information
7 deemed necessary by the General Manager. For proposed District Systems, Water Budget
8 Documentation shall include implementation information that, at a minimum, shall address
9 potential infrastructure and public right of way conflicts, demonstrate compliance with all
10 applicable requirements, and establish the capabilities of the Development Project Applicant
11 to effectively operate the District System.

12 **SEC. 12C.3. APPLICABILITY.**

13 This Article 12C shall apply to the installation and operation of the Alternate Water
14 Source ~~systems~~ Systems at Large Development Projects, and to the voluntary installation and
15 operation of the Alternate Water Source ~~systems~~ Systems at sites containing ~~multi family~~ Multi-
16 Family Residential Building and ~~non-residential~~ Non-Residential buildings. This Article does not
17 apply to:

- 18 (a) Systems at ~~small residential~~ Small Residential Buildings ~~occupancies~~.
- 19 (b) Graywater systems where Graywater is collected solely for subsurface irrigation
20 and does not require disinfection, as determined by the Director.
- 21 (c) Rainwater systems where Rainwater is collected solely for subsurface irrigation,
22 drip irrigation, or non-sprinkled surface applications and does not require disinfection, as
23 determined by the Director.

24 **SEC. 12C.4. DEVELOPMENT PROJECT REQUIREMENTS.**

1 (a) Large Development Projects shall be constructed, operated, and maintained in
2 compliance with the following:

3 (1) For Large Development Projects and District Development Projects that
4 submit an application for a site permit on or prior to January 1, 2022, an Alternate Water Source
5 System shall be constructed, operated, and maintained. All toilet and urinal flushing and irrigation
6 demands shall be met through the collection and reuse of available onsite Rainwater,
7 Graywater, and Foundation Drainage, to the extent required by application of the Water
8 Budget Documentation developed for each Development Project.

9 (2) For Large Development Projects and District Development Projects consisting
10 solely of Commercial Buildings that submit an application for a site permit after January 1, 2022, an
11 Alternate Water Source System shall be constructed, operated, and maintained. Toilet and urinal
12 flushing demands and drain trap priming are required non-potable uses. The collection and reuse of
13 Blackwater and Condensate (required Alternate Water Sources) shall be used for required non-potable
14 uses to the extent required by application of the Water Budget Documentation.

15 (3) For Large Development Projects and District Development Projects consisting
16 solely of Multi-Family Residential Buildings or Mixed-Use Residential Buildings that submit an
17 application for a site permit after January 1, 2022, an Alternate Water Source System shall be
18 constructed, operated, and maintained. Toilet and urinal flushing, clothes washing, drain trap
19 priming, and irrigation demands are required non-potable uses. The collection and reuse of
20 Graywater and Condensate (required Alternate Water Sources) shall be used for required non-potable
21 uses to the extent required by application of the Water Budget Documentation.

22 (4) For District Development Projects that consist of any combination of
23 Commercial, Residential and Mixed-Use Residential Buildings, and that install a District System, toilet
24 and urinal flushing, clothes washing, drain trap priming, and irrigation demands are required non-
25 potable uses. The collection and reuse of Graywater and Condensate (required Alternate Water

1 Sources) shall be used for required non-potable uses to the extent required by application of the Water
2 Budget Documentation.

3 (5) For District Development Projects that consist of any combination of
4 Commercial, Residential and Mixed-Use Residential Buildings, and that install building-by-building
5 Alternate Water Source Systems, the required non-potable uses and required Alternate Water Sources
6 shall be the uses and sources for each category of building described in subsections (a)(2) and (a)(3)
7 of this section.

8 (b) A Large Development Project Applicant shall use the Water Budget Calculator as
9 follows:

10 (1)(2) For Large Development Projects that submit an application for a site
11 permit on or prior to January 1, 2022, a Large Development Project Applicant shall use the
12 Water Budget Calculator, as provided by the General Manager's rules, to prepare a Water
13 Budget assessing the amount of Rainwater, Graywater, and Foundation Drainage produced
14 on site, and the planned toilet and urinal flushing and irrigation demands.

15 (2) For Large Development Projects that submit an application for a site permit
16 after January 1, 2022, a Large Development Project Applicant shall use the Water Budget Calculator,
17 as provided by the General Manager's rules, to prepare a Water Budget assessing the amount of
18 Alternate Water produced on site by the required Alternate Water Sources, and the amount of
19 Alternate Water needed to supply the required non-potable uses.

20 (c) Use of Alternate Water for Large Development Projects shall be as follows:

21 (1) For Large Development Projects that submit an application for a site permit
22 on or prior to January 1, 2022, if ~~if~~, based on the Water Budget Documentation, the available
23 supply from onsite sources exceeds the demands for toilet and urinal flushing and irrigation,
24 100% of those demands shall be met by using the available onsite sources. If, based on the
25 Water Budget Documentation, the available supply from onsite sources is less than the

1 demands for toilet and urinal flushing and irrigation, 100% of the available onsite supply shall
2 be used to meet the demands for toilet and urinal flushing and irrigation. Available
3 Blackwater or Stormwater supplies may be used instead of, or in addition to Rainwater,
4 Graywater, and Foundation Drainage to meet the available onsite supply requirements
5 calculated in accordance with the Water Budget Documentation requirements of this Section
6 12C.4~~(a)~~(c)(1).

7 (2)~~(3)~~ For Large Development Projects that submit an application for a site
8 permit after January 1, 2022, if, based on the Water Budget Documentation, the available supply from
9 required Alternate Water Sources exceeds the demand from required non-potable uses, 100% of that
10 demand shall be met by using the required Alternate Water Sources. If, based on the Water Budget
11 Documentation, the available supply from required Alternate Water Sources is less than the demand
12 from required non-potable uses, 100% of the available supply from required Alternate Water Sources
13 shall be used to meet the demand from required non-potable uses.

14 (d) Small Development Project Applicants shall be as follows:

15 (1) For Small Development Projects that submit an application for a site permit
16 on or prior to January 1, 2022, Small Development Project Applicants shall use the Water Budget
17 Calculator, as provided by the General Manager's rules, to prepare a Water Budget
18 assessing the amount of Rainwater, Graywater and Foundation Drainage produced on site,
19 and the planned toilet and urinal flushing and irrigation demands.

20 (2) For Small Development Projects that submit an application for a site permit
21 after January 1, 2022, Small Development Project Applicants shall use the Water Budget Calculator,
22 as provided by the General Manager's rules, to prepare a Water Budget assessing the supply from
23 Alternate Water Sources available on site, and the demand from non-potable uses on site.

24 (e) Large Development Projects and District Development Projects shall be subject to
25 excess use charges for exceeding potable water allocations determined in accordance with rules

1 adopted by the General Manager. If a Large Development Project or District Development Project
2 exceeds its allocation of potable water, the Permittee for the Large Development Project or District
3 Development Project shall be subject to excess use charges on each unit of potable water exceeding
4 the allocation at 300% (or 3x) the applicable water and wastewater rates.

5 (f) Large Development Projects and District Development Projects shall not provide Non-
6 potable Water to water users or for purposes located outside the boundaries of the Large Development
7 Project or District Development Project, except (1) as permitted in the sole discretion of the General
8 Manager, or (2) when the water users or other purposes are located on property contiguous to, or
9 across a public right of way from the boundaries of the Large Development Project or District
10 Development Project, and the total amount of Non-potable Water produced by the Alternate Water
11 Source System will not exceed 125% of the Large Development Project's or District Development
12 Project's required non-potable demands as determined by the approved Water Budget
13 Documentation.

14 (g~~e~~) Additional Requirements for District Systems. All District Systems shall conform
15 to the following requirements, ~~subject to the General Manager's determination, in his or her sole~~
16 ~~discretion, that an exception to any of such requirements will fulfill the purposes and objectives of this~~
17 ~~Article 12C:~~

18 (1) In addition to preparation of the Water Budget, ~~Development~~ Project
19 Applicants for District Systems shall submit implementation plans to the General Manager for
20 review and approval, in accordance with guidelines and rules established by the General
21 Manager.

22 (2) ~~District Systems shall be operated by a single Permittee having sole control~~
23 ~~of operations of all of its facilities, including but not limited to treatment and distribution facilities.~~

24 District Systems shall be constructed in accordance with all applicable City utility standards
25 and specifications.

1 (3) ~~District Systems and Development Projects shall not provide Non-potable~~
2 ~~Water to water users or for purposes located outside the boundaries of the District or approved~~
3 ~~Development Project, except when the water users or other purposes are located on property~~
4 ~~contiguous to, or across a public right of way from the boundaries of the District or approved~~
5 ~~Development Project, and the total amount of Nonpotable Water produced by the Alternate Water~~
6 ~~Source System will not exceed 125% of the District System's or approved Development Project's Non-~~
7 ~~potable Water demands for toilet and urinal flushing and irrigation, as determined by the approved~~
8 ~~Water Budget Documentation.~~

9 —(4) ~~For District Systems, the ongoing operation and maintenance~~
10 ~~responsibilities of the Responsible Party shall be held by the owner of the common areas within the~~
11 ~~District Development Project, and may be transferred to a homeowners association or similar entity~~
12 ~~that maintains the common areas within the District Development Project.~~

13 —~~Where a District System complies with the requirements in subsections 1 through 4 of this~~
14 ~~subsection 12C.4(e), including any exceptions approved by the General Manager, individual~~
15 ~~Individual buildings within a Development Projects with the District Development Project shall not~~
16 ~~be required to demonstrate compliance as long as the individual buildings Buildings~~
17 ~~Development Projects are provided service by the an approved District System.~~

18 (h~~a~~) The General Manager may approve ~~alternative~~ Alternate District Systems that
19 will achieve compliance with the purposes and objectives of this Article 12C, in accordance
20 with guidelines and rules established by the General Manager. Alternative District Systems
21 may include, but are not limited to, the dedication to the City, without cost to the City, of a District
22 System's treatment and/or conveyance system that is constructed in accordance with all applicable
23 utility standards and specifications~~water purchase agreements.~~

24 (i~~e~~) City departments shall not issue an encroachment permit, a site permit, or a
25 plumbing permit for a Large Development Project or a Small Development Project, or

1 approve a Non-potable Water Engineering Report, prior to the General Manager's
2 determination that the Water Budget Documentation has been prepared in accordance with
3 the General Manager's rules for Water Budget calculations.

4 (j) Subdivision Approvals.

5 (1) **Parcel Map or Tentative Subdivision Map Conditions.** The
6 Director of Public Works shall not approve a tentative subdivision map or a parcel map for
7 any property unless a condition is imposed requiring compliance with this Article 12C to serve
8 the potential uses of the property covered by the parcel map or tentative subdivision map, as
9 specified in the provisions of this Article.

10 (2) **Subdivision Regulations.** The Director of Public Works shall adopt
11 regulations consistent with, and in furtherance of this Article 12C.

12 (3) **Final Maps.** The Director of Public Works shall not endorse and file a
13 final map for property within the boundaries of the City without first determining that:

14 (A) The subdivider has complied with the conditions imposed
15 on the tentative subdivision map or parcel map, pursuant to this Article 12C; and

16 (B) For any such conditions not fully satisfied prior to the
17 recordation of the final map, the subdivider has signed a certificate of agreement and/or
18 improvement agreement, to ensure compliance with such conditions.

19 (4) This ~~§~~ subsection (j) shall not apply to tentative subdivision maps or
20 parcel maps submitted solely for the purposes of condominium conversion, as defined in
21 Subdivision Code Section 1308(d).

22 (k) In the event that a privately owned Alternate Water Supply System approved by
23 the General Manager is subsequently determined by the California Public Utilities
24 Commission to be subject to that agency's jurisdiction and regulation, the San Francisco
25

1 Public Utilities Commission may, with the consent of the affected owner, acquire and operate
2 the facilities.

3 **SEC. 12C.5. REGULATION OF ALTERNATE WATER SOURCES.**

4 (a) Any person or entity who installs and operates an Alternate Water Source
5 system shall comply with this Article 12C, the rules and regulations adopted by the
6 Department of Public Health, and all applicable ~~local~~ City, state, and federal laws.

7 (b) ~~The Within 90 days after passage of this ordinance, the~~ Director shall issue rules and
8 regulations regarding the operation of Alternate Water Source systems necessary to
9 effectuate the purposes of ~~the~~ this Article 12C and to protect public health and safety. These
10 regulations shall address, at a minimum:

- 11 (1) Water quality criteria;
- 12 (2) Monitoring and reporting content and frequencies; and
- 13 (3) Operation and maintenance requirements.

14 (c) The Director shall review applications for Alternative Water Sources systems and
15 may issue or deny such applications, in accordance with applicable laws and regulations.

16 (d) The Department of Building Inspection shall review plans and issue or deny
17 plumbing permits for the construction, installation, or modification of Alternate Water Source
18 systems, in accordance with applicable laws and regulations.

19 **SEC. 12C.6. PROJECT APPLICANT AND/OR PERMITTEE DESIGN AND**
20 **CONSTRUCTION REQUIREMENTS.**

21 (a) Prior to initiating installation of any Alternate Water Source project, Project
22 Applicants shall submit to the Director an application for permits to operate Alternate Water
23 Source systems. Such applications shall comply with the requirements of this Article 12C and
24 any regulations the Director has issued. Project Applicants shall pay a non-refundable permit
25 application fee to cover the costs of investigation and processing the application and issuing

1 the permit. Each project application submitted to the Director shall include a Non-potable
2 Water Engineering Report that provides project information the Director determines to be
3 necessary for complete review of the proposed project. City departments may not approve or
4 issue permits for any site installing an Alternate Water Source system unless and until the
5 Director has approved the Non-potable Water Engineering Report.

6 The Non-potable Water Engineering Report for District systems must include
7 information on the permanent legal agreements between property owners, and provide
8 documentation that each party is a willing and responsible participant in the District Non-
9 potable Water use.

10 (b) System Design. All buildings using Non-potable Water from Alternate Water
11 Source systems shall include:

12 (1) A flow meter on the non-potable distribution system to account for Non-potable
13 Water use;

14 (2) A flow meter on the potable make-up water pipeline to the Alternate Water Source
15 System;

16 ~~(3)~~ A reduced pressure backflow assembly (RP) within 25 feet of the downstream
17 side of the point of connection or meter to protect the City's public water and/or recycled water
18 system;

19 ~~(4)~~ Signage that state law and the Department of Public Health's rules and
20 regulations require;

21 ~~(5)~~ Cross connection control in accordance with California Code of Regulations
22 Titles 17 and 22 and the San Francisco Public Utilities Commission's Cross Connection
23 Control Program; and

24 ~~(6)~~ Any other requirements the Director determines are necessary to protect
25 public health.

1 (c) Plumbing Permit. A Project Applicant shall obtain from the Department of
 2 Building Inspection an appropriate plumbing permit and any other building or installation
 3 permit required to construct, install, alter, an Alternate Water Source system. Each parcel
 4 within a District shall obtain appropriate plumbing and any other building or installation permits
 5 required.

6 (d) Encroachment Permit. A Project Applicant shall obtain from the Department of
 7 Public Works appropriate authorization for placement of any pipelines or other portions of an
 8 Alternate Water Source system within the public right-of-way.

9 (e) Construction Certification Letter. Project Applicants shall certify to the Director
 10 that Alternate Water Source system construction is complete and consistent with the
 11 approved Non-potable Water Engineering Report in accordance with the provisions of this
 12 Article 12C and any implementing rules and regulations. City departments may not approve or
 13 issue a First Certificate of Occupancy or approval for any Alternate Water Source system until
 14 the Director has reviewed and verified the Construction Certification Letter.

15 **SEC. 12C.7. FEES.**

16 (a) The non-refundable application fees for alternative source water system permits
 17 are:

18	(1) Rainwater, <u>Stormwater, Foundation Drainage</u>	<u>\$2,616.28</u> \$1,544.00
19	(2) NSF 350 systems	\$2,688.00
20	(3) Foundation Drainage	\$5,032.00
21	(<u>2</u>) Graywater	<u>\$8,142.66</u> \$5,032.00
22	(<u>3</u>) Blackwater	<u>\$13,958.84</u> \$9,034.00
23	(<u>4</u>) Transfer of any permit	<u>\$226</u> 229.00
24	(<u>5</u>) District Scale, the applicable amount above, plus	<u>\$226</u> 191.00 per
25	hour	for plan review

1 and/or on-site
2 inspection.

3 (b) The fees set forth in this Section 12C.7 may be adjusted each year, without
4 further action by the Board of Supervisors.

5 Not later than April 1, the Director shall report to the Controller the revenues
6 generated by the fees for the prior fiscal year and the prior fiscal year's costs of operation, as
7 well as any other information that the Controller determines appropriate to the performance of
8 the duties set forth in this Section 12C.7.

9 Not later than May 15, the Controller shall determine whether the current fees
10 produce, or are projected to produce, revenues sufficient to support the costs of providing the
11 services for which the fees are assessed and that the fees will not produce revenue that
12 significantly exceed more than the costs of providing the services for which the fees are
13 assessed.

14 The Controller shall if necessary, adjust the fees upward or downward for the
15 upcoming fiscal year as appropriate to ensure that the program recovers the costs of
16 operation without producing revenue which is significantly more than such costs. The adjusted
17 rates shall become operative on July 1.

18 (c) Every permit holder shall also pay an annual license fee as provided in the
19 Business and Tax Regulations Code Section 249.24.

20 **SEC. 12C.8. OPERATING REQUIREMENTS.**

21 When the Director determines the Project Applicant ~~applicant~~ has satisfied all the
22 requirements of this Article 12C, the Director may issue an operations permit for an
23 Alternative Water Source system. Permittees shall timely submit all water quality monitoring
24 information required by the provisions of this Article and the Department of Public Health's
25 rules and regulations. Permittees shall conduct ongoing backflow prevention and cross

1 connection testing in accordance with this Article, the rules and regulations of the Department
2 of Public Health, and all applicable ~~local~~ City, state, and federal laws.

3 **SEC. 12C.9. NON-POTABLE WATER USE AUDITS.**

4 When required by the General Manager, the Permittee ~~or property owner~~, shall conduct
5 a Non-potable Water use audit describing the extent of Non-potable Water use in accordance
6 with requirements provided by the General Manager.

7 **SEC. 12C.11. INSPECTION ~~AND NOTICES OF VIOLATION.~~**

8 The Director may inspect any Alternate Water Source system subject to the
9 requirements of this Article 12C to determine compliance with the provisions of this Article
10 and applicable regulations.

11 **SEC. 12C.12. VIOLATION AND PENALTIES.**

12 ~~The Director may impose administrative penalties on any Permittee, or person otherwise~~
13 ~~subject to the requirements of this Article 12C, who violates any provision of this Article or any~~
14 ~~applicable rule or regulation shall be subject to enforcement in accordance with Chapter 100 of the~~
15 ~~San Francisco Administrative Code with respect to administrative penalties, and may pursue any other~~
16 ~~available legal remedies for such violations.~~

17 Administrative penalties shall be assessed and collected by the Department of Public Health as
18 set forth in this Section 12C.12.

19 (a) Any Permittee, or other person otherwise subject to the requirements of this Article 12C,
20 who violates any provision of this Article or any applicable rule or regulation shall be subject to an
21 administrative penalty imposed by order of the Director, not to exceed \$1,000. Each day or portion
22 thereof that a violation exists constitutes a separate and distinct violation for which an administrative
23 penalty may be imposed. In assessing the amount of the administrative penalty, the Director may
24 consider any one or more of the following: the nature and seriousness of the misconduct, the number of
25

1 violations, the persistence of the misconduct, the length of time over which the misconduct occurred,
2 and the willfulness of the violator's misconduct.

3 (b) If the Director determines that any Permittee, or other person otherwise subject to the
4 requirements of this Article 12C, is in violation of any provision of this Article or any applicable rule
5 or regulation, the Director shall issue a Notice of Violation to the person. The Notice of Violation shall
6 contain the following information: a description of circumstances or condition constituting the
7 violation; the date by which the person must correct the violation; the amount of the administrative
8 penalty that the Director will impose daily until such time as the person has demonstrated to the
9 satisfaction of the Director that the violation has been corrected; and the right to seek administrative
10 review of the Notice of Violation by filing an appeal within 30 days of the date that the Notice of
11 Violation is served to challenge the Director's determination and/or the proposed administrative
12 penalty.

13 (c) If no request for administrative review is timely made, the right to request a hearing shall be
14 waived, and the Director's determination shall become final. The failure to timely request a hearing
15 shall constitute a failure to exhaust administrative remedies and shall preclude judicial review of the
16 validity of the enforcement action. The Director shall issue an order imposing the administrative
17 penalties, which shall be due and payable within 15 days of the date of the order.

18 (d) Administrative penalties assessed by the Director shall be paid to the Treasurer of the City
19 and County of San Francisco and credited to the Public Health Environmental Health Code
20 Compliance Fund, authorized by Administrative Code Section 10.100-193.

21 **SEC. 12C.13. REVOCATION AND SUSPENSION OF PERMIT.**

22 The Director may order a Permittee to cease operation of an Alternate Water Source
23 system, or may revoke or suspend the permit to operate if the Director determines that:

24 (a) The Permittee or its manager_s, operator_s or any employee_s has violated any
25 provision of this Article 12C or any regulation issued pursuant to this Article;

1 (b) The Alternate Water Source system is being operated or maintained in a manner
2 threatening the public health or health of patrons and/or residents; or

3 (c) The Permittee ~~owner or operator~~ has refused to allow any duly authorized City
4 official to inspect the premises or the operations of the Alternate Water Source system.

5
6 Section 3. Article 2 of the Business and Tax Regulations Code is hereby amended by
7 revising Section 249.24, to read as follows:

8
9 **SEC. 249.24. NON-POTABLE WATER SYSTEMS.**

10 Every person, firm, or corporation engaged in operating an alternate water source
11 system that requires a permit from the ~~San Francisco~~ Department of Public Health shall pay an
12 annual license fee to the Tax Collector in the amount listed below. For the purpose of this
13 Section 249.24, the term "alternate water source ~~systems~~systems" shall have the same meaning
14 as that in Article 12C of the ~~San Francisco~~ Health Code.

- 15 (a) Rainwater, Stormwater, and Foundation Drainage \$1,613.45~~\$472.00~~
16 ~~(b) NSF 350 systems~~ ~~\$ 929.00~~
17 ~~(c) Foundation Drainage~~ ~~\$1,387.00~~
18 (~~a~~b) Graywater \$2,195.07~~\$1,387.00~~
19 (~~c~~) Black water \$2,195.07~~\$1,844.00~~

20 The license fee set forth above shall be paid annually on or before March 31, in
21 accordance with the provisions of Section 76.1 of the Business and Tax Regulations Code.

22
23 Section 4. Scope of Ordinance. In enacting this ordinance, the Board of Supervisors
24 intends to amend only those words, phrases, paragraphs, subsections, sections, articles,
25 numbers, punctuation marks, charts, diagrams, or any other constituent parts of the Municipal

1 Code that are explicitly shown in this ordinance as additions, deletions, Board amendment
2 additions, and Board amendment deletions in accordance with the "Note" that appears under
3 the official title of the ordinance.

4

5 Section 5. Effective Date. This ordinance shall become effective 30 days after
6 enactment, except as otherwise stated in this ordinance. Enactment occurs when the Mayor
7 signs the ordinance, the Mayor returns the ordinance unsigned or does not sign the ordinance
8 within ten days of receiving it, or the Board of Supervisors overrides the Mayor's veto of the
9 ordinance.

10

11 APPROVED AS TO FORM:
12 DENNIS J. HERRERA, City Attorney

13

14 By: /s/ John Roddy /s/
15 JOHN RODDY
16 Deputy City Attorney

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LEGISLATIVE DIGEST

(Substituted 6/29/21)

[Health, Public Works, Business and Tax Regulations Codes - Alternate Water Sources for Non-Potable Applications]

Ordinance amending the Health Code to 1) lower the threshold, from 250,000 to 100,000 square feet of gross floor area, for requiring that new buildings be constructed, operated, and maintained using specified alternate water sources for required non-potable uses; 2) exempt certain affordable housing projects and property uses from that requirement; 3) require that certain categories of new buildings use specific sources of nonpotable water for specific purposes; 4) modify certain administrative review fees; 5) require the payment of excess use charges and penalties for failure to properly use and maintain alternate water source systems; and 6) the completion of reports on purified water, recycled water, and Non-potable District Systems; amending the Business and Tax Regulations Code to update certain annual license fee amounts for operating alternate water source systems; and affirming the Planning Department's determination under the California Environmental Quality Act.

Existing Law

Under section 4.110 of the Charter, the Health Commission and the Department of Public Health ("Department") are generally authorized to provide for the preservation, promotion and protection of the physical and mental health of the inhabitants of the City and County. The Charter also provides that the Commission and the Department may also determine the nature and character of public nuisances and provide for their abatement.

Article 12C to the San Francisco Health Code contains laws that implement the Health Commission and the Department's authority to provide for the preservation, promotion and protection of the physical and mental health of the inhabitants of the City and County. The Article requires that persons desiring or required to implement alternative source water systems obtain permission to construct and operate such systems, in accordance with the rules and regulations established by the Department that define appropriate water quality standards, monitoring criteria and other requirements for such systems. The Article also directs the Department of Building Inspection to review plans and to issue plumbing permits for on-site alternative water source systems.

Article 12C applies to and authorizes the installation and operation of the alternate water source systems at sites containing multi-family and non-residential buildings. New development projects of 250,000 square feet or more of gross floor area that did not receive a site permit prior to November 1, 2016 are required to construct, operate, and maintain an onsite non-potable water system to treat and reuse available sources of rainwater, graywater, blackwater and foundation drainage for toilet and urinal flushing and irrigation.

The amounts and types of water sources available for such new development projects will be assessed by using the San Francisco Public Utilities Commission's (SFPUC) Water Budget Calculator. If the Water Budget Calculator assessment shows that the available supply from onsite sources exceeds the demands for toilet and urinal flushing and irrigation, 100% of those demands must be met by using the available onsite sources. If the Water Budget Calculator assessment shows that the available supply from onsite sources is less than the demands for toilet and urinal flushing and irrigation, 100% of the available onsite supply must be used to meet the demands for toilet and urinal flushing and irrigation.

New development projects of 40,000 square feet or more of gross floor area are not required to construct, operate, and maintain an onsite non-potable water system, but are required to use the Water Budget Calculator to prepare a water budget assessing the amount of available rainwater, graywater, and foundation drainage produced on site, and the planned demands for toilet and urinal flushing and irrigation.

Article 12C requirements do not apply to systems at small residential occupancies, graywater systems where graywater is collected solely for subsurface irrigation and does not require disinfection, as determined by the Director, and rainwater systems where rainwater is collected solely for subsurface irrigation, drip irrigation, or non-sprinkled surface applications and does not require disinfection, as determined by the Director.

Article 12C requires a project applicant to submit an engineering report to the Department that describes the design of the proposed alternative source water system and clearly indicates the means for compliance with the Department's rules and regulations. The Department will review the engineering report and issue a permit to operate the system, if the system complies with the applicable rules and regulations.

Under Article 12C, the Department of Building Inspection (DBI) will provide final inspection and sign-off to ensure that appropriate bypass and cross-connection control elements as part of construction. The Article also provides authority to perform water use audits, approve permit transfers on point of sale of the property, suspend or revoke permits, and to abate violations, including the imposition of penalties pursuant to Administrative Code chapter 100.

Article 12C also provides for the payment of fees to cover the Department's costs for administering the program and, by adding section 249.24 to the Business and Taxation Code, for the payment of an annual license fee to the Tax Collector.

Amendments to Current Law

The draft ordinance proposes the following changes:

- Lowers the threshold for applicability of Article 12C to large development projects from a total gross floor area for the single building or the multiple buildings of 250,000 square feet or more, to a total gross floor area for the single building or the multiple buildings of 100,000 square feet or more.
- Exempts from applicability the following development projects: 100% affordable housing projects; 100% permanent supportive housing projects; hospital buildings; health service buildings; institutional healthcare use buildings; industrial use buildings; and production, distribution, and repair use buildings.
- Requires commercial building development projects to reuse blackwater for indoor uses.
- Requires multi-family and mixed-use residential building development projects to provide graywater for clothes washing as an end use.
- Removes enforcement of rainwater collection and reuse as a required alternate water source.
- Increases Department fees to cover the administrative costs of performing inspections and approval and oversight functions.
- Modifies Department enforcement tools to create consistency with current Department procedures and increases potential penalties for non-compliance.
- Requires the San Francisco Public Utilities Commission to complete reports regarding recycled water use and development, sustainable water heating systems, and the potential uses of renewable natural gas.
- Clarifies that development projects are subject to excess use charges for failure to comply with obligations under Article 12C to use alternate water sources.

Background Information

The City's Non-Potable Water Program is administered through an inter-agency partnership among the Department, SFPUC, DBI, and SFPW. The purpose of this program is to create a streamlined process for new large developments in San Francisco to collect, treat, and use non-potable water on-site for toilet flushing, irrigation, and other non-potable applications. Non-potable is a term that refers to water that is not of drinking water quality, but can be used

for other productive uses such as toilet flushing and irrigation, in compliance with applicable City, State and Federal laws.

According to the SFPUC, non-potable water is used across the nation to reduce the pressure on natural water resources. Treated non-potable water can be used for a number of beneficial purposes, including irrigation, toilet flushing, decorative fountains, dust control and cooling applications. Capturing and treating rainwater, foundation drainage, and graywater – and then reusing the water for toilet flushing and irrigation – could result in a dramatic reduction in the overall water footprint of a building. Furthermore, using on-site sources may reduce the volume of flows into the sewer. Reducing the volume of rainwater and wastewater flowing into the combined sewer system, especially during the rainy season, can help reduce the risk of combined sewer discharges.

Under this program, several types of alternate water sources generated on site can be collected and treated, including:

Rainwater – precipitation collected from roofs and above-grade surfaces.

Graywater – wastewater collected from bathtubs, showers, bathroom sinks, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks, toilets or dishwashers.

Foundation Drainage – nuisance groundwater that is dewatered to maintain a building's structural integrity and would otherwise be discharged to the City's sewer system. Foundation drainage is not the same as non-potable groundwater, which requires a production well and is already regulated by City ordinance.

Stormwater – precipitation collected at or below grade surfaces.

Blackwater – wastewater collected from toilets, dishwashers, kitchen sinks and utility sinks.

Non-potable water cannot be used for drinking, washing or bathing, washing of clothing, washing of food, washing of cooking or eating utensils, washing of food preparation or processing premises, or other personal service rooms. Rainwater, however, is often allowed for clothes washing and recycled water is allowed for commercial laundries. The City's Non-Potable Water Program is designed for new, large-scale commercial, mixed-use, and multifamily residential developments installing on-site systems to capture, treat, and reuse water for toilet flushing, irrigation, and other non-potable applications. Single-family residential properties are the focus of other programs developed by the SFPUC, namely the Laundry-to-Landscape Pilot Graywater Program, the Graywater Permit Rebate Program, and the Discounted Rain Barrel and Cistern Program, and therefore are not included in this Non-Potable Water Program.

Typical elements of an alternative water source system may include:

- Collection: Plumbing used to collect on-site supplies, such as graywater, and convey it to a treatment system.
- Storage (Collection): Storage tank used to equalize collection flows prior to treatment.
- Treatment System: A System that processes untreated water with filtration, disinfection, and/or other processes to achieve acceptable water quality results.
- Treated Water Storage: Storage tank used to store treated graywater, rainwater, or foundation drainage water after treatment and before distribution.
- Distribution System: (pumps and piping): Distribution pumps to convey water from the treated storage tank to designated fixtures in the building via non-potable distribution plumbing. Distribution system piping is completely separate from other piping in a building and is used to convey the treated non-potable supplies to specific uses such as toilet flushing.



MEMORANDUM

Executive Summary

In accordance with Ordinance 237-20 that amends the Building Code to require new construction utilize only electric power, the San Francisco Public Utilities Commission (SFPUC) drafted the following report evaluating opportunities for the expansion of non-potable onsite water treatment systems, graywater heat recovery systems, solar thermal water heating, and on-demand hot water heaters.

Through an ongoing evaluation of the SFPUC’s existing water programs, SFPUC staff analyzed the City and County of San Francisco’s Non-potable Water Ordinance to identify opportunities to increase potable water savings from new development projects and improve system implementation. Staff examined the three potential modifications to the ordinance for new development projects of 250,000 gross square feet (gsf) or greater and are recommending San Francisco move forward with the following:

- Requiring blackwater reuse in commercial buildings;
- Requiring graywater reuse for toilet and urinal flushing, clothes washing, and irrigation in multi-family and mixed-use residential buildings; and
- Requiring district-scale water reuse systems in development projects with more than one building.

Staff also examined the potential for lowering the 250,000 gsf threshold for compliance with the Non-potable Ordinance to 100,000 gsf. Staff analyzed the result this would have on achieving additional potable water savings. By lowering the threshold, this would only realize an additional 0.02 mgd of potable water savings which represents just 2% of the total savings anticipated for the developments projects that are required to comply with the Non-potable Ordinance by 2040.

In the report, SFPUC staff also included an extensive review of wastewater heat recovery systems, including a description of how the technology works, benefits that could be achieved in buildings with onsite water reuse systems, energy savings potential, and the applicability for San Francisco. For the single-family home scale, staff are not recommending to require the installation of drain-heat recovery systems in new single-family homes due to the fact that there is a limited market for single family home development opportunities in San Francisco and the technical challenges with applying this technology in existing homes. In new, larger development projects that are installing onsite water reuse systems, staff are recommending to continue encouraging wastewater heat recovery systems via the Onsite Water Reuse Grant Program because

London N. Breed
 Mayor

Sophie Maxwell
 President

Anson Moran
 Vice President

Tim Paulson
 Commissioner

Ed Harrington
 Commissioner

Newsha Ajami
 Commissioner

Michael Carlin
 Acting
 General Manager



wastewater heat recovery systems have the potential to significantly offset the energy consumption of onsite water reuse systems. Voluntary use of the technology will allow staff to gather more information about the potential benefits and implementation.

The next section of the report evaluates the potential implementation of solar thermal water heating systems in San Francisco. SFPUC staff reviewed a description of how the technology works, example system costs, and considerations for evaluating the technology in San Francisco. Solar thermal systems are very well suited for rooftop installation and have a proven track record of meeting commercial and residential water heating needed. Therefore, it is recommended that residential properties and commercial businesses that use a lot of hot water in their operations should consider a solar thermal installation. With the high temperatures that can be achieved, the systems can offer value to a wide range of businesses, particularly hotels, restaurants, and laundromats. Consideration should also be given to the fact that qualified solar professionals are needed for the installation, but are in limited supply in the Bay Area.

Lastly, SFPUC staff included a brief overview of a new proposal to launch a pilot program in Fiscal Year 2021-2022 to rebate a portion off the purchase price of installed on-demand recirculating hot water heater pumps and to evaluate their water-savings potential. The target market for the pilot rebate program and study is residential single-family and small multi-family properties in which each dwelling unit has its own hot water tank.

1. SFPUC Water and Power Enterprises

The SFPUC is committed to an innovative approach to water and energy resources management. The SFPUC is implementing several programs and projects that are diversifying the City's water supply portfolio and ensuring resilient water sources for the future. The SFPUC's water conservation program includes many efforts to help residences and business save water. One example is the Plumbing Fixture Replacement Program, a toilet and urinal direct installation program that connects residences and businesses to plumbers for retrofitting inefficient fixtures. Another example is the Leak Alert Program, which notifies customers of a potential leak by sending an email, text, letter, and phone call and advises to contact a plumber. In addition, the SFPUC is committed to developing local groundwater to enhance the City's drinking water supply. The SFPUC also promotes the use of recycled water, as construction continues on the Westside Enhanced Water Recycling Project that will provide recycled water for irrigating Golden Gate Park, Lincoln Park Golf Course, and the San Francisco Zoo. Also underway is a satellite treatment facility feasibility study to evaluate options to deliver recycled water to dual-plumbed buildings on the eastside of San Francisco. In addition, the SFPUC implements the City's mandatory requirement for onsite water reuse in new large buildings. The SFPUC provides grant funding to encourage retail water

users to install onsite water reuse systems, as well as encourage the installation of onsite treatment and reuse of brewery process water.

Additionally, the SFPUC's Power Enterprise provides numerous customer programs to both Hetch Hetchy Power and CleanPowerSF customers. Through rebates, specially designed rates and services, and other incentive structures, these programs help customers use energy as efficiently as possible, save money, and participate in San Francisco's clean energy future.

2. Non-potable Water Ordinance

Recognizing an opportunity in new and large redevelopment projects for onsite use of alternate water supplies in September 2012, the City and County of San Francisco adopted the Non-potable Water Ordinance (NPO). It added Article 12C to the San Francisco Health Code allowing for the collection, treatment, and use of alternate water sources such as graywater, rainwater, stormwater, blackwater, and foundation drainage for non-potable applications such as toilet flushing and irrigation. The following alternate water sources are defined as:

- Graywater: untreated wastewater that includes, but is not limited to, wastewater from bathtubs, showers, bathroom sinks, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.
- Blackwater: includes graywater and is defined as wastewater containing bodily or other biological wastes, as from toilets, dishwashers, kitchen sinks and utility sinks.
- Rainwater: precipitation collected from roof surfaces or other manmade, above ground collection surfaces.
- Stormwater: precipitation collected from at-grade or below grade surfaces or from any surface where hydrocarbon-based fuels, hazardous materials, or fertilizers are stored or used.
- Foundation drainage: nuisance groundwater that is extracted to maintain a building's or facility's structural integrity and would otherwise be discharged to the sanitary or combined sewer system.

A streamlined permitting process was developed through a joint collaboration with the SFPUC, San Francisco Department of Public Health (SFDPH), San Francisco Department of Building Inspection (SFDBI), and San Francisco Department of Public Works (SFPW). Water quality, monitoring, and reporting requirements were established, giving regulatory oversight and management over onsite non-potable water systems to the Department of Public Health.

In 2013, the Board of Supervisors amended the NPO to allow district-scale non-potable water systems consisting of two or more buildings sharing non-potable water. Subsequently, the Ordinance was amended in July 2015 to mandate the installation of onsite water systems in new developments of 250,000 gross square feet or more. And the Ordinance was amended again in 2016 to clarify implementation requirements for district-scale systems.

3. Onsite Water Reuse Grant Program

The SFPUC's Onsite Water Reuse Grant Program provides grant funding to encourage retail water users to reduce SFPUC water supply usage by collecting, treating, and using alternate water sources including rainwater, stormwater, graywater, foundation drainage, air conditioning condensate, and blackwater for non-potable uses such as toilet flushing, irrigation, and cooling tower makeup. Projects must demonstrate the ability to achieve at least one of the following thresholds to eligible for grant funding:

- Projects that replace at least 450,000 gallons of SFPUC water per year are eligible for grant funding up to \$200,000; or
- Projects that replace at least 1,000,000 gallons of SFPUC water per year are eligible for grant funding up to \$500,000; or
- Projects that replace at least 3,000,000 gallons of SFPUC water per year are eligible for grant funding up to \$1,000,000.

The SFPUC lowered the threshold of eligibility to 450,000 gallons of water per year offset to incentivize existing dual-plumbed buildings with no current recycled water source to install onsite water reuse systems. Recognizing that these buildings would likely otherwise not install onsite water reuse systems, the SFPUC is offering financial assistance to encourage additional potable water savings.

4. Potential Amendments to Non-potable Water Ordinance

Evaluating Impacts to Future Development Projects

Through an ongoing effort to evaluate the SFPUC's existing water programs, SFPUC staff analyzed the Non-potable Water Ordinance to identify opportunities to increase potable water savings from new development projects and improve system implementation. Several potential amendments were identified, which are discussed further below. During the spring of 2020, SFPUC staff met with the city agencies including SFDPH, SFDDBI, SFPW, and SFPUC Water Quality Division that are responsible for implementing the ordinance. The city agencies were given opportunities to comment on the proposed amendments and provide suggestions to further streamline compliance with the ordinance.

To understand the impacts on future multi-family, mixed-use, and commercial development projects and anticipated potable water offsets, SFPUC staff reviewed the San Francisco Planning Department's Pipeline Report published with 2020 Quarter 1 data and internal databases used for tracking future

developments' compliance with the ordinance. SFPUC staff, in consultation with other city agencies, determined that the most streamlined way to apply future potential amendments was to make them applicable to only planned development projects that have not yet filed a site permit. Therefore, SFPUC staff analyzed only planned development projects that have not yet filed for a site permit. Appendix A contains more information on these developments and Table 4 summarizes the number of future development projects and anticipated potable water offsets if the square footage threshold were lowered to 100,000 gsf. In Appendix A, any building marked with a Y in the 'Site Permit Filed or Issued' column was not included in the potable offset analysis for the above stated reason. The buildings with an 'N' were included, and the total number of buildings with an 'N' matches the numbers in Table 4.

Blackwater Reuse in Commercial Buildings of 250,000 Gross Square Feet (gsf) or Greater

SFPUC staff evaluated modifying the ordinance to require commercial buildings to reuse blackwater for toilet and urinal flushing to achieve additional potable water savings. Currently, the ordinance requires projects to capture available graywater, rainwater, and foundation drainage. Blackwater can be treated and reused on a voluntary basis. Analysis has shown that blackwater reuse in a commercial office building can offset 100% of the building's toilet and urinal flushing demands, which can represent up to 75% of the building's total indoor potable water demands. This increased water savings is substantial when compared to commercial buildings reusing graywater onsite, which can offset only about 15% of total building indoor potable water demands. Additionally, SFDPH's regulations for onsite water reuse systems contain water quality requirements for the treatment and reuse of blackwater that would result in water quality that is protective of public health. Furthermore, the SFPUC's Headquarters building serves as a successful example of a blackwater treatment system in operation in a commercial setting.

Table 1. Considerations for requiring blackwater reuse in commercial buildings of 250,000 gsf or greater

Pros	Cons
<ul style="list-style-type: none"> • Reusing blackwater in an office building can offset 100% of toilet and urinal flushing demands, which can represent up to 75% of a building's total indoor potable water demands. • Increasing potable water offsets from new development projects can help build the resilience of the City's water supply. • In combined sewer areas, development projects that reuse 	<ul style="list-style-type: none"> • Commercial buildings reusing graywater onsite can offset only about 15% of total building indoor potable water demands.

blackwater onsite can benefit the sewer system by diverting wastewater flows away from the sewer during storm events.	
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Graywater Reuse for Toilet and Urinal Flushing, Clothes Washing, and Irrigation in Multi-Family and Mixed-Use Residential Buildings of 250,000 Gross Square Feet or Greater

SFPUC staff also evaluated modifying the ordinance to require multi-family and mixed-use residential buildings to reuse graywater to meet clothes washing as an end use, going beyond the current requirement for only toilet and urinal flushing and irrigation demands to be met. Analysis has shown that toilet and urinal flushing demands account for about 15% of total indoor water use in multi-family and mixed-use residential buildings. By reusing graywater to also meet clothes washing demands, these buildings can increase their potable water offset by an additional 15%, which can result in up to 30% offset of the building’s total indoor potable water use, thereby maximizing the potential potable water offsets of an onsite water reuse system. Multi-family and mixed-use residential buildings often produce ample graywater, therefore it’s not necessary to reuse blackwater to meet their non-potable water demands. Analysis has also shown that adding clothes washing as an end use would require a minor amount of additional plumbing. Additionally, SFDPH’s regulations for onsite water reuse systems contain water quality requirements for the treatment and reuse of graywater that would result in a water quality for clothes washing that is protective of public health.

Table 2. Considerations for requiring graywater reuse for toilet and urinal flushing, clothes washing, and irrigation in multi-family and mixed-use residential buildings of 250,000 gsf or greater

<u>Pros</u>	<u>Cons</u>
<ul style="list-style-type: none"> • Toilet and urinal flushing demands account for about 15% of total indoor water use in multi-family and mixed-use residential buildings. By reusing graywater to also meet clothes washing demands, these buildings can increase their potable water offset by an additional 15%, which can result in up to 30% offset of the building’s total indoor potable water use, thereby maximizing the potential potable water offsets of an onsite water reuse 	<ul style="list-style-type: none"> • Additional public education and outreach may be needed to encourage the safety and benefits of using graywater for clothes washing.

District-Scale Water Reuse Systems

Additionally, SFPUC staff analyzed modifying the ordinance to require development projects with more than one building to install a district-scale water reuse system. The modification would be applicable to development projects with a cumulative square footage of 250,000 gsf or greater, which could consist of multiple buildings that may be below 250,000 gsf individually. This requirement is consistent with the current ordinance and would not result in additional development projects being subject to the ordinance. Instead of development projects installing building-by-building graywater systems, the proposed modification would require development projects with more than one building to install a district-scale water reuse system. District-scale systems benefit from economies of scale compared to many individual building treatment systems, resulting in significantly lower capital costs, lower total energy consumption, and lower total footprint of treatment and storage equipment. A large development project in San Francisco has shown it could save over \$10 million if a district-scale system was installed compared to individual building treatment systems. Furthermore, reducing the number of onsite water systems by requiring district-scale systems means that operators can spend more time ensuring the systems are working reliably. Any potential impacts on plumbing are site specific and dependent on the combination of commercial, residential, and mixed-use buildings.

Table 3. Considerations for requiring district-scale water reuse systems in development projects with more than one building

Pros	Cons
<ul style="list-style-type: none"> • District-scale systems benefit significantly from economies of scale compared to individual building-by-building systems. • A large development project in San Francisco has shown it could save over \$10 million if a district-scale system was installed compared to individual building treatment systems. • Qualified operators of onsite water reuse systems are a limited resource in San Francisco. Reducing the number of onsite systems by requiring district-scale systems may result in operators being able to spend more time ensuring treatment 	<ul style="list-style-type: none"> • District-scale systems require ownership and legal agreements among property owners. For example, establishing or designating one entity to be responsible for compliance with the Non-potable Ordinance may be challenging if there are multiple property owners. • District-scale systems require a higher initial capital investment. • The development project will have to balance the timing of construction of the district-scale system and the overall development project’s phasing.

Additional Alternate Water Sources and Non-potable End Uses

In an effort to evaluate the expansion of onsite water reuse systems, SFPUC staff considered expanding the required alternate water sources to include condensate and expanding the required non-potable end uses to include drain trap priming. Condensate is defined as water vapor that is converted to a liquid and collected, the most common source in buildings being equipment for air conditioning, refrigeration, and steam heating. A trap primer is a plumbing device or valve that adds water to traps. Per SFDPH's Rules and Regulations Regarding the Operation of Alternate Water Source Systems, non-potable water is suitable for drain trap priming. It was determined that these expansions are unlikely to result in significant cost impacts on development projects due to minimal additional infrastructure and treatment needed to add these alternate water sources and non-potable end uses to a system. These expansions may result in a small increase in potable water offsets.

SFPUC staff also considered requiring cooling tower make-up water as a non-potable use and do not recommend making this change. While cooling tower make-up water is currently allowed, it is likely to push designers toward reverse osmosis (RO) because that is currently the most reliable treatment to achieve the necessary water quality for cooling tower make-up. Because of the 75% recovery of RO systems, onsite water reuse systems may not achieve a significant additional potable offset beyond what is achieved with toilet flushing. Furthermore, requiring cooling as an end use may have significant cost impacts to a development project due to the need for a larger system size, additional treatment (i.e. RO), and the energy for operating an RO system that may be required.

Lowering the Square Footage Threshold for Compliance with the Non-potable Ordinance

As mentioned above, since 2015, new development projects of 250,000 gsf or more are required to install and operate an onsite water reuse system. It is estimated that by 2040, the development projects that are required to comply with the Non-potable Ordinance will offset approximately 1.1 mgd of potable water. When also factoring in the potable water savings from development projects voluntarily installing onsite water reuse systems, the total potable water offset increases to 1.3 mgd by 2040.

SFPUC staff analyzed the impact of lowering the 250,000 gsf threshold to 100,000 gsf. In this analysis, SFPUC also considered a volume-based threshold; however it was determined that using a single square footage threshold creates the simplest and most streamlined way for development projects to understand if they are required to comply with the ordinance.

To understand the number of planned multi-family, mixed-use, and commercial development projects that would be impacted by the potential amendments and anticipated potable water offsets, SFPUC staff reviewed the San Francisco Planning Department's Pipeline Report published with 2020 Quarter 1 data and internal databases used for tracking future developments' compliance with the ordinance. SFPUC staff, in consultation with other city agencies, determined that the most streamlined way to apply future potential amendments was to make them applicable to only planned development projects that have not yet filed a site permit. Therefore, SFPUC staff analyzed only planned development projects that have not yet filed for a site permit. Appendix A contains more information on these developments and Table 4 summarizes the number of future development projects and anticipated potable water offsets if the square footage threshold were lowered to 100,000 gsf. In Appendix A, any building marked with a Y in the 'Site Permit Filed or Issued' column was not included in the potable offset analysis for the above stated reason. The buildings with an 'N' were included, and the total number of buildings with an 'N' matches the numbers in Table 4. Table 4 shows that if the threshold were lowered to 100,000 gsf, approximately 0.02 mgd of additional potable water savings could be achieved. This constitutes only 2% of the total water savings estimated for developments projects that are required to comply with the Non-potable Ordinance.

SFPUC staff also compared other potential impacts on factors such as cost and footprint to development projects under the existing 250,000 gsf threshold. Onsite water reuse systems benefit from economies of scale for both cost and footprint, and these factors do not scale on a 1:1 basis. The footprint needed for an onsite water reuse system in a smaller building would be smaller, but the ratio of system size to total building size likely goes up, meaning the system takes up a larger percentage of total building space. Similarly, the cost of a system in a smaller building would also be smaller, but again not on a 1:1 basis. For example, a major technology supplier in San Francisco indicated that the cost of a graywater treatment system would only be 15% different between a 250,000 gsf and 100,000 gsf building. Additionally, there are other costs associated with onsite water reuse systems that are more fixed, such as operations, maintenance, and water quality sampling. A smaller treatment system will still need a qualified operator and the same number of water quality samples as a larger system of the same type; therefore the fixed costs wouldn't be substantially less for smaller buildings. Although smaller buildings with onsite water reuse systems may have reduced water and sewer bills, they would face a relatively higher capital and operations and maintenance cost than larger buildings. There is not sufficient data at this time to say conclusively whether this would be a net benefit or cost to smaller buildings.

Some smaller buildings lower than 250,000 gsf will be required to comply with the Non-potable Ordinance if the individual buildings are part of a larger development project. In this case, these buildings can leverage the economies of scale of onsite reuse by connecting to a district-scale system serving the whole development.

Table 4. Estimated potable water offsets from multi-family, mixed-use, and commercial development projects required to comply with the NPO (i.e. >250,000 gsf) and from future development projects 100,000 gsf or greater

Size Range (gross square feet)	Number of Development Projects¹	Estimated Potable Water Offsets in mgd²
≥ 250,000	50	1.1 mgd
200,000 – 250,000	0	0 mgd
150,000 – 200,000	2	0.003 mgd
100,000 – 150,000	5	0.012 mgd

¹ *Estimates of future development projects between 100,000 and 250,000 gsf taken from San Francisco Planning Department’s Pipeline 2020 Q1 Report and SFPUC tracking databases.*

² *Potable offsets estimated using information provided by projects such as water budget applications, where available. For future projects, staff used the SFPUC Water Use Calculator to estimate future offsets.*

In summary, the Non-potable Ordinance amendments discussed above are estimated to achieve an additional potable water savings of approximately 0.2 mgd. The water savings of 0.2 mgd is equivalent to about 5,500 San Francisco residents daily water use. A breakdown of the estimated water savings can be found in Table 5 below.

Table 5. Additional Potable Water Savings Resulting from the Non-potable Ordinance Amendments

	Potable water savings by requiring blackwater reuse in commercial buildings (mgd)	Potable water savings by requiring graywater reuse for clothes washing in multi-family and mixed-used residential buildings (mgd)	Total potable water savings (mgd)
New development projects over 250,000 gross square foot (gsf) threshold	0.04	0.14	0.18
New development projects between 100,000 gsf and 250,000 gsf	0.001	0.014	0.02

Table 6. Considerations for requiring new development projects 100,000 gsf or greater to comply with the Non-potable Ordinance

<u>Pros</u>	<u>Cons</u>
<ul style="list-style-type: none"> • There is not a significant potable water offset that could be achieved by requiring new development projects below 250,000 gsf to comply with the ordinance. 	<ul style="list-style-type: none"> • Minimal additional potable water savings could be achieved by requiring smaller buildings to comply with the ordinance. If the square footage threshold for compliance were lowered to 100,000 gsf, this would only realize an additional 0.02 mgd of potable water savings, representing just 2% of the total savings anticipated for the developments projects that are required to comply with the Non-potable Ordinance by 2040. • Compared to a 250,000 gsf building, the relative capital cost that a smaller building would face would be larger. For example, according to a major technology supplier in San Francisco, a graywater treatment system in a 100,000 gsf building would cost only 15% less than that for a 250,000 gsf building. • The ongoing operations and maintenance costs and water quality sampling costs are largely fixed for onsite treatment systems, and wouldn't be substantially less for smaller buildings.

Recommendations for Potential Non-potable Ordinance Amendments

- It is recommended to require commercial buildings to reuse blackwater to meet toilet and urinal flushing demands. Commercial buildings reusing blackwater can offset more potable water use as compared to graywater. For example, a commercial office building can offset 100% of toilet flushing demands with blackwater reuse compared to graywater reuse which can only offset about 20% of toilet flushing demands.
- It is recommended to require multi-family and mixed-use residential buildings to reuse graywater to meet toilet and urinal flushing, clothes washing, and irrigation demands. Residential buildings produce an excess of graywater and can achieve additional potable water savings by

going beyond the current requirement for only toilet and urinal flushing and irrigation demands to be met by adding clothes washing as an additional required end use.

- It is recommended to require new developments with more than one building to install a district-scale reuse system. District-scale water reuse systems have additional benefits compared to individual building treatment systems, as economies of scale can result in significantly lower capital costs, lower total energy consumption, and lower total footprint of treatment and storage equipment.
- To incorporate condensate and drain trap priming is a policy decision for the Board of Supervisors.
- To lower the threshold to 100,000 gsf is a policy decision for the Board of Supervisors.

5. Wastewater Heat Recovery Systems: Evaluating Implementation in San Francisco

Wastewater heat recovery refers to the extraction of thermal energy from warm wastewater, and subsequent beneficial use of this energy to offset existing energy requirements. Common components of wastewater heat recovery systems include:

- **Wet Well or Equalization Tank:** a tank used to collect raw wastewater upstream of a wastewater heat recovery system for the purpose of supplying a consistent flow.
- **Solid-Liquid Separation:** an initial process step whereby solids are removed from the liquid portion of the wastewater prior to the liquid being sent to the heat exchanger and/or heat pump.
- **Heat Exchanger:** a device for passively transferring heat between two or more fluids. The fluids may be separated by a solid wall to prevent mixing or they may be in direct contact. In a heat exchanger, heat will move spontaneously from the hotter fluid into the colder fluid.
- **Heat Pump:** a device that actively transfers heat from a colder fluid to a hotter fluid, i.e. in the opposite direction of spontaneous heat transfer. In a heat pump, an additional energy source is needed to facilitate the heat transfer. Heat pump efficiency is defined by a coefficient of performance (COP), which describes the ratio of energy recovered to external energy used. Generally, a COP above 3 is deemed fairly efficient.

Implementation Scales for Wastewater Heat Recovery Systems

In a single-family home application, graywater (also referred to as drain-water heat exchangers) recover heat from hot water used in showers, bathtubs, sinks, dishwashers, and clothes washers. They then typically store the recovered heat so it can be used to heat future home water needs. Drain-water heat recovery

systems usually have a copper heat exchanger that replaces a vertical section of a main waste drain. As warm water flows down the waste drain, incoming cold water flows through a spiral copper tube wrapped tightly around the copper section of the waste drain. This preheats the incoming cold water that goes to the water heater or a fixture, such as a shower.

By preheating cold water, drain-water heat recovery systems help increase water heating capacity. This increased capacity may be of particular value in homes with undersized water heater. They also allow homes to lower their water heating temperature without affecting water heating capacity. From an economic standpoint, these systems offer a payback period of 3-7 years, depending on how often the system is used (Department of Energy).

At the individual, larger building scale, wastewater heat recovery systems could be configured as shown below in Figure 1. The heat recovered from a building's wastewater (blackwater or graywater) can be directly used for domestic hot water heating or space heating and/or cooling.

Alternatively, district scale wastewater heat recovery systems can provide domestic water heating, space heating, and space cooling to entire neighborhoods. The district-scale model is based around a centralized treatment facility, which acts as the energy and wastewater hub for a community and distinguishes district-scale systems from those installed in individual buildings. Incorporating wastewater heat recovery into district-scale water reuse system would require projects to include a district energy system that could be used to distribute the recovered heat to individual buildings. This would introduce a significant level of complexity, requiring a central energy plant, as well as additional infrastructure in the streets and likely in each building. The False Creek Energy Center in Vancouver is a prime example and more details can be found in Appendix B.

Wastewater Heat Recovery Benefits and Onsite Water Reuse Synergies

Wastewater heat recovery systems have the potential to significantly offset the energy consumption of onsite water reuse systems. In fact, integrating wastewater heat recovery with onsite water reuse offers several synergies:

- Tanks that collect raw wastewater for onsite water recycling can be leveraged for wastewater heat recovery. Onsite water reuse systems will already have such tanks available to provide a consistent flow to the wastewater heat recovery system.
- Using raw wastewater in a wastewater heat recovery system can present challenges for the equipment because of solids, oils, grease, hair, and other constituents; using treated blackwater or graywater from an onsite water reuse system as the heat source can enable heat recovery from a much cleaner stream.
- Wastewater heat recovery systems cool down the treated water being sent

to buildings for applications such as toilet flushing and cooling towers. Cooling down the treated water has several benefits, including improved efficiency in cooling towers and improved control of *Legionella* growth in premise plumbing.

Wastewater heat recovery systems can be integrated with onsite water reuse systems in multiple configurations. Two examples of potential integration are illustrated in Figure 1. In both examples, the heat is recovered from the treated blackwater or graywater storage tank and used in the domestic hot water heating system. In the top configuration, ‘Hot Water Boiler Pre-Heating,’ the recovered heat is used to pre-heat potable water that is then sent through a hot water boiler. In the bottom scenario, ‘Hot Water Tank Temperature Control,’ the recovered heat is used to maintain the temperature of water that has already been heated and is being stored in a hot water storage tank.

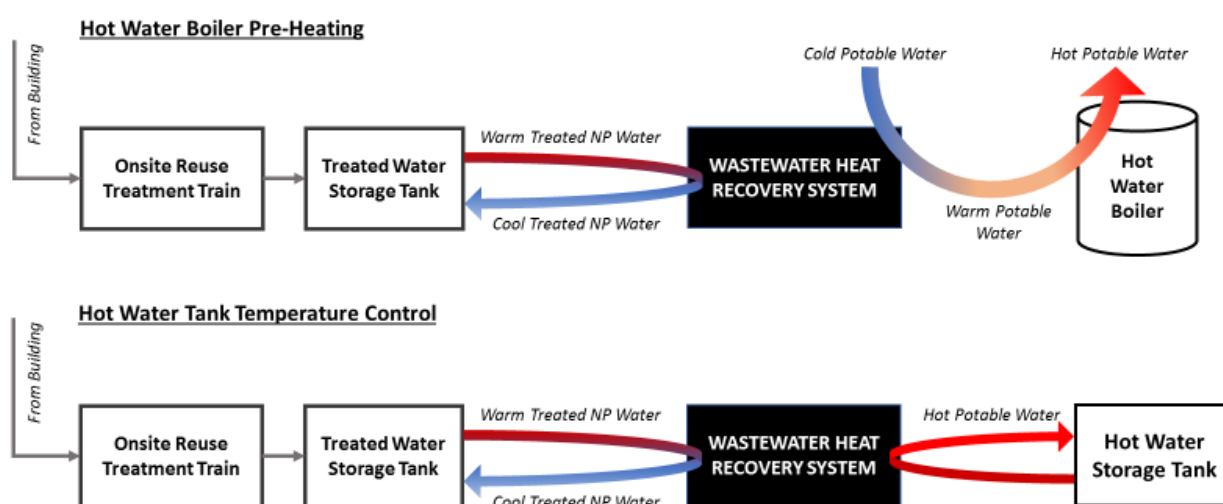


Figure 1. Example configurations for integration of wastewater heat recovery and onsite water reuse systems.

Types of Wastewater Heat Recovery Technology

Companies offer packaged wastewater heat recovery systems that can be compact and self-contained. For example, SHARC Energy Systems Inc. offers the Piranha packaged system, which is intended for use in buildings with 50 – 200 units (International Wastewater Systems, 2014). The system is designed to provide hot water heating or pre-heating. Another packaged system offering is the HUBER RoWin system, which can be used at the building scale. The system would integrate with a building’s domestic hot water system or could be coupled to the HVAC system (HUBER Technology, 2018). In general, these types of systems experience the highest efficiency when the wastewater storage tank, the heat exchanger, and the hot water boiler are located in close proximity to one another.

Current Status of Wastewater Heat Recovery in San Francisco

In an effort to consider ways to reduce energy footprint of onsite water reuse systems, SFPUC updated its existing Onsite Water Reuse Grant Program in 2019 to incentivize the implementation of wastewater heat recovery systems within development projects installing onsite water reuse systems. The grant program requires all projects applying for a grant to estimate the potential energy offset that can be achieved with wastewater heat recovery. In addition, mixed-used and multi-family buildings that are grant recipients are required to implement wastewater heat recovery. Research shows that multi-family and mixed-use buildings present the best opportunity for wastewater heat recovery because they are most likely to have centralized hot water boilers. There can be a significant volume of graywater and thus more energy to recover via wastewater heat recovery. Commercial buildings are not optimal for the installation of wastewater heat recovery because they do not tend to have centralized hot water boilers, and so using the heat recovered from wastewater becomes more challenging.

SFPUC's goal in integrating wastewater heat recovery into the grant program is to gather more information about the potential benefits of these systems and understand how implementation could occur successfully in San Francisco.

More broadly, decentralized wastewater heat recovery systems implemented at the building or district scale are very limited in the U.S. Based on research and interviews with SFPUC staff and consultants, while wastewater heat recovery has been piloted at a few wastewater treatment plants in the U.S., these systems have been implemented as demonstration projects and haven't resulted in any formal regulatory processes being developed.

Energy Savings and Emissions Reduction from Wastewater Heat Recovery

The emissions reduction associated with wastewater heat recovery technology is dependent on the nature of the energy sources powering the relevant grid. A recent study conducted life cycle assessments of onsite water reuse systems with associated wastewater heat recovery systems; the findings in terms of global warming potential depended on the underlying energy sources (Arden et al., 2020). If buildings are fully powered by electricity, then wastewater heat recovery systems will result in a reduction in electricity usage. The resultant benefit in terms of emissions depends on the extent to which the electric grid relies on fossil fuels. For buildings powered entirely by renewables, as many are in San Francisco, there would be no net benefit to the building in terms of greenhouse gas emissions reduction. Additionally, there is typically a tradeoff between energy recovery and system efficiency. Recovering higher amounts of heat will require a higher input of energy via the heat pump, and thus the efficiency will go down.

The following example provides context for the potential energy savings that

could be achieved in a multi-family residential building, based on the following assumptions:

- Assumed graywater as source water, as is required by the NPO
- Assumed 15 gpy/sf of graywater generation for primarily residential buildings, based on SFPUC's Water Use Calculator
- Assumed a 15°F drop in graywater temperature through the heat recovery system

Under these conditions, a theoretical 250,000 square foot residential building could recover 300 kWh/day using wastewater heat recovery. This type of building is likely to use in total somewhere in the range of 10,000 kWh/day (Energy Star Portfolio Manager, 2018). Although the recovered energy is a small percentage of the overall building energy demand, it is likely to be a significant portion of the energy used for onsite water reuse treatment.

Table 7. Summary of considerations for installing wastewater heat recovery systems in conjunction with an onsite water reuse system in San Francisco

<u>Pros</u>	<u>Cons</u>
<ul style="list-style-type: none"> • Wastewater heat recovery has the potential to lower the energy use associated with onsite water reuse treatment. The biggest opportunity is in multi-family residential and mixed-used buildings. • Wastewater heat recovery and onsite water reuse can have synergies when installed together, such as shared infrastructure. 	<ul style="list-style-type: none"> • Adding wastewater heat recovery to a building will add cost and take up building footprint. • Including wastewater heat recovery in a district-scale system can be highly complex, as it would require a district energy system to recover and distribute the energy. • There are limited examples of the technology being successfully installed and operated in the United States. Therefore, SFPUC is incentivizing the voluntary installation of these systems to gather additional information.

Recommendations for Wastewater Heat Recovery Systems

- The best opportunity to install a drain-heat recovery system in a single-family home application would be during new construction or a major renovation, although this is a minimal market since there are limited single family home development opportunities in San Francisco. Application of this technology in existing homes would

most likely be limited due to technical challenges around physical space constraints. It is not recommended to require installation of drain-heat recovery systems in new San Francisco single-family homes.

- It is recommended for the SFPUC to continue to encourage wastewater heat recovery systems in larger individual buildings with onsite water reuse systems and at the district-scale via the Onsite Water Reuse Grant Program because wastewater heat recovery systems have the potential to significantly offset the energy consumption of onsite water reuse systems. Voluntary use of the technology will allow staff to gather more information about the potential benefits and implementation.

6. Solar Thermal Water Heating Systems: Evaluating Implementation in San Francisco

Solar thermal technology is a well-established means of heating domestic hot water. Over the last 40 years the technology has been refined and improved upon. Today's solar thermal products follow established codes, certifications (Solar Rating and Certification Corporation (SRCC)), and make use of modern engineering practices.

For the purposes of this document, Flat Plate Collector (FPC) and Evacuated Tube collectors are considered. These two technologies are commercially available, have proven track records, and meet commercial and residential water heating needs. FPC and Evacuated Tube collectors rely on standard solar principles such as good sun exposure and southern orientation. These collectors are manufactured in various sizes; 4' x 10' is a common size for commercial installations. Both collector types are comprised of copper tubing (which contains the fluid that is heated by the sun) inside an insulated glass enclosure. These systems are very modular; collectors can be added together in groups to increase the system size depending on the energy production requirements for a given site. These characteristics make FPC and Evacuated Tube collectors ideal for roof top installations.

In San Francisco's climate, FPC and Evacuated Tube collectors are capable of heating water to 140 degrees Fahrenheit. Using industry standards, an estimate can be made of the energy production of a solar thermal system in San Francisco. A FPC and Evacuated Tube collector will generate about 1,000 BTU's per square foot of collector on a sunny day (850-1,000 watts/meter squared). Therefore, a standard sized 4' x 10' collector will produce about 40,000 BTU/day (which is equivalent to 12 kWh).

Pricing for commercial systems is based on a price per square foot of collector.¹ In San Francisco, prices range from \$190 to \$250 per square foot of collector, depending on site conditions and project complexity. For example, in 2020, a commercial solar thermal system (with 16 collectors) was installed at a low-income multifamily housing development. The total project cost was \$152,885, or \$237 per square foot of installed collector. The cost of a fully installed residential system in San Francisco is typically between \$6,500 and \$14,000.

System sizing and cost savings can be calculated based on the energy needs of a business or residence and current utility rates. There are several online calculation tools that are free to users. Links to two examples are shown below.

- https://www.eere.energy.gov/femp/solar_hotwater_system/
- <http://www.freehotwater.com/solar-calculators/solar-thermal-calculator/>

Below are some considerations for San Francisco businesses to factor into their evaluation process when looking into FPC and Evacuated Tube solar thermal systems.

Table 8. Considerations for evaluating solar thermal systems in San Francisco

Pros	Cons
<ul style="list-style-type: none"> • Solar thermal systems are very well suited for rooftop installation. • These systems generate high temperatures making them viable for many commercial and residential needs. • The products have a proven track record and are commercially available. • Energy production can be estimated with a high degree of certainty allowing businesses and home owners to better understand what their investment can do to reduce energy demand and increase savings. 	<ul style="list-style-type: none"> • Solar thermal systems are affected by fog, so locations on the east side of San Francisco will be better suited for this technology. • Solar professionals that are qualified to work on solar thermal systems are limited in the Bay Area. Finding the right company to do the installation will take some research. • Solar Thermal systems will not eliminate 100% of the annual domestic hot water heating needs. These systems need a backup source of energy in times of the year when there is not enough sun to cover the water heating needs. • The proposed site for a solar thermal installation should have minimal shading and a southern

¹ Financial information in this section is based on a review of California Solar Thermal Statistics as reported by the California Solar Initiative (CSI)-Thermal Program. Data can be found at <http://www.csithermalstats.org/>

Recommendations for Solar Thermal Systems

- Residential properties and commercial businesses that use a lot of hot water in their operations should consider a solar thermal installation. With the high temperatures that can be achieved, the systems can offer value to a wide range of businesses, particularly hotels, restaurants, and laundromats.

7. On-Demand Hot Water Heaters

In FY 2021-2022, the SFPUC proposes to launch a pilot program to rebate a portion off the purchase price of installed on-demand recirculating hot water heater pumps and to evaluate their water-savings potential. Manufacturers claim that such pumps can save water by reducing the amount of time customers, particularly in older homes, have to wait for hot water to hit showers and taps. When the pump is activated, it begins recirculating cold water that has been sitting in the hot water line and sends it back to the water heater through the cold water line. When the water reaches a desired temperature, a control turns the pump off. This process is similar to turning on the shower and letting the water run until it gets hot, but instead of the water going down the drain, it is returned back to the water heater. The target market for the pilot rebate program and study is residential single-family and small multi-family properties in which each dwelling unit has its own hot water tank. Multi-family properties with central hot water boilers that serve all dwelling units would not qualify. Other site conditions would also have to be met.

8. Summary of Recommendations

SFPUC staff have identified the following recommendations for the modifications of the Non-potable Ordinance in order to increase potable water savings from new buildings and development projects and increase opportunities for cost-effective systems:

- It is recommended to require commercial buildings to reuse blackwater to meet toilet and urinal flushing demands. Commercial buildings reusing blackwater can offset more potable water use as compared to graywater. For example, a commercial office building can offset 100% of toilet flushing demands with blackwater reuse compared to graywater reuse which can only offset about 20% of toilet flushing demands.
- It is recommended to require multi-family and mixed-use residential buildings to reuse graywater to meet toilet and urinal flushing, clothes washing, and irrigation demands. Residential buildings produce an excess of graywater and can achieve additional potable water savings by

going beyond the current requirement for only toilet and urinal flushing and irrigation demands to be met by adding clothes washing as an additional required end use.

- It is recommended to require new developments with more than one building to install a district-scale reuse system. District-scale water reuse systems have additional benefits compared to individual building treatment systems, as economies of scale can result in significantly lower capital costs, lower total energy consumption, and lower total footprint of treatment and storage equipment.
- To incorporate condensate and drain trap priming is a policy decision for the Board of Supervisors.
- To lower the threshold to 100,000 gsf is a policy decision for the Board of Supervisors.

SFPUC staff have identified the following recommendations pertaining to wastewater heat recovery systems:

- The best opportunity to install a drain-heat recovery system in a single-family home application would be during new construction or a major renovation, although this is a minimal market since there are limited single family home development opportunities in San Francisco. Application of this technology in existing homes would most likely be limited due to technical challenges around physical space constraints. It is not recommended to require installation of drain-heat recovery systems in new San Francisco single-family homes.
- It is recommended for the SFPUC to continue to encourage wastewater heat recovery systems in larger individual buildings with onsite water reuse systems and at the district-scale via the Onsite Water Reuse Grant Program because wastewater heat recovery systems have the potential to significantly offset the energy consumption of onsite water reuse systems. Voluntary use of the technology will allow staff to gather more information about the potential benefits and implementation.

SFPUC staff have identified the following recommendations pertaining to solar thermal systems:

- Residential properties and commercial businesses that use a lot of hot water in their operations should consider a solar thermal installation. With the high temperatures that can be achieved, the systems can offer value to a wide range of businesses, particularly hotels, restaurants, and laundromats.

References:

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Appendix A: Site Permit Status of Future Developments in San Francisco Between 250,000 and 100,000 Gross Square Feet

To understand the number of planned multi-family, mixed-use, and commercial development projects that would be impacted and anticipated potable water offsets, SFPUC staff reviewed the San Francisco Planning Department’s Pipeline Report published with 2020 Quarter 1 data and internal databases used for tracking future developments’ compliance with the ordinance. SFPUC staff, in consultation with other city agencies, determined that the most streamlined way to apply future potential amendments was to make them applicable to only planned development projects that have not yet filed a site permit. Therefore, SFPUC staff analyzed only planned development projects that have not yet filed for a site permit. Appendix A contains more information on these developments and Table 4 summarizes the number of future development projects and anticipated potable water offsets if the square footage threshold were lowered to 100,000 gsf. In Appendix A, any building marked with a Y in the ‘Site Permit Filed or Issued’ column was not included in the potable offset analysis for the above stated reason. The buildings with an ‘N’ were included, and the total number of buildings with an ‘N’ matches the numbers in Table 4.

Address	Type	Sq Ft	Site Permit Filed or Issued
145 Hooper St, 188 Hooper St	Residential	243,330	Y
625 Gilman	Residential	234,887	Y
2500-2698 Turk	Residential	234,450	Y
950 - 974 MARKET ST	Mixed-Use Residential	230,100	Y
1401 Illinois	Mixed-Use	228,869	Y
1401 - 1443, 1499 Illinois St	Mixed-Use	228,869	Y
1601 Mission	Residential	225,000	Y
555 HOWARD STREET	Mixed-Use Residential	210,906	Y
2201 Bay Shore Blvd	Residential	210,000	Y
MISSION BAY BLOCK 1 (VISITOR)	Hotel	207,000	Y
1550 Evans	Community Facility	203,775	Y
565 BRYANT ST	Hotel	193,045	N
600 Van Ness	Mixed-Use Residential	185,739	Y

Address	Type	Sq Ft	Site Permit Filed or Issued
302 silver	Residential	180,000	Y
1028 Market	Mixed-Use	178,308	Y
1064-1068 Mission	Residential	177,000	Y
1850 BRYANT ST	Office	175,333	Y
1995 Evans	Office	175,150	Y
2060 Folsom	Mixed-Use	165,350	Y
525 Harrison	Mixed-Use Residential	159,302	Y
1351 42nd Ave	Residential	159,000	Y
1990 Folsom	Residential	156,800	Y
1140 Folsom/99 Rausch St	Residential	153,675	Y
2130 3rd St	UCSF Child, Teen, Family Center and UCSF Dept of Psychiatry Building	150,000	N
1532 Harrison St	Mixed-Use Residential	144,487	Y
333 12th St	Residential	144,000	Y
150 HOOPER ST	Mixed-Use	142,784	Y
325 Fremont	Mixed-Use Residential	142,465	Y
1125 MARKET ST	Mixed-Use	139,852	Y
SEAWALL LOTS 323 & 324	Hotel	138,800	N
1546-1564 Market St	Mixed-Use Residential	138,000	N
1200 VAN NESS AV	Mixed-Use Residential	137,749	Y
360 5th Street	Mixed-Use Residential	132,560	Y
552 BERRY ST / 1 DE HARO ST	Mixed-Use	129,619	N
210 Taylor St	Mixed-Use	129,526	Y
2675 Folsom	Residential	127,082	Y
570 MARKET ST	Hotel	126,824	N
950 Gough	Mixed-Use Residential	125,000	Y
58 Kirkwood Ave	Residential	118,886	N
2800 Sloat	Residential	117,000	Y
1830 Alemany Blvd	Mixed-Use Residential	115,610	Y

Address	Type	Sq Ft	Site Permit Filed or Issued
424 Brannan ST	Hotel	105,989	Y

Appendix B: Wastewater Heat Recovery Case Studies

Solaire Building, Battery Park – Coupled Onsite Water Reuse and Wastewater Heat Recovery System

The Solaire building is a 27-story residential tower with 293 units located in New York City. Since 2003, Solaire has been operating an onsite blackwater treatment system that collects and treats 100 percent of the building's wastewater for use in toilet flushing, irrigation, and cooling. In 2017, Natural Systems Utilities retrofitted the system, adding a wastewater heat recovery system that transfers heat from the treated blackwater to the building's hot water boiler.

The heat recovery system consists of a heat pump and heat exchanger that serves to pre-heat water going to the building's hot water boiler. The heat source is the treated and disinfected wastewater, which exits the treatment train at about 75 °F, and drops to 55 °F after the heat recovery system. The heat recovery unit itself is smaller than a refrigerator, and the total cost of the retrofit was in the range of \$100,000 - \$150,000. The system has a capacity of 150,000 BTU/hr, or 44 kW, and operates at just under half of that capacity. The system can recover about 400 kWh/day, which is more than the energy consumption of the onsite reuse treatment train (~300 - 350 kWh/day), giving the onsite reuse system a net zero energy balance. Approximately 30% of water heating demands are offset by the wastewater heat recovery system.

The False Creek Neighborhood Energy Utility Wastewater Heat Recovery System

The False Creek Neighborhood Energy Utility (NEU) in Vancouver, Canada is a district-scale wastewater heat recovery system, the first of its kind in North America. The development contains multi-family residential, commercial, and community buildings and covers an area of over 4.2 million square feet. The NEU was implemented through a joint effort by the City of Vancouver and Metro Vancouver, the region's water and wastewater utility. The project cost roughly \$31 million to construct and was financed by the city through a combination of city funds and government loans.

The NEU distributes heat to 27 buildings and over 4,000 residential suites within the South East False Creek development, meeting about 70% of the total heating demand for the community. The NEU contains a 3.2 MW wastewater heat recovery unit and 16 MW natural gas peaking boilers for backup. The system uses both heat pumps and heat exchangers to recover thermal energy from untreated wastewater and transfer it to distribution water. This heated water is then sent to buildings, each of which contains an energy transfer station that transfers the thermal energy from the heated water to the building's mechanical system, which then distributes heat and hot water to

building occupants. The energy transfer stations also meter the building's energy production and consumption for billing.

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TDD/TTY No. (415) 554-5227

July 2, 2021

File No. 210536

Lisa Gibson
Environmental Review Officer
Planning Department
49 South Van Ness Ave, Suite 1400
San Francisco, CA 94103

Dear Ms. Gibson:

On June 29, 2021, Supervisor Mandelman introduced the following legislation as a substitute:

[Health, Business and Tax Regulations Codes - Alternate Water Sources for Non-Potable Applications]

Ordinance amending the Health Code to 1) lower the threshold, from 250,000 to 100,000 square feet of gross floor area, for requiring that new buildings be constructed, operated, and maintained using specified alternate water sources for required non-potable uses; 2) exempt certain affordable housing projects and property uses from that requirement; 3) require that certain categories of new buildings use specific sources of nonpotable water for specific purposes; 4) modify certain administrative review fees; 5) require the payment of excess use charges and penalties for failure to properly use and maintain alternate water source systems; and 6) the completion of reports on purified water, recycled water, and Non-potable District Systems; amending the Business and Tax Regulations Code to update certain annual license fee amounts for operating alternate water source systems; and affirming the Planning Department's determination under the California Environmental Quality Act.

This legislation is being transmitted to you for environmental review.

Angela Calvillo, Clerk of the Board
By: John Carroll, Assistant Clerk
Public Safety and Neighborhood Services Committee

Attachment

c: Devyani Jain, Deputy Environmental Review Officer
Joy Navarrete, Environmental Planner
Don Lewis, Environmental Planner

Not defined as a project under CEQA Guidelines Sections 15378 and 15060(c)(2) because it would not result in a direct or indirect physical change in the environment.

07/02/2021

Joy Navarrete

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Angela Calvillo, Clerk of the Board
By: John Carroll, Assistant Clerk
Public Safety and Neighborhood Services Committee

Attachment

c: Devyani Jain, Deputy Environmental Review Officer
Joy Navarrete, Environmental Planner
Don Lewis, Environmental Planner

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Fax No. (415) 554-5163
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May 19, 2021

File No. 210536

Lisa Gibson
Environmental Review Officer
Planning Department
49 South Van Ness Ave, Suite 1400
San Francisco, CA 94103

Dear Ms. Gibson:

On May 11, 2021, Supervisor Mandelman introduced the following legislation:

[Health, Business and Tax Regulations Codes - Alternate Water Sources for Non-Potable Applications]

Ordinance amending the Health Code to 1) lower the threshold, from 250,000 to 100,000 square feet of gross floor area, for requiring that new buildings be constructed, operated, and maintained using specified alternate water sources for required non-potable uses; 2) exempt certain affordable housing projects and property uses from that requirement; 3) require that certain categories of new buildings use specific sources of non-potable water for specific purposes; 4) require that new developments with multiple buildings install an alternate water source system serving the entire development; 5) modify certain administrative review fees; and 6) require the payment of excess use charges and penalties for failure to properly use and maintain alternate water source systems; amending the Business and Tax Regulations Code to update certain annual license fee amounts for operating alternate water source systems; and affirming the Planning Department's determination under the California Environmental Quality Act.

This legislation is being transmitted to you for environmental review.

Angela Calvillo, Clerk of the Board
By: John Carroll, Assistant Clerk
Public Safety and Neighborhood Services Committee

Attachment

c: Devyani Jain, Deputy Environmental Review Officer
Joy Navarrete, Environmental Planner
Don Lewis, Environmental Planner

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MEMORANDUM

TO: Carmen Chu, City Administrator
Phil Ginsburg, General Manager, Recreation and Parks Department
Alaric Degrafinried, Interim Director, Public Works
Elaine Forbes, Executive Director, Port
Ivar C. Satero, Airport Director
Andrico Penick, Director, Real Estate Division
Rich Hillis, Director, Planning Department
Eric D. Shaw, Director, Mayor's Office of Housing and Community Development
Dr. Grant Colfax, Director, Department of Public Health
Patrick O'Riordan, Director, Department of Building Inspection
Michael Carlin, Acting General Manager, San Francisco Public Utilities Commission

FROM: John Carroll, Assistant Clerk,
Public Safety and Neighborhood Services Committee,
Board of Supervisors

DATE: May 19, 2021

SUBJECT: LEGISLATION INTRODUCED

The Board of Supervisors' Public Safety and Neighborhood Services Committee has received the following proposed legislation, introduced by Supervisor Mandelman on May 11, 2021:

File No. 210536

Ordinance amending the Health Code to 1) lower the threshold, from 250,000 to 100,000 square feet of gross floor area, for requiring that new buildings be constructed, operated, and maintained using specified alternate water sources for required non-potable uses; 2) exempt certain affordable housing projects and property uses from that requirement; 3) require that certain categories of new buildings use specific sources of non-potable water for specific purposes; 4) require that new developments with multiple buildings install an alternate water source system serving the entire development; 5) modify certain administrative review fees; and 6) require the payment of excess use charges and penalties for failure to properly use and maintain alternate water source systems; amending the

Continues on following page

Business and Tax Regulations Code to update certain annual license fee amounts for operating alternate water source systems; and affirming the Planning Department's determination under the California Environmental Quality Act.

If you have any comments or reports to be included with the file, please forward them to me at the Board of Supervisors, City Hall, Room 244, 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102.

- c: Offices of Chair Mar and Supervisor Mandelman
Ken Bukowski, Office of the City Administrator
Lihmei Leu, Office of the City Administrator
Tal Quetone, Office of the City Administrator
Sarah Madland, Recreation and Parks Department
David Steinberg, Public Works
Jeremy Spitz, Public Works
John Thomas, Public Works
Lena Liu, Public Works
Amy Quesada, Port
Boris Delepine, Port
Cathy Widener, Airport
Scott Sanchez, Planning Department
Corey Teague, Planning Department
Lisa Gibson, Planning Department
Adam Varat, Planning Department
AnMarie Rodgers, Planning Department
Eugene Flannery, Mayor's Office of Housing and Community Development
Amy Chan, Mayor's Office of Housing and Community Development
Arielle Fleisher, Department of Public Health
Greg Wagner, Department of Public Health
Dr. Naveena Bobba, Department of Public Health
Sneha Patil, Department of Public Health
Patty Lee, Department of Building Inspection
John Murray, Department of Building Inspection
Masood Ordikhani, San Francisco Public Utilities Commission
John Scarpulla, San Francisco Public Utilities Commission

Introduction Form

By a Member of the Board of Supervisors or Mayor

Time stamp
or meeting date

I hereby submit the following item for introduction (select only one):

- 1. For reference to Committee. (An Ordinance, Resolution, Motion or Charter Amendment).
- 2. Request for next printed agenda Without Reference to Committee.
- 3. Request for hearing on a subject matter at Committee.
- 4. Request for letter beginning : "Supervisor inquiries"
- 5. City Attorney Request.
- 6. Call File No. from Committee.
- 7. Budget Analyst request (attached written motion).
- 8. Substitute Legislation File No.
- 9. Reactivate File No.
- 10. Topic submitted for Mayoral Appearance before the BOS on

Please check the appropriate boxes. The proposed legislation should be forwarded to the following:

- Small Business Commission
- Youth Commission
- Ethics Commission
- Planning Commission
- Building Inspection Commission

Note: For the Imperative Agenda (a resolution not on the printed agenda), use the Imperative Form.

Sponsor(s):

Subject:

The text is listed:

Signature of Sponsoring Supervisor:

For Clerk's Use Only

Introduction Form

By a Member of the Board of Supervisors or Mayor

Time stamp
or meeting date

I hereby submit the following item for introduction (select only one):

- 1. For reference to Committee. (An Ordinance, Resolution, Motion or Charter Amendment).
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- 5. City Attorney Request.
- 6. Call File No. [] from Committee.
- 7. Budget Analyst request (attached written motion).
- 8. Substitute Legislation File No. []
- 9. Reactivate File No. []
- 10. Topic submitted for Mayoral Appearance before the BOS on []

Please check the appropriate boxes. The proposed legislation should be forwarded to the following:

- Small Business Commission
- Youth Commission
- Ethics Commission
- Planning Commission
- Building Inspection Commission

Note: For the Imperative Agenda (a resolution not on the printed agenda), use the Imperative Form.

Sponsor(s):

Mandelman, Mar

Subject:

[Health, Business and Tax Regulations Codes - Alternate Water Sources for Non-Potable Applications]

The text is listed:

Ordinance amending the Health Code to 1) lower the threshold, from 250,000 to 100,000 square feet of gross floor area, for requiring that new buildings be constructed, operated, and maintained using specified alternate water sources for required non-potable uses; 2) exempt certain affordable housing projects and property uses from that requirement; 3) require that certain categories of new buildings use specific sources of nonpotable water for specific purposes; 4) require that new developments with multiple buildings install an alternate water source system serving the entire development; 5) modify certain administrative review fees; and 6) require the payment of excess use charges and penalties for failure to properly use and maintain alternate water source systems; amending the Business and Tax Regulations Code to update certain annual license fee amounts for operating alternate water source systems, and amending the Planning Department's determination under the California Environmental Quality Act.

Signature of Sponsoring Supervisor: []

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