

1 An Ordinance to modify Appendix G of the Building Code by adopting new flood
2 mapping as provided by FEMA; and containing a savings clause and effective date clause.

3 **BE IT ORDAINED BY THE CITY OF SAINT LOUIS AS FOLLOWS:**

4 **SECTION ONE.** Ordinance 68788, approved November 8, 2010, is hereby amended; Appendix G
5 of such Ordinance is hereby repealed.

6 **SECTION TWO.** In lieu thereof adding a new Appendix G as follows:

7 **APPENDIX G**

8 **FLOOD RESISTANT CONSTRUCTION**

9 **SECTION G101**

10 **STATUTORY AUTHORIZATION, FINDINGS OF FACT, AND PURPOSES**

11 **G101.1 Statutory authorization.** The Legislature of the State of Missouri has in 82.010
12 RSMo. and 82.020 RSMo. delegated the responsibility to local governmental units to adopt
13 floodplain management regulations designed to protect the health, safety, and general welfare.

14 Therefore, the Board of Aldermen of the City of Saint Louis, Missouri ordains as follows:

15 **G101.2 Findings of fact.**

16 **G101.2 1 Flood losses resulting from periodic inundation.** The special flood hazard areas of the
17 City of Saint Louis, Missouri are subject to inundation which results in loss of life and property,
18 health and safety hazards, disruption of commerce and governmental services, extraordinary public
19 expenditures for flood protection and relief, and impairment of the tax base; all of which adversely

1 affect the public health, safety and general welfare.

2 **G101.2.2 General causes of the flood losses.** These flood losses are caused by:

- 3 1. the cumulative effect of development in any delineated floodplain causing increases in flood
4 heights and velocities; and
- 5 2. the occupancy of flood hazard areas by uses vulnerable to floods, hazardous to others,
6 inadequately elevated, or otherwise unprotected from flood damages.

7 **G101.2.3 Methods used to analyze flood hazards.** The Flood Insurance Study (FIS) that is the
8 basis of this appendix uses a standard engineering method of analyzing flood hazards which consist
9 of a series of interrelated steps.

- 10 a. Selection of a base flood that is based upon engineering calculations which permit a
11 consideration of such flood factors as its expected frequency of occurrence, the area
12 inundated, and the depth of inundation. The base flood selected for this appendix is
13 representative of large floods which are characteristic of what can be expected to occur
14 on the particular streams subject to this appendix. It is in the general order of a flood which
15 could be expected to have a one percent (1%) chance of occurrence in any one (1) year as
16 delineated on the Federal Insurance Administrator's FIS, and illustrative materials dated
17 May 24, 2011, as amended, and any future revisions thereto.
- 18 b. Calculation of water surface profiles are based on a standard hydraulic engineering analysis
19 of the capacity of the stream channel and overbank areas to convey the regulatory flood.
- 20 c. Computation of a floodway required to convey this flood without increasing flood heights
21 more than one (1) foot at any point.

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1 d. Delineation of floodway encroachment lines within which no development is permitted that
2 would cause any increase in flood height.

3 e. Delineation of flood fringe, i.e., that area outside the floodway encroachment lines, but still
4 subject to inundation by the base flood.

5 **G101.3 Statement of purpose.** It is the purpose of this appendix to promote the public health,
6 safety, and general welfare; to minimize those losses described in Section G101.2.1; to establish or
7 maintain the community's eligibility for participation in the National Flood Insurance Program
8 (NFIP) as defined in 44 Code of Federal Regulations (CFR) 59.22(a)(3); and to meet the
9 requirements of 44 CFR 60.3(d) by applying the provisions of this appendix to:

- 10 1. restrict or prohibit uses that are dangerous to health, safety, or property in times of flooding or
11 cause undue increases in flood heights or velocities;
- 12 2. require uses vulnerable to floods, including public facilities that serve such uses, be provided
13 with flood protection at the time of initial construction; and
- 14 3. protect individuals from buying lands that are unsuited for the intended development purposes
15 due to the flood hazard.

16 **SECTION G102**
17 **DEFINITIONS**

18
19 **G102.1 Scope..** Unless specifically defined below, words or phrases used in this appendix shall be
20 interpreted so as to give them the same meaning they have in common usage and to give this
21 appendix its most reasonable application.

22 **100-YEAR FLOOD.** See BASE FLOOD.

23 **ACCESSARY STRUCTURE.** Means the same as APPURTENANT STRUCTURE.

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- 1 **ACTUARIAL RATES.** See RISK PREMIUM RATES.
- 2 **ADMINISTRATOR.** The Federal Insurance Administrator.
- 3 **AGENCY.** The Federal Emergency Management Agency (FEMA).
- 4 **APPEAL.** A request for review of the Floodplain Administrator's interpretation of any provision of
5 this appendix or a request for a variance.
- 6 **APPURTENANT STRUCTURE.** A structure that is on the same parcel of property as the
7 principle structure to be insured and the use of which is incidental to the use of the principal
8 structure.
- 9 **AREA OF SPECIAL FLOOD HAZARD.** The land in the floodplain within the City of Saint
10 Louis subject to a one percent or greater chance of flooding in any given year.
- 11 **BASE FLOOD.** The flood having a one percent (1%) chance of being equaled or exceeded in any
12 given year.
- 13 **BASEMENT.** Any area of the structure having its floor subgrade (below ground level) on all sides.
- 14 **BUILDING.** See STRUCTURE.
- 15 **CHIEF EXECUTIVE OFFICER** or **CHIEF ELECTED OFFICIAL.** The Mayor of the City of
16 Saint Louis.
- 17 **COMMUNITY.** The City of Saint Louis, Missouri.
- 18 **DEVELOPMENT.** Any man-made change to improved or unimproved real estate, including but
19 not limited to buildings or other structures, levees, levee systems, mining, dredging, filling, grading,
20 paving, excavation or drilling operations, or storage of equipment or materials.
- 21 **ELEVATED BUILDING.** For insurance purposes, a non-basement building which has its lowest

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1 elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or
2 columns.

3 **ELIGIBLE COMMUNITY** or **PARTICIPATING COMMUNITY**. A community for which the
4 Administrator has authorized the sale of flood insurance under the National Flood Insurance
5 Program (NFIP).

6 **EXISTING CONSTRUCTION**. For the purposes of determining rates, structures for which the
7 "start of construction" commenced before the effective date of the FIRM or before January 1, 1975,
8 for FIRMs effective before that date. **EXISTING CONSTRUCTION** may also be referred to as
9 **EXISTING STRUCTURES**.

10 **EXISTING MANUFACTURED HOME PARK OR SUBDIVISION**. A manufactured home
11 park or subdivision for which the construction of facilities for servicing the lots on which the
12 manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the
13 construction of streets, and either final site grading or the pouring of concrete pads) is completed
14 before the effective date of the floodplain management regulations adopted by the City of Saint
15 Louis.

16 **EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION**.
17 The preparation of additional sites by the construction of facilities for servicing the lots on which the
18 manufactured homes are to be affixed (including the installation of utilities, the construction of
19 streets, and either final site grading or the pouring of concrete pads).

20 **FLOOD** or **FLOODING**. A general and temporary condition of partial or complete inundation of
21 normally dry land areas from (1) the overflow of inland and/or (2) the unusual and rapid

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1 accumulation or runoff of surface waters from any source.

2 **FLOOD BOUNDARY AND FLOODWAY MAP (FBFM).** An official map of the City of Saint
3 Louis, Missouri on which the Administrator has delineated both special flood hazard areas and the
4 designated regulatory floodway.

5 **FLOOD ELEVATION DETERMINATION.** A determination by the Administrator of the water
6 surface elevations of the base flood, that is, the flood level that has a one percent (1%) or greater
7 chance of occurrence in any given year.

8 **FLOOD ELEVATION STUDY.** An examination, evaluation and determination of flood hazards.

9 **FLOOD FRINGE.** The area outside the floodway encroachment lines, but still subject to
10 inundation by the regulatory flood.

11 **FLOOD HAZARD BOUNDARY MAP (FHBM).** An official map of the City of Saint Louis,
12 issued by the Administrator, where the boundaries of the flood areas having special flood hazards
13 have been designated as (unnumbered or numbered) A zones.

14 **FLOOD INSURANCE RATE MAP (FIRM).** An official map of this city, on which the
15 Administrator has delineated both the special flood hazard areas and the risk premium zones
16 applicable to the city.

17 **FLOOD INSURANCE STUDY (FIS).** An examination, evaluation and determination of flood
18 hazards and, if appropriate, corresponding water surface elevations.

19 **FLOODPLAIN.** or **FLOOD-PRONE AREA.** Any land area susceptible to being inundated by
20 water from any source (see "flooding").

21 **FLOODPLAIN ADMINISTRATOR.** A Missouri Licensed design professional as appointed by

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1 the Building Commissioner.

2 **FLOODPLAIN MANAGEMENT.** The operation of an overall program of corrective and
3 preventive measures for reducing flood damage, including but not limited to emergency
4 preparedness plans, flood control works, and floodplain management regulations.

5 **FLOODPLAIN MANAGEMENT REGULATIONS.** Ordinances, subdivision regulations,
6 building codes, health regulations, special purpose ordinances (such as floodplain and grading
7 ordinances) and other applications of police power. The term describes such state or local
8 regulations, in any combination thereof, that provide standards for the purpose of flood damage
9 prevention and reduction.

10 **FLOODPROOFING.** Any combination of structural and nonstructural additions, changes, or
11 adjustments to structures that reduce or eliminate flood damage to real estate or improved real
12 property, water and sanitary facilities, or structures and their contents.

13 **FLOODWAY** or **REGULATORY FLOODWAY.** The channel of a river or other watercourse and
14 the adjacent land areas that must be reserved in order to discharge the base flood without
15 cumulatively increasing the water surface elevation more than one (1) foot.

16 **FLOODWAY ENCROACHMENT LINES.** The lines marking the limits of floodways on
17 Federal, State and local floodplain maps.

18 **FREEBOARD.** Freeboard is a factor of safety usually expressed in feet above a flood level for
19 purposes of flood plain management. Freeboard tends to compensate for the many unknown factors
20 that could contribute to flood heights greater than the height calculated for a selected size flood and
21 floodway conditions, such as bridge openings, and the hydrological effect of urbanization on the

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1 watershed. For purposes of this code, freeboard shall be at least one (1) foot above the base flood
2 elevation.

3 **FUNCTIONALLY DEPENDENT USE.** A use that cannot perform its intended purpose unless it
4 is located or carried out in close proximity to water. This term includes only docking facilities and
5 facilities that are necessary for the loading and unloading of cargo or passengers, but does not
6 include long-term storage or related manufacturing facilities.

7 **HIGHEST ADJACENT GRADE.** The highest natural elevation of the ground surface prior to
8 construction next to the proposed walls of a structure.

9 **HISTORIC STRUCTURE.** Any structure that is (a) listed individually in the National Register of
10 Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by
11 the Secretary of the Interior as meeting the requirements for individual listing on the National
12 Register; (b) certified or preliminarily determined by the Secretary of the Interior as contributing to
13 the historical significance of a registered historic district or a district preliminarily determined by the
14 Secretary to qualify as a registered historic district; (c) individually listed on a state inventory of
15 historic places in states with historic preservation programs which have been approved by the
16 Secretary of the Interior; or (d) individually listed on a local inventory of historic places in
17 communities with historic preservation programs that have been certified either (1) by an approved
18 state program as determined by the Secretary of the Interior or (2) directly by the Secretary of the
19 Interior in states without approved programs.

20 **LOWEST FLOOR.** The lowest floor of the lowest enclosed area, including basement. An
21 unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access, or

1 storage, in an area other than a basement area, is not considered a building's lowest floor, **provided**
2 that such enclosure is not built so as to render the structure in violation of the applicable
3 floodproofing design requirements of this code.

4 **MANUFACTURED HOME.** A structure, transportable in one or more sections, that is built on a
5 permanent chassis and is designed for use with or without a permanent foundation when attached to
6 the required utilities. The term "manufactured home" **does not include** a "recreational vehicle."

7 **MANUFACTURED HOME PARK OR SUBDIVISION.** A parcel (or contiguous parcels) of land
8 divided into two or more manufactured home lots for rent or sale.

9 **MAP.** The Flood Hazard Boundary Map (FHBM), Flood Insurance Rate Map (FIRM), or the Flood
10 Boundary and Floodway Map (FBFM) for the City of Saint Louis, issued by the Federal Emergency
11 Management Agency (FEMA).

12 **MARKET VALUE** or **FAIR MARKET VALUE.** An estimate of what is fair, economic, just and
13 equitable value under normal local market conditions.

14 **MEAN SEA LEVEL.** For purposes of the National Flood Insurance Program (NFIP), the National
15 Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on
16 this city's Flood Insurance Rate Map (FIRM) are referenced.

17 **NEW CONSTRUCTION.** For the purposes of determining insurance rates, structures for which
18 the "start of construction" commenced on or after the effective date of an initial FIRM or after
19 December 31, 1974, whichever is later, and includes any subsequent improvements to such
20 structures. For floodplain management purposes, "new construction" means structures for which the
21 "start of construction" commenced on or after the effective date of the floodplain management

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1 regulations adopted by the City of Saint Louis and includes any subsequent improvements to such
2 structures.

3 **NEW MANUFACTURED HOME PARK OR SUBDIVISION.** A manufactured home park or
4 subdivision for which the construction of facilities for servicing the lot on which the manufactured
5 homes are to be affixed (including at a minimum, the installation of utilities, the construction of
6 streets, and either final site grading or the pouring of concrete pads) is completed on or after the
7 effective date of floodplain management regulations adopted by the City of Saint Louis.

8 **(NFIP).** The National Flood Insurance Program (NFIP).

9 **PARTICIPATING COMMUNITY also known as an ELIGIBLE COMMUNITY.** A
10 community in which the Administrator has authorized the sale of flood insurance.

11 **PERSON.** Any individual or group of individuals, corporation, partnership, association, or any
12 other entity, including Federal, State, and local governments and agencies.

13 **PRINCIPALLY ABOVE GROUND.** At least 51 percent (51%) of the actual cash value of the
14 structure, less land value, is above ground.

15 **RECREATIONAL VEHICLE.** A vehicle which is (a) built on a single chassis; (b) four hundred
16 (400) square feet or less when measured at the largest horizontal projections; (c) designed to be self-
17 propelled or permanently towable by a light- duty truck; and (d) designed primarily not for use as a
18 permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal
19 use.

20 **REMEDY A VIOLATION.** To bring the structure or other development into compliance with
21 Federal, State, or local floodplain management regulations; or, if this is not possible, to reduce the

1 impacts of its noncompliance.

2 **REPETITIVE LOSS.** Flood-related damages sustained by a structure on two separate occasions
3 during a ten- (10) year for which the cost of repairs at the time of each such flood event, equals or
4 exceeds twenty-five percent (25%) of the market value of the structure before the damage occurred.

5 **RISK PREMIUM RATES.** Those rates established by the Administrator pursuant to individual
6 city studies and investigations which are undertaken to provide flood insurance in accordance with
7 Section 1307 of the National Flood Disaster Protection Act of 1973 and the accepted actuarial
8 principles. RISK PREMIUM RATES include provisions for operating costs and allowances.

9 **SPECIAL FLOOD HAZARD AREA.** See AREA OF SPECIAL FLOOD HAZARD.

10 **SPECIAL HAZARD AREA.** An area having special flood hazards and shown on an FHBM,
11 FIRM or FBFM as zones (unnumbered or numbered) A and AE.

12 **START OF CONSTRUCTION.** Includes substantial-improvements, and means the date the
13 building permit was issued, provided the actual start of construction, repair, reconstruction,
14 rehabilitation, addition placement, or other improvements were within one hundred eighty (180)
15 days of the permit date. The **actual start** means either the first placement of permanent construction
16 of a structure on a site, such as the pouring of slabs or footings, the installation of piles, the
17 construction of columns, any work beyond the stage of excavation, or the placement of a
18 manufactured home on a foundation. Permanent construction does not include land preparation, such
19 as clearing, grading and filling, the installation of streets and/or walkways, excavation for a
20 basement, footings, piers, foundations, the erection of temporary forms, nor installation on the
21 property of accessory structures, such as garages or sheds not occupied as dwelling units or not part

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1 of the main structure. For a substantial-improvement, the **actual start of construction** means the
2 first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that
3 alteration affects the external dimensions of the building.

4 **STATE COORDINATING AGENCY.** That agency of the state government, or other office
5 designated by the governor of the state or by state statute at the request of the Administrator to assist
6 in the implementation of the National Flood Insurance Program (NFIP) in that state.

7 **STRUCTURE.** For floodplain management purposes, a walled and roofed building, including a gas
8 or liquid storage tank, that is principally above ground, as well as a manufactured home.

9 **STRUCTURE** for insurance purposes, means a walled and roofed building, other than a gas or liquid
10 storage tank that is principally above ground and affixed to a permanent site, as well as a
11 manufactured home on a permanent foundation. For the latter purpose, the term includes a building
12 while in the course of construction, alteration or repair, but does not include building materials or
13 supplies intended for use in such construction, alteration or repair, unless such materials or supplies
14 are within an enclosed building on the premises.

15 **SUBSTANTIAL-DAMAGE.** Damage of any origin sustained by a structure whereby the cost of
16 restoring the structure to its before damaged condition would equal or exceed fifty percent (50%) of
17 the market value of the structure before the damage occurred. The term includes Repetitive Loss
18 Buildings. (See definition).

19 For purposes of this definition “repair” is considered to occur when the first repair or
20 reconstruction of any wall, ceiling, floor, or other structural part of the building commences.

21 The term does not apply to:

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1 Any project for improvement of a building required to comply with existing health, sanitary, or
2 safety code specifications which have been identified by the code official and which are solely
3 necessary to assure safe living conditions, or

4 Any alteration of a “historic structure” provided that the alteration will not preclude the
5 structure’s designation as a “historic structure” or

6 Any improvement to a building.

7 **SUBSTANTIAL IMPROVEMENT.** Any combination of reconstruction, alteration or
8 improvement to a building, taking place during a ten (10) year period, in which the cumulative
9 percentage of improvements equals or exceeds fifty percent (50%) of the current market value of the
10 building. For the purposes of this definition, an improvement occurs when the first alteration of any
11 wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration
12 affects the external dimensions of the building. This term includes structures, which have incurred
13 “repetitive loss” or “substantial damage”, regardless of the actual repair work done.

14 The term does not apply to:

15 Any project for improvement of a building required to comply with existing health, sanitary, or
16 safety code specifications which have been identified by the code official and which are solely
17 necessary to assure safe living conditions, or

18 Any alteration of a “historic structure” provided that the alteration will not preclude the
19 structure’s continued designation as a “historic structure”, or

20 Any building that has been damaged from any source or is categorized as repetitive loss.

21 **SUBSTANTIALLY IMPROVED EXISTING MANUFACTURED HOME PARKS OR**

1 **SUBDIVISIONS.** Where the repair, reconstruction, rehabilitation or improvement of the streets,
2 utilities and pads equals or exceeds 50 percent (50%) of the value of the streets, utilities and pads
3 before the repair, reconstruction or improvement commenced.

4 **VARIANCE.** A grant of relief by the city from the terms of a floodplain management regulation.
5 Flood insurance requirements remain in place for any varied use or structure and cannot be varied by
6 the city.

7 **VIOLATION.** The failure of a structure or other development to be fully compliant with the City's
8 floodplain management regulations. A structure or other development without the elevation
9 certificate, other certifications, or other evidence of compliance required by this appendix is
10 presumed to be in violation until such time as that documentation is provided.

11 **WATER SURFACE ELEVATION.** The height, in relation to the National Geodetic Vertical
12 Datum (NGVD) of 1929 (or other datum where specified) of floods of various magnitudes and
13 frequencies in the floodplain.

14 **SECTION G103**
15 **GENERAL PROVISIONS**
16

17 **G103.1. Lands to which this appendix applies.** This appendix shall apply to all lands within the
18 jurisdiction of the City of Saint Louis, Missouri identified as numbered and unnumbered A zones
19 and AE zones, on the Flood Insurance Rate Maps (FIRM) 2903850014C, 2903850018C,
20 2903850050C, 2903850051C, 2903850052C, 2903850053C, 2903850054C, 2903850056C,
21 2903850061C, 2903850062C, 2903850064C, 2903850066C, 2903850068C, 2903850077C,
22 2903850079C, 2903850081C, 2903850082C, 2903850083C, 2903850084C, 2903850091C,

1 2903850092C, 2903850102C, 2903850103C, 2903850104C, 2903850106C and 2903850111C,
2 dated May 24, 2011, as amended, and any future revisions thereto. In all areas covered by this
3 appendix, no development shall be permitted except through the issuance of a floodplain
4 development permit, granted by the Board of Aldermen or its duly designated representative
5 under such safeguards and restrictions as the Board of Aldermen or the designated representative
6 may reasonably impose for the promotion and maintenance of the general welfare, health of the
7 inhabitants of the community, and as specifically noted in Section G105.

8 **G103.2. Floodplain Administrator.** A Missouri licensed design professional as appointed by the
9 Building Commissioner is hereby designated as the Floodplain Administrator under this Appendix.

10 **G103.3 Compliance.** No development located within the special flood hazard areas of this
11 community shall be located, extended, converted, or structurally altered without full compliance
12 with the terms of this appendix and other applicable regulations.

13 **G103.4 Abrogation and greater restrictions.** It is not intended by this appendix to repeal,
14 abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this
15 appendix imposes greater restrictions, the provisions of this appendix shall prevail. All other
16 ordinances inconsistent with this appendix are hereby repealed to the extent of the inconsistency
17 only.

18 **G103.5 Interpretation.** In their interpretation and application, the provisions of this appendix shall
19 be held to be minimum requirements, shall be liberally construed in favor of the governing body, and
20 shall not be deemed a limitation or repeal of any other powers granted by State statutes.

21

1 **G103.6 Warning and disclaimer of liability.** The degree of flood protection required by this
2 appendix is considered reasonable for regulatory purposes and is based on engineering and scientific
3 methods of study. Larger floods may occur on rare occasions or the flood heights may be increased
4 by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This
5 appendix does not imply that areas outside the floodway and flood fringe or land uses permitted
6 within such areas will be free from flooding or flood damage. This appendix shall not create a
7 liability on the part of the City of Saint Louis, any officer or employee thereof, for any flood
8 damages that may result from reliance on this appendix or any administrative decision lawfully made
9 thereunder.

10 **G103.7 Severability.** If any section, clause, provision, or portion of this appendix is adjudged
11 unconstitutional or invalid by a court of appropriate jurisdiction, the remainder of this appendix shall
12 not be affected thereby.

13 **G103.8 Certificate of flood plain status.** A Special Inspection of records to indicate whether a
14 property is located within the flood plain area as designated by the Official Flood Plain Maps
15 provided by FEMA (Federal Emergency Management Agency) to the City of St. Louis. This letter
16 does not imply that the referenced property will or will not be free from flooding or damage. A
17 property not in a Special Flood Hazard Area could be damaged by a flood greater than that predicted
18 on the FIRM or from a local drainage problem not shown on the map. This letter does not create
19 liability on the part of the City, or any officer or employee thereof, for any damage that results from
20 reliance on this determination. The fee for this letter shall be as listed in Table 109.3.1.

21 **SECTION G104**
22 **ADMINISTRATION**

1
2 **G104.1 Floodplain development permit.** A floodplain development permit shall be required for
3 all proposed construction or other development, including the placement of manufactured homes, in
4 the areas described in Section G103.1. No person, firm, corporation, or unit of government shall
5 initiate any development or substantial-improvement or cause the same to be done without first
6 obtaining a separate floodplain development permit for each structure or other development.

7 **G104.2 Designation of floodplain administrator.** The Missouri licensed design professional as
8 designated by the Building Commissioner is hereby appointed to administer and implement the
9 provisions of this appendix.

10 **G104.3 Duties and responsibilities of floodplain administrator.** The duties of the floodplain
11 administrator shall include, but not be limited to:

- 12 1. Review of all applications for floodplain development permits to assure that sites are
13 reasonably safe from flooding and that the floodplain development permit requirements of
14 this appendix have been satisfied;
- 15 2. Review of all applications for floodplain development permits for proposed development to
16 assure that all necessary permits have been obtained from Federal, State, or local
17 governmental agencies from which prior approval is required by Federal, State, or local law;
- 18 3. Review all subdivision proposals and other proposed new development, including
19 manufactured home parks or subdivisions, to determine whether such proposals will be
20 reasonably safe from flooding;
- 21 4. Issue floodplain development permits for all approved applications;
- 22 5. Notify adjacent communities and the Missouri State Emergency Management Agency (MO

1 SEMA) prior to any alteration or relocation of a watercourse, and submit evidence of such
2 notification to the Federal Emergency Management Agency (FEMA);

3 6. Assure that the flood carrying capacity is not diminished and shall be maintained within the
4 altered or relocated portion of any watercourse;

5 7. Verify and maintain a record of the actual elevation (in relation to mean sea level) of the
6 lowest floor, including basement, of all new or substantially improved structures;

7 8. Verify and maintain a record of the actual elevation (in relation to mean sea level) that the
8 new or substantially improved non-residential structures have been floodproofed;

9 9. When floodproofing techniques are utilized for a particular non-residential structure, the
10 floodplain administrator shall require certification from a Missouri licensed design
11 professional.

12 **G104.4 Application for floodplain development permit.** To obtain a floodplain development
13 permit, the applicant shall first file an application in writing on a form furnished for that purpose.

14 Every floodplain development permit application shall:

15 1. Describe the land on which the proposed work is to be done by lot, block and tract, house
16 and street address, or similar description that will readily identify and specifically locate the
17 proposed structure or work;

18 2. Identify and describe the work to be covered by the floodplain development permit;

19 3. Indicate the use or occupancy for which the proposed work is intended;

20 4. Indicate the assessed value of the structure and the fair market value of the improvement;

21 5. Specify whether development is located in designated flood fringe or floodway;

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- 1 6. Identify the existing base flood elevation and the elevation of the proposed development;
- 2 7. Give such other information as reasonably may be required by the floodplain administrator;
- 3 8. Be accompanied by plans and specifications for proposed construction; and
- 4 9. Be signed by the permittee or his authorized agent who may be required to submit evidence
- 5 to indicate such authority.

6 **SECTION G105**
7 **PROVISIONS FOR FLOOD HAZARD REDUCTION**
8

9 **G105.1 General standards.**

- 10 1. No permit for floodplain development shall be granted for new construction, substantial-
- 11 improvements, and other improvements, including the placement of manufactured homes, within
- 12 any numbered or unnumbered A zones and AE zones, unless the conditions of this section are
- 13 satisfied.
- 14 2. All areas identified as unnumbered A zones on the FIRM are subject to inundation of the 100-
- 15 year flood; however, the base flood elevation is not provided. Development within unnumbered
- 16 A zones is subject to all provisions of this appendix. If Flood Insurance Study data is not
- 17 available, the community shall obtain, review, and reasonably utilize any base flood elevation or
- 18 floodway data currently available from Federal, State, or other sources.
- 19 3. Until a floodway is designated, no new construction, substantial improvements, or other
- 20 development, including fill, shall be permitted within any numbered A zone or AE zone on the
- 21 FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when
- 22 combined with all other existing and anticipated development, will not increase the water surface

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1 elevation of the base flood more than one foot at any point within the community.

2 4. All new construction, subdivision proposals, substantial-improvements, prefabricated structures,
3 placement of manufactured homes, and other developments shall require:

4 a. design or adequate anchorage to prevent flotation, collapse, or lateral movement of the
5 structure resulting from hydrodynamic and hydrostatic loads, including the effects of
6 buoyancy;

7 b. construction with materials resistant to flood damage;

8 c. utilization of methods and practices that minimize flood damages;

9 d. all electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service
10 facilities be designed and/or located so as to prevent water from entering or accumulating
11 within the components during conditions of flooding;

12 e. new or replacement water supply systems and/or sanitary sewage systems be designed to
13 minimize or eliminate infiltration of flood waters into the systems and discharges from the
14 systems into flood waters, and on-site waste disposal systems be located so as to avoid
15 impairment or contamination; and

16 f. subdivision proposals and other proposed new development, including manufactured home
17 parks or subdivisions, located within special flood hazard areas are required to assure that:

18 (1) all such proposals are consistent with the need to minimize flood damage;

19 (2) all public utilities and facilities, such as sewer, gas, electrical, and water systems are
20 located and constructed to minimize or eliminate flood damage;

21 (3) adequate drainage is provided so as to reduce exposure to flood hazards; and

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1 (4) all proposals for development, including proposals for manufactured home parks and
2 subdivisions, of five (5) acres or fifty (50) lots, whichever is lesser, include within such
3 proposals base flood elevation data.

4 5. Storage, material, and equipment

5 a. The storage or processing of materials within the special flood hazard area that are in time of
6 flooding buoyant, flammable, explosive, or could be injurious to human, animal, or plant life
7 is prohibited.

8 b. Storage of other material or equipment may be allowed if not subject to major damage by
9 floods, if firmly anchored to prevent flotation, or if readily removable from the area within
10 the time available after a flood warning.

11 6. Accessory Structures

12 Structures used solely for parking and limited storage purposes, not attached to any other
13 structure on the site, of limited investment value, and not larger than four hundred (400) square
14 feet, may be constructed at-grade and wet-floodproofed provided there is no human habitation or
15 occupancy of the structure; the structure is of single-wall design; a variance has been granted
16 from the standard floodplain management requirements of this appendix; and a floodplain
17 development permit has been issued.

18 **G105.2 Specific standards.**

19 1. In all areas identified as numbered and unnumbered A zones and AE zones, where base flood
20 elevation data have been provided, as set forth in Section G105.1 (2), the following provisions
21 are required:

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- 1 a. **Residential Construction.** New construction or substantial-improvement of any
2 residential structures, including manufactured homes, shall have the lowest floor,
3 including basement, elevated to or above one (1) foot above base flood elevation.
- 4 b. **Non-Residential Construction.** New construction or substantial-improvement of any
5 commercial, industrial, or other non-residential structures, including manufactured homes,
6 shall have the lowest floor, including basement, elevated to or above one (1) foot above the
7 base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed
8 so that below the base flood elevation the structure is watertight with walls substantially
9 impermeable to the passage of water and with structural components having the capability of
10 resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered
11 professional engineer or architect shall certify that the standards of this subsection are
12 satisfied. Such certification shall be provided to the Floodplain Administrator as set
13 forth in Section G104.3 (9).
- 14 c. Require, for all new construction and substantial-improvements, that fully enclosed areas
15 below lowest floor used solely for parking of vehicles, building access, or storage in an area
16 other than a basement and that are subject to flooding shall be designed to automatically
17 equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of
18 floodwaters. Designs for meeting this requirement must either be certified by a registered
19 professional engineer or architect or meet or exceed the following minimum criteria:
20 (1) A minimum of two (2) openings having a total net area of not less than one (1) square
21 inch for every square foot of enclosed area subject to flooding shall be provided; and

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1 (2) the bottom of all openings shall be no higher than one (1) foot above grade. Openings
2 may be equipped with screens, louvers, valves, or other coverings or devices provided
3 that they permit the automatic entry and exit of floodwaters.

4 **G105.3 Manufactured homes.**

5 1. All manufactured homes to be placed within all unnumbered and numbered A zones and AE
6 zones, on the community's FIRM shall be required to be installed using methods and
7 practices that minimize flood damage. For the purposes of this requirement, manufactured
8 homes must be elevated and anchored to resist flotation, collapse, or lateral movement.
9 Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to
10 ground anchors.

11 2. Require manufactured homes that are placed or substantially improved within unnumbered
12 or numbered A zones and AE zones, on the community's FIRM on sites:

13 a. outside of manufactured home park or subdivision;

14 b. in a new manufactured home park or subdivision;

15 c. in an expansion to and existing manufactured home park or subdivision; or

16 d. in an existing manufactured home park or subdivision on which a manufactured home
17 has incurred substantial-damage as the result of a flood, be elevated on a permanent
18 foundation such that the lowest floor of the manufactured home is elevated to or above
19 one (1) foot above the base flood elevation and be securely attached to an adequately
20 anchored foundation system to resist flotation, collapse, and lateral movement.

21 3. Require that manufactured homes to be placed or substantially improved on sites in an

1 existing manufactured home park or subdivision within all unnumbered and numbered A
2 zones and AE zones, on the community's FIRM, that are not subject to the provisions of
3 Section G105.3 (2) of this appendix, be elevated so that either:

- 4 a. the lowest floor of the manufactured home is at one (1) foot above the base flood level;
- 5 or
- 6 b. the manufactured home chassis is supported by reinforced piers or other foundation
7 elements of at least equivalent strength that are no less than thirty-six (36) inches in
8 height above grade and be securely attached to an adequately anchored foundation
9 system to resist flotation, collapse, and lateral movement.

10 **G105.4 Floodway.** Located within areas of special flood hazard established in Section G103.1 are
11 areas designated as floodways. Since the floodway is an extremely hazardous area due to the
12 velocity of flood waters that carry debris and potential projectiles, the following provisions shall
13 apply:

- 14 1. The community shall select and adopt a regulatory floodway based on the principle that the area
15 chosen for the regulatory floodway must be designed to carry the waters of the base flood
16 without increasing the water surface elevation of that flood more than one (1) foot at any point.
- 17 2. The community shall prohibit any encroachments, including fill, new construction, substantial-
18 improvements, and other development within the adopted regulatory floodway unless it has been
19 demonstrated through hydrologic and hydraulic analyses performed in accordance with standard
20 engineering practice that the proposed encroachment would not result in **any** increase in flood
21 levels within the community during the occurrence of the base flood discharge.

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1 3. If Section G105.4 (2) is satisfied, all new construction and substantial-improvements shall
2 comply with all applicable flood hazard reduction provisions of Section G105.

3 4. In unnumbered A zones, the community shall obtain, review, and reasonably utilize any base
4 flood elevation or floodway data currently available from Federal, State, or other sources as set
5 forth in Section G105.1 (2).

6 **G105.5 Recreational vehicles.**

7 1. Require that recreational vehicles placed on sites within all unnumbered and numbered A zones
8 and AE zones on the community's FIRM either:

9 a. be on the site for fewer than one hundred eighty (180) consecutive days, or

10 b. be fully licensed and ready for highway use; or

11 c. meet the permitting, elevation, and the anchoring requirements for manufactured homes of
12 this appendix.

13 A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to
14 the site only by quick-disconnect type utilities and security devices, and has no permanently attached
15 additions.

16 **SECTION G106**
17 **FLOODPLAIN MANAGEMENT VARIANCE PROCEDURES**
18

19 **G106.1 Establishment of Appeal Board.** The Board of Building Appeals as established by City
20 of Saint Louis shall hear and decide appeals and requests for variances from the floodplain
21 management requirements of this appendix.

22 **G106.2 Responsibility of Appeal Board.** Where an application for a floodplain development

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1 permit or request for a variance from the floodplain management regulations is denied by the
2 floodplain administrator, the applicant may apply for such floodplain development permit or
3 variance directly to the Appeal Board, as defined in Section G106.1.

4 The Board of Building Appeals shall hear and decide appeals when it is alleged that there is an
5 error in any requirement, decision, or determination made by the floodplain administrator in the
6 enforcement or administration of this appendix. This process shall be consistent with Section 113 of
7 this ordinance.

8 **G106.3 Further appeals.** Any person aggrieved by the decision of the Board of Building Appeals
9 may appeal such decision as a final and contested case to the Circuit Court of the City of Saint Louis
10 as provided in Chapter 536 RSMo.

11 **G106.4 Floodplain management variance criteria.** In passing upon such applications for
12 variances, the Board of Building Appeals shall consider all technical data and evaluations, all
13 relevant factors, standards specified in other sections of this appendix, and the following criteria:

- 14 1. The danger to life and property due to flood damage;
- 15 2. The danger that materials may be swept onto other lands to the injury of others;
- 16 3. The susceptibility of the proposed facility and its contents to flood damage and the effect of
17 such damage on the individual owner;
- 18 4. The importance of the services provided by the proposed facility to the city;
- 19 5. The necessity to the facility of a waterfront location, where applicable;
- 20 6. The availability of alternative locations, not subject to flood damage, for the proposed use;
- 21 7. The compatibility of the proposed use with existing and anticipated development;

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- 1 8. The relationship of the proposed use to the comprehensive plan and floodplain management
2 program for that area;
- 3 9. The safety of access to the property in times of flood for ordinary and emergency vehicles;
- 4 10. The expected heights, velocity, duration, rate of rise and sediment transport of the flood
5 waters, if applicable, expected at the site; and,
- 6 11. The costs of providing governmental services during and after flood conditions, including
7 maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and
8 water systems; streets; and bridges.

9 **G106.5 Conditions for approving floodplain management variances.**

- 10 1. Generally, variances may be issued for new construction and substantial-improvements to be
11 erected on a lot of one-half (½) acre or less in size contiguous to and surrounded by lots with
12 existing structures constructed below the base flood level, providing items 2 through 6 below
13 have been fully considered. As the lot size increases beyond the one-half (½) acre, the
14 technical justification required for issuing the variance increases.
- 15 2. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures
16 listed on the National Register of Historic Places, the State Inventory of Historic Places, or
17 local inventory of historic places upon determination provided the proposed activity will not
18 preclude the structure's continued historic designation.
- 19 3. Variances shall not be issued within any designated floodway if any increase in flood levels
20 during the base flood discharge would result.
- 21 4. Variances shall only be issued upon a determination that the variance is the minimum

1 necessary, considering the flood hazard, to afford relief.

2 5. Variances shall only be issued upon (a) a showing of good and sufficient cause, (b) a
3 determination that failure to grant the variance would result in exceptional hardship to the
4 applicant, and (c) a determination that the granting of a variance will not result in increased
5 flood heights, additional threats to public safety, extraordinary public expense, create
6 nuisances, cause fraud on or victimization of the public, or conflict with existing local laws
7 or ordinances.

8 6. The City of Saint Louis may notify the applicant that (1) the issuance of a variance to
9 construct a structure below base flood level may result in increased premium rates for flood
10 insurance up to amounts as high as twenty-five dollars (\$25) for one hundred dollars (\$100)
11 of insurance coverage and (2) such construction below the base flood level may increase
12 risks to life and property. Such notification shall be maintained with the record of all
13 variance actions as required by this appendix.

14 **G106.6. Conditions for approving variances for accessory structures.** Any variance granted for
15 an accessory structure shall be decided individually based on a case by case analysis of the building's
16 unique circumstances. Variances granted shall meet the following conditions as well as those criteria
17 and conditions set forth in Sections G106.4 and G106.5 of this appendix.

18 In order to minimize flood damages during the one hundred- (100) year flood and the threat to
19 public health and safety, the following conditions shall be included for any variance issued for
20 accessory structures that are constructed at-grade and wet-floodproofed.

21 1. Use of the accessory structures must be solely for parking and limited storage purposes in

- 1 zone A only as identified on the city's Flood Insurance Rate Map (FIRM).
- 2 2. For any new or substantially damaged accessory structures, the exterior and interior building
3 components and elements (i.e., foundation, wall framing, exterior and interior finishes,
4 flooring, etc.) below the base flood elevation, must be built with flood-resistant materials in
5 accordance with Section G105.1(4)(b) of this appendix.
- 6 3. The accessory structures must be adequately anchored to prevent flotation, collapse, or
7 lateral movement of the structure in accordance with Section G105.1 (4)(a) of this appendix.
8 All of the building's structural components must be capable of resisting specific flood-related
9 forces including hydrostatic, buoyancy, and hydrodynamic and debris impact forces.
- 10 4. Any mechanical, electrical, or other utility equipment must be located above the base flood
11 elevation or floodproofed so that they are contained within a watertight, floodproofed
12 enclosure that is capable of resisting damage during flood conditions in accordance with
13 Section G105.1 (4)(d).
- 14 5. The accessory structures must meet all National Flood Insurance Program (NFIP) opening
15 requirements. The NFIP requires that enclosure or foundation walls, subject to the one
16 hundred- (100) year flood, contain openings that will permit the automatic entry and exit of
17 flood waters in accordance with Section G105.2 (1)(c).
- 18 6. The accessory structures must comply with the floodplain management floodway
19 encroachment provisions of Section G105.4 (2) of this appendix. No variances may be
20 issued for accessory structures within any designated floodway, if any increase in flood
21 levels would result during the one hundred- (100) year flood.

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1 its approval by the Mayor.

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