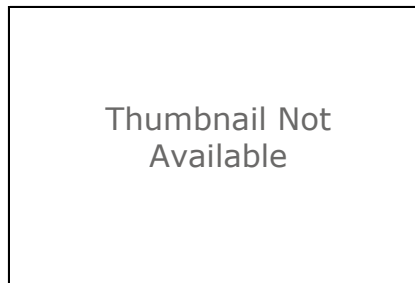


# Flood-Inundation Maps and Wetland Restoration Suitability Index for the Blue River and Selected Tributaries, Kansas City, Missouri, and Vicinity, 2012

## Raster Dataset



## Tags

Flood-inundation depth grids for the Blue River at 17th Street reach in Kansas City, Missouri.

## Summary

This dataset was created to support the development of flood-inundation maps for the Blue River and selected tributaries in Kansas City, Missouri and vicinity.

## Description

Digital flood-inundation maps for a 39.7-mile reach of the Blue River and selected tributaries (Brush Creek, Indian Creek, and Dyke Branch) at Kansas City, Missouri, and vicinity, were created by the U.S. Geological Survey (USGS) in cooperation with the City of Kansas City, Missouri. The flood-inundation maps, accessed through the USGS Flood-Inundation Mapping Science Web site at [http://water.usgs.gov/osw/flood\\_inundation/](http://water.usgs.gov/osw/flood_inundation/), depict estimates of the spatial extent and depth of flooding corresponding to selected water levels (stages) at 15 reference streamgages and associated stream reaches in the Blue River Basin. Near-real-time stage data from the streamgages may be obtained from the USGS National Water Information System at <http://waterdata.usgs.gov/> or the National Weather Service (NWS) Advanced Hydrologic Prediction Service (AHPS) at <http://water.weather.gov/ahps/>, which also forecasts flood hydrographs at selected sites. Flood profiles were computed for each of 15 reaches by means of one-dimensional or two-dimensional hydraulic models. The models were calibrated by using the current stage-discharge relations at 10 USGS streamgages and documented high-water marks from the flood of June 14, 2010. Hydraulic models were then used to compute water-surface profiles for flood stages at 1-foot intervals referenced to the streamgage datum and ranging from the National Weather Service Action stage, or near bankfull discharge, through the stage corresponding to, or exceeding, the estimated 0.2-percent annual exceedance probability flood (500-year recurrence interval flood). The simulated water-surface profiles were then combined with a geographic information system (GIS) terrain model (derived from light detection and ranging (lidar) data having a vertical accuracy of less than 0.6 foot and nominal horizontal post spacing of 2.46 to 3.28 feet) to delineate the area flooded at each 1-foot increment of stage. The availability of these flood-inundation maps, along with Internet information regarding current stage from the USGS streamgages and forecasted high-flow stages from the NWS, will provide emergency management personnel and residents with information for flood response activities such as evacuations and road closures, as well as for post flood recovery efforts.

The accompanying shape file containing inundation extent polygons for stages 14 through 39 ft correlate with the range in the 26, 1-ft increment depth grids (GRIDID 1 through 26) such that GRIDID 1 correlates with stage 14, and GRIDID 2 correlates with stage 15, etc.

## Credits

There are no credits for this item.

## Use limitations

None. This dataset is provided by USGS as a public service. Users of this geospatial database and geologic information derived there from should acknowledge the U.S. Geological Survey as the source of the data.

## Extent

**West** -94.504135    **East** -94.487731  
**North** 39.092294    **South** 39.077269

## Scale Range

**Maximum (zoomed in)** 1:5,000  
**Minimum (zoomed out)** 1:150,000,000

## ArcGIS Metadata ►

### Topics and Keywords ►

\* CONTENT TYPE    Downloadable Data

PLACE KEYWORDS    Missouri, Jackson County, Blue River Basin, Indian Creek, Kansas City

THEME KEYWORDS    Flooding, Flood-inundation mapping, Blue River Basin, Indian Creek

THEME KEYWORDS    Flood, Flood-inundation mapping, Blue River

*Hide Topics and Keywords ▲*

### Citation ►

TITLE    Flood-Inundation Maps and Wetland Restoration Suitability Index for the Blue River and Selected Tributaries, Kansas City, Missouri, and Vicinity, 2012

PUBLICATION DATE    2014-11-26 00:12:00

PRESENTATION FORMATS    digital map

*Hide Citation ▲*

### Citation Contacts ►

RESPONSIBLE PARTY

ORGANIZATION'S NAME    David Heimann, U.S. Geological Survey, Hydrologist

CONTACT'S ROLE    originator

*Hide Citation Contacts ▲*

### Resource Details ►

DATASET LANGUAGES    English (UNITED STATES)

DATASET CHARACTER SET    utf8 - 8 bit UCS Transfer Format

STATUS completed  
 SPATIAL REPRESENTATION TYPE \* grid

\* PROCESSING ENVIRONMENT Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.2.1.3497

#### ARCgis ITEM PROPERTIES

\* NAME 26.ft  
 \* LOCATION file:///H:\Submitted\_FIM\_libraries\17thStreet\17TH\finfiles\26.ft  
 \* ACCESS PROTOCOL Local Area Network

[Hide Resource Details ▲](#)

## Extents ►

#### EXTENT

##### DESCRIPTION

Flood-inundation project began in October 2012 and completed in November 2014

##### TEMPORAL EXTENT

BEGINNING DATE 2012-10-01 00:12:00  
 ENDING DATE 2014-11-26 00:12:00

#### EXTENT

##### GEOGRAPHIC EXTENT

##### BOUNDING RECTANGLE

WEST LONGITUDE -94.503927  
 EAST LONGITUDE -94.45471  
 SOUTH LATITUDE 39.09201  
 NORTH LATITUDE 39.125997

#### EXTENT

##### GEOGRAPHIC EXTENT

##### BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching  
 \* WEST LONGITUDE -94.504135  
 \* EAST LONGITUDE -94.487731  
 \* NORTH LATITUDE 39.092294  
 \* SOUTH LATITUDE 39.077269  
 \* EXTENT CONTAINS THE RESOURCE Yes

##### EXTENT IN THE ITEM'S COORDINATE SYSTEM

\* WEST LONGITUDE 2787534.597081  
 \* EAST LONGITUDE 2792190.597081  
 \* SOUTH LATITUDE 1059798.071349  
 \* NORTH LATITUDE 1065270.071349  
 \* EXTENT CONTAINS THE RESOURCE Yes

[Hide Extents ▲](#)

## Resource Points of Contact ►

#### POINT OF CONTACT

INDIVIDUAL'S NAME David Heimann  
 ORGANIZATION'S NAME U.S. Geological Survey  
 CONTACT'S POSITION Hydrologist

CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

PHONE

VOICE 816-554-3489 x 206

ADDRESS

TYPE postal

DELIVERY POINT 401 NW Capital Drive

CITY Lee's Summit

ADMINISTRATIVE AREA Missouri

POSTAL CODE 64029

E-MAIL ADDRESS dheimann@usgs.gov

[Hide Contact information ▲](#)

[Hide Resource Points of Contact ▲](#)

## Resource Maintenance ►

RESOURCE MAINTENANCE

UPDATE FREQUENCY not planned

[Hide Resource Maintenance ▲](#)

## Resource Constraints ►

LEGAL CONSTRAINTS

LIMITATIONS OF USE

None. This dataset is provided by USGS as a public service. Users of this geospatial database and geologic information derived there from should acknowledge the U.S. Geological Survey as the source of the data.

OTHER CONSTRAINTS

Disclaimer for Flood-Inundation Maps; Inundated areas shown should not be used for navigation, regulatory, permitting, or other legal purposes. The USGS provides these maps as-is for a quick reference, emergency planning tool but assumes no legal liability or responsibility resulting from the use of this information. Uncertainties and Limitations Regarding Use of Flood-Inundation Maps; Although the flood-inundation maps represent the boundaries of inundated areas with a distinct line, some uncertainty is associated with these maps. The flood boundaries shown were estimated based on water stages (water-surface elevations) and streamflows at USGS reference streamgages. Water-surface elevations along the stream reaches were estimated by steady-state hydraulic modeling, assuming unobstructed flow, and using discharges and hydrologic conditions anticipated at the USGS streamgage. The hydraulic model reflects the land-cover characteristics and any bridge, dam, levee, or other hydraulic structures existing as of June 2010. Unique meteorological factors (timing and distribution of precipitation) may cause actual discharges along the modeled reach to vary from those assumed during a flood and lead to deviations in the water-surface elevations and inundation boundaries shown. Additional areas may be flooded due to unanticipated conditions such as changes in the streambed elevation or roughness, backwater into tributaries along a main-stem river, or backwater from localized debris or ice jams. The accuracy of the floodwater extent portrayed on these maps will vary with the accuracy of the topographic data used to simulate the land surface. Additional uncertainties and limitations pertinent to this study are described elsewhere in USGS report SIR 2014-5180. If this series of flood-inundation maps will be used in conjunction with NWS river forecasts, the user should be aware of additional

uncertainties that may be inherent or factored into NWS forecast procedures. The NWS uses forecast models to estimate the quantity and timing of water flowing through selected stream reaches in the United States. These forecast models (1) estimate the amount of runoff generated by precipitation and snowmelt, (2) simulate the movement of floodwater as it proceeds downstream, and (3) predict the flow and stage (and water-surface elevation) for the stream at a given location (AHPS forecast point) throughout the forecast period (every 6 hours and 3 to 5 days out in many locations). For more information on AHPS forecasts, please see [http://water.weather.gov/ahps/pcpn\\_and\\_river\\_forecasting.pdf](http://water.weather.gov/ahps/pcpn_and_river_forecasting.pdf).

#### CONSTRAINTS

##### LIMITATIONS OF USE

None. This dataset is provided by USGS as a public service. Users of this geospatial database and geologic information derived there from should acknowledge the U.S. Geological Survey as the source of the data.

[Hide Resource Constraints ▲](#)

## Spatial Reference ►

#### ARCGIS COORDINATE SYSTEM

- \* TYPE Projected
- \* GEOGRAPHIC COORDINATE REFERENCE GCS\_North\_American\_1983
- \* PROJECTION NAD83\_Missouri\_West
- \* COORDINATE REFERENCE DETAILS
  - PROJECTED COORDINATE SYSTEM
    - X ORIGIN -15658800
    - Y ORIGIN -45949000
    - XY SCALE 137249632.08009261
    - Z ORIGIN -100000
    - Z SCALE 10000
    - M ORIGIN -100000
    - M SCALE 10000
    - XY TOLERANCE 0.0032808333333333331
    - Z TOLERANCE 0.001
    - M TOLERANCE 0.001
    - HIGH PRECISION true
    - WELL-KNOWN TEXT PROJCS["NAD83\_Missouri\_West",GEOGCS["GCS\_North\_American\_1983",DATUM["D\_North\_American\_1983",SPHEROID["GRS\_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],PROJECTION["Transverse\_Mercator"],PARAMETER["false\_easting",2788708.333333334],PARAMETER["false\_northing",0.0],PARAMETER["central\_meridian",-94.5],PARAMETER["scale\_factor",0.999941177],PARAMETER["latitude\_of\_origin",36.16666666666666],UNIT["Foot\_US",0.3048006096012192]]

#### REFERENCE SYSTEM IDENTIFIER

- \* VALUE 0

[Hide Spatial Reference ▲](#)

## Spatial Data Properties ►

#### GEORECTIFIED GRID ►

- \* NUMBER OF DIMENSIONS 2

#### AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE row (y-axis)  
 \* DIMENSION SIZE 1824  
 \* RESOLUTION 3.000000 Foot\_US

#### AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE column (x-axis)  
 \* DIMENSION SIZE 1552  
 \* RESOLUTION 3.000000 Foot\_US

\* CELL GEOMETRY area  
 \* POINT IN PIXEL center

\* TRANSFORMATION PARAMETERS ARE AVAILABLE Yes

\* CHECK POINTS ARE AVAILABLE No

#### CORNER POINTS

\* POINT 2787534.597081 1059798.071349  
 \* POINT 2787534.597081 1065270.071349  
 \* POINT 2792190.597081 1065270.071349  
 \* POINT 2792190.597081 1059798.071349

\* CENTER POINT 2789862.597081 1062534.071349

*Hide Georectified Grid ▲*

#### ARCGIS RASTER PROPERTIES ►

##### GENERAL INFORMATION

\* PIXEL DEPTH 32  
 \* COMPRESSION TYPE None  
 \* NUMBER OF BANDS 1  
 \* RASTER FORMAT FLT  
 \* SOURCE TYPE continuous  
 \* PIXEL TYPE floating point  
 \* NO DATA VALUE -9999  
 \* HAS COLORMAP No  
 \* HAS PYRAMIDS Yes

*Hide ArcGIS Raster Properties ▲*

*Hide Spatial Data Properties ▲*

## Spatial Data Content ►

##### IMAGE DESCRIPTION

\* TYPE OF INFORMATION image

##### BAND INFORMATION

\* DESCRIPTION Band\_1  
 \* NUMBER OF BITS PER VALUE 32

*Hide Spatial Data Content ▲*

## Data Quality ►

## SCOPE OF QUALITY INFORMATION ▶

RESOURCE LEVEL attribute

[Hide Scope of quality information ▲](#)

## DATA QUALITY REPORT - QUANTITATIVE ATTRIBUTE ACCURACY ▶

DIMENSION horizontal

## MEASURE DESCRIPTION

Horizontal position accuracy is based on the accuracy of lidar data, survey data (accurate to the datum of the survey) and the accuracy of the one-dimensional or two-dimensional hydraulic model used to develop the water surface profiles.

[Hide Data quality report - Quantitative attribute accuracy ▲](#)

## DATA QUALITY REPORT - QUANTITATIVE ATTRIBUTE ACCURACY ▶

DIMENSION vertical

## MEASURE DESCRIPTION

Vertical position accuracy is based on the accuracy of lidar data, survey data (accurate to the datum of the survey) and the accuracy of the one-dimensional or two-dimensional hydraulic model used to develop the water surface profiles.

[Hide Data quality report - Quantitative attribute accuracy ▲](#)[Hide Data Quality ▲](#)**Lineage** ▶

## PROCESS STEP ▶

WHEN THE PROCESS OCCURRED 2014-11-26

## DESCRIPTION

This dataset was created to support the development of flood-inundation maps for a reach of the Blue River at Kansas City, Missouri.

## PROCESS CONTACT

INDIVIDUAL'S NAME David Heimann

ORGANIZATION'S NAME U.S. Geological Survey

CONTACT'S POSITION Hydrologist

CONTACT'S ROLE processor

## CONTACT INFORMATION ▶

ADDRESS

E-MAIL ADDRESS [dheimann@usgs.gov](mailto:dheimann@usgs.gov)[Hide Contact information ▲](#)[Hide Process step ▲](#)

**SOURCE DATA** ▶**DESCRIPTION**

Heimann, D. C., Weilert, T.E., Kelly, B.P., and Studley, S.E., 2014, Flood-inundation maps and Wetland Restoration Suitability Index for the Blue River and selected tributaries, Kansas City, Missouri, and vicinity, 2012: U.S. Geological Survey Scientific Investigations Report 2014-5180, xx p. Online\_Linkage:

<http://pubs.er.usgs.gov/publication/sir20145180>

SOURCE MEDIUM NAME online link

[Hide Source data](#) ▲

[Hide Lineage](#) ▲

**Distribution** ▶**DISTRIBUTOR** ▶**CONTACT INFORMATION**

ORGANIZATION'S NAME U.S. Geological Survey

CONTACT'S ROLE distributor

**CONTACT INFORMATION** ▶**PHONE**

VOICE 1-888-ASK-USGS

**ADDRESS**

TYPE physical

DELIVERY POINT USGS Information Services Box 25286

CITY Denver

ADMINISTRATIVE AREA Colorado

POSTAL CODE 80225

[Hide Contact information](#) ▲

[Hide Distributor](#) ▲

**DISTRIBUTION FORMAT**

\* NAME Raster Dataset

[Hide Distribution](#) ▲

**Fields** ▶**DETAILS FOR OBJECT BlueR\_17th** ▶

\* TYPE Feature Class

\* ROW COUNT 26

**FIELD FID** ▶

\* ALIAS FID

\* DATA TYPE OID

\* WIDTH 4

\* PRECISION 0



- \* SCALE 0
- \* FIELD DESCRIPTION  
Internal feature number.
- \* DESCRIPTION SOURCE  
Esri
- \* DESCRIPTION OF VALUES  
Sequential unique whole numbers that are automatically generated.

*Hide Field FID ▲*

FIELD Shape ►

- \* ALIAS Shape
- \* DATA TYPE Geometry
- \* WIDTH 0
- \* PRECISION 0
- \* SCALE 0
- \* FIELD DESCRIPTION  
Feature geometry.
- \* DESCRIPTION SOURCE  
ESRI
- \* DESCRIPTION OF VALUES  
Coordinates defining the features.

*Hide Field Shape ▲*

FIELD STAGE ►

- \* ALIAS STAGE
- \* DATA TYPE Double
- \* WIDTH 19
- \* PRECISION 0
- \* SCALE 0
- FIELD DESCRIPTION  
USGS river stage associated with the inundation area, in feet.
- DESCRIPTION SOURCE  
USGS streamgage

*Hide Field STAGE ▲*

FIELD ELEV ►

- \* ALIAS ELEV
- \* DATA TYPE Double
- \* WIDTH 19
- \* PRECISION 0
- \* SCALE 0
- FIELD DESCRIPTION  
NAVD88 water-surface elevation that correlates with the USGS river stage, in feet.

DESCRIPTION SOURCE  
USGS streamgage datum

[Hide Field ELEV ▲](#)

FIELD USGSID ►

\* ALIAS USGSID  
\* DATA TYPE String  
\* WIDTH 20  
\* PRECISION 0  
\* SCALE 0

FIELD DESCRIPTION  
USGS station ID number

DESCRIPTION SOURCE  
USGS streamgage

[Hide Field USGSID ▲](#)

FIELD GRIDID ►

\* ALIAS GRIDID  
\* DATA TYPE SmallInteger  
\* WIDTH 4  
\* PRECISION 4  
\* SCALE 0

FIELD DESCRIPTION  
sequential number with GRID 1 corresponding to first stage , GRID 2 to second stage,  
etc

DESCRIPTION SOURCE  
USGS

[Hide Field GRIDID ▲](#)

[Hide Details for object BlueR\\_17th ▲](#)

[Hide Fields ▲](#)

## Metadata Details ►

METADATA LANGUAGE English (UNITED STATES)  
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA dataset  
SCOPE NAME \* dataset

\* LAST UPDATE 2014-12-08

ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0  
METADATA STYLE FGDC CSDGM Metadata  
STANDARD OR PROFILE USED TO EDIT METADATA FGDC

CREATED IN ARCGIS FOR THE ITEM 2014-11-20 15:18:31

LAST MODIFIED IN ARCGIS FOR THE ITEM 2014-12-08 08:22:37

AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes

LAST UPDATE 2014-12-08 08:22:37

[Hide Metadata Details ▲](#)

## Metadata Contacts ►

METADATA CONTACT

INDIVIDUAL'S NAME David Heimann

ORGANIZATION'S NAME U.S. Geological Survey

CONTACT'S POSITION Hydrologist

CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

PHONE

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ADMINISTRATIVE AREA Missouri

POSTAL CODE 64029

E-MAIL ADDRESS [dheimann@usgs.gov](mailto:dheimann@usgs.gov)

[Hide Contact information ▲](#)

[Hide Metadata Contacts ▲](#)

## Metadata Maintenance ►

MAINTENANCE

UPDATE FREQUENCY not planned

[Hide Metadata Maintenance ▲](#)

## FGDC Metadata (read-only) ▼