

Middle Guadalupe HUC-8 Subshed, TX Base Level Engineering (BLE) Results

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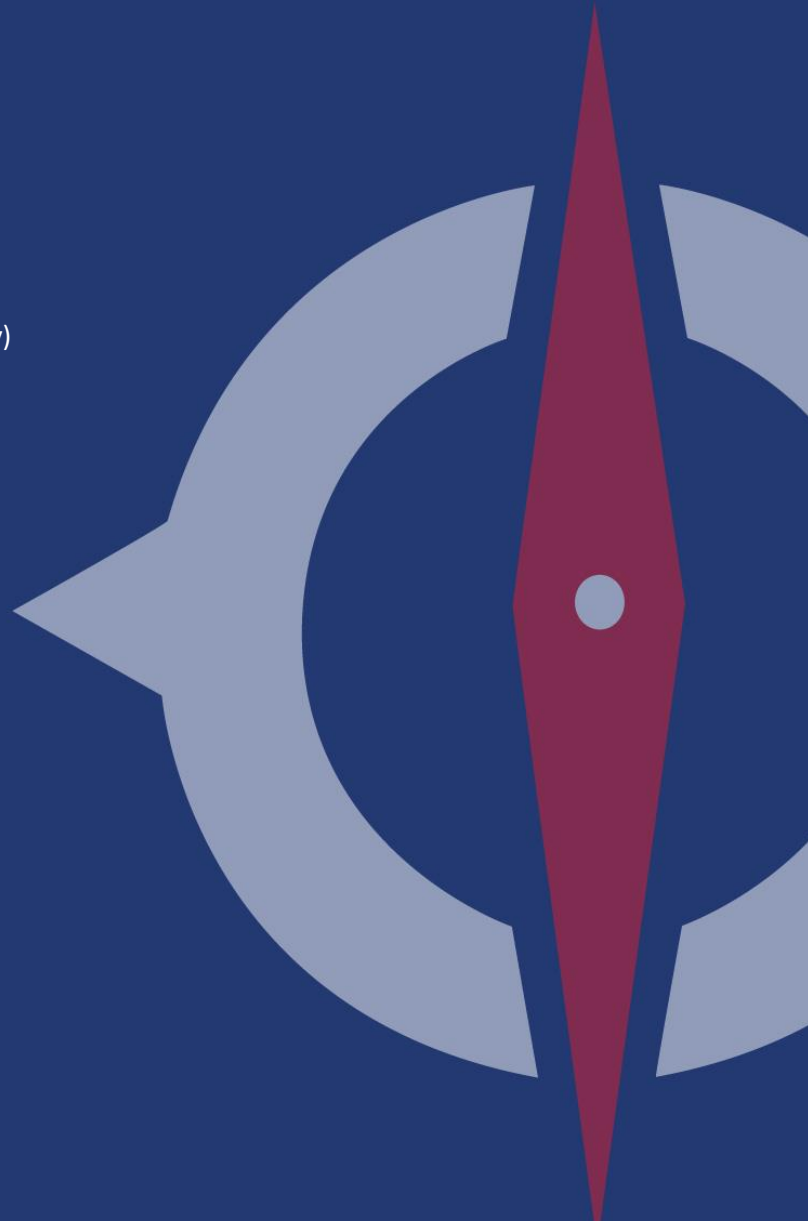
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Executive Summary

FEMA Region VI contracted Compass to complete a Base Level Engineering (BLE) analysis for the Guadalupe Blanco Watershed in South Central Texas, to support FEMA's Discovery process and validation of effective Zone A Special Flood Hazard Area (SFHA). The BLE process involves using best available data and incorporating automated techniques with traditional model development procedures to produce regulatory quality flood hazard boundaries for the 1-percent annual chance event as well as estimates of flood hazard boundaries for multiple recurrence intervals.

The source digital terrain data used for surface model development in support of hydrologic and hydraulic (H&H) analysis as well as mapping activities were made available through coordination with the Guadalupe-Blanco River Authority (GBRA), Federal Emergency Management Agency (FEMA), Texas Natural Resources Information System (TNRIS), Halff Associates Inc, and United States Geological Survey (USGS). The four sets used for this project area were the 3ft DEM from LiDAR, DeWitt County 2016 LiDAR, TNRIS 2013 LiDAR, and (USGS) NED DEM.

Flood discharges for this study were calculated using USGS regression equations with a multiplier to calibrate to gage analysis. Regression Equations obtained from the Scientific Investigations Report (SIR) 2009-5087, Regression Equations for Estimation of Annual Peak-Streamflow Frequency for Undeveloped Watersheds in Texas Using an L-moment-Based, PRESS-Minimized, Residual-Adjusted Approach (2009) were used while PeakFQ version 7.1 was used to perform Flood Frequency Analysis (FFA).

The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program version 4.1 was used to compute water surface elevations on a stream by stream basis. All hydraulic models were computed using 1-D steady state analysis.

The stream mile network that was validated for Middle Guadalupe Watershed was compiled using FEMA's Coordinated Needs Management Strategy (CNMS) inventory in conjunction with the National Hydrography Dataset (NHD) 24K High Resolution. Table ES-1 lists the stream miles identified by each source for this BLE validation analysis.

Table ES-1. Summary of Stream Miles

Source	Middle Guadalupe Stream Miles
CNMS	1414.6
NHD	264.6
Total	1679.2

The full CNMS inventory of Zone A studies (1,414.6 miles) in the Middle Guadalupe Watershed were evaluated. 93.8 miles were previously classified as VALID – NVUE COMPLIANT. Based on the validation assessment, CNMS has been updated to reflect 981.2 miles of and 479.1 miles of VALID.

Total miles validated in CNMS are summarized in Table ES-2 and illustrated in Figure ES-1 below.



Table ES-2: Zone A Validation Results

Validation Status	Status Type	Total Miles
VALID	NVUE COMPLIANT	479.1
UNVERIFIED	TO BE STUDIED	981.2

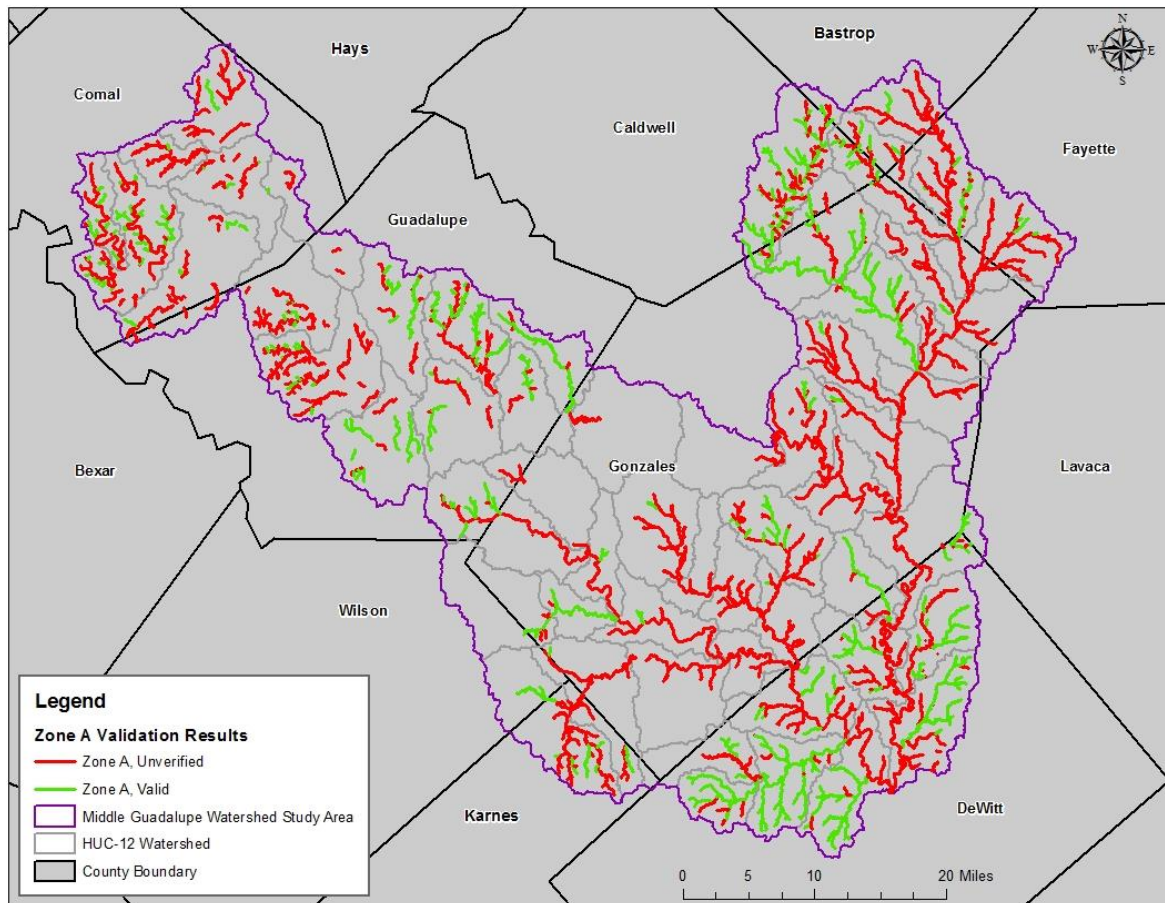


Figure ES-1. Middle Guadalupe HUC-8 Subshed CNMS Validation Results

An overall risk for each HUC-12 watershed was calculated using the National Flood Risk Percentages Dataset and its proportional area. The weighted risk was multiplied by the percentage of points in the watershed that failed the CNMS comparison to effectively determine the priority score. Figure ES-2 below shows the range of the Middle Guadalupe HUC-8 priority scores which can be used to initiate discussions during the Discovery phase. Elm Creek – Guadalupe River HUC-12 was determined to have the highest priority score and the most need while Sand Gate Cemetery – Clear Creek HUC-12 has the lowest score.

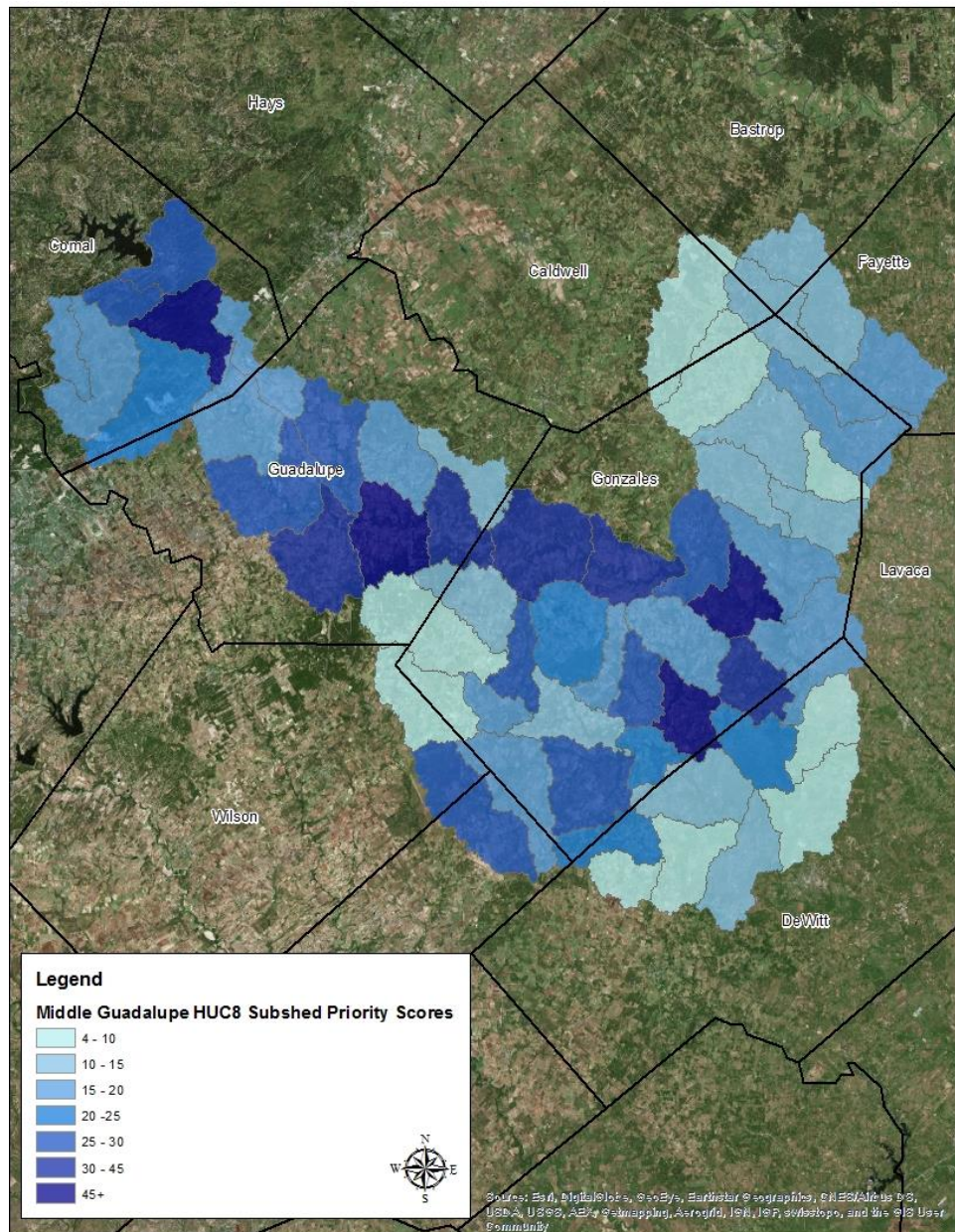


Figure ES-2. Ranking of Middle Guadalupe HUC-8 Subshed



Base Level Engineering (BLE) Methodology

Recent innovations and efficiencies in floodplain mapping have allowed the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) to develop a process called Base Level Engineering (BLE), which can be used to address current program challenges, including the validation of Zone A studies and the availability of flood risk data in the early stages of a Flood Risk Project. The BLE process involves using best available data and incorporating automated techniques with traditional model development procedures to produce regulatory quality flood hazard boundaries for the 1-percent annual chance event as well as estimates of flood hazard boundaries for multiple recurrence intervals. The cost for developing the data and estimates resulting from the BLE process are lower than standard flood production costs. The BLE results may be used for eventual production of regulatory and non-regulatory products.

As described in Title 42 of the Code of Federal Regulations, Chapter III, Section 4101(e), once every five years, FEMA must evaluate whether the information on Flood Insurance Rate Maps (FIRMs) reflects the current risks in floodprone areas. FEMA makes this determination of flood hazard data validity by examining flood study attributes and change characteristics, as specified in the Validation Checklist of the Coordinated Needs Management Strategy (CNMS) Technical Reference. The CNMS Validation Checklist provides a series of critical and secondary checks to determine the validity of flood hazard areas studied by detailed methods (e.g., Zone AE, AH, or AO). While the critical and secondary elements in CNMS provide a comprehensive method of evaluating the validity of Zone AE studies, a cost-effective approach for evaluating Zone A studies has been lacking.

In addition to the need for Zone A validation guidance, FEMA standards require flood risk data to be provided in the early stages of a Flood Risk Project. FEMA Program Standard SID #29 requires that during Discovery, data must be identified that illustrates potential changes in flood elevation and mapping that may result from the proposed project scope. If available data does not clearly illustrate the likely changes, an analysis is required that estimates the likely changes. This data and any associated analyses should be shared and results should be discussed with stakeholders.

An important goal of the BLE process is the scalability of the results. Scalability means that the results of a BLE analysis can not only be used for CNMS evaluations of Zone A studies, but can also be leveraged throughout the Risk MAP program. The data resulting from a BLE analysis can be updated as needed and used for the eventual production of regulatory and non-regulatory products, outreach and risk communication, and MT-1 processing. Leveraging this data outside the Risk MAP program may also be valuable to external stakeholders.

FEMA Region VI contracted Compass to complete a BLE analysis for the Guadalupe-Blanco Watershed in South Central Texas, to support FEMA's Discovery process and validation of effective Zone A Special Flood Hazard Area (SFHA). The study extents include portions of Bandera, Bastrop, Blanco, Caldwell, Comal, DeWitt, Fayette, Gillespie, Goliad, Gonzales, Guadalupe, Hays, Karnes, Kendall, Kerr, Travis, Victoria, and Wilson Counties and include the following communities: Cities of Blanco, Bulverde, Cuero, Garden Ridge, Gonzales, Ingram, Kerrville, Kyle, Lockhart, Luling, Martindale, Mountain City, Mustang Ridge, New Braunfels, Niederwald, Nixon, San Marcos, Schertz, Seguin, Smiley, Victoria, Waelder, Woodcreek and the Towns of Flatonia and Umland. The study area consisted of four HUC-8 basins: Lower Guadalupe



River, Middle Guadalupe River, San Marcos River, and Upper Guadalupe River. Figure 1 shows the orientation of the Guadalupe-Blanco River HUC-8 basins with respect to the counties.

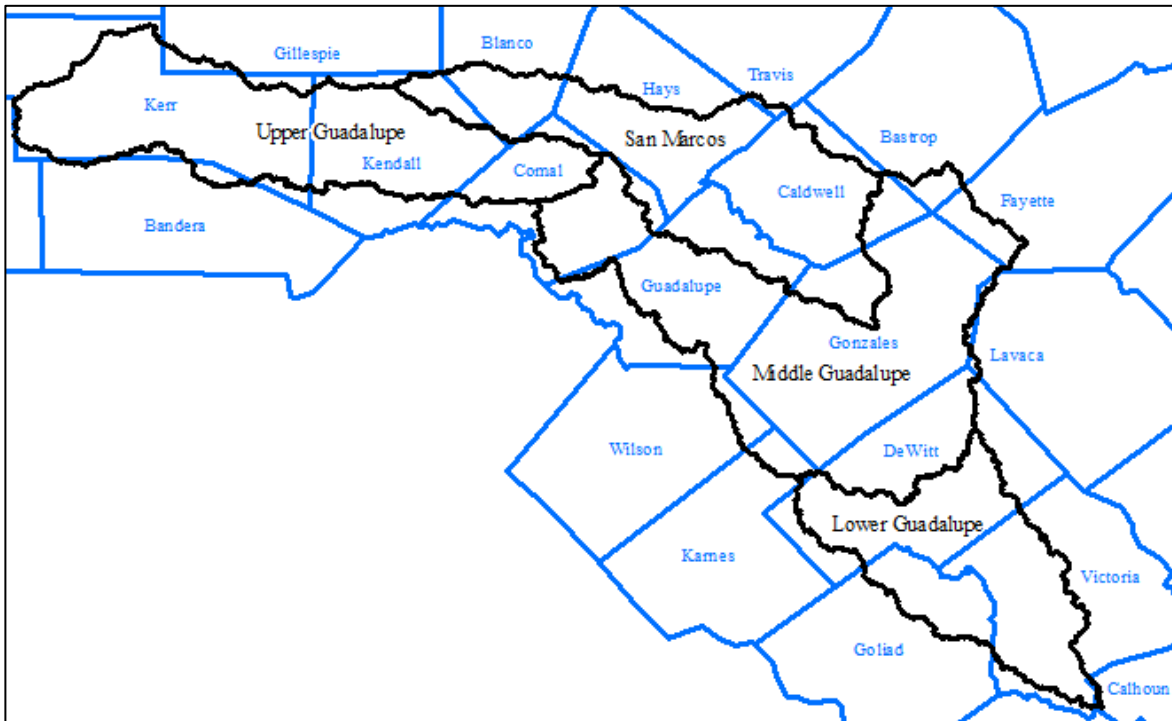


Figure 1. Guadalupe-Blanco Watershed HUC-8 Basins

Compass studied approximately 1,679 miles of stream reaches within the Middle Guadalupe Watershed with a minimum drainage area tolerance of one square mile. The selection and extent of stream reaches studied was based upon the number of stream miles with minimum drainage area of one square mile and not the number of effective Zone A stream miles. Study reaches were extended above this one square mile threshold as appropriate to ensure all effective Zone A floodplain received an updated analysis. The following sections will summarize the BLE process and will discuss the results along with their recommended use.

1.1 Topographic Data

The primary topographic datasets were made available through coordination with the Guadalupe-Blanco River Authority (GBRA), Federal Emergency Management Agency (FEMA), Texas Natural Resources Information System (TNRIS), Halff Associates Inc, and United States Geological Survey (USGS). The four sets used for this project area were the 3ft DEM from LiDAR, DeWitt County 2016 LiDAR, TNRIS 2013 LiDAR, and (USGS) NED DEM. Figure 2 shows the extents of these terrain sources.

The 3ft DEM from LiDAR, was created by Halff Associates Inc. using existing topographic and elevation data (previously flown and processed). The result of this effort consisted of a basin wide terrain dataset. Multiple sources of data were utilized including, but not limited to data



from U.S. Army Corps of Engineers (USACE), FEMA, Capital Area Council of Governments (CAPCOG), TNRIS, United States Geological Survey (USGS), and the City of Austin (COA).

The DeWitt County 2016 LiDAR, was acquired and processed from March 2nd through March 4th of 2016 with a publication date of June 30th of 2016. LiDAR were collected to the extent of the buffered project area (612.3 square miles with a 100-meter buffer of the AOI) and derivative products produced in compliance with this task order and the USGS NGP specifications. The Non Vegetated Vertical Accuracy (NVA) reported for the DeWitt County 2016 LiDAR dataset used for Middle Guadalupe was 7.1 cm at the 95% confidence level. The corresponding 1m hydro flattened DEMs from this LiDAR NVA were reported at 7.3cm at the 95% confidence level.

The TNRIS 2013 50cm Ellis, Navarro, Wilson & Karnes LiDAR was acquired and processed from April 12, 2013 through October 1, 2013 with a publication date of November 1, 2013. The project area for this task order consisted of two areas of interest (AOI) covering 19 counties in Texas. The combined sites covered approximately 4,542 square miles. The Fundamental Vertical Accuracy (FVA) reported for the 2013 LiDAR dataset used for Middle Guadalupe was 13.776cm at the 95% confidence level.

The USGS NED 1/3 Arc Second DEM was used as a low priority data source to buffer the project beyond the basin extent. The data was downloaded from the USGS NED website and processed to match the projection and units of the other data sources. This DEM is a compilation of the best source data by the USGS.

The 3ft DEM from LiDAR was used as the main data source as it covered the entire Middle Guadalupe HUC. The DeWitt County 2016 DEMs from LiDAR and 2013 LiDAR were determined to be the best available data in the areas where they were located within the HUC and were prioritized above the 3ft DEM from LiDAR in those areas. The USGS NED 1/3 Arc Second DEM was used as the lowest prioritized data where better source data was unavailable.

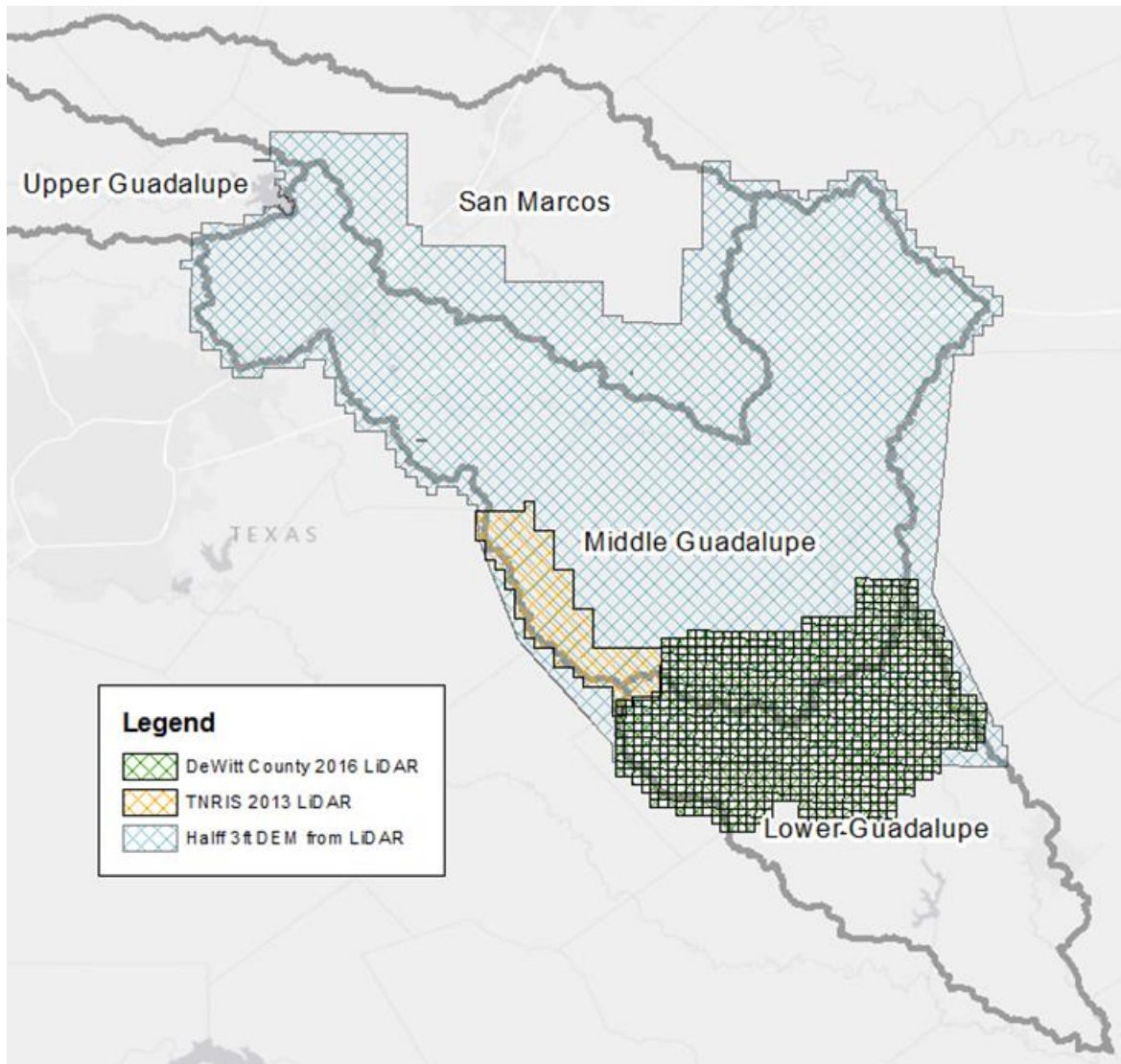


Figure 2. Extent of LiDAR Data

1.1.1 Leveraged Data Descriptions

1.1.1.1 3ft DEM from LiDAR

The 3ft DEM from LiDAR terrain data set utilizes the best available topographic information. Halff Associates Inc. compiled LiDAR data from previous studies and sources within the GBRA study area. Where there was overlapping LiDAR data, the LiDAR with the highest quality was used and USGS data was used in areas with no available LiDAR data. It was assumed that the LiDAR datasets obtained from the different sources had been previously evaluated for quality control by the contractor that collected the data. Any issues discovered after the LiDAR data was compiled in to a terrain dataset were reported to the respective source and addressed appropriately. Table 1 shows the multiple LiDAR sources that make up the 3ft DEM.

**Table 1. LiDAR Sources for 3ft DEM**

County	Age	Accuracy	Source & Contact	Approximate Footprint (sq mi)
Bastrop	2008	0.70m	CAPCOG	65
Caldwell	2007	1.40m	CAPCOG	750
	2008	0.70m	CAPCOG	150
Comal	2011	0.61m	FEMA	600
Dewitt		DEM	TNRIS	350
	2012	0.51m	USACE	50
Fayette	2008	0.70m	CAPCOG	120
Guadalupe	2008	1.40m	CAPCOG	10
	2007	1.40m	CAPCOG	90
	2011	0.61m	FEMA	600
Gonzales	2009	1.00m	TNRIS	1200
Hays	2008	0.70m	CAPCOG	750
	2003	1.70m	COA	130
	2011	0.61m	FEMA	25
Victoria	2006	1.40m	FEMA	650

The resulting dataset was a seamless 3ft DEM covering Lower Guadalupe, Middle Guadalupe, San Marcos and a small portion of Upper Guadalupe HUCs. The portion of the 3ft DEM covering Middle Guadalupe was then extracted out for use in this project.

1.1.1.2 DeWitt County 2016 LiDAR

Compass has provided FEMA with planning, acquisition, processing, and derivative product generation from LiDAR data over the area of interest (AOI) defined as DeWitt County, TX. The collection design required LiDAR be acquired to an aggregate nominal pulse spacing (ANPS) of 0.7 meters (2ppsm), including overlap, and processed according to the United States Geological Survey (USGS) National Geospatial Program (NGP) LiDAR Base Specification v1.2, to which FEMA Standards for Flood Risk Analysis and Mapping defer. The total area of the AOI is approximately 606.7 square miles. LiDAR were collected to the extent of the buffered project area (612.3 square miles with a 100-meter buffer of the AOI) and derivative products produced in compliance with this task order and the USGS NGP specifications. The purpose of the DeWitt County LiDAR collection is to support various risk analyses including hydrologic analysis, hydraulic analysis, and non-regulatory product development (e.g. depth grids and risk probability grids). 1m Hydro flattened DEMs from LiDAR, provided with this data, were used for this project. The Non Vegetated Vertical Accuracy (NVA) reported for the DeWitt County 2016 LiDAR in 1m DEM format, used for Middle Guadalupe, was 7.3 cm at the 95% confidence level.

1.1.1.3 TNRIS 2013 50cm Ellis, Navarro, Wilson & Karnes LiDAR

The TNRIS 2013 50cm Ellis, Navarro, Wilson & Karnes LiDAR project was completed in 2013. The data was acquired and processed by Gorrondona & Associates, Inc. (Gorrondona) team, which



consisted of the following firms; Gorrondona, Williams Aerial and Mapping (WAM), and McKim & Creed, Inc. The acquisitions took place from April 12, 2013 through October 1, 2013. The project areas of interest (AOI) cover two separate sites over all or a portion of nineteen counties in Texas covering 4542 square miles. For the purposes of this project the LiDAR points were gridded 3ft by 3ft in an effort to save processing time and space due to the density of the original LiDAR points. The LiDAR dataset used for this project tested to .137-meter fundamental vertical accuracy at 95% confidence level based on a consolidated RMSEz (0.042-meter) which meet project accuracy specifications of the National Standard for Spatial Data Accuracy (NSSDA).

1.1.1.4 USGS NED DEM

The National Elevation Dataset (NED), a product of the USGS, is a seamless gridded dataset representing the best available raster elevation data available to the USGS for the conterminous United States, Alaska, Hawaii, and territorial islands. The NED is derived from diverse source data that are processed to a common coordinate system and unit of vertical measure. The NED serves the Middle Guadalupe HUC topographic data development activity for hydrology needs only and is being used outside the county boundary for calculating contributing drainage area.

1.1.2 Data Processing

The Watershed Information System (WISE) software platform was utilized in order to create a digital surface model for the Middle Guadalupe HUC project area. This module allows source data from a variety of sources to be prioritized based on level of accuracy or preference of the user. For the Middle Guadalupe HUC, the 3ft DEM from LiDAR dataset was used as the primary data source for TIN surface creation. The TNRIS 2012 and 2013 were also used and prioritized higher as they were more accurate in the area they were collected within the HUC. Three “patches” were also created from existing LiDAR tiles that were previously used in the creation of the 3ft DEM. These patches were necessary because of a processing error in the 3ft DEM. The tiles were reprocessed, reimported and prioritized higher than the 3ft DEM which corrected these errors. After initial production newer DeWitt County 2016 LiDAR was made available. It was mosaicked in 1m DEM form on top of the existing DEMs as it was of the highest accuracy and most current data. The DeWitt County 2016 data covered the TNRIS 2012 LiDAR previously used and was therefore the TNRIS 2012 was omitted from this report. The USGS NED DEM data was used as the secondary data source for areas where LIDAR did not exist.

The TIN was developed using the 3ft DEM, TNRIS 2012-13 LiDAR sets originally, and the USGS NED data to create a seamless surface. A DEM was sampled from the TIN based on the user defined grid resolution of minor cells (in this case a 3-foot DEM was sampled). Visual inspection of the 3-foot DEM was performed to ensure no voids and/or artifacts were present in the TIN. The TIN surface model was affirmed to be suitable for the creation of the 10ft and 50ft DEMs. Newer DeWitt County 2016 LiDAR was acquired and made available for this project. The DeWitt County 2016 1m DEMs from LiDAR were mosaicked on top of all existing DEMs and visually inspected again to make sure there were no artifacts.



After TIN creation, a 10ft DEM was sampled for hydraulic takeoffs and supporting other hydraulic analyses. Lastly, a 50-foot DEM was sampled from the TIN for hydro enforcement of the project area. Proprietary software was used to identify natural sinks, peaks and flat areas in the 50-foot DEM surface. Elevations of the cells in the DEM were algorithmically calculated and the best path to route flow was determined without filling sinks in the DEM. Once all calculations were completed, the flow was checked confirming that all drainage flowed downstream correctly and routed to outside of the project area.

A new composite surface of the combined source topographic datasets, a seamless Triangular Irregular Network (TIN), was constructed using the WISE (Watershed Information System) Terrain Analyst tools. The TNRIS DEM data were used as the primary data source for the TIN while the 10-meter DEM was the secondary data source where TNRIS data did not exist for adequate buffer of the project area. A 10-foot DEM was sampled from the composite TIN and was used as the primary source for cross section takeoffs supporting hydraulic analyses. This 10-foot DEM was also used for visual QC and to support floodplain mapping tasks. A 50-foot DEM was sampled from the TIN for hydro enforcement to support hydrology tasks including flow vector and basin delineation.

Root Mean Square Error (RMSE) was calculated on the leveraged LiDAR-derivative DEM data used in this BLE analysis. The vertical accuracy of the source DEMs was calculated using QC checkpoints for the entire Chambers/Chambers project area from original LiDAR QC reports acquired with the TNRIS data. The entire project area tested at 3.77 centimeters (cm) RMSEz, well within the 12.5 cm FEMA requirement for leveraged topographic data.

In addition to the quantitative assessment of the source digital terrain, a qualitative visual inspection of the composite DEM was performed using a hillshade derived from the 10-foot DEM. The visual inspection indicated no unusual or non-terrestrial features were observed in the composite DEM assuring the surface files used for H&H and floodplain mapping activities are sufficient for BLE analysis.

1.2 Hydrology

Flood discharges for this study were calculated using USGS regression equations with multipliers to calibrate to gage analysis. USGS Scientific Investigations Report (SIR) 2009-5087, "Regression Equations for Estimation of Annual Peak-Streamflow Frequency for Undeveloped Watersheds in Texas Using an L-moment-Based, PRESS-Minimized, Residual-Adjusted Approach" (2009) contains the most recent regression equations for Texas and was used as the basis for regression calculations.

The WISE computer program was used to delineate drainage basins in shapefile format using the 50-foot resolution DEM. WISE was used to calculate the main-channel slope for each basin. The basin shapefile attribution was automated by WISE with drainage area and main-channel slope.

In order to perform the regression analysis and attribute each basin with appropriate discharge values, a script was written in Python and run in ESRI's ArcCatalog. This script required input of drainage area and main-channel slope (from WISE), as well as mean annual precipitation, OmegaEM and the calibration adjustment discussed below.



Regression equations were reviewed by comparing the results to updated flood frequency analyses for USGS stream gages in the Guadalupe-Blanco basin, as well as available USACE watershed modeling that was completed as of the time of this study. The completed USACE watershed modeling includes results for the San Marcos River basin from its headwater to its confluence with Plum Creek. These results are presented in a Technical Memorandum, dated March 30, 2016, from the USACE Fort Worth District to FEMA Region VI and titled "Preliminary Flow Frequency Analyses for the San Marcos River Basin".

The 19 gages used for comparison include 3 discontinued gages, Rebecca Creek near Spring Branch (08167600), San Marco River at Ottine (08173500), and Coletto Creek near Schroeder (08177000); the flood frequency estimates for these 3 gages were taken from USGS WRIR 96-4307, "Regional Equations for Estimation of Peak Streamflow Frequency for Natural Basins in Texas". The flood frequency estimates for most of the 16 active gages were updated using data through the 2015 water year, which ended in September 2015. The frequency analyses for 2 gages on the Blanco River, however, were updated using the peak flows recorded during the October 2015 flood, under the assumption that this flood will turn out to be annual maximum peak for the 2016 water year. The updated gage flood frequency analyses for 11 of 16 active gage locations were performed using the USGS PeakFQ software, following Bulletin 17B guidelines. Updated flood frequency analyses for 5 gages, however, were provided by the USACE. Flood frequency analyses for 3 gages in the San Marcos River basin were provided by the USACE in the previously referenced March 30, 2016 Technical Memorandum and flood frequency analyses for 2 gages on the Blanco River were provided in a Technical Memorandum, dated September 25, 2015 "Flow Frequency Analyses for the Blanco River at Wimberley and Kyle, Texas in Response to the May 2015 Flood Event".

The USGS regression equations exhibited a bias toward under-prediction when compared to the 19 USGS stream gages in the Guadalupe-Blanco River basin. As a result of this bias, use of the regression equations to develop the hydrology for the Guadalupe-Blanco BLE study resulted in discharges that were consistently less than the gage estimates for comparable drainage area streams. Regression multipliers were developed for each recurrence interval.

In order to develop a suitable adjustment or calibration to the discharge estimates at the 19 Guadalupe-Blanco River basin stream gages, the drainage area and discharge estimates were transformed to log₁₀ units. The original SIR 2009-5087 regression analysis was performed in log₁₀ space, which is standard practice in statistical hydrology because the log₁₀-transform results in distributions of the variables that more closely resemble normal distributions and because the relations between peak discharge and the watershed characteristics are more linear in log₁₀ space. A plot of log₁₀ of drainage area versus the log₁₀ of the 100-year recurrence interval peak discharges with linear best-fit lines for both the gage peak discharges and the regression peak discharges confirms the under-prediction bias of the regression estimates and indicates that the slopes of the best-fit line for the regression and the gage discharge estimates are similar (though not the same). This similarity in slope indicates that the under-prediction bias is relatively consistent across the range of observed drainage areas and therefore a simple multiplier adjustment would serve to correct the regression equation estimates and reduce the bias toward under-prediction.



The adjustment factor is computed by taking the average of the differences between log10 of the gage discharge estimates and the regression discharge estimates for each of the 19 stream gages. This average difference is added to the log10 of the regression discharge estimate, or equivalently, the average difference is converted back to arithmetic space and used as a simple multiplier adjustment factor on the computed regression discharge. The average difference between the gage and regression discharge estimates for the 100-year recurrence interval was 0.1942 log10 units, which translates to a multiplier of 1.564. Similar analyses were performed for the 10-, 25-, 50-, and 500-year recurrence interval regression equations with similar results.

It is important to note that the adjustment for each recurrence interval is less than the residual standard error reported for each recurrence interval in USGS SIR 2009-5087.

Any modeling at a higher level of detail than the base level engineering should utilize a more detailed method to determine hydrology, including hydrologic modeling or more detailed, site-specific gage comparison and adjustment.

Table 2 shows the published equations, the 1-percent-plus and 1-percent-minus equations and regression multipliers that were used for this study. In these equations, Q_i represents peak streamflow for i -recurrence interval (annual chance exceedance (a.c.e.)) in cubic feet per second, P represents mean annual precipitation in inches, S represents dimensionless main-channel slope, Ω represents the OmegaEM parameter, and A is cumulative drainage area in square miles.

Table 2. Summary of Regression Equations (SIR 2009-5087)

Recurrence Interval	Equation ¹	Regression Multiplier
$Q_{10\%}$	$P^{1.203} S^{-0.403} \times 10^{[0.918 \Omega + 13.62 - 11.97A^{(-0.0289)}]}$	1.121
$Q_{4\%}$	$P^{1.140} S^{-0.446} \times 10^{[0.945 \Omega + 11.79 - 9.819A^{(-0.0374)}]}$	1.321
$Q_{2\%}$	$P^{1.105} S^{-0.476} \times 10^{[0.961 \Omega + 11.17 - 8.997A^{(-0.0424)}]}$	1.454
$Q_{1\%}$	$P^{1.071} S^{-0.507} \times 10^{[0.969 \Omega + 10.82 - 8.448A^{(-0.0467)}]}$	1.564
$Q_{0.2\%}$	$P^{0.988} S^{-0.569} \times 10^{[0.976 \Omega + 10.40 - 7.605A^{(-0.0554)}]}$	1.789
$Q_{1\%plus}$	$10^{(LOG(Q_{1\%}) / LOG(10) + 0.3)}$	*
$Q_{1\%minus}$	$10^{(LOG(Q_{1\%}) / LOG(10) - 0.3)}$	*

¹ Variables:

- Q_i peak flow for i recurrence interval (a.c.e.), in cubic feet per second;
- P , Mean Annual Precipitation in Inches;
- S , Main-channel slope (dimensionless);
- Ω , OmegaEM parameter;
- A , Cumulative Drainage Area in square miles

Discharges for the 1-percent plus and 1-percent minus a.c.e. were calculated by applying the mean residual standard error for the $Q_{1\%}$ equation.



The mean annual precipitation values were determined based on shapefile coverage obtained from the Texas Water Development Board and available for download from the following location: http://www.twdb.texas.gov/mapping/gisdata/doc/Precipitation_Shapefile.zip

The annual precipitation values reflect data for the climatological period 1981-2010 as recorded by the Natural Resources Conservation Service (NRCS).

Main channel slope was calculated in WISE. An automated routine was used to determine the longest flowpath from the upstream of a reach to the outlet of the sub-basin of interest based on flowpaths developed from the 50-foot DEM. Once the length of the flowpath was delineated, elevations for the endpoints were determined based on the TIN developed from the LiDAR. The slope was calculated by dividing the fall by the reach distance and the result was reported in foot/foot.

From USGS SIR 2009-5087, the OmegaEM parameter is a generalized terrain and climate index that expresses relative differences in peak-streamflow potential. A shapefile was developed and populated with OmegaEM values based on Figure 2 in SIR 2009-5087. This shapefile was used, along with a python script in ArcCatalog, to determine OmegaEM values on a sub-basin basis. For sub-basins that are split, the dominant OmegaEM value for the sub-basin was used.

Drainage area for each sub-basin was determined based on automated basin delineations performed in WISE. Basin break points were set by the user with a sub-basin target of one square mile in size. This criterion was adjusted for streams with larger drainage areas in order to avoid excessive and unnecessary discharge breaks. Break points were also set just upstream of stream confluences. Cumulative drainage area was determined based on these automated delineations performed by WISE in combination with a stream connectivity routine that defined the stream reach segments with upstream and downstream neighbors.

As discussed in previously, a Python script in ArcCatalog was used to compute discharges for each sub-basin. The sub-basin shapefile was attributed with the computed discharges as part of the automated script. From the sub-watershed basin shapefile the discharges were incorporated into the HEC-RAS models using an automated routine in WISE. Discharges, as well as water surface elevation results, were associated with the hydraulic cross sections prior to generation of floodplain boundaries and grid mapping. Those results are available in GIS format as part of this BLE submittal package.

BLE analysis was compared with effective discharge data where available. At these locations, the general trend showed that the effective discharges match considerably well with the discharges computed for this study.

Special consideration was taken for retention at dams on Blieders Creek, Dry Comal Creek, and West Fork Dry Comal Creek. An equivalent drainage area was derived from the regression equations to reflect the effective discharges. These equivalent discharges were then accumulated downstream to the outlet of the watershed.



1.3 Hydraulics

The hydraulic approach for BLE analysis for the Middle Guadalupe watershed consisted of using the terrain model described in section 1.1 in combination with hydrology input computed as described in section 1.2 to establish water surface elevations using 1-D steady state analysis. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program version 4.1 was chosen as the computer model to compute water surface elevations on a stream by stream basis. The WISE computer program was used to establish model stream orientation, initial hydraulic cross section layout and stationing, assign n-values to cross sections, and to develop all input files for the HEC-RAS program. ESRI's ArcMap program was used to review and refine cross section layout orientation.

First pass cross section layout was performed using an automated routine in WISE based on the drainage area at the cross section location. A first draft model was created based on this initial cross section layout and draft boundaries were developed. At this stage, a second pass inspection for cross section placement occurred. Significant refinement occurred during this step. To improve the hydraulic models, additional cross sections were added as needed to better define the BLE floodplain boundary. Cross sections were extended in locations where overtopping occurred. Orientation of cross sections was refined to improve on the perpendicular orientation to flow. Additional cross sections were added at floodplain constrictions and at downstream portions of tributaries to ensure a proper tie-in with receiving streams. Cross sections were adjusted to remove sections that intersected hydraulic crossings in the floodplain. For some of the largest studied streams, cross sections were laid out manually in order to have more reasonable spacing and better capture the constrictions in the floodplain.

Cross sections were not drawn on top of roadways or railroads. Cross sections were placed at the upstream and downstream face of major roads and railroads. Major roads are those designated in the Texas DOT road coverage as On System Highways. The road coverage can be acquired in shapefile format from the TNRIS website at the following link: <https://tnris.org/data-catalog/entry/txdot-roadways/>. Ineffective flow stations were placed in the hydraulic models as appropriate to account for flow constrictions at crossings as well as at locations deemed by the engineer to be ineffective at conveying flow downstream.

Cross sections were drawn on dam tops for significant dams with well defined spillways in order to better represent ponded water upstream of the structures. It was assumed in doing this that the vast majority of the flow during a flood event would pass the spillway and that the hydraulic model would reasonably estimate flow across the spillway as represented in the hydraulic cross section.

Significant effort was made to start all tributaries below the receiving water surface elevations but this was not always achieved, particularly in wide, flat floodplains where small tributaries ran parallel to large streams or where road crossings or dams interfered with cross section alignments.

The relationship between drainage area and assigned channel geometry is shown in Table 3. These default values for dimensions and spacing are subject to change based on the details noted above as well as the judgment of the responsible engineer. Channel widths were spot checked against aerial imagery and adjusted accordingly.



Table 3: Cross Section Default Parameters

Drainage area (upper limit)	XS Spacing	Channel Top Width	Channel Bottom Width	Channel Depth
1.0	500	4	3.5	0.5
2.0	500	6	5	0.5
4.0	500	11	10	0.5
8.0	500	18	17	0.5
10.0	500	20	19	0.5
15.0	600	26	25	0.5
20.0	600	32	31	0.5
25.0	600	38	36	0.5
30.0	600	43	41	0.5
40.0	600	52	50	0.5
50.0	600	60	57	1
75.0	750	68	65	1
100.0	750	76	73	1
150.0	1000	91	88	1
250.0	1000	122	119	2
500.0	1500	198	195	2
1000.0	2500	351	346	3
2000.0	4000	657	652	3
5000.0	4000	1575	1565	3
>5000.0	4000	2000	1990	4

Manning's roughness coefficients (n-values) were determined using the 2011 National Land Cover Data (NLCD) dataset in combination with n-values from Chow (1959) and Calenda, et al. (2005). The association between the n-values and the NLCD Classification is shown in Table 4. Manning's n-value takeoffs were performed by WISE and the n-values were adjusted in some locations based on engineering judgment. N-values within channel banks were limited by the automated routine to a range of 0.030 to 0.050.

Table 4: Manning's "n" Roughness Based on 2001 NLCD Classification (Moore, 2011)

NLCD Classification	Minimum	Normal	Maximum	Source
Open Water	.025	.03	.033	Chow 1959
Developed, Open Space	.01	.013	.016	Calenda, et al. 2005
Developed, Low Intensity	.038	.05	.063	Calenda, et al. 2005
Developed, Medium Intensity	.056	.075	.094	Calenda, et al. 2005
Developed, High Intensity	.075	.1	.125	Calenda, et al. 2005
Barren Land	.025	.03	.035	Chow 1959
Deciduous Forest	.1	.12	.16	Chow 1959
Evergreen Forest	.1	.12	.16	Chow 1959
Mixed Forest	.1	.12	.16	Chow 1959
Scrub/Shrub	.035	.05	.07	Chow 1959
Grassland/Herbaceous	.025	.03	.035	Chow 1959
Pasture/Hay	.03	.04	.05	Chow 1959



NLCD Classification	Minimum	Normal	Maximum	Source
Cultivated Crops	.025	.035	.045	Chow 1959
Woody Wetlands	.08	.1	.12	Chow 1959
Emergent Herbaceous Wetland	.075	.1	.15	Chow 1959

The boundary condition used for the majority of the study streams was normal depth with a default value of 0.005 ft/ft. For streams with names in the National Flood Hazard Layer (NFHL) and streams with large drainage areas (generally greater than 8 square miles), the normal depth slope was calculated based on the HEC-RAS profile invert.

1.4 Quality Control

Following the initial BLE analysis in each watershed, the flood hazard area delineations created by the BLE process were reviewed for areas where the results were not ideal.

QC results indicated that some of the models should be extended to cover the scope of effective flood hazard data. Those streams were extended farther upstream to match the extents of the SFHA data.

Typical manual editing resulting from reasonability checks included adding cross-sections, adjusting orientation of cross sections, trimming cross sections and reduction of the default “V” angle of cross sections. It is estimated that 50 percent of cross-sections were adjusted in some work areas while other areas did not require as much editing. Other examples of manual editing included adding cross-sections at confluence areas, modification to improve perpendicular orientation at the channel, adjustment of discharge breaks to better represent flow addition points, revisions to dam spillways and dam tops, and revisions to n-values.

A major component of the QC process was an automated check that identified locations where the 1-percent a.c.e profile was crossed by another frequency or by the 1-percent plus or 1-percent minus profile. Significant effort was made to reasonably resolve all of these instances. Another automated check identified locations where there was a drawdown of greater than 0.5 feet on the 1-percent a.c.e. water surface profile. This check is particularly useful for identifying errors in the model such as a channel that is too wide, a poorly placed cross section, or a need for additional cross sections. Again, significant effort was made to reasonable resolve these drawdown situations.

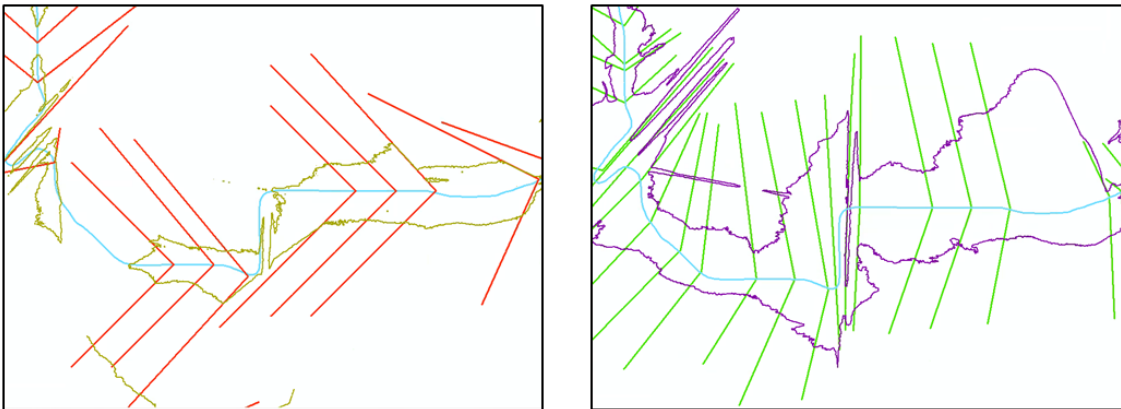


Figure 3: Default “V” angle cross-sections automated by WISE (left). Manually edited cross-sections to more accurately capture terrain (right). Resulting flood boundaries shown in gold (left) or purple (right) for clarity.

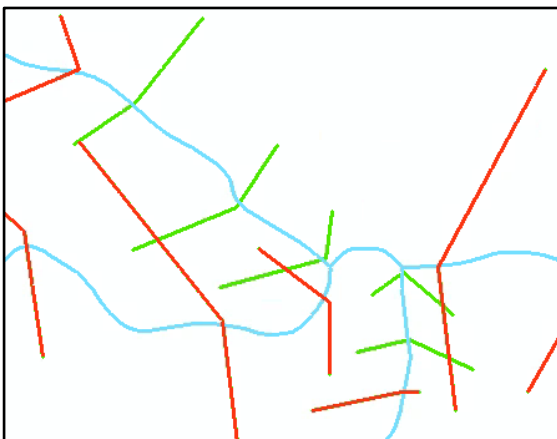


Figure 4: Manually added cross-sections (green) to improve accuracy of tie-ins at confluences.

1.5 One-percent Special Flood Hazard Area Delineation

The 1-percent and 0.2-percent boundaries were mapped using a routine that develops water surface elevation grids based on the 10-foot cell size DEM developed from the TNRIS LiDAR. This product was converted to a polygon for cleaning. The cleaning routine involved manual inspection of the polygons to identify and remove areas of disconnected flooding. In general, areas with a size of less than 5,000 square feet were removed and all others were investigated to determine whether they should be considered as potentially part of the special flood hazard area (SFHA). This investigation was aided by the ground DEM and aerial imagery. Manual adjustments to the polygons were made to account for spillways on dams which could not be accurately modeled using HEC-RAS as well as disconnected areas along the flooding source that should reasonably be connected.



Following the removal of disconnected flooding areas and other boundary adjustments, the small islands in the floodplain were filled. Islands with a size between roughly 5,000 and 30,000 square feet were inspected and, in general, islands that were less than 10,000 square feet were filled.

Once the island filling process was complete, the water surface raster mapping routine was run and set to conform to the polygon boundary. This ensures that the water surface raster and the flood plain boundary are consistent with each other. The depth raster product was created at the end of the process by performing a raster subtraction with the water surface elevation raster and the ground DEM.

Challenges

Challenges encountered during BLE analyses will vary based on available data on which to run the analysis. The Middle Guadalupe Watershed analysis presented challenges as summarized in the following paragraphs.

As noted in Section 1.2 above, regression equations under-predicted discharges compared to gage estimates. Regression multipliers were developed to calibrate each recurrence interval. Also noted is the retention at dams in some locations. An equivalent drainage area was used to reflect the effective detailed studies at the outlets of the dams.

As noted in Section 1.4 above, multiple streamlines did not extend far enough to fully capture effective flood hazard data. The streamlines generated in the development of the one square mile basins were extended in order to more closely match the effective areas and CNMS streams.

Due to the flat topography in areas throughout the watershed, it was often difficult to obtain relief without overflows and spillover into adjacent floodplains. Cross-sections were extended and re-oriented in a manner to most reasonably model and map these areas.

Results and Recommendations

The BLE results for the Middle Guadalupe Watershed produced an SFHA that compares reasonably well with the effective SFHA in most cases, and provides an additional estimated SFHA in areas that do not currently have an SFHA mapped. These results provide context for flood risk communication as part of the Discovery process, and should be verified through community work map meetings before being applied to a regulatory product.

A map showing the BLE results are included as Appendix B.

3.1 Validation of Effective Zone A SFHA

From the full inventory of Zone A studies (1,414.6 miles) in the Middle Guadalupe Watershed, 1,042.7 miles were classified in CNMS with a validation status of "UNKNOWN," 278.1 miles were classified with a validation status of "UNVERIFIED," and 93.8 miles were classified with a validation status of "VALID." The following is a summary of the results of the CNMS validation assessment for the effective Zone A studies in the study area. Initial Assessment checks A1-A3 were evaluated for the CNMS inventory of Zone A studies.



INITIAL ASSESSMENT A1 – SIGNIFICANT TOPOGRAPHY UPDATE CHECK

This check involves determining whether a topographic data source is available that is significantly better than what was used for the effective Zone A modeling and mapping. For the Middle Guadalupe Watershed study area, the effective Zone A topographic data leveraged a variety of sources, but primarily based upon USGS 24K map products. The TNRIS 2011 and 2013 1-meter gridded DEM data derived from Lidar, 2011 FEMA LiDAR, and 2016 DeWitt County LiDAR within the study area represents a significant improvement from the assumed effective Zone A topographic source, and therefore check A1 was set to fail for all but a few reaches where the effective study was from a Letter of Map Revision.

INITIAL ASSESSMENT A2 – CHECK FOR SIGNIFICANT HYDROLOGY CHANGES

This check involves first determining whether regression equations were used in the effective study. If they were then it was determined if new regression equations have become available from the USGS since the date of the effective Zone A study. If newer regression equations exist for the area of interest, then an engineer must determine whether these regression equations would significantly affect the 1-percent-annual-chance flow. Scientific Investigations Report 2009-5087, Regression Equations for Estimation of Annual Peak-Streamflow Frequency for Undeveloped Watersheds in Texas Using an L-moment-Based, PRESS-Minimized, Residual-Adjusted Approach (2009) contains the most recent regression equations for Texas. Because the hydrology methods used for the effective Zone A studies are unknown for all but Comal and Guadalupe Counties, assessment check A2 was passed. Regression equations were used in the effective studies for Comal and Guadalupe Counties, so check A2 was set to fail for these reaches.

INITIAL ASSESSMENT A3 – CHECK FOR SIGNIFICANT DEVELOPMENT

This check involves using the National Urban Change Indicator (NUCI) dataset to assess increased urbanization in the watershed of the Zone A study. If the percentage of urban area within the HUC-12 watershed containing the effective Zone A study is 15% or more, and has increased by 50% or more since the effective analysis, the study would fail this check. Although the NUCI data provide year-to-year changes in urbanization, the NLCD also is needed to establish a baseline of urban land cover for this analysis. Because none of the HUC12 watersheds within the Middle Guadalupe Watershed study area can be classified as urban, check A3 was set to pass for all studies.

Table 5: Zone A Initial Assessment Results

Assessment Check	Pass / Fail	Notes
A1 – Topography	Fail	TNRIS 2011/2013, 2011 FEMA, and 2016 DeWitt County LiDAR significantly better than effective USGS topo source.
A2 – Hydrology	Pass / Fail	Effective Hydrology methods unknown / 2009 regression equations create a significant change
A3- Development	Pass	No increase of 50% or more since effective study (non-urban watersheds)



VALIDATION CHECK A4 – CHECK OF STUDIES BACKED BY TECHNICAL DATA

Zone A studies that pass all initial assessment checks described above may be categorized as “Valid” in the CNMS Inventory only if the effective Zone A study is supported by modeling or sound engineering judgment and all regulatory products are in agreement. If the effective Zone A study passes all initial assessment checks, but is not supported by modeling, or if the original engineering method used is unsupported or undocumented, a comparison of the BLE results and effective Zone A’s is performed. Due to lack of complete documentation of the original engineering methods for most of the effective Zone A studies in the Middle Guadalupe Watershed, check A4 has been marked as failing in CNMS for 1,068.6 of the miles included in the validation assessment. The engineering methods used in the Comal and Guadalupe County studies are known and acceptable, therefore, the A4 check was set to pass for these reaches.

VALIDATION CHECK A5 – COMPARISON OF BLE AND EFFECTIVE ZONE A

The BLE /effective Zone A comparison method leverages the existing Floodplain Boundary Standard (FBS) certification procedures described in FEMA SID 113, but with a slight modification. This modified FBS comparison approach uses the 1-percent plus and 1-percent minus flood profiles and horizontal and vertical tolerances described in the First Order Approximation—Methodology, Validation, and Scalability Guidance Procedures (Version 1.5). For the comparison of BLE and effective Zone A in the Texas study area, the following vertical and horizontal tolerances were used to conduct the modified FBS procedure. One point was placed every 200 feet along the floodplain boundaries for comparison.

Vertical Tolerance: +/- 5 feet (one-half contour interval of assumed effective topographic source).

Horizontal Tolerance: +/-75 feet (standard horizontal tolerance for BLE comparison testing).

Of the 896 modeled BLE streams in the study area, 288 were found to correspond (within the tolerance limits) with effective Zone A flood zones. Comparison results for these streams were grouped at the HUC-12 level and are summarized in Table 7 below to better understand the general health of the HUC-12 watershed, but the validation check was performed at the stream level. Streams where the percentage of passing FBS sample points is greater than or equal to 85% are marked as “Pass”, otherwise marked as “Fail”.

VALIDATION RESULTS

Based on the validation assessments and BLE comparison results described above, the CNMS inventory of Zone A studies in Middle Guadalupe Watershed study area has been updated, with 981.2 miles categorized as UNVERIFIED, and 479.1 miles categorized as VALID. Total miles in each of these categories are summarized in Table 6 and illustrated in Figure 5 below.

Table 6: Zone A Validation Results

Validation Status	Status Type	Total Miles
VALID	NVUE COMPLIANT	479.1
UNVERIFIED	TO BE STUDIED	981.2



Table 7: BLE Comparison Results

HUC-12 Watershed		Total FBS points	Fail	Pass	%Pass	BLE Comparison Pass? (>85%)	Priority Score
Watershed Name	Watershed Number						
Middle Guadalupe	All Streams	65535	13808	51727	78.93%	Fail	n/a
Upper Sandy Fork	121002020306	935	109	826	88.34%	Pass	9.3
Answorth Branch-Guadalupe River	121002020206	325	167	158	48.62%	Fail	32.3
Clemens Creek-Guadalupe River	121002020205	453	284	169	37.31%	Fail	40.2
Kerr Creek-Guadalupe River	121002020207	336	103	233	69.35%	Fail	25.1
Cottonwood Creek-Guadalupe River	121002020109	1357	505	852	62.79%	Fail	32.5
Cordell Creek-Guadalupe River	121002020201	1	0	1	-	NA	83.7
Vanham Creek-Peach Creek	121002020309	567	79	488	86.07%	Pass	11.2
Darst Creek-Guadalupe River	121002020203	157	70	87	55.41%	Fail	36.0
Denton Creek	121002020310	537	92	445	82.87%	Fail	13.6
Pin Oak Creek-Peach Creek	121002020305	260	28	232	89.23%	Pass	8.8
Nash Creek	121002020204	869	114	755	86.88%	Pass	10.3
Long Branch-Mill Creek	121002020202	1050	190	860	81.90%	Fail	15.2
Lower Sandy Fork	121002020308	1002	134	868	86.63%	Pass	10.4
Geronimo Creek	121002020111	2146	616	1530	71.30%	Fail	25.2
Baldrige Creek-Peach Creek	121002020304	1601	304	1297	81.01%	Fail	15.1
Long Creek-Guadalupe River	121002020107	639	125	514	80.44%	Fail	18.5
Big Five Mile Creek-Peach Creek	121002020303	2564	547	2017	78.67%	Fail	16.3
Middle Sandy Fork	121002020307	1275	120	1155	90.59%	Pass	7.2



HUC-12 Watershed		Total	Fail	Pass	%Pass	BLE	Priority
Headwaters West Fork Dry Comal Creek	121002020104	945	190	755	79.89%	Fail	17.6
Alligator Creek	121002020110	2299	536	1763	76.69%	Fail	19.6
Elm Creek- Guadalupe River	121002020103	1	1	0	-	NA	90.6
Bear Creek	121002020102	489	162	327	66.87%	Fail	29.7
Little Copperas Creek-Copperas Creek	121002020302	1811	287	1524	84.15%	Fail	12.8
Rocky Creek- Peach Creek	121002020301	3131	574	2557	81.67%	Fail	14.4
Jacobs Creek- Guadalupe River	121002020101	297	95	202	68.01%	Fail	28.7
Sand Gate Cemetery-Clear Creek	121002020702	2180	176	2004	91.93%	Pass	4.1
Blackjack Creek- Clear Creek	121002020704	4322	504	3818	88.34%	Pass	9.1
Shoats Creek	121002020703	1408	378	1030	73.15%	Fail	20.1
Deer Creek- Sandies Creek	121002020705	3348	506	2842	84.89%	Fail	12.0
Birds Creek- Sandies Creek	121002020701	2148	331	1817	84.59%	Fail	12.0
Cuero Creek- Guadalupe River	121002020405	2616	298	2318	88.61%	Pass	7.8
Brushy Creek- Elm Creek	121002020507	1166	392	774	66.38%	Fail	26.9
Rocky Creek-Elm Creek	121002020509	856	285	571	66.71%	Fail	26.4
Mound Creek- Elm Creek	121002020508	1024	196	828	80.86%	Fail	15.1
White Oak Branch-Sandies Creek	121002020510	601	179	422	70.22%	Fail	24.0
Fulcher Creek- Guadalupe River	121002020403	396	124	272	68.69%	Fail	24.8
Upper Clear Fork Creek	121002020504	252	22	230	91.27%	Pass	5.5
Mt Enon Cemetery- Denton Creek	121002020402	275	114	161	58.55%	Fail	32.8
Lower Salty Creek	121002020603	282	99	183	64.89%	Fail	28.0
Upper Salty	121002020602	335	79	256	76.42%	Fail	19.2



HUC-12 Watershed		Total	Fail	Pass	%Pass	BLE	Priority
Creek							
Yow Branch-Sandies Creek	121002020503	531	179	352	66.29%	Fail	27.2
Upper Five Mile Creek	121002020604	794	149	645	81.23%	Fail	15.2
McCoy Creek	121002020404	1996	258	1738	87.07%	Pass	9.8
Lower Clear Fork Creek	121002020505	482	97	385	79.88%	Fail	16.0
Little Elm Creek-Sandies Creek	121002020506	1063	170	893	84.01%	Fail	12.8
Lower Five Mile Creek	121002020605	743	679	64	8.61%	Fail	72.8
Sugar Creek	121002020601	651	182	469	72.04%	Fail	22.4
Boggy Creek-Guadalupe River	121002020401	378	100	278	73.54%	Fail	18.8
Salt Branch-Sandies Creek	121002020501	1079	133	946	87.67%	Pass	9.6
O'Neal Creek	121002020502	248	33	215	86.69%	Pass	10.4
Black Creek-Guadalupe River	121002020208	6	6	0	-	NA	80.0
Mitchell Creek-Peach Creek	121002020311	813	185	628	77.24%	Fail	18.4
Dry Comal River-Guadalupe River	121002020106	4896	1163	3733	76.25%	Fail	20.9
Youngs Creek-Guadalupe River	121002020108	2070	642	1428	68.99%	Fail	28.1
West Fork Dry Comal Creek-Comal Creek	121002020105	3529	717	2812	79.68%	Fail	17.0

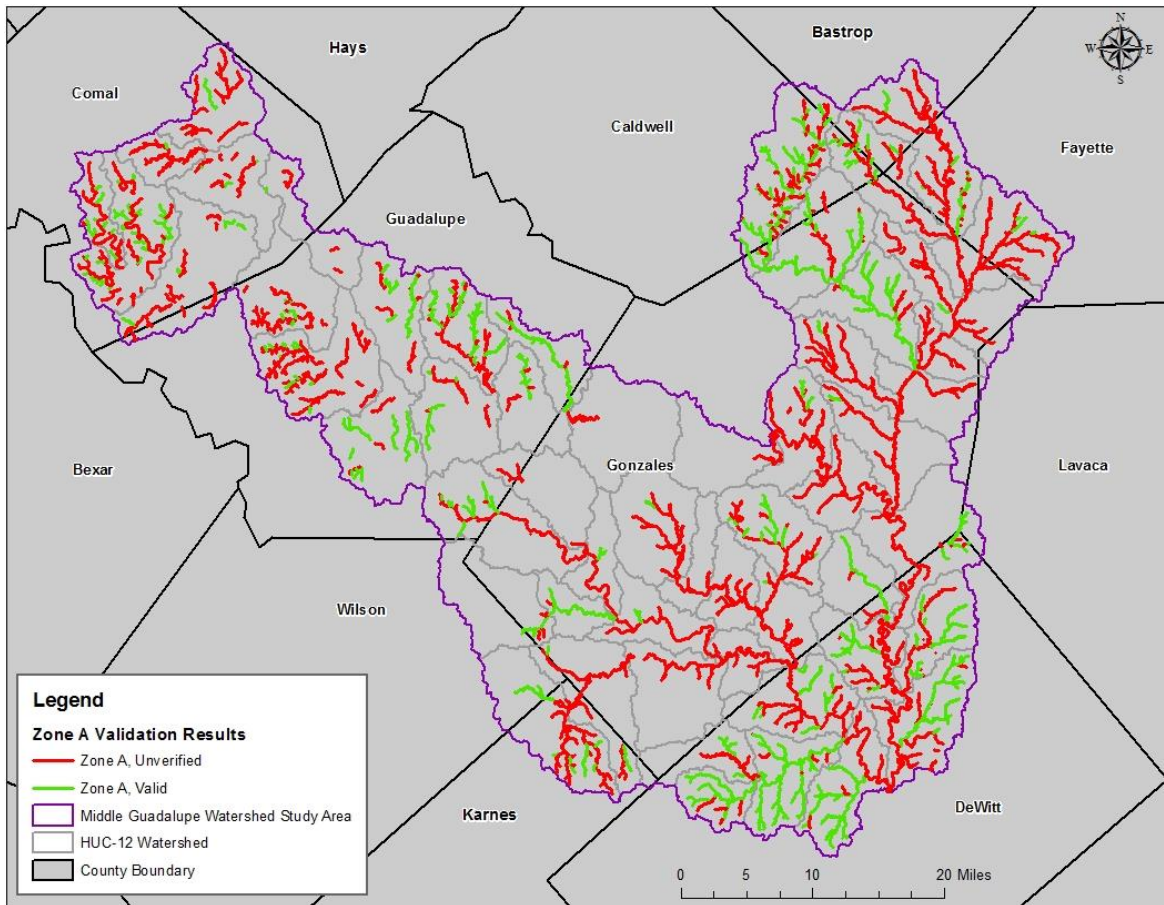


Figure 5. Middle Guadalupe Watershed CNMS Validation Results

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Appendix A Summary of Peak Qs

Table A-1. Summary of Hydrology

Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
ALLIGATOR CREEK	1.11	3421	1714	6825
ALLIGATOR CREEK	2.01	5484	2748	10942
ALLIGATOR CREEK	2.18	5459	2736	10893
ALLIGATOR CREEK	4.19	8936	4479	17831
ALLIGATOR CREEK	4.21	8960	4491	17877
ALLIGATOR CREEK	5.30	10797	5411	21543
ALLIGATOR CREEK	8.29	12747	6389	25434
ALLIGATOR CREEK	9.27	12418	6224	24778
ALLIGATOR CREEK	10.26	13366	6699	26668
ALLIGATOR CREEK	10.89	12987	6509	25913
ALLIGATOR CREEK	13.20	14403	7218	28737
ALLIGATOR CREEK	14.11	15191	7614	30311
ALLIGATOR CREEK	14.97	14959	7497	29848
ALLIGATOR CREEK	15.94	15003	7519	29934
ALLIGATOR CREEK	16.95	14821	7428	29572
ALLIGATOR CREEK	19.17	15712	7875	31350
ALLIGATOR CREEK	19.36	15512	7775	30951
ALLIGATOR CREEK	21.04	14640	7337	29210
ALLIGATOR CREEK	22.00	16664	8352	33248
ALLIGATOR CREEK	22.70	14880	7457	29689
ALLIGATOR CREEK 2	1.45	1861	933	3713
ALLIGATOR CREEK 2	1.82	2185	1095	4360
ALLIGATOR CREEK 2	2.57	2797	1402	5580
Alligator Creek Tributary 3	0.85	1163	583	2321
Alligator Creek Tributary 3	1.30	1681	843	3354
Alligator Creek Tributary 6	0.56	1868	936	3727
Alligator Creek Tributary 6	1.14	2670	1338	5327
Alligator Creek Tributary 6	2.00	4129	2069	8238
Alligator Creek Tributary 8	1.07	3648	1828	7279
ANDERSON CREEK	1.00	1777	891	3547
ANDERSON CREEK	1.58	2456	1231	4900
ANDERSON CREEK	2.81	3974	1992	7928
ANDERSON CREEK	3.78	5478	2746	10930
ANDERSON CREEK	4.66	6118	3066	12207
ANDERSON CREEK	5.45	6132	3073	12235



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
ANSWORTH BRANCH	1.31	1986	995	3962
ANSWORTH BRANCH	2.03	2741	1374	5469
ANSWORTH BRANCH	2.95	3421	1715	6827
ANSWORTH BRANCH	5.36	5348	2680	10670
ANSWORTH BRANCH	8.16	6896	3456	13760
BALDRIDGE BRANCH	1.06	1978	991	3947
BALDRIDGE CREEK	0.99	2006	1005	4002
BALDRIDGE CREEK	1.60	3064	1536	6114
BALDRIDGE CREEK	2.23	3254	1631	6492
BALDRIDGE CREEK	3.20	4069	2039	8119
BALDRIDGE CREEK	3.94	4449	2230	8877
BALDRIDGE CREEK	5.55	5863	2938	11697
BALDRIDGE CREEK	6.48	6284	3150	12539
BALDRIDGE CREEK	6.58	6078	3046	12127
BALDRIDGE CREEK	7.27	6281	3148	12531
BALDRIDGE CREEK	11.93	9056	4539	18069
BALDRIDGE CREEK	12.41	9166	4594	18289
BALDRIDGE CREEK	14.86	10251	5138	20454
BALDRIDGE CREEK	15.79	10541	5283	21031
BALDRIDGE CREEK	16.76	10828	5427	21605
BALDRIDGE CREEK	17.64	11080	5553	22107
BALDRIDGE CREEK	18.16	11195	5611	22336
BALDRIDGE CREEK	20.01	11675	5852	23295
BEAR BRANCH	1.22	2433	1220	4855
BEAR BRANCH	2.13	3415	1712	6814
BEAR BRANCH	3.02	3693	1851	7368
BEAR BRANCH	3.72	4425	2218	8828
BEAR BRANCH	4.19	4618	2314	9214
Bear Creek	0.62	2154	1079	4297
Bear Creek	1.13	3254	1631	6493
Bear Creek	2.13	5585	2799	11143
Bear Creek	2.15	5486	2750	10947
Bear Creek	2.76	6222	3119	12415
Bear Creek	3.04	6704	3360	13377
Bear Creek	3.23	6845	3431	13657
Bear Creek	3.89	7179	3598	14325
Bear Creek	4.89	8535	4278	17030
Bear Creek	4.91	8441	4231	16842



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Bear Creek	5.27	8738	4379	17434
Bear Creek	9.21	13196	6614	26330
Bear Creek	11.69	15269	7653	30466
Bear Creek	12.57	15770	7904	31466
Bear Creek	13.05	15856	7947	31637
Bear Creek 2	0.80	3448	1728	6881
Bear Creek 2	2.64	7455	3737	14876
Bear Creek 2	2.93	7204	3610	14373
Bear Creek 2	9.13	17191	8616	34301
Bear Creek 2	13.05	21678	10865	43254
Bear Creek 2	14.05	22705	11380	45303
Bear Creek 2	14.94	23527	11791	46942
Bear Creek 2	15.94	24430	12244	48744
Bear Creek 2	16.71	24814	12437	49511
Bear Creek Tributary 10	0.25	982	492	1959
Bear Creek Tributary 11	0.37	1332	668	2657
Bear Creek Tributary 13	0.18	886	444	1769
Bear Creek Tributary 14	0.74	2468	1237	4925
Bear Creek Tributary 14	1.31	3850	1929	7681
Bear Creek Tributary 14	1.85	5046	2529	10067
Bear Creek Tributary 14	2.84	5866	2940	11704
Bear Creek Tributary 14	3.26	6288	3152	12547
Bear Creek Tributary 15	0.51	1717	861	3427
Bear Creek Tributary 16	0.34	1256	629	2505
Bear Creek Tributary 2	0.58	2110	1057	4209
Bear Creek Tributary 3	0.39	1235	619	2465
Bear Creek Tributary 3	1.08	2482	1244	4952
Bear Creek Tributary 3	1.84	4187	2099	8355
Bear Creek Tributary 5	0.30	1273	638	2539
Bear Creek Tributary 5	0.89	2771	1389	5529
Bear Creek Tributary 6	0.27	965	484	1926
Bear Creek Tributary 7	0.46	1561	782	3114
Bear Creek Tributary 7	0.73	2361	1183	4710
Bear Creek Tributary 8	0.23	1047	525	2090
Bear Creek Tributary 9	0.24	921	462	1838
Bear Gulch	1.16	2642	1324	5271
Bear Gulch	1.86	3836	1923	7654
Bear Gulch	2.50	4427	2219	8833



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Bear Gulch	4.59	7232	3625	14430
BEAR HOLLOW CREEK	1.22	2783	1395	5553
BEAR HOLLOW CREEK	2.82	4536	2273	9050
BEAR HOLLOW CREEK	3.58	5290	2651	10556
BEAR HOLLOW CREEK	4.13	5795	2904	11563
Bear Tributary 3	0.42	2326	1166	4642
Bear Tributary 6	0.83	3537	1773	7057
Bear Tributary 9	0.86	3112	1560	6209
BEE BRANCH	1.29	2454	1230	4896
BEE BRANCH	2.03	3289	1649	6563
BEE BRANCH	2.61	3874	1941	7729
BEE BRANCH	3.23	4447	2229	8873
BEE BRANCH	5.63	6454	3235	12878
BEE BRANCH	6.50	7117	3567	14201
BEE BRANCH	7.12	7500	3759	14965
BEE BRANCH	10.53	10039	5032	20031
BEE BRANCH	10.88	10135	5079	20221
BEE BRANCH	13.09	11247	5637	22441
BEE BRANCH	14.61	11201	5614	22349
BEN BRANCH	1.22	3317	1662	6618
BEN BRANCH	2.09	4489	2250	8958
BEN BRANCH	3.20	5362	2687	10699
BEN BRANCH	5.33	7274	3646	14514
BEN BRANCH	9.64	11517	5772	22980
Berry Creek	1.10	1901	953	3792
Berry Creek	1.60	2394	1200	4776
Berry Creek	1.93	2658	1332	5304
Berry Creek	2.85	3757	1883	7495
Berry Creek	3.41	4334	2172	8647
Big Fivemile Creek	0.16	338	169	674
Big Fivemile Creek	0.42	873	438	1742
Big Fivemile Creek	1.19	2371	1188	4730
Big Fivemile Creek	1.43	2836	1421	5659
Big Fivemile Creek	2.41	4146	2078	8273
Big Fivemile Creek	3.37	4960	2486	9896
Big Fivemile Creek	3.98	5449	2731	10872
Big Fivemile Creek	4.97	5681	2847	11335
Big Fivemile Creek	7.44	7821	3920	15605



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Big Fivemile Creek	8.26	7852	3935	15667
Big Fivemile Creek	8.56	7873	3946	15708
Big Fivemile Creek	12.54	10190	5107	20331
Big Fivemile Creek	20.35	13771	6902	27476
Big Fivemile Creek	21.25	13540	6786	27016
Big Fivemile Creek	21.41	13650	6841	27236
Big Fivemile Creek	22.37	14258	7146	28449
Big Fivemile Creek	29.59	17424	8733	34765
Big Fivemile Creek	41.39	21362	10706	42622
Big Fivemile Creek	42.32	20785	10417	41471
Big Fivemile Creek	45.48	21303	10677	42506
Big Sandy Branch	0.73	2081	1043	4153
Big Sandy Branch	1.08	2679	1343	5346
Big Sandy Branch	2.55	4511	2261	9000
Big Sandy Branch	3.42	5429	2721	10832
Big Sandy Branch	4.11	5525	2769	11024
Big Sandy Branch	5.10	6268	3141	12506
Big Sandy Branch	5.57	6548	3282	13066
BIRDS CREEK	1.39	2547	1277	5082
BIRDS CREEK	2.37	3933	1971	7848
BIRDS CREEK	2.51	3962	1986	7905
BIRDS CREEK	4.04	5660	2837	11294
BIRDS CREEK	4.97	6518	3267	13005
BIRDS CREEK	5.96	6929	3473	13826
BIRDS CREEK	5.98	6868	3442	13703
BIRDS CREEK	8.77	8700	4360	17359
BIRDS CREEK	9.77	9122	4572	18201
BIRDS CREEK	10.77	9656	4840	19267
BIRDS CREEK	10.96	9477	4750	18909
BLACK CREEK	1.52	1836	920	3663
BLACK CREEK	2.04	2287	1146	4563
BLACK CREEK	2.48	2743	1375	5472
BLACK CREEK	5.10	4882	2447	9741
BLACK CREEK	5.67	5384	2699	10743
BLACKJACK CREEK	1.07	1951	978	3893
BLACKJACK CREEK	1.53	2405	1205	4798
BLACKJACK CREEK	3.68	4883	2447	9743
BLACKJACK CREEK	4.37	5439	2726	10853



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
BLACKJACK CREEK	5.36	6250	3133	12471
BLACKJACK CREEK	5.73	6589	3302	13146
Blieders Creek	0.21	838	420	1671
Blieders Creek	1.64	4905	2458	9786
Blieders Creek	2.13	5769	2891	11510
Blieders Creek	2.40	4604	2308	9186
Blieders Creek	2.69	6244	3130	12459
Blieders Creek	3.35	6090	3052	12152
Blieders Creek	3.90	6612	3314	13193
Blieders Creek	4.38	8914	4467	17785
Blieders Creek	5.88	9025	4523	18008
Blieders Creek	6.63	9918	4971	19790
Blieders Creek	11.49	17306	8673	34529
Blieders Creek Tributary 1	1.23	3389	1698	6761
Blieders Creek Tributary 11	1.40	4220	2115	8420
Blieders Creek Tributary 11	2.24	5565	2789	11105
Blieders Creek Tributary 11	3.04	6596	3306	13161
Blieders Creek Tributary 3	0.63	1926	965	3843
Blieders Creek Tributary 6	1.09	2696	1351	5378
Blieders Creek Tributary 6	1.55	3498	1753	6980
Blieders Creek Tributary 9	1.04	3269	1638	6522
Blieders Creek Tributary 9	1.95	4980	2496	9936
Blieders Creek Tributary 9	2.10	5209	2611	10393
Blieders Creek Tributary 9	5.99	11055	5541	22058
Blieders Creek Tributary 9	6.70	11769	5899	23483
BOARD BRANCH	1.12	1604	804	3200
BOARD BRANCH	1.92	2434	1220	4856
BOGGIE CREEK	1.01	2414	1210	4818
BOGGIE CREEK	1.97	3756	1883	7495
BOGGIE CREEK	3.07	4930	2471	9836
BOGGIE CREEK	3.98	5896	2955	11763
BOGGIE CREEK	4.85	6611	3313	13191
BOGGY CREEK	0.76	1883	944	3757
BOGGY CREEK	1.36	2846	1427	5679
BOGGY CREEK	2.32	5120	2566	10215
BOGGY CREEK	3.20	5830	2922	11631
BOGGY CREEK	3.69	6177	3096	12325
BOGGY CREEK	4.66	7206	3612	14378



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
BOGGY CREEK	4.83	7255	3636	14475
BOGGY CREEK	10.44	12615	6322	25170
BOGGY CREEK	13.63	14030	7032	27993
BOGGY CREEK	22.31	18262	9152	36437
BOGGY CREEK 2	1.00	1776	890	3543
BOGGY CREEK 2	2.00	2837	1422	5661
BOGGY CREEK 2	3.72	4736	2374	9450
BRUSHY CREEK	0.55	1418	711	2829
BRUSHY CREEK	1.15	2463	1235	4915
BRUSHY CREEK	1.18	2363	1185	4716
BRUSHY CREEK	2.13	3682	1845	7347
BRUSHY CREEK	2.86	4595	2303	9169
BRUSHY CREEK	3.13	4618	2315	9214
BRUSHY CREEK	3.60	4706	2359	9390
BRUSHY CREEK	4.60	5493	2753	10960
BRUSHY CREEK	5.47	6113	3064	12196
BRUSHY CREEK	6.07	6322	3168	12614
BRUSHY CREEK	6.95	6575	3295	13119
BRUSHY CREEK	10.06	8377	4198	16714
BRUSHY CREEK	12.12	9312	4667	18580
BRUSHY CREEK	12.25	9249	4636	18455
BRUSHY CREEK	26.43	16181	8109	32284
BRUSHY CREEK	28.01	16547	8293	33015
BRUSHY CREEK 2	1.27	1885	945	3762
BRUSHY CREEK 2	1.95	2367	1186	4722
BRUSHY CREEK 2	3.87	4159	2084	8298
BRUSHY CREEK 2	4.73	4833	2422	9643
BRUSHY CREEK 2	4.79	4619	2315	9216
BRUSHY CREEK 2	5.26	4902	2457	9781
BRUSHY CREEK 2	6.64	5410	2712	10795
BRUSHY CREEK 2	7.21	5777	2895	11526
BRUSHY CREEK 2	10.62	7452	3735	14869
BUCK BRANCH	1.11	2184	1095	4358
BUCK BRANCH	1.96	3110	1559	6206
BUCK BRANCH	2.81	4320	2165	8619
BUCK BRANCH	3.36	4556	2283	9090
BUCK BRANCH	4.12	5365	2689	10705
BUCK BRANCH	7.65	8185	4102	16332



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
BUCK BRANCH	8.54	8502	4261	16964
BUCK BRANCH	9.54	8692	4356	17342
BUCK BRANCH	14.77	12064	6047	24072
BUCK BRANCH	15.73	13017	6524	25973
BUCK BRANCH	16.04	12581	6306	25103
BUCK BRANCH	17.16	12660	6345	25260
BUCK BRANCH	17.79	12840	6435	25619
BUCKHORN CREEK	1.46	2118	1061	4225
BUCKHORN CREEK	2.30	3102	1555	6189
BUCKHORN CREEK	4.20	5079	2546	10134
BUCKHORN CREEK	5.19	5649	2831	11272
BUCKHORN CREEK	7.42	7392	3705	14750
BUCKHORN CREEK	7.83	7541	3780	15047
BUCKHORN CREEK	12.06	9745	4884	19444
BUCKHORN CREEK	12.13	10086	5055	20125
CAMPBELL BRANCH	0.55	1216	609	2426
CAMPBELL BRANCH	2.21	3750	1880	7483
CAMPBELL BRANCH	2.67	4173	2092	8327
CAMPBELL BRANCH	4.13	5015	2513	10006
CAMPBELL BRANCH	5.08	5617	2815	11206
CAMPBELL BRANCH	5.37	5873	2943	11718
CAMPBELL TRIBUTARY 1	0.46	1002	502	2000
CANTAU CREEK	1.34	3556	1782	7096
CANTAU CREEK	2.29	4850	2431	9678
CANTAU CREEK	2.83	5220	2616	10416
CANTAU CREEK	3.79	6549	3282	13066
CANTAU CREEK	4.08	6304	3160	12579
CANTAU CREEK	5.05	7364	3691	14693
CANTAU CREEK	5.52	7392	3705	14749
CANTAU CREEK	6.42	8251	4135	16462
CANTAU CREEK	6.57	8300	4160	16561
CANTAU TRIBUTARY 3	0.80	1439	721	2871
CARDELL CREEK	1.28	3151	1579	6288
CARDELL CREEK	2.02	4202	2106	8384
CARDELL CREEK	2.48	4644	2327	9265
Cedar Creek	1.16	2720	1363	5427
Cedar Creek	1.60	3480	1744	6943
Cedar Creek	3.73	6065	3040	12102



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Cedar Creek	6.85	9420	4721	18796
Cedar Creek	7.16	9192	4607	18340
Cedar Spring Branch	1.05	1984	995	3959
Cedar Spring Branch	2.03	2959	1483	5904
Chalk Hollow	0.31	699	351	1396
Chalk Hollow	0.69	1350	677	2694
Chalk Hollow	1.00	1893	949	3778
Chalk Hollow	1.90	3090	1549	6166
Chalk Hollow	2.40	3613	1811	7210
Chalk Hollow	3.09	4190	2100	8360
Chalk Hollow	4.50	5502	2758	10978
CIBOLO TRIBUTARY 14	0.49	991	497	1978
CLEAR CREEK	0.50	1096	549	2187
CLEAR CREEK	1.02	1824	914	3639
CLEAR CREEK	1.62	2714	1360	5415
CLEAR CREEK	6.87	7810	3915	15584
CLEAR CREEK	10.85	11312	5670	22571
CLEAR CREEK	16.40	13882	6958	27698
CLEAR CREEK	18.31	14589	7312	29108
CLEAR CREEK	18.94	15160	7598	30249
CLEAR CREEK	19.94	15035	7535	29999
CLEAR CREEK	20.06	15071	7553	30071
CLEAR CREEK	47.57	17905	8974	35726
CLEAR CREEK	48.97	18933	9489	37777
CLEAR CREEK	55.35	20834	10442	41569
CLEAR CREEK	55.88	20889	10469	41678
CLEAR CREEK	61.49	22808	11431	45508
CLEAR CREEK	63.10	23069	11562	46030
CLEAR CREEK	70.43	24855	12457	49591
CLEAR CREEK	71.83	25356	12708	50591
CLEAR CREEK	77.92	27049	13557	53970
CLEAR CREEK	79.61	27747	13906	55362
CLEAR CREEK	80.72	27507	13786	54884
CLEAR CREEK	81.86	27462	13764	54794
CLEAR CREEK	84.51	30337	15204	60529
CLEAR FORK CREEK	1.62	2694	1350	5375
CLEAR FORK CREEK	1.93	2712	1359	5412
CLEAR FORK CREEK	2.70	3304	1656	6593



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
CLEAR FORK CREEK	3.61	4092	2051	8164
CLEAR FORK CREEK	4.60	4441	2226	8861
CLEAR FORK CREEK	5.10	4555	2283	9089
CLEAR FORK SANDIES CREEK	1.30	2420	1213	4829
CLEAR FORK SANDIES CREEK	1.98	3126	1567	6236
CLEAR FORK SANDIES CREEK	2.54	3640	1824	7263
CLEAR FORK SANDIES CREEK	5.12	6138	3077	12248
CLEAR FORK SANDIES CREEK	9.01	9285	4654	18526
CLEAR FORK SANDIES CREEK	9.83	8898	4460	17754
CLEAR FORK SANDIES CREEK	10.78	9367	4695	18691
CLEAR FORK SANDIES CREEK	10.96	9229	4625	18414
CLEAR FORK SANDIES CREEK	17.50	12929	6480	25797
CLEAR FORK SANDIES CREEK	18.50	13292	6662	26521
CLEAR FORK SANDIES CREEK	19.49	12713	6371	25365
CLEAR FORK SANDIES CREEK	19.51	12634	6332	25208
CLEAR FORK SANDIES CREEK	22.42	14595	7315	29121
CLEAR FORK SANDIES CREEK	23.40	14713	7374	29356
CLEAR FORK SANDIES CREEK	24.25	14674	7355	29279
CLEAR FORK SANDIES CREEK	24.95	14732	7383	29394
CLEAR FORK SANDIES CREEK	32.04	17783	8912	35481
CLEAR FORK SANDIES CREEK	32.97	18140	9092	36194
CLEAR FORK SANDIES CREEK	33.67	18088	9066	36091
CLEAR FORK SANDIES CREEK	34.60	18455	9249	36822
CLEAR FORK SANDIES CREEK	35.10	18668	9356	37248
CLEAR FORK SANDIES CREEK	35.58	18795	9420	37501
CLEAR FORK SANDIES CREEK	35.75	18750	9397	37412
CLEAR FORK SANDIES CREEK	36.61	18613	9329	37137
CLEAR FORK SANDIES CREEK	47.02	21990	11021	43876
CLEAR FORK SANDIES CREEK	50.47	23493	11774	46875
CLEAR FORK SANDIES CREEK	51.84	23171	11613	46233
CLEAR FORK SANDIES CREEK	54.36	23496	11776	46880
CLEAR FORK SANDIES CREEK	55.46	23415	11735	46720
CLEAR FORK SANDIES CREEK	57.71	23732	11894	47352
CLEAR FORK SANDIES CREEK	59.36	25086	12573	50054
CLEAR FORK SANDIES CREEK	60.68	24363	12210	48611
CLEAR FORK SANDIES CREEK	63.07	24262	12160	48408
Comal River	6.88	10103	5063	20157
Comal River	6.93	10001	5013	19956



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Comal River	8.75	11640	5834	23225
Comal River	75.86	45248	22678	90282
Comal Springs Tributary 1	1.33	4889	2450	9754
COOPER CREEK	0.65	1702	853	3397
COOPER CREEK	1.15	2691	1349	5369
COOPER CREEK	1.52	3012	1509	6009
COOPER CREEK	2.89	4958	2485	9892
COOPER CREEK	4.73	6489	3252	12947
COOPER CREEK	4.92	6657	3336	13282
COOPER CREEK	6.28	7538	3778	15040
Copperas Creek	0.73	1575	789	3143
Copperas Creek	1.37	2686	1346	5360
Copperas Creek	1.66	3023	1515	6031
Copperas Creek	2.26	3508	1758	6999
Copperas Creek	2.39	3452	1730	6888
Copperas Creek	6.58	8187	4103	16335
Copperas Creek	6.85	8467	4243	16893
Copperas Creek	8.16	9449	4736	18854
Copperas Creek	8.56	9028	4525	18013
Copperas Creek	11.36	10144	5084	20239
Copperas Creek	11.64	9861	4942	19676
Copperas Creek	14.21	11389	5708	22723
Copperas Creek	15.17	11573	5800	23092
Copperas Creek	15.45	11807	5917	23557
Copperas Creek	16.00	11658	5843	23260
Copperas Creek	16.81	12142	6085	24227
Copperas Creek	18.83	13183	6607	26303
Copperas Creek	20.94	13869	6951	27671
Copperas Creek	21.87	14259	7147	28451
Copperas Creek	22.54	14001	7017	27936
Copperas Creek	32.06	18541	9292	36994
Copperas Creek	34.14	19171	9608	38251
Copperas Creek	35.09	19100	9573	38109
Copperas Creek	35.29	19129	9587	38167
Copperas Creek	36.16	19174	9610	38257
Copperas Creek	38.32	19734	9890	39374
Copperas Creek	39.25	19806	9926	39517
Copperas Creek	40.24	19953	10000	39812



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Copperas Creek	40.45	19834	9940	39573
Copperas Creek	42.56	20189	10119	40283
CORDELL CREEK	1.06	2502	1254	4992
CORDELL CREEK	2.06	4033	2021	8047
CORDELL CREEK	2.70	4662	2336	9301
CORDELL CREEK	4.70	6967	3492	13902
CORDELL CREEK	5.69	7826	3922	15615
CORDELL CREEK	6.49	8317	4168	16595
CORDELL TRIBUTARY 1	1.24	2869	1438	5725
Cordovs Hollow	1.50	4910	2461	9797
Cordovs Hollow	2.16	6274	3144	12518
Cordovs Hollow	2.90	7700	3859	15364
Cordovs Hollow	3.66	8601	4311	17162
CORRAL CREEK	1.00	1382	693	2758
CORRAL CREEK	1.11	1485	744	2964
COTTLE CREEK	1.00	2168	1086	4325
COTTLE CREEK	1.97	3277	1642	6538
COTTLE CREEK	2.93	3935	1972	7852
COTTLE CREEK	3.83	4373	2192	8725
COTTONWOOD CREEK	1.63	2361	1183	4711
COTTONWOOD CREEK	3.79	4600	2305	9178
COTTONWOOD CREEK	4.04	4698	2355	9374
COTTONWOOD CREEK	9.04	7479	3749	14923
COTTONWOOD CREEK	9.11	7676	3847	15315
COTTONWOOD CREEK	13.08	9525	4774	19006
COTTONWOOD CREEK	13.45	9454	4738	18863
COTTONWOOD CREEK	18.47	11938	5983	23819
COTTONWOOD CREEK	18.64	11847	5938	23638
COTTONWOOD CREEK SOUTH	1.08	2294	1150	4578
COTTONWOOD CREEK SOUTH	1.94	3398	1703	6780
COTTONWOOD CREEK SOUTH	2.93	4221	2115	8422
COTTONWOOD CREEK SOUTH	3.11	4170	2090	8320
COTTONWOOD CREEK SOUTH	3.77	4785	2398	9547
COTTONWOOD CREEK SOUTH	6.39	6494	3255	12958
COTTONWOOD CREEK SOUTH	7.34	6908	3462	13783
COTTONWOOD CREEK SOUTH	14.88	14363	7198	28658
COTTONWOOD CREEK SOUTH	26.75	20459	10254	40821
COTTONWOOD CREEK SOUTH	27.61	20248	10148	40400



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
COTTONWOOD CREEK SOUTH	29.38	20009	10028	39924
COTTONWOOD CREEK SOUTH	33.69	20768	10408	41437
COTTONWOOD CREEK SOUTH 2	0.56	975	488	1945
COTTONWOOD CREEK SOUTH 2	1.31	1870	937	3732
COTTONWOOD CREEK SOUTH 2	2.37	3290	1649	6564
COTTONWOOD CREEK SOUTH 2	3.42	4235	2122	8450
COTTONWOOD CREEK SOUTH 2	3.87	4546	2278	9071
COTTONWOOD CREEK SOUTH 2	5.80	6148	3081	12267
COTTONWOOD CREEK SOUTH 2	6.00	6397	3206	12764
COTTONWOOD TRIBUTARY 1	1.22	2786	1396	5559
COTTONWOOD TRIBUTARY 1	2.07	3371	1689	6726
COTTONWOOD TRIBUTARY 1	3.06	4310	2160	8600
COTTONWOOD TRIBUTARY 1	3.27	4626	2319	9230
COTTONWOOD TRIBUTARY 1	7.12	8292	4156	16545
COTTONWOOD TRIBUTARY 1	7.45	8351	4185	16663
COTTONWOOD TRIBUTARY 1 2	1.28	2996	1502	5978
COTTONWOOD TRIBUTARY 1 2	2.10	4143	2077	8267
COTTONWOOD TRIBUTARY 1 2	3.02	4941	2476	9858
COTTONWOOD TRIBUTARY 2	0.87	1584	794	3160
COTTONWOOD TRIBUTARY 2	1.64	2349	1177	4688
COTTONWOOD TRIBUTARY 3	0.60	1021	512	2038
COTTONWOOD TRIBUTARY 6	0.65	1154	578	2302
CUERO CREEK	0.42	1089	546	2173
CUERO CREEK	0.91	1693	848	3377
CUERO CREEK	1.28	2611	1309	5211
CUERO CREEK	2.28	4168	2089	8316
CUERO CREEK	2.35	4115	2062	8211
CUERO CREEK	3.06	4893	2452	9763
CUERO CREEK	3.99	5976	2995	11924
CUERO CREEK	4.99	6586	3301	13142
CUERO CREEK	5.04	6346	3180	12662
CUERO CREEK	9.29	9496	4759	18947
CUERO CREEK	10.07	9780	4902	19513
CUERO CREEK	10.68	9654	4838	19262
CUERO CREEK	12.03	9470	4746	18895
CUERO CREEK	18.62	13316	6674	26569
CUERO CREEK	23.88	14922	7479	29774
CUERO CREEK	30.84	16214	8126	32352



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
DARST CREEK	0.75	1577	790	3146
DARST CREEK	1.01	2032	1018	4054
DARST CREEK	1.33	2433	1219	4854
DARST CREEK	2.27	3794	1901	7569
DARST CREEK	2.49	4036	2023	8052
DARST CREEK	3.08	4801	2406	9579
DARST CREEK	4.63	6364	3190	12698
DARST CREEK	5.59	7364	3691	14694
DARST CREEK	6.58	8343	4182	16647
DARST CREEK	7.42	8340	4180	16640
DARST TRIBUTARY 2	0.68	1342	673	2678
DARST TRIBUTARY 3	1.10	2253	1129	4496
DARST TRIBUTARY 4	0.57	1248	625	2490
DARST TRIBUTARY 5	0.73	1784	894	3559
DARST TRIBUTARY 5B	0.14	456	228	909
DARST TRIBUTARY 5C	0.23	669	335	1334
DEADMAN CREEK	0.30	458	230	914
DEADMAN CREEK	0.74	1089	546	2172
DEADMAN CREEK	2.04	2998	1503	5983
DEADMAN CREEK	2.67	3695	1852	7373
DEADMAN CREEK	3.21	4339	2175	8658
DEADMAN CREEK	4.07	5310	2661	10595
DEADMAN CREEK	4.17	5415	2714	10805
DEADMAN CREEK	5.13	6288	3152	12547
DEADMAN CREEK	5.29	6419	3217	12808
DEADMAN CREEK	7.16	7923	3971	15808
DEADMAN CREEK	8.12	8474	4247	16908
DEADMAN CREEK	9.12	9078	4550	18113
DEADMAN CREEK	9.21	9136	4579	18228
DEADMAN TRIBUTARY 3	1.21	2557	1281	5102
DEADMAN TRIBUTARY 6	0.09	310	155	618
DEADMAN TRIBUTARY 6	0.83	1743	873	3477
DEADMAN TRIBUTARY 6F	0.13	425	213	848
DEADMAN TRIBUTARY 7	0.52	1424	713	2840
DEADMAN TRIBUTARY B	0.09	293	147	585
Deep Creek	0.97	5007	2509	9990
Deep Creek	1.60	6541	3278	13051
DEER CREEK	0.65	1466	735	2925



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
DEER CREEK	1.95	3392	1700	6769
DEER CREEK	2.90	4130	2070	8240
DEER CREEK	3.19	4505	2258	8988
DEER CREEK	5.28	6705	3360	13377
DEER CREEK	6.18	7288	3652	14541
DEER CREEK	6.65	7823	3921	15610
DEER CREEK	7.28	8129	4074	16219
DEER CREEK	7.81	8400	4210	16760
DEER CREEK	8.76	8980	4501	17918
DEER CREEK	20.50	15141	7588	30209
DEER CREEK	21.06	15596	7816	31117
DEER CREEK	24.69	17256	8648	34429
DEER CREEK 2	0.95	1651	828	3295
DENTON CREEK	1.26	2189	1097	4368
DENTON CREEK	1.56	2348	1177	4685
DENTON CREEK	2.56	3578	1793	7138
DENTON CREEK	3.08	3447	1728	6878
DENTON CREEK	6.01	6352	3184	12674
DENTON CREEK	12.03	9000	4510	17957
DENTON CREEK	16.18	10414	5219	20778
DENTON CREEK	20.89	11686	5857	23317
DENTON CREEK	24.78	12705	6367	25349
DENTON CREEK	30.06	14079	7056	28091
DENTON CREEK 2	0.99	1586	795	3164
DENTON CREEK 2	3.36	4203	2106	8386
DENTON CREEK 2	3.90	4344	2177	8667
DENTON CREEK 2	8.01	7758	3888	15479
DENTON CREEK 2	9.98	9181	4601	18319
DENTON CREEK 2	15.84	12057	6043	24056
DENTON CREEK 2	23.85	15557	7797	31041
DENTON CREEK 2	32.69	17598	8820	35112
Devil Hollow	1.53	3032	1520	6050
Devil Hollow	1.88	3339	1674	6663
Devil Hollow	2.13	3679	1844	7341
Devil Hollow	2.35	3770	1890	7523
Devil Hollow	2.72	4032	2021	8045
Dry Bear Creek	1.00	3329	1669	6643
Dry Bear Creek	2.21	6332	3174	12635



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Dry Bear Creek	2.77	7884	3951	15730
Dry Bear Creek	3.41	8660	4340	17279
Dry Bear Creek	4.37	10215	5120	20382
Dry Bear Creek	4.70	10509	5267	20969
Dry Bear Creek	5.24	11287	5657	22520
Dry Bear Creek	5.76	11935	5982	23813
Dry Bear Tributary 2	0.36	1683	844	3359
Dry Bear Tributary 5	0.47	2002	1004	3995
Dry Bear Tributary 7	0.15	757	380	1511
Dry Bear Tributary 8	0.51	2332	1169	4653
Dry Bear Tributary 9	0.86	3359	1683	6701
Dry Comal Creek	0.78	2663	1335	5313
Dry Comal Creek	1.65	4124	2067	8229
Dry Comal Creek	2.25	4613	2312	9204
Dry Comal Creek	2.47	4836	2424	9649
Dry Comal Creek	3.10	5771	2892	11514
Dry Comal Creek	4.08	6583	3299	13134
Dry Comal Creek	6.22	8925	4473	17809
Dry Comal Creek	6.76	9517	4770	18989
Dry Comal Creek	7.37	10096	5060	20143
Dry Comal Creek	8.37	10916	5471	21780
Dry Comal Creek	8.84	11024	5525	21996
Dry Comal Creek	10.37	10669	5347	21287
Dry Comal Creek	10.37	10443	5234	20837
Dry Comal Creek	10.43	12514	6272	24969
Dry Comal Creek	10.51	10599	5312	21148
Dry Comal Creek	10.57	12944	6487	25826
Dry Comal Creek	10.66	10669	5347	21288
Dry Comal Creek	10.74	12950	6490	25838
Dry Comal Creek	12.85	14795	7415	29520
Dry Comal Creek	13.66	15311	7674	30550
Dry Comal Creek	14.08	15612	7825	31150
Dry Comal Creek	14.57	15877	7957	31679
Dry Comal Creek	16.05	16996	8518	33912
Dry Comal Creek	16.84	17774	8908	35463
Dry Comal Creek	17.75	18444	9244	36800
Dry Comal Creek	18.38	18672	9358	37255
Dry Comal Creek	23.94	20114	10081	40133



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Dry Comal Creek	26.20	21523	10787	42945
Dry Comal Creek	26.71	24792	12425	49466
Dry Comal Creek	27.20	22426	11240	44745
Dry Comal Creek	27.58	24933	12496	49747
Dry Comal Creek	28.57	24443	12250	48770
Dry Comal Creek	29.52	24830	12445	49543
Dry Comal Creek	36.96	28238	14153	56343
Dry Comal Creek	37.94	29503	14787	58866
Dry Comal Creek	38.61	29714	14892	59287
Dry Comal Creek	40.50	30263	15168	60383
Dry Comal Creek	43.59	31656	15866	63163
Dry Comal Creek	44.17	31836	15956	63521
Dry Comal Creek	50.39	34833	17458	69500
Dry Comal Creek	51.74	35593	17839	71017
Dry Comal Creek	55.84	38178	19134	76175
Dry Comal Creek	58.29	39166	19629	78146
Dry Comal Creek	61.84	40671	20384	81150
Dry Comal Creek	62.67	41049	20573	81903
Dry Comal Creek	63.55	41081	20589	81967
Dry Comal Creek	64.47	41375	20737	82554
Dry Comal Creek	65.47	41463	20781	82730
Dry Comal Creek	66.47	41486	20792	82776
Dry Comal Creek	66.75	41532	20815	82867
Dry Comal Creek Tributary 13	1.15	2756	1381	5498
Dry Comal Creek Tributary 13	1.80	3903	1956	7787
Dry Comal Creek Tributary 13	2.67	5391	2702	10756
Dry Comal Creek Tributary 13	3.40	5953	2984	11878
Dry Comal Creek Tributary 13	4.78	8121	4070	16204
Dry Comal Creek Tributary 13	5.54	9323	4673	18603
Dry Comal Creek Tributary 13	5.68	9767	4895	19487
Dry Comal Creek Tributary 14	1.14	3002	1504	5989
Dry Comal Creek Tributary 18	1.19	3396	1702	6776
Dry Comal Creek Tributary 18	1.51	4111	2060	8202
Dry Comal Creek Tributary 18	2.19	4840	2426	9657
Dry Comal Creek Tributary 19	1.06	3122	1565	6230
Dry Comal Creek Tributary 19	1.76	4324	2167	8627
Dry Comal Creek Tributary 24	0.47	780	391	1557
Dry Comal Creek Tributary 24	0.91	1469	736	2931



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Dry Comal Creek Tributary 24	1.67	2645	1326	5277
Dry Comal Creek Tributary 24	2.28	3326	1667	6636
Dry Comal Creek Tributary 24	3.22	4603	2307	9185
Dry Comal Creek Tributary 24	4.00	5162	2587	10299
Dry Comal Creek Tributary 24	4.51	5622	2818	11218
Dry Comal Creek Tributary 24	6.24	6973	3495	13912
Dry Comal Creek Tributary 24	6.78	6958	3487	13882
Dry Comal Creek Tributary 24	7.40	7326	3672	14617
Dry Comal Creek Tributary 24	9.58	9111	4566	18178
Dry Comal Creek Tributary 28	0.79	2029	1017	4048
Dry Comal Creek Tributary 30	0.50	1832	918	3654
Dry Comal Creek Tributary 30	0.93	2803	1405	5592
Dry Comal Creek Tributary 31	0.36	1122	562	2239
Dry Comal Creek Tributary 33	0.13	607	304	1211
Dry Comal Creek Tributary 37	1.29	4061	2035	8102
Dry Comal Creek Tributary 9	1.04	3567	1788	7118
Dry Comal Creek Tributary 9	1.72	5081	2547	10139
Dry Comal Creek Tributary 9	2.59	6824	3420	13617
Dry Comal Tributary 11	1.53	3542	1775	7067
Dry Comal Tributary 11	1.86	3947	1978	7875
DRY RUN	1.32	2059	1032	4108
DRY RUN	2.02	2672	1339	5330
DRY RUN	3.01	3667	1838	7316
DRY RUN	3.99	4273	2141	8525
DRY RUN	4.99	5071	2542	10118
DUKES HOLLOW CREEK	0.70	1388	696	2769
DYKES CREEK	0.50	909	456	1814
DYKES CREEK	1.13	1637	820	3265
EAST ELM CREEK	0.52	966	484	1927
EAST ELM CREEK	1.01	1639	822	3271
EAST ELM CREEK	1.78	2676	1341	5340
EAST ELM CREEK	4.62	5480	2747	10935
EAST ELM CREEK	5.54	5733	2873	11439
EAST ROCKY CREEK	1.04	1983	994	3956
EAST ROCKY CREEK	1.69	2502	1254	4991
EAST TINSLEY CREEK	0.64	1049	526	2093
EAST TINSLEY CREEK	1.24	1898	951	3786
EAST TINSLEY CREEK	2.13	3071	1539	6127



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
EAST TINSLEY CREEK	2.91	3860	1935	7702
EAST TINSLEY CREEK	3.78	4496	2253	8970
EAST TINSLEY CREEK	4.62	4915	2463	9807
EAST TINSLEY CREEK	5.56	5252	2632	10478
EAST TINSLEY CREEK	5.82	5453	2733	10880
ELM CREEK	1.38	2035	1020	4061
ELM CREEK	1.92	2458	1232	4905
ELM CREEK	2.92	3253	1630	6490
ELM CREEK	3.66	3842	1925	7666
ELM CREEK	7.45	6746	3381	13461
ELM CREEK	8.45	7779	3899	15522
ELM CREEK	9.24	7438	3728	14840
ELM CREEK	17.01	11629	5828	23203
ELM CREEK	17.91	12056	6042	24054
ELM CREEK	28.45	16349	8194	32620
ELM CREEK	29.36	16608	8324	33138
ELM CREEK	59.28	27922	13994	55711
ELM CREEK	59.90	27134	13599	54139
ELM CREEK	62.21	27691	13879	55252
ELM CREEK	67.75	27197	13631	54266
ELM CREEK	79.00	29795	14933	59450
ELM CREEK	82.74	29092	14581	58046
ELM CREEK	83.33	29029	14549	57920
ELM CREEK	84.76	29307	14688	58475
ELM CREEK	85.65	29035	14552	57932
ELM CREEK	89.08	30623	15348	61101
ELM CREEK	90.53	30590	15332	61036
ELM CREEK	106.46	32961	16519	65765
ELM CREEK	107.88	32640	16359	65124
ELM CREEK	108.36	32121	16099	64090
ELM CREEK	112.70	30910	15492	61674
ELM CREEK	114.78	31174	15624	62201
ELM CREEK	124.20	31790	15933	63429
ELM CREEK	131.51	33095	16587	66033
ELM CREEK	133.79	33062	16570	65968
ELM CREEK	135.96	33712	16896	67265
ELM CREEK	153.19	36391	18239	72610
Elm Creek 2	1.09	3153	1580	6292



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Elm Creek 2	1.99	5051	2532	10078
Elm Creek 2	2.85	6473	3244	12915
Elm Creek 2	3.84	7729	3873	15421
Elm Creek 2	4.84	8743	4382	17445
Elm Creek 2	5.36	9761	4892	19475
Elm Creek 2	6.09	10891	5458	21730
Elm Creek 3	0.69	1515	759	3023
Elm Creek 3	0.85	1720	862	3432
Elm Creek 3	1.20	2082	1043	4154
Elm Creek 3	2.94	4143	2076	8266
Elm Creek 3	3.94	5009	2511	9995
Elm Creek 3	4.32	5025	2519	10027
ELM CREEK NORTH	1.02	2172	1089	4334
ELM CREEK NORTH	1.91	3184	1596	6353
ELM CREEK NORTH	2.87	4137	2074	8255
ELM CREEK NORTH	3.18	4470	2240	8918
ELM CREEK NORTH	5.40	5415	2714	10803
ELM CREEK NORTH	5.68	5584	2799	11141
ELM CREEK NORTH	11.09	9592	4808	19139
ELM SLOUGH	1.15	1913	959	3816
ELM SLOUGH	1.93	2630	1318	5248
ELM SLOUGH	2.44	3141	1574	6267
ELM SLOUGH	3.39	3773	1891	7529
ELM SLOUGH	4.28	4346	2178	8672
ELM SLOUGH	5.21	5035	2524	10046
ELM SLOUGH	6.17	5561	2787	11095
ELM TRIBUTARY 1	1.22	2064	1035	4119
EVANS HOLLOW	1.15	1779	892	3550
EVANS HOLLOW	2.00	2636	1321	5260
EVANS HOLLOW	2.14	2710	1358	5407
EVANS HOLLOW	7.04	6935	3476	13838
FIVEMILE CREEK	1.08	1981	993	3954
FIVEMILE CREEK	1.50	2314	1160	4617
FIVEMILE CREEK	3.09	3639	1824	7261
FIVEMILE CREEK	4.08	4500	2255	8979
FIVEMILE CREEK	7.20	6324	3169	12618
FIVEMILE CREEK	7.54	6628	3322	13224
FIVEMILE CREEK	9.49	7688	3853	15340



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
FIVEMILE CREEK	10.00	7552	3785	15069
FIVEMILE CREEK	10.60	7593	3806	15150
FIVEMILE CREEK	11.35	7904	3961	15770
FIVEMILE CREEK	12.07	8089	4054	16140
FIVEMILE CREEK	19.69	11391	5709	22727
FIVEMILE CREEK	23.89	12835	6433	25609
FIVEMILE CREEK	27.55	14077	7055	28088
FIVEMILE CREEK	28.09	14209	7121	28350
FIVEMILE CREEK	29.09	14025	7029	27983
FIVEMILE CREEK	30.00	14284	7159	28499
FIVEMILE CREEK	30.52	14083	7058	28100
FIVEMILE CREEK	30.91	14155	7094	28242
FIVEMILE CREEK	42.22	17323	8682	34565
FIVEMILE CREEK	46.11	18092	9068	36099
FIVEMILE CREEK	48.66	18498	9271	36909
FIVEMILE CREEK	49.33	18162	9103	36238
FIVEMILE CREEK	52.86	18553	9299	37019
FIVEMILE CREEK	144.46	36326	18206	72481
FIVEMILE CREEK	144.79	36740	18413	73305
FIVEMILE CREEK	153.12	36333	18210	72494
FIVEMILE CREEK	156.71	37776	18933	75372
FIVEMILE CREEK	158.89	36758	18422	73341
Fourmile Creek	1.33	2718	1362	5423
Fourmile Creek	1.97	3592	1800	7166
Fourmile Creek	2.53	4223	2117	8427
Fourmile Creek	3.52	5511	2762	10995
Fourmile Creek	3.82	5700	2857	11373
FREEMAN CREEK	1.07	1893	949	3777
FREEMAN CREEK	2.06	3392	1700	6767
FREEMAN CREEK	2.52	3550	1779	7083
FREEMAN CREEK	3.47	4570	2291	9119
FREEMAN CREEK	4.38	5256	2634	10488
FREEMAN CREEK	4.72	5537	2775	11047
FULCHER CREEK	1.35	2474	1240	4936
FULCHER CREEK	2.03	3358	1683	6701
FULCHER CREEK	3.52	4821	2416	9618
FULCHER CREEK	6.30	7204	3610	14373
FULCHER CREEK	6.92	6988	3502	13942



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
FULCHER CREEK	7.41	7048	3532	14062
FULCHER CREEK	8.83	8132	4076	16225
FULCHER CREEK	12.01	9871	4947	19695
FULCHER CREEK	13.37	10667	5346	21283
FULCHER CREEK	13.98	11059	5542	22065
GELHORN CREEK	1.26	3070	1539	6125
GELHORN CREEK	2.95	6031	3022	12033
GELHORN CREEK	3.88	6215	3115	12400
GELHORN CREEK	4.67	7019	3518	14005
GELHORN CREEK	7.06	8919	4470	17797
GELHORN CREEK	9.19	9691	4857	19335
GERONIMO CREEK	1.20	1157	580	2309
GERONIMO CREEK	2.18	2596	1301	5180
GERONIMO CREEK	3.11	2992	1500	5970
GERONIMO CREEK	4.10	3899	1954	7780
GERONIMO CREEK	4.97	4122	2066	8224
GERONIMO CREEK	28.30	16688	8364	33297
GERONIMO CREEK	30.61	17668	8855	35252
GERONIMO CREEK	31.38	17550	8796	35017
GERONIMO CREEK	32.97	18279	9161	36472
GERONIMO CREEK	37.93	20142	10095	40189
GERONIMO CREEK	38.93	19862	9955	39631
GERONIMO CREEK	39.36	19939	9993	39783
GERONIMO CREEK	40.32	20252	10150	40408
GERONIMO CREEK	41.31	20570	10309	41043
GERONIMO CREEK	41.49	20412	10230	40727
GERONIMO CREEK	47.40	22534	11294	44961
GERONIMO CREEK	48.09	22874	11464	45640
GERONIMO CREEK	49.09	22831	11443	45554
GERONIMO CREEK	49.34	22822	11438	45535
GERONIMO CREEK	57.75	25498	12779	50875
GERONIMO CREEK	57.83	25540	12801	50960
GERONIMO CREEK	59.72	26322	13192	52520
GERONIMO CREEK	62.50	27287	13676	54446
GERONIMO CREEK	63.46	27338	13701	54546
GERONIMO CREEK	67.80	28216	14141	56298
GERONIMO CREEK	68.67	28322	14195	56509
GERONIMO CREEK	69.67	28946	14508	57756



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
GERONIMO TRIBUTARY 10	0.65	1218	610	2430
GERONIMO TRIBUTARY 11	0.97	2015	1010	4021
GERONIMO TRIBUTARY 11	2.46	3854	1932	7690
GERONIMO TRIBUTARY 11	4.35	5054	2533	10083
GERONIMO TRIBUTARY 11	4.80	5292	2652	10559
GERONIMO TRIBUTARY 12	0.40	939	471	1874
GERONIMO TRIBUTARY 13	1.09	2396	1201	4780
GERONIMO TRIBUTARY 13	1.42	2737	1372	5461
GERONIMO TRIBUTARY 16	1.04	1123	563	2240
GERONIMO TRIBUTARY 16	1.55	1711	858	3415
GERONIMO TRIBUTARY 17	1.12	1870	937	3730
GERONIMO TRIBUTARY 17	1.65	2547	1277	5082
GERONIMO TRIBUTARY 2	1.08	1611	807	3213
GERONIMO TRIBUTARY 2	1.43	1969	987	3929
GERONIMO TRIBUTARY 2	1.73	2211	1108	4413
GERONIMO TRIBUTARY 2	2.72	3363	1685	6710
GERONIMO TRIBUTARY 2	3.60	4093	2052	8168
GERONIMO TRIBUTARY 4	1.26	1115	559	2224
GERONIMO TRIBUTARY 4	1.80	2040	1022	4071
GERONIMO TRIBUTARY 5	1.08	1472	738	2936
GERONIMO TRIBUTARY 5	1.51	2310	1158	4608
GERONIMO TRIBUTARY 6	1.34	1538	771	3068
GERONIMO TRIBUTARY 6	2.06	2161	1083	4312
GERONIMO TRIBUTARY 6	2.77	2979	1493	5944
GERONIMO TRIBUTARY 6	5.87	5022	2517	10020
GERONIMO TRIBUTARY 7	1.25	1224	614	2443
GERONIMO TRIBUTARY 7	2.12	1864	934	3720
GERONIMO TRIBUTARY 7	3.08	2883	1445	5752
GERONIMO TRIBUTARY 9	0.27	623	312	1243
GERONIMO TRIBUTARY 9	0.96	1660	832	3312
GUADALUPE TRIBUTARY 1	1.10	3046	1527	6078
GUADALUPE TRIBUTARY 1	1.55	3814	1911	7610
GUADALUPE TRIBUTARY 1	2.34	4834	2423	9646
GUADALUPE TRIBUTARY 1	2.93	5435	2724	10844
GUADALUPE TRIBUTARY 1	3.50	6281	3148	12532
GUADALUPE TRIBUTARY 1	4.09	6665	3341	13299
GUADALUPE TRIBUTARY 1	4.22	6520	3268	13008
GUADALUPE TRIBUTARY 1	7.46	10031	5027	20014



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
GUADALUPE TRIBUTARY 1	8.46	10743	5384	21436
GUADALUPE TRIBUTARY 1	8.48	10615	5320	21179
GUADALUPE TRIBUTARY 1	10.51	10654	5339	21257
GUADALUPE TRIBUTARY 1	13.49	12032	6030	24007
Guadalupe Tributary 11	0.29	1415	709	2824
GUADALUPE TRIBUTARY 11 2	1.07	1568	786	3129
GUADALUPE TRIBUTARY 11 2	1.40	1995	1000	3981
GUADALUPE TRIBUTARY 11 2	1.77	2567	1287	5122
Guadalupe Tributary 12	0.32	1805	905	3601
Guadalupe Tributary 12	1.00	4470	2240	8919
Guadalupe Tributary 12	1.39	5221	2617	10418
GUADALUPE TRIBUTARY 13	0.84	1432	718	2858
GUADALUPE TRIBUTARY 13	2.02	2585	1296	5158
GUADALUPE TRIBUTARY 13	2.44	3052	1530	6089
GUADALUPE TRIBUTARY 15	1.08	2369	1187	4727
GUADALUPE TRIBUTARY 15	1.45	2786	1396	5559
GUADALUPE TRIBUTARY 15	2.02	3284	1646	6552
GUADALUPE TRIBUTARY 15	2.10	3225	1616	6435
Guadalupe Tributary 16	0.93	4378	2194	8735
GUADALUPE TRIBUTARY 16 2	1.20	1316	660	2626
GUADALUPE TRIBUTARY 16 2	1.94	1947	976	3885
GUADALUPE TRIBUTARY 16 2	2.14	2204	1104	4397
Guadalupe Tributary 18	0.60	2925	1466	5836
GUADALUPE TRIBUTARY 1D	0.37	916	459	1827
GUADALUPE TRIBUTARY 1J	0.21	773	387	1542
GUADALUPE TRIBUTARY 20	1.46	2359	1182	4707
GUADALUPE TRIBUTARY 20	2.03	2429	1217	4846
GUADALUPE TRIBUTARY 20	3.00	3507	1758	6997
GUADALUPE TRIBUTARY 20	4.00	4426	2218	8831
GUADALUPE TRIBUTARY 20	4.96	5335	2674	10644
GUADALUPE TRIBUTARY 20	8.94	8568	4294	17096
GUADALUPE TRIBUTARY 20	8.95	8330	4175	16620
GUADALUPE TRIBUTARY 21	1.43	2509	1257	5006
GUADALUPE TRIBUTARY 21	2.38	3948	1979	7877
GUADALUPE TRIBUTARY 21	2.97	4614	2312	9206
GUADALUPE TRIBUTARY 22	1.19	2556	1281	5101
GUADALUPE TRIBUTARY 22	1.90	3190	1599	6366
GUADALUPE TRIBUTARY 22	2.90	4380	2195	8739



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
GUADALUPE TRIBUTARY 22	3.78	5335	2674	10645
GUADALUPE TRIBUTARY 22	4.63	5779	2896	11531
Guadalupe Tributary 23	1.15	3852	1930	7685
Guadalupe Tributary 23	3.52	8892	4456	17742
Guadalupe Tributary 23	5.56	12052	6040	24047
Guadalupe Tributary 23	5.93	12660	6345	25259
Guadalupe Tributary 23	8.60	16500	8269	32921
Guadalupe Tributary 23	9.56	18034	9039	35983
Guadalupe Tributary 23	9.66	18110	9077	36135
GUADALUPE TRIBUTARY 23 2	0.20	809	405	1614
Guadalupe Tributary 24	0.87	3547	1778	7077
Guadalupe Tributary 25	0.82	3445	1727	6874
Guadalupe Tributary 25	1.89	6288	3151	12545
Guadalupe Tributary 25	2.37	6969	3493	13905
Guadalupe Tributary 27	1.04	4042	2026	8066
Guadalupe Tributary 28	0.97	3515	1762	7014
Guadalupe Tributary 28	1.43	4621	2316	9220
Guadalupe Tributary 28	2.00	5822	2918	11615
Guadalupe Tributary 28	2.29	6076	3045	12123
Guadalupe Tributary 29	0.54	2062	1033	4113
Guadalupe Tributary 29	0.95	3455	1732	6894
Guadalupe Tributary 29	1.74	6284	3150	12539
GUADALUPE TRIBUTARY 29 2	1.19	1559	781	3110
GUADALUPE TRIBUTARY 29 2	1.96	2596	1301	5179
GUADALUPE TRIBUTARY 29 2	2.81	4000	2005	7981
GUADALUPE TRIBUTARY 2A	0.40	868	435	1731
GUADALUPE TRIBUTARY 2A	1.00	1694	849	3380
GUADALUPE TRIBUTARY 2A 2	0.19	547	274	1092
GUADALUPE TRIBUTARY 2C	0.27	602	302	1201
Guadalupe Tributary 32	0.79	3284	1646	6553
Guadalupe Tributary 32	1.67	5349	2681	10673
Guadalupe Tributary 32	2.65	7656	3837	15276
Guadalupe Tributary 32	3.50	9717	4870	19388
GUADALUPE TRIBUTARY 3A	0.94	1910	957	3812
Guadalupe Tributary 4	1.13	2801	1404	5589
Guadalupe Tributary 4	1.79	3962	1986	7906
Guadalupe Tributary 4	2.20	4525	2268	9028
GUADALUPE TRIBUTARY 4 2	1.09	2177	1091	4344



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
GUADALUPE TRIBUTARY 4A	1.13	1538	771	3068
GUADALUPE TRIBUTARY 4A	2.13	2693	1350	5373
GUADALUPE TRIBUTARY 4A	3.05	3259	1633	6502
GUADALUPE TRIBUTARY 4A	4.04	4043	2026	8066
GUADALUPE TRIBUTARY 4A	5.02	4978	2495	9932
GUADALUPE TRIBUTARY 4A	5.18	4922	2467	9821
GUADALUPE TRIBUTARY 4A	8.06	10703	5364	21356
GUADALUPE TRIBUTARY 4A	8.12	7625	3821	15213
Guadalupe Tributary 7	1.06	3652	1830	7286
Guadalupe Tributary 7	1.66	4828	2420	9633
GUADALUPE TRIBUTARY 9	1.08	1918	961	3827
GUADALUPE TRIBUTARY 9	1.70	2912	1459	5810
Heiser Creek	1.08	5067	2539	10110
Heiser Creek	1.60	6082	3048	12135
Heiser Creek	1.98	6826	3421	13620
Heiser Creek	2.15	6955	3486	13878
Hog Branch	0.93	2028	1016	4046
Hog Branch	1.94	3801	1905	7583
Hog Branch	2.49	4431	2221	8840
Hog Branch	2.80	4530	2270	9038
Hog Branch	3.15	4872	2442	9721
Isaac Creek	1.45	4022	2016	8026
Isaac Creek	2.33	5850	2932	11672
Isaac Creek	2.58	6038	3026	12047
Isaac Creek	4.64	8610	4315	17179
Isaac Creek	6.68	11034	5530	22016
Isaac Creek	7.66	12428	6229	24798
Isaac Creek	7.75	12598	6314	25136
Isaac Creek Tributary 3	1.26	3036	1522	6058
Isaac Creek Tributary 4	1.10	3035	1521	6055
JACK PUMP CREEK	0.59	1101	552	2196
JACK PUMP CREEK	1.48	2401	1203	4791
JACK PUMP CREEK	2.38	3101	1554	6186
JACK PUMP CREEK	3.79	4565	2288	9108
JACK PUMP CREEK	7.55	6890	3453	13748
JACK PUMP CREEK	9.13	7683	3850	15329
JACK PUMP CREEK	13.52	10009	5016	19970
Jacobs Creek	0.70	2550	1278	5088



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Jacobs Creek	1.25	4203	2106	8385
Jacobs Creek	2.12	6183	3099	12337
Jacobs Creek	3.11	8094	4057	16149
Jacobs Creek	3.77	9086	4554	18129
Jacobs Tributary 3	0.46	2032	1018	4054
KERR CREEK	1.47	2374	1190	4737
KERR CREEK	1.98	2932	1469	5850
KERR CREEK	4.67	5501	2757	10976
KERR CREEK	7.06	7343	3680	14652
KERR CREEK	7.68	7399	3708	14762
KERR CREEK	7.99	7378	3698	14721
KERR CREEK	8.93	7641	3829	15245
KERR CREEK	9.05	7645	3831	15253
KERR CREEK	12.86	9666	4844	19286
KOKERNOT BRANCH	1.19	3084	1545	6153
KOKERNOT BRANCH	1.97	3859	1934	7700
KOKERNOT BRANCH	2.31	4178	2094	8336
KOKERNOT BRANCH	4.87	7061	3539	14089
KOKERNOT BRANCH	5.34	7287	3652	14540
KOKERNOT BRANCH	6.80	8123	4071	16207
KONDE BRANCH	1.05	1793	899	3578
KONDE BRANCH	1.95	2730	1368	5447
KONDE BRANCH	2.94	3509	1758	7001
KONDE BRANCH	3.57	3885	1947	7752
KRAMS CREEK	0.95	2030	1017	4050
KRAMS CREEK	1.52	2937	1472	5859
KRAMS CREEK	1.91	3339	1673	6662
KRAMS CREEK	6.52	8180	4100	16320
KRAMS CREEK	6.87	8446	4233	16851
KRAMS CREEK	7.30	8731	4376	17420
KRAMS TRIBUTARY 1	1.04	2006	1005	4003
KRAMS TRIBUTARY 1	1.81	3226	1617	6437
KRAMS TRIBUTARY 1	2.80	4753	2382	9484
KRAMS TRIBUTARY 1	3.70	5304	2658	10582
KRAMS TRIBUTARY 1	3.96	5601	2807	11176
LIBERTY CREEK	1.42	2247	1126	4484
LIBERTY CREEK	2.23	3252	1630	6489
LIBERTY CREEK	3.13	3787	1898	7556



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
LIBERTY CREEK	3.55	3939	1974	7860
LIBERTY CREEK	3.97	4255	2133	8491
Little Bear Creek	1.09	3674	1841	7331
Little Bear Creek	1.49	4496	2253	8970
Little Bear Creek	1.94	5448	2730	10869
Little Bear Creek	2.36	6400	3208	12770
Little Bear Creek	3.25	8359	4189	16678
Little Bear Tributary 1	0.79	3358	1683	6701
LITTLE COOPER CREEK	1.00	2293	1149	4576
LITTLE COOPER CREEK	1.14	2473	1239	4934
Little Copperas Creek	0.52	1444	724	2881
Little Copperas Creek	0.82	1938	971	3867
Little Copperas Creek	1.61	2951	1479	5887
Little Copperas Creek	3.04	5046	2529	10068
Little Copperas Creek	4.68	7106	3561	14178
Little Copperas Creek	5.30	7047	3532	14061
Little Copperas Creek	7.49	8755	4388	17468
Little Copperas Creek	8.48	8255	4137	16471
Little Copperas Creek	8.59	8051	4035	16064
LITTLE CREEK	0.49	1441	722	2875
LITTLE CREEK	1.83	3528	1768	7039
LITTLE CREEK	2.29	3903	1956	7787
LITTLE CREEK	3.33	5290	2651	10555
LITTLE CREEK	5.86	7147	3582	14261
LITTLE CREEK	6.01	7060	3539	14087
LITTLE CREEK	6.85	7314	3666	14594
LITTLE CREEK	7.42	7060	3538	14086
LITTLE CREEK TRIBUTARY 1	1.08	2278	1142	4545
LITTLE CREEK TRIBUTARY 1	1.53	2646	1326	5279
LITTLE CREEK TRIBUTARY 4	0.16	606	304	1209
LITTLE ELM CREEK	1.12	1850	927	3691
LITTLE ELM CREEK	1.85	2364	1185	4716
LITTLE ELM CREEK	3.92	3980	1995	7940
Little Fivemile Creek	1.24	2413	1209	4814
Little Fivemile Creek	2.18	3339	1674	6663
Little Fivemile Creek	3.17	4439	2225	8856
Little Fivemile Creek	3.66	4686	2348	9349
Little Fivemile Creek	4.62	5404	2708	10783



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Little Fivemile Creek	4.85	5239	2626	10453
Little Fivemile Creek	7.18	6737	3377	13443
Little Fivemile Creek	8.17	6870	3443	13707
Little Fivemile Creek	8.59	6848	3432	13663
Little Fivemile Creek	10.96	7894	3957	15751
Little Fivemile Creek	11.01	7921	3970	15804
LIVEOAK BRANCH	1.12	3129	1568	6244
LIVEOAK BRANCH	2.03	4470	2240	8919
LIVEOAK BRANCH	3.03	5623	2818	11220
LIVEOAK BRANCH	3.97	6682	3349	13332
LIVEOAK BRANCH	4.36	6725	3371	13419
LIVEOAK BRANCH	5.21	7678	3848	15319
LIVEOAK BRANCH	6.52	9038	4530	18034
LONG BRANCH	0.24	614	308	1226
LONG BRANCH	1.14	1954	979	3899
LONG BRANCH	1.91	3103	1555	6192
LONG BRANCH	2.50	3427	1717	6837
LONG BRANCH	2.95	4249	2130	8478
LONG BRANCH	3.50	4901	2456	9778
LONG BRANCH	4.33	5547	2780	11068
LONG BRANCH	4.79	6045	3030	12061
LONG BRANCH	5.09	6252	3133	12474
LONG BRANCH	5.50	6528	3272	13026
LONG BRANCH TRIBUTARY 1A	0.70	1135	569	2265
LONG BRANCH TRIBUTARY 1B	0.20	604	302	1204
LONG BRANCH TRIBUTARY 1B 2	0.20	550	276	1097
LONG BRANCH TRIBUTARY 1C	0.29	677	339	1351
LONG BRANCH TRIBUTARY 1E	0.27	716	359	1428
LONG BRANCH TRIBUTARY 2	0.77	1474	739	2941
LONG BRANCH TRIBUTARY 2 2	0.89	1993	999	3976
LONG BRANCH TRIBUTARY 2 2	1.34	2662	1334	5312
LONG BRANCH TRIBUTARY 3	0.34	739	370	1475
LONG CREEK	0.70	1637	820	3266
LONG CREEK	2.01	3678	1843	7339
LONG CREEK	3.02	4757	2384	9492
LONG CREEK	4.53	5820	2917	11612
LONG CREEK	5.41	6695	3356	13359
LONG CREEK	6.16	6959	3488	13886



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
LONG CREEK	7.03	7269	3643	14503
LONG CREEK	7.98	7622	3820	15207
LONG CREEK	8.34	7564	3791	15092
LONG CREEK	10.68	9096	4559	18150
LONG CREEK	10.90	9197	4609	18351
LONG CREEK	11.53	9342	4682	18639
LONG HOLLOW	1.06	1793	899	3578
LONG HOLLOW	1.93	2835	1421	5657
LONG HOLLOW	2.91	3910	1959	7801
LONG HOLLOW	3.26	4047	2028	8076
LONG HOLLOW	4.07	4840	2426	9658
LONG HOLLOW	4.48	4940	2476	9857
LONG TRIBUTARY 1	0.62	1603	803	3198
LONG TRIBUTARY 11	0.65	1244	623	2482
LONG TRIBUTARY 11	1.14	1836	920	3663
LONG TRIBUTARY 12	0.29	1038	520	2072
LONG TRIBUTARY 14	0.30	918	460	1831
LONG TRIBUTARY 14	0.93	2127	1066	4243
LONG TRIBUTARY 4	0.24	813	408	1623
LONG TRIBUTARY 7	0.40	1284	643	2562
LONG TRIBUTARY 8	0.34	901	452	1798
MCCOY CREEK	1.00	2022	1013	4035
MCCOY CREEK	1.98	3419	1714	6823
MCCOY CREEK	2.57	3982	1996	7946
MCCOY CREEK	3.48	4562	2287	9103
MCCOY CREEK	4.40	5369	2691	10713
MCCOY CREEK	5.40	5907	2960	11786
MCCOY CREEK	5.43	5869	2942	11711
MCCOY CREEK	7.41	7231	3624	14429
MCCOY CREEK	7.55	7167	3592	14299
MCCOY CREEK	8.40	7801	3910	15564
MCCOY CREEK	8.66	8129	4074	16219
MCCOY CREEK	9.96	9005	4513	17967
MCCOY CREEK	24.30	18171	9107	36257
MCCOY CREEK	24.90	18448	9246	36809
MCCOY CREEK	26.83	18490	9267	36893
MCCOY CREEK	27.72	18823	9434	37557
MCCOY CREEK	29.93	18953	9499	37816



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
MCCOY CREEK	30.84	19455	9751	38818
MCCOY CREEK	31.76	19282	9664	38474
MCCOY CREEK	32.79	19951	9999	39807
Mill Creek	1.12	2743	1375	5473
Mill Creek	1.98	4166	2088	8313
Mill Creek	2.39	4559	2285	9097
Mill Creek	2.57	4751	2381	9480
Mill Creek	2.98	4850	2431	9678
Mill Creek	3.79	5073	2543	10123
Mill Creek	6.91	8255	4138	16472
Mill Creek	8.55	9115	4568	18187
Mill Creek	13.89	13119	6575	26177
Mill Creek	14.72	13711	6872	27357
Mill Creek	16.87	14042	7038	28018
Mill Creek	19.05	14998	7517	29926
Mill Creek	19.80	15406	7721	30739
Mill Creek	21.65	15972	8005	31869
Mill Creek	22.54	16081	8059	32085
Mill Creek	28.87	18697	9371	37305
Mill Creek	29.86	18961	9503	37833
Mill Creek	30.09	18620	9332	37151
Mill Creek	36.59	20425	10237	40753
Mill Creek	38.86	20555	10302	41012
Mill Creek	39.01	20294	10171	40491
MILL CREEK TRIBUTARY D	0.31	784	393	1565
MILL TRIBUTARY 1	1.27	2179	1092	4347
MILL TRIBUTARY 10	0.26	560	280	1116
MILL TRIBUTARY 14	0.27	738	370	1473
MILL TRIBUTARY 15	0.58	1490	747	2973
MILL TRIBUTARY 15	1.04	2205	1105	4399
MILL TRIBUTARY 16	0.52	1195	599	2384
MILL TRIBUTARY 16	1.31	2433	1219	4854
MILL TRIBUTARY 16	1.93	3345	1677	6675
MILL TRIBUTARY 16	2.93	4381	2196	8742
MILL TRIBUTARY 16	3.01	4441	2226	8860
MILL TRIBUTARY 2	1.07	2070	1037	4130
MILL TRIBUTARY 2	1.46	2537	1271	5062
MILL TRIBUTARY 20	0.17	472	237	943



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
MILL TRIBUTARY 22	0.18	580	291	1158
MILL TRIBUTARY 23	0.11	370	185	738
MILL TRIBUTARY 5	1.35	2360	1183	4708
MILL TRIBUTARY 7	0.72	1884	944	3758
MILL TRIBUTARY 7	1.65	3111	1559	6207
MILL TRIBUTARY 7	2.28	3767	1888	7516
MILL TRIBUTARY 7	2.70	4366	2188	8712
MILL TRIBUTARY 7	3.19	4734	2372	9445
MILL TRIBUTARY 7	3.45	4979	2496	9935
MILL TRIBUTARY 7	4.16	5549	2781	11071
MILL TRIBUTARY 7	5.01	6042	3028	12055
MILL TRIBUTARY 8B	0.23	767	384	1530
MILL TRIBUTARY 9	0.47	1183	593	2359
MITCHELL CREEK	1.01	1697	851	3386
MITCHELL CREEK	1.71	2331	1168	4652
MITCHELL CREEK	2.65	3422	1715	6829
MITCHELL CREEK	3.65	4279	2145	8539
MITCHELL CREEK	3.92	4395	2203	8769
MITCHELL CREEK	5.93	5848	2931	11669
MITCHELL CREEK	6.36	5983	2999	11938
MITCHELL CREEK	7.34	6599	3307	13166
MITCHELL CREEK	8.19	6842	3429	13651
MITCHELL CREEK	9.15	7030	3523	14027
MITCHELL CREEK	12.09	8647	4334	17253
MOUND CREEK	0.58	1453	728	2898
MOUND CREEK	1.18	2534	1270	5056
MOUND CREEK	1.59	3007	1507	5999
MOUND CREEK	2.11	3581	1795	7146
MOUND CREEK	2.88	3797	1903	7576
MOUND CREEK	4.79	5243	2628	10462
MOUND CREEK	6.53	6481	3248	12931
MOUND CREEK	6.76	6427	3221	12824
MOUND CREEK	7.75	6973	3495	13912
MOUND CREEK	8.74	7225	3621	14416
MOUND CREEK	9.28	7358	3688	14682
MOUND CREEK	10.21	7935	3977	15833
MOUND CREEK	11.13	8412	4216	16784
MOUND CREEK	11.96	8607	4314	17174



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
MOUND CREEK	12.54	8697	4359	17352
MOUND CREEK	14.60	9592	4807	19138
Mountain Creek	1.26	4381	2196	8741
Mountain Creek	1.61	5349	2681	10672
Mountain Creek	2.19	6325	3170	12620
Mountain Creek	2.79	7274	3646	14513
Mountain Creek	5.19	11706	5867	23356
Mountain Tributary 2	1.29	4435	2223	8849
Mountain Tributary 2	1.77	5838	2926	11649
Mountain Tributary 3	0.47	2038	1021	4066
MURRAY BRANCH	1.27	2085	1045	4161
MURRAY BRANCH	1.52	2334	1170	4656
MURRAY BRANCH	3.65	4655	2333	9289
MURRAY BRANCH	9.55	8614	4317	17187
MUSTANG CREEK	1.16	1885	945	3762
MUSTANG CREEK	1.97	2681	1344	5349
MUSTANG CREEK	2.86	3620	1815	7224
MUSTANG CREEK	3.53	3829	1919	7640
MUSTANG CREEK	4.22	4283	2147	8546
NASH CREEK	1.18	1726	865	3445
NASH CREEK	1.54	2059	1032	4107
NASH CREEK	2.41	2983	1495	5952
NASH CREEK	4.65	5283	2648	10542
NASH CREEK	5.43	6009	3011	11989
NASH CREEK	5.68	6217	3116	12404
NASH CREEK	6.67	7005	3511	13977
NASH CREEK	7.47	7508	3763	14981
NASH CREEK	8.46	8097	4058	16155
NASH CREEK	9.44	8650	4336	17260
NASH CREEK	10.43	9120	4571	18196
NASH CREEK	10.67	9334	4678	18624
NASH CREEK	11.50	9873	4948	19699
NASH CREEK	12.40	10562	5293	21074
NASH CREEK	13.32	10979	5502	21906
NASH CREEK	18.62	14608	7321	29147
NASH CREEK	19.39	14544	7289	29019
NASH CREEK	22.42	16294	8166	32510
NASH CREEK	23.22	17079	8560	34078



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
NASH CREEK	25.27	17492	8767	34900
NASH CREEK	26.27	17759	8901	35434
NASH CREEK	27.08	17920	8981	35755
NASH TRIBUTARY 1	1.31	2178	1092	4346
NASH TRIBUTARY 2	1.38	2390	1198	4769
NASH TRIBUTARY 2	2.08	3468	1738	6920
NASH TRIBUTARY 3	1.16	1477	740	2947
NASH TRIBUTARY 3	1.55	1951	978	3894
NASH TRIBUTARY 3	4.01	4473	2242	8924
NASH TRIBUTARY 3	4.59	4958	2485	9893
NASH TRIBUTARY 4	1.47	2312	1159	4614
NASH TRIBUTARY 5	0.57	1447	725	2888
NASH TRIBUTARY 5D	0.44	1114	558	2222
NASH TRIBUTARY 7	1.20	1686	845	3365
NASH TRIBUTARY 7	2.01	2553	1279	5093
NASH TRIBUTARY 7	2.02	2525	1265	5037
NORTH FORK QUEENS CREEK	1.00	1820	912	3631
NORTH FORK QUEENS CREEK	1.44	2477	1241	4942
NORTH FORK QUEENS CREEK	2.39	3924	1967	7830
NORTH FORK QUEENS CREEK	2.98	4572	2291	9122
NORTH FORK QUEENS CREEK	3.71	5371	2692	10716
NORTH FORK QUEENS CREEK	4.71	6318	3167	12607
NORTH FORK QUEENS CREEK	5.21	6907	3462	13782
NORTH FORK QUEENS CREEK	8.30	9943	4984	19840
NORTH FORK QUEENS CREEK	8.50	9956	4990	19864
North Guadalupe Tributary	0.54	1339	671	2671
North Guadalupe Tributary	1.22	2191	1098	4373
North Guadalupe Tributary	4.40	6434	3225	12838
OBAR CREEK	1.33	2581	1294	5150
OBAR CREEK	1.76	3209	1608	6403
OBAR CREEK	3.81	5478	2746	10931
OBAR CREEK	6.68	7609	3814	15182
OBAR CREEK	7.01	7778	3898	15519
OBAR CREEK	9.70	9542	4782	19038
OBAR CREEK	10.46	9855	4939	19663
ONEIL CREEK	1.07	1933	969	3857
ONEIL CREEK	2.05	3404	1706	6792
ONEIL CREEK	3.00	4742	2377	9463



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
ONEIL CREEK	3.36	5183	2598	10341
ONEIL CREEK	4.42	6562	3289	13094
ONEIL CREEK	6.75	8652	4336	17264
ONEIL CREEK	7.74	9618	4820	19190
ONEIL CREEK	8.64	10424	5225	20799
ONEIL CREEK	10.58	12226	6127	24393
ONEIL CREEK	14.33	15157	7596	30242
ONEIL CREEK	14.49	14933	7484	29795
ONEIL CREEK	18.96	18105	9074	36124
ONEIL CREEK	19.96	18703	9374	37318
ONEIL CREEK	20.55	18740	9392	37390
ONEIL CREEK	25.20	20970	10510	41840
ONEIL CREEK	25.40	21076	10563	42053
ONEIL CREEK	26.40	21713	10882	43323
ONEIL CREEK	26.48	21471	10761	42840
ONEIL CREEK	32.84	24432	12245	48749
ONEIL CREEK	33.41	23542	11799	46972
ONEIL CREEK	36.39	23990	12024	47867
ONEIL CREEK	37.00	23766	11911	47419
ONEIL TRIBUTARY 1	1.10	2428	1217	4844
ONEIL TRIBUTARY 1	1.90	3330	1669	6645
ONEIL TRIBUTARY 2	1.06	2252	1129	4493
ONEIL TRIBUTARY 2	1.41	2615	1311	5218
PANTHER BRANCH	1.12	1828	916	3647
PANTHER BRANCH	2.00	2671	1339	5329
PANTHER BRANCH	2.09	2734	1370	5455
PANTHER BRANCH	4.33	4751	2381	9480
PANTHER BRANCH	6.96	6484	3250	12938
PANTHER BRANCH	7.96	6567	3291	13102
PANTHER BRANCH	8.02	6557	3286	13084
PEACH CREEK	0.27	779	390	1554
PEACH CREEK	0.34	996	499	1988
PEACH CREEK	0.56	1399	701	2791
PEACH CREEK	0.78	1823	914	3638
PEACH CREEK	1.68	3236	1622	6458
PEACH CREEK	2.29	3660	1835	7304
PEACH CREEK	3.03	4540	2275	9058
PEACH CREEK	3.61	5011	2512	9999



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
PEACH CREEK	4.48	5303	2658	10581
PEACH CREEK	4.84	5343	2678	10661
PEACH CREEK	7.95	7896	3957	15755
PEACH CREEK	8.76	8274	4147	16509
PEACH CREEK	9.13	8428	4224	16816
PEACH CREEK	10.05	9022	4521	18000
PEACH CREEK	10.62	9069	4545	18095
PEACH CREEK	11.41	9584	4803	19122
PEACH CREEK	11.88	9885	4954	19724
PEACH CREEK	12.37	10162	5093	20275
PEACH CREEK	12.85	10500	5262	20949
PEACH CREEK	13.84	11041	5533	22029
PEACH CREEK	14.31	11109	5568	22165
PEACH CREEK	15.23	11688	5858	23320
PEACH CREEK	16.03	11750	5889	23443
PEACH CREEK	28.12	17844	8943	35604
PEACH CREEK	29.96	18267	9155	36446
PEACH CREEK	30.77	18345	9194	36602
PEACH CREEK	32.86	18382	9213	36676
PEACH CREEK	35.30	19179	9612	38266
PEACH CREEK	36.25	19333	9689	38575
PEACH CREEK	37.16	19193	9619	38295
PEACH CREEK	37.33	19194	9620	38298
PEACH CREEK	41.65	20273	10160	40449
PEACH CREEK	42.08	20333	10191	40569
PEACH CREEK	46.75	21784	10918	43465
PEACH CREEK	47.71	22001	11027	43898
PEACH CREEK	48.71	22238	11146	44372
PEACH CREEK	49.34	22240	11146	44375
PEACH CREEK	50.07	22184	11118	44262
PEACH CREEK	58.62	24918	12489	49719
PEACH CREEK	102.09	36711	18399	73248
PEACH CREEK	102.51	36784	18436	73394
PEACH CREEK	106.78	36791	18439	73407
PEACH CREEK	109.03	36785	18436	73396
PEACH CREEK	109.20	36748	18418	73322
PEACH CREEK	155.27	46697	23404	93173
PEACH CREEK	166.23	48116	24115	96005



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
PEACH CREEK	186.28	51704	25913	103163
PEACH CREEK	201.55	51059	25590	101876
PEACH CREEK	211.34	52504	26314	104759
PEACH CREEK	214.27	51808	25965	103370
PEACH CREEK	219.66	52288	26206	104328
PEACH CREEK	379.68	84345	42272	168290
PEACH CREEK	394.55	83964	42082	167531
PEACH CREEK	399.61	83517	41858	166638
PEACH CREEK	401.77	83679	41939	166961
PEACH CREEK	408.47	84326	42263	168252
PEACH CREEK	441.51	87838	44023	175260
PEACH CREEK	453.90	89032	44622	177641
PEACH CREEK	464.15	88923	44567	177424
PEACH CREEK	471.83	89702	44958	178979
PEACH CREEK	476.98	89982	45098	179538
PEACH CREEK	480.82	89544	44878	178663
PEACH CREEK	488.14	89360	44786	178296
PECAN BRANCH	1.37	2372	1189	4733
PECAN BRANCH	2.67	4134	2072	8248
PECAN BRANCH	5.73	6974	3495	13914
PECAN BRANCH TRIBUTARY 1	1.24	2227	1116	4444
PECAN CREEK	1.05	1925	965	3841
PECAN CREEK	1.97	2901	1454	5789
PECAN CREEK	2.66	3581	1795	7144
PECAN CREEK	6.08	6176	3095	12322
PECAN CREEK	8.54	7664	3841	15292
PIN OAK CREEK	0.29	677	339	1350
PIN OAK CREEK	1.01	1687	845	3366
PIN OAK CREEK	1.29	2060	1032	4109
PIN OAK CREEK	2.96	3993	2001	7967
PIN OAK CREEK	3.48	4294	2152	8568
PIN OAK CREEK	4.44	4614	2313	9207
PIN OAK CREEK	5.37	4923	2467	9822
Pin Oak Creek 2	0.73	1644	824	3280
Pin Oak Creek 2	2.00	2702	1354	5390
Pin Oak Creek 2	2.96	3610	1809	7203
Pin Oak Creek 2	4.94	4682	2347	9343
Pin Oak Creek 2	6.89	5451	2732	10877



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Pin Oak Creek 2	7.89	5752	2883	11476
Pin Oak Creek 2	8.54	5822	2918	11615
POLECAT CREEK	1.35	3406	1707	6797
POLECAT CREEK	1.59	3426	1717	6836
POLECAT CREEK	3.18	6726	3371	13421
POLECAT CREEK	4.15	8331	4175	16623
POLECAT CREEK	4.48	8015	4017	15992
POLECAT CREEK 2	0.20	558	280	1114
POLECAT CREEK 3	1.45	3581	1795	7146
PUTNAM BRANCH	1.16	1813	908	3617
PUTNAM BRANCH	2.03	2374	1190	4736
PUTNAM BRANCH	3.48	3528	1768	7040
PUTNAM BRANCH	4.40	4203	2107	8386
PUTNAM BRANCH	5.40	4763	2387	9504
PUTNAM BRANCH	6.17	4474	2242	8927
RACETRACK CREEK	1.17	1816	910	3624
RACETRACK CREEK	1.78	2427	1216	4842
RACETRACK CREEK	2.92	3424	1716	6831
RED BRANCH	1.40	2344	1175	4678
RED BRANCH	2.05	2872	1439	5730
RED BRANCH	3.44	4293	2152	8566
RED BRANCH 2	0.84	1630	817	3251
RED BRANCH 2	1.85	2931	1469	5849
REED BRANCH	1.09	2020	1013	4031
REED BRANCH	2.02	2978	1492	5941
REED BRANCH	2.60	3359	1683	6702
REED CREEK	1.15	1824	914	3639
REED CREEK	1.71	2304	1155	4596
REED CREEK	2.20	2818	1412	5622
REED CREEK	3.20	3525	1767	7034
REED CREEK	4.15	4297	2154	8574
REED CREEK	4.23	4320	2165	8620
Rocky Creek	0.92	1843	924	3678
Rocky Creek	2.46	3506	1757	6995
Rocky Creek	3.34	4191	2101	8363
Rocky Creek	3.90	4783	2397	9544
Rocky Creek	4.61	5503	2758	10979
Rocky Creek	5.54	5820	2917	11613



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Rocky Creek	5.88	5989	3002	11951
Rocky Creek	9.17	8453	4236	16866
Rocky Creek	10.03	8975	4498	17908
Rocky Creek	10.43	9028	4525	18013
Rocky Creek	10.96	9436	4729	18828
Rocky Creek	11.49	9534	4778	19023
ROCKY CREEK 2	1.25	2598	1302	5183
ROCKY CREEK 2	5.83	9615	4819	19184
ROCKY CREEK 3	1.17	3242	1625	6468
ROCKY CREEK 3	2.03	4739	2375	9457
ROCKY CREEK 3	2.82	5368	2690	10711
ROCKY CREEK 3	3.51	6090	3052	12151
ROCKY CREEK 3	4.14	6656	3336	13280
ROCKY CREEK 3	5.14	7109	3563	14185
ROCKY CREEK 3	6.08	7571	3794	15106
ROCKY CREEK 3	7.08	7557	3788	15079
ROCKY CREEK 3	7.94	7684	3851	15331
Rocky Creek 4	0.73	1273	638	2540
Rocky Creek 4	1.29	1905	955	3800
Rocky Creek Tributary	0.71	1514	759	3021
Rocky Creek Tributary	1.01	1970	987	3930
Rocky Creek Tributary	1.99	3277	1642	6538
Rocky Creek Tributary	2.45	3598	1803	7178
Rocky Creek Tributary	3.25	4437	2224	8852
RUDOLPH CREEK	0.90	1994	999	3979
RUDOLPH CREEK	2.65	4256	2133	8493
RUDOLPH CREEK	2.97	4366	2188	8711
RUDOLPH CREEK	5.64	7278	3647	14521
RUDOLPH TRIBUTARY 1	0.77	1606	805	3205
SADBERRY CREEK	1.64	2485	1246	4959
SADBERRY CREEK	2.62	3492	1750	6968
SADBERRY CREEK	3.51	4001	2005	7984
SALT BRANCH	1.04	2217	1111	4424
SALT BRANCH	1.96	3257	1633	6499
SALT BRANCH	2.40	3336	1672	6656
SALT CREEK	1.31	3006	1506	5997
SALT CREEK	2.30	4907	2459	9790
SALT CREEK	2.88	5422	2717	10818



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
SALT CREEK	3.85	6437	3226	12843
SALT CREEK	4.65	7182	3600	14331
SALTY CREEK_SUGAR CREEK	1.52	2477	1242	4943
SALTY CREEK_SUGAR CREEK	4.10	5147	2580	10269
SALTY CREEK_SUGAR CREEK	4.46	5539	2776	11052
SALTY CREEK_SUGAR CREEK	4.96	5703	2858	11380
SALTY CREEK_SUGAR CREEK	5.89	6451	3233	12872
SALTY CREEK_SUGAR CREEK	6.51	6914	3465	13795
SALTY CREEK_SUGAR CREEK	7.77	7301	3659	14567
SALTY CREEK_SUGAR CREEK	8.46	7397	3707	14759
SALTY CREEK_SUGAR CREEK	10.09	8519	4269	16997
SALTY CREEK_SUGAR CREEK	29.43	16170	8104	32263
SALTY CREEK_SUGAR CREEK	32.88	17254	8648	34427
SALTY CREEK_SUGAR CREEK	33.85	17255	8648	34428
SALTY CREEK_SUGAR CREEK	33.97	17152	8596	34222
SALTY CREEK_SUGAR CREEK	46.35	21216	10633	42331
SALTY CREEK_SUGAR CREEK	48.12	21818	10935	43532
SALTY CREEK_SUGAR CREEK	50.47	21961	11007	43818
SALTY CREEK_SUGAR CREEK	53.35	21594	10823	43086
SALTY CREEK_SUGAR CREEK	66.19	24291	12175	48468
SALTY CREEK_SUGAR CREEK	73.18	25093	12576	50067
SALTY CREEK_SUGAR CREEK	77.94	26064	13063	52004
SALTY CREEK_SUGAR CREEK	82.72	26870	13467	53613
SALTY CREEK_SUGAR CREEK	84.58	26527	13295	52929
SALTY CREEK_SUGAR CREEK	85.56	26076	13069	52029
SALTY CREEK_SUGAR CREEK	89.67	26732	13398	53338
SANDIES CREEK	1.38	3301	1655	6587
SANDIES CREEK	1.92	4233	2122	8447
SANDIES CREEK	4.86	7150	3584	14266
SANDIES CREEK	5.36	7580	3799	15125
SANDIES CREEK	7.98	12153	6091	24249
SANDIES CREEK	8.63	11375	5701	22696
SANDIES CREEK	10.85	13260	6646	26458
SANDIES CREEK	13.56	14927	7481	29783
SANDIES CREEK	14.26	15510	7773	30946
SANDIES CREEK	18.76	18519	9282	36951
SANDIES CREEK	21.00	19106	9576	38122
SANDIES CREEK	21.53	19114	9580	38137



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
SANDIES CREEK	27.19	22555	11304	45003
SANDIES CREEK	29.63	23945	12001	47777
SANDIES CREEK	33.95	26088	13075	52052
SANDIES CREEK	34.39	25536	12798	50950
SANDIES CREEK	37.06	26429	13246	52732
SANDIES CREEK	44.88	30746	15410	61347
SANDIES CREEK	47.53	29846	14958	59551
SANDIES CREEK	55.56	31743	15909	63335
SANDIES CREEK	58.96	30919	15496	61691
SANDIES CREEK	96.22	43780	21942	87354
SANDIES CREEK	97.98	43706	21905	87205
SANDIES CREEK	105.38	45700	22904	91183
SANDIES CREEK	108.69	43724	21914	87241
SANDIES CREEK	112.19	43166	21634	86127
SANDIES CREEK	113.02	42510	21306	84819
SANDIES CREEK	114.53	42372	21236	84544
SANDIES CREEK	117.06	41234	20666	82272
SANDIES CREEK	181.26	55721	27927	111179
SANDIES CREEK	181.69	55286	27709	110311
SANDIES CREEK	186.11	55358	27744	110453
SANDIES CREEK	193.59	56130	28132	111994
SANDIES CREEK	196.55	55629	27881	110995
SANDIES CREEK	198.75	55774	27953	111283
SANDIES CREEK	202.34	54852	27491	109445
SANDIES CREEK	203.03	54613	27371	108966
SANDIES CREEK	203.56	54576	27353	108894
SANDIES CREEK	205.13	56054	28093	111842
SANDIES CREEK	211.20	53606	26867	106959
SANDIES CREEK	212.77	53164	26645	106077
SANDIES CREEK	366.71	76671	38427	152980
SANDIES CREEK	369.97	76131	38156	151902
SANDIES CREEK	376.57	71535	35852	142730
SANDIES CREEK	382.55	69845	35006	139360
SANDIES CREEK	541.46	91046	45631	181660
SANDIES CREEK	544.35	86161	43183	171913
SANDIES CREEK	549.62	85946	43075	171485
SANDIES CREEK	553.43	85237	42720	170071
SANDIES CREEK	564.40	86313	43259	172218



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
SANDIES CREEK	566.71	86365	43285	172321
SANDIES CREEK	571.61	85700	42952	170994
SANDIES CREEK	574.14	85591	42897	170777
SANDIES CREEK	575.09	85646	42925	170886
SANDIES CREEK	580.74	86138	43171	171868
SANDIES CREEK	581.72	85862	43033	171318
SANDIES CREEK	585.80	84371	42286	168343
SANDIES CREEK	672.35	91362	45790	182292
SANDIES CREEK	674.58	91266	45741	182100
SANDIES CREEK	675.90	90891	45553	181351
SANDIES CREEK	678.87	89677	44945	178930
SANDIES CREEK	680.98	88825	44518	177230
SANDIES CREEK	706.14	90878	45547	181326
SANDIES CREEK	710.27	90501	45358	180573
SANDIES TRIBUTARY 10	0.33	938	470	1871
SANDIES TRIBUTARY 11	1.11	1999	1002	3989
SANDIES TRIBUTARY 11	2.03	3464	1736	6912
SANDIES TRIBUTARY 11	2.45	4084	2047	8149
SANDIES TRIBUTARY 13	0.44	1193	598	2381
SANDIES TRIBUTARY 14	1.25	2466	1236	4920
SANDIES TRIBUTARY 14	2.05	3342	1675	6669
SANDIES TRIBUTARY 2	1.06	2154	1079	4297
SANDIES TRIBUTARY 2	2.02	3444	1726	6872
SANDIES TRIBUTARY 2	2.23	3674	1842	7331
SANDIES TRIBUTARY 4	1.34	2115	1060	4219
SANDIES TRIBUTARY 6	0.31	808	405	1613
SANDIES TRIBUTARY 7	1.19	2286	1146	4561
SANDIES TRIBUTARY 7	1.43	2622	1314	5232
SANDIES TRIBUTARY 9	1.05	2108	1057	4207
SANDIES TRIBUTARY 9	2.01	3600	1804	7184
SANDIES TRIBUTARY 9	2.06	3560	1784	7103
SANDIES TRIBUTARY 9B	0.22	545	273	1087
SANDY FORK	1.00	1773	889	3538
SANDY FORK	2.00	3193	1600	6371
SANDY FORK	2.74	3762	1885	7505
SANDY FORK	3.18	4255	2133	8490
SANDY FORK	5.56	7319	3668	14603
SANDY FORK	8.57	9925	4974	19804



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
SANDY FORK	8.98	10342	5183	20635
SANDY FORK	9.13	10268	5146	20487
SANDY FORK	9.93	9902	4963	19758
SANDY FORK	15.91	13324	6678	26585
SANDY FORK	16.71	13381	6706	26698
SANDY FORK	17.26	13315	6673	26567
SANDY FORK	18.19	13700	6866	27335
SANDY FORK	18.47	13514	6773	26965
SANDY FORK	20.07	14386	7210	28705
SANDY FORK	25.58	17104	8573	34128
SANDY FORK	26.48	17545	8793	35007
SANDY FORK	26.68	17532	8787	34981
SANDY FORK	27.42	17248	8645	34415
SANDY FORK	27.78	16833	8436	33586
SANDY FORK	29.39	17436	8739	34790
SANDY FORK	29.62	17428	8735	34774
SANDY FORK	29.88	17562	8802	35041
SANDY FORK	35.79	19754	9901	39415
SANDY FORK	36.78	20015	10031	39935
SANDY FORK	36.94	20108	10078	40121
SANDY FORK	37.44	20188	10118	40280
SANDY FORK	38.15	20394	10221	40691
SANDY FORK	42.80	22344	11199	44583
SANDY FORK	43.11	22665	11360	45224
SANDY FORK	44.29	22758	11406	45408
SANDY FORK	44.87	23012	11533	45916
SANDY FORK	46.33	23204	11629	46298
SANDY FORK	46.99	23260	11658	46411
SANDY FORK	48.56	23206	11631	46302
SANDY FORK	55.26	24978	12519	49837
SANDY FORK	55.39	24556	12307	48997
SANDY FORK	57.46	25087	12573	50055
SANDY FORK	60.24	26024	13043	51924
SANDY FORK	61.21	26167	13114	52210
SANDY FORK	62.18	26192	13127	52260
SANDY FORK	62.70	26176	13119	52228
SANDY FORK	63.58	26295	13179	52465
SANDY FORK	65.06	26863	13464	53599



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
SANDY FORK	69.64	27940	14003	55748
SANDY FORK	73.48	28968	14519	57799
SANDY FORK	76.96	29780	14926	59419
SANDY FORK	77.48	29849	14960	59557
SANDY FORK	79.74	30323	15197	60502
SANDY FORK	80.63	30201	15137	60260
SANDY FORK	81.02	30267	15169	60390
SANDY FORK	82.67	30705	15389	61265
SANDY FORK	100.67	35203	17643	70239
SANDY FORK	115.64	38554	19323	76926
SANDY FORK	121.19	39718	19906	79249
SANDY FORK	121.77	40856	20477	81519
SANDY FORK	122.34	39600	19847	79013
SANDY FORK	123.24	40711	20404	81229
SANDY FORK	123.61	39382	19738	78577
SANDY FORK	124.57	40736	20416	81278
SANDY FORK	124.94	40015	20055	79840
SANDY FORK	131.17	41918	21009	83637
SANDY FORK	136.54	42858	21480	85512
SANDY FORK	137.36	42950	21526	85697
SANDY FORK	137.66	42957	21530	85711
SANDY FORK	146.25	44719	22413	89227
SANDY FORK	148.03	45093	22600	89973
SANDY FORK	149.41	45185	22646	90156
SANDY FORK	153.92	45314	22711	90413
SANDY FORK	154.10	45274	22691	90334
SANDY FORK	155.93	45192	22650	90170
SANDY FORK	159.83	45934	23022	91650
Sattler Tributary	0.51	1755	880	3501
Sattler Tributary	0.85	2759	1383	5505
SAUL CREEK	0.68	936	469	1868
SAUL CREEK	2.15	2413	1209	4815
SAUL CREEK	3.02	3395	1702	6774
SAUL CREEK	5.57	5798	2906	11569
SAUL CREEK	6.37	6477	3246	12924
SAUL CREEK	7.12	7060	3539	14087
SAUL TRIBUTARY 1	0.99	1512	758	3017
SAUL TRIBUTARY 1	1.93	2727	1367	5441



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
SAUL TRIBUTARY C	0.66	963	482	1921
SAWLOG CREEK	1.15	2084	1045	4158
SAWLOG CREEK	1.61	2583	1295	5154
SAWLOG CREEK	2.60	3666	1837	7314
SAWLOG CREEK	2.62	3673	1841	7328
Scruggs Creek	0.34	910	456	1815
Scruggs Creek	0.85	1882	943	3755
Scruggs Creek	1.36	2396	1201	4781
Scruggs Creek	4.89	7068	3542	14102
Scruggs Creek	5.58	7977	3998	15917
Scruggs Creek	5.68	7989	4004	15941
SCS CHANNEL	0.84	1576	790	3144
SCS CHANNEL	1.96	2768	1387	5523
SCS CHANNEL	2.75	3555	1782	7094
SCS CHANNEL	4.28	4160	2085	8300
SCS CHANNEL	4.40	4031	2020	8043
SHOATS CREEK	1.25	3604	1806	7190
SHOATS CREEK	1.79	3823	1916	7628
SHOATS CREEK	2.66	5149	2581	10274
SHOATS CREEK	3.65	4856	2434	9689
SHOATS CREEK	3.78	4788	2399	9552
SHOATS CREEK	6.79	7233	3625	14432
SHOATS CREEK	8.67	8445	4232	16849
SHOATS CREEK	10.25	9293	4657	18542
SHOATS CREEK	11.19	9737	4880	19429
SHOATS CREEK	12.09	10246	5135	20444
SHOATS CREEK	12.75	10968	5497	21885
SHOATS CREEK	13.74	10815	5420	21578
SHOATS CREEK	14.03	6062	3038	12095
SHOATS CREEK	15.72	6177	3096	12325
SHOATS CREEK	16.68	6946	3481	13859
SHOATS CREEK	17.17	7337	3677	14640
SHOATS CREEK	23.74	10152	5088	20256
SHOATS CREEK	24.14	10656	5341	21262
SHOATS CREEK	25.11	10609	5317	21168
SHOATS CREEK	25.31	10559	5292	21068
SHOATS CREEK	27.15	10808	5417	21564
SHOATS CREEK	27.44	11797	5912	23537



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
SHOCKLEY CREEK	1.56	2244	1125	4477
SHOCKLEY CREEK	2.49	3341	1675	6667
SHOCKLEY CREEK	3.30	3840	1925	7663
SHOCKLEY CREEK	6.31	6107	3061	12185
SHOCKLEY CREEK	8.24	6950	3483	13868
SHOCKLEY CREEK	9.00	7298	3658	14561
SHOCKLEY CREEK	9.94	7383	3700	14730
SOUTH DENTON CREEK	1.01	1653	829	3299
SOUTH DENTON CREEK	1.57	2234	1120	4457
SOUTH DENTON CREEK	2.47	3155	1581	6295
SOUTH DENTON CREEK	2.82	3450	1729	6884
SOUTH DENTON CREEK	3.75	4109	2059	8198
SOUTH DENTON CREEK	3.90	4014	2012	8009
SOUTH DENTON CREEK	5.91	5225	2619	10425
SOUTH FORK QUEENS CREEK	1.22	2930	1469	5847
SOUTH FORK QUEENS CREEK	2.11	3402	1705	6787
SOUTH FORK QUEENS CREEK	3.01	4124	2067	8228
SOUTH FORK QUEENS CREEK	3.34	4292	2151	8563
SOUTH FORK QUEENS CREEK	12.90	13339	6685	26614
SOUTH FORK QUEENS CREEK	13.78	13976	7005	27886
South Guadalupe Tributary	0.70	1809	907	3609
South Guadalupe Tributary	1.61	3455	1732	6894
South Guadalupe Tributary	2.45	4182	2096	8344
South Guadalupe Tributary	3.09	4576	2293	9130
SPRING CREEK	1.49	2120	1063	4230
SPRING CREEK	2.83	3469	1739	6922
SPRING CREEK	4.45	4698	2355	9375
Stream0055	1.36	3471	1740	6926
Stream0065	0.43	1578	791	3148
Stream0067	1.06	3474	1741	6931
Stream0067	1.46	3997	2003	7976
Stream0067	1.89	4126	2068	8231
Stream0103	0.24	1509	756	3011
Stream0108	0.18	859	430	1713
Stream0110	1.16	1767	885	3525
Stream0162	1.07	1919	962	3829
Stream0211	0.52	911	457	1818
Stream0215	0.35	698	350	1393



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0230	1.18	1736	870	3463
Stream0238	1.53	2593	1299	5173
Stream0240	0.23	515	258	1029
Stream0242	0.15	340	170	678
Stream0243	0.20	562	281	1120
Stream0253	0.82	1364	684	2721
Stream0256	1.34	2563	1285	5115
Stream0256	2.30	4216	2113	8411
Stream0256	3.27	5420	2716	10814
Stream0256	3.99	5976	2995	11924
Stream0256	4.99	7144	3581	14255
Stream0256	5.94	7612	3815	15188
Stream0256	6.83	7898	3958	15758
Stream0257	1.30	2410	1208	4808
Stream0257	1.97	3311	1660	6607
Stream0258	0.91	1682	843	3356
Stream0258	1.41	2264	1134	4516
Stream0258	2.12	3013	1510	6011
Stream0259	0.20	547	274	1092
Stream0260	0.53	1088	545	2171
Stream0262	1.15	2224	1115	4438
Stream0262	1.43	2487	1247	4963
Stream0263	0.21	644	323	1285
Stream0274	1.31	4282	2146	8545
Stream0274	1.66	5048	2530	10072
Stream0274	2.47	6770	3393	13507
Stream0278	1.33	2434	1220	4856
Stream0278	1.88	3106	1557	6197
Stream0278	2.75	4115	2062	8211
Stream0278	3.51	4664	2337	9305
Stream0278	4.49	5373	2693	10721
Stream0278	8.05	8399	4210	16759
Stream0278	8.57	8613	4317	17185
Stream0278	9.45	8821	4421	17599
Stream0278	10.40	9430	4726	18815
Stream0279	1.13	2156	1081	4302
Stream0279	1.80	2741	1374	5469
Stream0279	2.62	3550	1779	7084



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0280	1.15	1871	938	3733
Stream0280	1.55	2451	1228	4890
Stream0280	4.00	4932	2472	9840
Stream0280	4.19	5017	2515	10011
Stream0280	6.79	7323	3670	14612
Stream0280	7.09	7670	3844	15304
Stream0281	1.28	1801	903	3594
Stream0281	1.52	2143	1074	4276
Stream0282	1.06	2059	1032	4108
Stream0282	1.69	2762	1384	5511
Stream0283	1.36	2304	1155	4598
Stream0283	1.71	2691	1349	5369
Stream0283	2.71	4069	2040	8119
Stream0283	3.65	4822	2417	9620
Stream0283	3.84	5037	2524	10049
Stream0283	5.15	6373	3194	12715
Stream0284	1.22	2602	1304	5191
Stream0285	1.17	1893	949	3777
Stream0285	1.69	2731	1369	5448
Stream0286	1.45	2546	1276	5080
Stream0286	1.83	3004	1506	5994
Stream0286	3.02	3972	1991	7925
Stream0288	1.40	1690	847	3372
Stream0288	1.62	1977	991	3945
Stream0291	1.49	2258	1132	4506
Stream0291	2.30	3284	1646	6553
Stream0291	3.26	4183	2097	8347
Stream0291	3.99	4824	2418	9626
Stream0291	4.83	5324	2668	10623
Stream0291	5.74	6142	3078	12254
Stream0291	6.22	5782	2898	11536
Stream0291	8.01	6706	3361	13381
Stream0292	1.04	2135	1070	4259
Stream0292	2.00	3059	1533	6104
Stream0292	2.93	3541	1775	7066
Stream0294	1.41	1865	935	3720
Stream0294	2.00	2613	1310	5213
Stream0294	2.71	3371	1690	6727



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0294	3.69	4378	2194	8734
Stream0295	0.92	1538	771	3069
Stream0295	2.56	3133	1570	6251
Stream0295	3.53	3808	1908	7597
Stream0295	3.93	4037	2023	8054
Stream0296	0.64	1300	652	2595
Stream0298	0.50	537	269	1072
Stream0298	1.36	1863	934	3717
Stream0298	2.26	2982	1494	5949
Stream0298	4.53	5541	2777	11057
Stream0301	0.72	1301	652	2596
Stream0302	0.61	815	408	1625
Stream0302	1.08	982	492	1959
Stream0303	1.16	2323	1164	4634
Stream0303	1.56	2737	1372	5461
Stream0303	2.04	3406	1707	6795
Stream0303	2.20	3723	1866	7428
Stream0303	2.60	4108	2059	8196
Stream0304	0.26	825	413	1646
Stream0305	0.70	1741	873	3474
Stream0307	0.60	1593	798	3178
Stream0308	0.64	1440	722	2873
Stream0308	1.03	2074	1039	4138
Stream0308	1.53	3117	1562	6220
Stream0309	1.05	2476	1241	4940
Stream0309	1.50	3055	1531	6096
Stream0312	0.90	2052	1029	4095
Stream0313	1.00	1932	968	3854
Stream0313	1.50	2632	1319	5251
Stream0313	2.16	3431	1719	6845
Stream0314	0.48	1177	590	2348
Stream0316	0.85	2119	1062	4227
Stream0318	1.07	2023	1014	4037
Stream0318	1.08	2039	1022	4069
Stream0319	0.72	1510	757	3013
Stream0320	0.77	1702	853	3397
Stream0321	0.27	772	387	1541
Stream0322	0.95	2189	1097	4368



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0322	1.09	2437	1221	4863
Stream0323	1.09	2229	1117	4448
Stream0323	2.01	3664	1836	7311
Stream0323	2.15	3626	1817	7235
Stream0324	0.76	1816	910	3624
Stream0325	1.07	2987	1497	5959
Stream0325	2.01	4515	2263	9008
Stream0325	2.08	4543	2277	9065
Stream0329	1.20	2814	1410	5614
Stream0329	2.02	4215	2113	8410
Stream0329	2.43	4503	2257	8984
Stream0330	1.14	2594	1300	5175
Stream0330	1.77	3601	1805	7186
Stream0330	2.72	5095	2554	10166
Stream0330	3.11	5248	2630	10471
Stream0332	1.13	2070	1037	4130
Stream0332	2.02	3123	1565	6232
Stream0332	2.86	3442	1725	6867
Stream0334	0.80	1298	650	2589
Stream0335	1.18	1904	955	3800
Stream0335	1.53	2292	1149	4573
Stream0336	1.06	1927	966	3845
Stream0336	1.53	2306	1156	4602
Stream0337	1.17	2195	1100	4379
Stream0337	1.98	3121	1564	6227
Stream0337	2.97	3963	1986	7907
Stream0337	3.68	4444	2227	8868
Stream0338	1.37	3137	1572	6259
Stream0338	2.29	4195	2103	8370
Stream0338	3.25	4495	2253	8969
Stream0338	3.34	4349	2180	8678
Stream0339	1.29	2578	1292	5143
Stream0339	1.56	2657	1332	5302
Stream0339	2.56	4108	2059	8196
Stream0339	3.09	4310	2160	8599
Stream0339	4.33	5405	2709	10784
Stream0340	0.93	1919	962	3828
Stream0345	1.07	2272	1139	4533



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0345	1.54	2610	1308	5208
Stream0347	1.14	2505	1255	4998
Stream0347	2.01	3300	1654	6584
Stream0347	2.09	3131	1569	6247
Stream0349	0.43	883	443	1762
Stream0350	1.02	1857	931	3705
Stream0350	1.54	2508	1257	5005
Stream0352	0.21	609	305	1215
Stream0355	0.65	1398	701	2789
Stream0355	1.49	2672	1339	5332
Stream0356	0.92	1761	883	3513
Stream0356	1.51	2760	1383	5508
Stream0356	1.63	2763	1385	5512
Stream0358	1.54	3301	1654	6586
Stream0358	1.65	3350	1679	6684
Stream0363	0.53	1249	626	2491
Stream0364	1.05	1928	966	3847
Stream0364	1.13	1967	986	3925
Stream0365	1.08	1754	879	3500
Stream0365	2.13	2940	1473	5866
Stream0366	1.10	1917	961	3824
Stream0366	1.46	2293	1149	4576
Stream0368	0.37	762	382	1521
Stream0370	1.38	2487	1247	4963
Stream0370	1.90	3112	1560	6209
Stream0372	0.23	795	398	1586
Stream0373	0.24	939	471	1873
Stream0374	0.40	1283	643	2560
Stream0375	0.13	389	195	776
Stream0376	0.15	484	243	966
Stream0377	0.76	1337	670	2668
Stream0377	1.58	3053	1530	6092
Stream0377	3.00	4830	2421	9637
Stream0377	4.48	6213	3114	12397
Stream0377	5.78	7111	3564	14188
Stream0378	0.47	1146	574	2286
Stream0379	0.81	1842	923	3676
Stream0379	1.34	2607	1306	5201



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0380	0.33	1066	534	2126
Stream0381	1.01	1845	925	3681
Stream0381	1.10	1789	897	3570
Stream0382	1.02	2234	1120	4457
Stream0382	1.14	2294	1150	4577
Stream0383	0.44	786	394	1568
Stream0384	0.28	674	338	1345
Stream0384	0.89	1736	870	3463
Stream0385	1.07	2021	1013	4033
Stream0385	1.52	2301	1153	4590
Stream0386	1.36	3272	1640	6529
Stream0386	2.35	3893	1951	7767
Stream0386	2.83	4301	2155	8581
Stream0386	5.49	7441	3729	14846
Stream0387	1.45	2668	1337	5323
Stream0387	2.44	4259	2134	8497
Stream0388	0.99	2099	1052	4189
Stream0389	0.67	1306	655	2607
Stream0390	0.26	621	311	1239
Stream0391	0.23	601	301	1200
Stream0392	0.80	1745	875	3482
Stream0392	1.48	2763	1385	5512
Stream0393	0.44	976	489	1947
Stream0394	0.17	501	251	999
Stream0395	0.25	722	362	1441
Stream0397	0.28	1046	524	2087
Stream0398	0.89	2142	1073	4273
Stream0399	0.51	1525	765	3044
Stream0400	0.35	1046	524	2087
Stream0401	0.35	781	391	1558
Stream0401	0.84	1522	763	3037
Stream0402	0.22	512	257	1022
Stream0403	0.39	1009	506	2014
Stream0404	0.68	1728	866	3449
Stream0406	0.50	1477	740	2946
Stream0407	0.25	918	460	1832
Stream0408	1.11	3090	1549	6165
Stream0408	1.59	3658	1834	7299



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0408	1.81	3978	1994	7938
Stream0409	0.15	544	273	1085
Stream0410	0.27	775	388	1547
Stream0411	0.67	1196	600	2387
Stream0412	0.33	668	335	1333
Stream0413	1.03	2314	1160	4616
Stream0413	1.33	2684	1345	5355
Stream0414	0.27	416	209	830
Stream0415	0.43	1217	610	2429
Stream0415	0.90	2255	1130	4498
Stream0416	0.32	924	463	1843
Stream0417	1.08	2640	1323	5268
Stream0417	3.10	5127	2569	10229
Stream0417	3.23	5153	2583	10282
Stream0420	0.16	503	252	1004
Stream0421	0.67	1574	789	3141
Stream0422	0.60	1224	614	2443
Stream0422	1.47	2307	1156	4604
Stream0423	0.45	961	482	1918
Stream0424	0.74	1411	707	2816
Stream0424	1.11	2089	1047	4168
Stream0424	2.09	3565	1787	7114
Stream0424	2.74	4268	2139	8516
Stream0425	1.17	1987	996	3964
Stream0427	1.40	2389	1197	4767
Stream0427	2.37	3648	1828	7278
Stream0427	3.37	4464	2237	8908
Stream0427	3.78	4900	2456	9777
Stream0428	1.15	2126	1066	4243
Stream0428	2.14	3709	1859	7401
Stream0428	2.73	4091	2050	8162
Stream0429	1.32	2160	1082	4310
Stream0430	1.12	1981	993	3953
Stream0430	1.34	2158	1081	4305
Stream0432	1.26	2673	1339	5333
Stream0432	1.80	3224	1616	6432
Stream0432	2.72	3767	1888	7516
Stream0434	0.26	515	258	1027



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0435	0.72	1441	722	2876
Stream0436	0.21	552	277	1102
Stream0437	0.55	927	465	1849
Stream0438	1.00	1852	928	3696
Stream0439	0.50	1148	575	2291
Stream0442	0.56	1256	630	2506
Stream0443	1.45	2593	1299	5173
Stream0444	1.08	1626	815	3245
Stream0444	1.95	2428	1217	4844
Stream0444	2.92	3524	1766	7031
Stream0444	3.23	3851	1930	7684
Stream0445	0.50	1076	539	2146
Stream0446	0.25	629	315	1256
Stream0447	1.75	2947	1477	5880
Stream0448	0.52	995	499	1986
Stream0450	1.01	2208	1107	4405
Stream0450	1.84	2892	1449	5770
Stream0453	1.16	2106	1055	4202
Stream0457	1.13	2055	1030	4100
Stream0457	2.11	2757	1382	5501
Stream0460	1.41	1995	1000	3980
Stream0460	1.93	2443	1224	4875
Stream0460	2.88	3483	1745	6949
Stream0460	3.86	4126	2068	8232
Stream0462	1.05	2818	1412	5623
Stream0463	0.35	941	471	1877
Stream0464	0.20	414	208	826
Stream0465	1.39	3674	1841	7331
Stream0465	1.50	3582	1795	7147
Stream0465	2.38	5043	2528	10062
Stream0465	3.00	5267	2640	10509
Stream0466	1.16	3075	1541	6135
Stream0466	1.90	4002	2006	7985
Stream0466	2.61	4736	2373	9449
Stream0467	1.19	1824	914	3640
Stream0467	1.58	2292	1149	4572
Stream0467	2.04	2728	1367	5444
Stream0467	4.73	5373	2693	10721



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0468	1.00	1698	851	3387
Stream0468	1.99	2922	1465	5831
Stream0468	2.13	2868	1437	5722
Stream0470	0.45	660	331	1316
Stream0470	1.06	1661	833	3314
Stream0470	1.40	2274	1140	4537
Stream0472	1.00	1257	630	2509
Stream0472	1.36	1677	840	3346
Stream0472	3.37	3720	1865	7423
Stream0472	3.52	3920	1965	7821
Stream0474	1.01	1368	686	2730
Stream0474	1.94	2597	1302	5183
Stream0475	1.09	2047	1026	4083
Stream0475	1.86	2751	1379	5490
Stream0475	2.85	3864	1937	7710
Stream0475	3.32	4156	2083	8291
Stream0476	0.50	1107	555	2208
Stream0476	0.88	1683	843	3358
Stream0480	0.40	792	397	1581
Stream0480	0.85	1415	709	2824
Stream0481	0.60	1208	605	2410
Stream0481	1.00	1685	844	3361
Stream0484	1.03	2428	1217	4844
Stream0484	1.93	3641	1825	7265
Stream0485	1.03	1886	945	3764
Stream0485	1.56	2133	1069	4256
Stream0487	1.47	3141	1574	6268
Stream0487	2.25	3838	1923	7657
Stream0487	4.54	6721	3369	13411
Stream0488	1.07	2060	1033	4111
Stream0488	1.85	2944	1475	5873
Stream0490	1.02	2417	1212	4824
Stream0490	1.61	2974	1491	5934
Stream0492	0.25	787	394	1570
Stream0493	0.91	1925	965	3840
Stream0494	0.68	1757	880	3505
Stream0495	1.00	2036	1020	4062
Stream0495	1.13	2217	1111	4423



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0495	1.49	2791	1399	5569
Stream0495	2.29	3814	1912	7611
Stream0495	3.25	4651	2331	9281
Stream0496	0.34	929	465	1853
Stream0497	0.73	1627	816	3247
Stream0498	1.11	2601	1304	5189
Stream0498	2.11	3790	1899	7562
Stream0498	2.22	3677	1843	7337
Stream0498	3.25	4830	2421	9638
Stream0498	5.74	6544	3280	13057
Stream0498	6.31	6712	3364	13392
Stream0499	1.01	2214	1110	4418
Stream0500	1.06	2420	1213	4828
Stream0500	1.51	3086	1547	6158
Stream0501	0.41	1101	552	2197
Stream0502	0.95	1451	727	2895
Stream0502	1.87	2399	1202	4786
Stream0502	2.65	3110	1559	6206
Stream0502	3.38	3561	1785	7106
Stream0503	1.01	2264	1135	4518
Stream0503	1.28	2338	1172	4665
Stream0503	2.00	3382	1695	6749
Stream0503	2.82	3856	1933	7694
Stream0503	3.46	4206	2108	8392
Stream0503	5.66	5810	2912	11592
Stream0504	0.34	946	474	1887
Stream0504	0.62	1538	771	3068
Stream0505	0.25	680	341	1358
Stream0506	1.30	2348	1177	4686
Stream0506	1.79	2996	1502	5978
Stream0507	0.65	1620	812	3232
Stream0508	1.50	2927	1467	5840
Stream0508	1.61	3215	1612	6416
Stream0508	2.15	3707	1858	7397
Stream0509	0.27	883	443	1762
Stream0510	0.47	1451	727	2895
Stream0510	1.99	4340	2175	8660
Stream0511	0.24	1249	626	2493



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0511	0.52	2342	1174	4674
Stream0512	0.15	668	335	1332
Stream0513	1.00	2818	1412	5622
Stream0513	1.22	3021	1514	6027
Stream0515	1.17	2117	1061	4224
Stream0516	1.40	2667	1337	5322
Stream0517	0.31	863	432	1722
Stream0518	1.03	2200	1103	4390
Stream0518	1.41	2326	1166	4641
Stream0519	0.32	1037	520	2069
Stream0519	0.97	2473	1240	4935
Stream0519	1.18	2716	1361	5419
Stream0519	1.68	3579	1794	7141
Stream0519	2.42	4238	2124	8455
Stream0520	0.14	568	285	1133
Stream0521	0.38	1122	563	2239
Stream0522	0.50	1441	722	2875
Stream0523	0.41	1026	514	2046
Stream0524	0.87	1757	880	3505
Stream0524	1.45	2665	1336	5317
Stream0524	2.42	3547	1778	7077
Stream0524	2.67	3642	1825	7267
Stream0525	0.34	836	419	1668
Stream0525	1.02	2040	1022	4070
Stream0525	1.07	2554	1280	5095
Stream0525	1.73	3411	1710	6806
Stream0525	2.73	4962	2487	9901
Stream0525	3.00	5027	2520	10031
Stream0526	0.30	841	422	1678
Stream0527	0.39	962	482	1920
Stream0527	0.88	1716	860	3425
Stream0529	0.79	1186	595	2367
Stream0529	1.58	2049	1027	4088
Stream0529	2.57	2521	1263	5029
Stream0541	0.54	1462	733	2918
Stream0548	1.22	2074	1039	4137
Stream0548	1.84	2874	1440	5733
Stream0548	2.83	3814	1912	7610



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0548	3.32	4071	2040	8123
Stream0549	1.30	2329	1168	4648
Stream0549	2.08	3267	1638	6519
Stream0550	1.69	2823	1415	5633
Stream0550	1.81	3003	1505	5991
Stream0550	2.74	4182	2096	8345
Stream0550	3.15	4363	2187	8705
Stream0550	4.10	5154	2583	10284
Stream0550	5.07	5771	2892	11515
Stream0550	6.05	5950	2982	11872
Stream0550	6.98	6230	3123	12431
Stream0550	7.39	6459	3237	12887
Stream0551	0.82	1375	689	2744
Stream0552	1.08	1896	950	3784
Stream0552	1.52	2407	1206	4802
Stream0552	2.50	3451	1729	6885
Stream0552	3.22	4100	2055	8181
Stream0552	3.63	4408	2209	8794
Stream0552	5.76	5967	2991	11906
Stream0552	5.91	6083	3049	12138
Stream0553	1.21	2095	1050	4180
Stream0554	1.27	2008	1006	4007
Stream0556	1.05	2234	1120	4457
Stream0559	1.21	2120	1063	4231
Stream0559	2.74	4248	2129	8477
Stream0561	1.16	2075	1040	4140
Stream0561	1.59	2525	1265	5038
Stream0561	3.49	4636	2324	9251
Stream0561	4.24	5140	2576	10256
Stream0562	1.20	1713	859	3419
Stream0563	1.30	2002	1003	3995
Stream0563	1.53	2215	1110	4419
Stream0563	2.53	3241	1624	6467
Stream0563	3.53	3996	2003	7973
Stream0563	3.74	4032	2021	8046
Stream0564	1.27	2199	1102	4387
Stream0564	1.89	2867	1437	5720
Stream0564	2.57	3592	1800	7166



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0564	3.57	4484	2247	8946
Stream0564	4.54	5105	2559	10186
Stream0564	5.36	5436	2724	10846
Stream0565	1.28	2102	1053	4194
Stream0565	1.97	2887	1447	5759
Stream0568	1.00	1654	829	3301
Stream0568	1.09	1742	873	3476
Stream0569	0.54	1195	599	2385
Stream0569	1.22	1797	901	3586
Stream0570	0.47	984	493	1963
Stream0571	1.03	1927	966	3844
Stream0571	2.01	3179	1593	6343
Stream0571	2.02	3221	1614	6427
Stream0572	0.38	730	366	1457
Stream0574	0.49	1073	538	2141
Stream0576	1.10	1765	885	3522
Stream0576	1.75	2454	1230	4896
Stream0577	1.15	2006	1005	4003
Stream0577	2.04	2897	1452	5781
Stream0577	2.89	3566	1787	7114
Stream0578	1.60	2709	1358	5406
Stream0578	2.59	2709	1358	5406
Stream0578	3.02	4219	2115	8418
Stream0578	3.85	4455	2233	8890
Stream0578	5.56	5414	2713	10802
Stream0580	1.09	1769	887	3531
Stream0580	2.00	3016	1512	6019
Stream0580	2.91	3782	1896	7547
Stream0581	1.04	1606	805	3204
Stream0581	1.81	2666	1336	5319
Stream0581	3.84	5452	2733	10879
Stream0581	4.84	5973	2994	11918
Stream0581	5.65	6243	3129	12457
Stream0581	6.49	6836	3426	13640
Stream0582	1.40	2553	1280	5095
Stream0582	1.49	2652	1329	5291
Stream0583	0.88	1293	648	2581
Stream0584	0.89	1443	723	2880



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0585	0.42	808	405	1613
Stream0586	0.42	852	427	1701
Stream0587	0.73	1131	567	2256
Stream0588	1.20	1818	911	3627
Stream0588	1.94	2644	1325	5276
Stream0588	2.92	3446	1727	6875
Stream0588	3.62	4132	2071	8244
Stream0588	4.62	4897	2455	9772
Stream0588	5.29	5467	2740	10909
Stream0590	1.32	2044	1024	4078
Stream0592	1.14	1992	999	3976
Stream0592	1.32	2054	1030	4099
Stream0593	0.66	1145	574	2285
Stream0594	1.00	1705	855	3402
Stream0594	1.40	2173	1089	4336
Stream0595	0.72	1311	657	2617
Stream0596	1.15	1832	918	3655
Stream0596	1.84	2551	1278	5089
Stream0597	1.20	1960	982	3910
Stream0597	1.61	2259	1132	4508
Stream0598	0.83	1573	788	3138
Stream0599	0.50	1020	511	2034
Stream0605	1.14	1756	880	3504
Stream0605	2.00	2686	1346	5358
Stream0614	0.40	723	362	1443
Stream0614	1.17	1628	816	3247
Stream0615	0.19	420	210	838
Stream0616	0.29	487	244	972
Stream0616	0.82	1171	587	2336
Stream0616	1.13	1486	745	2964
Stream0616	1.77	2122	1064	4234
Stream0616	2.77	2875	1441	5736
Stream0617	0.21	365	183	728
Stream0618	0.21	422	212	842
Stream0619	0.53	767	385	1531
Stream0620	0.69	960	481	1915
Stream0623	0.58	1139	571	2273
Stream0625	0.25	635	318	1267



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0626	0.42	847	425	1691
Stream0627	0.62	1449	726	2890
Stream0628	0.15	424	212	845
Stream0629	0.53	1026	514	2048
Stream0630	0.70	1283	643	2561
Stream0631	1.10	1666	835	3324
Stream0631	2.10	2532	1269	5052
Stream0631	2.58	2871	1439	5729
Stream0632	0.37	728	365	1453
Stream0632	0.68	1268	636	2530
Stream0632	1.00	1757	881	3506
Stream0632	1.08	1782	893	3555
Stream0633	0.28	558	280	1114
Stream0634	0.28	626	314	1248
Stream0635	1.03	1472	738	2938
Stream0635	1.32	1786	895	3564
Stream0636	0.96	1433	718	2860
Stream0637	0.21	436	219	871
Stream0638	0.34	784	393	1564
Stream0639	1.00	1587	795	3167
Stream0639	1.54	2094	1049	4177
Stream0641	1.10	1822	913	3636
Stream0641	1.91	3010	1509	6006
Stream0641	2.91	3711	1860	7404
Stream0641	3.19	3704	1856	7391
Stream0642	1.09	1835	919	3661
Stream0642	1.96	2808	1407	5602
Stream0642	2.96	3534	1771	7051
Stream0642	3.34	3743	1876	7467
Stream0642	6.45	5767	2890	11507
Stream0642	7.03	5951	2982	11873
Stream0643	1.15	1761	883	3514
Stream0643	2.02	2515	1261	5019
Stream0643	2.11	2495	1250	4978
Stream0645	1.42	1908	956	3807
Stream0645	2.70	2915	1461	5816
Stream0646	1.07	1723	864	3438
Stream0647	0.39	646	324	1290



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0648	1.04	1436	720	2865
Stream0648	1.99	2520	1263	5028
Stream0648	2.76	3253	1630	6490
Stream0648	3.59	3867	1938	7715
Stream0648	4.53	4579	2295	9137
Stream0648	5.13	4692	2352	9362
Stream0651	0.22	553	277	1103
Stream0652	0.84	1930	967	3851
Stream0653	1.12	1949	977	3889
Stream0653	1.54	2268	1137	4524
Stream0653	2.53	3292	1650	6569
Stream0653	3.13	3535	1772	7053
Stream0655	1.00	1825	915	3642
Stream0655	1.10	1746	875	3484
Stream0656	0.22	526	263	1049
Stream0658	0.56	1132	568	2259
Stream0659	0.34	804	403	1603
Stream0660	0.44	1055	529	2104
Stream0661	0.82	1399	701	2791
Stream0661	1.28	1932	969	3856
Stream0662	0.22	588	295	1173
Stream0663	0.74	1281	642	2556
Stream0666	0.51	772	387	1540
Stream0667	1.44	2158	1081	4306
Stream0668	0.32	618	310	1233
Stream0669	1.52	2046	1025	4083
Stream0670	1.02	1552	778	3096
Stream0670	2.01	2413	1209	4814
Stream0672	1.10	1788	896	3568
Stream0672	2.00	2552	1279	5092
Stream0672	2.07	2530	1268	5047
Stream0673	1.11	1913	959	3817
Stream0673	2.00	2909	1458	5805
Stream0673	2.18	2968	1488	5922
Stream0676	1.11	1521	762	3035
Stream0676	1.97	2263	1134	4515
Stream0677	0.62	1158	580	2310
Stream0679	0.16	451	226	900



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0681	1.36	2202	1104	4395
Stream0682	1.33	2486	1246	4960
Stream0683	1.40	2126	1066	4242
Stream0683	2.33	3298	1653	6581
Stream0683	3.20	3837	1923	7656
Stream0686	1.48	2319	1162	4627
Stream0687	0.27	629	315	1255
Stream0689	1.18	2004	1004	3999
Stream0691	0.38	772	387	1541
Stream0693	1.04	1789	897	3570
Stream0693	1.57	2293	1149	4574
Stream0693	4.02	4495	2253	8968
Stream0694	1.47	2135	1070	4260
Stream0695	1.41	2331	1168	4650
Stream0695	1.95	3020	1513	6025
Stream0697	0.28	551	276	1099
Stream0698	0.70	1459	731	2912
Stream0699	0.46	964	483	1923
Stream0700	0.38	807	405	1611
Stream0701	1.25	2135	1070	4259
Stream0701	1.62	2467	1236	4922
Stream0703	0.36	715	358	1427
Stream0705	1.32	2010	1008	4011
Stream0706	1.27	2175	1090	4340
Stream0708	0.85	1425	714	2844
Stream0708	1.77	2728	1367	5443
Stream0709	0.72	1326	665	2646
Stream0710	0.74	1163	583	2321
Stream0710	1.11	1621	812	3234
Stream0715	1.19	1925	965	3841
Stream0716	1.03	1720	862	3431
Stream0716	1.93	2278	1142	4545
Stream0716	2.78	2761	1384	5509
Stream0716	4.61	3847	1928	7676
Stream0717	1.06	1539	771	3070
Stream0717	1.66	1941	973	3872
Stream0718	1.71	2795	1401	5577
Stream0718	2.68	3382	1695	6747



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0718	3.50	3832	1920	7645
Stream0718	4.47	4116	2063	8213
Stream0718	4.72	3957	1983	7895
Stream0719	0.90	1272	637	2537
Stream0719	1.47	1697	851	3387
Stream0720	0.74	1158	580	2311
Stream0721	1.07	1599	801	3190
Stream0721	2.01	2309	1157	4607
Stream0721	3.99	3354	1681	6692
Stream0723	1.38	1917	961	3825
Stream0724	0.94	1347	675	2688
Stream0725	1.27	1907	956	3804
Stream0725	2.04	2855	1431	5696
Stream0725	2.27	3012	1510	6010
Stream0726	0.73	1251	627	2497
Stream0727	0.33	687	344	1371
Stream0728	0.82	1340	671	2673
Stream0729	0.41	827	414	1650
Stream0730	0.62	1098	550	2190
Stream0731	1.01	1687	845	3366
Stream0731	1.60	2537	1271	5062
Stream0731	2.44	3530	1769	7044
Stream0731	3.35	4438	2224	8856
Stream0731	3.83	4536	2273	9050
Stream0731	5.87	5378	2695	10731
Stream0731	6.22	5383	2698	10740
Stream0731	7.20	5788	2901	11549
Stream0732	0.59	1015	509	2025
Stream0733	0.75	1254	629	2502
Stream0734	0.81	1442	723	2877
Stream0735	0.40	906	454	1807
Stream0735	1.05	1713	859	3418
Stream0736	0.62	1097	550	2190
Stream0737	1.75	2642	1324	5271
Stream0737	1.85	2683	1345	5354
Stream0737	3.99	4447	2229	8873
Stream0738	1.16	1808	906	3608
Stream0740	0.51	1003	503	2001



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0741	0.38	814	408	1624
Stream0743	1.09	1623	813	3237
Stream0743	1.78	2127	1066	4245
Stream0744	0.79	1203	603	2401
Stream0745	0.37	766	384	1527
Stream0746	1.00	1525	765	3044
Stream0747	0.30	623	312	1243
Stream0748	1.11	2270	1137	4528
Stream0748	1.98	3410	1709	6804
Stream0748	2.86	3811	1910	7604
Stream0749	1.19	2052	1029	4095
Stream0749	1.52	2372	1189	4733
Stream0749	2.51	3458	1733	6900
Stream0749	2.82	3679	1844	7340
Stream0750	0.84	1677	840	3345
Stream0751	0.45	875	439	1746
Stream0752	1.17	2482	1244	4952
Stream0752	2.07	3139	1573	6263
Stream0753	0.74	1096	549	2187
Stream0754	1.02	1564	784	3120
Stream0754	1.21	1620	812	3231
Stream0755	1.10	1878	941	3747
Stream0755	1.67	2555	1281	5098
Stream0755	2.66	3515	1762	7013
Stream0755	3.25	4032	2021	8044
Stream0755	5.55	5998	3006	11969
Stream0756	1.15	1992	999	3976
Stream0757	1.11	2629	1318	5246
Stream0757	2.87	4723	2367	9424
Stream0758	1.01	2251	1128	4492
Stream0758	1.06	2206	1105	4401
Stream0759	1.22	2533	1269	5053
Stream0759	1.96	3245	1627	6476
Stream0762	1.00	2571	1288	5129
Stream0762	1.99	3627	1818	7237
Stream0762	2.98	4561	2286	9100
Stream0762	3.03	4517	2264	9013
Stream0764	1.07	2068	1037	4127



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0765	0.71	1735	869	3461
Stream0765	1.20	2366	1186	4722
Stream0765	2.35	3786	1898	7554
Stream0766	0.25	700	351	1397
Stream0767	0.94	1763	883	3517
Stream0769	0.55	972	487	1940
Stream0769	0.99	1631	817	3254
Stream0769	2.23	3472	1740	6927
Stream0770	0.53	1367	685	2727
Stream0771	1.05	2341	1173	4671
Stream0771	1.58	2722	1364	5430
Stream0774	0.65	1846	925	3683
Stream0775	0.86	2246	1126	4481
Stream0776	0.33	1055	529	2105
Stream0777	0.45	1057	530	2110
Stream0777	0.84	1683	843	3357
Stream0778	1.13	2635	1321	5258
Stream0778	1.59	3217	1612	6418
Stream0778	2.26	4357	2183	8693
Stream0780	1.04	1830	917	3652
Stream0780	2.00	2743	1375	5473
Stream0780	2.52	3164	1586	6314
Stream0781	1.01	2426	1216	4840
Stream0781	1.77	3184	1596	6353
Stream0782	1.27	2571	1289	5130
Stream0783	0.53	1009	506	2014
Stream0784	0.60	1476	740	2945
Stream0785	0.42	1296	650	2587
Stream0786	1.12	1660	832	3311
Stream0786	2.03	2565	1286	5119
Stream0786	3.67	4586	2298	9150
Stream0786	5.63	6354	3185	12679
Stream0786	5.80	6381	3198	12731
Stream0787	0.87	1452	728	2897
Stream0787	1.40	2181	1093	4351
Stream0788	1.02	2112	1058	4213
Stream0788	1.05	2028	1016	4046
Stream0789	0.81	1958	981	3906



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0790	1.03	2233	1119	4455
Stream0790	1.06	2272	1139	4533
Stream0791	0.23	787	395	1571
Stream0792	0.46	1001	502	1998
Stream0792	1.28	2155	1080	4299
Stream0792	2.00	3759	1884	7501
Stream0792	2.65	4298	2154	8576
Stream0792	4.36	6135	3075	12240
Stream0793	0.58	1362	683	2718
Stream0794	0.71	1603	804	3199
Stream0794	1.38	2821	1414	5628
Stream0795	0.44	1208	605	2410
Stream0797	0.73	1613	808	3217
Stream0797	2.09	3658	1833	7299
Stream0797	3.71	6289	3152	12548
Stream0798	0.66	1526	765	3044
Stream0798	1.00	2021	1013	4033
Stream0798	1.06	2224	1115	4437
Stream0799	0.92	2120	1063	4231
Stream0799	2.37	3778	1894	7539
Stream0799	3.33	4425	2218	8829
Stream0799	4.33	5228	2620	10432
Stream0799	5.32	5628	2821	11230
Stream0800	0.47	1196	599	2386
Stream0801	0.40	983	492	1960
Stream0801	1.00	2169	1087	4328
Stream0801	1.31	2526	1266	5040
Stream0802	0.40	990	496	1975
Stream0803	0.51	1593	798	3179
Stream0804	0.50	1132	567	2258
Stream0804	1.10	2246	1126	4482
Stream0804	1.99	3494	1751	6971
Stream0804	2.26	3703	1856	7388
Stream0804	4.22	5605	2809	11183
Stream0804	5.21	6180	3097	12331
Stream0804	5.22	6400	3208	12770
Stream0805	0.69	1292	647	2577
Stream0806	1.00	2249	1127	4487



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0806	1.02	2304	1155	4598
Stream0807	0.51	1428	716	2849
Stream0809	0.37	1007	505	2009
Stream0809	1.00	2315	1160	4618
Stream0809	1.20	2531	1268	5050
Stream0810	0.33	916	459	1828
Stream0811	0.93	1749	876	3489
Stream0812	0.28	761	382	1519
Stream0812	0.91	1879	942	3749
Stream0814	0.62	1737	871	3467
Stream0815	0.89	2113	1059	4215
Stream0816	0.18	610	306	1217
Stream0818	1.33	2789	1398	5565
Stream0819	0.42	892	447	1780
Stream0819	1.00	1923	964	3838
Stream0819	1.87	2816	1412	5619
Stream0820	0.21	547	274	1091
Stream0822	0.32	764	383	1525
Stream0823	0.28	849	425	1693
Stream0824	0.24	811	406	1618
Stream0824	0.60	1796	900	3583
Stream0825	0.23	728	365	1453
Stream0826	0.64	1537	770	3066
Stream0827	0.66	1422	713	2838
Stream0828	0.70	1610	807	3212
Stream0829	1.02	2147	1076	4284
Stream0829	1.88	3478	1743	6939
Stream0830	0.37	960	481	1915
Stream0833	0.56	1407	705	2808
Stream0833	0.88	2032	1018	4054
Stream0834	1.05	2261	1133	4512
Stream0834	1.85	3212	1610	6408
Stream0834	4.48	5671	2842	11316
Stream0834	6.89	7881	3950	15724
Stream0834	9.07	9311	4667	18578
Stream0834	10.00	10135	5080	20222
Stream0834	10.99	9980	5002	19912
Stream0834	11.02	9767	4895	19488



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Stream0835	0.53	1268	636	2531
Stream0835	1.78	2989	1498	5964
Stream0836	0.53	1070	536	2136
Stream0836	1.10	1860	932	3711
Stream0836	2.04	2993	1500	5972
Stream0836	2.32	3329	1669	6643
Stream0837	0.34	834	418	1663
Stream0837	1.00	1968	987	3927
Stream0837	1.89	2896	1451	5778
Stream0838	0.26	666	334	1328
Stream0840	0.31	686	344	1369
Stream0841	0.91	2029	1017	4049
Stream0841	1.70	3408	1708	6800
Stream0842	0.72	1529	767	3052
Stream0843	0.43	1115	559	2225
Stream0844	0.54	1315	659	2623
Stream0845	0.50	1196	599	2386
Stream0846	0.71	1590	797	3173
Stream0846	1.77	2884	1445	5754
Stream0846	2.78	3959	1984	7900
Stream0847	1.04	1887	946	3765
Stream0847	1.97	2546	1276	5080
Stream0847	2.29	2531	1269	5050
StreamM00	1.27	2255	1130	4499
StreamM00	1.75	2680	1343	5348
StreamM00	2.74	3972	1991	7925
StreamM00	3.11	4180	2095	8341
StreamM011	1.38	2633	1320	5254
StreamM012	0.27	702	352	1400
StreamM012	0.44	1061	532	2116
StreamM012	0.61	1333	668	2659
StreamM013	0.24	734	368	1464
StreamM013	0.53	1416	710	2825
StreamM013	0.78	1893	949	3777
StreamM013	1.57	2815	1411	5617
StreamM014	0.22	778	390	1553
StreamM015	0.17	570	285	1136
StreamM016	0.15	478	240	954



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
StreamM016	0.26	816	409	1629
StreamM017	0.11	365	183	728
StreamM018	0.34	702	352	1400
StreamM019	1.21	2238	1122	4466
StreamM02	1.42	3190	1599	6364
StreamM020	1.19	2690	1348	5367
StreamM020	1.53	2970	1489	5926
StreamM021	1.23	2787	1397	5560
StreamM021	1.53	3139	1573	6264
StreamM022	0.58	1373	688	2740
StreamM023	0.35	1237	620	2469
StreamM024	0.77	1817	910	3625
StreamM025	0.98	2397	1201	4783
StreamM025	1.21	2582	1294	5151
StreamM025	1.70	3162	1585	6309
StreamM025	1.96	3442	1725	6869
StreamM025	2.54	3606	1807	7195
StreamM026	0.39	1029	516	2054
StreamM027	0.18	503	252	1003
StreamM028	0.19	700	351	1397
StreamM029	0.79	1642	823	3276
StreamM029	1.12	1996	1001	3983
StreamM029	1.69	2814	1410	5615
StreamM029	2.50	3850	1929	7681
StreamM03	1.10	1810	907	3611
StreamM03	1.73	2658	1332	5303
StreamM030	0.09	290	145	578
StreamM031	0.42	1012	507	2018
StreamM032	0.73	1716	860	3424
StreamM033	0.23	659	330	1315
StreamM034	0.27	676	339	1349
StreamM035	1.03	1991	998	3973
StreamM036	0.64	1653	829	3298
StreamM036	1.09	2403	1205	4795
StreamM036	1.75	3083	1545	6152
StreamM036	2.67	4244	2127	8468
StreamM036	3.53	5298	2655	10571
StreamM036	4.05	5548	2781	11070



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
StreamM037	0.49	1066	534	2127
StreamM037	0.75	1365	684	2724
StreamM039	0.25	820	411	1636
StreamM039a	0.39	891	447	1779
StreamM04	0.86	1586	795	3164
StreamM040	0.25	679	340	1355
StreamM041	0.53	1341	672	2675
StreamM043a	0.59	1558	781	3109
StreamM044	0.97	1807	906	3606
StreamM045	0.57	1200	601	2394
StreamM045	1.23	2115	1060	4220
StreamM045	1.62	2516	1261	5019
StreamM045	2.62	3793	1901	7567
StreamM045	3.61	4470	2240	8919
StreamM045	3.73	4433	2222	8846
StreamM046	0.92	1859	932	3710
StreamM046	1.50	2571	1288	5129
StreamM048	0.69	1413	708	2820
StreamM049	0.73	1269	636	2532
StreamM049	1.45	1926	965	3843
StreamM04A	1.41	2053	1029	4095
StreamM05	1.09	1838	921	3668
StreamM05	1.92	2392	1199	4773
StreamM05	2.16	2482	1244	4953
StreamM05	3.51	3672	1840	7327
StreamM050	0.51	1018	510	2032
StreamM051	0.35	809	406	1614
StreamM052	0.83	1584	794	3160
StreamM053	0.39	965	483	1924
StreamM054	0.47	1092	547	2179
StreamM055	0.77	1862	933	3716
StreamM056	0.62	1699	852	3391
StreamM056	0.88	2337	1172	4664
StreamM057	0.19	514	258	1025
StreamM057	0.50	1196	599	2386
StreamM057	0.68	1392	697	2777
StreamM058	0.18	522	262	1042
StreamM059	0.96	1946	975	3884



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
StreamM059	1.51	2712	1359	5411
StreamM059	2.25	3646	1827	7275
StreamM059	2.45	3794	1901	7569
StreamM059	3.10	4010	2010	8000
StreamM06	1.34	2235	1120	4460
StreamM060	0.28	776	389	1548
StreamM061	0.62	1530	767	3053
StreamM062	0.44	1061	532	2117
StreamM063	0.14	361	181	720
StreamM064	0.54	1256	630	2506
StreamM065	0.67	1483	743	2959
StreamM066	0.31	823	413	1643
StreamM067	0.09	265	133	529
StreamM068	0.21	537	269	1071
StreamM069	0.07	225	113	448
StreamM070	0.13	441	221	881
StreamM09	1.36	2219	1112	4428
SULPHUR BRANCH	1.41	3215	1611	6414
SULPHUR BRANCH	2.40	4106	2058	8193
SULPHUR BRANCH	5.04	7086	3551	14138
SULPHUR BRANCH	5.33	7089	3553	14145
SULPHUR BRANCH	8.27	9103	4562	18162
SULPHUR BRANCH	12.54	11244	5635	22435
THOMAS HOLLOW	0.40	930	466	1856
THOMAS HOLLOW	1.19	2421	1213	4830
THOMAS HOLLOW	2.04	3339	1674	6663
THOMAS HOLLOW	2.28	3518	1763	7020
THOMPSON BRANCH	1.20	2037	1021	4064
THOMPSON BRANCH	2.14	3185	1596	6354
THOMPSON BRANCH	2.66	3433	1721	6850
TIDWELL CREEK	1.43	3272	1640	6529
TIDWELL CREEK	1.85	3265	1636	6514
TIDWELL CREEK	3.33	5210	2611	10395
TIDWELL CREEK	5.01	7005	3511	13976
TIDWELL TRIBUTARY 1	0.78	1641	822	3274
TIDWELL TRIBUTARY 1	1.42	2559	1282	5105
TIDWELL TRIBUTARY 2	1.08	2156	1081	4302
TINSLEY CREEK	1.07	1962	983	3914



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
TINSLEY CREEK	2.06	2871	1439	5728
TINSLEY CREEK	3.01	3811	1910	7604
TINSLEY CREEK	3.51	4182	2096	8343
Tributary 1 of West Fork Trib	0.23	700	351	1396
Turkey Creek	0.31	2185	1095	4360
Turkey Creek	1.10	4496	2253	8971
Turkey Creek	1.94	6048	3031	12068
Turkey Creek 1	0.29	2016	1010	4022
Turkey Creek 2	0.48	2650	1328	5288
Turkey Creek 3	1.31	3004	1506	5994
Turkey Creek 3	3.50	6955	3486	13876
Turkey Creek 3	5.18	8235	4127	16431
Turkey Creek 4	1.11	2251	1128	4492
Turkey Creek 4	1.82	3017	1512	6019
Turkey Creek 4	2.63	3775	1892	7533
Turkey Creek 4	2.97	4012	2011	8005
Turkey Creek 5	1.23	2978	1493	5943
UNNAMED SLOUGH 1	1.24	1743	873	3477
UNNAMED SLOUGH 1	1.98	2686	1346	5359
UNNAMED SLOUGH 1	2.95	3788	1899	7558
UNNAMED SLOUGH 1	3.72	4358	2184	8695
UNNAMED SLOUGH 1	4.69	5017	2514	10010
UNNAMED SLOUGH 1	5.01	5126	2569	10228
Upper Dry Comal Tributary 10	1.29	3759	1884	7500
Upper Dry Comal Tributary 10	1.98	4489	2250	8956
Upper Dry Comal Tributary 12	0.76	1530	767	3052
Upper Dry Comal Tributary 12b	0.40	1271	637	2537
Upper Dry Comal Tributary 16	0.26	1118	561	2232
Upper Dry Comal Tributary 17	0.47	2135	1070	4260
Upper Dry Comal Tributary 18	0.36	1605	804	3202
Upper Dry Comal Tributary 18	0.97	3609	1809	7200
Upper Dry Comal Tributary 18	1.93	5436	2724	10846
Upper Dry Comal Tributary 18b	0.46	1743	873	3477
Upper Dry Comal Tributary 19	0.53	2148	1077	4286
Upper Dry Comal Tributary 20	0.19	929	466	1854
Upper Dry Comal Tributary 20	0.42	1835	920	3662
Upper Dry Comal Tributary 20	0.75	2945	1476	5877
Upper Dry Comal Tributary 20b	0.28	1290	646	2573



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
Upper Dry Comal Tributary 21	0.98	3179	1593	6343
Upper Dry Comal Tributary 21	1.49	4113	2061	8206
Upper Dry Comal Tributary 24	0.85	2777	1392	5542
Upper Dry Comal Tributary 24	1.50	4599	2305	9176
Upper Dry Comal Tributary 26	0.56	2053	1029	4096
Upper Dry Comal Tributary 3	0.37	969	486	1934
Upper Dry Comal Tributary 3	1.08	2534	1270	5057
Upper Dry Comal Tributary 3	1.40	3851	1930	7683
Upper Dry Comal Tributary 3	3.49	7231	3624	14429
Upper Dry Comal Tributary 3	4.19	8062	4041	16086
Upper Dry Comal Tributary 3	5.18	9222	4622	18400
Upper Dry Comal Tributary 3	5.27	9229	4625	18413
Upper Dry Comal Tributary 3	5.92	9817	4920	19587
Upper Dry Comal Tributary 3	6.70	10426	5226	20803
Upper Dry Comal Tributary 3	7.38	10691	5358	21332
Upper Dry Comal Tributary 7	0.51	1372	687	2737
Upper Dry Comal Tributary 8	0.84	2536	1271	5061
Upper Dry Comal Tributary 9	0.52	1880	942	3752
VALLEY BRANCH	0.66	1936	970	3863
VALLEY BRANCH	1.95	3372	1690	6728
VALLEY BRANCH	3.72	4932	2472	9841
VANHAM CREEK	0.45	1117	560	2228
VANHAM CREEK	1.02	2307	1156	4603
VANHAM CREEK	1.09	2570	1288	5128
VANHAM CREEK	2.31	4611	2311	9200
VANHAM CREEK	2.98	5138	2575	10251
VANHAM CREEK	3.20	5427	2720	10828
VANHAM CREEK	7.03	9232	4627	18421
VANHAM CREEK	7.84	9712	4868	19379
VANHAM CREEK	11.33	11601	5814	23148
VANHAM CREEK	12.16	11871	5950	23687
WAELDER BRANCH	0.44	913	458	1823
WAELDER BRANCH	1.06	1964	984	3919
WAELDER BRANCH	1.71	2604	1305	5195
WALNUT BRANCH	1.12	1264	633	2521
WALNUT BRANCH	1.66	1719	861	3429
WALNUT BRANCH	2.07	2049	1027	4089
WALNUT BRANCH	2.36	2361	1184	4712



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
WALNUT BRANCH	3.36	3204	1606	6392
WALNUT BRANCH	5.40	4657	2334	9292
WALNUT BRANCH	6.39	5176	2594	10328
WALNUT BRANCH	7.34	5888	2951	11748
WALNUT BRANCH	8.18	7117	3567	14200
WALNUT TRIBUTARY 1	0.43	741	371	1478
WALNUT TRIBUTARY 1	1.03	1551	777	3094
WALNUT TRIBUTARY 2	0.37	674	338	1346
WALNUT TRIBUTARY 4	0.24	413	207	823
West Brook Creek	0.75	1394	699	2782
West Brook Creek	2.22	3185	1596	6355
West Brook Creek	3.13	4183	2097	8347
West Brook Creek	4.08	4497	2254	8973
West Brook Creek	5.76	5775	2894	11522
West Brook Creek	6.50	6215	3115	12400
West Brook Creek	6.88	6424	3219	12817
WEST BRUSHY CREEK	1.20	1751	877	3493
WEST BRUSHY CREEK	2.05	2688	1347	5363
WEST BRUSHY CREEK	2.82	3332	1670	6649
WEST BRUSHY CREEK	3.68	4010	2010	8002
WEST BRUSHY CREEK	4.12	4209	2110	8399
WEST BRUSHY CREEK	5.07	4881	2446	9739
WEST BRUSHY CREEK	5.70	5377	2695	10728
WEST BRUSHY CREEK	6.51	5573	2793	11120
WEST BRUSHY CREEK	6.91	5812	2913	11596
WEST BRUSHY CREEK	8.57	6574	3295	13118
WEST BRUSHY CREEK	9.54	6912	3464	13792
WEST BRUSHY CREEK	10.49	7197	3607	14359
WEST BRUSHY CREEK	11.18	7401	3709	14767
WEST COTTONWOOD CREEK	1.13	1891	948	3773
WEST COTTONWOOD CREEK	2.01	2513	1260	5015
WEST COTTONWOOD CREEK	2.97	3355	1681	6694
WEST COTTONWOOD CREEK	3.66	3799	1904	7581
WEST COTTONWOOD CREEK	4.61	4485	2248	8949
WEST COTTONWOOD CREEK	5.15	4785	2398	9548
WEST COTTONWOOD CREEK	7.12	6244	3129	12458
WEST DRAIN	0.29	692	347	1380
West Fork Dry Comal Creek	0.98	2791	1399	5569

Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
West Fork Dry Comal Creek	1.99	5096	2554	10167
West Fork Dry Comal Creek	2.27	3278	1643	6541
West Fork Dry Comal Creek	2.56	5382	2697	10738
West Fork Dry Comal Creek	3.04	4246	2128	8471
West Fork Dry Comal Creek	3.53	6089	3052	12149
West Fork Dry Comal Creek	3.61	6035	3025	12041
West Fork Dry Comal Creek	5.34	8177	4098	16315
West Fork Dry Comal Creek	6.08	7562	3790	15087
West Fork Dry Comal Creek	7.83	11107	5567	22162
West Fork Dry Comal Creek	9.80	12898	6464	25735
West Fork Dry Comal Creek	10.76	13676	6854	27288
West Fork Dry Comal Creek	10.99	13959	6996	27851
West Fork Dry Comal Creek	11.54	13987	7010	27907
West Fork Dry Comal Creek	12.25	14383	7209	28698
West Fork Dry Comal Creek	12.51	14100	7067	28133
West Fork Dry Comal Creek	14.72	15816	7927	31557
West Fork Dry Comal Creek	15.71	16879	8459	33677
West Fork Dry Comal Creek	16.16	16797	8418	33513
West Fork Dry Comal Creek	17.18	17518	8780	34954
West Fork Dry Comal Creek	18.14	18156	9100	36226
West Fork Dry Comal Creek	18.65	18665	9354	37241
West Fork Tributary	0.69	2153	1079	4295
West Fork Tributary	1.24	3109	1558	6204
West Fork Tributary	1.75	3918	1964	7818
West Fork Tributary	2.80	5600	2807	11174
West Fork Tributary 10	0.33	841	421	1678
West Fork Tributary 10	1.08	2473	1239	4933
West Fork Tributary 10	1.43	3381	1695	6746
West Fork Tributary 12	0.94	2959	1483	5903
West Fork Tributary 12	1.47	3774	1892	7531
West Fork Tributary 12	1.86	4618	2315	9214
West Fork Tributary 14	0.88	2468	1237	4924
West Fork Tributary 14	1.30	3366	1687	6717
West Fork Tributary 2	0.67	1902	953	3795
West Fork Tributary 3	0.75	2386	1196	4761
West Fork Tributary 4	0.66	2810	1409	5608
West Fork Tributary 5	0.30	1547	775	3087
West Fork Tributary 5	1.20	3169	1588	6324



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
West Fork Tributary 5b	0.24	986	494	1967
West Fork Tributary 6	0.25	987	495	1969
West Fork Tributary 7	0.45	1379	691	2752
West Fork Tributary 8	0.14	825	414	1647
WEST ROCKY CREEK	1.03	1732	868	3455
WEST ROCKY CREEK	1.78	2674	1340	5335
WEST ROCKY CREEK	2.30	3147	1577	6279
WEST ROCKY CREEK	3.30	4060	2035	8102
WEST ROCKY CREEK	4.07	4568	2290	9115
WEST ROCKY CREEK	4.77	4942	2477	9861
WEST ROCKY CREEK	5.55	5475	2744	10923
WEST ROCKY CREEK	6.26	5961	2988	11894
WEST ROCKY CREEK	7.23	6479	3247	12926
WEST ROCKY CREEK	7.40	6553	3284	13076
WEST ROCKY CREEK	8.37	7293	3655	14551
WEST ROCKY CREEK	9.23	7376	3697	14717
WEST ROCKY CREEK	10.23	8026	4023	16014
WEST ROCKY CREEK	10.75	8371	4196	16703
WEST ROCKY CREEK	12.28	9156	4589	18268
WEST ROCKY CREEK	14.13	10188	5106	20328
WEST ROCKY CREEK	15.10	10505	5265	20961
WEST ROCKY CREEK	15.33	10311	5168	20573
WEST ROCKY CREEK	16.33	10968	5497	21884
WEST ROCKY CREEK	16.35	10885	5455	21718
WHITE OAK BRANCH	1.15	1856	930	3703
WHITE OAK BRANCH	2.01	2701	1354	5389
WHITE OAK BRANCH	2.28	2861	1434	5707
WHITE OAK BRANCH	4.55	5415	2714	10804
WHITE OAK BRANCH	4.89	5582	2797	11137
WICKEY BRANCH	1.19	1855	930	3702
WICKEY BRANCH	1.96	2206	1105	4401
WILLOW BRANCH	0.57	1543	773	3079
WILLOW BRANCH	1.86	3588	1798	7158
WILLOW BRANCH	2.83	4740	2376	9457
WILLOW BRANCH	4.76	6973	3495	13914
WILLOW BRANCH	6.34	8654	4337	17267
WILLOW CREEK	0.51	1086	544	2167
WILLOW CREEK	0.96	1697	851	3386



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
WILLOW CREEK	3.14	3832	1921	7647
WILLOW CREEK	3.97	4643	2327	9265
WILLOW CREEK	4.96	5368	2690	10710
WILLOW CREEK	5.51	5441	2727	10856
WILLOW CREEK	9.60	7779	3899	15522
WILLOW CREEK	11.11	8485	4253	16930
YOUNGS CREEK	0.66	1473	738	2940
YOUNGS CREEK	1.11	2357	1181	4703
YOUNGS CREEK	2.41	3580	1794	7143
YOUNGS CREEK	2.70	3636	1822	7255
YOUNGS CREEK	2.92	3894	1951	7769
YOUNGS CREEK	3.35	4398	2204	8776
YOUNGS CREEK	3.84	4821	2416	9619
YOUNGS CREEK	4.12	5011	2511	9998
YOUNGS CREEK	9.01	9054	4538	18064
YOUNGS CREEK	9.50	8962	4492	17881
YOUNGS CREEK	11.95	10635	5330	21220
YOUNGS CREEK	15.05	12302	6166	24546
YOUNGS CREEK TRIBUTARY B	0.16	543	272	1083
YOUNGS CREEK TRIBUTARY E	0.22	558	280	1113
YOUNGS CREEK TRIBUTARY G	0.15	391	196	780
YOUNGS TRIBUTARY 1	0.44	1126	564	2247
YOUNGS TRIBUTARY 1	0.82	1712	858	3415
YOUNGS TRIBUTARY 1	1.49	2468	1237	4924
YOUNGS TRIBUTARY 1	2.08	3170	1589	6325
YOUNGS TRIBUTARY 1	2.40	3574	1791	7131
YOUNGS TRIBUTARY 10	1.00	1725	865	3442
YOUNGS TRIBUTARY 1D	0.29	1146	575	2288
YOUNGS TRIBUTARY 2	0.50	1032	517	2059
YOUNGS TRIBUTARY 2	1.07	1814	909	3619
YOUNGS TRIBUTARY 2	2.07	3897	1953	7776
YOUNGS TRIBUTARY 3	0.85	1858	931	3706
YOUNGS TRIBUTARY 3B	0.33	842	422	1680
YOUNGS TRIBUTARY 4	0.44	1005	504	2005
YOUNGS TRIBUTARY 4	0.85	1549	776	3090
YOUNGS TRIBUTARY 4	0.95	1793	899	3578
YOUNGS TRIBUTARY 4	2.27	3296	1652	6575
YOUNGS TRIBUTARY 4	3.34	4527	2269	9033



Stream Name	Drainage Area (sq. mi)	1% Peak Q (cfs)	1%- Peak Q (cfs)	1%+ Peak Q (cfs)
YOUNGS TRIBUTARY 4	4.26	5337	2675	10649
YOUNGS TRIBUTARY 4	4.33	5351	2682	10677
YOUNGS TRIBUTARY 4 2	0.07	252	126	503
YOUNGS TRIBUTARY 4C	0.14	365	183	728
YOUNGS TRIBUTARY 6	1.14	1921	963	3833
YOUNGS TRIBUTARY 9	0.42	1217	610	2428
YOW BRANCH	1.11	1853	929	3697
YOW BRANCH	2.00	2768	1387	5524
YOW BRANCH	3.00	3607	1808	7197
YOW BRANCH	3.99	4425	2218	8829
YOW BRANCH	4.90	5162	2587	10299
YOW BRANCH	5.84	5661	2837	11295
YOW BRANCH	6.17	5894	2954	11760
YOW BRANCH	7.36	6736	3376	13439



Appendix B BLE Maps

