U.S. Department of Housing and Urban Development (HUD) – Texas General Land Office (GLO) - Golden Crescent Regional Planning Commission (GCRPC)

Hurricane Harvey, Community Development Block Grant – Disaster Recovery (CDBG-DR) Funding

REGIONAL DISTRIBUTION SUMMARY

Table 1

Program	HUD Most Impacted Areas (80%)	State Most Impacted Areas (20%)	LMI Amount (70% of Total Allocation)	Total	% of Total Regional Allocation
Homeowner Assistance Program	$ 32,657,218	$ 23,281,471	$ 39,157,082	$ 55,938,689	50.66%
Local Buyout/Acquisition Program	$ 8,606,577	$ 9,824,070	$ 12,901,453	$ 18,430,647	16.69%
Local Infrastructure Program	$ 18,426,069	$ 17,618,520	$ 25,231,212	$ 36,044,589	32.64%
	Total Regional Allocation			$ 110,413,925	

State of Texas Plan for Disaster Recovery: Hurricane Harvey Round 1 (State Action Plan), April 6, 2018, Texas General Land Office Community Development & Revitalization Program

The GCRPC was tasked by the GLO to develop methods of distribution (MOD) for Hurricane Harvey, CDBG-DR funds for the state's Local Buyout and Acquisition Program (LBAP) and Local Infrastructure Program (LIP). The GCRPC will implement a funding distribution scheme based on the analysis and methodology utilized by the GLO in its distribution of CDBG-DR funds to the regions within the Hurricane Harvey declared disaster areas. See *State Action Plan, Regional Methods of Distributions: XI. Appendix F, pp 118-128*. Baseline funding amounts, to be distributed amongst eligible entities throughout the region, have been provided by the GLO. Amounts allocated to HUD Most Impacted Areas (80%) and State Most Impacted Areas (20%) for LBAP and LIP are not subject to change.

The HUD CDBG-DR Federal Register Notice of Funding Opportunity (Vol.83, No28, Friday, February 9, 2018) requires that 80% of the total regional allocation is to be received by Victoria County and the area encompassed by the 77979 ZIP code in Calhoun County.

The remaining counties (Calhoun [outside of 77979], DeWitt, Goliad, Gonzales, Jackson, and Lavaca) are designated to receive 20% of the HUD funding allocated to the GCRPC region. The subgrouping of eligible entities is incorporated into the distribution methodology used to develop LBAP and LIP spreadsheets. Altogether, there are seventy-three (73) entities with eminent domain authority within the GCRPC region. Of the seventy-three (73) eminent domain authority entities, seven (7) private utilities are ineligible for LBAP funds per HUD guidance in *Federal Register Vol. 83, No 28, Friday, February 9, 2018, Notices*. The remaining sixty-six (66) cities, counties, and entities with eminent domain authority are all eligible to receive LBAP Funds. Twenty-six (26) cities and counties are eligible to receive LIP funds.

See Attachment 1 – CDBG-DR GCRPC Eligible Entity Distribution Summary.

The State Action Plan contains a number of requirements whose adherence impacts the outcomes displayed in LBAP and LIP spreadsheets. Beyond the 80% minimum distribution to HUD defined Most Impacted Areas and the 20% minimum distribution to HUD defined Impacted Areas, 70% of project funds awarded must provide benefit to Low to Moderate Income populations. Additionally, LBAP eligible entities receiving funding must receive a minimum of $1,000,000

through the applied MOD and LIP eligible entities must receive a minimum of $100,000 through the applied MOD.

Descriptions of the factors and resulting percentages utilized by GCRPC to distribute funds are as follows:

Local Buyout and Acquisition Program (LBAP) FACTORS:

- **HUD Most Impacted Counties and Zip Codes (80%)**
    - County, City, or Zip Code Population
    - Median Value of Housing Units for Homeowners/Median Value of Constructing Rental Unit for Renters
    - FEMA Verified Count of Unmet Need—Major/Low Damage Severity
    - FEMA Verified Count of Unmet Need—Major/High Damage Severity
    - FEMA Verified Count of Unmet Need—Severe Damage
    - Total FEMA Verified Count of Unmet Need Units
    - Unmet Need $ Amount - Derived Using Severity Levels
    - 15% Resiliency
    - Unmet Need $ Amount + (plus) 15% Resiliency - Derived Using Severity Levels
    - Unmet Need + (plus) Resiliency Removing Any Overlap
    - Raw Social Vulnerability Index Score (SoVI)
    - Positive SoVI
    - Estimated Unmet Need + (plus) Resiliency Amount Per Capita

- **State Most Impacted Areas (20%)**
    - County or City Population
    - Median Value of Housing Units for Homeowners/Median Value of Constructing Rental Unit for Renters
    - FEMA Verified Count of Unmet Need—Major/Low Damage Severity
    - FEMA Verified Count of Unmet Need—Major/High Damage Severity
    - FEMA Verified Count of Unmet Need—Severe Damage
    - Total FEMA Verified Count of Unmet Need Units
    - Unmet Need $ Amount - Derived Using Severity Levels
    - 15% Resiliency
    - Unmet Need $ Amount + (plus) 15% Resiliency - Derived Using Severity Levels
    - Unmet Need + (plus) Resiliency Removing Any Overlap
    - Raw SoVI
    - Positive SoVI
    - Estimated Unmet Need + (plus) Resiliency Amount Per Capita

Resulting LBAP Distribution PERCENTAGES:

- Distribution Percentage Based on Unmet Need + (plus) Resiliency
- Distribution Percentage Based on 1 + (plus) (Raw SoVI – (minus) (Minimum Raw SoVI)) (Min Raw SoVI)

- Distribution Percentage Based on Per Capita Unmet Needs
- Combined Distribution Percentage Based on Model with 50% (Unmet Need + (plus) Resiliency), 40% (1+Raw SoVI – (minus) Min Raw SoVI), and 10% (Unmet Need Per Capita)

Local Infrastructure Program (LIP) FACTORS:

- **HUD Most Impacted Counties and Zip Codes (80%)**
  - County or City Population
  - Projected Public Assistance (PA) cost
  - Unmet need = 10% county/city matching requirement of total project costs
  - Resiliency = 15% of total project costs
  - 1 + (plus) Raw SoVI – (minus) Min Raw SoVI
  - Estimated Unmet Need + (plus) Resiliency Amount Per Capita

- **State Most Impacted Areas (20%)**
  - County or City Population
  - Projected PA cost
  - Unmet need = 10% county/city matching requirement of total project costs
  - Resiliency = 15% of total project costs
  - 1 + (plus) Raw SoVI – (minus) Min Raw SoVI
  - Estimated Unmet Need + (plus) Resiliency Amount Per Capita

Resulting LIP Distribution PERCENTAGES:

- Distribution Percentage Based on Unmet Need + (plus) Resiliency
- Distribution Percentage Based on 1 + (plus) (Raw SoVI – (minus) Min Raw SoVI))
- Distribution Percentage Based on Per Capita Unmet Needs
- Combined Distribution Percentage Based on Model with 50% (Unmet Need plus Resiliency), 40% (1 + (plus) SoVI – (minus)Min SoVI), and 10% (Unmet Need Per Capita)

A. State Housing Program Allocation

1. State Homeowner Assistance Program Allocation

a. *Amount(s)*

Program	HUD Most Impacted Areas (80%)	State Most Impacted Areas (20%)	LMI Amount (70% of Total Allocation)	Total	% of Total Regional Allocation
Homeowner Assistance Program	$ 32,657,218	$ 23,281,471	$ 39,157,082	$ 55,938,689	50.66%

b. ***Method of Distribution*** – Not Applicable

i. The Texas General Land Office (GLO) will directly manage and administer the Homeowner Assistance Program for the Golden Crescent Regional Planning Commission (GCRPC) region. Additional information regarding

purpose, scope, eligibility, and applying for assistance will be provided by the GLO.

c. ***Reallocation*** – Please see Page 75 of 203 of the *State of Texas Plan for Disaster Recovery: Hurricane Harvey – Round 1 (SAP), April 6, 2018*, available at http://www.glo.texas.gov/recovery/reports/action-plans/index.html.

2. Local Buyout and Acquisition Program (LBAP) Allocation

a. ***Amount(s)***

Program	HUD Most Impacted Areas (80%)	State Most Impacted Areas (20%)	LMI Amount (70% of Total Allocation)	Total	% of Total Regional Allocation
Local Buyout/Acquisition Program	$ 8,606,577	$ 9,824,070	$ 12,901,453	$ 18,430,647	16.69%

b. ***Method of Distribution Detail*** – see Attachment 2 – LBAP MOD Detail.

c. ***Reallocation*** – "Reallocation of [LBAP] funds from de-obligated funds and/or cost savings from completed projects will be [at] the discretion of the GLO within the region[.]" Please see Page 79 of 203 of the *SAP), April 6, 2018*, available at http://www.glo.texas.gov/recovery/reports/action-plans/index.html.

B. Local Infrastructure Program (LIP) Allocation

a. ***Amount(s)***

Program	HUD Most Impacted Areas (80%)	State Most Impacted Areas (20%)	LMI Amount (70% of Total Allocation)	Total	% of Total Regional Allocation
Local Infrastructure Program	$ 18,426,069	$ 17,618,520	$ 25,231,212	$ 36,044,589	32.64%

b. ***Method of Distribution Detail*** – see Attachment 3 – LIP MOD Detail

c. ***Reallocation*** – "Reallocation of [LIP] funds from de-obligated funds and/or cost savings from completed projects will be [at] the discretion of the GLO within the region[.]" Please see Page 87 of 203 of the *SAP, April 6, 2018*, available at http://www.glo.texas.gov/recovery/reports/action-plans/index.html.

Attachment 1 – CDBG-DR GCRPC Eligible Entity Distribution Summary

Local Buyout and Acquisition Program (LBAP) Distribution

Initial 80% Allocation of Funds For HUD Most Impacted Counties & Zip Codes		
Victoria County *(Excluding City of Victoria)*	$	2,545,545
City of Victoria	$	2,441,508
77979 Calhoun County *(Excluding City of Port Lavaca)*	$	1,858,095
City of Port Lavaca (77979)	$	1,761,429
80% LBAP Sub-total	$	8,606,577

Initial 20% Allocation of Funds for HUD Impacted Counties		
Calhoun County	$	2,124,398
DeWitt County	$	1,952,614
Goliad County	$	1,583,333
Gonzales County	$	1,667,714
Jackson County	$	1,297,010
Lavaca County	$	1,199,001
20% LBAP Sub-Total	$	9,824,070
GCRPC LBAP Grand Total(s)	$	18,430,647

Local Infrastructure Program (LIP) Distribution

Initial 80% Allocation of Funds For HUD Most Impacted Counties & Zip Codes	
Victoria County *(Excluding City of Victoria)*	$3,515,651
City of Victoria	$6,056,722
77979 Calhoun County *(Excluding City of Port Lavaca)*	$3,740,301
City of Port Lavaca (77979)	$5,113,395

LIP Distribution – Continued

Initial 20% Allocation of Funds for HUD Impacted Counties	
Calhoun County *(Excluding Zip 77979 Calhoun County, Point Comfort, and Seadrift)*	$2,196,247
City of Point Comfort	$1,031,252
City of Seadrift	$1,536,581
DeWitt County *(Excluding City of Cuero, City of Yoakum, and City of Yorktown)*	$ 866,608
City of Cuero	$1,426,977
City of Yoakum	$1,416,383
City of Yorktown	$ 793,105
Goliad County *(Excluding City of Goliad)*	$ 723,030
City of Goliad	$ 477,108
Gonzales County *(Excluding City of Gonzales, City of Nixon, City of Smiley, and City of Waelder)*	$ 903,466
City of Gonzales	$ 852,300
City of Nixon	$ 671,903
City of Smiley	$ 595,907
City of Waelder	$ 623,785
Jackson County *(Excluding City of Edna, City of Ganado, and City of La Ward)*	$ 840,270
City of Edna	$ 730,897
City of Ganado	$ 418,493
City of La Ward	$ 297,827
Lavaca County *(Excluding City of Hallettsville, City of Moulton, and City of Shiner)*	$ 400,454
City of Hallettsville	$ 279,939
City of Moulton	$ 263,295
City of Shiner	$ 272,693

Attachment 4 - LBAP and LIP MOD Data Sources

For more information please contact Michael Ada at michaela@gcrpc.org or call at 361-578-1587 ext. 204

Attachment 2 – LBAP MOD Detail

The GCRPC Local Buyout and Acquisition Program (LBAP) Method of Distribution (MOD) allocates available funding in a manner similar to the methodology utilized by the GLO to distribute HUD CDBG-DR funding to regions throughout the affected area.

I. 80% Local Buyout/Acquisition Program Allocation Group Required by HUD in the Federal Register of February 9, 2018, and the GLO in the Draft State Action Plan (SAP).

a. Unmet Need

Unmet need was calculated for each geography (county, city, or ZIP code) using HUD defined damage severity categories and FEMA data on the number of housing units experiencing damage in each of the three damage severity categories, cross classified by county, and cross classified by renter versus homeowner.

i. Homeowner Unmet Need

The HUD method provided the following unmet need multiplier for homeowners in each of the three severity categories:

- Major-Low Damage Severity - $58,956,
- Major-High Damage Severity - $72,961, and
- Severe Damage category - $102,046.

Assuming "Severe" damage corresponded to approximately 100% damage, this allowed translation of the unmet need multipliers in each damage severity category into a Damage to Structure Value (DTSV) percentage estimate for residential units within each category. This helps the distribution methodology account for differing median home values across impacted areas.

The DTSV percentage, or unmet need, was determined for each of the three severity categories in the following manner:

- Major-Low Damage Severity - $58,956/$102,046 = 57.8%.
- Major-High Damage Severity - $72,961/$102,046 = 71.5%.
- Severe Damage $102,046/$102,046 = 100%

These DTSV percentage estimates were then applied to the median price of housing in each county, city, or ZIP code, and multiplied by the count of damaged homeowner occupied properties in each damage severity category to obtain a dollar estimate of unmet needs for homeowners in each county, city, and ZIP code per damage severity category. These are then summed to arrive at estimated total dollars of unmet needs for homeowners in the county, city, or ZIP code.

ii. Renter Unmet Need

A similar procedure was used for renters. The HUD method provides damage category thresholds for renters based on the renter's FEMA Verified Loss (FVL). FVL is based on a renter's personal property loss. The HUD method does not, however, specify a multiplier for the damage severity categories for renters. Thus, the DTSV percentage estimates used for homeowners were also applied to renter damage severity categories (57.8% for the Major-Low Damage Severity category, 71.5% for the Major-High Damage Severity category, and 100% for the Severe Damage category). For renters, in contrast to using the median value of a damaged home as the basis of the calculation, the construction cost of providing an 861 square feet rental unit with a footprint of 24'×35' was utilized. This construction cost has a nationwide range of $64,575 to $86,100 per unit. The midpoint of $75,337.50 was used to represent the value of a total loss for a rental unit and the percentage in each severity category was applied to this value. The percentage multiplied by the rental unit construction cost values were then multiplied by the count of renters in the severity category to obtain an unmet need value for renters in each of the severity categories. Summing over severity categories yielded an estimate of unmet need to renters in the county, city, or ZIP code. The sum of unmet needs for homeowners and renters represents the total unmet need value for a county, city, or ZIP code.

b. Resiliency

A 15% resiliency factor on unmet needs was added to all counties, cities, ZIP code, and eligible entity entries. The resiliency factor represents enhancements, improvements, or other components integrated into a structure to increase its capacity to respond to, or recover from, a disaster more quickly than if these components had not been integrated.

c. Damage Data – County-ZIP Code Overlap

For counties in the 80% allocation group containing an overlapping county and ZIP code where the county is designated as highly impacted in the Federal Register, 1) ZIP code level data were split into ZIP code-county pairs and 2) the unmet need + (plus) resiliency for the county was combined with the ZIP code county pair data for that county to obtain a single combined entity for the county.

d. Social Vulnerability

Both HUD and the GLO recommended the use of a social vulnerability factor in determining the distribution of CDBG-DR funding. Thus, GCRPC has utilized the same Social Vulnerability Index data utilized by the GLO in its distribution of HUD CDBG-DR funds to the Hurricane Harvey impacted regions in Texas. The raw Social Vulnerability Index indices utilized by the GLO in its distribution of HUD funds to the 49 Hurricane Harvey impacted counties were obtained from Dr. Christopher Emrich at the University of Central Florida, a leading expert in the development of the Social Vulnerability Index (SoVI). Dr. Emrich is the Boardman Endowed Associate Professor of Environmental Science and Public Administration and a member of the National Center for Integrated Coastal Research at the University of Central Florida. Dr. Emrich completed the SoVI computations and supplied the SoVI scores for all of the 49 declared disaster counties to the GLO.

The Social Vulnerability Index (SoVI), was created by Cutter et al. (Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2003). "Social vulnerability to environmental hazards," Social Science Quarterly, 84(2), 242–261). The idea behind social vulnerability, and its relevance in the context of the distribution methodology presented here, is that social vulnerability arises from certain geographically identifiable population groups who have limited access to political power and resources; have certain physical limitations; or are bound by customs, social capital, beliefs, and characteristics of the built environment (such as density and infrastructure type, building age and stock, etc.). The idea of social vulnerability is that it makes the socially vulnerable people (here, counties, cities, or ZIP codes) more susceptible and less resilient to catastrophic events. Vulnerable groups are less likely to have the ability to respond and recover from catastrophic events on their own. The index is useful to quantify, describe, and understand the social burdens of risks, such as catastrophic natural disasters.

The mathematical development of the original SoVI began by identifying social characteristics consistently seen, in research literature, as contributing to social vulnerability. A literature review process was used by the inventors of SoVI to distill the universe of possible vulnerability measures down to a subset of variables including, wealth, proportion of elderly residents in a county, race, social status variables, Hispanic ethnicity, percent of residents without health insurance, persons with special needs, service industry employment, Native American population, and gender, etc. These variables are entered into a statistical principal component factor analysis resulting in 11 components that explains 76.4% of the variance in social vulnerability relative to the original data set. The resultant SoVI index for a county is a linear combination of the factors derived. The latest SoVI index now uses 29 variables and synthesizes socioeconomic variables obtained from data sources primarily from the United States Census Bureau. A more extensive discussion and presentation of SoVI is given at http://artsandsciences.sc.edu/geog/hvri/sovi%C2%AE-0.

For purposes of these analyses, a SoVI scale was needed to compare social vulnerability across affected eligible entities in the GCRPC region (7 Counties). The SoVI scale utilized for this distribution methodology is a duplicate of the scale used by the GLO. The GLO's SoVI analysis utilized 48 impacted counties since Harris County was identified for individual funding separately from these analyses.

For the purpose of utilizing the SoVI score as a part of the allocation process, an adjustment of the raw SoVI was needed to produce a positive value. This was accomplished for each eligible entity by subtracting the minimum raw SoVI value among all counties in the region from the particular county SoVI value, and then adding one to the result. This makes all SoVI values greater than or equal to one.

e. Unmet Need Per Capita

An Unmet Need Per Capita factor was calculated to help represent the ability of a county, city, or ZIP code, population to sustain and/or recover from the disaster by raising or utilizing their own funds. This factor also helps account for differences in population between rural and urban areas. For each county, city, or ZIP code the unmet need per capita was calculated by dividing unmet need + (plus) resiliency by the population size.

f. Distribution of Funds

The allocation of funds to eligible entities involved a weighted combination of 1) the unmet needs per county (or ZIP code), 2) the positive SoVI, and 3) the per capita unmet need for each county (or ZIP code). To facilitate this, a separate distribution percentage was determined for each of these three factors providing the distribution percentages that would be applicable (were this factor the only factor in consideration). These factor distributions in turn were subsequently combined to present a single percentage allocation distribution across all entities. The distributions for the 80% allocation and the 20% allocations were determined separately with the 80% group and the 20% group delineated by the Federal Register and the GLO's Draft State Action Plan. Thus, for the 80% allocation group the distribution percentage based on unmet need plus resiliency was calculated for each eligible entity by taking the county or ZIP code's unmet need plus resiliency score and dividing it by the sum of the unmet need plus resiliency scores over all eligible entities in the 80% allocation group.

Similarly, for the SoVI based distribution percentage of 1+(Raw SoVI – Min (Raw SoVI)), the 1+(Raw SoVI -Min (Raw SoVI)) value for the county was divided by the sum of the 1+(Raw SoVI -Min (Raw SoVI)) scores over all counties in the 80% allocation group which gives the distribution percentage for the positive SoVI scores. Likewise, for the distribution percentage based on unmet needs per capita, the county or ZIP code per capita unmet need plus resiliency for a county or ZIP code was divided by the sum of the unmet need per capita value across all counties and ZIP codes in the 80% allocation group. An analogous process was used for the 20% allocation group of counties only. This methodology determines the percent allocation to each eligible entity that would ensue (were that factor to be the only factor in consideration). That is, the first unmet need factor, determines the percentage allocation distribution that would apply if unmet need were the only factor; the SoVI factor presents the percentage allocation distribution that would apply if social vulnerability of the distressed population were the only factor, etc.

These factor considerations are not viewed in isolation as the three need to be combined to produce a single number. Combining the unmet needs plus resiliency distribution, and the positive SoVI distribution, and the unmet need plus resiliency per capita distribution was achieved by using a 50-40-10 model that takes a weighted combination of the three distributions with 50% weight given to the unmet needs plus resiliency percentage distribution, 40% weight to the positive SoVI distribution, and 10% weight to the per capita unmet need plus resiliency distribution. This 50-40-10 weighting determines a funding allocation percentage for each county by using the Unmet need for the county or city, the SoVI index for the county, and the per capita unmet need for the county/city. A weighting of the three components: Unmet need, SoVI, and Per capita unmet need via the final percentage contribution weighting for each factor of 50%-40%-10% was used in previous disaster relief efforts. The dollar allocation amounts obtained using the 50-40-10 model without imposing any constraints on the amount of funding were calculated using the percentage distribution values for the county or ZIP code to the total dollar amount to be allocated (80% of the available funds in the 80% group and 20% of the funds in the 20% group).

A shortfall column displays the unmet need plus resiliency factor for a county or ZIP code versus the amount they would receive using the unconstrained 50-40-10 model dollar allocation. This

column presents how much under or over their unmet need the county or ZIP codes is by using the unconstrained 50-40-10 weighting allocation process.

The GLO's State Action Plan dictates that there be a minimum allocation amount for eligible entities since it is costly to apply for funding and to create the policies, administrative procedures, and personnel to implement the processing and distribution of the HUD funds. This minimum allocation amount was set at $1,000,000 and applied to all allocation decisions in the Local Buyout and Acquisition Program spreadsheet for both the 80% allocation and 20% allocation groups.

Over-allocating funds to a county far beyond their unmet needs is not reasonable, especially if other counties have not yet received their unmet need. Accordingly, a maximum allocation amount constraint is imposed with a cap being set at 100% of the unmet need plus resiliency amount for the funding of counties. These two numbers (cap and floor) provide constraints on the funding an eligible entity can receive in a given allocation. If an eligible entity reached its maximum allocation, then any funds ascribed to them by the 50-40-10 rule, above and beyond their maximum, were available for reallocation and distribution to other counties or ZIP codes not having reached their maximum.

This reallocation process will be performed in a sequential process of future CDBG-DR allocations.

As the spreadsheet shows, all eligible entities in the 80% allocation group did not reach their maximum in the first allocation.

Regarding the future CDBG-DR funding distribution process, as was done for the first distribution, an allocative percentage distribution had to be developed to apply to the amount available for distribution in order to direct the fund allocation. Here, however, zero percent additional allocation was given to those entities (counties or ZIP codes) that had already obtained their maximum allocation according to the formula. To achieve additional future allocations, the original 50-40-10 distribution probabilities for the counties that had not yet reached their maximum were renormalized to create an allocative percentage distribution for future funding. This was done by dividing the original percentages by the sum of the percentages of the areas remaining below their cap, with the goal of allocating 100% of unmet need in future funding allocations if possible.

g. Overlap – Avoiding Double Allocation

Since funding was required to be allocated amongst counties, cities, a ZIP code, and other entities with eminent domain authority; and because overlap exists between an 80% allocation county or a 20% allocation county, care had to be taken to avoid the structural issue of double allocation (double counting) due to overlap. Any overlap had to be subtracted out from the county to avoid over counting.

This process involved using the actual ZIP Code specific damage data and breaking the data into ZIP code/county pairs. The county population total was also adjusted to remove any population of the county that had already been counted in the ZIP code population. This process eliminated double counting when there was overlap in county, city, and ZIP data. This process was used for

all overlaps. The same process was used to remove the effect of overlap of ZIP code allocation and county allocation in the 20% impacted allocation subgroup.

20% Local Buyout/Acquisition Program Allocation Group Required by HUD in the Federal Register of February 9, 2018, and the GLO in the Draft SAP.

The process for the 20% State Homeowner Assistance Program and Local Buyout/Acquisition Program allocation counties was the same as described for the 80% allocation to eligible entities. Namely a minimum allocation amount was first determined and then any residual funds were allocated in future allocations with maximum allocations imposed at each additional allocation. The minimum allocation amount for the 20% Local Buyout/Acquisition required a reasonable determination for that group separately as there was not enough money available to give all 62 entities a minimum of $1,000,000. This was accomplished by using a buildup approach that intends to incorporate 1) necessary administration costs for a buyout, 2) unmet needs for impacted entities, and 3) the likely buyout percentage of houses in impacted entity areas for the 20% Local Buyout/Acquisition group.

Under the GLO's Draft SAP, known administrative costs are the sum of estimated program (2%) and project (10%) administrative costs equaling 12% of the money in a buyout grant award (total grant award). This is the basis for the $1,000,000 minimum distribution to each eligible entity. The county with the largest unmet need in this group is Calhoun County with $3,686,209 of unmet need. Calhoun County also has the largest number of damaged residences (55 total) and the largest total number of properties in the Major-High and Severe Damage categories (19 total).

The distribution methodology for the 20% Allocation group allocated amounts below the minimum required allocation to eligible entities ($1,000,000 per entity) due to the high number of eligible entities (Total of 62 eligible entities) and the amount of funds allocated to GCRPC for the Local Buyout and Acquisition Program ($9,824,070). The GCRPC region would require a minimum funding allocation of $62,000,000 for the Local Buyout and Acquisition Program alone in order to meet the GLO's minimum funding requirements.

Additional allocation restrictions required consideration as a result of the minimum required allocation and the number of eligible entities. By limiting the regional allocation, for the 20% Allocation group, to only eligible counties, and providing for the continued LBAP eligibility of cities and eminent domain authority entities through partnerships with eligible counties, an allocation that adheres to HUD and GLO requirements was achieved.

Attachment 3 – LIP MOD Detail

The GCRPC Local Infrastructure Program (LIP) Method of Distribution (MOD) allocates available funding in a manner similar to the methodology utilized by the GLO to distribute HUD CDBG-DR funding to regions throughout the affected area.

I. LIP MOD for the 80/20% LIP Allocation Groups as Required by HUD in the Federal Register of February 9, 2018, and the GLO in the Draft State Action Plan (SAP).

a. Public Assistance

A Public Assistance factor was generated in order to provide each entity with a minimum funding requirement to address potential local infrastructure projects. This factor is represented by the sum of all Public Assistance requests for an eligible entity.

b. Unmet Need

Unmet need was calculated using a 10% matching requirement of total project costs. The matching requirement percentage is based on the 90/10 cost sharing requirement for FEMA Public Assistance Funding.

c. Resiliency

A resiliency factor was calculated as 15% of total project costs. The resiliency factor represents the enhancements, improvements, or other components integrated into a structure to increase its capacity to respond to, or recover from, a disaster more quickly that if these components had not been integrated.

d. Social Vulnerability

Both HUD and the GLO recommended the use of a social vulnerability factor in determining the distribution of CDBG-DR funding. Thus, GCRPC has utilized the same Social Vulnerability Index data utilized by the GLO in its distribution of HUD CDBG-DR funds to the Hurricane Harvey impacted regions in Texas. The raw Social Vulnerability Index indices utilized by the GLO in its distribution of HUD funds to the 49 Hurricane Harvey impacted counties were obtained from Dr. Christopher Emrich at the University of Central Florida, a leading expert in the development of the Social Vulnerability Index (SoVI). Dr. Emrich is the Boardman Endowed Associate Professor of Environmental Science and Public Administration and a member of the National Center for Integrated Coastal Research at the University of Central Florida. Dr. Emrich completed the SoVI computations and supplied the SoVI scores for all of the 49 declared disaster counties to the GLO.

The Social Vulnerability Index (SoVI), was created by Cutter et al. (Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2003). “Social vulnerability to environmental hazards,” Social Science Quarterly, 84(2), 242–261). The idea behind social vulnerability, and its relevance in the context of the distribution methodology presented here, is that social vulnerability arises from certain geographically identifiable population groups who have limited access to political power and resources; have certain physical limitations; or are bound by customs, social capital, beliefs, and

characteristics of the built environment (such as density and infrastructure type, building age and stock, etc.). The idea of social vulnerability is that it makes the socially vulnerable people (here, counties, cities, or ZIP codes) more susceptible and less resilient to catastrophic events. Vulnerable groups are less likely to have the ability to respond and recover from catastrophic events on their own. The index is useful to quantify, describe, and understand the social burdens of risks, such as catastrophic natural disasters.

The mathematical development of the original SoVI began by identifying social characteristics consistently seen, in research literature, as contributing to social vulnerability. A literature review process was used by the inventors of SoVI to distill the universe of possible vulnerability measures down to a subset of variables including, wealth, proportion of elderly residents in a county, race, social status variables, Hispanic ethnicity, percent of residents without health insurance, persons with special needs, service industry employment, Native American population, and gender, etc.. These variables are entered into a statistical principal component factor analysis resulting in 11 components that explains 76.4% of the variance in social vulnerability relative to the original data set. The resultant SoVI index for a county is a linear combination of the factors derived. The latest SoVI index now uses 29 variables and synthesizes socioeconomic variables obtained from data sources primarily from the United States Census Bureau. A more extensive discussion and presentation of SoVI is given at http://artsandsciences.sc.edu/geog/hvri/sovi%C2%AE-0.

For purposes of these analyses, a SoVI scale was needed to compare social vulnerability across affected eligible entities in the GCRPC region (7 Counties). The SoVI scale utilized for this distribution methodology is a duplicate of the scale used by the GLO. The GLO's SoVI analysis utilized 48 impacted counties since Harris County was identified for individual funding separately from these analyses.

For the purpose of utilizing the SoVI score as a part of the allocation process, an adjustment of the raw SoVI was needed to produce a positive value. This was accomplished for each eligible entity by subtracting the minimum raw SoVI value among all counties in the region from the particular county SoVI value, and then adding one to the result. This makes all SoVI values greater than or equal to one.

e. Unmet Need Per Capita

An Unmet Need Per Capita factor was calculated to help represent the ability of a county or city population to sustain and/or recover from the disaster by raising or utilizing their own funds. This factor also helps account for differences in population between rural and urban areas. For each county or city, the unmet need per capita was calculated by dividing the unmet need amount (plus resiliency factor) developed by severity level by the population size.

f. Distribution of Funds

The allocation of funds involved a weighted combination of 1) the unmet needs per county or city, 2) the positive SoVI, and 3) the per capita unmet need for each county. To facilitate this a separate distribution percentage was determined for each of these three factors which were subsequently combined for a single distribution percentage across all eligible counties/cities.

The initial distributions for the 80% allocation (HUD Most Impacted Counties) and the 20% allocations (Impacted Counties and Most Impacted ZIP Codes were determined through the guidance provided by the Federal Register and the GLO SAP. Thus, for the 80% allocation group the distribution percentage based on unmet need plus resiliency was calculated for each entity by taking 1) the county unmet need plus (+) resiliency and dividing (/) it by 2) the sum of the unmet need plus resiliency over all eligible entities in the 80% allocation group. Similarly, for the SoVI based distribution percentage of 1+(Raw SoVI – Min (Raw SoVI)), the 1) 1+(Raw SoVI - Min(Raw SoVI)) value for the county was divided by 2) the sum of the 1+(Raw SoVI -Min(Raw SoVI)) values over all counties in the 80% allocation group which gives the distribution percentage for the positive SoVI scores. Finally, for the distribution percentage based on unmet needs per capita, the 1) county per capita unmet need plus (+) resiliency for a county was divided (/) by 2) the sum of the unmet need per capita value across all counties in the HUD Impacted Counties/Cities 80% allocation group for Local Infrastructure Program (LIP) funding. An analogous process was used for the HUD Impacted Counties/Cities 20% allocation group for LIP funding.

Integration of these distribution percentages (1. Unmet Needs Plus Resiliency, 2. Positive SoVI, and 3. Per Capita Unmet Need Plus Resiliency) was achieved by using a 50-40-10 model that takes a weighted combination of the three distributions percentages: 50% weight given to Unmet Needs Plus Resiliency, 40% weight to Positive SoVI, and 10% weight to Per Capita Unmet Need Plus Resiliency. This 50-40-10 weighting determines a final distribution percentage for each eligible entity by using the same county data utilized by HUD and the GLO to allocate funding to regions in the affected area.

Minimum allocation amounts, using the 50-40-10 model without imposing any additional constraints on the amount of HUD funding, were obtained by applying the percentage distribution values for each eligible entity to the total dollar amount to be allocated (80% of the available funds in the 80% group (HUD Most Impacted Counties, Cities, and Zip Codes) and 20% of the funds in the 20% group (Impacted Counties and Cities)). A shortfall (or surplus) amount was calculated to represent an entities unmet needs plus resiliency allocation versus the amount they would receive using the unconstrained 50-40-10 model dollar allocation. The GLO SAP requires a minimum allocation amount ($100,000) for eligible entities to assist entities with costs associated to 1) applying for LIP funding, 2) creating LIP policies and procedures, and hiring/maintaining personnel to implement the processing and distribution of allocated LIP funds. In order to avoid over-allocating funds to an eligible entity (beyond their unmet need requirement), a maximum allocation amount constraint was imposed with a cap being set at 100% of the Unmet Needs Plus Resiliency amount for the funding of eligible entities if all eligible entities in the group have not yet received their Unmet Need Plus Resiliency allocation amount. These two numbers (cap and floor) provide constraints on the funding an eligible entity can receive in a given allocation. If an eligible entity reached the higher of the minimum distribution or the maximum allocation, any surplus funds were made available for reallocation and distribution to other eligible entities. This reallocation process was performed in a sequential process of surplus allocations, however, funding allocated to the GCRPC region was inadequate for all eligible entities to receive a minimum distribution of 100% of Unmet Need Plus Resiliency.

Attachment 4 –

LBAP and LIP Data Sources

I. LBAP Data Sources

a. HUD Designated Most Impacted Counties and Zip Codes and Impacted Counties/Cities

Allocations, Common Application, Waivers, and Alternative Requirements for 2017 Disaster Community Development Block Grant Disaster Recovery Grantees, Table 1—Allocations Under Public Law 115-56; 83 Fed. Reg. 28 (February 9, 2018).

b. Eminent Domain Entities

State of Texas, Texas Comptroller of Public Accounts, Texas Comptroller's Online Eminent Domain Database, Report Year – 2018, 06/1/2018[1].

[1] https://coedd.comptroller.texas.gov/

c. Population:

County/City – U.S. Census 2016 Update[2].

Zip Code - populations cross classified by county were obtained from the U.S. Census Bureau, 2010 Decennial Census using total population for county or part within a Texas 5 digit ZIP code tabulation area (ZCTA)[3].

[2]https://www.census.gov/searchresults.html?page=1&stateGeo=&searchtype=web&cssp=&q=texas+counties+population&search.x=0&search.y=0&search=submit

[3] https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t.

d. Median Housing Values:

Median housing values for ***homeowners*** were obtained from the U.S. Census Bureau, State and County Housing Unit Estimates[4].
Housing value for renters was based on construction cost for an 861 square foot rental unit with a footprint of 24'x35'. These construction costs have a nationwide range of $64,575 to $86,100 per unit[5]. The mid-point of $75,337.50 is used in the renter's unmet needs calculation.

[4] https://www.census.gov/quickfacts/fact/table/US/PST045216

[5] https://www.fixr.com/costs/build-apartment

e. Unmet need (Homeowners/Renters):

FEMA verified counts of unmet need were supplied by FEMA Individual Assistance (IA) registrant data as of February 2, 2018. The categorization of damage severity level thresholds used

by FEMA for cross-classifying these unmet need data sets (Major-Low Damage Severity, Major-High Damage Severity, and Severe Damage) utilized segments of HUD's "most impacted method" and related the FEMA Verified Loss (FVL) dollar amounts for each registrant to the HUD severity categories.

f. Social Vulnerability Index Data

Dr. Emrich, Christopher (2017). *Social Vulnerability Indices for 49 Hurricane Harvey Impacted Counties*. Retrieved from the Texas General Land Office.

II. LIP Data Sources

a. HUD Designated Most Impacted Counties and Zip Codes and Impacted Counties/Cities

Allocations, Common Application, Waivers, and Alternative Requirements for 2017 Disaster Community Development Block Grant Disaster Recovery Grantees, Table 1—Allocations Under Public Law 115-56; 83 Fed. Reg. 28 (February 9, 2018).

b. Population:

County/City – U.S. Census 2016 Update[6].

Zip Code - populations cross classified by county were obtained from the U.S. Census Bureau, 2010 Decennial Census using total population for county or part within a Texas 5 digit ZIP code tabulation area (ZCTA)[7].

[6]https://www.census.gov/searchresults.html?page=1&stateGeo=&searchtype=web&cssp=&q=texas+counties+population&search.x=0&search.y=0&search=submit

[7] https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t.

c. Projected Public Assistance (PA) cost

County Level Data Provided by FEMA Public Assistance as of 2/1/2018.

d. Social Vulnerability Index Data

Dr. Emrich, Christopher Emrich (2017). *Social Vulnerability Indices for 49 Hurricane Harvey Impacted Counties*. Retrieved from the Texas General Land Office.