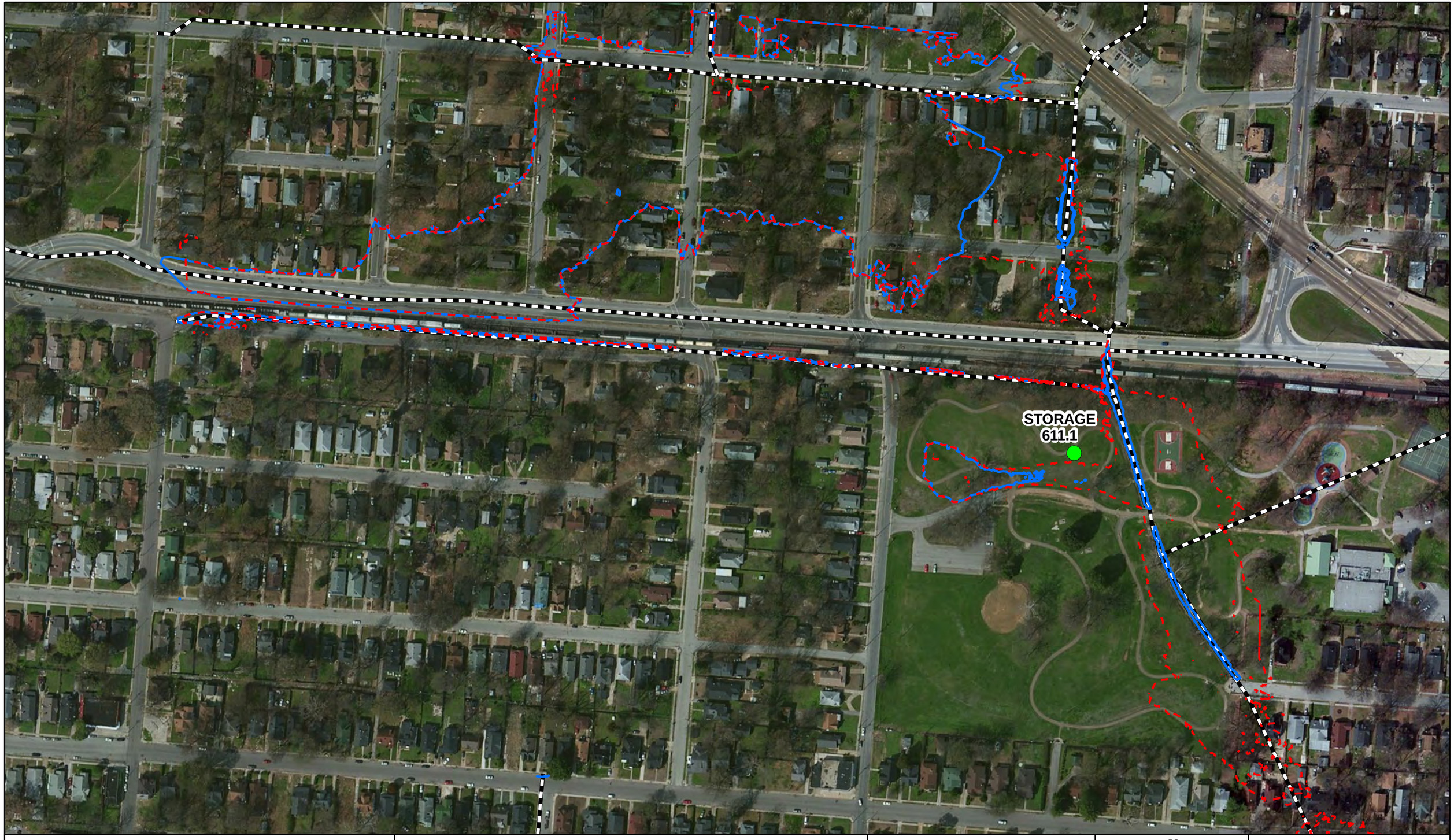

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 4 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 5 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 6 of 35

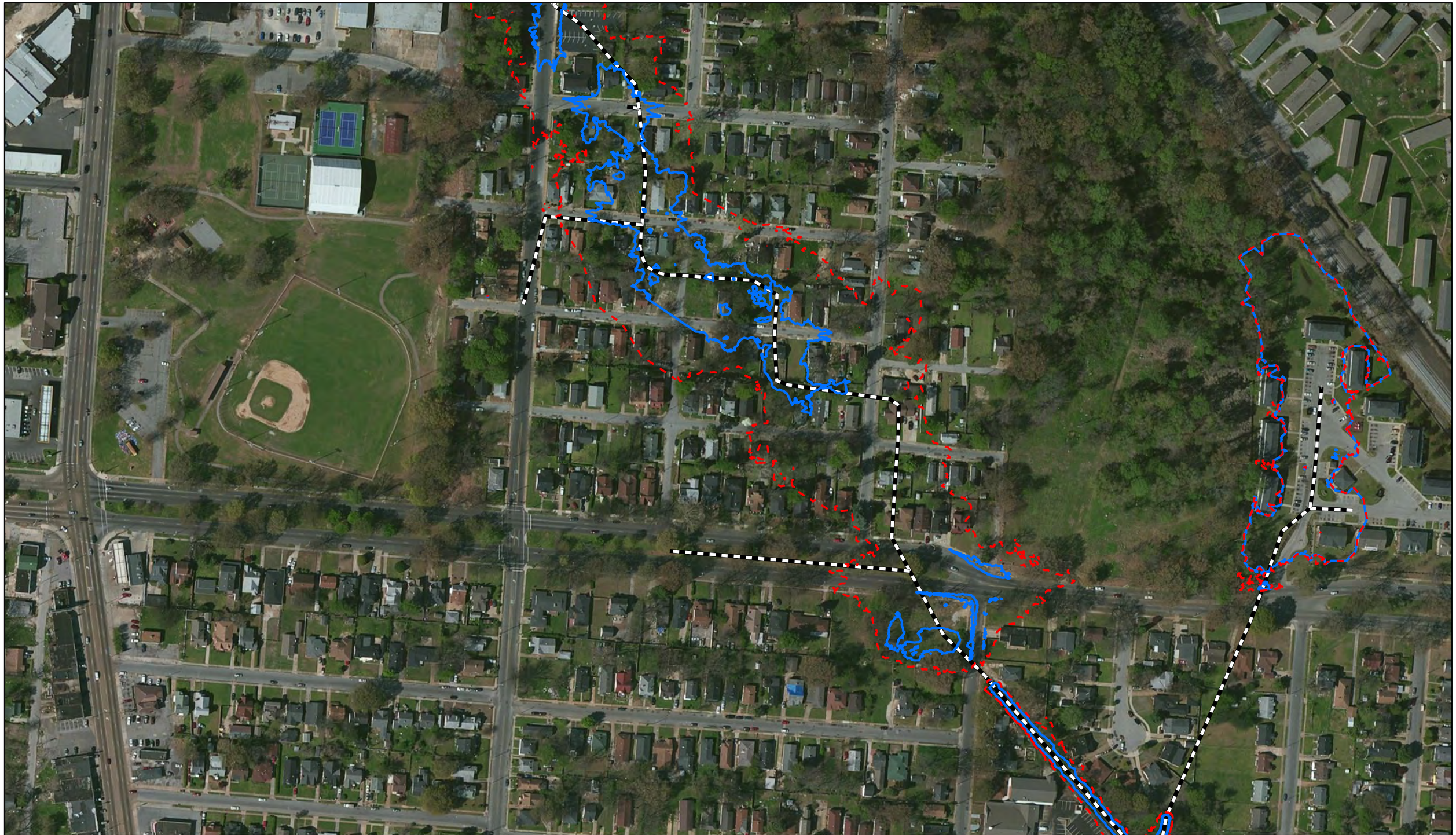

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 7 of 35

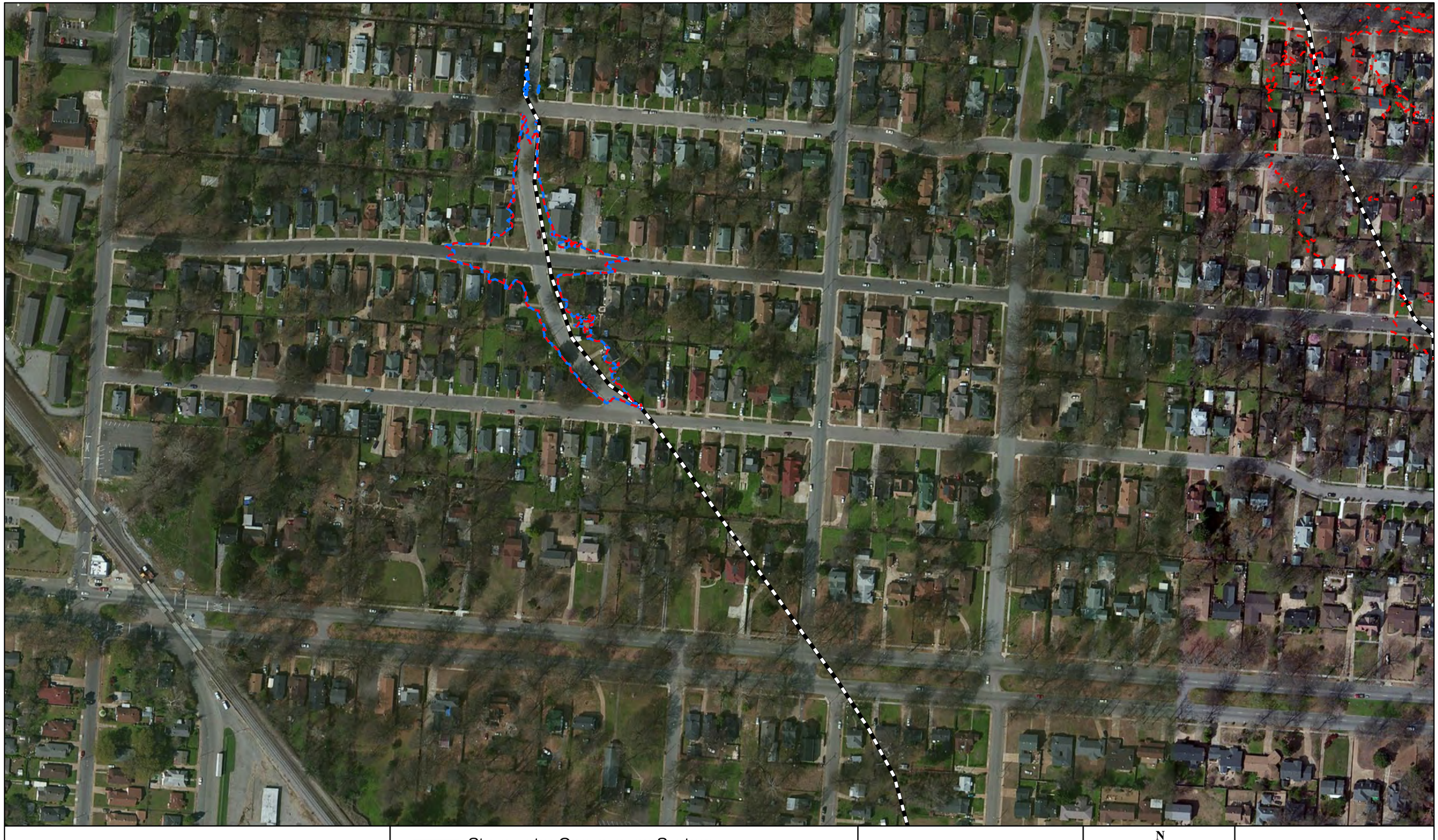

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 8 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 9 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 10 of 35

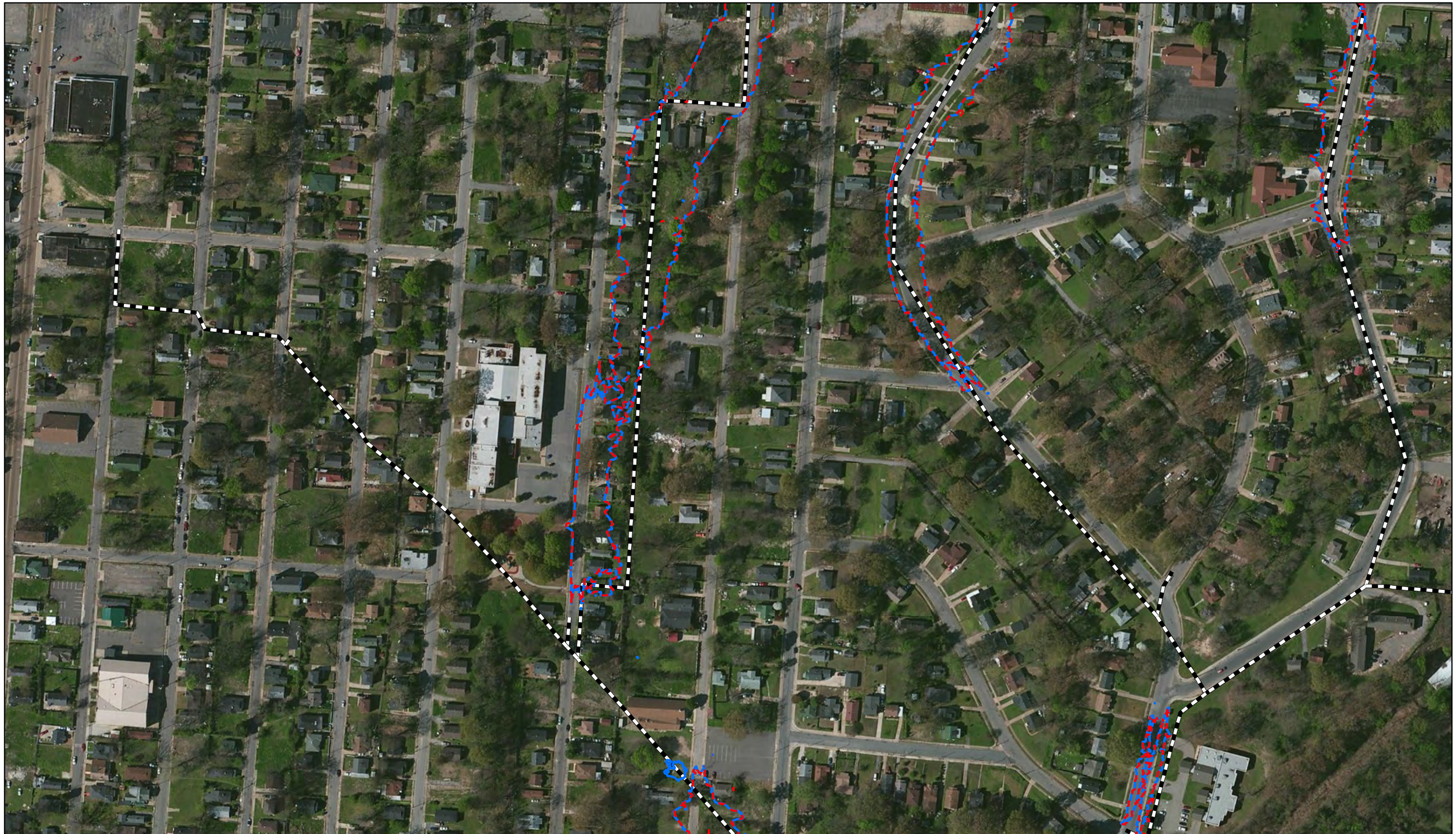

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 11 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 12 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 13 of 35

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Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 14 of 35

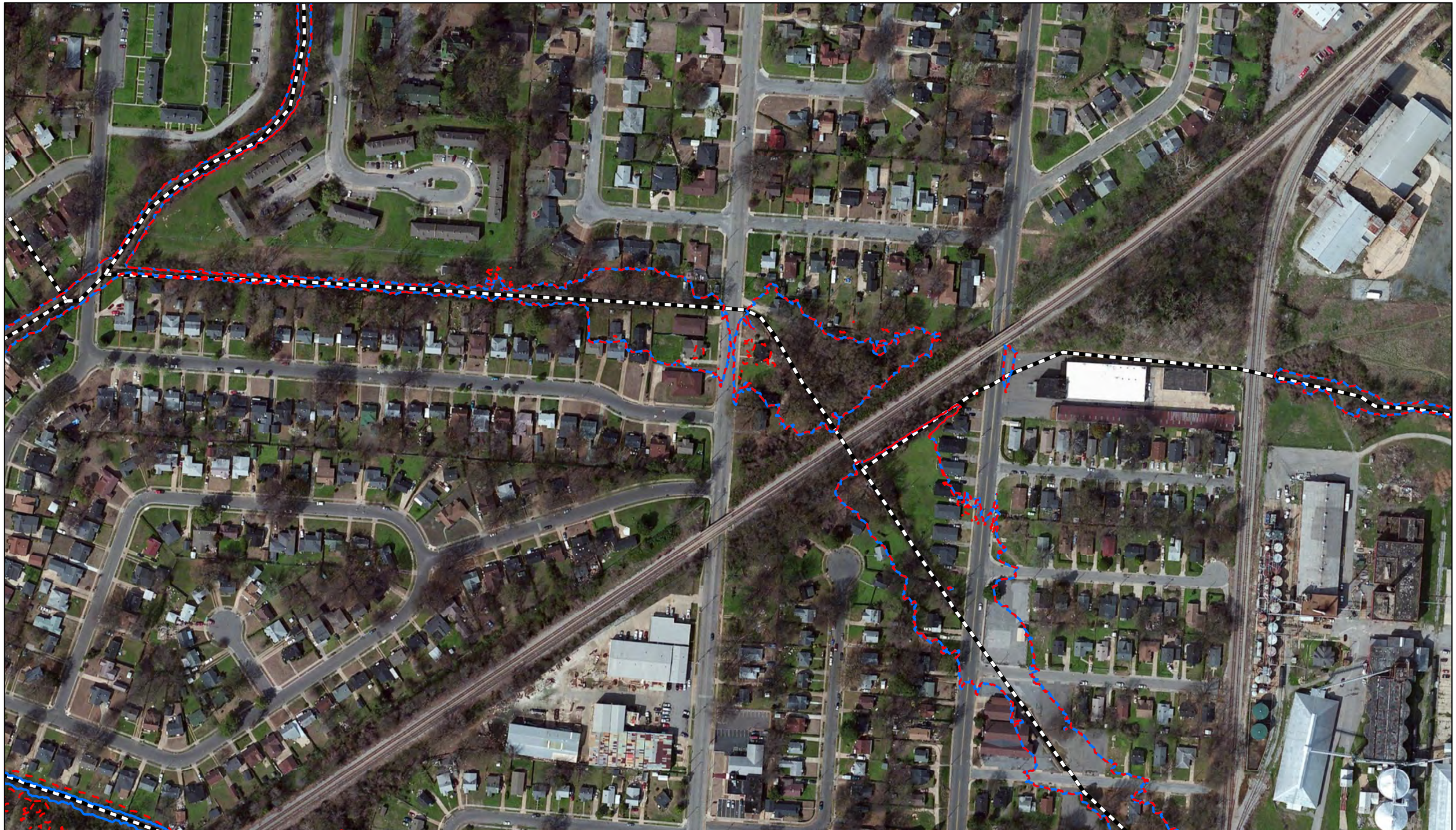

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 15 of 35

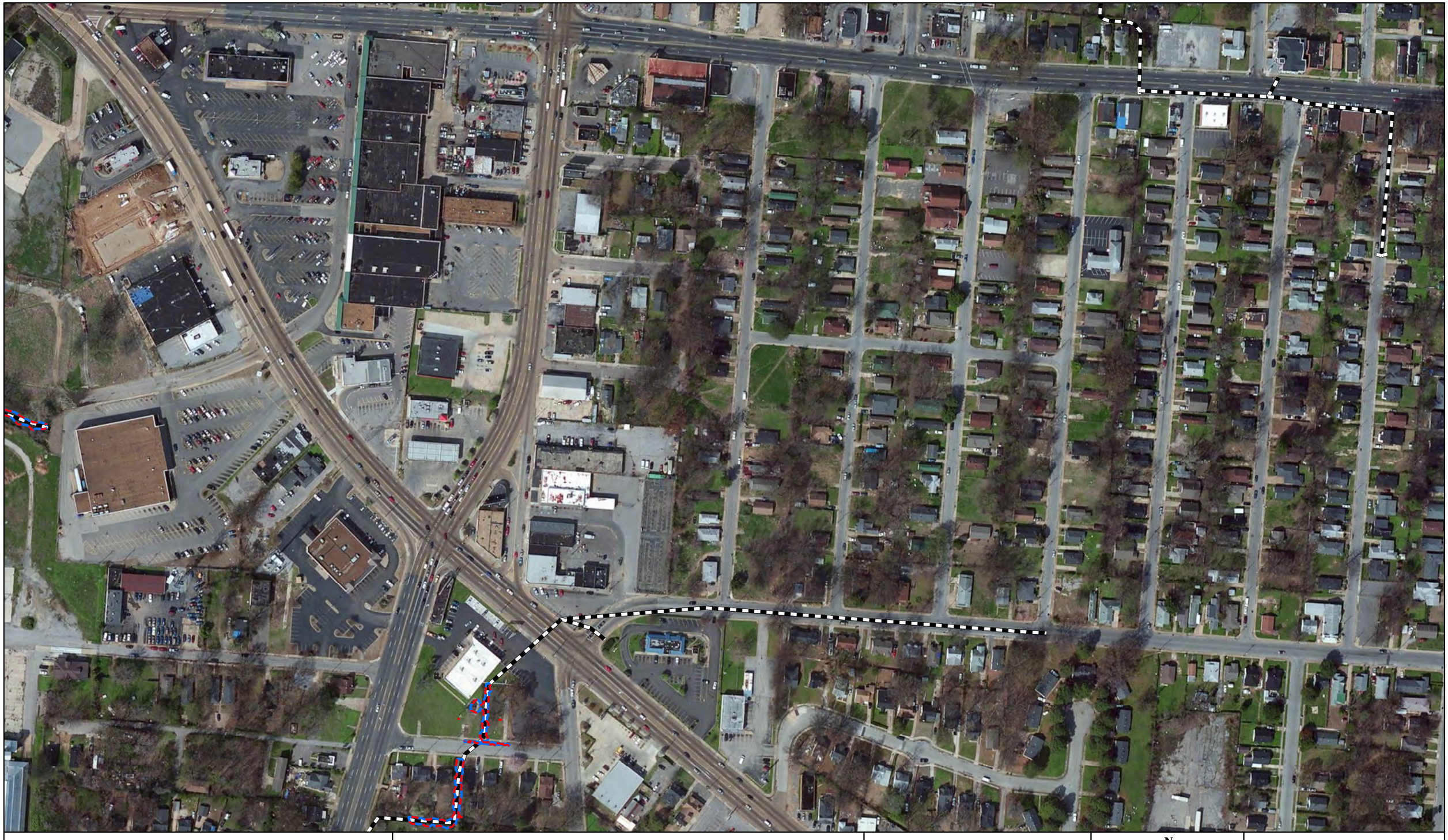

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 16 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 17 of 35

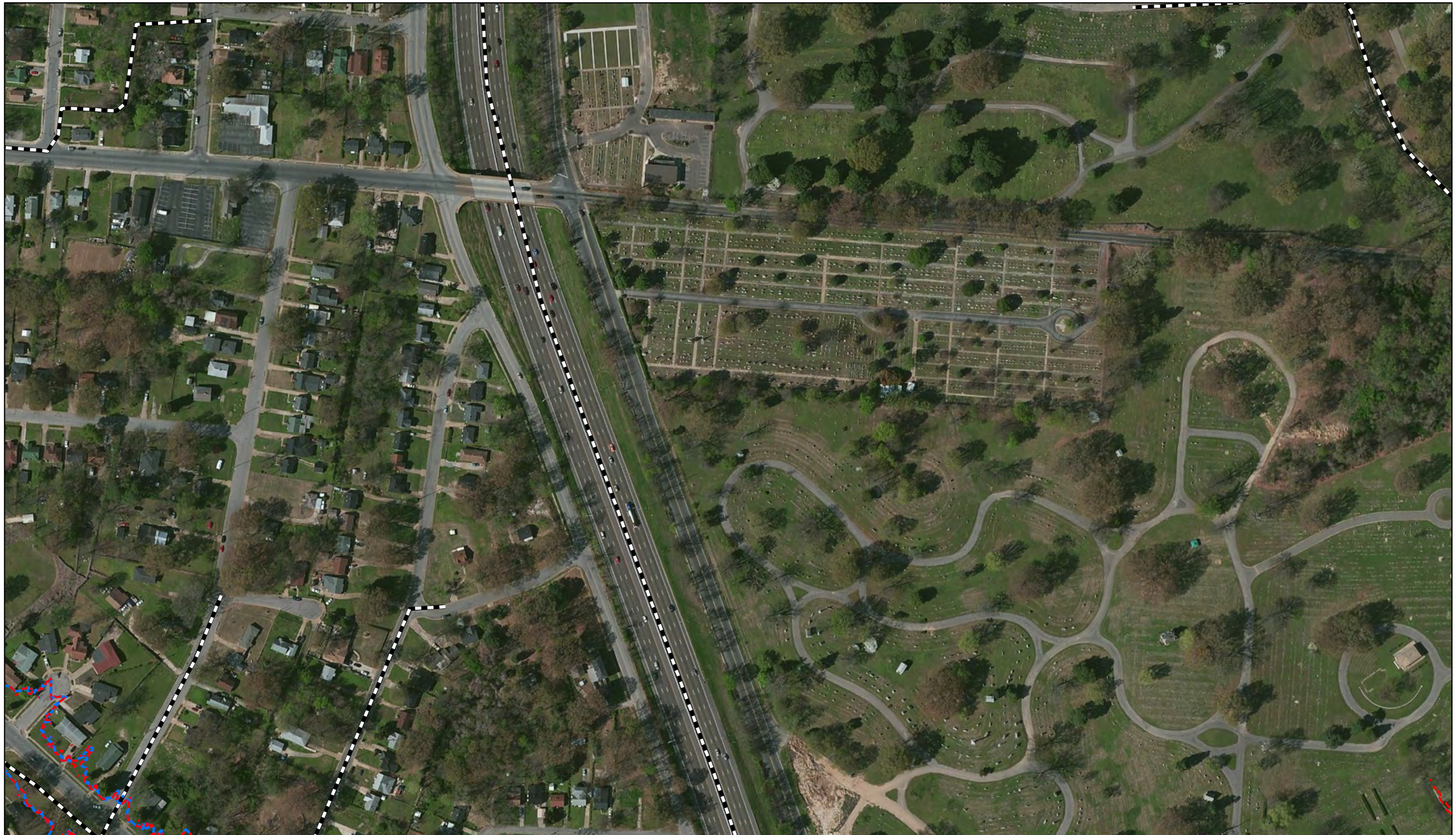

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 18 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 19 of 35

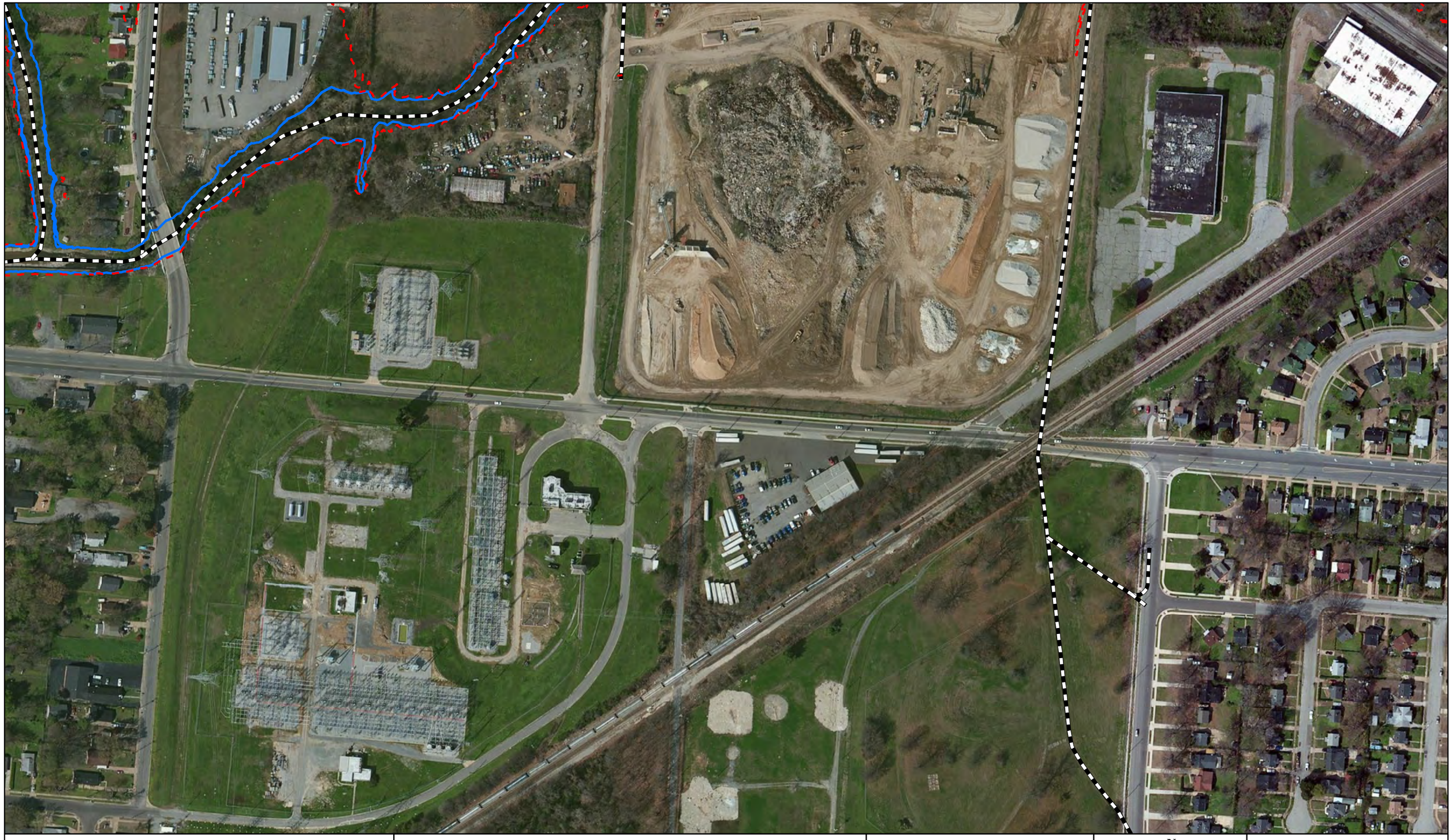

Exhibit-4b:
100 Year Flood Boundaries

- Stormwater Conveyance System
- 100 Year Existing Conditions Flood Boundaries
- 100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 20 of 35

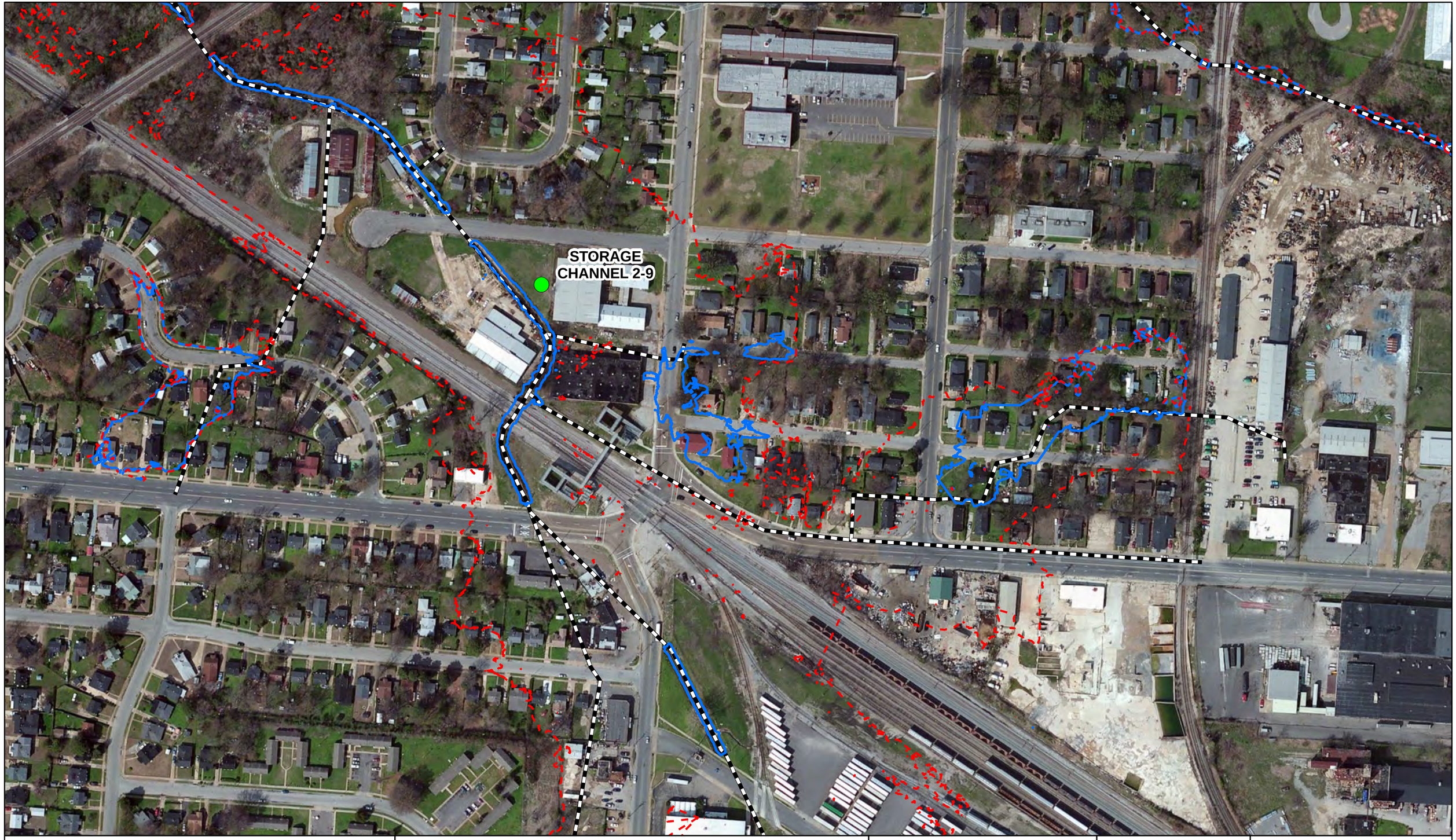

Exhibit-4b:
100 Year Flood Boundaries

- Stormwater Conveyance System
- 100 Year Existing Conditions Flood Boundaries
- 100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 21 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 22 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 23 of 35

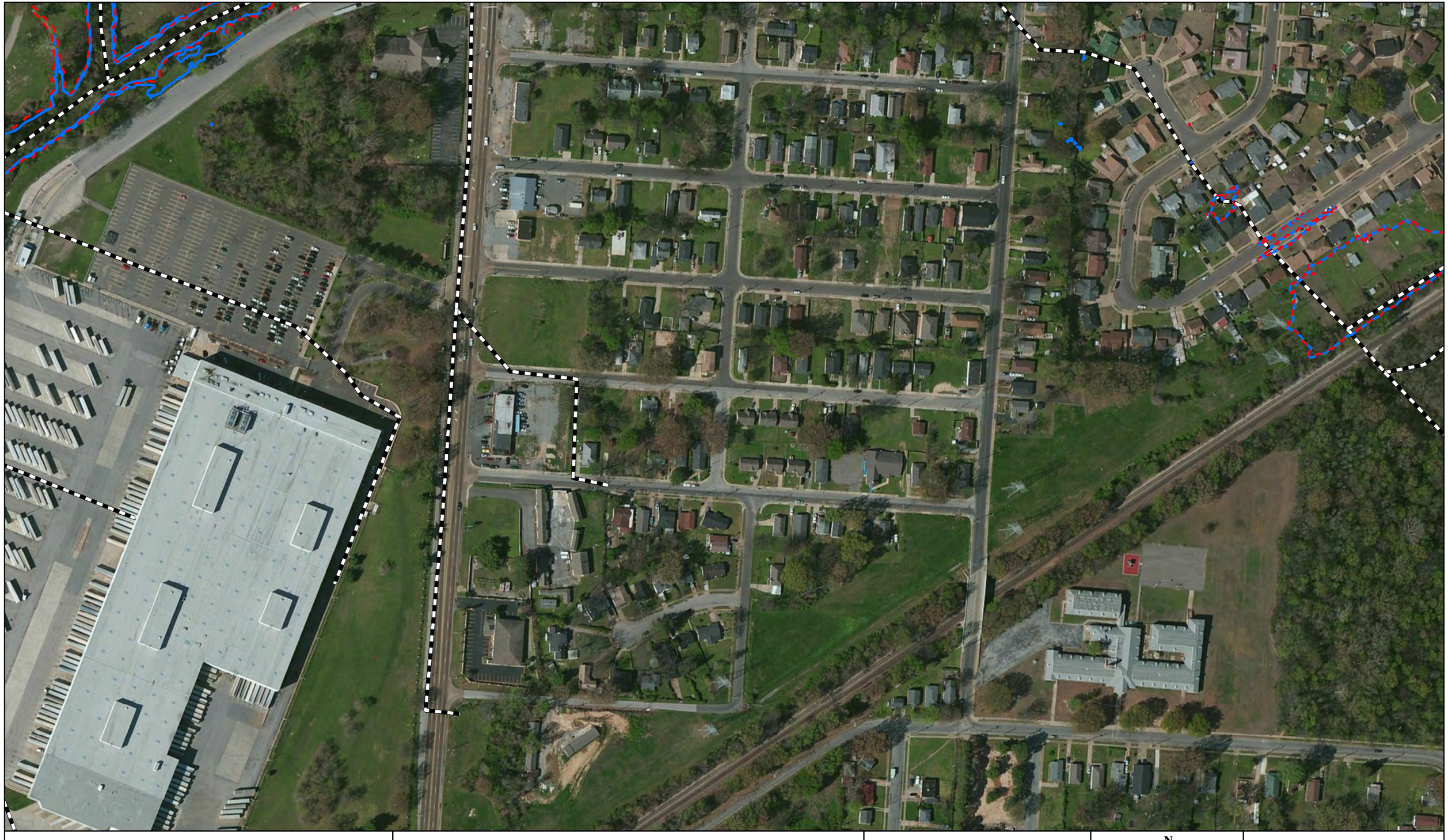

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 24 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 25 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 26 of 35

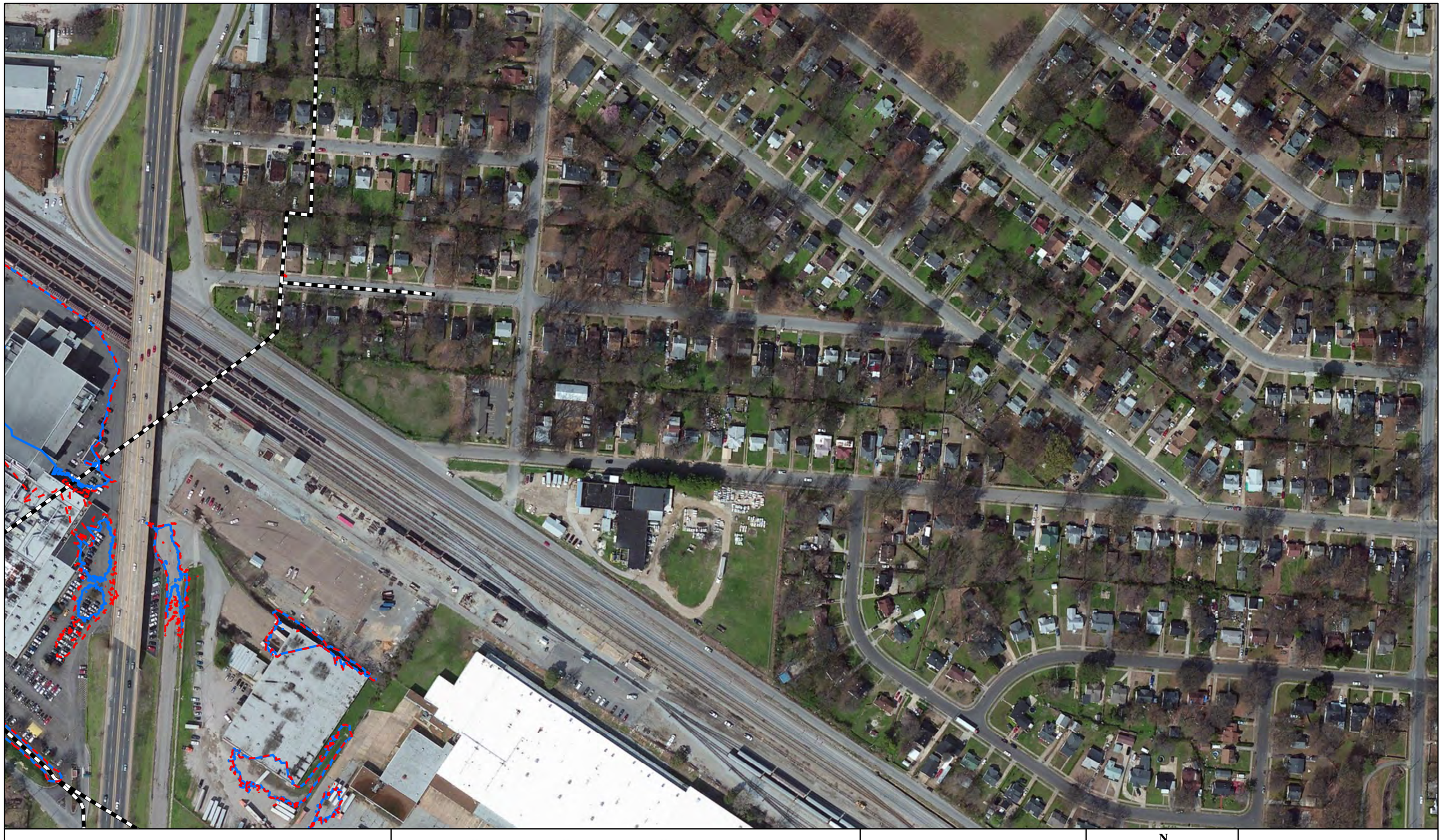

Exhibit-4b:
100 Year Flood Boundaries

- Stormwater Conveyance System
- 100 Year Existing Conditions Flood Boundaries
- 100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 27 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 28 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 29 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 30 of 35

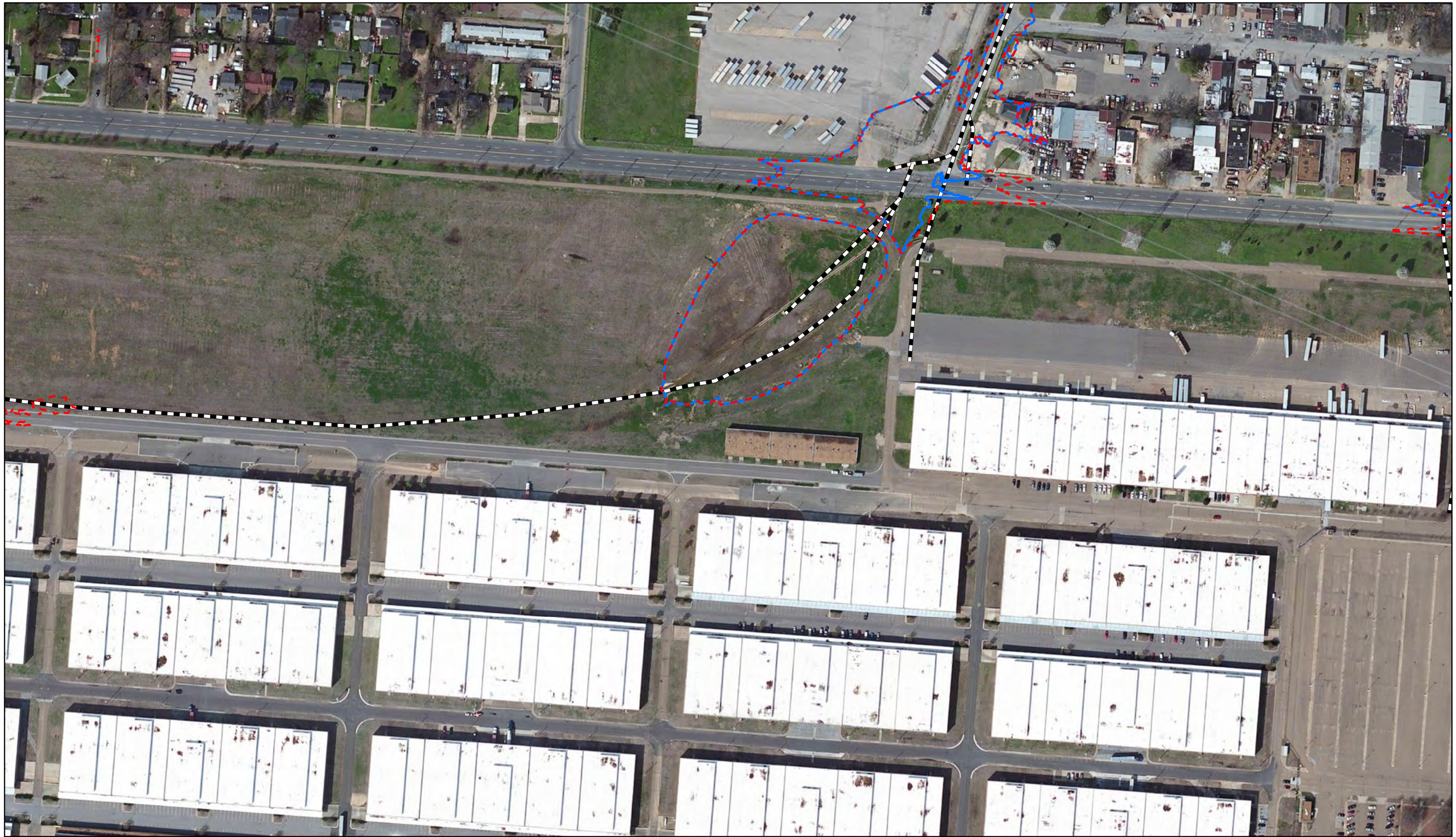

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 31 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 32 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 33 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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Sheet: 34 of 35

Exhibit-4b:
100 Year Flood Boundaries

Stormwater Conveyance System
100 Year Existing Conditions Flood Boundaries
100 Year Flood Boundaries with Detention Ponds

0 100 200 400
Feet

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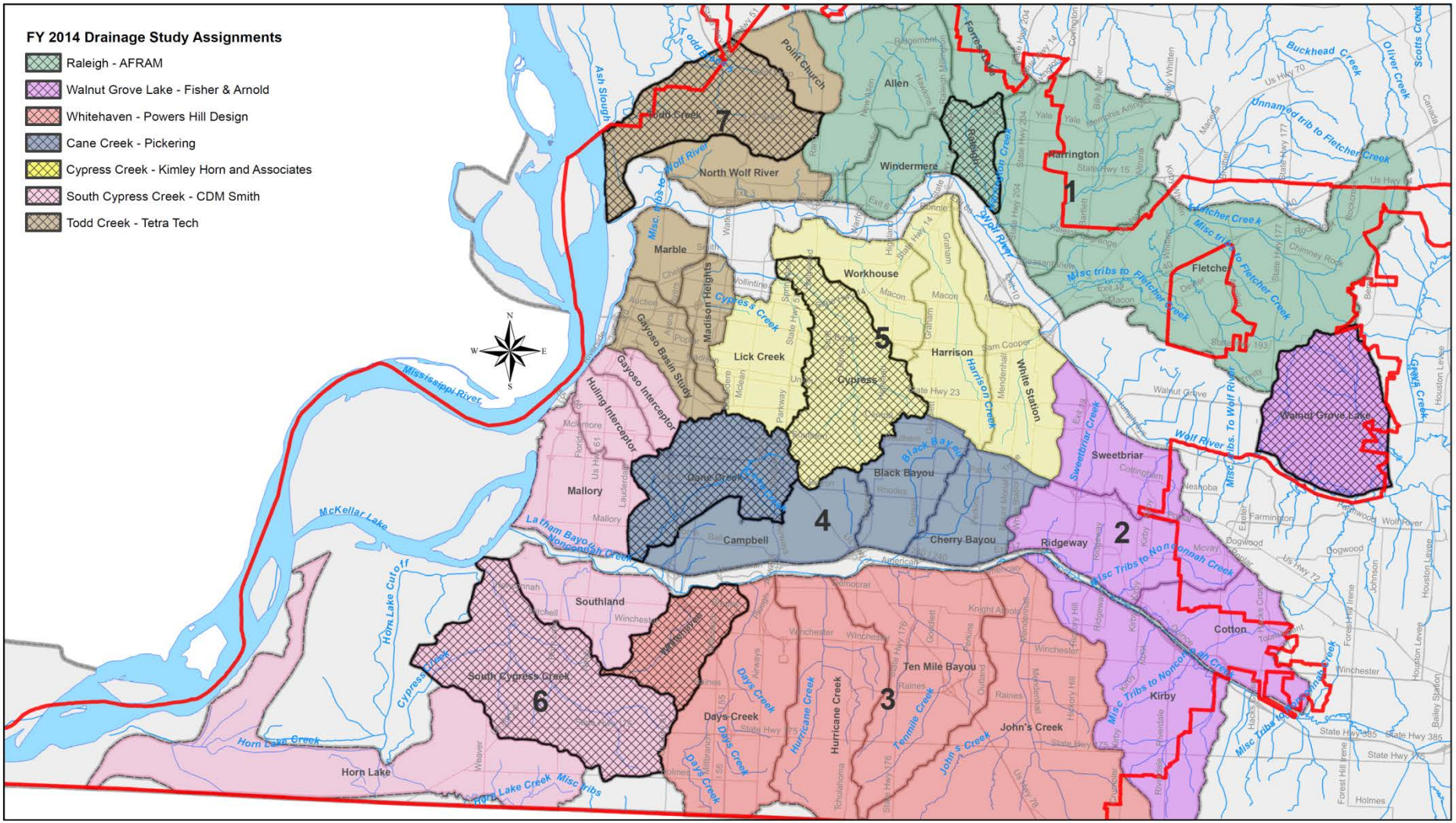
Sheet: 35 of 35

FY2014-FY2015 Stormwater Mapping, Modeling, and Analysis

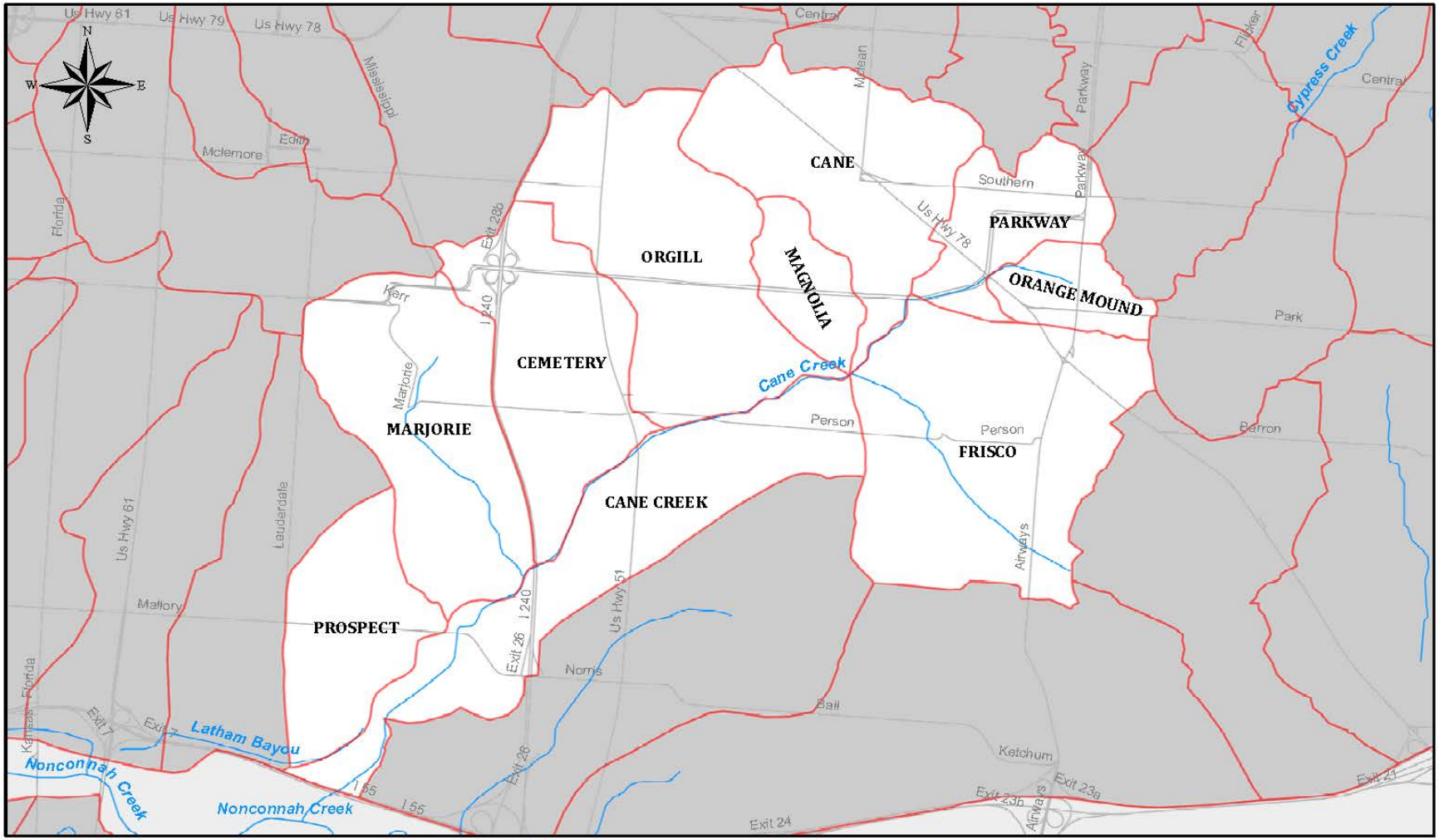
CANE CREEK DRAINAGE BASIN

CITY OF MEMPHIS

DIVISION OF ENGINEERING



FY 2014 / FY 2015 Stormwater Modeling, Mapping, & Analysis
Overall Study District Map



FY 2014 / FY 2015 Stormwater Modeling, Mapping, & Analysis
Cane Creek Study Area

04/23/2014 11:27

04/23/2014 13:53

06/24/2014

04/24/2014

05/05/2014 14:32

05/06/2014 14:08

Cane Creek Study Area

Cane Creek Project

- Key Elements:
  - Mapping/Surveying
  - Modeling
  - Analysis
    - Verify flooding areas
    - Options for fixing problems
    - Estimate costs
  - Report Back to You

WE NEED YOUR HELP

Flooding Information

High Water Marks

Yard Flooding

Stream/Ditch Flooding

Street Flooding

QUESTIONS?

FY2014-FY2015 Stormwater Mapping, Modeling, and Analysis

CANE CREEK DRAINAGE BASIN

CITY OF MEMPHIS

DIVISION OF ENGINEERING

Time Series	Date	Time	Value
24-hr distribution, 15-min interval, intensity (in/hr), 2-yr total = 4.010 in.			
2yr_24hr	1/1/2015	0:00	0.0321
2yr_24hr	1/1/2015	0:15	0.0481
2yr_24hr	1/1/2015	0:30	0.0481
2yr_24hr	1/1/2015	0:45	0.0321
2yr_24hr	1/1/2015	1:00	0.0481
2yr_24hr	1/1/2015	1:15	0.0321
2yr_24hr	1/1/2015	1:30	0.0481
2yr_24hr	1/1/2015	1:45	0.0321
2yr_24hr	1/1/2015	2:00	0.0481
2yr_24hr	1/1/2015	2:15	0.0481
2yr_24hr	1/1/2015	2:30	0.0481
2yr_24hr	1/1/2015	2:45	0.0481
2yr_24hr	1/1/2015	3:00	0.0481
2yr_24hr	1/1/2015	3:15	0.0481
2yr_24hr	1/1/2015	3:30	0.0642
2yr_24hr	1/1/2015	3:45	0.0481
2yr_24hr	1/1/2015	4:00	0.0642
2yr_24hr	1/1/2015	4:15	0.0642
2yr_24hr	1/1/2015	4:30	0.0802
2yr_24hr	1/1/2015	4:45	0.0642
2yr_24hr	1/1/2015	5:00	0.0802
2yr_24hr	1/1/2015	5:15	0.0802
2yr_24hr	1/1/2015	5:30	0.0962
2yr_24hr	1/1/2015	5:45	0.0802
2yr_24hr	1/1/2015	6:00	0.0962
2yr_24hr	1/1/2015	6:15	0.0962
2yr_24hr	1/1/2015	6:30	0.1123
2yr_24hr	1/1/2015	6:45	0.0962
2yr_24hr	1/1/2015	7:00	0.1123
2yr_24hr	1/1/2015	7:15	0.1123
2yr_24hr	1/1/2015	7:30	0.1283
2yr_24hr	1/1/2015	7:45	0.1123
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2yr_24hr	1/1/2015	9:45	0.1764
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2yr_24hr	1/1/2015	10:15	0.1925

Time Series	Date	Time	Value
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2yr_24hr	1/1/2015	10:45	0.2566
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2yr_24hr	1/1/2015	11:15	0.4010
2yr_24hr	1/1/2015	11:30	2.7108
2yr_24hr	1/1/2015	11:45	2.6947
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2yr_24hr	1/1/2015	12:15	0.5935
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2yr_24hr	1/1/2015	12:45	0.3048
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2yr_24hr	1/1/2015	13:15	0.2246
2yr_24hr	1/1/2015	13:30	0.1764
2yr_24hr	1/1/2015	13:45	0.1925
2yr_24hr	1/1/2015	14:00	0.1444
2yr_24hr	1/1/2015	14:15	0.1283
2yr_24hr	1/1/2015	14:30	0.1283
2yr_24hr	1/1/2015	14:45	0.1123
2yr_24hr	1/1/2015	15:00	0.1283
2yr_24hr	1/1/2015	15:15	0.1123
2yr_24hr	1/1/2015	15:30	0.1283
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2yr_24hr	1/1/2015	17:15	0.0642
2yr_24hr	1/1/2015	17:30	0.0642
2yr_24hr	1/1/2015	17:45	0.0802
2yr_24hr	1/1/2015	18:00	0.0802
2yr_24hr	1/1/2015	18:15	0.0642
2yr_24hr	1/1/2015	18:30	0.0642
2yr_24hr	1/1/2015	18:45	0.0802
2yr_24hr	1/1/2015	19:00	0.0802
2yr_24hr	1/1/2015	19:15	0.0642
2yr_24hr	1/1/2015	19:30	0.0642
2yr_24hr	1/1/2015	19:45	0.0802
2yr_24hr	1/1/2015	20:00	0.0481
2yr_24hr	1/1/2015	20:15	0.0481
2yr_24hr	1/1/2015	20:30	0.0481
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2yr_24hr	1/1/2015	21:15	0.0481

Time Series	Date	Time	Value
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2yr_24hr	1/1/2015	21:45	0.0481
2yr_24hr	1/1/2015	22:00	0.0481
2yr_24hr	1/1/2015	22:15	0.0481
2yr_24hr	1/1/2015	22:30	0.0481
2yr_24hr	1/1/2015	22:45	0.0481
2yr_24hr	1/1/2015	23:00	0.0481
2yr_24hr	1/1/2015	23:15	0.0481
2yr_24hr	1/1/2015	23:30	0.0481
2yr_24hr	1/1/2015	23:45	0.0481
24-hr distribution, 15-min interval, intensity (in/hr), 5-yr total = 4.880 in.			
5yr_24hr	1/1/2015	0:00	0.0390
5yr_24hr	1/1/2015	0:15	0.0586
5yr_24hr	1/1/2015	0:30	0.0586
5yr_24hr	1/1/2015	0:45	0.0390
5yr_24hr	1/1/2015	1:00	0.0586
5yr_24hr	1/1/2015	1:15	0.0390
5yr_24hr	1/1/2015	1:30	0.0586
5yr_24hr	1/1/2015	1:45	0.0390
5yr_24hr	1/1/2015	2:00	0.0586
5yr_24hr	1/1/2015	2:15	0.0586
5yr_24hr	1/1/2015	2:30	0.0586
5yr_24hr	1/1/2015	2:45	0.0586
5yr_24hr	1/1/2015	3:00	0.0586
5yr_24hr	1/1/2015	3:15	0.0586
5yr_24hr	1/1/2015	3:30	0.0781
5yr_24hr	1/1/2015	3:45	0.0586
5yr_24hr	1/1/2015	4:00	0.0781
5yr_24hr	1/1/2015	4:15	0.0781
5yr_24hr	1/1/2015	4:30	0.0976
5yr_24hr	1/1/2015	4:45	0.0781
5yr_24hr	1/1/2015	5:00	0.0976
5yr_24hr	1/1/2015	5:15	0.0976
5yr_24hr	1/1/2015	5:30	0.1171
5yr_24hr	1/1/2015	5:45	0.0976
5yr_24hr	1/1/2015	6:00	0.1171
5yr_24hr	1/1/2015	6:15	0.1171
5yr_24hr	1/1/2015	6:30	0.1366
5yr_24hr	1/1/2015	6:45	0.1171
5yr_24hr	1/1/2015	7:00	0.1366
5yr_24hr	1/1/2015	7:15	0.1366
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Time Series	Date	Time	Value
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5yr_24hr	1/1/2015	10:15	0.2342
5yr_24hr	1/1/2015	10:30	0.3123
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5yr_24hr	1/1/2015	13:45	0.2342
5yr_24hr	1/1/2015	14:00	0.1757
5yr_24hr	1/1/2015	14:15	0.1562
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5yr_24hr	1/1/2015	14:45	0.1366
5yr_24hr	1/1/2015	15:00	0.1562
5yr_24hr	1/1/2015	15:15	0.1366
5yr_24hr	1/1/2015	15:30	0.1562
5yr_24hr	1/1/2015	15:45	0.1366
5yr_24hr	1/1/2015	16:00	0.0976
5yr_24hr	1/1/2015	16:15	0.0781
5yr_24hr	1/1/2015	16:30	0.0976
5yr_24hr	1/1/2015	16:45	0.0781
5yr_24hr	1/1/2015	17:00	0.0976
5yr_24hr	1/1/2015	17:15	0.0781
5yr_24hr	1/1/2015	17:30	0.0781
5yr_24hr	1/1/2015	17:45	0.0976
5yr_24hr	1/1/2015	18:00	0.0976
5yr_24hr	1/1/2015	18:15	0.0781
5yr_24hr	1/1/2015	18:30	0.0781

Time Series	Date	Time	Value
5yr_24hr	1/1/2015	18:45	0.0976
5yr_24hr	1/1/2015	19:00	0.0976
5yr_24hr	1/1/2015	19:15	0.0781
5yr_24hr	1/1/2015	19:30	0.0781
5yr_24hr	1/1/2015	19:45	0.0976
5yr_24hr	1/1/2015	20:00	0.0586
5yr_24hr	1/1/2015	20:15	0.0586
5yr_24hr	1/1/2015	20:30	0.0586
5yr_24hr	1/1/2015	20:45	0.0586
5yr_24hr	1/1/2015	21:00	0.0586
5yr_24hr	1/1/2015	21:15	0.0586
5yr_24hr	1/1/2015	21:30	0.0586
5yr_24hr	1/1/2015	21:45	0.0586
5yr_24hr	1/1/2015	22:00	0.0586
5yr_24hr	1/1/2015	22:15	0.0586
5yr_24hr	1/1/2015	22:30	0.0586
5yr_24hr	1/1/2015	22:45	0.0586
5yr_24hr	1/1/2015	23:00	0.0586
5yr_24hr	1/1/2015	23:15	0.0586
5yr_24hr	1/1/2015	23:30	0.0586
5yr_24hr	1/1/2015	23:45	0.0586
24-hr distribution, 15-min interval, intensity (in/hr), 10-yr total = 5.580 in.			
10yr_24hr	1/1/2015	0:00	0.0446
10yr_24hr	1/1/2015	0:15	0.0670
10yr_24hr	1/1/2015	0:30	0.0670
10yr_24hr	1/1/2015	0:45	0.0446
10yr_24hr	1/1/2015	1:00	0.0670
10yr_24hr	1/1/2015	1:15	0.0446
10yr_24hr	1/1/2015	1:30	0.0670
10yr_24hr	1/1/2015	1:45	0.0446
10yr_24hr	1/1/2015	2:00	0.0670
10yr_24hr	1/1/2015	2:15	0.0670
10yr_24hr	1/1/2015	2:30	0.0670
10yr_24hr	1/1/2015	2:45	0.0670
10yr_24hr	1/1/2015	3:00	0.0670
10yr_24hr	1/1/2015	3:15	0.0670
10yr_24hr	1/1/2015	3:30	0.0893
10yr_24hr	1/1/2015	3:45	0.0670
10yr_24hr	1/1/2015	4:00	0.0893
10yr_24hr	1/1/2015	4:15	0.0893
10yr_24hr	1/1/2015	4:30	0.1116
10yr_24hr	1/1/2015	4:45	0.0893

Time Series	Date	Time	Value
10yr_24hr	1/1/2015	5:00	0.1116
10yr_24hr	1/1/2015	5:15	0.1116
10yr_24hr	1/1/2015	5:30	0.1339
10yr_24hr	1/1/2015	5:45	0.1116
10yr_24hr	1/1/2015	6:00	0.1339
10yr_24hr	1/1/2015	6:15	0.1339
10yr_24hr	1/1/2015	6:30	0.1562
10yr_24hr	1/1/2015	6:45	0.1339
10yr_24hr	1/1/2015	7:00	0.1562
10yr_24hr	1/1/2015	7:15	0.1562
10yr_24hr	1/1/2015	7:30	0.1786
10yr_24hr	1/1/2015	7:45	0.1562
10yr_24hr	1/1/2015	8:00	0.1786
10yr_24hr	1/1/2015	8:15	0.1786
10yr_24hr	1/1/2015	8:30	0.2009
10yr_24hr	1/1/2015	8:45	0.2009
10yr_24hr	1/1/2015	9:00	0.2232
10yr_24hr	1/1/2015	9:15	0.2232
10yr_24hr	1/1/2015	9:30	0.2455
10yr_24hr	1/1/2015	9:45	0.2455
10yr_24hr	1/1/2015	10:00	0.2678
10yr_24hr	1/1/2015	10:15	0.2678
10yr_24hr	1/1/2015	10:30	0.3571
10yr_24hr	1/1/2015	10:45	0.3571
10yr_24hr	1/1/2015	11:00	0.5580
10yr_24hr	1/1/2015	11:15	0.5580
10yr_24hr	1/1/2015	11:30	3.7721
10yr_24hr	1/1/2015	11:45	3.7498
10yr_24hr	1/1/2015	12:00	0.8035
10yr_24hr	1/1/2015	12:15	0.8258
10yr_24hr	1/1/2015	12:30	0.4241
10yr_24hr	1/1/2015	12:45	0.4241
10yr_24hr	1/1/2015	13:00	0.3125
10yr_24hr	1/1/2015	13:15	0.3125
10yr_24hr	1/1/2015	13:30	0.2455
10yr_24hr	1/1/2015	13:45	0.2678
10yr_24hr	1/1/2015	14:00	0.2009
10yr_24hr	1/1/2015	14:15	0.1786
10yr_24hr	1/1/2015	14:30	0.1786
10yr_24hr	1/1/2015	14:45	0.1562
10yr_24hr	1/1/2015	15:00	0.1786
10yr_24hr	1/1/2015	15:15	0.1562
10yr_24hr	1/1/2015	15:30	0.1786
10yr_24hr	1/1/2015	15:45	0.1562

Time Series	Date	Time	Value
10yr_24hr	1/1/2015	16:00	0.1116
10yr_24hr	1/1/2015	16:15	0.0893
10yr_24hr	1/1/2015	16:30	0.1116
10yr_24hr	1/1/2015	16:45	0.0893
10yr_24hr	1/1/2015	17:00	0.1116
10yr_24hr	1/1/2015	17:15	0.0893
10yr_24hr	1/1/2015	17:30	0.0893
10yr_24hr	1/1/2015	17:45	0.1116
10yr_24hr	1/1/2015	18:00	0.1116
10yr_24hr	1/1/2015	18:15	0.0893
10yr_24hr	1/1/2015	18:30	0.0893
10yr_24hr	1/1/2015	18:45	0.1116
10yr_24hr	1/1/2015	19:00	0.1116
10yr_24hr	1/1/2015	19:15	0.0893
10yr_24hr	1/1/2015	19:30	0.0893
10yr_24hr	1/1/2015	19:45	0.1116
10yr_24hr	1/1/2015	20:00	0.0670
10yr_24hr	1/1/2015	20:15	0.0670
10yr_24hr	1/1/2015	20:30	0.0670
10yr_24hr	1/1/2015	20:45	0.0670
10yr_24hr	1/1/2015	21:00	0.0670
10yr_24hr	1/1/2015	21:15	0.0670
10yr_24hr	1/1/2015	21:30	0.0670
10yr_24hr	1/1/2015	21:45	0.0670
10yr_24hr	1/1/2015	22:00	0.0670
10yr_24hr	1/1/2015	22:15	0.0670
10yr_24hr	1/1/2015	22:30	0.0670
10yr_24hr	1/1/2015	22:45	0.0670
10yr_24hr	1/1/2015	23:00	0.0670
10yr_24hr	1/1/2015	23:15	0.0670
10yr_24hr	1/1/2015	23:30	0.0670
10yr_24hr	1/1/2015	23:45	0.0670
24-hr distribution, 15-min interval, intensity (in/hr), 25-yr total = 6.510 in.			
25yr_24hr	1/1/2015	0:00	0.0521
25yr_24hr	1/1/2015	0:15	0.0781
25yr_24hr	1/1/2015	0:30	0.0781
25yr_24hr	1/1/2015	0:45	0.0521
25yr_24hr	1/1/2015	1:00	0.0781
25yr_24hr	1/1/2015	1:15	0.0521
25yr_24hr	1/1/2015	1:30	0.0781
25yr_24hr	1/1/2015	1:45	0.0521
25yr_24hr	1/1/2015	2:00	0.0781

Time Series	Date	Time	Value
25yr_24hr	1/1/2015	2:15	0.0781
25yr_24hr	1/1/2015	2:30	0.0781
25yr_24hr	1/1/2015	2:45	0.0781
25yr_24hr	1/1/2015	3:00	0.0781
25yr_24hr	1/1/2015	3:15	0.0781
25yr_24hr	1/1/2015	3:30	0.1042
25yr_24hr	1/1/2015	3:45	0.0781
25yr_24hr	1/1/2015	4:00	0.1042
25yr_24hr	1/1/2015	4:15	0.1042
25yr_24hr	1/1/2015	4:30	0.1302
25yr_24hr	1/1/2015	4:45	0.1042
25yr_24hr	1/1/2015	5:00	0.1302
25yr_24hr	1/1/2015	5:15	0.1302
25yr_24hr	1/1/2015	5:30	0.1562
25yr_24hr	1/1/2015	5:45	0.1302
25yr_24hr	1/1/2015	6:00	0.1562
25yr_24hr	1/1/2015	6:15	0.1562
25yr_24hr	1/1/2015	6:30	0.1823
25yr_24hr	1/1/2015	6:45	0.1562
25yr_24hr	1/1/2015	7:00	0.1823
25yr_24hr	1/1/2015	7:15	0.1823
25yr_24hr	1/1/2015	7:30	0.2083
25yr_24hr	1/1/2015	7:45	0.1823
25yr_24hr	1/1/2015	8:00	0.2083
25yr_24hr	1/1/2015	8:15	0.2083
25yr_24hr	1/1/2015	8:30	0.2344
25yr_24hr	1/1/2015	8:45	0.2344
25yr_24hr	1/1/2015	9:00	0.2604
25yr_24hr	1/1/2015	9:15	0.2604
25yr_24hr	1/1/2015	9:30	0.2864
25yr_24hr	1/1/2015	9:45	0.2864
25yr_24hr	1/1/2015	10:00	0.3125
25yr_24hr	1/1/2015	10:15	0.3125
25yr_24hr	1/1/2015	10:30	0.4166
25yr_24hr	1/1/2015	10:45	0.4166
25yr_24hr	1/1/2015	11:00	0.6510
25yr_24hr	1/1/2015	11:15	0.6510
25yr_24hr	1/1/2015	11:30	4.4008
25yr_24hr	1/1/2015	11:45	4.3747
25yr_24hr	1/1/2015	12:00	0.9374
25yr_24hr	1/1/2015	12:15	0.9635
25yr_24hr	1/1/2015	12:30	0.4948
25yr_24hr	1/1/2015	12:45	0.4948
25yr_24hr	1/1/2015	13:00	0.3646

Time Series	Date	Time	Value
25yr_24hr	1/1/2015	13:15	0.3646
25yr_24hr	1/1/2015	13:30	0.2864
25yr_24hr	1/1/2015	13:45	0.3125
25yr_24hr	1/1/2015	14:00	0.2344
25yr_24hr	1/1/2015	14:15	0.2083
25yr_24hr	1/1/2015	14:30	0.2083
25yr_24hr	1/1/2015	14:45	0.1823
25yr_24hr	1/1/2015	15:00	0.2083
25yr_24hr	1/1/2015	15:15	0.1823
25yr_24hr	1/1/2015	15:30	0.2083
25yr_24hr	1/1/2015	15:45	0.1823
25yr_24hr	1/1/2015	16:00	0.1302
25yr_24hr	1/1/2015	16:15	0.1042
25yr_24hr	1/1/2015	16:30	0.1302
25yr_24hr	1/1/2015	16:45	0.1042
25yr_24hr	1/1/2015	17:00	0.1302
25yr_24hr	1/1/2015	17:15	0.1042
25yr_24hr	1/1/2015	17:30	0.1042
25yr_24hr	1/1/2015	17:45	0.1302
25yr_24hr	1/1/2015	18:00	0.1302
25yr_24hr	1/1/2015	18:15	0.1042
25yr_24hr	1/1/2015	18:30	0.1042
25yr_24hr	1/1/2015	18:45	0.1302
25yr_24hr	1/1/2015	19:00	0.1302
25yr_24hr	1/1/2015	19:15	0.1042
25yr_24hr	1/1/2015	19:30	0.1042
25yr_24hr	1/1/2015	19:45	0.1302
25yr_24hr	1/1/2015	20:00	0.0781
25yr_24hr	1/1/2015	20:15	0.0781
25yr_24hr	1/1/2015	20:30	0.0781
25yr_24hr	1/1/2015	20:45	0.0781
25yr_24hr	1/1/2015	21:00	0.0781
25yr_24hr	1/1/2015	21:15	0.0781
25yr_24hr	1/1/2015	21:30	0.0781
25yr_24hr	1/1/2015	21:45	0.0781
25yr_24hr	1/1/2015	22:00	0.0781
25yr_24hr	1/1/2015	22:15	0.0781
25yr_24hr	1/1/2015	22:30	0.0781
25yr_24hr	1/1/2015	22:45	0.0781
25yr_24hr	1/1/2015	23:00	0.0781
25yr_24hr	1/1/2015	23:15	0.0781
25yr_24hr	1/1/2015	23:30	0.0781
25yr_24hr	1/1/2015	23:45	0.0781

Time Series	Date	Time	Value
24-hr distribution, 15-min interval, intensity (in/hr), 50-yr total = 7.260 in.			
50yr_24hr	1/1/2015	0:00	0.0581
50yr_24hr	1/1/2015	0:15	0.0871
50yr_24hr	1/1/2015	0:30	0.0871
50yr_24hr	1/1/2015	0:45	0.0581
50yr_24hr	1/1/2015	1:00	0.0871
50yr_24hr	1/1/2015	1:15	0.0581
50yr_24hr	1/1/2015	1:30	0.0871
50yr_24hr	1/1/2015	1:45	0.0581
50yr_24hr	1/1/2015	2:00	0.0871
50yr_24hr	1/1/2015	2:15	0.0871
50yr_24hr	1/1/2015	2:30	0.0871
50yr_24hr	1/1/2015	2:45	0.0871
50yr_24hr	1/1/2015	3:00	0.0871
50yr_24hr	1/1/2015	3:15	0.0871
50yr_24hr	1/1/2015	3:30	0.1162
50yr_24hr	1/1/2015	3:45	0.0871
50yr_24hr	1/1/2015	4:00	0.1162
50yr_24hr	1/1/2015	4:15	0.1162
50yr_24hr	1/1/2015	4:30	0.1452
50yr_24hr	1/1/2015	4:45	0.1162
50yr_24hr	1/1/2015	5:00	0.1452
50yr_24hr	1/1/2015	5:15	0.1452
50yr_24hr	1/1/2015	5:30	0.1742
50yr_24hr	1/1/2015	5:45	0.1452
50yr_24hr	1/1/2015	6:00	0.1742
50yr_24hr	1/1/2015	6:15	0.1742
50yr_24hr	1/1/2015	6:30	0.2033
50yr_24hr	1/1/2015	6:45	0.1742
50yr_24hr	1/1/2015	7:00	0.2033
50yr_24hr	1/1/2015	7:15	0.2033
50yr_24hr	1/1/2015	7:30	0.2323
50yr_24hr	1/1/2015	7:45	0.2033
50yr_24hr	1/1/2015	8:00	0.2323
50yr_24hr	1/1/2015	8:15	0.2323
50yr_24hr	1/1/2015	8:30	0.2614
50yr_24hr	1/1/2015	8:45	0.2614
50yr_24hr	1/1/2015	9:00	0.2904
50yr_24hr	1/1/2015	9:15	0.2904
50yr_24hr	1/1/2015	9:30	0.3194
50yr_24hr	1/1/2015	9:45	0.3194
50yr_24hr	1/1/2015	10:00	0.3485
50yr_24hr	1/1/2015	10:15	0.3485

Time Series	Date	Time	Value
50yr_24hr	1/1/2015	10:30	0.4646
50yr_24hr	1/1/2015	10:45	0.4646
50yr_24hr	1/1/2015	11:00	0.7260
50yr_24hr	1/1/2015	11:15	0.7260
50yr_24hr	1/1/2015	11:30	4.9078
50yr_24hr	1/1/2015	11:45	4.8787
50yr_24hr	1/1/2015	12:00	1.0454
50yr_24hr	1/1/2015	12:15	1.0745
50yr_24hr	1/1/2015	12:30	0.5518
50yr_24hr	1/1/2015	12:45	0.5518
50yr_24hr	1/1/2015	13:00	0.4066
50yr_24hr	1/1/2015	13:15	0.4066
50yr_24hr	1/1/2015	13:30	0.3194
50yr_24hr	1/1/2015	13:45	0.3485
50yr_24hr	1/1/2015	14:00	0.2614
50yr_24hr	1/1/2015	14:15	0.2323
50yr_24hr	1/1/2015	14:30	0.2323
50yr_24hr	1/1/2015	14:45	0.2033
50yr_24hr	1/1/2015	15:00	0.2323
50yr_24hr	1/1/2015	15:15	0.2033
50yr_24hr	1/1/2015	15:30	0.2323
50yr_24hr	1/1/2015	15:45	0.2033
50yr_24hr	1/1/2015	16:00	0.1452
50yr_24hr	1/1/2015	16:15	0.1162
50yr_24hr	1/1/2015	16:30	0.1452
50yr_24hr	1/1/2015	16:45	0.1162
50yr_24hr	1/1/2015	17:00	0.1452
50yr_24hr	1/1/2015	17:15	0.1162
50yr_24hr	1/1/2015	17:30	0.1162
50yr_24hr	1/1/2015	17:45	0.1452
50yr_24hr	1/1/2015	18:00	0.1452
50yr_24hr	1/1/2015	18:15	0.1162
50yr_24hr	1/1/2015	18:30	0.1162
50yr_24hr	1/1/2015	18:45	0.1452
50yr_24hr	1/1/2015	19:00	0.1452
50yr_24hr	1/1/2015	19:15	0.1162
50yr_24hr	1/1/2015	19:30	0.1162
50yr_24hr	1/1/2015	19:45	0.1452
50yr_24hr	1/1/2015	20:00	0.0871
50yr_24hr	1/1/2015	20:15	0.0871
50yr_24hr	1/1/2015	20:30	0.0871
50yr_24hr	1/1/2015	20:45	0.0871
50yr_24hr	1/1/2015	21:00	0.0871
50yr_24hr	1/1/2015	21:15	0.0871

Time Series	Date	Time	Value
50yr_24hr	1/1/2015	21:30	0.0871
50yr_24hr	1/1/2015	21:45	0.0871
50yr_24hr	1/1/2015	22:00	0.0871
50yr_24hr	1/1/2015	22:15	0.0871
50yr_24hr	1/1/2015	22:30	0.0871
50yr_24hr	1/1/2015	22:45	0.0871
50yr_24hr	1/1/2015	23:00	0.0871
50yr_24hr	1/1/2015	23:15	0.0871
50yr_24hr	1/1/2015	23:30	0.0871
50yr_24hr	1/1/2015	23:45	0.0871
24-hr distribution, 15-min interval, intensity (in/hr), 100-yr total = 8.020 in.			
100yr_24hr	1/1/2015	0:00	0.0642
100yr_24hr	1/1/2015	0:15	0.0962
100yr_24hr	1/1/2015	0:30	0.0962
100yr_24hr	1/1/2015	0:45	0.0642
100yr_24hr	1/1/2015	1:00	0.0962
100yr_24hr	1/1/2015	1:15	0.0642
100yr_24hr	1/1/2015	1:30	0.0962
100yr_24hr	1/1/2015	1:45	0.0642
100yr_24hr	1/1/2015	2:00	0.0962
100yr_24hr	1/1/2015	2:15	0.0962
100yr_24hr	1/1/2015	2:30	0.0962
100yr_24hr	1/1/2015	2:45	0.0962
100yr_24hr	1/1/2015	3:00	0.0962
100yr_24hr	1/1/2015	3:15	0.0962
100yr_24hr	1/1/2015	3:30	0.1283
100yr_24hr	1/1/2015	3:45	0.0962
100yr_24hr	1/1/2015	4:00	0.1283
100yr_24hr	1/1/2015	4:15	0.1283
100yr_24hr	1/1/2015	4:30	0.1604
100yr_24hr	1/1/2015	4:45	0.1283
100yr_24hr	1/1/2015	5:00	0.1604
100yr_24hr	1/1/2015	5:15	0.1604
100yr_24hr	1/1/2015	5:30	0.1925
100yr_24hr	1/1/2015	5:45	0.1604
100yr_24hr	1/1/2015	6:00	0.1925
100yr_24hr	1/1/2015	6:15	0.1925
100yr_24hr	1/1/2015	6:30	0.2246
100yr_24hr	1/1/2015	6:45	0.1925
100yr_24hr	1/1/2015	7:00	0.2246
100yr_24hr	1/1/2015	7:15	0.2246
100yr_24hr	1/1/2015	7:30	0.2566

Time Series	Date	Time	Value
100yr_24hr	1/1/2015	7:45	0.2246
100yr_24hr	1/1/2015	8:00	0.2566
100yr_24hr	1/1/2015	8:15	0.2566
100yr_24hr	1/1/2015	8:30	0.2887
100yr_24hr	1/1/2015	8:45	0.2887
100yr_24hr	1/1/2015	9:00	0.3208
100yr_24hr	1/1/2015	9:15	0.3208
100yr_24hr	1/1/2015	9:30	0.3529
100yr_24hr	1/1/2015	9:45	0.3529
100yr_24hr	1/1/2015	10:00	0.3850
100yr_24hr	1/1/2015	10:15	0.3850
100yr_24hr	1/1/2015	10:30	0.5133
100yr_24hr	1/1/2015	10:45	0.5133
100yr_24hr	1/1/2015	11:00	0.8020
100yr_24hr	1/1/2015	11:15	0.8020
100yr_24hr	1/1/2015	11:30	5.4215
100yr_24hr	1/1/2015	11:45	5.3894
100yr_24hr	1/1/2015	12:00	1.1549
100yr_24hr	1/1/2015	12:15	1.1870
100yr_24hr	1/1/2015	12:30	0.6095
100yr_24hr	1/1/2015	12:45	0.6095
100yr_24hr	1/1/2015	13:00	0.4491
100yr_24hr	1/1/2015	13:15	0.4491
100yr_24hr	1/1/2015	13:30	0.3529
100yr_24hr	1/1/2015	13:45	0.3850
100yr_24hr	1/1/2015	14:00	0.2887
100yr_24hr	1/1/2015	14:15	0.2566
100yr_24hr	1/1/2015	14:30	0.2566
100yr_24hr	1/1/2015	14:45	0.2246
100yr_24hr	1/1/2015	15:00	0.2566
100yr_24hr	1/1/2015	15:15	0.2246
100yr_24hr	1/1/2015	15:30	0.2566
100yr_24hr	1/1/2015	15:45	0.2246
100yr_24hr	1/1/2015	16:00	0.1604
100yr_24hr	1/1/2015	16:15	0.1283
100yr_24hr	1/1/2015	16:30	0.1604
100yr_24hr	1/1/2015	16:45	0.1283
100yr_24hr	1/1/2015	17:00	0.1604
100yr_24hr	1/1/2015	17:15	0.1283
100yr_24hr	1/1/2015	17:30	0.1283
100yr_24hr	1/1/2015	17:45	0.1604
100yr_24hr	1/1/2015	18:00	0.1604
100yr_24hr	1/1/2015	18:15	0.1283
100yr_24hr	1/1/2015	18:30	0.1283

Time Series	Date	Time	Value
100yr_24hr	1/1/2015	18:45	0.1604
100yr_24hr	1/1/2015	19:00	0.1604
100yr_24hr	1/1/2015	19:15	0.1283
100yr_24hr	1/1/2015	19:30	0.1283
100yr_24hr	1/1/2015	19:45	0.1604
100yr_24hr	1/1/2015	20:00	0.0962
100yr_24hr	1/1/2015	20:15	0.0962
100yr_24hr	1/1/2015	20:30	0.0962
100yr_24hr	1/1/2015	20:45	0.0962
100yr_24hr	1/1/2015	21:00	0.0962
100yr_24hr	1/1/2015	21:15	0.0962
100yr_24hr	1/1/2015	21:30	0.0962
100yr_24hr	1/1/2015	21:45	0.0962
100yr_24hr	1/1/2015	22:00	0.0962
100yr_24hr	1/1/2015	22:15	0.0962
100yr_24hr	1/1/2015	22:30	0.0962
100yr_24hr	1/1/2015	22:45	0.0962
100yr_24hr	1/1/2015	23:00	0.0962
100yr_24hr	1/1/2015	23:15	0.0962
100yr_24hr	1/1/2015	23:30	0.0962
100yr_24hr	1/1/2015	23:45	0.0962

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
0	295.462	292.959	293.008	293.1	293.25	293.371	293.488
1	286.05	281.465	281.923	282.125	282.265	283.214	284.861
10	287.501	282.858	283.271	283.77	287.588	287.888	288.113
100	292.886	287.222	287.591	287.868	288.242	288.551	288.886
101	292.361	285.678	285.762	285.867	286.004	286.114	286.223
101.5	281	276.966	278.185	279.58	280.482	280.982	281.201
104	279.253	277.162	277.942	279.053	279.633	279.817	279.968
105	279.03	276.902	277.539	278.502	279.461	279.651	279.794
106	279.126	276.593	277.148	277.92	279.157	279.382	279.523
107	277.705	276.251	276.73	277.298	278.186	278.456	278.625
108	277.1	275.951	276.351	276.751	277.94	278.264	278.435
109	277.51	275.563	275.904	276.229	277.842	278.182	278.347
11	290.836	286.556	286.614	286.659	287.778	288.006	288.282
110	277.65	274.378	274.54	274.802	277.489	277.969	278.136
111	269.249	267.374	268.169	268.83	269.397	269.521	269.64
112	268.109	266.975	267.293	267.561	267.955	268.207	268.554
112.5	294.3	288.49	288.517	288.539	288.565	288.586	288.607
113	268.2	266.156	266.4	266.61	266.928	267.309	268.235
113.5	269.59	267.241	267.589	267.965	268.221	268.413	268.754
113.6	267.7	264.222	264.987	265.617	266.548	267.094	267.564
114	263.167	260.551	260.625	260.683	260.758	260.817	260.876
114.5	277.43	273.683	273.832	273.949	274.102	274.221	274.398
114.6	266.14	264.05	264.868	265.531	266.48	267.011	267.469
114.7	265	262.577	263.344	263.968	264.806	265.75	266.754
115	263.7	261.743	262.255	262.546	263.12	263.889	264.595
116	263.774	260.093	260.451	260.828	262.003	262.847	264.001
117	261.928	257.968	258.712	259.534	260.429	260.937	261.807
118	260.1	256.615	257.585	258.209	258.704	259.033	259.614
119	251.537	242.438	243.211	244.735	245.881	246.879	248.038
12	279.957	275.63	275.687	276.648	279.637	280.057	280.346
120	252.367	243.61	244.063	244.822	246.072	247.193	248.629
121	251.7	248.248	248.374	248.46	248.639	248.789	248.918
122	252.004	250.903	252.068	252.198	252.401	252.549	252.667
123	253.4	252.271	253.63	253.753	253.968	254.129	254.258
125	258.246	254.986	256.162	257.74	258.558	258.759	258.909
126	259.734	256.834	257.188	259.121	260.067	260.266	260.416
127	258.595	257.024	257.616	259.185	260.084	260.288	260.441
128	261.271	257.225	257.998	260.356	261.481	261.606	261.701
129	262.376	258.309	258.724	261.531	262.621	262.733	262.819
13	285.093	278.671	278.825	279.109	280.077	281.195	282.281

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
130	262.239	260.306	260.483	260.973	262.395	262.546	262.653
131	263.198	261.541	261.983	262.347	263.334	263.486	263.592
132	253.377	245.422	246.278	246.323	247.36	247.885	247.92
133	255.654	251.141	251.251	251.341	251.466	251.565	251.666
134	254.491	252.217	252.499	252.741	253.1	253.593	254.177
135	251.026	247.33	248.161	248.538	248.721	249.38	249.782
136	251.177	246.911	248.36	249.195	250.978	251.425	251.521
137	250.2	247.485	247.569	247.695	247.889	247.987	248.009
138	250.808	248.323	248.36	248.439	248.567	248.702	248.898
139	267.247	265.334	265.52	265.684	266.919	267.438	267.56
14	285.913	282.924	283.045	283.128	283.237	285.334	287.556
140	267.34	266.503	266.966	267.392	267.572	267.799	267.916
141	273.006	270.749	270.929	271.086	271.466	273.077	273.235
142	273.017	272.085	272.496	272.985	273.151	273.463	273.592
143	268.798	263.123	263.316	264.63	268.707	268.99	269.098
144	267.423	264.775	265.197	265.805	268.728	269.012	269.126
145	268.133	265.581	266.164	267.003	268.826	269.091	269.213
146	253.401	249.655	249.703	249.799	249.946	250.052	250.137
147	248.563	247.954	249.31	249.986	249.677	249.228	249.24
148	250.384	247.809	249.274	249.806	249.639	249.211	249.221
149	248.48	243.454	243.618	243.808	244.084	244.542	244.963
15	286.783	285.7	286.858	286.951	287.052	287.143	287.714
150	249.232	246.357	246.738	247.172	247.79	248.604	249.064
151	247.278	241.036	241.289	241.564	242.367	243.2	244.144
152	249.094	244.32	244.915	245.228	245.685	245.717	246.715
153	258.682	256.197	256.762	257.099	257.397	257.589	257.998
154	258.068	254.674	255.146	255.402	255.681	256.084	256.686
155	257.077	252.099	252.368	252.911	253.986	254.745	255.259
155.5	253.3	249.699	250.029	250.26	250.559	251.213	252.05
155.7	252.41	248.147	248.456	248.847	249.467	250.843	251.85
156	254.149	251.5	252.158	252.682	253.322	253.792	254.041
157	256.037	253.624	253.751	253.851	254.368	255.525	256.104
158	269.454	263.833	264.054	264.275	265.719	269.122	269.745
159	268.523	265.327	265.674	266.04	267.755	269.23	269.792
159.5	260.5	256.731	256.87	256.988	257.124	257.258	257.458
16	288.214	286.795	288.336	288.435	288.544	288.622	288.74
160	264.249	260.605	260.883	261.164	262.016	263.661	265.728
160.5	247	237.615	237.72	238.27	239.446	239.902	240.484
161	252.182	246.273	246.633	247.002	247.53	248.039	248.586
163	256.616	250.335	250.605	250.874	251.275	251.751	253.37

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
164	259.837	253.157	253.368	253.59	253.889	254.15	254.917
165	269.664	259.203	259.342	259.506	259.752	259.963	261.748
166	276.978	262.436	262.65	262.895	263.325	264.732	266.995
167	274.592	265.095	265.2	265.308	265.454	265.833	268.673
168	243.779	238.137	238.294	238.418	238.592	238.735	239.065
169	244.919	241.172	241.387	241.564	241.821	242.045	242.231
169.5	245.18	242.466	243.073	243.663	244.563	245.23	245.381
17	288.508	287.669	288.796	288.874	288.97	289.048	289.141
17.5	297	291.058	291.214	291.34	291.516	291.662	292.011
170	245.245	240.868	241.009	241.128	241.299	241.445	241.587
171	236.731	234.894	235.204	235.481	236.225	236.597	236.901
172	236.813	233.643	233.851	235.18	235.854	236.088	236.359
172.5	235.3	233.699	234.155	235.015	235.458	235.545	235.626
172.6	233.51	231.031	231.149	231.231	231.387	231.494	231.608
174	235.503	225.508	228.262	231.397	236.045	239.711	239.767
175	233.835	225.448	228.198	231.288	236.033	239.711	239.751
176	232.772	225.404	228.142	231.207	236.03	239.735	239.767
178	240.002	225.323	228.121	231.151	235.942	239.76	239.988
178.5	233.71	230.132	230.222	231.167	235.948	239.821	240.061
179	232.219	227.017	230.881	232.483	236.125	240.254	241.062
18	301.634	293.502	293.588	293.656	293.744	293.813	293.882
180	248.319	244.938	245.055	245.154	245.282	245.808	248.55
181	250.312	248.029	249.54	250.413	250.542	250.586	250.764
181.5	247.1	237.851	237.919	237.978	238.057	238.116	238.169
182	243.971	241.67	241.863	242.058	242.347	242.586	242.84
183	249.587	242.656	242.781	242.909	243.112	243.302	243.529
184	250.424	243.593	243.774	243.962	244.231	244.445	244.666
185	251.241	243.612	243.794	243.991	244.273	244.5	244.738
186	253.791	244.445	244.501	244.542	244.663	244.79	244.986
187	253.779	244.757	244.843	244.98	245.17	245.308	245.447
188	250.304	247.285	247.354	247.47	247.628	247.748	247.863
188.5	251	237.233	237.342	237.418	237.508	237.58	237.646
189	245.761	240.212	240.705	241.125	242.257	243.338	244.479
189.5	251	248.144	251.128	251.259	251.407	251.513	251.613
19	301.701	296.171	296.232	296.279	296.339	296.385	296.431
191	245.574	240.774	240.993	241.576	243.064	244.36	245.745
192	245.577	242.147	242.546	242.747	244.508	245.699	245.968
193	245.456	240.824	240.886	241.17	242.417	243.581	244.79
194	245.574	241.848	241.997	242.098	242.677	243.977	245.296
195	245.052	242.265	242.454	242.618	243.177	244.654	245.385

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
195.5	250.2	237.8	237.862	237.915	237.975	238.021	238.063
196	250.47	242.294	242.448	242.592	242.803	242.992	243.289
197	250.614	244.283	244.426	244.559	244.749	244.945	245.412
198	249.579	245.57	245.887	246.327	246.934	247.495	249.416
199	250.507	245.992	246.411	247.079	247.993	248.744	250.061
199.5	236.8	231.547	231.672	231.768	232.338	233.409	234.52
199.6	237.3	232.836	233.048	233.202	233.376	233.504	234.609
20	302.372	295.603	295.867	296.092	296.446	297.163	297.941
200	241.422	233.637	233.739	233.817	233.911	233.983	235.805
201	241.471	235.385	235.801	236.144	236.69	237.634	238.496
202	240.601	235.264	235.367	236.213	236.913	238.024	239.044
202.5	240.87	236.484	236.575	236.647	236.738	236.808	238.112
202.6	245.68	241.874	242.034	242.153	242.296	242.4	242.497
203	243	237.209	237.249	237.302	237.387	237.459	237.532
204	242.826	237.208	237.249	237.302	237.387	237.459	237.532
205	248.052	242.519	242.617	242.755	243.003	243.248	243.569
206	251.791	245.817	245.889	245.988	246.154	246.31	246.506
207	255.266	249.802	249.884	250	250.201	250.391	250.613
208	256.298	252.267	252.345	252.457	252.647	252.829	253.052
209	255.324	253.17	253.294	253.469	253.759	254.021	254.327
210	257.796	249.405	249.589	249.81	250.129	250.442	250.889
211	254.208	248.067	248.184	248.332	248.549	248.77	249.102
212	266.933	263.408	263.466	263.549	263.684	263.803	263.928
213	258.096	255.485	255.75	256.024	256.474	256.86	257.258
214	257.346	255.634	255.979	256.44	257.352	257.55	257.674
215	263.392	256.571	256.619	256.699	257.841	258.616	259.257
216	266.661	260.877	260.979	261.162	261.223	261.408	262.876
217	266.913	261.381	261.529	261.786	262.32	262.809	263.301
219	279.161	272.645	272.707	272.811	272.986	273.14	273.307
220	288.674	279.372	279.433	279.543	279.731	279.905	280.102
221	291.341	281.658	281.756	281.936	282.258	282.555	282.908
222	292.283	287.558	287.594	287.655	287.751	287.831	287.911
223	257.059	253.322	253.723	254.271	255.265	256.379	257.871
224	260.378	256.339	256.43	256.522	256.991	259.528	260.602
224.5	279.59	272.529	272.77	273.009	273.443	274.283	275.187
225	277.03	272.665	274.654	274.97	275.521	276.639	277.244
226	276.563	275.424	276.192	276.737	276.909	277.173	277.511
227	285	277.483	278.9	281.435	281.803	282.326	283.048
228	286.823	278.537	278.636	282.574	282.99	283.587	284.403
228.5	288.43	283.712	283.953	284.042	284.382	285.307	286.251

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
228.6	294.4	289.241	289.312	289.373	289.455	289.521	289.587
229	287.164	284.168	286.25	287.183	287.455	287.599	287.73
229.2	285.97	283.942	285.642	286.19	286.495	286.683	286.864
229.3	285.4	283.941	285.642	286.188	286.491	286.679	286.859
229.4	285.31	281.74	282.974	284.449	284.886	285.127	285.354
229.6	283.98	281.702	282.962	284.432	284.853	285.081	285.294
229.7	286.24	279.001	279.321	280.225	281.138	281.65	282.175
229.8	283.86	278.319	278.97	280.047	281.022	281.558	282.102
23.5	289.67	287.729	288.387	289.856	290.203	290.582	290.827
23.6	289.9	287.783	288.421	289.88	290.245	290.629	290.885
23.7	290.5	287.762	288.504	290.023	290.484	290.863	291.121
23.8	291.343	290.728	291.715	291.966	292.149	292.281	292.358
230	287.946	285.19	286.702	287.846	288.179	288.321	288.446
231	289.491	287.842	289.726	289.926	290.072	290.172	290.269
232	293.655	290.943	293.807	293.951	294.103	294.211	294.315
233	293.029	292.927	293.92	294.07	294.239	294.364	294.485
233.5	261.6	255.473	255.732	255.993	256.408	256.743	257.077
234	234.332	227.827	228.107	228.359	228.709	228.952	229.147
235	234.154	229.256	229.291	229.318	229.352	229.379	229.404
235.5	234.154	234.246	234.34	234.404	234.481	234.538	234.593
238	264.058	260.742	260.815	260.845	262.374	262.658	262.966
239	263.352	259.431	260.267	260.693	262.062	262.208	262.342
24	289.111	289.026	289.344	289.926	290.307	290.666	290.933
240	261.826	259.968	260.006	260.053	260.111	260.153	260.192
241	262.316	259.347	259.435	259.544	259.684	259.689	259.853
242	260.789	258.707	258.738	258.775	258.822	259.602	259.955
243	261.615	258.408	258.556	258.729	258.992	259.578	259.989
244	261.957	259.407	260.558	261.14	261.966	262.069	262.151
245	259.5	258.37	258.524	258.686	258.941	259.193	259.697
246	258.841	255.391	255.473	255.564	255.698	255.813	255.918
247	248.881	245.469	245.535	245.607	245.705	245.781	245.846
248	247.82	244.15	244.296	244.463	244.704	244.905	245.085
249	244.894	241.624	241.682	241.744	241.829	241.895	241.951
25	289.812	289.828	290.042	290.176	290.513	290.779	291.049
250	245.17	240.106	240.206	240.322	240.492	240.633	240.701
251	243.818	236.772	236.831	236.895	236.98	237.047	237.2
252	235.852	230.519	232.058	233.745	236.189	236.722	236.961
253	235.57	229.681	230.683	231.833	233.67	234.693	235.275
254	235.389	229.739	230.766	231.947	233.842	234.925	235.514
255	247.408	239.499	239.541	239.574	239.615	239.646	239.676

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
256	234.48	228.637	229.241	229.835	230.695	231.151	231.42
257	235.147	228.473	229.028	229.54	230.257	230.629	230.851
257.5	231.59	227.776	228.051	228.305	228.652	228.881	229.054
258	235.459	227.779	228.059	228.314	228.66	228.901	229.083
259	235.513	230.533	232.083	233.781	236.21	236.727	236.96
260	235.531	230.553	232.106	233.816	236.222	236.733	236.956
261	234.963	230.563	232.121	233.837	236.245	236.752	236.967
262	234.266	230.579	232.141	233.866	236.323	236.859	237.106
263	233.845	230.591	232.16	233.887	236.359	236.917	237.098
264	232.993	230.572	232.147	233.84	236.249	236.756	236.966
265	232.933	230.581	232.162	233.843	236.26	236.765	236.98
265.4	238.88	227.972	228.229	228.43	228.686	228.888	229.057
265.5	241.5	231.491	231.843	232.148	232.54	232.831	233.079
266	239.105	232.126	232.697	233.204	233.889	234.435	234.918
267	240.227	236.441	236.819	237.14	238.315	239.789	240.098
268	240.406	237.622	237.796	237.799	239.768	240.688	240.812
269	239.646	236.996	237.382	237.78	238.385	239.244	240.27
270	239.431	236.855	237.178	237.51	238.015	238.862	239.911
270.3	239.52	234.307	234.981	235.763	236.989	238.01	239.028
270.5	239.13	234.135	234.912	235.73	236.974	237.988	238.982
271	241.506	239.386	239.749	240.024	240.365	240.944	241.981
271.3	242.73	239.482	239.885	240.209	240.763	241.468	242.68
271.4	244.86	240.457	240.738	240.99	241.361	242.205	243.652
271.5	246.82	241.417	241.733	242.018	242.424	242.772	243.787
272	244.821	239.933	240.007	240.063	240.135	240.188	241.784
273	248.861	242.613	242.991	243.358	243.897	244.271	244.638
273.5	250.975	245.083	245.223	245.273	245.524	245.699	245.902
273.6	250.96	245.959	246.315	246.684	247.217	247.581	248.018
273.7	251.725	248.356	248.603	248.822	249.116	249.295	249.887
274	255.82	252.787	253.155	253.484	253.929	254.2	254.518
274.5	256.367	252.883	253.265	253.628	254.122	254.428	254.814
274.6	255.87	254.417	254.629	254.806	255.066	255.227	255.449
274.7	256.13	255.679	256.168	256.405	256.652	256.791	256.984
274.8	257.24	256.539	256.746	257.106	257.495	257.657	257.874
275	258.79	257.161	257.436	257.72	258.299	258.689	259.05
276	260.082	257.28	257.392	257.494	257.633	259.513	260.379
277	260.069	258.629	259.224	259.84	260.193	260.366	260.667
277.5	260	259.582	260.151	260.314	260.484	260.62	260.845
278	266.003	262.768	263.069	264.428	266.113	266.241	266.35
279	266.63	263.464	263.588	263.696	263.847	264.344	265.769

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
279.5	262.817	261.503	261.705	261.874	262.137	262.826	263.258
279.6	262.29	259.302	259.576	259.824	260.172	260.51	261.635
279.8	250.4	237.722	237.952	238.195	238.549	238.788	239.068
280	249.291	245.49	245.533	245.606	245.722	245.819	245.918
280.5	244.69	239.201	239.811	240.5	241.621	242.56	243.642
281	247.997	242.25	242.287	242.341	242.534	245.264	245.053
282	248.348	240.985	241.036	241.366	242.551	244.425	244.72
283	249.479	239.384	239.61	239.861	240.26	242.701	243.944
283.5	245.29	240.093	240.697	241.379	242.487	243.393	244.481
284	249.896	240.712	241.233	241.804	242.699	243.768	244.948
285	251.643	248.844	248.876	248.991	249.155	249.18	249.229
285.5	247.53	242.794	243.368	243.982	244.936	245.816	246.837
286	249.91	243.268	243.893	244.551	245.563	246.46	247.484
287	249.023	243.594	244.284	245.01	246.127	247.1	248.171
287.5	251.15	243.393	244.185	245	246.232	247.287	248.558
288	249.233	244.153	244.186	245.005	246.234	247.32	248.587
289	250.177	244.287	244.287	245.014	246.236	247.342	248.596
289.5	251.12	244.702	245.291	246.004	247.179	248.217	249.462
290	250.279	245.153	245.292	246.005	247.181	248.217	249.462
292	250.763	245.2	245.86	246.62	247.846	248.919	250.183
292.4	292.67	287.567	287.701	287.813	288.003	288.133	288.267
293	262.88	256.28	256.28	256.28	256.28	256.28	256.28
294	262.699	257.779	257.779	257.779	257.779	257.779	257.779
295	253.446	248.356	248.394	248.477	249.843	251.101	252.833
296	251.133	247.058	247.749	248.499	249.717	250.821	252.507
297	253.176	249.577	249.661	249.729	250.643	251.938	253.64
297.1	250.24	245.205	245.867	246.628	247.856	248.931	250.223
297.2	252.3	247.047	247.734	248.466	249.614	250.634	252.505
297.3	252.5	247.454	248.194	248.979	250.224	251.36	253.311
297.4	250.46	247.716	248.473	249.27	250.5	251.619	253.597
297.5	252.1	248.79	249.62	250.47	251.841	253.005	254.486
298	253.783	250.416	250.549	250.768	250.961	252.22	253.898
299	261.999	257.789	257.851	257.954	258.125	258.274	258.564
3	285.657	281.75	282.243	282.504	282.696	283.814	285.62
30	294.555	289.216	289.336	290.248	291.114	291.582	292.274
300	265.756	261.282	261.358	261.494	261.735	261.964	262.149
301	267.738	263.916	263.96	264.045	264.178	264.286	264.561
302	265.2	262.629	262.976	263.254	263.715	264.033	265.343
303	265.546	261.607	261.737	261.874	262.077	262.444	264.434
305	253.6	250.187	251.039	251.936	253.545	254.665	255.869

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
305.1	252.8	249.041	249.922	250.831	252.367	253.594	254.982
305.2	252.567	249.387	250.278	251.208	252.769	253.955	255.294
305.4	255.27	251.474	252.275	253.127	254.62	255.891	256.82
305.5	255.44	251.73	252.546	253.419	254.954	256.236	257.163
306	254.377	252.129	252.174	252.208	253.561	254.669	255.909
307	258.223	252.508	253.273	254.099	255.541	257.03	258.29
308	258.37	252.988	253.748	254.577	256.038	257.695	259.04
308.5	269.02	256.178	257.111	258.432	260.892	261.653	263.055
309	275.9	257.056	257.129	258.533	261.102	261.969	264.277
31.5	297.34	292.97	293.112	293.312	293.624	293.84	294.203
310	279.229	258.93	259.378	259.605	262.174	263.592	266.534
311	280.859	260.752	260.865	260.969	261.746	264.92	268.571
313.5	261.5	254.524	255.103	255.805	257.156	259.5	261.423
314	260.919	257.816	257.831	257.871	257.903	260.475	261.429
315	264.651	262.191	262.26	262.34	262.456	262.552	264.462
316	269.981	266.504	266.644	266.821	267.114	267.621	268.121
317	278.073	274.899	274.978	275.071	275.207	275.331	275.429
318	284.808	279.131	279.252	279.403	279.645	279.901	280.475
319	284.46	280.071	280.287	280.561	281.047	281.46	282.016
32	301.478	295.135	295.388	295.538	295.708	295.858	295.94
320	286.768	280.408	280.673	281.072	281.971	282.816	283.757
320.5	285.58	280.926	281.147	281.511	282.629	283.782	284.998
320.7	287.168	284.279	284.379	284.503	284.694	284.85	285.182
321	290.969	287.96	288.029	288.12	288.266	288.392	288.526
322	292.074	288.934	289.115	289.359	289.774	290.236	290.919
322.5	263.5	255.6	255.686	255.789	255.944	262.664	263.214
323	261.399	259.098	259.106	259.124	259.138	260.763	262.167
323.1	264.29	258.041	258.401	258.835	259.481	260.582	261.945
323.2	262.145	258.825	259.029	259.277	259.648	260.233	262.204
323.3	263.37	261.186	261.48	261.831	262.334	262.849	263.735
323.5	265.4	261.897	262.062	262.269	262.582	262.898	263.248
324	265.892	262.082	262.107	262.266	262.577	262.902	263.282
325	267.484	264.208	264.565	265.154	266.491	267.659	267.985
326	267.746	264.811	265.013	265.484	267.051	268.112	268.362
327	276.061	271.667	271.762	271.847	271.963	272.049	272.134
328	279.288	274.764	274.865	274.982	275.186	275.359	275.559
329	288.996	286.692	289.068	289.153	289.257	289.327	289.395
33	303.002	296.481	296.719	296.918	297.183	297.383	297.565
330	288.572	287.075	289.141	289.24	289.37	289.463	289.557
331	297.778	293.302	293.437	293.702	294.113	296.075	297.873

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
332	301.1	299.597	299.715	299.837	300.012	300.165	301.195
333	289.636	287.427	287.526	287.648	287.831	287.981	288.128
333.1	275.82	272.278	272.326	272.392	272.499	272.591	272.685
333.5	299.65	293.057	293.094	293.155	293.25	293.329	293.408
333.6	293.05	286.347	286.385	286.451	286.555	286.64	286.724
333.7	285.34	282.173	282.248	282.35	282.514	282.652	282.789
334	290.261	288.114	288.182	288.275	288.788	289.235	289.85
335	273	268.808	269.085	269.357	269.754	269.837	270.426
336	274.217	270.133	270.426	270.643	271.2	271.854	272.092
337	274.124	270.724	270.997	271.257	271.711	272.288	272.66
338	273.828	270.747	271.001	271.273	271.753	272.389	272.818
339	273.76	272.574	272.945	273.348	273.656	273.713	273.882
339.5	276.24	272.907	272.904	272.93	273.1	273.24	273.404
34	303.517	297.505	297.8	298.033	298.328	298.558	298.759
340	279.999	279.261	280.113	280.204	280.327	280.421	280.527
341	280.007	279.969	280.357	280.458	280.607	280.728	280.867
342	280.699	280.287	280.79	280.91	281.065	281.185	281.332
342.5	284	282.894	283.142	283.484	283.991	284.219	284.39
343	286.208	283.768	284.032	284.301	284.656	285.132	285.709
344	285.486	282.882	283.162	283.566	284.199	284.556	284.904
345	288.27	285.779	285.93	286.139	286.655	287.597	289.251
346	289.461	285.9	286.216	286.571	287.445	288.709	289.84
347	292.91	287.973	288.008	288.063	288.714	290.797	292.882
347.5	293.29	288.65	288.911	289.179	289.573	291.73	293.592
348	295.572	291.371	291.5	291.796	293.911	295.788	296.013
349	294.863	290.767	290.869	290.978	291.741	294.933	295.292
35	303.513	297.836	298.218	298.539	299.035	299.552	303.513
350	294.764	292.502	293.112	293.771	294.017	295.261	295.512
351	291.301	287.043	287.363	287.774	288.385	290.01	293.156
351.5	270.274	266.656	266.803	266.908	267.913	269.808	270.473
352	271.656	267.587	267.649	267.739	268.242	270.601	271.82
353	271.37	269.156	269.287	269.486	269.783	271.289	271.903
354	278.326	274.514	274.631	274.761	274.893	275.213	276.011
355	286.216	282.209	282.361	282.572	283.457	286.33	286.474
356	289.193	285.362	285.532	285.758	286.888	289.453	289.583
357	302.905	299.889	299.989	300.112	300.323	300.911	303.13
358	303.614	301.632	302.166	302.798	303.634	303.671	304.033
359	303.687	302.008	302.734	303.67	304.026	304.069	304.327
360	256.347	253.075	253.125	253.644	254.751	256.533	257.868
361	257.511	254.3	254.451	254.571	254.773	256.637	257.904

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
362	265.315	260.637	260.717	260.78	260.863	260.925	260.986
363	258.596	256.326	256.604	257.478	259.621	261.08	261.617
364	261.493	257.774	258.193	258.623	260.805	261.836	262.334
365	261.9	258.1	258.498	258.876	260.413	261.956	262.259
366	259.986	259.444	259.69	260.008	260.454	261.415	262.075
367	262.799	259.176	259.321	259.439	261.022	262.917	263.036
368	263.22	258.642	259.034	259.372	261.658	263.286	263.546
369	263.173	259.601	260.144	260.63	262.129	263.306	263.96
369.5	270.29	259.576	260.162	260.76	262.459	263.833	264.709
369.6	270	261.038	261.234	261.487	262.488	263.831	264.703
37	303.664	298.696	298.853	299.062	299.586	300.407	301.346
370	273.313	267.709	267.855	267.952	268.143	268.357	268.677
371	284.771	277.698	278.046	280.036	284.873	284.998	285.098
372	270.628	262.052	262.366	262.689	263.831	264.383	265.017
373	269.477	264.516	264.837	265.315	267.403	269.414	269.939
374	304.758	298.911	299.558	300.075	304.238	305.194	305.319
375	303.564	298.479	298.909	299.124	302.668	304.744	304.909
376	304.586	297.136	297.281	297.742	300.924	304.693	304.852
377	267.941	267.952	268.147	268.286	268.468	268.612	268.82
378	268.049	267.972	268.16	268.298	268.481	268.625	268.831
378.5	278.5	274.474	274.654	274.867	275.135	275.429	275.941
379	277.752	275.31	275.66	276.096	276.815	277.589	278.064
38	304.625	300.613	300.83	300.982	301.118	301.276	302.309
380	278.419	275.468	275.854	276.384	277.273	278.217	278.706
381	279.689	274.384	274.516	274.684	274.963	275.793	276.85
382	278.793	276.102	276.402	276.779	277.384	277.774	278.237
383	257.257	251.486	252.182	252.794	253.695	254.399	254.805
383.5	254	251.508	252.167	252.722	253.375	253.859	254.111
384	254.914	251.912	252.166	252.72	253.381	253.872	254.127
385	260.306	247.423	248.251	249.126	249.628	249.699	249.518
386	257.833	249.393	249.393	249.393	249.452	249.551	249.415
387	258.409	251.199	251.199	251.199	251.199	251.199	251.199
388	259.327	251.967	251.967	251.967	251.967	251.967	251.967
389	261.187	253.267	253.267	253.267	253.267	253.267	253.267
39	305.452	301.997	302.279	302.515	302.865	303.173	303.731
39.5	307.2	303.18	303.337	303.482	303.736	304.04	304.685
390	264.471	256.721	256.721	256.721	256.721	256.721	256.721
391	263.203	258.853	258.853	258.853	258.853	258.853	258.853
392	265.229	260.959	260.959	260.959	260.959	260.959	260.959
393	265.763	261.133	261.133	261.133	261.133	261.133	261.133

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
4	277.553	273.964	274.75	275.61	278.096	278.695	279.187
402	275.665	272.943	273.373	274.232	275.821	276.095	276.262
403	273.284	270.794	271.112	271.397	271.809	272.266	273.854
404	272.9	270.055	270.263	270.454	270.751	271.497	273.619
405	291.717	288.375	288.519	288.643	288.807	289.629	290.288
406	292.104	289.542	289.794	290.013	290.411	290.693	290.853
406.5	293	290.027	290.399	290.75	291.337	291.825	292.385
407	294.841	291.086	291.127	291.176	291.342	291.861	292.453
408	295.372	292.022	292.11	292.222	292.342	292.318	292.399
409	295.819	290.101	290.248	290.374	291.173	291.974	292.847
41	301.151	289.433	289.556	289.655	289.795	291.743	294.113
410	294.053	291.403	291.712	291.98	292.302	292.754	293.544
410.5	263.3	258.098	258.301	258.481	258.742	258.962	259.195
410.6	296	292.654	292.918	293.177	293.598	294.091	295.317
411	261.075	258.233	258.469	258.686	259.007	259.282	259.57
412	263.161	258.93	259.06	259.241	259.548	259.829	260.134
413	263.344	259.666	259.904	260.114	260.429	260.705	261
413.5	275.55	269.927	270.014	270.096	270.22	270.326	270.434
414	277.234	271.462	271.574	271.673	271.815	271.935	272.06
415	277.199	272.115	272.227	272.33	272.483	272.616	272.755
416	272.604	271.539	272.022	272.624	272.742	272.817	272.888
418	262.902	260.74	260.857	260.961	261.103	261.224	261.347
419	273.95	270.156	270.732	271.257	272.249	273.435	274.183
42	301.583	291.549	291.875	292.61	293.721	294.506	298.311
420	275.009	270.178	270.835	271.467	272.603	273.831	274.973
421	275.471	273.148	273.234	273.3	273.386	274.563	275.635
422	285.886	283.621	283.693	283.746	283.822	283.885	283.954
423	281.854	278.683	278.71	278.747	278.794	278.829	279.183
424	281.518	279.409	279.534	279.707	279.942	280.124	280.291
425	280.245	277.453	277.63	277.824	279.563	280.141	280.34
426	282.823	277.877	277.941	278.026	279.012	279.627	279.985
427	289.847	285.287	285.339	285.408	285.513	285.599	285.685
428	290.16	286.355	286.375	286.407	286.452	286.487	286.521
429	288.817	286.697	286.76	286.847	287.005	287.159	287.33
43	271.069	265.278	265.702	266.038	266.528	266.946	267.298
43.1	272.02	265.329	265.751	266.088	266.583	267.004	267.361
43.2	272.11	267.389	267.604	267.773	267.993	268.199	268.42
43.3	273.38	267.395	267.61	267.779	268.001	268.209	268.431
43.4	274.63	268.479	268.483	268.486	268.488	268.485	268.582
43.5	276.03	269.539	269.779	269.989	270.314	270.633	270.958

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
43.6	277.07	273.263	274.007	274.663	276.877	277.814	278.376
43.7	280.8	275.718	276.109	276.417	277.343	278.362	279.041
43.8	281.8	277.404	277.744	278.105	278.715	279.176	279.667
43.9	279.65	278.136	278.774	279.683	280.399	280.734	281.054
430	290.839	286.999	287.052	287.117	287.218	287.305	287.394
430.5	279.26	275.736	276.047	276.661	277.517	278.275	279.066
430.6	282.46	282.471	282.818	282.914	283.174	283.42	283.63
431	284.424	282.829	283.386	283.7	284.279	284.668	284.836
432	284.527	282.943	283.569	283.954	284.646	285.184	285.481
433	284.95	283.043	283.719	284.184	284.978	285.433	285.701
434	290.267	284.771	284.924	285.049	285.602	286.477	287.133
435	290.88	285.653	285.99	286.272	286.625	287.403	287.93
436	290.269	285.96	286.349	286.673	287.076	288.619	288.681
437	290.366	286.344	286.75	287.096	287.528	289.118	289.465
438	291.239	286.879	287.282	287.63	288.033	289.591	290.221
439	292.158	287.025	287.489	287.88	288.51	292.158	291.292
44	271.424	267.668	268.079	268.507	269.962	271.63	271.919
440	239.526	236.023	236.189	236.288	237.416	239.001	239.863
440.5	239.547	236.444	236.818	237.136	238.301	239.774	240.096
441	243.627	239.198	239.422	239.628	239.821	240.154	241.711
441.5	243.62	240.508	240.945	241.336	242.436	242.86	243.904
442	244.637	240.874	240.996	241.097	241.232	241.336	241.813
443	246.596	241.422	241.537	241.629	241.753	241.851	242.066
444	246.728	241.511	241.575	241.626	241.69	241.738	241.784
444.5	289.5	287.602	287.872	288.141	288.479	288.94	289.405
445	260.144	255.737	255.92	256.107	256.445	257.062	260.353
446	260.348	257.098	257.496	258.008	258.712	258.989	260.934
447	261.133	258.042	258.094	258.157	258.237	258.297	260.608
448	240.862	225.377	228.217	231.272	236.118	240.223	241.013
449	241.486	225.338	228.139	231.188	236.014	239.698	239.727
45	272.06	269.268	269.866	270.411	271.443	272.743	272.959
450	233.594	228.061	228.451	231.815	236.315	240.331	240.864
451	261.581	239.674	239.77	239.893	240.074	240.364	241.484
452	246.867	240.651	240.693	240.75	240.831	241.359	243.482
453	248.042	237.741	238.215	238.995	240.214	241.372	242.957
454	247.274	236.822	237.064	237.431	238.01	238.355	238.877
455	248.687	245.372	245.414	245.462	245.535	245.595	245.643
456	261.744	256.176	256.306	256.47	256.753	257.05	259.064
457	249.764	245.719	245.822	245.968	246.199	246.37	246.324
458	243.487	237.604	237.714	237.792	237.885	237.953	238.775

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
459	254.429	245.493	245.539	245.613	245.714	245.787	245.856
46	274.222	270.369	271.211	272.735	274.531	275.02	275.199
460	264.549	258.695	258.942	259.156	259.453	259.862	260.913
461	258.043	255.33	255.346	255.389	256.142	257.858	259.222
461.5	259.727	254.779	255.294	255.951	257.206	259.206	261.139
462	260.363	256.212	257.061	258.301	260.575	261.161	261.817
463	285.137	261.37	261.463	261.536	261.63	261.722	262.491
463.5	228.5	226.985	228.368	230.007	231.249	232.35	233.478
464	285.129	281.464	281.497	281.523	281.556	281.582	281.607
465	274.396	271.001	271.306	271.588	272.063	272.62	273.079
466	293.072	285.877	286.013	286.162	286.485	288.39	293.135
466.5	283	279.095	279.259	279.418	279.73	279.866	281.026
467	271.909	267.658	267.79	267.927	268.142	268.372	268.993
468	302.241	300.285	300.632	301.07	301.958	302.427	302.662
469	308.325	304.132	304.221	304.322	304.491	304.978	306.131
47	274.242	270.629	271.439	272.988	274.741	275.172	275.345
470	309.378	307.813	309.026	309.476	309.595	309.603	309.666
471	309.302	305.131	305.162	305.212	305.289	305.353	306.214
472	286.607	280.405	280.525	280.643	280.821	281.01	281.496
473	286.533	283.03	283.177	283.441	283.875	284.224	284.281
473.5	286.9	285.611	285.892	286.086	286.385	286.674	288.401
474	287.205	287.253	287.385	287.509	287.669	287.796	288.546
475	288.627	288.751	288.878	288.98	289.117	289.224	289.374
476	294.658	292.319	292.423	292.89	295.908	298.648	302.127
477	304.02	301.541	304.087	304.163	304.339	304.542	304.761
478	302.763	302.982	304.114	304.194	304.385	304.594	304.818
479	303.085	303.424	304.162	304.246	304.456	304.668	304.896
48	280.74	276.098	276.29	276.447	276.701	277.176	277.541
480	292.375	282.186	282.224	282.278	282.365	282.436	282.507
481	289.594	282.88	282.973	283.109	283.336	283.532	283.735
482	288.699	283.771	283.822	283.895	284.015	284.116	284.241
483	302.495	296.675	296.708	296.755	296.831	296.893	296.956
484	302.258	297.726	297.815	297.95	298.174	298.369	298.571
485	302.173	297.973	298.072	298.223	298.474	298.696	298.932
486	303.335	298.035	298.149	298.32	298.603	298.856	299.131
487	302.561	298.887	298.934	299.005	299.118	299.213	299.344
487.1	244.95	240.336	240.693	241.022	241.467	241.799	242.122
487.2	250.04	244.508	244.724	245.051	245.561	245.974	246.398
487.3	253.35	246.455	246.397	246.542	247.074	247.533	248.017
487.4	254.3	245.85	246.256	246.656	247.297	247.949	248.766

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
487.5	261	258.389	258.508	258.623	258.803	258.941	259.077
487.6	255.11	253.187	253.475	253.74	254.14	254.438	254.674
487.8	268.5	262.441	262.707	262.969	263.381	263.691	264.021
487.9	270.68	266.96	267.2	267.445	267.821	268.101	268.401
488	285.061	282.197	282.214	282.254	282.306	282.342	282.374
488.1	275.176	270.811	270.991	271.206	271.662	272.084	272.605
488.2	275.71	273.01	273.4	273.829	274.478	275.084	275.593
488.3	275.8	273.053	273.439	273.866	274.513	275.114	275.633
488.4	276	273.08	273.472	273.903	274.652	275.321	275.933
489	278.108	274.342	274.41	274.495	274.715	275.542	276.38
49	280.611	277.713	278.194	278.755	279.917	280.182	280.24
49.5	280.5	277.972	278.578	279.346	280.975	281.667	282.055
490	279.864	275.125	275.281	275.474	275.773	276.054	276.709
491	285.776	275.839	275.91	275.998	276.135	276.252	276.875
491.5	285.578	276.72	276.868	277.053	277.348	277.603	277.775
492	280.091	277.22	277.37	277.578	277.944	278.303	278.702
493	281.128	277.683	277.837	278.044	278.413	278.793	279.275
494	288.852	280.525	280.596	280.685	280.829	280.956	281.594
495	298.578	295.874	295.907	295.969	296.066	296.144	296.221
497	275.23	271.192	271.907	272.6	273.77	275.032	275.605
497.5	284	276.548	276.87	277.268	277.904	278.337	278.818
498	284.15	276.673	277.006	277.414	278.069	278.541	279.07
499	296.173	276.818	277.161	277.577	278.259	278.784	279.386
5	278.975	274.769	275.468	276.638	279.586	280.02	280.338
50	281.509	278.125	279.163	280.254	281.879	282.198	282.448
500	295.176	285.442	285.479	285.538	285.631	285.711	285.768
501	296.739	287.39	287.526	287.736	288.063	288.339	288.534
501.5	296.724	289.41	289.485	289.603	289.782	289.931	290.034
502	282.105	278.014	278.134	278.275	278.485	279.121	280.078
503	282.091	278.014	278.134	278.276	278.488	279.123	280.081
504	286.661	282.336	282.505	282.708	283.038	283.113	283.16
505	297.498	291.726	291.862	292.098	292.553	293.982	295.059
506	299.839	296.089	296.129	296.19	296.285	296.367	296.414
507	300.606	297.927	298.096	298.369	299.182	300.584	301.553
508	300.192	298.066	298.253	298.369	299.2	300.591	301.599
509	301.91	298.483	298.552	298.653	299.6	301.374	302.752
51	288.306	286.797	287.308	287.832	288.227	288.249	289.454
51.5	288.5	286.795	287.304	287.825	288.215	288.238	289.396
510	301.794	299.525	299.657	299.855	299.978	301.86	302.775
511	299.987	292.397	292.397	292.586	292.729	292.819	292.903

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
512	305.688	292.968	292.968	292.968	292.968	292.968	292.968
512.5	305.9	293.1	293.1	293.1	293.1	293.1	293.1
512.6	308	302.904	303.038	303.145	303.285	303.398	303.516
513	300.059	292.239	292.239	292.571	292.719	292.814	292.897
514	299.728	291.348	291.97	292.566	292.719	292.811	292.891
515	294.058	291.195	291.955	292.557	292.716	292.808	292.89
516	292.44	291.191	291.946	292.547	292.715	292.808	292.89
516.5	292.2	288.776	288.917	289.043	289.072	289.114	289.204
517	289.303	284.846	284.964	285.183	285.81	286.171	286.509
518	291.834	289.322	289.451	289.58	289.788	289.934	290.085
519	291.653	289.892	290.041	290.16	290.314	290.462	290.619
52	290.492	285.45	285.613	285.741	286.214	286.9	289.264
520	293.081	290.472	290.554	290.621	290.71	290.778	290.846
521	293.488	291.765	292.975	293.668	293.838	293.949	294.047
522	297.326	293.494	294.061	295.473	296.479	297.355	297.491
523	296.167	294.788	295.147	296.151	296.655	297.395	297.533
524	302.3	299.447	299.619	299.962	302.039	302.483	302.576
525	289.224	284.455	284.757	285.026	285.367	285.628	285.881
525.5	289	284.256	284.506	284.726	285.001	285.21	285.41
526	289.321	284.708	285.047	285.35	285.735	286.031	286.319
527	288.643	284.036	284.632	285.122	285.776	286.979	288.374
527.5	288.6	285.242	285.297	285.45	286.137	287.46	288.914
528	287.974	285.244	285.299	285.456	286.157	287.488	288.917
528.5	288.9	287.614	288.125	289.161	289.411	289.639	289.877
529	289.735	288.945	289.496	290.051	290.235	290.381	290.531
53	297.149	288.583	288.802	289.38	291.268	292.589	295.036
530	290.572	289.655	290.629	291.664	292.653	293.654	294.802
530.5	291	289.727	290.73	291.68	292.657	293.664	294.817
531	288.85	287.741	288.371	289.211	289.443	289.662	289.894
532	295.392	291.812	291.858	291.894	292.668	293.733	294.915
533	300.903	295.677	295.921	296.553	299.987	301.041	301.15
534	293.69	289.991	290.648	291.731	292.769	293.757	294.809
535	302.473	301.701	302.506	302.568	302.8	302.934	303.011
535.5	285.5	279	279	279	279	279	279
535.6	286.867	280.391	280.554	280.692	280.87	281.012	281.156
535.7	287.667	280.772	280.864	280.945	281.044	281.118	281.189
536	281.5	275	275	275.855	276.771	276.975	277.147
537	278.541	273.468	274.513	275.849	276.754	276.97	277.139
538	278.051	273.468	274.512	275.847	276.751	276.969	277.137
538.5	277	273.463	274.51	275.832	276.736	276.953	277.118

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
539	275.852	272.522	274.143	275.187	275.754	275.982	276.172
539.5	275.1	272.521	274.142	275.186	275.75	275.981	276.169
54	296.829	295.095	296.223	296.948	297.069	297.143	297.293
540	275.204	271.744	273.706	274.494	275.378	275.619	275.803
541	273.424	271.541	273.318	273.827	274.247	274.512	274.758
542	272.818	271.305	273.031	273.613	274.04	274.305	274.554
543	272.926	270.707	272.52	273.401	273.805	274.057	274.296
544	272.502	270.125	271.805	272.95	273.373	273.629	273.872
545	272.304	269.701	271.284	272.576	273.002	273.256	273.497
546	270.99	269.262	270.744	271.938	272.468	272.745	273.001
547	270.557	268.905	270.306	271.815	272.332	272.595	272.839
548	271.301	268.316	269.66	271.73	272.228	272.475	272.704
549	270.98	267.656	268.869	271.138	271.809	272.056	272.282
549.5	269	265.893	266.627	268.055	269.597	270.155	270.646
55	294.442	291.704	291.85	292.007	292.247	292.606	294.825
550	267.778	265.402	265.984	267.083	268.547	269.652	270.253
551	282.038	274.629	274.745	274.839	274.983	275.229	275.524
552	301.018	301.223	301.336	301.417	301.513	301.587	301.66
553	304.273	304.434	304.546	304.623	304.716	304.785	304.851
554	280.039	274.924	276.834	279.524	280.336	280.499	280.596
555	284.465	279.378	280.938	284.518	284.76	284.916	285.009
556	283.96	281.531	282.203	284.702	284.938	285.11	285.215
557	284.389	282.65	283.63	284.993	285.209	285.386	285.498
557.5	284.5	283.301	284.572	285.188	285.404	285.59	285.709
557.6	293.9	290.329	290.588	290.754	291.002	291.235	291.408
558	280.592	276.924	278.629	280.914	281.164	281.291	281.371
559	295.787	294.872	295.926	296.028	296.204	296.332	296.434
56	283.901	274.192	274.699	274.924	277.21	278.807	280.892
560	303.014	297.347	300.336	302.084	303.271	303.413	303.528
561	303.454	300.956	303.751	303.967	304.179	304.284	304.372
562	300.63	301.169	303.899	304.132	304.351	304.415	304.513
563	300.136	301.203	304.076	304.324	304.619	304.721	304.874
564	308.476	308.811	308.944	309.043	309.168	309.264	309.358
565	312.34	308.44	308.704	308.931	309.279	310.774	312.298
566	313.804	307.226	307.435	307.627	308.025	309.388	310.548
567	313.488	305.679	305.943	306.179	306.635	307.269	307.874
568	312.689	303.915	304.058	304.145	304.221	304.259	304.352
569	311.692	299.516	299.651	299.799	300.029	300.482	301.447
57	273.594	268.859	269.645	270.851	271.698	272.153	272.174
570	310.276	298.238	298.522	298.759	299.066	299.348	299.73

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
571	307.661	297.75	298.011	298.222	298.482	298.706	298.963
572	306.45	297.203	297.426	297.604	297.822	298.008	298.2
573	302.615	295.374	295.497	295.592	295.705	295.797	295.995
574	299.298	293.694	293.937	294.145	294.453	294.735	295.227
575	297.985	292.923	293.227	293.502	293.91	294.247	294.798
576	298.931	292.655	292.988	293.264	293.654	293.971	294.461
577	299.606	291.237	291.475	291.689	292.02	292.319	292.821
578	296.701	289.424	289.755	290.021	290.38	290.652	291.002
579	294.611	287.056	287.178	287.281	287.42	287.523	287.633
58	273.034	271.541	272.174	272.175	273.199	273.375	273.435
580	278.991	272.767	274.895	276.736	279.038	279.201	279.319
581	278.573	275.506	276.842	278.734	279.206	279.361	279.484
582	278.95	276.553	276.78	277.264	277.504	277.818	278.324
583	278.691	276.458	276.861	277.249	277.486	277.8	278.281
583.5	281.5	277.167	277.342	277.833	277.911	277.919	278.378
584	281.555	277.285	277.467	277.935	278.043	278.448	278.881
585	281.101	277.5	277.695	278.124	278.458	278.904	279.376
585.5	281.1	278.127	278.417	278.778	279.27	279.675	280.105
585.6	284.4	278.043	278.407	278.803	279.392	279.848	280.328
586	312.517	312.98	313.116	313.219	313.349	313.451	313.55
587	313.768	314.29	314.42	314.519	314.646	314.745	314.842
588	284.458	278.233	278.584	278.971	279.553	280.014	280.496
589	286.715	280.251	280.563	280.815	281.246	281.577	281.98
59	285.596	279.573	279.595	279.641	279.72	279.839	279.951
59.7	266.12	252.562	252.775	252.901	253.072	253.414	253.596
59.8	267.15	261.147	261.293	261.381	261.506	261.766	261.911
590	287.295	280.768	280.908	281.024	281.206	281.336	281.482
591	291.647	284.288	284.643	284.941	285.412	285.748	286.124
592	292.282	287.441	287.509	287.558	287.651	287.715	287.789
593	294.744	291.664	291.862	292.009	292.3	292.506	292.746
594	295.018	292.278	292.523	292.699	293.04	293.276	293.548
595	296.619	292.771	292.887	292.97	293.365	293.83	294.552
596	300.855	296.429	296.571	296.677	296.753	296.827	296.947
597	308.739	303.882	304.221	306.379	308.868	308.967	309.049
598	308.608	304.855	305.367	307.865	309.103	309.205	309.299
599	308.633	305.437	305.542	308.771	309.244	309.352	309.456
6	279.612	276.083	276.568	277.499	280.363	280.762	281.07
60	287.11	279.271	279.485	279.646	279.84	279.984	280.119
60.1	286.5	279.218	279.407	279.549	279.716	279.836	279.947
60.2	274	270.68	270.896	271.033	271.242	271.736	272.052

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
60.3	272.8	273.092	273.249	273.331	273.441	273.661	273.793
60.5	288.12	281.98	282.206	283.584	287.832	288.554	288.712
600	289.874	286.754	286.97	287.181	287.47	287.823	288.424
601	291.995	287.378	287.668	287.914	288.249	288.524	288.983
602	292.37	287.751	288.107	288.407	288.811	289.107	289.693
603	291.98	288.766	289.129	289.444	289.88	290.429	291.461
604	291.334	289.056	289.454	289.795	290.264	290.919	291.756
605	292.256	289.056	289.455	289.796	290.265	290.923	291.761
606	296.528	292.352	292.575	292.76	293.015	293.274	294.058
607	298.709	293.684	293.967	294.201	294.524	294.789	295.038
608	303.89	300.972	303.973	304.085	304.22	304.326	304.425
609	304.179	302.235	304.525	304.613	304.726	304.826	304.928
61	288.948	282.215	282.588	284.035	288.492	289.95	290.688
610	307.771	306.962	308.036	308.129	308.244	308.332	308.419
610.1	281	276.197	276.427	276.753	277.325	277.775	278.241
610.3	295.6	276.61	276.782	277.114	277.418	277.863	278.323
610.4	295.5	276.863	277.058	277.369	277.507	277.886	278.346
610.5	279.91	276.673	276.855	277.159	277.288	277.502	277.9
611	307.906	307.995	308.332	308.431	308.561	308.664	308.767
611.1	279.17	273.872	273.951	274.125	274.263	274.457	274.668
611.2	279.75	272.271	272.312	272.356	272.422	272.47	272.506
611.3	279.75	272.265	272.307	272.352	272.419	272.47	272.506
611.4	279.1	272.257	272.3	272.347	272.416	272.468	272.507
611.5	278.2	269.762	269.781	269.801	269.831	269.854	269.871
612	277.697	269.372	269.397	269.423	269.446	269.466	269.504
613	275.306	267.583	267.602	267.623	268.136	268.753	269.497
614	273.154	266.618	266.956	267.455	268.192	268.849	269.685
615	273.68	266.46	266.95	267.426	268.124	268.744	269.503
616	274.021	266.438	266.937	267.416	268.089	268.718	269.491
617	272.443	266.428	266.928	267.408	268.078	268.709	269.483
617.5	271.2	266.423	266.923	267.404	268.071	268.699	269.472
618	270.712	265.797	266.252	266.688	267.294	267.783	268.252
619	270.83	265.157	265.558	265.946	266.488	266.925	267.398
62	288.894	282.937	283.437	285.168	289.291	290.103	290.774
620	268.636	263.133	263.418	263.694	264.09	264.391	264.716
621	268.11	262.931	263.188	263.439	263.802	264.077	264.369
622	270.53	266.914	267.453	267.949	268.811	269.679	270.682
623	273.51	268.517	268.716	268.891	269.162	270.408	272.044
624	277.511	272.348	272.612	272.85	273.223	273.353	273.447
625	280.437	275.348	275.544	275.713	275.972	276.483	276.814

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
626	283.761	277.674	277.954	278.199	278.572	278.748	279.045
627	284.682	278.61	278.934	279.212	279.641	280.027	280.416
628	288.62	284.5	284.641	284.761	284.94	285.094	285.255
629	289.255	285.586	285.769	285.914	286.123	286.301	286.488
63	289.269	283.502	284.589	286.917	289.835	290.332	290.903
630	288.075	285.807	285.957	286.076	286.365	286.899	287.504
631	292.656	287.731	287.916	288.064	288.282	288.471	288.671
632	293.075	288.478	288.73	288.926	289.209	289.449	289.697
633	294.451	290.313	290.53	290.707	290.969	291.198	291.444
634	302.79	297.234	297.401	297.533	297.723	297.887	298.059
635	302.869	298.407	298.716	298.956	299.294	299.577	299.871
636	303.44	298.986	299.344	299.624	300.021	300.365	300.694
637	314.157	309.212	309.247	309.278	309.323	309.361	309.4
638	307.184	306.703	307.361	307.453	307.565	307.652	307.736
639	300.732	277.313	277.34	277.427	277.528	277.902	278.36
64	290.223	284.258	285.634	288.519	290.7	290.914	291.266
640	301.989	278.018	278.049	278.168	278.308	278.321	278.371
641	280.426	276.211	276.298	276.396	276.555	276.727	276.924
642	282.838	278.53	278.875	279.252	279.825	280.293	280.796
643	283.385	278.729	278.876	279.255	279.826	280.295	280.801
644	282.863	279.286	279.329	279.388	279.802	280.352	280.966
645	285.355	279.233	279.36	279.481	279.993	280.472	281.014
646	287.022	280.629	280.781	280.923	281.072	281.232	281.511
646.5	295.8	288.743	288.851	288.952	289.1	289.227	289.362
647	280.438	281.74	281.901	282.04	282.228	282.372	282.557
648	281.232	281.667	281.81	281.934	282.1	282.227	282.4
649	281.025	281.696	281.84	281.966	282.136	282.266	282.439
65	291.544	286.417	288.207	291.7	292.094	292.235	292.385
650	281.2	281.735	281.878	282.006	282.178	282.31	282.483
651	281.2	277.131	277.255	277.367	277.522	277.647	277.772
651.5	280.7	277.702	277.858	278.004	278.216	279.039	279.366
651.6	280.7	278.386	278.625	278.824	279.096	279.232	279.516
652	280.468	277.706	277.863	278.013	278.232	279.059	279.397
653	280.595	277.865	277.898	277.952	278.181	279.087	279.459
654	281.063	278.386	278.625	278.824	279.096	279.232	279.516
655	281.085	278.387	278.626	278.825	279.096	279.234	279.52
656	285.377	279.858	280.106	280.33	280.656	280.947	281.231
657	287.521	282.677	282.82	282.943	283.117	283.262	283.412
658	293.666	288.356	288.539	288.702	288.936	289.136	289.347
659	293.627	289.44	289.721	289.969	290.313	290.595	290.881

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
66	286.55	280.678	280.755	280.816	280.896	281.171	281.633
660	297.238	293.888	294.041	294.173	294.358	294.518	294.783
661	298.151	295.677	295.973	296.227	296.583	296.878	297.159
662	300.065	300.271	300.425	300.54	300.687	300.802	300.914
663	300.285	300.748	300.878	300.992	301.149	301.276	301.405
664	297.1	294.01	295.938	297.168	297.294	297.38	297.463
665	247.562	230.006	230.147	230.375	230.67	231.082	231.979
666	245.811	234.505	234.624	234.746	235.26	235.488	235.748
667	239.76	227.253	227.803	229.346	230.329	231.107	231.977
668	289.697	286.777	287.083	287.356	287.736	288.046	288.289
669	301.694	298.028	298.093	298.156	298.252	298.332	298.415
67	290.334	286.895	286.995	287.096	287.354	287.952	290.051
670	302.394	298.977	299.124	299.271	299.495	299.686	299.885
671	301.772	299.112	299.124	299.271	299.495	299.686	299.885
672	303.67	299.948	300.06	300.179	300.373	300.554	300.759
673	302.903	300.686	300.728	300.773	300.839	300.895	300.953
674	304.03	300.335	300.394	300.452	300.54	300.714	300.95
675	303.931	301.245	301.378	301.515	301.724	301.851	301.968
676	306.252	302.481	302.57	302.662	302.816	302.985	303.198
677	308.145	305.089	305.178	305.271	305.413	305.533	305.665
678	307.15	305.171	305.213	305.256	305.319	305.371	305.425
679	307.207	305.114	305.206	305.304	305.453	305.579	305.716
68	286.825	283.762	284.084	284.398	284.859	285.291	285.862
680	281.126	278.573	278.71	278.833	279.011	279.163	279.32
681	281.029	279.502	279.742	279.952	280.252	280.501	280.753
682	288.899	286.358	286.449	286.53	286.646	286.744	286.844
683	288.984	287.556	287.805	288.024	288.334	288.592	288.923
684	291.058	288.923	289.054	289.171	289.34	289.484	289.727
686	291.375	289.887	290.128	290.342	290.645	290.898	291.15
687	295.677	293.379	293.481	293.573	293.705	293.817	293.934
688	296.63	294.797	295.026	295.232	295.525	295.77	296.022
689	274.437	266.455	266.642	266.8	267.051	267.294	268.108
69	285.865	283.817	284.151	284.48	284.972	285.453	286.026
690	274.759	270.914	272.678	274.26	275.004	275.15	275.338
691	277.09	271.74	273.997	276.119	277.349	277.553	277.74
692	277.558	271.884	274.129	276.305	277.656	277.969	278.295
693	277.949	272.582	275.251	277.867	278.377	278.51	278.697
694	276.209	273.743	276.407	277.885	278.403	278.531	278.723
695	279.986	272.065	274.225	276.454	277.972	278.477	279.066
696	308.739	296.381	296.499	296.669	296.951	297.214	297.617

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
697	307.393	295.346	295.413	295.514	295.691	295.848	296.015
698	299.993	296.954	297.017	297.111	297.267	297.483	297.838
699	290.971	286.603	286.63	286.666	286.723	286.768	286.811
7	279.872	276.66	277.23	278.354	280.922	281.305	281.609
70	285.808	283.517	283.808	284.089	284.497	284.858	285.271
700	289.211	283.811	283.873	283.973	284.119	284.552	285.242
701	288.11	284.121	284.144	284.214	284.276	284.544	285.246
701.5	288.5	283.37	283.515	283.679	283.917	284.429	284.906
702	289.105	283.953	284.175	284.406	284.758	285.129	285.576
703	294.005	285.776	285.879	285.984	286.143	286.278	286.421
705	249.995	241.571	241.656	241.758	241.902	242.042	242.235
706	237.968	227.472	229.344	231.384	232.33	233.388	234.495
707	279.645	257.524	257.627	257.754	257.932	258.106	258.352
708	281.568	259.769	259.934	260.148	260.457	260.768	261.232
709	283.635	261.315	261.464	261.654	261.936	262.228	262.701
71	286.5	283.068	283.302	283.524	283.833	284.097	284.372
713	281.844	270.151	270.244	270.364	270.526	270.687	270.922
714	284.843	278.667	278.761	278.888	279.06	279.238	279.522
715	291.076	286.05	286.145	286.275	286.453	286.643	286.98
716	305.524	295.174	295.341	295.604	298.637	303.867	305.748
717	300.055	294.509	294.588	294.657	294.773	294.852	294.932
719	298.639	295.517	295.541	295.569	295.61	295.644	295.678
72	286.3	281.817	281.907	281.991	282.107	282.204	282.304
720	297.652	295.758	295.818	295.89	295.999	296.089	296.178
721	298	296.011	296.036	296.065	296.11	296.146	296.182
722	300.974	298.331	298.961	300.137	301.15	301.279	301.391
723	301.188	298.639	299.375	300.699	301.595	301.727	301.855
724	304.186	299.224	300.062	301.819	303.332	303.985	304.727
725	308.203	302.44	304.262	307.514	308.899	309.252	309.581
726	309.031	309.081	309.373	309.633	309.835	309.973	310.161
727	309.434	309.86	310.004	310.144	310.318	310.452	310.612
728	294.584	291.499	292.061	292.647	293.432	293.833	294.918
729	294.537	291.5	292.061	292.647	293.432	293.833	294.926
73	286.9	281.323	281.496	281.648	281.854	282.033	282.217
730	295.439	291.892	292.739	293.618	294.856	295.57	295.853
731	303.489	299.657	299.812	299.991	302.626	303.68	303.8
732	317.91	313.832	313.922	313.996	314.096	314.176	314.26
732.5	294	290.086	290.206	290.329	290.497	291.287	293.42
733	295.444	291.781	291.982	292.141	292.368	292.504	294.208
734	294.643	291.781	291.982	292.141	292.368	292.504	294.21

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
735	294.987	292.816	293.053	293.263	293.547	294.068	294.913
736	295.751	292.971	293.269	293.534	293.902	294.545	295.515
737	298.628	295.633	295.699	295.893	296.927	298.657	300.566
738	302.954	299.858	300.127	301.292	303.078	303.265	303.425
739	303.017	301.147	301.498	302.583	303.434	303.566	303.697
74	286.5	283.979	284.342	284.719	285.37	286.002	286.628
740	303.842	302.696	303.817	304.083	304.259	304.338	304.416
741	298.844	294.558	294.702	294.828	295.041	295.188	295.53
742	287.589	283.212	283.911	284.439	285.351	285.946	286.344
76	289.482	286.189	286.271	286.348	286.452	286.544	286.635
77	289.293	287.407	287.618	287.817	288.094	288.347	288.604
78	293.524	290.398	290.459	290.515	290.594	290.659	290.725
79	290.832	288.496	288.987	289.583	290.825	291.009	291.118
8	283.464	278.736	278.958	279.798	283.81	284.166	284.416
80	299.847	295.121	295.256	295.402	296.456	298.506	299.974
81	296.34	291.955	292.213	292.485	292.956	293.688	294.808
82	298.192	291.562	291.796	292.025	292.356	292.778	293.581
83	295.287	290.952	291.136	291.313	291.575	291.878	292.344
84	291.289	289.233	289.362	289.504	289.726	289.985	290.609
85	292.108	288.71	288.91	289.094	289.335	289.574	290.309
86	291.806	288.43	288.603	288.762	288.97	289.18	290.046
87	293.602	286.945	287.038	287.121	287.227	288.138	289.37
9	287.097	282.85	283.251	283.742	287.545	287.872	288.103
9.6	288.5	284.853	285.007	285.27	285.675	289.017	289.362
90	296.187	294.332	294.625	294.848	295.132	295.325	295.499
90.5	294.98	292.92	293.156	293.357	293.687	293.984	294.376
91	293.174	291.472	291.865	292.242	292.842	293.233	293.466
92	294.431	291.407	291.7	291.934	292.353	292.613	292.853
92.5	286.3	284.905	285.192	285.391	285.723	286.007	286.557
93	297.941	291.331	291.439	291.524	291.633	291.722	291.812
94	276.173	272.62	272.957	273.898	275.875	276.682	277.066
95	275.749	271.31	272.035	272.877	274.206	275.43	276.397
96	275.157	271.082	271.587	272.1	272.974	273.614	275.41
96.5	268.72	265.141	265.391	265.588	265.91	266.216	266.474
97	274.456	269.416	269.624	269.79	270.103	270.744	273.053
98	292.561	290.962	292.375	292.688	292.742	292.86	293.013
99	292.319	287.884	288.035	288.157	288.619	289.106	289.651
CANE-10	233.3	213.521	215.942	217.001	217.765	218.05	218.125
CANE-11	233.3	214.007	216.843	218.087	219.089	219.449	219.578
CANE-12	236.54	213.122	215.377	216.628	217.737	218.287	219.027

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CANE-13	239.87	215.212	216.139	217.245	218.223	219.07	219.958
CANE-14	238.73	216.88	217.895	218.908	219.782	220.53	221.298
CANE-15	238.69	217.108	218.177	219.265	220.221	221.049	221.876
CANE-16	236.58	217.496	218.629	219.803	220.817	221.678	222.531
CANE-17	234.67	217.622	218.74	219.909	220.923	221.78	222.629
CANE-18	237.1	217.633	218.73	219.888	220.893	221.745	222.588
CANE-19	237.1	218.147	219.149	220.253	221.22	222.046	222.87
CANE-2	231.87	209.183	210.374	210.624	211.161	211.376	211.597
CANE-20	233	222.067	222.56	223.108	223.56	223.944	224.32
CANE-21	241	222.553	223.181	223.933	224.589	225.153	225.717
CANE-22	239	223.017	223.881	224.902	225.764	226.513	227.26
CANE-23	238	223.057	223.926	224.948	225.809	226.557	227.303
CANE-24	240	223.246	224.194	225.304	226.235	227.042	227.847
CANE-25	238.16	224.796	225.569	226.473	227.266	227.981	228.714
CANE-26	234.79	225.259	226.193	227.248	228.117	228.865	229.618
CANE-27	234.49	225.444	226.396	227.455	228.328	229.084	229.837
CANE-28	235.88	225.545	226.541	227.664	228.569	229.335	230.107
CANE-29	235.95	225.856	226.953	228.171	229.138	229.956	230.769
CANE-3	233.07	209.21	210.21	210.659	211.204	211.43	211.664
CANE-30	235.16	225.898	226.989	228.198	229.16	229.979	230.789
CANE-31	235.28	226.544	227.775	229.138	230.178	231.009	231.859
CANE-32	236.01	226.486	227.649	228.977	229.997	230.802	231.631
CANE-33	236.3	226.898	228.313	229.909	231.182	232.212	233.296
CANE-34	236.96	227.203	228.66	230.241	231.522	232.532	233.613
CANE-35	237.13	229.294	231.186	233.006	234.164	235.187	236.25
CANE-36	238.21	229.797	232.494	234.693	236.169	237.42	238.648
CANE-37	239.24	228.802	230.193	231.726	232.943	234.065	235.19
CANE-38	242	227.896	229.518	231.158	232.264	233.35	234.415
CANE-39	243	227.484	229.356	231.086	232.276	233.337	234.415
CANE-4	234.48	209.266	210.191	210.727	211.276	211.517	211.768
CANE-40	239.65	227.926	229.683	231.395	232.518	233.631	234.684
CANE-41	239.15	228.329	230.341	232.424	233.524	234.607	235.778
CANE-42	241	227.701	228.445	231.585	232.994	234.181	235.46
CANE-43	239.3	229.836	231.253	233.109	234.019	235.034	236.193
CANE-44	242	231.18	232.842	234.567	235.456	236.264	237.237
CANE-45	244.3	231.826	233.527	235.252	236.064	236.83	237.722
CANE-46	246.04	232.013	233.777	235.516	236.341	237.092	237.951
CANE-47	249.23	234.204	236.306	238.173	238.86	239.138	239.483
CANE-48	254.11	236.067	237.346	238.468	238.966	239.294	239.675
CANE-49	256	236.755	238.556	238.69	239.273	239.631	239.989

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CANE-5	232.17	210.102	210.865	211.699	212.386	212.858	213.35
CANE-50	247	238.278	239.744	240.027	240.352	240.555	240.692
CANE-51	247.1	238.477	239.945	240.406	240.716	240.952	241.018
CANE-52	247.29	239.273	241.736	242.879	243.284	243.688	243.51
CANE-53	248.67	239.68	242.476	243.472	243.864	244.302	244.197
CANE-54	248.64	239.677	242.413	243.457	243.872	244.276	244.133
CANE-55	249.23	240.152	244.356	244.911	244.693	245.423	246.006
CANE-56	251	240.61	244.358	244.915	245.421	245.953	246.346
CANE-57	251	242.559	245.634	246.035	245.921	246.074	247.693
CANE-58	248.52	251.419	251.368	251.083	251.165	251.191	251.141
CANE-59	249.26	248.299	249.393	249.529	248.957	249.03	248.73
CANE-6	232.57	210.715	211.522	212.45	213.282	213.908	214.531
CANE-60	250.1	248.089	248.93	249.378	249.335	248.87	248.236
CANE-61	251.3	253.34	254.06	254.359	254.666	254.211	253.353
CANE-62	253.96	250.485	251.091	251.43	252.121	251.808	251.132
CANE-63	253.4	249.341	253.4	253.4	253.4	249.12	253.4
CANE-64	252.5	247.16	247.489	247.671	248.052	248.009	247.734
CANE-65	252.09	247.413	248.023	248.36	248.813	249.024	248.619
CANE-66	254.1	247.461	248.248	248.936	249.108	249.445	249.192
CANE-67	260.51	247.659	248.427	248.801	249.306	249.387	249.297
CANE-68	261	247.432	248.071	248.666	249.04	249.306	249.115
CANE-69	259.2	247.841	248.825	249.514	250.072	250.503	250.869
CANE-7	232.98	211.13	211.968	212.922	213.757	214.401	215.048
CANE-7.5	232.89	211.302	212.127	213.072	213.904	214.546	215.193
CANE-70	261.4	248.537	249.522	250.252	250.983	251.531	252.064
CANE-71	260.4	248.609	249.604	250.356	251.123	251.699	252.252
CANE-72	261.48	251.024	251.489	251.84	252.391	252.888	253.323
CANE-73	263.48	251.33	251.802	252.157	252.678	253.16	253.582
CANE-74	264.4	251.409	251.916	252.306	252.868	253.393	253.855
CANE-75	257.28	251.693	252.096	252.41	252.785	253.084	253.337
CANE-8	233.03	211.504	212.045	212.733	213.662	214.23	214.847
CANE-9	233.3	212.759	213.637	214.304	214.887	215.27	215.866
CANETRIB-1	236.9	226.866	228.257	229.857	231.125	232.19	233.276
CANETRIB-2	236.8	226.845	228.258	229.953	231.147	232.191	233.268
CANETRIB-3	236.4	226.911	228.273	229.992	231.221	232.302	233.42
CANETRIB-4	240.76	228.032	228.287	229.956	231.158	232.283	233.386
CANETRIB-5	242.07	229.602	229.883	230.186	231.262	232.385	233.459
CANETRIB-6	244.39	231.921	232.271	232.643	233.208	233.605	234.083
CANETRIB-7	245.07	232.12	232.452	232.804	233.343	233.735	234.174
CANETRIB-8	245.89	233.859	234.11	234.366	234.744	235.034	235.397

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CHANNEL-1	246.88	247.34	248.008	248.42	248.93	249.179	248.787
CHANNEL-1(	265.42	257.945	258.29	258.601	260.58	261.941	262.843
CHANNEL-1	268.13	259.3	259.757	260.165	261.557	262.602	263.388
CHANNEL-1	267.4	259.463	259.955	260.394	261.831	262.896	263.743
CHANNEL-1	267.66	259.535	260.037	260.488	261.97	263.044	263.912
CHANNEL-2	253.99	251.235	251.649	251.94	252.41	253.552	254.606
CHANNEL2-	256.89	251.742	252.134	252.449	252.822	253.124	253.373
CHANNEL2-1	271.13	264.62	264.968	265.241	265.649	266.008	266.308
CHANNEL2-1	270.93	264.706	265.057	265.333	265.743	266.103	266.404
CHANNEL2-1	270.99	264.889	265.274	265.577	266.025	266.415	266.743
CHANNEL2-1	270.54	265.234	265.644	265.967	266.438	266.842	267.181
CHANNEL2-	270.6	257.513	257.616	257.7	257.818	257.939	258.007
CHANNEL2-	270.63	257.771	257.921	258.043	258.213	258.389	258.484
CHANNEL2-	265.36	258.958	259.079	259.177	259.313	259.453	259.525
CHANNEL2-(	265	259.129	259.219	259.299	259.414	259.541	259.605
CHANNEL2-	270.4	260.852	260.852	260.852	260.852	260.852	260.852
CHANNEL2-8	271	261.216	261.216	261.216	261.216	261.216	261.216
CHANNEL2-9	270.3	263.576	263.58	263.586	263.582	263.597	263.595
CHANNEL-3	257	249.998	250.15	250.255	250.416	250.706	250.965
CHANNEL3-	268.19	264.766	265.186	265.491	266.134	266.89	267.183
CHANNEL3-	270.2	265.375	265.538	265.642	266.07	266.879	267.18
CHANNEL3-	270.24	267.462	268.871	270.118	270.471	270.562	270.565
CHANNEL-4	257	252.248	252.982	253.635	254.714	256.508	257.854
CHANNEL4-	258.13	253.822	254.388	254.826	255.367	255.796	256.188
CHANNEL4-1	268.1	262.376	262.603	262.842	263.214	263.469	263.719
CHANNEL4-1	270.8	265.992	266.21	266.392	266.642	266.855	267.098
CHANNEL4-1	275.93	272.372	272.547	272.694	272.886	273.028	273.152
CHANNEL4-	258.9	254.759	255.351	255.81	256.381	256.837	257.257
CHANNEL4-	259.89	255.868	256.443	256.892	257.458	257.911	258.331
CHANNEL4-4	261.29	255.932	256.509	256.959	257.526	257.979	258.401
CHANNEL4-	261.53	256.044	256.657	257.138	257.741	258.227	258.676
CHANNEL4-(	264.8	260.626	261.093	261.494	262.028	262.448	262.886
CHANNEL4-	265.1	260.97	261.548	262.061	262.737	263.241	263.774
CHANNEL4-8	264.97	261.248	261.796	262.285	262.939	263.454	263.972
CHANNEL4-9	265.44	261.42	262.158	262.819	263.719	264.374	264.996
CHANNEL-5	257	252.79	253.658	254.521	256.022	257.892	258.852
CHANNEL5-	264.93	262.668	263.109	263.356	263.612	263.815	264.012
CHANNEL5-1	273.49	271.946	272.591	273.608	274.539	275.496	276.199
CHANNEL5-1	274.2	271.842	272.524	273.312	274.551	275.509	276.214
CHANNEL5-1	274.67	272.379	272.978	273.685	274.835	275.73	276.418

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
HANNEL5-1	274.7	272.486	273.031	273.761	274.893	275.788	276.478
HANNEL5-1	280.533	274.428	274.902	275.276	276.119	277.107	278.171
HANNEL5-1	280.533	274.967	275.485	275.888	276.65	277.504	278.512
HANNEL5-1	282.433	274.463	274.627	274.748	276.603	277.592	278.663
HANNEL5-1	283.75	280.591	281.014	281.317	281.648	281.757	281.939
HANNEL5-1	288.25	286.25	286.612	286.952	287.295	287.905	288.577
HANNEL5-1	291.5	286.086	286.301	286.478	286.709	287.835	288.899
CHANNEL5-	269.4	269.483	270.072	270.409	270.731	270.971	271.186
HANNEL5-2	290.1	287.175	287.527	287.805	288.167	288.559	289.597
HANNEL5-2	292.31	289.222	289.516	289.739	290.042	290.275	290.466
HANNEL5-2	292.5	289.223	289.518	289.74	290.044	290.277	290.469
CHANNEL5-	270.61	269.588	270.27	270.679	271.049	271.332	271.593
CHANNEL5-	277.51	270.381	271.404	272.228	273.122	273.93	274.819
CHANNEL5-	277.7	270.537	271.586	272.414	273.314	274.129	275.026
CHANNEL5-	274.3	270.57	271.646	272.496	273.425	274.267	275.165
CHANNEL5-	274.94	271.733	272.438	273.162	274.392	275.299	275.941
CHANNEL5-	275.913	271.702	272.42	273.167	274.423	275.4	276.105
CHANNEL-6	259.72	255.845	256.253	256.955	259.612	260.849	261.44
CHANNEL6-	270.72	265.761	266.233	266.616	267.134	267.54	268.206
HANNEL6-1	276.76	274.789	275.37	275.898	276.772	277.279	277.908
HANNEL6-1	276.78	275.119	275.751	276.323	277.178	277.67	278.316
HANNEL6-1	279.28	275.654	276.399	277.124	278.577	279.063	278.897
HANNEL6-1	279.91	275.695	276.671	277.465	278.504	279.061	278.946
HANNEL6-1	280.37	278.234	278.461	278.798	280.597	280.605	280.667
HANNEL6-1	280.7	278.758	279.022	279.225	281.209	281.549	281.45
HANNEL6-1	281.01	277.264	277.335	277.545	279.024	279.301	279.276
HANNEL6-1	281.61	280.307	280.431	280.701	281	281.292	281.537
HANNEL6-1	281.51	280.484	280.637	280.844	281.146	281.397	281.563
HANNEL6-1	284.99	280.277	280.488	280.808	281.178	281.556	282.185
CHANNEL6-	271.22	267.253	268.015	268.626	269.455	270.077	270.73
HANNEL6-2	285.57	280.193	280.472	280.804	281.191	281.599	282.267
HANNEL6-2	285.52	282.608	282.872	283.126	283.486	283.768	284.061
HANNEL6-2	289	285.007	285.118	285.22	285.361	285.469	285.578
CHANNEL6-	272.51	269.011	269.477	269.932	271.021	272.132	273.177
CHANNEL6-	272.5	269.618	270.2	270.718	271.714	272.692	273.668
CHANNEL6-	273.19	270.111	270.671	271.164	272.074	273.249	274.095
CHANNEL6-	278	270.085	270.252	270.392	270.603	272.476	273.859
CHANNEL6-	277.02	271.668	272.014	272.337	272.848	273.379	274.311
CHANNEL6-	277.35	274.108	274.586	275.022	275.766	276.112	276.598
CHANNEL6-	276.35	274.346	274.874	275.361	276.168	276.593	277.087

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CHANNEL-7	259.49	257.764	258.165	258.522	260.165	261.305	261.94
CHANNEL7-	293.23	288.384	288.471	288.563	288.702	288.817	288.934
CHANNEL7-	296.18	291.146	291.207	291.272	291.371	291.452	291.536
CHANNEL7-	299.64	295.36	295.461	295.569	295.723	295.848	295.976
CHANNEL7-	300.867	296.596	296.639	296.684	296.748	296.8	296.854
CHANNEL7-	307.6	305.067	305.24	305.418	305.672	305.88	306.083
CHANNEL-8	261	260.883	261.236	261.491	261.579	261.604	262.138
CHANNEL-9	261.3	258.983	259.344	259.7	260.311	261.499	262.19
JCT-15.1	229.1	226.341	226.835	227.217	227.704	228.037	228.299
JCT-15.2	236.67	226.279	226.766	227.133	227.599	227.92	228.173
JCT-15.4	235.44	223.662	224.059	224.347	224.709	224.989	225.229
JCT-174.5	243.8	226.944	228.302	231.481	236.243	240.23	240.737
JCT-175.3	236.076	224.973	225.431	225.772	226.201	226.508	226.753
JCT-452.5	243.94	237.636	237.956	238.381	239.083	239.666	240.52
JCT-453.5	243.23	236.828	237.07	237.406	237.856	238.109	238.353
JCT-461.2	258.3	253.122	253.878	254.701	256.147	257.833	259.198
JCT-463	257	254.294	254.498	254.843	255.749	257.103	257.343
JCT-465	256	252.97	253.117	253.318	253.719	254.709	256.074
JCT-9.5	232.47	229.707	229.836	229.943	230.09	230.417	231.236
JCT-9.6	236.84	235.134	235.218	235.287	235.379	235.437	235.477
JCT-9.7	236.7	235.19	235.297	235.387	235.507	235.599	235.67
JCT-9.8	239	236.971	237.029	237.07	237.118	237.151	237.182
JCT-9.9	238.8	237.561	237.645	237.728	237.841	237.929	238.014

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
0	295.462	292.959	293.004	293.038	293.155	293.359	293.488
1	286.05	281.345	281.779	282.108	282.258	283.239	284.54
10	287.501	282.858	283.271	283.771	287.589	287.889	288.113
100	292.886	287.222	287.591	287.868	288.242	288.551	288.886
101	292.361	285.678	285.762	285.867	286.004	286.114	286.223
101.5	281	276.966	278.185	279.58	280.482	280.985	281.201
104	279.253	277.162	277.942	279.053	279.633	279.821	279.968
105	279.03	276.902	277.539	278.502	279.461	279.655	279.794
106	279.126	276.593	277.148	277.92	279.157	279.389	279.523
107	277.705	276.251	276.73	277.298	278.186	278.48	278.626
108	277.1	275.951	276.351	276.751	277.941	278.298	278.436
109	277.51	275.563	275.904	276.229	277.842	278.221	278.348
11	290.836	286.556	286.614	286.659	287.777	288.006	288.282
110	277.65	274.378	274.54	274.802	277.489	278.025	278.138
111	269.249	267.374	268.169	268.83	269.397	271.521	269.64
112	268.109	266.975	267.293	267.561	267.955	271.326	268.554
112.5	294.3	288.49	288.517	288.539	288.565	288.586	288.607
113	268.2	266.156	266.401	266.61	266.928	271.253	268.235
113.5	269.59	267.233	267.589	267.965	268.221	268.413	268.754
113.6	267.7	264.203	264.96	265.617	266.548	267.094	267.564
114	263.167	260.418	260.477	260.517	260.567	269.381	260.876
114.5	277.43	273.67	273.807	273.949	274.102	274.221	274.398
114.6	266.14	264.027	264.836	265.531	266.48	267.011	267.469
114.7	265	262.56	263.318	263.968	264.806	265.75	266.7
115	263.7	261.731	262.24	262.546	263.119	263.888	264.56
116	263.774	260.084	260.441	260.829	262.003	262.847	263.95
117	261.928	257.955	258.68	259.534	260.429	260.937	261.771
118	260.1	256.597	257.553	258.21	258.704	259.032	259.588
119	251.537	245.33	244.94	245.113	244.968	247.516	248.311
12	279.957	275.63	275.687	276.627	279.631	280.072	280.347
120	252.367	245.541	244.986	245.177	245.389	247.617	248.472
121	251.7	248.258	248.344	248.432	248.639	248.789	248.918
122	252.004	250.883	252.084	252.221	252.401	252.549	252.667
123	253.4	252.252	253.632	253.756	253.968	254.129	254.258
125	258.246	254.986	256.165	257.742	258.558	258.759	258.909
126	259.734	256.834	257.188	259.123	260.067	260.266	260.416
127	258.595	257.024	257.616	259.186	260.084	260.288	260.441
128	261.271	257.225	257.997	260.357	261.481	261.606	261.701
129	262.376	258.309	258.723	261.532	262.621	262.733	262.819
13	285.093	278.807	278.988	279.116	280.074	281.743	282.21

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
130	262.239	260.306	260.483	260.974	262.395	262.546	262.653
131	263.198	261.541	261.983	262.347	263.334	263.486	263.592
132	253.377	246.338	246.052	246.78	246.177	248.032	247.096
133	255.654	251.154	251.378	251.34	251.628	251.809	251.584
134	254.491	252.206	252.435	252.765	253.087	253.474	254.393
135	251.026	248.508	248.102	248.834	248.466	249.905	248.812
136	251.177	248.548	248.576	248.857	251.507	251.37	251.364
137	250.2	247.542	247.576	247.635	247.681	247.914	247.926
138	250.808	248.322	248.36	248.388	248.529	248.769	248.96
139	267.247	265.334	265.52	265.684	266.919	267.438	267.56
14	285.913	282.924	283.045	283.128	282.81	284.108	286.979
140	267.34	266.503	266.966	267.392	267.572	267.799	267.916
141	273.006	270.749	270.929	271.086	271.466	273.077	273.235
142	273.017	272.085	272.496	272.985	273.151	273.463	273.592
143	268.798	263.123	263.317	264.631	268.707	268.99	269.098
144	267.423	264.775	265.196	265.806	268.728	269.012	269.126
145	268.133	265.581	266.164	267.005	268.826	269.091	269.213
146	253.401	249.655	249.693	249.721	249.837	250.026	250.115
147	248.563	249.918	249.482	249.789	247.75	249.331	248.882
148	250.384	249.873	249.453	249.746	247.674	249.306	248.872
149	248.48	243.439	243.61	243.795	244.041	244.761	244.945
15	286.783	285.7	286.858	286.951	286.9	287.05	287.413
150	249.232	246.322	246.72	247.144	247.693	248.502	249.015
151	247.278	241.014	241.271	241.552	242.268	243.86	244.315
152	249.094	244.264	244.907	245.204	245.397	246.202	246.834
153	258.682	256.185	256.744	257.099	257.397	257.589	258.014
154	258.068	254.634	255.135	255.407	255.682	256.086	256.707
155	257.077	252.083	252.359	252.845	253.952	254.755	255.28
155.5	253.3	249.668	250.019	250.244	250.545	251.227	252.065
155.7	252.41	248.12	248.442	248.821	249.366	250.872	251.867
156	254.149	251.439	252.137	252.647	253.302	253.801	254.063
157	256.037	253.578	253.751	253.851	254.355	255.53	256.105
158	269.454	263.793	263.962	264.275	265.719	269.122	269.745
159	268.523	265.266	265.528	266.04	267.755	269.229	269.792
159.5	260.5	256.706	256.815	256.988	257.124	257.258	257.572
16	288.214	286.795	288.336	288.435	288.529	288.614	288.713
160	264.249	260.557	260.766	261.164	262.016	263.661	265.728
160.5	247	237.605	237.842	238.334	237.949	241.82	240.589
161	252.182	246.241	246.469	246.864	247.511	247.716	248.442
163	256.616	250.308	250.482	250.773	251.259	252.977	253.866

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
164	259.837	253.137	253.278	253.511	253.871	254.29	255.61
165	269.664	259.203	259.28	259.378	259.726	259.958	261.857
166	276.978	262.436	262.536	262.696	263.338	264.733	266.994
167	274.592	265.095	265.146	265.222	265.454	265.834	268.673
168	243.779	238.137	238.294	238.418	238.592	238.735	239.065
169	244.919	241.172	241.387	241.564	241.821	242.045	242.231
169.5	245.18	242.466	243.073	243.663	244.563	245.23	245.381
17	288.508	287.669	288.796	288.874	288.966	289.046	289.132
17.5	297	291.058	291.214	291.34	291.516	291.661	292.007
170	245.245	240.868	241.009	241.128	241.299	241.445	241.587
171	236.731	234.894	235.204	235.481	236.225	236.597	236.901
172	236.813	233.643	233.852	235.18	235.854	236.088	236.359
172.5	235.3	233.699	234.155	235.015	235.458	235.545	235.626
172.6	233.51	231.031	231.149	231.231	231.387	231.494	231.608
174	235.503	225.4	227.994	231.444	236.095	239.303	239.303
175	233.835	225.311	227.927	231.333	236.085	239.41	239.422
176	232.772	225.264	227.859	231.243	236.082	239.523	239.544
178	240.002	225.187	227.836	231.195	235.996	239.555	239.726
178.5	233.71	230.132	230.222	231.217	236.001	239.614	239.798
179	232.219	227.018	230.119	232.486	236.168	240.044	240.983
18	301.634	293.502	293.588	293.656	293.744	293.813	293.882
180	248.319	244.904	245.02	245.154	245.282	245.857	248.547
181	250.312	247.879	248.924	250.413	250.542	250.583	250.764
181.5	247.1	237.851	237.918	237.965	238.038	239.305	238.17
182	243.971	241.67	241.86	242.014	242.274	242.577	242.84
183	249.587	242.656	242.778	242.867	243.043	243.293	243.529
184	250.424	243.593	243.77	243.906	244.15	244.436	244.666
185	251.241	243.612	243.788	243.925	244.183	244.49	244.738
186	253.791	244.445	244.501	244.525	244.6	244.78	244.986
187	253.779	244.757	244.836	244.895	245.071	245.299	245.447
188	250.304	247.285	247.348	247.395	247.546	247.74	247.863
188.5	251	237.233	237.341	237.415	237.505	239.093	237.792
189	245.761	240.212	240.703	241.106	242.213	243.331	244.424
189.5	251	248.144	251.128	251.256	251.405	251.513	251.612
19	301.701	296.171	296.232	296.279	296.339	296.385	296.431
191	245.574	240.774	240.99	241.553	243.019	244.353	245.574
192	245.577	242.147	242.545	242.74	244.459	245.698	245.918
193	245.456	240.824	240.886	241.148	242.363	243.572	244.738
194	245.574	241.848	241.996	242.093	242.608	243.964	245.26
195	245.052	242.265	242.452	242.594	243.059	244.635	245.365

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
195.5	250.2	237.8	237.861	237.907	237.969	238.02	238.063
196	250.47	242.294	242.446	242.571	242.778	242.99	243.289
197	250.614	244.283	244.424	244.538	244.727	244.942	245.412
198	249.579	245.57	245.881	246.258	246.87	247.812	249.44
199	250.507	245.992	246.401	246.978	247.893	248.736	250.507
199.5	236.8	231.53	231.634	231.768	232.137	235.443	234.84
199.6	237.3	232.782	232.985	233.202	233.376	235.444	234.843
20	302.372	295.603	295.867	296.092	296.446	297.163	297.941
200	241.422	233.613	233.708	233.817	233.911	235.904	235.645
201	241.471	235.289	235.671	236.144	236.69	237.634	238.496
202	240.601	235.23	235.324	236.213	236.913	238.024	239.044
202.5	240.87	236.454	236.537	236.647	236.738	236.808	238.112
202.6	245.68	241.818	241.969	242.153	242.296	242.4	242.497
203	243	237.209	237.247	237.276	237.343	237.456	237.532
204	242.826	237.208	237.247	237.276	237.343	237.456	237.532
205	248.052	242.519	242.613	242.685	242.87	243.239	243.569
206	251.791	245.817	245.885	245.936	246.066	246.304	246.506
207	255.266	249.802	249.88	249.94	250.095	250.384	250.613
208	256.298	252.267	252.34	252.397	252.546	252.822	253.052
209	255.324	253.17	253.287	253.376	253.606	254.012	254.327
210	257.796	249.405	249.587	249.724	249.998	250.415	250.889
211	254.208	248.067	248.183	248.273	248.458	248.751	249.102
212	266.933	263.408	263.464	263.507	263.614	263.792	263.928
213	258.096	255.485	255.737	255.926	256.283	256.833	257.258
214	257.346	255.634	255.957	256.214	256.858	257.537	257.674
215	263.392	256.571	256.616	256.65	257.03	258.545	259.257
216	266.661	260.877	260.973	261.048	261.178	261.356	262.876
217	266.913	261.381	261.52	261.626	261.973	262.79	263.301
219	279.161	272.645	272.702	272.745	272.88	273.125	273.307
220	288.674	279.372	279.428	279.472	279.615	279.887	280.102
221	291.341	281.658	281.748	281.818	282.059	282.525	282.908
222	292.283	287.558	287.591	287.615	287.693	287.823	287.911
223	257.059	253.319	253.703	253.987	254.71	256.266	257.871
224	260.378	256.339	256.43	256.502	256.621	259.266	260.602
224.5	279.59	272.529	272.764	272.976	273.372	274.276	275.098
225	277.03	272.665	274.646	274.853	275.368	276.632	277.244
226	276.563	275.424	276.187	276.684	276.869	277.171	277.511
227	285	277.483	278.919	281.419	281.709	282.325	283.048
228	286.823	278.537	278.635	282.562	282.881	283.587	284.403
228.5	288.43	283.712	283.951	284.047	284.25	285.306	286.251

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
228.6	294.4	289.241	289.311	289.364	289.441	289.521	289.587
229	287.164	284.168	286.25	287.183	287.455	287.599	287.729
229.2	285.97	283.942	285.642	286.19	286.494	286.683	286.861
229.3	285.4	283.941	285.642	286.188	286.491	286.679	286.857
229.4	285.31	281.74	282.974	284.449	284.886	285.127	285.31
229.6	283.98	281.702	282.962	284.432	284.853	285.081	285.254
229.7	286.24	279.001	279.321	280.225	281.138	281.66	282.145
229.8	283.86	278.319	278.97	280.046	281.022	281.569	282.067
23.5	289.67	287.729	288.387	289.856	290.203	290.582	290.827
23.6	289.9	287.783	288.421	289.88	290.245	290.629	290.885
23.7	290.5	287.762	288.504	290.023	290.484	290.863	291.121
23.8	291.343	290.728	291.715	291.966	292.149	292.281	292.358
230	287.946	285.19	286.702	287.846	288.179	288.321	288.446
231	289.491	287.842	289.726	289.926	290.072	290.172	290.269
232	293.655	290.943	293.807	293.951	294.103	294.211	294.315
233	293.029	292.927	293.92	294.07	294.239	294.364	294.485
233.5	261.6	255.473	255.72	255.904	256.239	256.721	257.076
234	234.332	227.827	228.106	228.355	228.702	228.951	229.052
235	234.154	229.256	229.291	229.318	229.352	229.379	229.404
235.5	234.154	234.246	234.34	234.404	234.481	234.538	234.593
238	264.058	260.742	260.815	260.845	261.814	262.66	262.962
239	263.352	259.431	260.141	260.553	261.546	262.208	262.335
24	289.111	289.026	289.344	289.926	290.307	290.666	290.933
240	261.826	259.968	259.997	260.019	260.09	260.153	260.192
241	262.316	259.347	259.414	259.465	259.634	259.689	259.741
242	260.789	258.707	258.731	258.748	258.805	259.602	259.918
243	261.615	258.408	258.526	258.62	258.902	259.578	259.988
244	261.957	259.407	260.351	261.061	261.467	262.069	262.143
245	259.5	258.37	258.493	258.592	258.856	259.193	259.5
246	258.841	255.391	255.457	255.508	255.655	255.813	255.905
247	248.881	245.469	245.523	245.564	245.674	245.781	245.839
248	247.82	244.15	244.268	244.362	244.626	244.905	245.064
249	244.894	241.624	241.671	241.707	241.802	241.895	241.945
25	289.812	289.828	290.042	290.176	290.513	290.779	291.049
250	245.17	240.106	240.187	240.251	240.437	240.633	240.637
251	243.818	236.772	236.82	236.857	236.953	237.047	237.234
252	235.852	230.519	232.047	233.692	236.15	236.72	237.017
253	235.57	229.681	230.676	231.8	233.609	234.688	235.803
254	235.389	229.739	230.76	231.915	233.779	234.92	235.861
255	247.408	239.499	239.541	239.574	239.615	239.646	239.676

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
256	234.48	228.637	229.238	229.819	230.669	231.148	232.497
257	235.147	228.473	229.026	229.527	230.235	230.627	230.545
257.5	231.59	227.776	228.05	228.3	228.645	228.88	228.948
258	235.459	227.779	228.058	228.309	228.653	228.9	228.975
259	235.513	230.533	232.072	233.728	236.171	236.725	237.012
260	235.531	230.553	232.096	233.764	236.185	236.731	237.009
261	234.963	230.563	232.111	233.786	236.207	236.75	237.011
262	234.266	230.579	232.131	233.814	236.286	236.857	237.15
263	233.845	230.591	232.151	233.84	236.322	236.916	237.161
264	232.993	230.572	232.137	233.789	236.212	236.754	236.993
265	232.933	230.581	232.152	233.792	236.223	236.759	237.005
265.4	238.88	227.965	228.206	228.394	228.68	228.888	229.057
265.5	241.5	231.477	231.8	232.076	232.527	232.831	233.079
266	239.105	232.104	232.628	233.088	233.866	234.435	234.918
267	240.227	236.381	236.652	237.113	238.265	239.789	240.098
268	240.406	237.622	237.795	237.527	239.717	240.688	240.812
269	239.646	236.964	237.305	237.644	238.346	239.244	240.27
270	239.431	236.827	237.111	237.398	237.982	238.862	239.911
270.3	239.52	234.294	234.882	235.552	236.947	238.01	239.028
270.5	239.13	234.102	234.81	235.512	236.93	237.987	238.982
271	241.506	239.357	239.691	239.933	240.346	240.944	241.981
271.3	242.73	239.451	239.82	240.101	240.733	241.468	242.68
271.4	244.86	240.437	240.687	240.903	241.337	242.204	243.652
271.5	246.82	241.394	241.675	241.919	242.399	242.772	243.787
272	244.821	239.933	240.007	240.063	240.135	240.188	241.784
273	248.861	242.586	242.918	243.228	243.865	244.271	244.638
273.5	250.975	245.068	245.202	245.252	245.509	245.699	245.902
273.6	250.96	245.92	246.269	246.596	247.184	247.581	248.018
273.7	251.725	248.352	248.549	248.737	249.093	249.295	249.886
274	255.82	252.781	253.07	253.353	253.894	254.2	254.517
274.5	256.367	252.877	253.173	253.483	254.083	254.428	254.813
274.6	255.87	254.413	254.58	254.736	255.045	255.227	255.448
274.7	256.13	255.674	255.986	256.323	256.634	256.791	256.983
274.8	257.24	256.535	256.695	256.951	257.473	257.657	257.873
275	258.79	257.16	257.38	257.607	258.243	258.689	259.048
276	260.082	257.279	257.372	257.453	257.619	259.513	260.372
277	260.069	258.63	259.119	259.528	260.163	260.366	260.665
277.5	260	259.582	260.118	260.237	260.457	260.62	260.844
278	266.003	262.768	262.999	263.372	266.072	266.241	266.35
279	266.63	263.463	263.561	263.658	263.847	264.344	265.779

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
279.5	262.817	261.501	261.664	261.818	262.137	262.826	263.258
279.6	262.29	259.301	259.522	259.741	260.174	260.51	261.634
279.8	250.4	237.716	237.936	238.119	238.423	238.766	239.068
280	249.291	245.49	245.53	245.56	245.653	245.81	245.918
280.5	244.69	239.185	239.765	240.279	241.204	242.488	243.641
281	247.997	242.25	242.28	242.303	242.375	244.548	245.05
282	248.348	240.985	241.037	241.153	242.095	243.902	244.719
283	249.479	239.378	239.593	239.782	240.116	242.626	243.941
283.5	245.29	240.078	240.652	241.161	242.075	243.321	244.48
284	249.896	240.697	241.194	241.626	242.378	243.696	244.946
285	251.643	248.844	248.871	248.891	249.042	249.167	249.233
285.5	247.53	242.775	243.32	243.793	244.608	245.744	246.83
286	249.91	243.247	243.841	244.352	245.22	246.382	247.475
287	249.023	243.569	244.226	244.792	245.752	247.016	248.16
287.5	251.15	243.364	244.12	244.757	245.82	247.193	248.542
288	249.233	244.153	244.153	244.76	245.821	247.21	248.57
289	250.177	244.287	244.287	244.77	245.821	247.219	248.58
289.5	251.12	244.682	245.237	245.788	246.782	248.125	249.445
290	250.279	245.153	245.238	245.788	246.784	248.125	249.445
292	250.763	245.176	245.802	246.392	247.434	248.829	250.168
292.4	292.67	287.567	287.7	287.806	287.986	288.13	288.265
293	262.88	256.28	256.28	256.28	256.28	256.28	256.28
294	262.699	257.779	257.779	257.779	257.779	257.779	257.779
295	253.446	248.356	248.388	248.412	249.305	250.996	252.839
296	251.133	247.034	247.688	248.272	249.284	250.722	252.475
297	253.176	249.577	249.662	249.729	250.5	251.828	253.619
297.1	250.24	245.182	245.809	246.4	247.443	248.842	250.203
297.2	252.3	247.021	247.675	248.254	249.246	250.552	252.471
297.3	252.5	247.425	248.13	248.755	249.823	251.269	253.278
297.4	250.46	247.686	248.408	249.045	250.124	251.528	253.56
297.5	252.1	248.755	249.549	250.242	251.371	252.93	254.466
298	253.783	250.416	250.538	250.632	250.818	252.1	253.898
299	261.999	257.789	257.846	257.889	258.023	258.259	258.563
3	285.657	281.685	282.147	282.493	282.509	283.73	285.029
30	294.555	289.216	289.336	290.248	291.114	291.582	292.274
300	265.756	261.282	261.352	261.406	261.588	261.941	262.149
301	267.738	263.916	263.955	263.983	264.093	264.276	264.56
302	265.2	262.46	262.941	263.28	263.782	264.05	265.342
303	265.546	261.562	261.723	261.837	262.02	262.423	264.434
305	253.6	250.165	250.964	251.695	252.952	254.581	255.861

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
305.1	252.8	249.004	249.847	250.59	251.831	253.518	254.967
305.2	252.567	249.355	250.201	250.96	252.255	253.874	255.281
305.4	255.27	251.463	252.225	252.868	254.062	255.807	256.814
305.5	255.44	251.72	252.499	253.148	254.376	256.149	257.158
306	254.377	252.129	252.174	252.208	252.953	254.587	255.901
307	258.223	252.5	253.234	253.835	254.995	256.915	258.283
308	258.37	252.981	253.712	254.306	255.483	257.552	259.034
308.5	269.02	256.159	257.06	257.962	260.551	261.666	263.054
309	275.9	257.056	257.129	258.043	260.724	261.951	264.275
31.5	297.34	292.97	293.112	293.312	293.624	293.84	294.204
310	279.229	258.93	259.343	259.593	261.656	263.564	266.531
311	280.859	260.752	260.856	260.928	261.071	264.866	268.568
313.5	261.5	254.516	255.08	255.55	256.641	259.81	261.412
314	260.919	257.816	257.823	257.828	257.885	260.972	261.421
315	264.651	262.191	262.259	262.309	262.401	262.548	264.451
316	269.981	266.504	266.641	266.751	266.968	267.458	268.11
317	278.073	274.899	274.976	275.034	275.142	275.32	275.429
318	284.808	279.131	279.249	279.342	279.526	279.876	280.475
319	284.46	280.071	280.281	280.449	280.818	281.425	282.016
32	301.478	295.135	295.388	295.538	295.708	295.858	295.942
320	286.768	280.408	280.666	280.895	281.553	282.738	283.757
320.5	285.58	280.926	281.141	281.345	282.076	283.674	284.998
320.7	287.168	284.279	284.376	284.446	284.6	284.837	285.182
321	290.969	287.96	288.026	288.076	288.192	288.381	288.526
322	292.074	288.934	289.108	289.24	289.556	290.19	290.921
322.5	263.5	255.6	255.683	255.747	255.87	263.042	262.983
323	261.399	259.098	259.101	259.103	259.13	262.399	261.94
323.1	264.29	258.041	258.39	258.659	259.173	261.116	261.933
323.2	262.145	258.825	259.023	259.177	259.471	260.385	262.193
323.3	263.37	261.186	261.47	261.686	262.096	262.744	263.73
323.5	265.4	261.897	262.057	262.185	262.435	262.868	263.238
324	265.892	262.082	262.1	262.185	262.43	262.871	263.273
325	267.484	264.208	264.552	264.912	265.839	267.624	267.976
326	267.746	264.811	265.013	265.152	266.307	268.085	268.349
327	276.061	271.667	271.76	271.818	271.918	272.042	272.129
328	279.288	274.764	274.864	274.947	275.103	275.344	275.545
329	288.996	286.692	289.065	289.126	289.219	289.322	289.39
33	303.002	296.481	296.719	296.918	297.183	297.383	297.565
330	288.572	287.075	289.138	289.207	289.321	289.456	289.55
331	297.778	293.302	293.429	293.608	293.95	295.902	297.857

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
332	301.1	299.597	299.711	299.794	299.945	300.154	301.1
333	289.636	287.427	287.524	287.594	287.742	287.968	288.128
333.1	275.82	272.278	272.325	272.359	272.441	272.583	272.685
333.5	299.65	293.057	293.091	293.115	293.193	293.321	293.408
333.6	293.05	286.347	286.382	286.409	286.492	286.632	286.724
333.7	285.34	282.173	282.246	282.299	282.426	282.64	282.789
334	290.261	288.114	288.179	288.228	288.347	289.194	289.851
335	273	268.808	269.083	269.274	269.627	269.827	270.419
336	274.217	270.133	270.426	270.623	270.93	271.833	272.092
337	274.124	270.724	270.99	271.159	271.509	272.261	272.659
338	273.828	270.747	270.994	271.167	271.539	272.36	272.82
339	273.76	272.574	272.945	273.3	273.725	273.722	273.883
339.5	276.24	272.907	272.904	272.904	273.032	273.229	273.403
34	303.517	297.505	297.8	298.033	298.328	298.558	298.758
340	279.999	279.261	280.11	280.174	280.279	280.414	280.526
341	280.007	279.969	280.354	280.423	280.548	280.719	280.866
342	280.699	280.287	280.786	280.871	281.005	281.175	281.332
342.5	284	282.894	283.131	283.369	283.785	284.206	284.389
343	286.208	283.768	284.025	284.217	284.539	285.106	285.69
344	285.486	282.882	283.149	283.423	283.931	284.531	284.907
345	288.27	285.779	285.926	286.036	286.469	287.507	289.17
346	289.461	285.9	286.208	286.434	287.13	288.593	289.829
347	292.91	287.973	288.008	288.063	288.241	290.633	292.882
347.5	293.29	288.65	288.903	289.092	289.433	291.543	293.592
348	295.572	291.371	291.495	291.655	293.088	295.767	296.013
349	294.863	290.767	290.866	290.943	291.297	294.622	295.292
35	303.513	297.836	298.218	298.539	299.035	299.552	299.975
350	294.764	292.502	293.095	293.561	294.013	295.163	295.512
351	291.301	287.043	287.352	287.643	288.187	289.714	293.156
351.5	270.274	266.656	266.803	266.908	267.023	269.685	270.452
352	271.656	267.587	267.646	267.69	267.805	270.386	271.656
353	271.37	269.156	269.279	269.375	269.639	271.039	271.791
354	278.326	274.514	274.627	274.71	274.842	275.166	276.001
355	286.216	282.209	282.356	282.482	282.832	286.329	286.474
356	289.193	285.362	285.526	285.661	286.013	289.446	289.583
357	302.905	299.889	299.986	300.061	300.223	300.812	303.13
358	303.614	301.632	302.148	302.536	303.305	303.67	304.033
359	303.687	302.008	302.709	303.27	303.906	304.069	304.327
360	256.347	253.213	253.268	253.75	255.033	259.229	258.083
361	257.511	254.728	254.913	255.057	255.519	259.277	258.14

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
362	265.315	260.601	260.674	260.731	260.805	260.861	260.915
363	258.596	256.326	256.601	257.461	259.935	262.206	261.617
364	261.493	257.772	258.171	258.619	261.052	263.074	262.408
365	261.9	258.106	258.464	258.745	260.616	262.974	262.319
366	259.986	259.491	259.65	260.065	260.5	262.878	262.163
367	262.799	259.17	259.317	259.434	261.001	263.104	263.044
368	263.22	258.641	259.031	259.36	261.889	263.621	263.564
369	263.173	259.62	260.1	260.606	262.296	265.905	264.085
369.5	270.29	259.601	260.109	260.702	262.614	266.29	264.813
369.6	270	261.025	261.176	261.406	262.634	266.286	264.807
37	303.664	298.696	298.853	299.062	299.586	300.407	301.138
370	273.313	267.709	267.855	267.952	268.143	268.424	268.681
371	284.771	277.698	278.046	280.036	284.873	284.986	285.097
372	270.628	262.081	262.38	262.856	263.998	266.856	265.163
373	269.477	264.579	264.875	265.45	268.042	271.009	270.043
374	304.758	298.911	299.538	299.898	302.739	305.185	305.319
375	303.564	298.479	298.897	299.066	301.61	304.725	304.909
376	304.586	297.136	297.273	297.549	301.086	304.674	304.852
377	267.941	267.946	268.114	268.23	268.429	268.604	268.82
378	268.049	267.966	268.13	268.239	268.437	268.617	268.831
378.5	278.5	274.474	274.651	274.814	275.052	275.39	275.94
379	277.752	275.31	275.653	275.978	276.563	277.496	278.063
38	304.625	300.613	300.83	300.982	301.118	301.276	302.3
380	278.419	275.468	275.845	276.241	276.957	278.117	278.706
381	279.689	274.384	274.512	274.612	274.83	275.701	276.846
382	278.793	276.102	276.395	276.618	277.099	277.743	278.232
383	257.257	251.427	252.161	252.746	253.663	254.408	254.826
383.5	254	251.447	252.146	252.685	253.353	253.867	254.133
384	254.914	251.912	252.145	252.685	253.359	253.881	254.148
385	260.306	248.094	248.966	248.973	247.273	250.226	249.608
386	257.833	249.393	249.393	249.393	249.393	250.067	249.468
387	258.409	251.199	251.199	251.199	251.199	252.148	251.199
388	259.327	251.967	251.967	251.967	251.967	252.854	251.967
389	261.187	253.565	253.594	253.616	253.661	254.1	253.815
39	305.452	301.997	302.279	302.515	302.865	303.173	303.72
39.5	307.2	303.18	303.337	303.482	303.736	304.04	304.685
390	264.471	257.218	257.277	257.323	257.423	257.44	257.815
391	263.203	259.142	259.171	259.192	259.238	259.327	259.394
392	265.229	260.491	260.559	260.611	261.556	261.748	261.906
393	265.763	260.715	260.79	260.846	262.02	262.236	262.399

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
4	277.553	273.928	274.748	275.593	278.084	278.806	279.19
402	275.665	272.919	273.231	273.712	275.821	276.095	276.262
403	273.284	270.784	271.01	271.288	271.809	272.263	273.848
404	272.9	270.049	270.2	270.382	270.745	271.488	273.6
405	291.717	288.375	288.514	288.615	288.769	289.605	290.288
406	292.104	289.542	289.785	289.963	290.293	290.692	290.853
406.5	293	290.027	290.386	290.667	291.173	291.821	292.385
407	294.841	291.086	291.113	291.135	291.219	291.857	292.453
408	295.372	292.022	292.079	292.128	292.325	292.32	292.399
409	295.819	290.101	290.247	290.358	290.839	291.967	292.847
41	301.151	289.433	289.556	289.655	289.795	291.743	294.113
410	294.053	291.403	291.71	291.944	292.24	292.747	293.544
410.5	263.3	258.098	258.298	258.445	258.667	258.95	259.195
410.6	296	292.654	292.915	293.139	293.513	294.07	295.317
411	261.075	258.233	258.466	258.64	258.912	259.266	259.57
412	263.161	258.93	259.058	259.199	259.453	259.812	260.134
413	263.344	259.666	259.901	260.068	260.334	260.688	261
413.5	275.55	269.927	270.012	270.077	270.182	270.319	270.434
414	277.234	271.462	271.573	271.66	271.788	271.93	272.06
415	277.199	272.115	272.226	272.314	272.45	272.61	272.755
416	272.604	271.539	272.022	272.476	272.702	272.811	272.888
418	262.902	260.74	260.854	260.944	261.066	261.204	261.34
419	273.95	270.145	270.694	271.162	272.072	273.409	274.189
42	301.583	291.549	291.875	292.61	293.721	294.506	298.311
420	275.009	270.155	270.792	271.327	272.334	273.826	274.971
421	275.471	273.148	273.234	273.3	273.386	274.494	275.635
422	285.886	283.621	283.693	283.746	283.823	283.886	283.942
423	281.854	278.683	278.7	278.714	278.774	278.829	279.177
424	281.518	279.409	279.489	279.551	279.84	280.124	280.291
425	280.245	277.477	277.824	278.534	279.514	280.133	280.489
426	282.823	277.877	277.941	278.214	278.858	279.493	279.967
427	289.847	285.287	285.336	285.373	285.46	285.592	285.685
428	290.16	286.355	286.373	286.388	286.427	286.484	286.521
429	288.817	286.697	286.759	286.811	286.931	287.146	287.33
43	271.069	265.473	265.966	266.359	266.919	272.959	267.832
43.1	272.02	265.541	266.038	266.434	267	273.281	267.938
43.2	272.11	267.675	267.999	268.257	268.613	273.73	269.16
43.3	273.38	267.689	268.018	268.28	268.642	274.737	269.202
43.4	274.63	268.678	268.925	269.142	269.443	275.488	269.979
43.5	276.03	269.53	269.778	269.983	270.31	276.071	270.959

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
43.6	277.07	273.234	274.003	274.644	276.849	278.134	278.378
43.7	280.8	275.706	276.106	276.403	277.316	278.592	279.04
43.8	281.8	277.405	277.744	278.104	278.716	279.232	279.659
43.9	279.65	278.137	278.773	279.683	280.398	280.747	281.045
430	290.839	286.999	287.05	287.088	287.17	287.298	287.394
430.5	279.26	275.725	276.013	276.555	277.396	278.289	279.06
430.6	282.46	282.447	282.806	282.916	283.136	283.421	283.627
431	284.424	282.793	283.356	283.681	284.193	284.668	284.818
432	284.527	282.904	283.532	283.931	284.527	285.182	285.427
433	284.95	283	283.674	284.157	284.856	285.431	285.661
434	290.267	284.76	284.91	285.041	285.442	286.471	287.102
435	290.88	285.628	285.959	286.254	286.592	287.124	287.904
436	290.269	285.931	286.313	286.653	287.044	287.723	288.661
437	290.366	286.314	286.712	287.073	287.495	288.361	289.445
438	291.239	286.85	287.244	287.608	288.006	288.967	290.202
439	292.158	286.992	287.446	287.855	288.463	289.82	291.28
44	271.424	267.668	267.999	268.465	270.474	273.098	272.001
440	239.526	236.023	236.19	236.289	237.365	239.001	239.863
440.5	239.547	236.382	236.654	237.109	238.251	239.774	240.096
441	243.627	239.203	239.398	239.563	239.826	240.154	241.711
441.5	243.62	240.508	240.919	241.264	242.436	242.86	243.904
442	244.637	240.874	240.996	241.097	241.232	241.336	241.813
443	246.596	241.422	241.537	241.629	241.753	241.851	242.066
444	246.728	241.511	241.575	241.626	241.69	241.738	241.784
444.5	289.5	287.602	287.862	288.082	288.403	288.924	289.405
445	260.144	255.736	255.859	255.996	256.421	257.062	260.353
446	260.348	257.097	257.367	257.713	258.744	258.989	260.934
447	261.133	258.042	258.07	258.098	258.211	258.297	260.608
448	240.862	225.239	227.907	231.321	236.158	240.008	240.878
449	241.486	225.2	227.857	231.231	236.065	239.57	239.589
45	272.06	269.268	269.88	270.424	271.982	273.343	272.985
450	233.594	228.06	228.376	231.87	236.363	240.002	240.396
451	261.581	239.674	239.766	239.835	239.994	240.352	241.482
452	246.867	240.651	240.685	240.711	240.794	241.341	243.479
453	248.042	237.741	238.169	238.563	239.64	241.365	242.957
454	247.274	236.822	237.029	237.189	237.715	238.348	238.877
455	248.687	245.372	245.411	245.441	245.504	245.595	245.643
456	261.744	256.176	256.298	256.395	256.625	257.05	259.064
457	249.764	245.719	245.802	245.866	246.09	246.371	246.324
458	243.487	237.604	237.714	237.792	237.885	237.953	238.775

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
459	254.429	245.493	245.535	245.567	245.662	245.783	245.856
46	274.222	270.369	271.218	272.752	274.638	275.098	275.203
460	264.549	258.694	258.894	259.089	259.458	259.862	260.912
461	258.043	255.332	255.35	255.351	255.703	257.711	259.216
461.5	259.727	254.774	255.273	255.705	256.734	259.021	261.127
462	260.363	256.196	257.013	257.861	260.267	261.133	261.813
463	285.137	261.359	261.463	261.536	261.63	261.706	262.49
463.5	228.5	228.03	229.328	230.08	231.077	234.204	233.767
464	285.129	281.46	281.497	281.523	281.556	281.582	281.607
465	274.396	271.001	271.299	271.486	271.859	272.589	273.078
466	293.072	285.877	286.009	286.115	286.322	288.133	293.135
466.5	283	279.095	279.256	279.372	279.614	279.84	281.026
467	271.909	267.658	267.786	267.872	268.045	268.315	268.988
468	302.241	300.285	300.619	300.902	301.545	302.413	302.659
469	308.325	304.132	304.218	304.284	304.417	304.943	306.131
47	274.242	270.629	271.446	273.005	274.824	275.238	275.348
470	309.378	307.813	308.986	309.442	309.555	309.602	309.666
471	309.302	305.131	305.16	305.182	305.244	305.347	306.214
472	286.607	280.405	280.522	280.609	280.76	280.976	281.495
473	286.533	283.03	283.172	283.384	283.758	284.22	284.281
473.5	286.9	285.611	285.887	286.033	286.285	286.65	288.39
474	287.205	287.253	287.382	287.48	287.622	287.788	288.537
475	288.627	288.751	288.875	288.957	289.077	289.218	289.372
476	294.658	292.319	292.421	292.636	295.069	298.473	302.058
477	304.02	301.541	304.083	304.163	304.26	304.531	304.761
478	302.763	302.982	304.111	304.194	304.305	304.582	304.818
479	303.085	303.424	304.158	304.246	304.375	304.656	304.896
48	280.74	276.098	276.29	276.447	276.701	277.211	277.519
480	292.375	282.186	282.222	282.249	282.317	282.43	282.507
481	289.594	282.88	282.969	283.036	283.21	283.514	283.735
482	288.699	283.771	283.819	283.856	283.949	284.107	284.241
483	302.495	296.675	296.706	296.729	296.79	296.888	296.956
484	302.258	297.726	297.81	297.875	298.05	298.351	298.571
485	302.173	297.973	298.067	298.139	298.334	298.675	298.932
486	303.335	298.035	298.144	298.225	298.446	298.832	299.131
487	302.561	298.887	298.932	298.965	299.056	299.204	299.344
487.1	244.95	240.323	240.681	240.949	241.327	241.781	242.122
487.2	250.04	244.497	244.717	244.979	245.391	245.948	246.398
487.3	253.35	246.455	246.396	246.465	246.893	247.505	248.017
487.4	254.3	245.837	246.245	246.563	247.08	247.898	248.766

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
487.5	261	258.389	258.508	258.623	258.803	258.941	259.077
487.6	255.11	253.184	253.464	253.646	253.961	254.418	254.674
487.8	268.5	262.441	262.693	262.884	263.225	263.669	264.021
487.9	270.68	266.959	267.182	267.357	267.678	268.082	268.4
488	285.061	282.197	282.21	282.22	282.273	282.339	282.374
488.1	275.176	270.811	270.987	271.119	271.444	272.05	272.603
488.2	275.71	273.01	273.392	273.679	274.202	275.042	275.592
488.3	275.8	273.053	273.431	273.716	274.237	275.072	275.631
488.4	276	273.08	273.464	273.753	274.281	275.273	275.932
489	278.108	274.342	274.408	274.458	274.564	275.476	276.379
49	280.611	277.713	278.194	278.755	279.917	280.133	280.221
49.5	280.5	277.972	278.578	279.346	280.975	281.625	281.99
490	279.864	275.125	275.276	275.39	275.637	276.018	276.708
491	285.776	275.839	275.908	275.959	276.07	276.243	276.874
491.5	285.578	276.72	276.863	276.971	277.207	277.582	277.775
492	280.091	277.22	277.365	277.483	277.763	278.271	278.702
493	281.128	277.683	277.832	277.949	278.229	278.759	279.275
494	288.852	280.525	280.593	280.645	280.759	280.945	281.594
495	298.578	295.874	295.904	295.925	296.005	296.137	296.221
497	275.23	271.187	271.732	272.271	273.77	275.029	275.605
497.5	284	276.548	276.859	277.096	277.607	278.305	278.811
498	284.15	276.673	276.995	277.241	277.766	278.506	279.063
499	296.173	276.818	277.15	277.406	277.946	278.745	279.38
5	278.975	274.749	275.468	276.617	279.581	280.04	280.339
50	281.509	278.125	279.163	280.254	281.879	282.181	282.413
500	295.176	285.442	285.477	285.504	285.579	285.704	285.766
501	296.739	287.39	287.519	287.615	287.882	288.313	288.525
501.5	296.724	289.41	289.481	289.534	289.683	289.917	290.029
502	282.105	278.014	278.128	278.215	278.396	279.064	280.074
503	282.091	278.014	278.129	278.215	278.397	279.066	280.077
504	286.661	282.336	282.498	282.625	282.898	283.112	283.16
505	297.498	291.726	291.853	291.953	292.279	293.841	295.002
506	299.839	296.089	296.126	296.153	296.233	296.359	296.411
507	300.606	297.927	298.084	298.201	298.591	300.446	301.506
508	300.192	298.066	298.241	298.316	298.595	300.451	301.529
509	301.91	298.483	298.549	298.598	298.773	301.203	302.699
51	288.306	286.797	287.308	287.832	288.227	288.251	289.452
51.5	288.5	286.795	287.304	287.825	288.215	288.238	289.393
510	301.794	299.525	299.65	299.746	299.976	301.752	302.72
511	299.987	292.397	292.905	293.344	294.087	301.194	293.921

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
512	305.688	292.968	292.968	293.357	294.091	306.188	293.935
512.5	305.9	293.1	293.1	293.389	294.103	306.988	293.953
512.6	308	302.904	303.038	303.144	303.285	307.168	303.516
513	300.059	292.239	292.895	293.332	294.078	300.942	293.905
514	299.728	291.848	292.887	293.323	294.069	300.37	293.894
515	294.058	291.832	292.87	293.308	294.041	295.023	293.875
516	292.44	291.717	292.566	292.757	292.911	293.407	293.152
516.5	292.2	288.858	289.08	289.158	289.187	289.692	289.457
517	289.303	284.915	285.088	285.665	286.387	289.436	287.362
518	291.834	289.318	289.421	289.567	289.734	289.873	290.028
519	291.653	289.894	290.059	290.164	290.335	290.477	290.626
52	290.492	285.45	285.613	285.741	286.214	286.879	289.261
520	293.081	290.472	290.554	290.621	290.71	290.778	290.846
521	293.488	292.354	293.555	293.727	293.88	294.045	294.093
522	297.326	293.494	294.681	295.539	296.519	297.389	297.555
523	296.167	294.788	295.293	296.203	296.768	297.481	297.651
524	302.3	299.447	299.619	299.981	302.151	302.558	302.688
525	289.224	284.44	284.852	285.152	285.732	287.877	286.447
525.5	289	284.072	284.357	284.559	285.196	287.201	285.733
526	289.321	284.794	285.267	285.612	286.199	288.632	287.007
527	288.643	283.993	284.454	284.492	284.999	288.022	285.858
527.5	288.6	285.588	285.735	285.839	285.96	288.978	287.519
528	287.974	285.602	285.761	285.878	286.023	288.982	287.663
528.5	288.9	287.6	288.216	288.887	289.307	289.886	289.801
529	289.735	288.895	289.337	289.69	290.128	290.441	290.493
53	297.149	288.583	288.802	289.38	291.268	292.594	295.035
530	290.572	290.163	291.172	291.172	292.672	293.872	294.872
530.5	291	290.274	291.185	291.191	292.686	293.904	294.917
531	288.85	287.735	288.466	289.027	289.353	289.9	289.823
532	295.392	291.943	292.07	292.138	292.915	294.281	295.415
533	300.903	295.104	295.346	295.553	299.089	301.098	301.251
534	293.69	290.368	291.457	291.72	293.629	293.933	294.887
535	302.473	301.701	302.517	302.586	302.929	303.102	303.218
535.5	285.5	279.556	279.649	279.687	279.745	286.362	279.866
535.6	286.867	280.417	280.584	280.629	280.832	286.755	281.129
535.7	287.667	281.399	281.762	282.023	282.62	286.852	283.161
536	281.5	275.552	275.604	276.201	276.904	282.117	277.287
537	278.541	273.593	274.9	276.191	276.911	279.789	277.288
538	278.051	273.591	274.896	276.18	276.896	279.43	277.278
538.5	277	273.584	274.892	276.159	276.864	278.7	277.225

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
539	275.852	272.671	274.458	275.359	275.881	277.949	276.304
539.5	275.1	272.671	274.457	275.358	275.879	277.907	276.293
54	296.829	295.095	296.223	296.948	297.069	297.143	297.293
540	275.204	272.289	273.95	274.743	275.514	277.442	275.916
541	273.424	271.941	273.498	273.925	274.372	276.667	274.899
542	272.818	271.671	273.19	273.709	274.158	276.369	274.687
543	272.926	271.033	272.871	273.491	273.916	276.046	274.423
544	272.502	270.41	272.114	273.049	273.484	275.598	273.998
545	272.304	269.957	271.563	272.68	273.11	275.169	273.618
546	270.99	269.487	270.991	272.061	272.58	274.649	273.12
547	270.557	269.105	270.526	271.936	272.436	274.372	272.948
548	271.301	268.542	269.84	271.846	272.322	274.108	272.802
549	270.98	267.84	268.993	271.345	271.89	273.51	272.36
549.5	269	266.007	266.697	268.691	269.707	272.298	270.776
55	294.442	291.704	291.85	292.007	292.247	292.604	294.742
550	267.778	265.497	266.044	267.54	268.759	271.959	270.392
551	282.038	274.629	274.745	274.839	274.988	275.512	275.543
552	301.018	301.315	301.471	301.571	301.712	301.818	301.918
553	304.273	304.501	304.658	304.766	304.897	304.994	305.087
554	280.039	274.988	277.17	279.883	280.345	280.639	280.603
555	284.465	279.378	281.194	284.531	284.758	284.917	285.008
556	283.96	281.531	282.436	284.712	284.936	285.11	285.215
557	284.389	282.65	283.839	284.999	285.206	285.385	285.497
557.5	284.5	283.301	284.639	285.192	285.401	285.589	285.708
557.6	293.9	290.329	290.588	290.752	291.002	291.234	291.407
558	280.592	276.894	278.931	280.97	281.164	281.313	281.372
559	295.787	294.872	295.925	296.027	296.202	296.334	296.43
56	283.901	274.192	274.68	274.932	277.21	278.937	280.892
560	303.014	297.347	300.333	302.066	303.266	303.415	303.524
561	303.454	300.956	303.745	303.956	304.17	304.279	304.37
562	300.63	301.169	303.9	304.134	304.343	304.414	304.511
563	300.136	301.203	304.079	304.351	304.612	304.711	304.872
564	308.476	308.941	309.126	309.264	309.438	309.536	309.703
565	312.34	308.44	308.704	308.931	309.279	310.774	312.298
566	313.804	307.226	307.435	307.627	308.025	309.388	310.548
567	313.488	305.679	305.943	306.179	306.635	307.269	307.874
568	312.689	303.915	304.058	304.145	304.221	304.259	304.352
569	311.692	299.516	299.651	299.799	300.029	300.482	301.447
57	273.594	268.859	269.674	270.847	271.698	272.051	272.168
570	310.276	298.238	298.522	298.759	299.066	299.348	299.73

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
571	307.661	297.75	298.011	298.222	298.482	298.706	298.963
572	306.45	297.203	297.426	297.604	297.822	298.008	298.2
573	302.615	295.374	295.497	295.592	295.705	295.797	295.995
574	299.298	293.694	293.935	294.145	294.453	294.735	295.227
575	297.985	292.92	293.206	293.503	293.91	294.247	294.798
576	298.931	292.639	292.95	293.264	293.655	293.971	294.461
577	299.606	291.225	291.448	291.687	292.018	292.319	292.821
578	296.701	289.407	289.717	290.027	290.391	290.654	291.002
579	294.611	287.052	287.17	287.273	287.406	287.521	287.633
58	273.034	271.541	272.176	272.174	273.199	273.374	273.436
580	278.991	272.801	274.704	276.827	279.053	279.319	279.325
581	278.573	275.503	276.332	278.743	279.218	279.443	279.489
582	278.95	276.553	277.062	277.187	277.422	278.465	278.324
583	278.691	276.459	277.147	277.234	277.404	278.455	278.281
583.5	281.5	277.163	277.685	277.83	278.003	278.505	278.378
584	281.555	277.282	277.778	277.93	278.107	278.797	278.881
585	281.101	277.497	277.946	278.144	278.347	279.142	279.376
585.5	281.1	278.127	278.585	278.787	279.172	279.767	280.105
585.6	284.4	278.042	278.555	278.811	279.281	279.925	280.328
586	312.517	313.166	313.357	313.501	313.685	313.827	313.967
587	313.768	314.501	314.683	314.823	315.002	315.144	315.295
588	284.458	278.232	278.701	278.963	279.432	280.072	280.496
589	286.715	280.249	280.491	280.746	281.21	281.564	281.98
59	285.596	279.573	279.59	279.603	279.709	279.838	279.951
59.7	266.12	252.602	252.801	252.911	253.129	255.452	253.714
59.8	267.15	261.174	261.311	261.389	261.547	261.807	261.918
590	287.295	280.767	280.892	280.997	281.188	281.333	281.482
591	291.647	284.285	284.602	284.873	285.365	285.741	286.124
592	292.282	287.439	287.494	287.544	287.651	287.715	287.789
593	294.744	291.659	291.815	291.967	292.3	292.506	292.746
594	295.018	292.272	292.466	292.649	293.04	293.276	293.548
595	296.619	292.767	292.859	292.946	293.365	293.83	294.552
596	300.855	296.425	296.537	296.647	296.753	296.827	296.947
597	308.739	303.873	304.121	305.776	308.868	308.967	309.049
598	308.608	304.839	305.231	307.132	309.103	309.205	309.299
599	308.633	305.433	305.515	308.278	309.244	309.352	309.456
6	279.612	276.066	276.568	277.486	280.36	280.773	281.071
60	287.11	279.219	279.484	279.638	279.833	279.983	280.119
60.1	286.5	279.171	279.406	279.539	279.706	279.835	279.947
60.2	274	270.717	270.921	271.045	271.314	271.822	272.058

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
60.3	272.8	273.123	273.266	273.338	273.476	273.694	273.796
60.5	288.12	282.054	282.257	283.975	288.235	288.612	288.709
600	289.874	286.753	286.956	287.134	287.42	287.81	288.424
601	291.995	287.377	287.633	287.857	288.225	288.518	288.983
602	292.37	287.75	288.061	288.336	288.789	289.104	289.693
603	291.98	288.765	289.078	289.368	289.86	290.422	291.461
604	291.334	289.054	289.399	289.714	290.242	290.912	291.756
605	292.256	289.054	289.401	289.715	290.243	290.915	291.763
606	296.528	292.351	292.543	292.721	293.015	293.271	294.058
607	298.709	293.683	293.924	294.152	294.524	294.789	295.038
608	303.89	300.956	303.945	304.063	304.22	304.326	304.425
609	304.179	302.225	304.506	304.595	304.726	304.826	304.928
61	288.948	282.335	282.652	284.447	288.948	290.197	290.648
610	307.771	306.925	308.017	308.11	308.244	308.332	308.419
610.1	281	276.203	276.668	276.852	277.214	278.446	278.241
610.3	295.6	276.603	277.003	277.1	277.308	278.491	278.323
610.4	295.5	276.851	277.275	277.352	277.427	278.504	278.346
610.5	279.91	276.67	277.062	277.148	277.15	278.281	277.9
611	307.906	307.983	308.313	308.411	308.561	308.664	308.767
611.1	279.17	273.87	274.075	274.123	274.212	278.066	274.668
611.2	279.75	272.271	272.311	272.34	272.395	277.683	272.537
611.3	279.75	272.265	272.306	272.336	272.392	277.428	272.54
611.4	279.1	272.257	272.299	272.331	272.388	277.321	272.543
611.5	278.2	269.762	269.78	269.794	269.819	276.602	270.965
612	277.697	269.649	269.721	269.777	269.849	276.524	271.023
613	275.306	267.8	267.854	267.949	268.569	275.624	270.75
614	273.154	266.959	267.531	267.97	268.626	274.989	270.868
615	273.68	266.954	267.513	267.941	268.565	274.929	270.732
616	274.021	266.907	267.475	267.9	268.542	274.406	270.68
617	272.443	266.884	267.454	267.88	268.523	274.023	270.656
617.5	271.2	266.88	267.45	267.876	268.522	273.848	270.632
618	270.712	266.213	266.731	267.117	267.668	272.824	269.074
619	270.83	265.525	265.986	266.33	266.824	271.901	268.189
62	288.894	283.098	283.51	285.548	289.463	290.322	290.752
620	268.636	263.376	263.692	263.934	264.289	266.985	264.986
621	268.11	263.141	263.423	263.642	263.967	266.289	264.597
622	270.53	267.224	267.824	268.279	269.16	273.888	271.234
623	273.51	268.517	268.714	268.857	269.483	274.265	272.577
624	277.511	272.348	272.609	272.803	273.046	275.025	273.607
625	280.437	275.348	275.542	275.681	276.024	276.224	276.709

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
626	283.761	277.674	277.95	278.15	278.406	278.962	279.132
627	284.682	278.61	278.93	279.159	279.534	279.992	280.412
628	288.62	284.5	284.639	284.736	284.89	285.086	285.255
629	289.255	285.586	285.767	285.894	286.083	286.294	286.488
63	289.269	283.871	284.728	287.22	289.932	290.51	290.904
630	288.075	285.807	285.957	286.076	286.242	286.855	287.511
631	292.656	287.731	287.915	288.042	288.237	288.463	288.671
632	293.075	288.478	288.728	288.898	289.152	289.439	289.697
633	294.451	290.313	290.528	290.681	290.915	291.188	291.444
634	302.79	297.234	297.399	297.513	297.684	297.88	298.059
635	302.869	298.407	298.712	298.918	299.224	299.565	299.871
636	303.44	298.986	299.34	299.581	299.939	300.351	300.694
637	314.157	309.212	309.246	309.272	309.313	309.359	309.4
638	307.184	306.703	307.359	307.439	307.544	307.649	307.736
639	300.732	277.313	277.331	277.345	277.459	278.532	278.36
64	290.223	284.577	285.831	288.745	290.759	291.015	291.302
640	301.989	278.018	278.042	278.059	278.213	278.531	278.371
641	280.426	276.211	276.295	276.359	276.485	277.883	276.916
642	282.838	278.529	278.944	279.217	279.689	280.323	280.796
643	283.385	278.729	278.949	279.22	279.693	280.326	280.801
644	282.863	279.286	279.327	279.357	279.66	280.378	280.967
645	285.355	279.233	279.358	279.456	279.856	280.49	281.014
646	287.022	280.629	280.78	280.9	281.037	281.221	281.511
646.5	295.8	288.743	288.849	288.932	289.062	289.221	289.362
647	280.438	281.739	281.898	282.015	282.195	282.37	282.557
648	281.232	281.666	281.808	281.911	282.07	282.226	282.4
649	281.025	281.696	281.838	281.942	282.103	282.263	282.439
65	291.544	286.466	288.543	291.703	292.142	292.286	292.431
650	281.2	281.735	281.876	281.98	282.144	282.307	282.483
651	281.2	277.131	277.254	277.345	277.485	277.641	277.772
651.5	280.7	277.702	277.856	277.974	278.164	279.024	279.366
651.6	280.7	278.386	278.623	278.802	279.053	279.222	279.516
652	280.468	277.706	277.86	277.979	278.174	279.044	279.398
653	280.595	277.865	277.896	277.934	278.134	279.07	279.459
654	281.063	278.386	278.623	278.802	279.053	279.222	279.516
655	281.085	278.387	278.624	278.803	279.053	279.223	279.52
656	285.377	279.858	280.104	280.302	280.6	280.937	281.231
657	287.521	282.677	282.818	282.928	283.087	283.257	283.412
658	293.666	288.356	288.537	288.681	288.895	289.129	289.347
659	293.627	289.44	289.719	289.938	290.254	290.585	290.881

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
66	286.55	280.678	280.755	280.816	280.896	281.18	281.634
660	297.238	293.888	294.04	294.156	294.325	294.511	294.783
661	298.151	295.677	295.97	296.193	296.52	296.868	297.159
662	300.065	300.271	300.424	300.525	300.662	300.798	300.914
663	300.285	300.748	300.877	300.977	301.122	301.272	301.405
664	297.1	294.01	295.909	297.141	297.264	297.376	297.463
665	247.562	230.013	230.144	230.249	230.48	232.531	232.204
666	245.811	234.497	234.609	234.69	235.115	235.486	235.748
667	239.76	227.56	228.754	229.362	230.164	232.53	232.196
668	289.697	286.777	287.072	287.296	287.651	288.038	288.289
669	301.694	298.028	298.092	298.139	298.218	298.327	298.415
67	290.334	286.895	286.984	287.054	287.246	287.952	290.051
670	302.394	298.977	299.121	299.23	299.416	299.674	299.885
671	301.772	299.112	299.121	299.23	299.416	299.674	299.885
672	303.67	299.948	300.057	300.143	300.302	300.541	300.759
673	302.903	300.686	300.727	300.758	300.814	300.891	300.953
674	304.03	300.335	300.393	300.435	300.509	300.702	300.95
675	303.931	301.245	301.375	301.475	301.65	301.844	301.968
676	306.252	302.481	302.568	302.634	302.759	302.973	303.198
677	308.145	305.089	305.175	305.242	305.362	305.525	305.665
678	307.15	305.171	305.212	305.243	305.297	305.368	305.425
679	307.207	305.114	305.204	305.273	305.4	305.571	305.716
68	286.825	283.762	284.06	284.292	284.751	285.291	285.862
680	281.126	278.573	278.709	278.814	278.973	279.156	279.32
681	281.029	279.502	279.739	279.92	280.188	280.49	280.753
682	288.899	286.358	286.448	286.517	286.621	286.739	286.844
683	288.984	287.556	287.802	287.989	288.267	288.58	288.923
684	291.058	288.923	289.052	289.151	289.303	289.477	289.727
686	291.375	289.887	290.125	290.306	290.579	290.886	291.15
687	295.677	293.379	293.48	293.557	293.676	293.812	293.934
688	296.63	294.797	295.023	295.196	295.461	295.759	296.022
689	274.437	266.45	266.611	266.769	267.001	268.487	268.125
69	285.865	283.817	284.127	284.369	284.854	285.453	286.026
690	274.759	270.865	272.365	273.941	274.956	275.172	275.321
691	277.09	271.679	273.591	275.685	277.281	277.553	277.721
692	277.558	271.829	273.714	275.859	277.558	277.966	278.258
693	277.949	272.527	274.744	277.347	278.357	278.509	278.682
694	276.209	273.664	276.284	277.389	278.381	278.53	278.709
695	279.986	272.065	273.813	275.981	277.794	278.455	279.032
696	308.739	296.381	296.494	296.58	296.798	297.186	297.617

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
697	307.393	295.346	295.41	295.46	295.594	295.835	296.015
698	299.993	296.954	297.014	297.06	297.183	297.459	297.838
699	290.971	286.603	286.629	286.647	286.692	286.764	286.811
7	279.872	276.652	277.23	278.342	280.92	281.312	281.61
70	285.808	283.517	283.786	283.994	284.401	284.858	285.271
700	289.211	283.811	283.867	283.91	284.039	284.502	285.242
701	288.11	284.121	284.132	284.141	284.238	284.48	285.246
701.5	288.5	283.37	283.508	283.607	283.804	284.389	284.906
702	289.105	283.953	284.169	284.333	284.629	285.1	285.575
703	294.005	285.776	285.876	285.951	286.086	286.269	286.421
705	249.995	241.571	241.656	241.719	241.843	242.03	242.235
706	237.968	229.075	230.689	231.512	232.148	235.395	234.822
707	279.645	257.524	257.626	257.703	257.859	258.091	258.352
708	281.568	259.769	259.932	260.058	260.328	260.741	261.232
709	283.635	261.315	261.461	261.573	261.818	262.202	262.701
71	286.5	283.068	283.285	283.45	283.762	284.097	284.372
713	281.844	270.151	270.242	270.31	270.459	270.672	270.922
714	284.843	278.667	278.758	278.827	278.987	279.222	279.522
715	291.076	286.05	286.142	286.213	286.378	286.625	286.98
716	305.524	295.174	295.334	295.467	298.074	303.362	305.748
717	300.055	294.509	294.588	294.653	294.763	294.85	294.929
719	298.639	295.517	295.54	295.557	295.591	295.642	295.678
72	286.3	281.817	281.901	281.963	282.08	282.204	282.304
720	297.652	295.758	295.816	295.86	295.95	296.082	296.178
721	298	296.011	296.035	296.053	296.09	296.143	296.182
722	300.974	298.331	298.957	300.079	301.134	301.276	301.386
723	301.188	298.639	299.372	300.633	301.579	301.724	301.849
724	304.186	299.224	300.057	301.737	303.262	303.971	304.686
725	308.203	302.44	304.25	307.336	308.855	309.246	309.578
726	309.031	309.081	309.372	309.617	309.822	309.97	310.16
727	309.434	309.86	310.004	310.134	310.303	310.449	310.612
728	294.584	291.438	291.944	292.653	293.447	293.834	294.918
729	294.537	291.439	291.944	292.653	293.447	293.835	294.926
73	286.9	281.323	281.49	281.618	281.824	282.033	282.217
730	295.439	291.818	292.531	293.624	294.869	295.57	295.853
731	303.489	299.634	299.786	299.991	302.641	303.68	303.8
732	317.91	313.818	313.908	313.996	314.096	314.176	314.26
732.5	294	290.077	290.193	290.32	290.482	291.273	293.415
733	295.444	291.797	291.999	292.109	292.309	292.495	294.199
734	294.643	291.797	291.999	292.11	292.309	292.496	294.202

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
735	294.987	292.813	293.047	293.234	293.504	294.052	294.904
736	295.751	292.969	293.264	293.496	293.843	294.523	295.499
737	298.628	295.633	295.697	295.859	296.327	298.587	300.528
738	302.954	299.858	300.122	301.103	302.998	303.259	303.425
739	303.017	301.147	301.494	302.335	303.397	303.56	303.697
74	286.5	283.979	284.314	284.587	285.219	286.002	286.628
740	303.842	302.696	303.802	304.045	304.238	304.335	304.416
741	298.844	294.558	294.702	294.82	295.022	295.185	295.516
742	287.589	283.168	283.861	284.404	285.219	285.942	286.309
76	289.482	286.189	286.265	286.323	286.43	286.544	286.635
77	289.293	287.407	287.602	287.752	288.035	288.347	288.604
78	293.524	290.398	290.454	290.496	290.576	290.659	290.725
79	290.832	288.496	288.939	289.371	290.426	291.009	291.118
8	283.464	278.736	278.958	279.787	283.81	284.167	284.416
80	299.847	295.121	295.251	295.369	295.747	298.506	299.974
81	296.34	291.955	292.205	292.421	292.856	293.688	294.808
82	298.192	291.562	291.789	291.972	292.297	292.778	293.581
83	295.287	290.952	291.131	291.272	291.529	291.878	292.344
84	291.289	289.233	289.359	289.472	289.687	289.985	290.609
85	292.108	288.71	288.906	289.056	289.296	289.574	290.309
86	291.806	288.43	288.599	288.729	288.936	289.18	290.046
87	293.602	286.945	287.036	287.104	287.21	288.132	289.37
9	287.097	282.85	283.251	283.743	287.545	287.872	288.103
9.6	288.5	284.853	285.007	285.27	285.675	289.017	289.362
90	296.187	294.332	294.625	294.848	295.132	295.325	295.499
90.5	294.98	292.92	293.155	293.345	293.657	293.974	294.369
91	293.174	291.472	291.864	292.215	292.787	293.226	293.463
92	294.431	291.407	291.699	291.92	292.317	292.608	292.849
92.5	286.3	284.905	285.189	285.368	285.68	286.005	286.557
93	297.941	291.331	291.439	291.524	291.633	291.722	291.812
94	276.173	272.62	272.957	273.897	275.878	276.959	277.076
95	275.749	271.31	272.035	272.877	274.213	276.38	276.419
96	275.157	271.082	271.587	272.1	272.984	275.712	275.484
96.5	268.72	265.149	265.427	265.66	266.045	271.615	266.734
97	274.456	269.416	269.624	269.79	270.083	274.731	273.328
98	292.561	290.962	292.375	292.688	292.742	292.86	293.013
99	292.319	287.884	288.035	288.157	288.619	289.106	289.651
CANE-10	233.3	215.528	216.56	217	217.735	218.164	218.125
CANE-11	233.3	216.179	217.567	218.04	219.034	219.987	219.707
CANE-12	236.54	214.903	216.01	216.691	217.689	219.525	219.238

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CANE-13	239.87	215.745	216.683	217.3	218.181	220.43	220.158
CANE-14	238.73	217.49	218.4	218.952	219.745	221.71	221.472
CANE-15	238.69	217.753	218.724	219.315	220.18	222.315	222.062
CANE-16	236.58	218.181	219.222	219.853	220.773	222.983	222.722
CANE-17	234.67	218.303	219.331	219.963	220.88	223.084	222.82
CANE-18	237.1	218.299	219.316	219.94	220.853	223.04	222.779
CANE-19	237.1	218.774	219.706	220.301	221.178	223.323	223.058
CANE-2	231.87	209.535	209.715	211.152	211.755	211.887	211.867
CANE-20	233	222.413	222.877	223.131	223.52	224.57	224.411
CANE-21	241	222.99	223.64	223.97	224.523	226.094	225.856
CANE-22	239	223.626	224.488	224.947	225.685	227.763	227.443
CANE-23	238	223.67	224.533	224.993	225.73	227.806	227.486
CANE-24	240	223.918	224.85	225.352	226.149	228.391	228.045
CANE-25	238.16	225.356	226.09	226.512	227.191	229.216	228.897
CANE-26	234.79	225.944	226.805	227.294	228.031	230.138	229.807
CANE-27	234.49	226.141	227.011	227.505	228.248	230.357	230.024
CANE-28	235.88	226.281	227.17	227.715	228.474	230.642	230.301
CANE-29	235.95	226.673	227.663	228.229	229.045	231.333	230.969
CANE-3	233.07	209.565	209.726	211.003	211.687	211.801	211.801
CANE-30	235.16	226.707	227.687	228.256	229.069	231.361	230.987
CANE-31	235.28	227.477	228.608	229.2	230.049	232.466	232.071
CANE-32	236.01	227.342	228.408	229.036	229.872	232.225	231.852
CANE-33	236.3	227.929	229.312	229.982	231.012	234.11	233.586
CANE-34	236.96	228.341	229.674	230.315	231.347	234.446	233.899
CANE-35	237.13	230.341	232.508	233.012	233.997	237.168	236.537
CANE-36	238.21	231.234	234.03	234.757	235.963	239.548	238.945
CANE-37	239.24	229.616	231.399	231.786	232.806	236.15	235.492
CANE-38	242	229.046	230.777	231.156	232.14	235.379	234.713
CANE-39	243	229.007	230.685	231.122	232.144	235.397	234.729
CANE-4	234.48	209.627	209.825	211.009	211.755	211.899	211.897
CANE-40	239.65	229.397	230.96	231.459	232.371	235.628	235.019
CANE-41	239.15	230.08	231.885	232.435	233.315	236.949	236.164
CANE-42	241	228.404	230.85	231.681	232.799	236.659	235.835
CANE-43	239.3	231.178	232.277	233.076	233.841	237.372	236.531
CANE-44	242	232.761	234.02	234.589	235.149	238.429	237.573
CANE-45	244.3	233.45	234.725	235.279	235.738	238.904	238.051
CANE-46	246.04	233.697	234.973	235.555	235.992	239.124	238.277
CANE-47	249.23	236.267	237.78	238.169	237.908	240.584	239.622
CANE-48	254.11	237.355	238.109	238.469	238.313	240.775	239.804
CANE-49	256	238.29	238.359	238.53	238.359	241.113	240.048

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CANE-5	232.17	210.522	211.1	211.742	212.582	213.561	213.477
CANE-50	247	239.471	239.964	240.048	239.792	241.578	240.708
CANE-51	247.1	239.876	240.246	240.413	240.134	241.839	241.018
CANE-52	247.29	241.275	242.818	242.849	242.446	244.053	243.727
CANE-53	248.67	241.702	243.409	243.431	243.027	244.695	244.323
CANE-54	248.64	241.962	243.36	243.419	243.04	244.702	244.294
CANE-55	249.23	242.81	244.461	244.877	244.348	245.704	245.349
CANE-56	251	244.583	244.865	244.909	244.707	246.546	245.938
CANE-57	251	247.063	245.218	246.89	245.064	247.295	246.63
CANE-58	248.52	251.407	251.338	251.25	250.556	251.326	251.131
CANE-59	249.26	248.893	249.334	249.578	248.228	248.798	248.588
CANE-6	232.57	211.186	211.892	212.42	213.391	214.797	214.673
CANE-60	250.1	249.346	249.183	248.846	246.881	248.631	248.255
CANE-61	251.3	253.648	253.923	253.219	250.362	253.978	253.776
CANE-62	253.96	250.099	251.313	250.617	247.911	251.875	251.581
CANE-63	253.4	253.4	249.512	253.9	246.68	249.245	250.959
CANE-64	252.5	247.971	247.847	247.692	246.184	247.916	248.102
CANE-65	252.09	247.764	248.437	248.672	246.6	249.211	249.322
CANE-66	254.1	248.048	248.682	249.119	247.568	250.224	249.706
CANE-67	260.51	248.073	248.678	248.874	247.549	249.787	249.714
CANE-68	261	247.898	248.419	248.975	247.424	250.043	249.754
CANE-69	259.2	248.543	249.135	249.655	249.807	252.387	251.075
CANE-7	232.98	211.622	212.377	212.909	213.833	215.326	215.193
CANE-7.5	232.89	211.784	212.539	213.053	213.973	215.471	215.339
CANE-70	261.4	248.778	249.792	250.394	250.946	253.768	252.32
CANE-71	260.4	248.835	249.881	250.501	251.095	254.052	252.521
CANE-72	261.48	251.143	251.575	251.935	252.457	254.941	253.543
CANE-73	263.48	251.445	251.891	252.253	252.757	255.155	253.793
CANE-74	264.4	251.53	252.015	252.412	252.963	255.598	254.085
CANE-75	257.28	251.785	252.186	252.504	252.879	254.424	253.47
CANE-8	233.03	211.842	212.322	212.769	213.75	215.117	214.991
CANE-9	233.3	213.344	214.018	214.335	214.881	216.094	215.981
CANETRIB-1	236.9	227.935	229.278	229.914	230.975	234.075	233.572
CANETRIB-2	236.8	227.922	229.295	230.03	230.991	234.075	233.565
CANETRIB-3	236.4	227.94	229.315	230.064	231.042	234.134	233.713
CANETRIB-4	240.76	228.03	229.361	230.012	231.002	234.141	233.726
CANETRIB-5	242.07	229.595	229.864	230.092	231.119	234.149	233.784
CANETRIB-6	244.39	231.914	232.246	232.527	233.001	234.24	234.103
CANETRIB-7	245.07	232.113	232.429	232.695	233.145	234.245	234.166
CANETRIB-8	245.89	233.852	234.094	234.286	234.603	235.007	235.397

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CHANNEL-1	246.88	247.704	248.469	248.684	247.517	249.846	249.461
CHANNEL-1(	265.42	257.954	258.264	258.621	260.846	264.262	262.975
CHANNEL-1	268.13	259.32	259.73	260.194	261.726	265.263	263.545
CHANNEL-1	267.4	259.485	259.927	260.424	262.005	265.82	263.908
CHANNEL-1	267.66	259.558	260.012	260.535	262.15	266.071	264.084
CHANNEL-2	253.99	251.267	251.664	251.95	252.473	255.418	254.744
CHANNEL2-	256.89	251.886	252.272	252.598	252.972	255.81	253.555
CHANNEL2-1	271.13	264.747	265.14	265.451	265.905	271.607	266.657
CHANNEL2-1	270.93	264.84	265.238	265.552	266.01	271.739	266.766
CHANNEL2-1	270.99	265.044	265.485	265.835	266.341	272.16	267.172
CHANNEL2-1	270.54	265.421	265.895	266.271	266.808	272.746	267.683
CHANNEL2-	270.6	257.833	258.023	258.161	258.348	263.117	258.648
CHANNEL2-	270.63	258.233	258.509	258.719	258.998	265.051	259.412
CHANNEL2-	265.36	259.325	259.546	259.706	259.923	268.843	260.264
CHANNEL2-(	265	259.695	259.923	260.083	260.296	269.268	260.639
CHANNEL2-	270.4	260.852	260.852	260.852	260.852	270.441	260.852
CHANNEL2-8	271	261.216	261.216	261.216	261.216	271.052	261.216
CHANNEL2-9	270.3	263.579	263.581	263.581	263.587	271.156	263.577
CHANNEL-3	257	250.01	250.155	250.259	250.449	251.275	251.008
CHANNEL3-	268.19	264.766	265.184	265.491	266.134	268.918	267.187
CHANNEL3-	270.2	265.375	265.54	265.641	266.072	268.928	267.184
CHANNEL3-	270.24	267.462	268.891	270.112	270.471	270.417	270.564
CHANNEL-4	257	252.287	253.012	253.657	254.933	259.098	258.054
CHANNEL4-	258.13	253.863	254.418	254.839	255.369	256.423	256.243
CHANNEL4-1	268.1	262.478	262.718	262.932	263.28	264.537	263.84
CHANNEL4-1	270.8	265.931	266.117	266.254	266.522	266.41	267.018
CHANNEL4-1	275.93	272.368	272.543	272.668	272.847	273.063	273.168
CHANNEL4-	258.9	254.81	255.386	255.825	256.384	257.473	257.315
CHANNEL4-	259.89	255.922	256.478	256.908	257.46	258.532	258.39
CHANNEL4-4	261.29	255.986	256.545	256.975	257.528	258.604	258.461
CHANNEL4-	261.53	256.1	256.695	257.154	257.744	258.891	258.739
CHANNEL4-(	264.8	260.702	261.153	261.521	262.04	263.439	263.004
CHANNEL4-	265.1	261.057	261.616	262.088	262.744	264.17	263.897
CHANNEL4-8	264.97	261.325	261.859	262.309	262.946	264.3	264.09
CHANNEL4-9	265.44	261.455	262.184	262.811	263.703	264.924	265.118
CHANNEL-5	257	252.811	253.676	254.534	256.32	259.934	259.004
CHANNEL5-	264.93	262.651	263.086	263.347	263.6	263.813	264.012
CHANNEL5-1	273.49	271.917	272.584	273.606	274.439	275.489	276.02
CHANNEL5-1	274.2	271.836	272.534	273.266	274.45	275.502	276.036
CHANNEL5-1	274.67	272.383	272.984	273.639	274.743	275.724	276.268

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
HANNEL5-1	274.7	272.484	273.036	273.716	274.801	275.781	276.336
HANNEL5-1	280.533	274.428	274.899	275.251	276.013	277.099	278.1
HANNEL5-1	280.533	274.967	275.483	275.86	276.558	277.496	278.464
HANNEL5-1	282.433	274.463	274.626	274.74	276.486	277.583	278.622
HANNEL5-1	283.75	280.591	281.012	281.295	281.622	281.76	281.939
HANNEL5-1	288.25	286.25	286.61	286.934	287.266	287.903	288.577
HANNEL5-1	291.5	286.086	286.3	286.467	286.694	287.83	288.899
CHANNEL5-	269.4	269.441	270.049	270.394	270.714	270.969	271.18
HANNEL5-2	290.1	287.175	287.526	287.799	288.156	288.557	289.597
HANNEL5-2	292.31	289.222	289.516	289.733	290.033	290.273	290.466
HANNEL5-2	292.5	289.223	289.517	289.735	290.034	290.276	290.469
CHANNEL5-	270.61	269.541	270.242	270.662	271.029	271.33	271.586
CHANNEL5-	277.51	270.331	271.355	272.186	273.055	273.923	274.723
CHANNEL5-	277.7	270.491	271.537	272.372	273.245	274.121	274.926
CHANNEL5-	274.3	270.524	271.596	272.453	273.352	274.26	275.065
CHANNEL5-	274.94	271.704	272.422	273.116	274.288	275.293	275.789
CHANNEL5-	275.913	271.7	272.407	273.119	274.325	275.394	275.913
CHANNEL-6	259.72	255.849	256.233	256.943	259.915	262.108	261.518
CHANNEL6-	270.72	265.767	266.208	266.562	267.061	267.906	268.289
HANNEL6-1	276.76	274.713	275.322	275.836	276.672	277.309	277.916
HANNEL6-1	276.78	275.026	275.697	276.233	277.092	277.72	278.319
HANNEL6-1	279.28	275.591	276.317	277.131	278.347	278.812	278.899
HANNEL6-1	279.91	275.579	276.542	277.5	278.297	278.872	279.013
HANNEL6-1	280.37	278.237	278.531	279.564	280.5	280.789	280.741
HANNEL6-1	280.7	278.765	279.296	279.959	280.993	281.434	281.351
HANNEL6-1	281.01	277.341	277.731	278.202	278.936	279.307	279.299
HANNEL6-1	281.61	280.319	280.406	280.568	280.833	281.303	281.534
HANNEL6-1	281.51	280.497	280.591	280.788	280.909	281.413	281.576
HANNEL6-1	284.99	280.284	280.514	280.688	281.055	281.558	282.183
CHANNEL6-	271.22	267.264	267.973	268.538	269.313	270.09	270.737
HANNEL6-2	285.57	280.203	280.455	280.637	281.073	281.592	282.267
HANNEL6-2	285.52	282.605	282.862	283.06	283.392	283.758	284.061
HANNEL6-2	289	285.007	285.115	285.196	285.323	285.464	285.578
CHANNEL6-	272.51	269.009	269.448	269.858	270.842	272.111	273.179
CHANNEL6-	272.5	269.611	270.164	270.636	271.565	272.674	273.67
CHANNEL6-	273.19	270.102	270.635	271.085	271.944	273.212	274.095
CHANNEL6-	278	270.082	270.241	270.381	270.58	272.406	273.853
CHANNEL6-	277.02	271.626	271.981	272.315	272.802	273.378	274.3
CHANNEL6-	277.35	274.042	274.546	274.97	275.69	276.158	276.598
CHANNEL6-	276.35	274.276	274.83	275.314	276.086	276.611	277.088

NODE ID	Ground Elevation	2YR	5YR	10YR	25YR	50YR	100YR
CHANNEL-7	259.49	257.778	258.147	258.533	260.407	262.695	262.024
CHANNEL7-	293.23	288.384	288.467	288.53	288.65	288.81	288.934
CHANNEL7-	296.18	291.146	291.204	291.248	291.333	291.448	291.536
CHANNEL7-	299.64	295.36	295.451	295.52	295.673	295.849	295.976
CHANNEL7-	300.867	296.596	296.635	296.665	296.726	296.8	296.854
CHANNEL7-	307.6	305.067	305.224	305.34	305.585	305.88	306.083
CHANNEL-8	261	260.888	261.205	261.506	261.486	262.968	262.228
CHANNEL-9	261.3	259.017	259.304	259.701	260.555	263.05	262.282
JCT-15.1	229.1	226.342	226.836	227.213	227.696	228.033	228.192
JCT-15.2	236.67	226.28	226.766	227.13	227.591	227.915	228.073
JCT-15.4	235.44	223.724	224.118	224.404	224.638	224.778	224.981
JCT-174.5	243.8	226.944	228.039	231.523	236.29	239.899	240.268
JCT-175.3	236.076	224.98	225.438	225.777	226.174	226.481	226.651
JCT-452.5	243.94	237.636	237.93	238.159	238.765	239.659	240.52
JCT-453.5	243.23	236.828	237.032	237.188	237.631	238.037	238.352
JCT-461.2	258.3	253.115	253.843	254.431	255.597	257.683	259.192
JCT-463	257	254.294	254.49	254.673	255.318	257.249	257.346
JCT-465	256	252.97	253.112	253.227	253.504	256.052	256.108
JCT-9.5	232.47	229.681	229.797	229.936	230.078	230.446	231.241
JCT-9.6	236.84	235.143	235.229	235.26	235.348	235.435	235.477
JCT-9.7	236.7	235.195	235.301	235.356	235.474	235.598	235.669
JCT-9.8	239	236.971	237.029	237.07	237.118	237.151	237.182
JCT-9.9	238.8	237.561	237.633	237.686	237.808	237.929	238.014

APPENDIX E: WATER SURFACE ELEVATION DATA - EXISTING VS PROPOSED

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
0	295.462	293.038	293.038	0	293.488	293.488	0
1	286.05	282.108	282.108	0	284.54	284.54	0
10	287.501	283.718	283.771	0.053	288.114	288.113	-0.001
100	292.886	287.868	287.868	0	288.886	288.886	0
101	292.361	285.867	285.867	0	286.223	286.223	0
101.5	281	279.58	279.58	0	281.201	281.201	0
104	279.253	279.053	279.053	0	279.969	279.968	-0.001
105	279.03	278.503	278.502	-0.001	279.795	279.794	-0.001
106	279.126	277.922	277.92	-0.002	279.525	279.523	-0.002
107	277.705	277.301	277.298	-0.003	278.632	278.626	-0.006
108	277.1	276.755	276.751	-0.004	278.445	278.436	-0.009
109	277.51	276.236	276.229	-0.007	278.358	278.348	-0.01
11	290.836	286.659	286.659	0	288.283	288.282	-0.001
110	277.65	274.751	274.802	0.051	278.151	278.138	-0.013
111	269.249	269.373	268.83	-0.543	273.235	269.64	-3.595
112	268.109	268.419	267.561	-0.858	272.869	268.554	-4.315
112.5	294.3	288.539	288.539	0	288.607	288.607	0
113	268.2	268.271	266.61	-1.661	272.529	268.235	-4.294
113.5	269.59	267.965	267.965	0	268.754	268.754	0
113.6	267.7	265.617	265.617	0	267.564	267.564	0
114	263.167	266.327	260.517	-5.81	270.356	260.876	-9.48
114.5	277.43	273.949	273.949	0	274.398	274.398	0
114.6	266.14	265.531	265.531	0	267.469	267.469	0
114.7	265	263.968	263.968	0	266.7	266.7	0
115	263.7	262.546	262.546	0	264.561	264.56	-0.001
116	263.774	260.829	260.829	0	263.95	263.95	0
117	261.928	259.534	259.534	0	261.773	261.771	-0.002
118	260.1	258.21	258.21	0	259.588	259.588	0
119	251.537	246.607	245.113	-1.494	249.636	248.311	-1.325
12	279.957	277.576	276.627	-0.949	280.43	280.347	-0.083
120	252.367	246.79	245.177	-1.613	249.792	248.472	-1.32
121	251.7	248.391	248.432	0.041	249.628	248.918	-0.71
122	252.004	252.221	252.221	0	252.661	252.667	0.006
123	253.4	253.756	253.756	0	254.257	254.258	0.001
125	258.246	257.743	257.742	-0.001	258.909	258.909	0
126	259.734	259.123	259.123	0	260.416	260.416	0
127	258.595	259.187	259.186	-0.001	260.441	260.441	0
128	261.271	260.358	260.357	-0.001	261.701	261.701	0
129	262.376	261.533	261.532	-0.001	262.819	262.819	0
13	285.093	279.116	279.116	0	284.241	282.21	-2.031

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
130	262.239	260.974	260.974	0	262.653	262.653	0
131	263.198	262.347	262.347	0	263.592	263.592	0
132	253.377	247.615	246.78	-0.835	247.279	247.096	-0.183
133	255.654	251.311	251.34	0.029	251.584	251.584	0
134	254.491	252.765	252.765	0	254.393	254.393	0
135	251.026	249.94	248.834	-1.106	251.026	248.812	-2.214
136	251.177	249.915	248.857	-1.058	251.688	251.364	-0.324
137	250.2	247.744	247.635	-0.109	247.968	247.926	-0.042
138	250.808	248.388	248.388	0	248.901	248.96	0.059
139	267.247	265.684	265.684	0	267.56	267.56	0
14	285.913	283.128	283.128	0	286.978	286.979	0.001
140	267.34	267.392	267.392	0	267.916	267.916	0
141	273.006	271.086	271.086	0	273.235	273.235	0
142	273.017	272.985	272.985	0	273.592	273.592	0
143	268.798	264.632	264.631	-0.001	269.098	269.098	0
144	267.423	265.806	265.806	0	269.126	269.126	0
145	268.133	267.005	267.005	0	269.213	269.213	0
146	253.401	249.724	249.721	-0.003	250.132	250.115	-0.017
147	248.563	249.611	249.789	0.178	249.494	248.882	-0.612
148	250.384	249.584	249.746	0.162	249.482	248.872	-0.61
149	248.48	243.786	243.795	0.009	245.512	244.945	-0.567
15	286.783	286.951	286.951	0	287.413	287.413	0
150	249.232	247.123	247.144	0.021	248.906	249.015	0.109
151	247.278	242.115	241.552	-0.563	245.07	244.315	-0.755
152	249.094	245.092	245.204	0.112	247.346	246.834	-0.512
153	258.682	257.1	257.099	-0.001	258.039	258.014	-0.025
154	258.068	255.407	255.407	0	256.734	256.707	-0.027
155	257.077	252.844	252.845	0.001	255.311	255.28	-0.031
155.5	253.3	250.245	250.244	-0.001	252.11	252.065	-0.045
155.7	252.41	248.801	248.821	0.02	251.917	251.867	-0.05
156	254.149	252.647	252.647	0	254.101	254.063	-0.038
157	256.037	253.851	253.851	0	256.108	256.105	-0.003
158	269.454	264.275	264.275	0	269.745	269.745	0
159	268.523	266.04	266.04	0	269.792	269.792	0
159.5	260.5	256.988	256.988	0	258.019	257.572	-0.447
16	288.214	288.435	288.435	0	288.713	288.713	0
160	264.249	261.164	261.164	0	265.699	265.728	0.029
160.5	247	239.668	238.334	-1.334	243.057	240.589	-2.468
161	252.182	246.864	246.864	0	248.38	248.442	0.062
163	256.616	250.772	250.773	0.001	254.313	253.866	-0.447

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
164	259.837	253.511	253.511	0	256.161	255.61	-0.551
165	269.664	259.378	259.378	0	262.194	261.857	-0.337
166	276.978	262.696	262.696	0	267.036	266.994	-0.042
167	274.592	265.222	265.222	0	268.686	268.673	-0.013
168	243.779	238.418	238.418	0	239.064	239.065	0.001
169	244.919	241.564	241.564	0	242.23	242.231	0.001
169.5	245.18	243.663	243.663	0	245.381	245.381	0
17	288.508	288.874	288.874	0	289.132	289.132	0
17.5	297	291.34	291.34	0	292.007	292.007	0
170	245.245	241.128	241.128	0	241.552	241.587	0.035
171	236.731	235.481	235.481	0	236.901	236.901	0
172	236.813	235.18	235.18	0	236.359	236.359	0
172.5	235.3	235.015	235.015	0	235.625	235.626	0.001
172.6	233.51	231.231	231.231	0	231.608	231.608	0
174	235.503	231.652	231.444	-0.208	239.303	239.303	0
175	233.835	231.543	231.333	-0.21	239.434	239.422	-0.012
176	232.772	231.445	231.243	-0.202	239.541	239.544	0.003
178	240.002	231.398	231.195	-0.203	239.733	239.726	-0.007
178.5	233.71	231.435	231.217	-0.218	239.804	239.798	-0.006
179	232.219	232.501	232.486	-0.015	240.977	240.983	0.006
18	301.634	293.656	293.656	0	293.882	293.882	0
180	248.319	245.154	245.154	0	248.546	248.547	0.001
181	250.312	250.413	250.413	0	250.764	250.764	0
181.5	247.1	237.965	237.965	0	240.803	238.17	-2.633
182	243.971	242.014	242.014	0	242.84	242.84	0
183	249.587	242.867	242.867	0	243.529	243.529	0
184	250.424	243.906	243.906	0	244.666	244.666	0
185	251.241	243.925	243.925	0	244.738	244.738	0
186	253.791	244.525	244.525	0	244.986	244.986	0
187	253.779	244.895	244.895	0	245.447	245.447	0
188	250.304	247.395	247.395	0	247.863	247.863	0
188.5	251	237.415	237.415	0	240.742	237.792	-2.95
189	245.761	241.106	241.106	0	244.425	244.424	-0.001
189.5	251	251.256	251.256	0	251.612	251.612	0
19	301.701	296.279	296.279	0	296.431	296.431	0
191	245.574	241.553	241.553	0	245.574	245.574	0
192	245.577	242.74	242.74	0	245.918	245.918	0
193	245.456	241.148	241.148	0	244.738	244.738	0
194	245.574	242.093	242.093	0	245.26	245.26	0
195	245.052	242.594	242.594	0	245.365	245.365	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
195.5	250.2	237.907	237.907	0	238.651	238.063	-0.588
196	250.47	242.571	242.571	0	243.289	243.289	0
197	250.614	244.538	244.538	0	245.412	245.412	0
198	249.579	246.258	246.258	0	249.442	249.44	-0.002
199	250.507	246.992	246.978	-0.014	250.062	250.507	0.445
199.5	236.8	232.647	231.768	-0.879	236.505	234.84	-1.665
199.6	237.3	233.202	233.202	0	236.4	234.843	-1.557
20	302.372	296.092	296.092	0	297.941	297.941	0
200	241.422	233.817	233.817	0	236.516	235.645	-0.871
201	241.471	236.144	236.144	0	238.496	238.496	0
202	240.601	236.213	236.213	0	239.044	239.044	0
202.5	240.87	236.647	236.647	0	238.112	238.112	0
202.6	245.68	242.153	242.153	0	242.497	242.497	0
203	243	237.276	237.276	0	237.532	237.532	0
204	242.826	237.276	237.276	0	237.532	237.532	0
205	248.052	242.685	242.685	0	243.569	243.569	0
206	251.791	245.936	245.936	0	246.506	246.506	0
207	255.266	249.94	249.94	0	250.613	250.613	0
208	256.298	252.397	252.397	0	253.052	253.052	0
209	255.324	253.376	253.376	0	254.327	254.327	0
210	257.796	249.724	249.724	0	250.889	250.889	0
211	254.208	248.273	248.273	0	249.102	249.102	0
212	266.933	263.507	263.507	0	263.928	263.928	0
213	258.096	255.926	255.926	0	257.258	257.258	0
214	257.346	256.214	256.214	0	257.674	257.674	0
215	263.392	256.65	256.65	0	259.257	259.257	0
216	266.661	261.048	261.048	0	262.876	262.876	0
217	266.913	261.626	261.626	0	263.301	263.301	0
219	279.161	272.745	272.745	0	273.307	273.307	0
220	288.674	279.472	279.472	0	280.102	280.102	0
221	291.341	281.818	281.818	0	282.908	282.908	0
222	292.283	287.615	287.615	0	287.911	287.911	0
223	257.059	253.987	253.987	0	257.871	257.871	0
224	260.378	256.502	256.502	0	260.602	260.602	0
224.5	279.59	272.976	272.976	0	275.098	275.098	0
225	277.03	274.853	274.853	0	277.244	277.244	0
226	276.563	276.684	276.684	0	277.511	277.511	0
227	285	281.419	281.419	0	283.048	283.048	0
228	286.823	282.562	282.562	0	284.403	284.403	0
228.5	288.43	284.047	284.047	0	286.251	286.251	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
228.6	294.4	289.364	289.364	0	289.587	289.587	0
229	287.164	287.183	287.183	0	287.729	287.729	0
229.2	285.97	286.19	286.19	0	286.862	286.861	-0.001
229.3	285.4	286.188	286.188	0	286.857	286.857	0
229.4	285.31	284.449	284.449	0	285.31	285.31	0
229.6	283.98	284.432	284.432	0	285.254	285.254	0
229.7	286.24	280.225	280.225	0	282.164	282.145	-0.019
229.8	283.86	280.047	280.046	-0.001	282.091	282.067	-0.024
23.5	289.67	289.856	289.856	0	290.827	290.827	0
23.6	289.9	289.88	289.88	0	290.885	290.885	0
23.7	290.5	290.023	290.023	0	291.121	291.121	0
23.8	291.343	291.966	291.966	0	292.357	292.358	0.001
230	287.946	287.846	287.846	0	288.446	288.446	0
231	289.491	289.926	289.926	0	290.269	290.269	0
232	293.655	293.951	293.951	0	294.315	294.315	0
233	293.029	294.07	294.07	0	294.485	294.485	0
233.5	261.6	255.904	255.904	0	257.076	257.076	0
234	234.332	228.355	228.355	0	229.051	229.052	0.001
235	234.154	229.318	229.318	0	229.404	229.404	0
235.5	234.154	234.404	234.404	0	234.593	234.593	0
238	264.058	260.845	260.845	0	262.962	262.962	0
239	263.352	260.553	260.553	0	262.335	262.335	0
24	289.111	289.926	289.926	0	290.933	290.933	0
240	261.826	260.019	260.019	0	260.192	260.192	0
241	262.316	259.465	259.465	0	259.741	259.741	0
242	260.789	258.748	258.748	0	259.917	259.918	0.001
243	261.615	258.62	258.62	0	259.987	259.988	0.001
244	261.957	261.061	261.061	0	262.143	262.143	0
245	259.5	258.592	258.592	0	259.5	259.5	0
246	258.841	255.508	255.508	0	255.905	255.905	0
247	248.881	245.564	245.564	0	245.839	245.839	0
248	247.82	244.362	244.362	0	245.064	245.064	0
249	244.894	241.707	241.707	0	241.945	241.945	0
25	289.812	290.176	290.176	0	291.049	291.049	0
250	245.17	240.251	240.251	0	240.642	240.637	-0.005
251	243.818	236.857	236.857	0	237.232	237.234	0.002
252	235.852	233.692	233.692	0	237.018	237.017	-0.001
253	235.57	231.8	231.8	0	235.81	235.803	-0.007
254	235.389	231.915	231.915	0	235.866	235.861	-0.005
255	247.408	239.574	239.574	0	239.676	239.676	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
256	234.48	229.819	229.819	0	234.48	232.497	-1.983
257	235.147	229.527	229.527	0	230.546	230.545	-0.001
257.5	231.59	228.3	228.3	0	228.948	228.948	0
258	235.459	228.309	228.309	0	228.975	228.975	0
259	235.513	233.728	233.728	0	237.013	237.012	-0.001
260	235.531	233.764	233.764	0	237.007	237.009	0.002
261	234.963	233.786	233.786	0	237.007	237.011	0.004
262	234.266	233.814	233.814	0	237.151	237.15	-0.001
263	233.845	233.84	233.84	0	237.139	237.161	0.022
264	232.993	233.789	233.789	0	236.993	236.993	0
265	232.933	233.792	233.792	0	237.009	237.005	-0.004
265.4	238.88	228.394	228.394	0	229.056	229.057	0.001
265.5	241.5	232.076	232.076	0	233.079	233.079	0
266	239.105	233.088	233.088	0	234.918	234.918	0
267	240.227	237.113	237.113	0	240.098	240.098	0
268	240.406	237.527	237.527	0	240.812	240.812	0
269	239.646	237.644	237.644	0	240.27	240.27	0
270	239.431	237.398	237.398	0	239.911	239.911	0
270.3	239.52	235.552	235.552	0	239.028	239.028	0
270.5	239.13	235.512	235.512	0	238.982	238.982	0
271	241.506	239.933	239.933	0	241.981	241.981	0
271.3	242.73	240.101	240.101	0	242.68	242.68	0
271.4	244.86	240.903	240.903	0	243.652	243.652	0
271.5	246.82	241.919	241.919	0	243.787	243.787	0
272	244.821	240.063	240.063	0	241.784	241.784	0
273	248.861	243.228	243.228	0	244.638	244.638	0
273.5	250.975	245.252	245.252	0	245.902	245.902	0
273.6	250.96	246.596	246.596	0	248.018	248.018	0
273.7	251.725	248.737	248.737	0	249.886	249.886	0
274	255.82	253.353	253.353	0	254.517	254.517	0
274.5	256.367	253.483	253.483	0	254.813	254.813	0
274.6	255.87	254.736	254.736	0	255.448	255.448	0
274.7	256.13	256.323	256.323	0	256.983	256.983	0
274.8	257.24	256.951	256.951	0	257.873	257.873	0
275	258.79	257.607	257.607	0	259.048	259.048	0
276	260.082	257.453	257.453	0	260.372	260.372	0
277	260.069	259.528	259.528	0	260.665	260.665	0
277.5	260	260.237	260.237	0	260.844	260.844	0
278	266.003	263.372	263.372	0	266.35	266.35	0
279	266.63	263.658	263.658	0	265.78	265.779	-0.001

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
279.5	262.817	261.818	261.818	0	263.258	263.258	0
279.6	262.29	259.741	259.741	0	261.634	261.634	0
279.8	250.4	238.119	238.119	0	239.068	239.068	0
280	249.291	245.56	245.56	0	245.918	245.918	0
280.5	244.69	240.279	240.279	0	243.641	243.641	0
281	247.997	242.303	242.303	0	245.053	245.05	-0.003
282	248.348	241.153	241.153	0	244.719	244.719	0
283	249.479	239.782	239.782	0	243.941	243.941	0
283.5	245.29	241.161	241.161	0	244.48	244.48	0
284	249.896	241.626	241.626	0	244.945	244.946	0.001
285	251.643	248.891	248.891	0	249.233	249.233	0
285.5	247.53	243.793	243.793	0	246.83	246.83	0
286	249.91	244.352	244.352	0	247.474	247.475	0.001
287	249.023	244.792	244.792	0	248.16	248.16	0
287.5	251.15	244.757	244.757	0	248.542	248.542	0
288	249.233	244.76	244.76	0	248.572	248.57	-0.002
289	250.177	244.77	244.77	0	248.578	248.58	0.002
289.5	251.12	245.788	245.788	0	249.445	249.445	0
290	250.279	245.788	245.788	0	249.445	249.445	0
292	250.763	246.392	246.392	0	250.168	250.168	0
292.4	292.67	287.806	287.806	0	288.265	288.265	0
293	262.88	256.28	256.28	0	256.28	256.28	0
294	262.699	257.779	257.779	0	257.779	257.779	0
295	253.446	248.412	248.412	0	252.838	252.839	0.001
296	251.133	248.272	248.272	0	252.474	252.475	0.001
297	253.176	249.729	249.729	0	253.619	253.619	0
297.1	250.24	246.4	246.4	0	250.203	250.203	0
297.2	252.3	248.254	248.254	0	252.471	252.471	0
297.3	252.5	248.755	248.755	0	253.278	253.278	0
297.4	250.46	249.045	249.045	0	253.56	253.56	0
297.5	252.1	250.242	250.242	0	254.465	254.466	0.001
298	253.783	250.632	250.632	0	253.898	253.898	0
299	261.999	257.889	257.889	0	258.563	258.563	0
3	285.657	282.493	282.493	0	285.028	285.029	0.001
30	294.555	290.248	290.248	0	292.274	292.274	0
300	265.756	261.406	261.406	0	262.149	262.149	0
301	267.738	263.983	263.983	0	264.559	264.56	0.001
302	265.2	263.28	263.28	0	265.342	265.342	0
303	265.546	261.837	261.837	0	264.433	264.434	0.001
305	253.6	251.695	251.695	0	255.861	255.861	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
305.1	252.8	250.59	250.59	0	254.967	254.967	0
305.2	252.567	250.96	250.96	0	255.281	255.281	0
305.4	255.27	252.868	252.868	0	256.814	256.814	0
305.5	255.44	253.148	253.148	0	257.158	257.158	0
306	254.377	252.208	252.208	0	255.899	255.901	0.002
307	258.223	253.835	253.835	0	258.283	258.283	0
308	258.37	254.306	254.306	0	259.034	259.034	0
308.5	269.02	257.962	257.962	0	262.823	263.054	0.231
309	275.9	258.043	258.043	0	264.312	264.275	-0.037
31.5	297.34	293.312	293.312	0	294.195	294.204	0.009
310	279.229	259.593	259.593	0	266.278	266.531	0.253
311	280.859	260.928	260.928	0	268.895	268.568	-0.327
313.5	261.5	255.55	255.55	0	261.412	261.412	0
314	260.919	257.828	257.828	0	261.418	261.421	0.003
315	264.651	262.309	262.309	0	264.451	264.451	0
316	269.981	266.751	266.751	0	268.11	268.11	0
317	278.073	275.034	275.034	0	275.429	275.429	0
318	284.808	279.342	279.342	0	280.475	280.475	0
319	284.46	280.449	280.449	0	282.016	282.016	0
32	301.478	295.538	295.538	0	295.92	295.942	0.022
320	286.768	280.895	280.895	0	283.757	283.757	0
320.5	285.58	281.345	281.345	0	284.998	284.998	0
320.7	287.168	284.446	284.446	0	285.182	285.182	0
321	290.969	288.076	288.076	0	288.526	288.526	0
322	292.074	289.24	289.24	0	290.921	290.921	0
322.5	263.5	255.747	255.747	0	263.11	262.983	-0.127
323	261.399	259.103	259.103	0	262.164	261.94	-0.224
323.1	264.29	258.659	258.659	0	261.933	261.933	0
323.2	262.145	259.177	259.177	0	262.193	262.193	0
323.3	263.37	261.686	261.686	0	263.73	263.73	0
323.5	265.4	262.185	262.185	0	263.238	263.238	0
324	265.892	262.185	262.185	0	263.273	263.273	0
325	267.484	264.912	264.912	0	267.976	267.976	0
326	267.746	265.152	265.152	0	268.349	268.349	0
327	276.061	271.818	271.818	0	272.129	272.129	0
328	279.288	274.947	274.947	0	275.545	275.545	0
329	288.996	289.126	289.126	0	289.39	289.39	0
33	303.002	296.918	296.918	0	297.545	297.565	0.02
330	288.572	289.207	289.207	0	289.55	289.55	0
331	297.778	293.608	293.608	0	297.857	297.857	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
332	301.1	299.794	299.794	0	301.1	301.1	0
333	289.636	287.594	287.594	0	288.128	288.128	0
333.1	275.82	272.359	272.359	0	272.685	272.685	0
333.5	299.65	293.115	293.115	0	293.408	293.408	0
333.6	293.05	286.409	286.409	0	286.724	286.724	0
333.7	285.34	282.299	282.299	0	282.789	282.789	0
334	290.261	288.228	288.228	0	289.851	289.851	0
335	273	269.274	269.274	0	270.418	270.419	0.001
336	274.217	270.623	270.623	0	272.092	272.092	0
337	274.124	271.159	271.159	0	272.659	272.659	0
338	273.828	271.167	271.167	0	272.82	272.82	0
339	273.76	273.3	273.3	0	273.882	273.883	0.001
339.5	276.24	272.904	272.904	0	273.403	273.403	0
34	303.517	298.033	298.033	0	298.738	298.758	0.02
340	279.999	280.174	280.174	0	280.526	280.526	0
341	280.007	280.423	280.423	0	280.866	280.866	0
342	280.699	280.871	280.871	0	281.332	281.332	0
342.5	284	283.369	283.369	0	284.389	284.389	0
343	286.208	284.217	284.217	0	286.208	285.69	-0.518
344	285.486	283.423	283.423	0	284.907	284.907	0
345	288.27	286.036	286.036	0	289.17	289.17	0
346	289.461	286.434	286.434	0	289.829	289.829	0
347	292.91	288.063	288.063	0	292.882	292.882	0
347.5	293.29	289.092	289.092	0	293.592	293.592	0
348	295.572	291.655	291.655	0	296.013	296.013	0
349	294.863	290.943	290.943	0	295.292	295.292	0
35	303.513	298.539	298.539	0	303.513	299.975	-3.538
350	294.764	293.561	293.561	0	295.512	295.512	0
351	291.301	287.643	287.643	0	293.156	293.156	0
351.5	270.274	266.908	266.908	0	270.452	270.452	0
352	271.656	267.69	267.69	0	271.656	271.656	0
353	271.37	269.375	269.375	0	271.791	271.791	0
354	278.326	274.71	274.71	0	276.001	276.001	0
355	286.216	282.482	282.482	0	286.474	286.474	0
356	289.193	285.661	285.661	0	289.583	289.583	0
357	302.905	300.061	300.061	0	303.13	303.13	0
358	303.614	302.536	302.536	0	304.033	304.033	0
359	303.687	303.27	303.27	0	304.327	304.327	0
360	256.347	256.2	253.75	-2.45	259.517	258.083	-1.434
361	257.511	256.355	255.057	-1.298	259.578	258.14	-1.438

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
362	265.315	260.731	260.731	0	260.915	260.915	0
363	258.596	260.802	257.461	-3.341	262.605	261.617	-0.988
364	261.493	261.604	258.619	-2.985	263.598	262.408	-1.19
365	261.9	261.379	258.745	-2.634	263.474	262.319	-1.155
366	259.986	261.204	260.065	-1.139	263.354	262.163	-1.191
367	262.799	261.748	259.434	-2.314	263.499	263.044	-0.455
368	263.22	262.254	259.36	-2.894	263.892	263.564	-0.328
369	263.173	262.957	260.606	-2.351	267.626	264.085	-3.541
369.5	270.29	263.158	260.702	-2.456	267.766	264.813	-2.953
369.6	270	263.161	261.406	-1.755	267.776	264.807	-2.969
37	303.664	299.062	299.062	0	304.664	301.138	-3.526
370	273.313	267.952	267.952	0	268.745	268.681	-0.064
371	284.771	280.036	280.036	0	285.092	285.097	0.005
372	270.628	264.633	262.856	-1.777	267.894	265.163	-2.731
373	269.477	269.87	265.45	-4.42	271.294	270.043	-1.251
374	304.758	299.898	299.898	0	305.319	305.319	0
375	303.564	299.066	299.066	0	304.909	304.909	0
376	304.586	297.549	297.549	0	304.852	304.852	0
377	267.941	268.23	268.23	0	268.82	268.82	0
378	268.049	268.239	268.239	0	268.831	268.831	0
378.5	278.5	274.814	274.814	0	275.94	275.94	0
379	277.752	275.978	275.978	0	278.063	278.063	0
38	304.625	300.982	300.982	0	302.298	302.3	0.002
380	278.419	276.241	276.241	0	278.706	278.706	0
381	279.689	274.612	274.612	0	276.848	276.846	-0.002
382	278.793	276.618	276.618	0	278.234	278.232	-0.002
383	257.257	252.746	252.746	0	254.858	254.826	-0.032
383.5	254	252.685	252.685	0	254.17	254.133	-0.037
384	254.914	252.685	252.685	0	254.185	254.148	-0.037
385	260.306	250.034	248.973	-1.061	250.864	249.608	-1.256
386	257.833	249.918	249.393	-0.525	250.848	249.468	-1.38
387	258.409	251.845	251.199	-0.646	252.312	251.199	-1.113
388	259.327	252.565	251.967	-0.598	253.015	251.967	-1.048
389	261.187	253.845	253.616	-0.229	254.234	253.815	-0.419
39	305.452	302.515	302.515	0	303.71	303.72	0.01
39.5	307.2	303.482	303.482	0	304.685	304.685	0
390	264.471	257.219	257.323	0.104	257.558	257.815	0.257
391	263.203	259.192	259.192	0	259.394	259.394	0
392	265.229	260.611	260.611	0	261.906	261.906	0
393	265.763	260.846	260.846	0	262.399	262.399	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
4	277.553	276.398	275.593	-0.805	279.472	279.19	-0.282
402	275.665	273.712	273.712	0	276.262	276.262	0
403	273.284	271.288	271.288	0	273.848	273.848	0
404	272.9	270.382	270.382	0	273.6	273.6	0
405	291.717	288.615	288.615	0	290.288	290.288	0
406	292.104	289.963	289.963	0	290.853	290.853	0
406.5	293	290.667	290.667	0	292.385	292.385	0
407	294.841	291.135	291.135	0	292.453	292.453	0
408	295.372	292.128	292.128	0	292.399	292.399	0
409	295.819	290.358	290.358	0	292.847	292.847	0
41	301.151	289.655	289.655	0	294.114	294.113	-0.001
410	294.053	291.944	291.944	0	293.544	293.544	0
410.5	263.3	258.445	258.445	0	259.195	259.195	0
410.6	296	293.139	293.139	0	295.317	295.317	0
411	261.075	258.64	258.64	0	259.57	259.57	0
412	263.161	259.199	259.199	0	260.134	260.134	0
413	263.344	260.068	260.068	0	261	261	0
413.5	275.55	270.077	270.077	0	270.434	270.434	0
414	277.234	271.66	271.66	0	272.06	272.06	0
415	277.199	272.314	272.314	0	272.755	272.755	0
416	272.604	272.476	272.476	0	272.888	272.888	0
418	262.902	260.944	260.944	0	261.341	261.34	-0.001
419	273.95	271.139	271.162	0.023	274.14	274.189	0.049
42	301.583	292.61	292.61	0	298.311	298.311	0
420	275.009	271.306	271.327	0.021	274.945	274.971	0.026
421	275.471	273.3	273.3	0	275.63	275.635	0.005
422	285.886	283.746	283.746	0	283.941	283.942	0.001
423	281.854	278.714	278.714	0	278.863	279.177	0.314
424	281.518	279.551	279.551	0	280.304	280.291	-0.013
425	280.245	277.83	278.534	0.704	281.066	280.489	-0.577
426	282.823	277.988	278.214	0.226	280.439	279.967	-0.472
427	289.847	285.373	285.373	0	285.685	285.685	0
428	290.16	286.388	286.388	0	286.521	286.521	0
429	288.817	286.811	286.811	0	287.33	287.33	0
43	271.069	270.004	266.359	-3.645	274.311	267.832	-6.479
43.1	272.02	270.251	266.434	-3.817	274.66	267.938	-6.722
43.2	272.11	271.131	268.257	-2.874	275.068	269.16	-5.908
43.3	273.38	272.005	268.28	-3.725	275.88	269.202	-6.678
43.4	274.63	273.052	269.142	-3.91	276.538	269.979	-6.559
43.5	276.03	274.007	269.983	-4.024	277.22	270.959	-6.261

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
43.6	277.07	275.471	274.644	-0.827	278.993	278.378	-0.615
43.7	280.8	276.402	276.403	0.001	279.472	279.04	-0.432
43.8	281.8	278.104	278.104	0	279.868	279.659	-0.209
43.9	279.65	279.683	279.683	0	281.077	281.045	-0.032
430	290.839	287.088	287.088	0	287.394	287.394	0
430.5	279.26	276.523	276.555	0.032	278.928	279.06	0.132
430.6	282.46	282.912	282.916	0.004	283.62	283.627	0.007
431	284.424	283.687	283.681	-0.006	284.817	284.818	0.001
432	284.527	283.938	283.931	-0.007	285.427	285.427	0
433	284.95	284.163	284.157	-0.006	285.661	285.661	0
434	290.267	285.041	285.041	0	287.102	287.102	0
435	290.88	286.254	286.254	0	287.905	287.904	-0.001
436	290.269	286.653	286.653	0	288.66	288.661	0.001
437	290.366	287.073	287.073	0	289.445	289.445	0
438	291.239	287.608	287.608	0	290.202	290.202	0
439	292.158	287.855	287.855	0	291.274	291.28	0.006
44	271.424	271.617	268.465	-3.152	274.531	272.001	-2.53
440	239.526	236.289	236.289	0	239.863	239.863	0
440.5	239.547	237.109	237.109	0	240.096	240.096	0
441	243.627	239.563	239.563	0	241.711	241.711	0
441.5	243.62	241.264	241.264	0	243.904	243.904	0
442	244.637	241.097	241.097	0	241.813	241.813	0
443	246.596	241.629	241.629	0	242.066	242.066	0
444	246.728	241.626	241.626	0	241.784	241.784	0
444.5	289.5	288.082	288.082	0	289.405	289.405	0
445	260.144	255.996	255.996	0	260.353	260.353	0
446	260.348	257.713	257.713	0	260.934	260.934	0
447	261.133	258.098	258.098	0	260.608	260.608	0
448	240.862	231.53	231.321	-0.209	240.872	240.878	0.006
449	241.486	231.436	231.231	-0.205	239.59	239.589	-0.001
45	272.06	272.324	270.424	-1.9	274.627	272.985	-1.642
450	233.594	232.078	231.87	-0.208	240.385	240.396	0.011
451	261.581	239.835	239.835	0	241.502	241.482	-0.02
452	246.867	240.711	240.711	0	243.515	243.479	-0.036
453	248.042	238.563	238.563	0	242.998	242.957	-0.041
454	247.274	237.189	237.189	0	238.998	238.877	-0.121
455	248.687	245.441	245.441	0	245.643	245.643	0
456	261.744	256.395	256.395	0	259.064	259.064	0
457	249.764	245.866	245.866	0	246.324	246.324	0
458	243.487	237.792	237.792	0	238.775	238.775	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
459	254.429	245.567	245.567	0	245.856	245.856	0
46	274.222	274.387	272.752	-1.635	275.394	275.203	-0.191
460	264.549	259.089	259.089	0	260.912	260.912	0
461	258.043	255.351	255.351	0	259.215	259.216	0.001
461.5	259.727	255.705	255.705	0	261.127	261.127	0
462	260.363	257.861	257.861	0	261.813	261.813	0
463	285.137	261.536	261.536	0	262.49	262.49	0
463.5	228.5	231.385	230.08	-1.305	235.812	233.767	-2.045
464	285.129	281.523	281.523	0	281.607	281.607	0
465	274.396	271.486	271.486	0	273.078	273.078	0
466	293.072	286.115	286.115	0	293.135	293.135	0
466.5	283	279.372	279.372	0	281.026	281.026	0
467	271.909	267.872	267.872	0	268.988	268.988	0
468	302.241	300.902	300.902	0	302.659	302.659	0
469	308.325	304.284	304.284	0	306.131	306.131	0
47	274.242	274.543	273.005	-1.538	275.522	275.348	-0.174
470	309.378	309.442	309.442	0	309.666	309.666	0
471	309.302	305.182	305.182	0	306.214	306.214	0
472	286.607	280.609	280.609	0	281.495	281.495	0
473	286.533	283.384	283.384	0	284.281	284.281	0
473.5	286.9	286.033	286.033	0	288.39	288.39	0
474	287.205	287.48	287.48	0	288.537	288.537	0
475	288.627	288.957	288.957	0	289.372	289.372	0
476	294.658	292.636	292.636	0	302.058	302.058	0
477	304.02	304.163	304.163	0	304.761	304.761	0
478	302.763	304.194	304.194	0	304.818	304.818	0
479	303.085	304.246	304.246	0	304.896	304.896	0
48	280.74	276.447	276.447	0	277.664	277.519	-0.145
480	292.375	282.249	282.249	0	282.507	282.507	0
481	289.594	283.036	283.036	0	283.735	283.735	0
482	288.699	283.856	283.856	0	284.241	284.241	0
483	302.495	296.729	296.729	0	296.956	296.956	0
484	302.258	297.875	297.875	0	298.571	298.571	0
485	302.173	298.139	298.139	0	298.932	298.932	0
486	303.335	298.225	298.225	0	299.131	299.131	0
487	302.561	298.965	298.965	0	299.344	299.344	0
487.1	244.95	240.949	240.949	0	242.122	242.122	0
487.2	250.04	244.98	244.979	-0.001	246.398	246.398	0
487.3	253.35	246.465	246.465	0	248.017	248.017	0
487.4	254.3	246.563	246.563	0	248.766	248.766	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
487.5	261	258.623	258.623	0	259.077	259.077	0
487.6	255.11	253.646	253.646	0	254.674	254.674	0
487.8	268.5	262.884	262.884	0	264.021	264.021	0
487.9	270.68	267.357	267.357	0	268.4	268.4	0
488	285.061	282.22	282.22	0	282.374	282.374	0
488.1	275.176	271.119	271.119	0	272.604	272.603	-0.001
488.2	275.71	273.679	273.679	0	275.592	275.592	0
488.3	275.8	273.716	273.716	0	275.631	275.631	0
488.4	276	273.753	273.753	0	275.932	275.932	0
489	278.108	274.458	274.458	0	276.379	276.379	0
49	280.611	278.755	278.755	0	280.167	280.221	0.054
49.5	280.5	279.346	279.346	0	281.982	281.99	0.008
490	279.864	275.39	275.39	0	276.708	276.708	0
491	285.776	275.959	275.959	0	276.875	276.874	-0.001
491.5	285.578	276.971	276.971	0	277.775	277.775	0
492	280.091	277.483	277.483	0	278.702	278.702	0
493	281.128	277.949	277.949	0	279.275	279.275	0
494	288.852	280.645	280.645	0	281.594	281.594	0
495	298.578	295.925	295.925	0	296.221	296.221	0
497	275.23	272.271	272.271	0	275.605	275.605	0
497.5	284	277.096	277.096	0	278.814	278.811	-0.003
498	284.15	277.241	277.241	0	279.066	279.063	-0.003
499	296.173	277.406	277.406	0	279.381	279.38	-0.001
5	278.975	277.56	276.617	-0.943	280.425	280.339	-0.086
50	281.509	280.254	280.254	0	282.408	282.413	0.005
500	295.176	285.504	285.504	0	285.768	285.766	-0.002
501	296.739	287.615	287.615	0	288.532	288.525	-0.007
501.5	296.724	289.534	289.534	0	290.033	290.029	-0.004
502	282.105	278.215	278.215	0	280.074	280.074	0
503	282.091	278.215	278.215	0	280.079	280.077	-0.002
504	286.661	282.625	282.625	0	283.16	283.16	0
505	297.498	291.953	291.953	0	295.047	295.002	-0.045
506	299.839	296.153	296.153	0	296.413	296.411	-0.002
507	300.606	298.201	298.201	0	301.506	301.506	0
508	300.192	298.317	298.316	-0.001	301.529	301.529	0
509	301.91	298.598	298.598	0	302.71	302.699	-0.011
51	288.306	287.832	287.832	0	289.439	289.452	0.013
51.5	288.5	287.825	287.825	0	289.38	289.393	0.013
510	301.794	299.746	299.746	0	302.731	302.72	-0.011
511	299.987	300.858	293.344	-7.514	301.195	293.921	-7.274

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
512	305.688	305.824	293.357	-12.467	306.188	293.935	-12.253
512.5	305.9	306.479	293.389	-13.09	307.176	293.953	-13.223
512.6	308	306.523	303.144	-3.379	307.46	303.516	-3.944
513	300.059	300.65	293.332	-7.318	300.943	293.905	-7.038
514	299.728	300.077	293.323	-6.754	300.372	293.894	-6.478
515	294.058	294.679	293.308	-1.371	295.099	293.875	-1.224
516	292.44	293.01	292.757	-0.253	293.593	293.152	-0.441
516.5	292.2	289.26	289.158	-0.102	291.686	289.457	-2.229
517	289.303	286.571	285.665	-0.906	290.307	287.362	-2.945
518	291.834	289.506	289.567	0.061	291.888	290.028	-1.86
519	291.653	290.199	290.164	-0.035	291.909	290.626	-1.283
52	290.492	285.741	285.741	0	289.244	289.261	0.017
520	293.081	290.621	290.621	0	292.1	290.846	-1.254
521	293.488	293.792	293.727	-0.065	294.143	294.093	-0.05
522	297.326	295.608	295.539	-0.069	297.562	297.555	-0.007
523	296.167	296.243	296.203	-0.04	297.657	297.651	-0.006
524	302.3	299.996	299.981	-0.015	302.689	302.688	-0.001
525	289.224	285.774	285.152	-0.622	288.977	286.447	-2.53
525.5	289	284.969	284.559	-0.41	287.959	285.733	-2.226
526	289.321	286.33	285.612	-0.718	289.804	287.007	-2.797
527	288.643	283.275	284.492	1.217	288.725	285.858	-2.867
527.5	288.6	288.09	285.839	-2.251	289.372	287.519	-1.853
528	287.974	288.116	285.878	-2.238	289.383	287.663	-1.72
528.5	288.9	289.347	288.887	-0.46	290.113	289.801	-0.312
529	289.735	289.908	289.69	-0.218	290.624	290.493	-0.131
53	297.149	289.38	289.38	0	295.027	295.035	0.008
530	290.572	291.172	291.172	0	294.872	294.872	0
530.5	291	291.191	291.191	0	294.917	294.917	0
531	288.85	289.372	289.027	-0.345	290.133	289.823	-0.31
532	295.392	292.138	292.138	0	295.415	295.415	0
533	300.903	295.553	295.553	0	301.251	301.251	0
534	293.69	291.72	291.72	0	294.887	294.887	0
535	302.473	302.577	302.586	0.009	303.218	303.218	0
535.5	285.5	283.145	279.687	-3.458	286.815	279.866	-6.949
535.6	286.867	283.593	280.629	-2.964	287.262	281.129	-6.133
535.7	287.667	283.767	282.023	-1.744	287.402	283.161	-4.241
536	281.5	280.536	276.201	-4.335	282.474	277.287	-5.187
537	278.541	278.868	276.191	-2.677	280.243	277.288	-2.955
538	278.051	278.479	276.18	-2.299	279.876	277.278	-2.598
538.5	277	277.754	276.159	-1.595	279.195	277.225	-1.97

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
539	275.852	276.889	275.359	-1.53	278.547	276.304	-2.243
539.5	275.1	276.871	275.358	-1.513	278.49	276.293	-2.197
54	296.829	296.948	296.948	0	297.292	297.293	0.001
540	275.204	276.427	274.743	-1.684	277.874	275.916	-1.958
541	273.424	275.476	273.925	-1.551	277.146	274.899	-2.247
542	272.818	275.193	273.709	-1.484	276.843	274.687	-2.156
543	272.926	274.903	273.491	-1.412	276.51	274.423	-2.087
544	272.502	274.459	273.049	-1.41	276.061	273.998	-2.063
545	272.304	274.046	272.68	-1.366	275.629	273.618	-2.011
546	270.99	273.508	272.061	-1.447	275.114	273.12	-1.994
547	270.557	273.282	271.936	-1.346	274.823	272.948	-1.875
548	271.301	273.078	271.846	-1.232	274.541	272.802	-1.739
549	270.98	272.49	271.345	-1.145	273.951	272.36	-1.591
549.5	269	270.696	268.691	-2.005	272.817	270.776	-2.041
55	294.442	292.007	292.007	0	294.742	294.742	0
550	267.778	270.178	267.54	-2.638	272.478	270.392	-2.086
551	282.038	274.839	274.839	0	277.11	275.543	-1.567
552	301.018	301.571	301.571	0	301.918	301.918	0
553	304.273	304.766	304.766	0	305.087	305.087	0
554	280.039	280.278	279.883	-0.395	280.755	280.603	-0.152
555	284.465	284.551	284.531	-0.02	285.011	285.008	-0.003
556	283.96	284.727	284.712	-0.015	285.216	285.215	-0.001
557	284.389	285.008	284.999	-0.009	285.498	285.497	-0.001
557.5	284.5	285.2	285.192	-0.008	285.709	285.708	-0.001
557.6	293.9	290.752	290.752	0	291.407	291.407	0
558	280.592	281.043	280.97	-0.073	281.408	281.372	-0.036
559	295.787	296.027	296.027	0	296.43	296.43	0
56	283.901	274.933	274.932	-0.001	281.088	280.892	-0.196
560	303.014	302.057	302.066	0.009	303.524	303.524	0
561	303.454	303.952	303.956	0.004	304.367	304.37	0.003
562	300.63	304.126	304.134	0.008	304.511	304.511	0
563	300.136	304.331	304.351	0.02	304.872	304.872	0
564	308.476	309.143	309.264	0.121	309.734	309.703	-0.031
565	312.34	308.931	308.931	0	312.298	312.298	0
566	313.804	307.627	307.627	0	310.548	310.548	0
567	313.488	306.179	306.179	0	307.874	307.874	0
568	312.689	304.145	304.145	0	304.352	304.352	0
569	311.692	299.799	299.799	0	301.447	301.447	0
57	273.594	270.849	270.847	-0.002	272.92	272.168	-0.752
570	310.276	298.759	298.759	0	299.73	299.73	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
571	307.661	298.222	298.222	0	298.963	298.963	0
572	306.45	297.604	297.604	0	298.2	298.2	0
573	302.615	295.592	295.592	0	295.995	295.995	0
574	299.298	294.145	294.145	0	295.227	295.227	0
575	297.985	293.503	293.503	0	294.798	294.798	0
576	298.931	293.264	293.264	0	294.461	294.461	0
577	299.606	291.687	291.687	0	292.821	292.821	0
578	296.701	290.027	290.027	0	291.002	291.002	0
579	294.611	287.273	287.273	0	287.633	287.633	0
58	273.034	272.171	272.174	0.003	273.612	273.436	-0.176
580	278.991	278.365	276.827	-1.538	279.432	279.325	-0.107
581	278.573	278.905	278.743	-0.162	279.565	279.489	-0.076
582	278.95	276.934	277.187	0.253	279.574	278.324	-1.25
583	278.691	276.914	277.234	0.32	279.565	278.281	-1.284
583.5	281.5	277.461	277.83	0.369	279.575	278.378	-1.197
584	281.555	277.769	277.93	0.161	279.749	278.881	-0.868
585	281.101	278.036	278.144	0.108	280.009	279.376	-0.633
585.5	281.1	278.745	278.787	0.042	280.42	280.105	-0.315
585.6	284.4	278.783	278.811	0.028	280.669	280.328	-0.341
586	312.517	313.498	313.501	0.003	313.967	313.967	0
587	313.768	314.823	314.823	0	315.295	315.295	0
588	284.458	278.938	278.963	0.025	280.787	280.496	-0.291
589	286.715	280.742	280.746	0.004	281.991	281.98	-0.011
59	285.596	279.603	279.603	0	279.951	279.951	0
59.7	266.12	253.633	252.911	-0.722	256.069	253.714	-2.355
59.8	267.15	261.389	261.389	0	261.918	261.918	0
590	287.295	280.997	280.997	0	281.482	281.482	0
591	291.647	284.873	284.873	0	286.124	286.124	0
592	292.282	287.544	287.544	0	287.789	287.789	0
593	294.744	291.967	291.967	0	292.746	292.746	0
594	295.018	292.649	292.649	0	293.548	293.548	0
595	296.619	292.946	292.946	0	294.552	294.552	0
596	300.855	296.647	296.647	0	296.947	296.947	0
597	308.739	305.776	305.776	0	309.049	309.049	0
598	308.608	307.132	307.132	0	309.299	309.299	0
599	308.633	308.278	308.278	0	309.456	309.456	0
6	279.612	278.277	277.486	-0.791	281.119	281.071	-0.048
60	287.11	279.638	279.638	0	280.119	280.119	0
60.1	286.5	279.539	279.539	0	279.947	279.947	0
60.2	274	271.045	271.045	0	272.057	272.058	0.001

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
60.3	272.8	273.338	273.338	0	273.796	273.796	0
60.5	288.12	283.975	283.975	0	288.709	288.709	0
600	289.874	287.134	287.134	0	288.424	288.424	0
601	291.995	287.857	287.857	0	288.983	288.983	0
602	292.37	288.336	288.336	0	289.693	289.693	0
603	291.98	289.368	289.368	0	291.461	291.461	0
604	291.334	289.714	289.714	0	291.756	291.756	0
605	292.256	289.715	289.715	0	291.762	291.763	0.001
606	296.528	292.721	292.721	0	294.058	294.058	0
607	298.709	294.152	294.152	0	295.038	295.038	0
608	303.89	304.063	304.063	0	304.425	304.425	0
609	304.179	304.595	304.595	0	304.928	304.928	0
61	288.948	284.447	284.447	0	290.648	290.648	0
610	307.771	308.11	308.11	0	308.419	308.419	0
610.1	281	276.999	276.852	-0.147	279.541	278.241	-1.3
610.3	295.6	277.044	277.1	0.056	279.568	278.323	-1.245
610.4	295.5	277.086	277.352	0.266	279.576	278.346	-1.23
610.5	279.91	276.902	277.148	0.246	279.385	277.9	-1.485
611	307.906	308.411	308.411	0	308.767	308.767	0
611.1	279.17	276.273	274.123	-2.15	279.212	274.668	-4.544
611.2	279.75	275.78	272.34	-3.44	278.722	272.537	-6.185
611.3	279.75	275.498	272.336	-3.162	278.446	272.54	-5.906
611.4	279.1	275.37	272.331	-3.039	278.309	272.543	-5.766
611.5	278.2	274.734	269.794	-4.94	277.379	270.965	-6.414
612	277.697	275.07	269.777	-5.293	277.28	271.023	-6.257
613	275.306	273.508	267.949	-5.559	276.114	270.75	-5.364
614	273.154	273.058	267.97	-5.088	275.49	270.868	-4.622
615	273.68	273.054	267.941	-5.113	275.415	270.732	-4.683
616	274.021	272.578	267.9	-4.678	274.868	270.68	-4.188
617	272.443	272.375	267.88	-4.495	274.443	270.656	-3.787
617.5	271.2	272.227	267.876	-4.351	274.292	270.632	-3.66
618	270.712	270.963	267.117	-3.846	273.312	269.074	-4.238
619	270.83	269.678	266.33	-3.348	272.305	268.189	-4.116
62	288.894	285.548	285.548	0	290.752	290.752	0
620	268.636	265.473	263.934	-1.539	268.254	264.986	-3.268
621	268.11	264.972	263.642	-1.33	267.49	264.597	-2.893
622	270.53	272.264	268.279	-3.985	274.347	271.234	-3.113
623	273.51	272.61	268.857	-3.753	274.697	272.577	-2.12
624	277.511	272.637	272.803	0.166	276.121	273.607	-2.514
625	280.437	275.843	275.681	-0.162	276.707	276.709	0.002

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
626	283.761	278.038	278.15	0.112	279.226	279.132	-0.094
627	284.682	279.201	279.159	-0.042	280.413	280.412	-0.001
628	288.62	284.736	284.736	0	285.255	285.255	0
629	289.255	285.894	285.894	0	286.488	286.488	0
63	289.269	287.22	287.22	0	290.904	290.904	0
630	288.075	286.076	286.076	0	287.512	287.511	-0.001
631	292.656	288.042	288.042	0	288.671	288.671	0
632	293.075	288.898	288.898	0	289.697	289.697	0
633	294.451	290.681	290.681	0	291.444	291.444	0
634	302.79	297.513	297.513	0	298.059	298.059	0
635	302.869	298.918	298.918	0	299.871	299.871	0
636	303.44	299.581	299.581	0	300.694	300.694	0
637	314.157	309.272	309.272	0	309.4	309.4	0
638	307.184	307.439	307.439	0	307.736	307.736	0
639	300.732	277.345	277.345	0	279.604	278.36	-1.244
64	290.223	288.745	288.745	0	291.302	291.302	0
640	301.989	278.059	278.059	0	279.608	278.371	-1.237
641	280.426	276.359	276.359	0	279.505	276.916	-2.589
642	282.838	279.201	279.217	0.016	281.033	280.796	-0.237
643	283.385	279.202	279.22	0.018	281.033	280.801	-0.232
644	282.863	279.357	279.357	0	281.172	280.967	-0.205
645	285.355	279.456	279.456	0	281.22	281.014	-0.206
646	287.022	280.9	280.9	0	281.577	281.511	-0.066
646.5	295.8	288.932	288.932	0	289.362	289.362	0
647	280.438	282.016	282.015	-0.001	282.555	282.557	0.002
648	281.232	281.912	281.911	-0.001	282.399	282.4	0.001
649	281.025	281.943	281.942	-0.001	282.437	282.439	0.002
65	291.544	291.703	291.703	0	292.431	292.431	0
650	281.2	281.981	281.98	-0.001	282.482	282.483	0.001
651	281.2	277.345	277.345	0	277.772	277.772	0
651.5	280.7	277.974	277.974	0	279.366	279.366	0
651.6	280.7	278.802	278.802	0	279.516	279.516	0
652	280.468	277.979	277.979	0	279.398	279.398	0
653	280.595	277.934	277.934	0	279.459	279.459	0
654	281.063	278.802	278.802	0	279.516	279.516	0
655	281.085	278.803	278.803	0	279.52	279.52	0
656	285.377	280.302	280.302	0	281.231	281.231	0
657	287.521	282.928	282.928	0	283.412	283.412	0
658	293.666	288.681	288.681	0	289.347	289.347	0
659	293.627	289.938	289.938	0	290.881	290.881	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
66	286.55	280.816	280.816	0	281.652	281.634	-0.018
660	297.238	294.156	294.156	0	294.783	294.783	0
661	298.151	296.193	296.193	0	297.159	297.159	0
662	300.065	300.525	300.525	0	300.914	300.914	0
663	300.285	300.977	300.977	0	301.405	301.405	0
664	297.1	297.141	297.141	0	297.463	297.463	0
665	247.562	230.542	230.249	-0.293	233.759	232.204	-1.555
666	245.811	234.69	234.69	0	235.71	235.748	0.038
667	239.76	230.594	229.362	-1.232	233.747	232.196	-1.551
668	289.697	287.296	287.296	0	288.289	288.289	0
669	301.694	298.139	298.139	0	298.415	298.415	0
67	290.334	287.054	287.054	0	290.051	290.051	0
670	302.394	299.23	299.23	0	299.885	299.885	0
671	301.772	299.23	299.23	0	299.885	299.885	0
672	303.67	300.143	300.143	0	300.759	300.759	0
673	302.903	300.758	300.758	0	300.953	300.953	0
674	304.03	300.435	300.435	0	300.95	300.95	0
675	303.931	301.475	301.475	0	301.968	301.968	0
676	306.252	302.634	302.634	0	303.198	303.198	0
677	308.145	305.242	305.242	0	305.665	305.665	0
678	307.15	305.243	305.243	0	305.425	305.425	0
679	307.207	305.273	305.273	0	305.716	305.716	0
68	286.825	284.292	284.292	0	285.862	285.862	0
680	281.126	278.814	278.814	0	279.32	279.32	0
681	281.029	279.92	279.92	0	280.753	280.753	0
682	288.899	286.517	286.517	0	286.844	286.844	0
683	288.984	287.989	287.989	0	288.923	288.923	0
684	291.058	289.151	289.151	0	289.727	289.727	0
686	291.375	290.306	290.306	0	291.15	291.15	0
687	295.677	293.557	293.557	0	293.934	293.934	0
688	296.63	295.196	295.196	0	296.022	296.022	0
689	274.437	266.769	266.769	0	271.275	268.125	-3.15
69	285.865	284.369	284.369	0	286.026	286.026	0
690	274.759	273.941	273.941	0	275.514	275.321	-0.193
691	277.09	275.684	275.685	0.001	277.736	277.721	-0.015
692	277.558	275.859	275.859	0	278.258	278.258	0
693	277.949	277.347	277.347	0	278.682	278.682	0
694	276.209	277.388	277.389	0.001	278.709	278.709	0
695	279.986	275.981	275.981	0	279.032	279.032	0
696	308.739	296.58	296.58	0	297.617	297.617	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
697	307.393	295.46	295.46	0	296.015	296.015	0
698	299.993	297.06	297.06	0	297.838	297.838	0
699	290.971	286.647	286.647	0	286.811	286.811	0
7	279.872	279.115	278.342	-0.773	281.641	281.61	-0.031
70	285.808	283.994	283.994	0	285.271	285.271	0
700	289.211	283.91	283.91	0	285.242	285.242	0
701	288.11	284.141	284.141	0	285.246	285.246	0
701.5	288.5	283.607	283.607	0	284.906	284.906	0
702	289.105	284.333	284.333	0	285.575	285.575	0
703	294.005	285.951	285.951	0	286.421	286.421	0
705	249.995	241.719	241.719	0	242.235	242.235	0
706	237.968	232.728	231.512	-1.216	236.372	234.822	-1.55
707	279.645	257.703	257.703	0	258.352	258.352	0
708	281.568	260.058	260.058	0	261.232	261.232	0
709	283.635	261.573	261.573	0	262.701	262.701	0
71	286.5	283.45	283.45	0	284.372	284.372	0
713	281.844	270.31	270.31	0	270.922	270.922	0
714	284.843	278.827	278.827	0	279.522	279.522	0
715	291.076	286.213	286.213	0	286.98	286.98	0
716	305.524	295.467	295.467	0	305.748	305.748	0
717	300.055	294.653	294.653	0	294.929	294.929	0
719	298.639	295.557	295.557	0	295.678	295.678	0
72	286.3	281.963	281.963	0	282.304	282.304	0
720	297.652	295.86	295.86	0	296.178	296.178	0
721	298	296.053	296.053	0	296.182	296.182	0
722	300.974	300.079	300.079	0	301.386	301.386	0
723	301.188	300.633	300.633	0	301.849	301.849	0
724	304.186	301.737	301.737	0	304.686	304.686	0
725	308.203	307.336	307.336	0	309.578	309.578	0
726	309.031	309.617	309.617	0	310.16	310.16	0
727	309.434	310.134	310.134	0	310.612	310.612	0
728	294.584	292.653	292.653	0	294.918	294.918	0
729	294.537	292.653	292.653	0	294.926	294.926	0
73	286.9	281.618	281.618	0	282.217	282.217	0
730	295.439	293.624	293.624	0	295.853	295.853	0
731	303.489	299.991	299.991	0	303.8	303.8	0
732	317.91	313.996	313.996	0	314.26	314.26	0
732.5	294	290.32	290.32	0	293.414	293.415	0.001
733	295.444	292.109	292.109	0	294.199	294.199	0
734	294.643	292.11	292.11	0	294.202	294.202	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
735	294.987	293.234	293.234	0	294.902	294.904	0.002
736	295.751	293.496	293.496	0	295.501	295.499	-0.002
737	298.628	295.859	295.859	0	300.528	300.528	0
738	302.954	301.103	301.103	0	303.425	303.425	0
739	303.017	302.335	302.335	0	303.697	303.697	0
74	286.5	284.587	284.587	0	286.628	286.628	0
740	303.842	304.045	304.045	0	304.416	304.416	0
741	298.844	294.82	294.82	0	295.516	295.516	0
742	287.589	284.41	284.404	-0.006	286.309	286.309	0
76	289.482	286.323	286.323	0	286.635	286.635	0
77	289.293	287.752	287.752	0	288.604	288.604	0
78	293.524	290.496	290.496	0	290.725	290.725	0
79	290.832	289.371	289.371	0	291.118	291.118	0
8	283.464	280.577	279.787	-0.79	284.422	284.416	-0.006
80	299.847	295.369	295.369	0	299.974	299.974	0
81	296.34	292.421	292.421	0	294.808	294.808	0
82	298.192	291.972	291.972	0	293.581	293.581	0
83	295.287	291.272	291.272	0	292.344	292.344	0
84	291.289	289.472	289.472	0	290.609	290.609	0
85	292.108	289.056	289.056	0	290.309	290.309	0
86	291.806	288.729	288.729	0	290.046	290.046	0
87	293.602	287.104	287.104	0	289.37	289.37	0
9	287.097	283.679	283.743	0.064	288.103	288.103	0
9.6	288.5	285.27	285.27	0	289.363	289.362	-0.001
90	296.187	294.848	294.848	0	295.499	295.499	0
90.5	294.98	293.345	293.345	0	294.369	294.369	0
91	293.174	292.215	292.215	0	293.463	293.463	0
92	294.431	291.92	291.92	0	292.849	292.849	0
92.5	286.3	285.368	285.368	0	286.557	286.557	0
93	297.941	291.524	291.524	0	291.812	291.812	0
94	276.173	273.81	273.897	0.087	277.146	277.076	-0.07
95	275.749	272.793	272.877	0.084	276.569	276.419	-0.15
96	275.157	271.995	272.1	0.105	275.926	275.484	-0.442
96.5	268.72	268.315	265.66	-2.655	272.947	266.734	-6.213
97	274.456	270.287	269.79	-0.497	275.096	273.328	-1.768
98	292.561	292.688	292.688	0	293.013	293.013	0
99	292.319	288.157	288.157	0	289.651	289.651	0
CANE-10	233.3	217.874	217	-0.874	218.998	218.125	-0.873
CANE-11	233.3	219.201	218.04	-1.161	221.174	219.707	-1.467
CANE-12	236.54	217.801	216.691	-1.11	220.711	219.238	-1.473

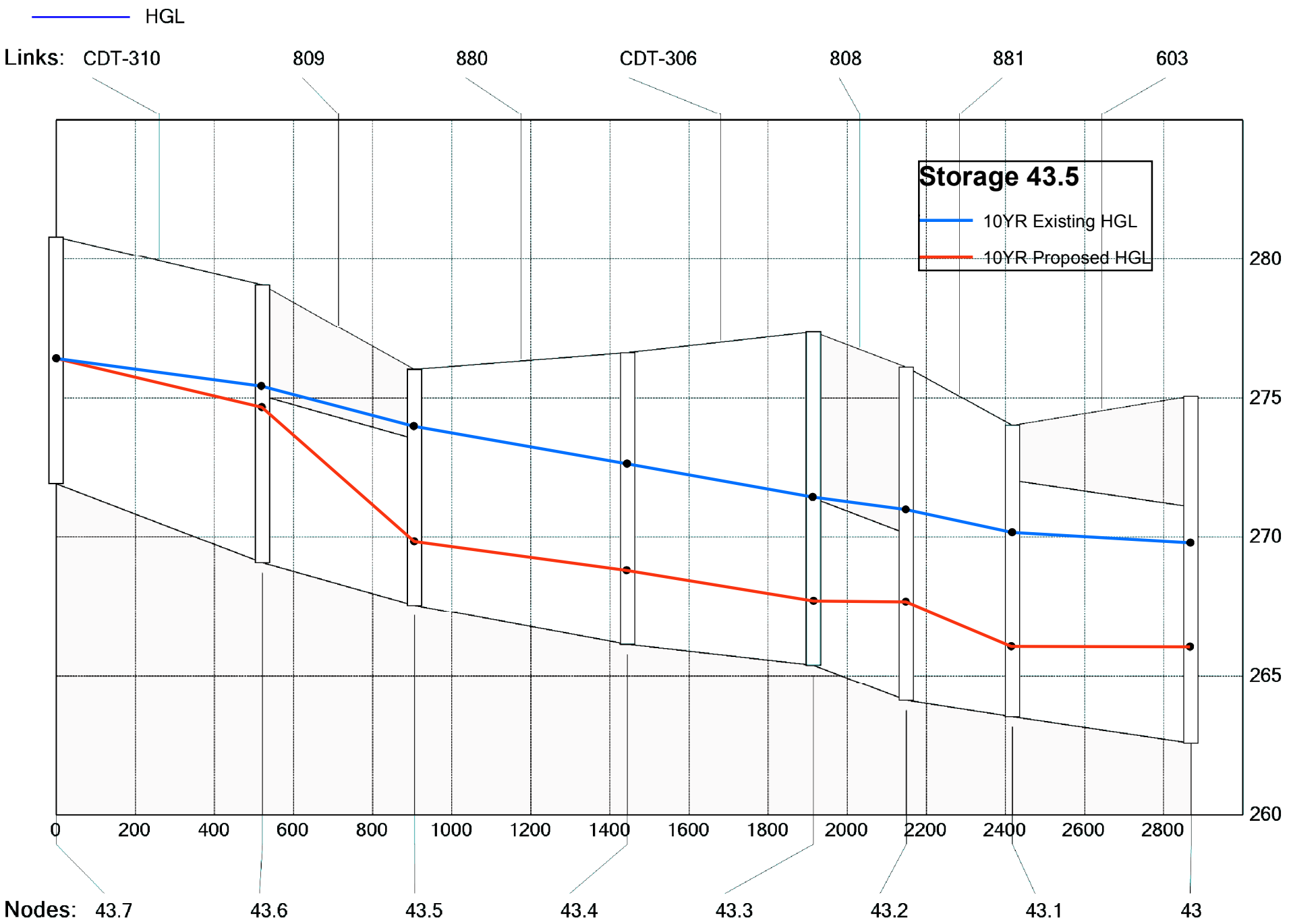
NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
CANE-13	239.87	218.266	217.3	-0.966	221.536	220.158	-1.378
CANE-14	238.73	219.823	218.952	-0.871	222.693	221.472	-1.221
CANE-15	238.69	220.269	219.315	-0.954	223.334	222.062	-1.272
CANE-16	236.58	220.868	219.853	-1.015	224.027	222.722	-1.305
CANE-17	234.67	220.977	219.963	-1.014	224.127	222.82	-1.307
CANE-18	237.1	220.948	219.94	-1.008	224.076	222.779	-1.297
CANE-19	237.1	221.281	220.301	-0.98	224.346	223.058	-1.288
CANE-2	231.87	211.279	211.152	-0.127	211.931	211.867	-0.064
CANE-20	233	223.611	223.131	-0.48	225.07	224.411	-0.659
CANE-21	241	224.658	223.97	-0.688	226.855	225.856	-0.999
CANE-22	239	225.874	224.947	-0.927	228.767	227.443	-1.324
CANE-23	238	225.919	224.993	-0.926	228.809	227.486	-1.323
CANE-24	240	226.355	225.352	-1.003	229.473	228.045	-1.428
CANE-25	238.16	227.374	226.512	-0.862	230.224	228.897	-1.327
CANE-26	234.79	228.239	227.294	-0.945	231.149	229.807	-1.342
CANE-27	234.49	228.458	227.505	-0.953	231.362	230.024	-1.338
CANE-28	235.88	228.696	227.715	-0.981	231.697	230.301	-1.396
CANE-29	235.95	229.291	228.229	-1.062	232.412	230.969	-1.443
CANE-3	233.07	211.234	211.003	-0.231	211.9	211.801	-0.099
CANE-30	235.16	229.312	228.256	-1.056	232.576	230.987	-1.589
CANE-31	235.28	230.327	229.2	-1.127	233.666	232.071	-1.595
CANE-32	236.01	230.138	229.036	-1.102	233.424	231.852	-1.572
CANE-33	236.3	231.359	229.982	-1.377	235.642	233.586	-2.056
CANE-34	236.96	231.727	230.315	-1.412	235.771	233.899	-1.872
CANE-35	237.13	234.547	233.012	-1.535	237.626	236.537	-1.089
CANE-36	238.21	236.59	234.757	-1.833	239.939	238.945	-0.994
CANE-37	239.24	233.363	231.786	-1.577	236.733	235.492	-1.241
CANE-38	242	232.638	231.156	-1.482	236.258	234.713	-1.545
CANE-39	243	232.651	231.122	-1.529	236.364	234.729	-1.635
CANE-4	234.48	211.259	211.009	-0.25	211.996	211.897	-0.099
CANE-40	239.65	232.882	231.459	-1.423	236.689	235.019	-1.67
CANE-41	239.15	233.955	232.435	-1.52	238.219	236.164	-2.055
CANE-42	241	233.462	231.681	-1.781	237.946	235.835	-2.111
CANE-43	239.3	234.471	233.076	-1.395	238.602	236.531	-2.071
CANE-44	242	235.796	234.589	-1.207	239.6	237.573	-2.027
CANE-45	244.3	236.394	235.279	-1.115	240.038	238.051	-1.987
CANE-46	246.04	236.668	235.555	-1.113	240.239	238.277	-1.962
CANE-47	249.23	239.024	238.169	-0.855	241.474	239.622	-1.852
CANE-48	254.11	239.319	238.469	-0.85	241.623	239.804	-1.819
CANE-49	256	239.599	238.53	-1.069	241.998	240.048	-1.95

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
CANE-5	232.17	212.38	211.742	-0.638	214.175	213.477	-0.698
CANE-50	247	240.699	240.048	-0.651	242.321	240.708	-1.613
CANE-51	247.1	241.107	240.413	-0.694	242.542	241.018	-1.524
CANE-52	247.29	243.923	242.849	-1.074	244.963	243.727	-1.236
CANE-53	248.67	244.539	243.431	-1.108	245.622	244.323	-1.299
CANE-54	248.64	244.523	243.419	-1.104	245.632	244.294	-1.338
CANE-55	249.23	245.672	244.877	-0.795	246.781	245.349	-1.432
CANE-56	251	246.336	244.909	-1.427	247.688	245.938	-1.75
CANE-57	251	247.108	246.89	-0.218	247.776	246.63	-1.146
CANE-58	248.52	251.265	251.25	-0.015	251.274	251.131	-0.143
CANE-59	249.26	248.829	249.578	0.749	249.447	248.588	-0.859
CANE-6	232.57	213.294	212.42	-0.874	215.502	214.673	-0.829
CANE-60	250.1	248.854	248.846	-0.008	248.785	248.255	-0.53
CANE-61	251.3	253.983	253.219	-0.764	252.054	253.776	1.722
CANE-62	253.96	251.922	250.617	-1.305	250.054	251.581	1.527
CANE-63	253.4	248.788	253.9	5.112	248.682	250.959	2.277
CANE-64	252.5	248.321	247.692	-0.629	248.541	248.102	-0.439
CANE-65	252.09	249.168	248.672	-0.496	250.385	249.322	-1.063
CANE-66	254.1	249.542	249.119	-0.423	250.734	249.706	-1.028
CANE-67	260.51	249.523	248.874	-0.649	250.849	249.714	-1.135
CANE-68	261	249.587	248.975	-0.612	250.668	249.754	-0.914
CANE-69	259.2	250.816	249.655	-1.161	252.887	251.075	-1.812
CANE-7	232.98	213.775	212.909	-0.866	216.064	215.193	-0.871
CANE-7.5	232.89	213.922	213.053	-0.869	216.211	215.339	-0.872
CANE-70	261.4	252.042	250.394	-1.648	254.312	252.32	-1.992
CANE-71	260.4	252.24	250.501	-1.739	254.621	252.521	-2.1
CANE-72	261.48	253.368	251.935	-1.433	255.459	253.543	-1.916
CANE-73	263.48	253.645	252.253	-1.392	255.655	253.793	-1.862
CANE-74	264.4	253.936	252.412	-1.524	256.138	254.085	-2.053
CANE-75	257.28	253.543	252.504	-1.039	254.645	253.47	-1.175
CANE-8	233.03	213.676	212.769	-0.907	215.84	214.991	-0.849
CANE-9	233.3	214.905	214.335	-0.57	216.713	215.981	-0.732
CANETRIB-1	236.9	231.314	229.914	-1.4	235.627	233.572	-2.055
CANETRIB-2	236.8	231.32	230.03	-1.29	235.632	233.565	-2.067
CANETRIB-3	236.4	231.346	230.064	-1.282	235.713	233.713	-2
CANETRIB-4	240.76	231.321	230.012	-1.309	235.682	233.726	-1.956
CANETRIB-5	242.07	231.337	230.092	-1.245	235.717	233.784	-1.933
CANETRIB-6	244.39	232.527	232.527	0	235.764	234.103	-1.661
CANETRIB-7	245.07	232.695	232.695	0	235.762	234.166	-1.596
CANETRIB-8	245.89	234.286	234.286	0	235.856	235.397	-0.459

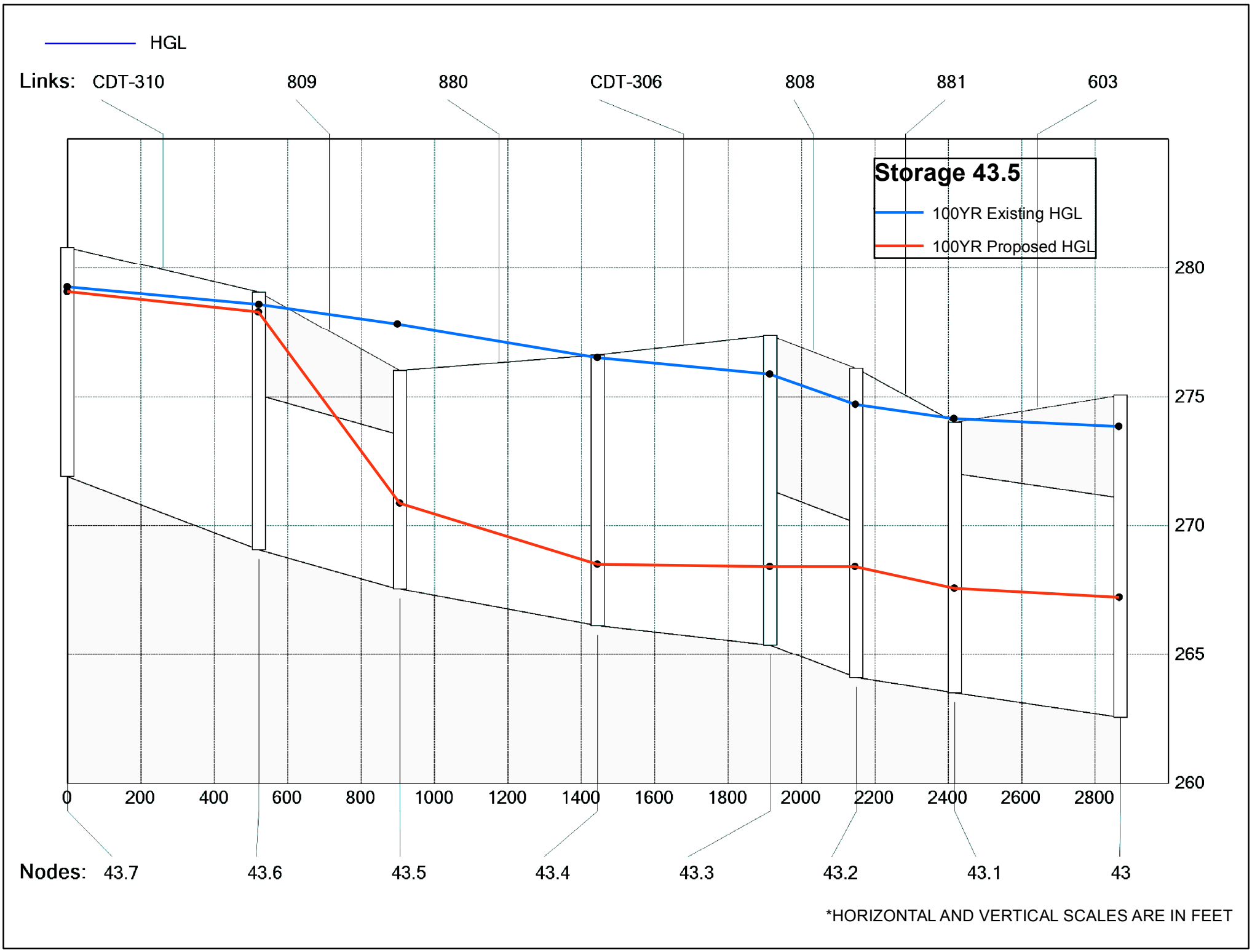
NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
CHANNEL-1	246.88	249.31	248.684	-0.626	250.692	249.461	-1.231
CHANNEL-1(	265.42	261.723	258.621	-3.102	265.163	262.975	-2.188
CHANNEL-1	268.13	262.467	260.194	-2.273	266.518	263.545	-2.973
CHANNEL-1	267.4	262.767	260.424	-2.343	267.376	263.908	-3.468
CHANNEL-1	267.66	262.958	260.535	-2.423	267.488	264.084	-3.404
CHANNEL-2	253.99	253.337	251.95	-1.387	255.796	254.744	-1.052
CHANNEL2-	256.89	254.987	252.598	-2.389	256.088	253.555	-2.533
CHANNEL2-1	271.13	268.307	265.451	-2.856	272.94	266.657	-6.283
CHANNEL2-1	270.93	268.391	265.552	-2.839	273.089	266.766	-6.323
CHANNEL2-1	270.99	268.791	265.835	-2.956	273.645	267.172	-6.473
CHANNEL2-1	270.54	269.824	266.271	-3.553	274.082	267.683	-6.399
CHANNEL2-	270.6	261.793	258.161	-3.632	263.429	258.648	-4.781
CHANNEL2-	270.63	263.414	258.719	-4.695	265.422	259.412	-6.01
CHANNEL2-	265.36	265.36	259.706	-5.654	269.76	260.264	-9.496
CHANNEL2-(	265	266.299	260.083	-6.216	270.209	260.639	-9.57
CHANNEL2-	270.4	267.028	260.852	-6.176	271.526	260.852	-10.674
CHANNEL2-8	271	267.394	261.216	-6.178	272.215	261.216	-10.999
CHANNEL2-9	270.3	267.445	263.581	-3.864	272.346	263.577	-8.769
CHANNEL-3	257	250.618	250.259	-0.359	251.454	251.008	-0.446
CHANNEL3-	268.19	266.333	265.491	-0.842	269.814	267.187	-2.627
CHANNEL3-	270.2	266.323	265.641	-0.682	269.867	267.184	-2.683
CHANNEL3-	270.24	270.113	270.112	-0.001	270.686	270.564	-0.122
CHANNEL-4	257	256.068	253.657	-2.411	259.3	258.054	-1.246
CHANNEL4-	258.13	255.214	254.839	-0.375	256.721	256.243	-0.478
CHANNEL4-1	268.1	263.616	262.932	-0.684	266.62	263.84	-2.78
CHANNEL4-1	270.8	266.004	266.254	0.25	266.573	267.018	0.445
CHANNEL4-1	275.93	272.705	272.668	-0.037	273.209	273.168	-0.041
CHANNEL4-	258.9	256.205	255.825	-0.38	257.785	257.315	-0.47
CHANNEL4-	259.89	257.277	256.908	-0.369	258.844	258.39	-0.454
CHANNEL4-4	261.29	257.344	256.975	-0.369	258.916	258.461	-0.455
CHANNEL4-	261.53	257.548	257.154	-0.394	259.225	258.739	-0.486
CHANNEL4-(	264.8	261.973	261.521	-0.452	264.27	263.004	-1.266
CHANNEL4-	265.1	262.623	262.088	-0.535	264.904	263.897	-1.007
CHANNEL4-8	264.97	262.817	262.309	-0.508	265.038	264.09	-0.948
CHANNEL4-9	265.44	263.174	262.811	-0.363	265.278	265.118	-0.16
CHANNEL-5	257	257.578	254.534	-3.044	260.272	259.004	-1.268
CHANNEL5-	264.93	263.347	263.347	0	264.067	264.012	-0.055
CHANNEL5-1	273.49	273.601	273.606	0.005	276.02	276.02	0
CHANNEL5-1	274.2	273.265	273.266	0.001	276.036	276.036	0
CHANNEL5-1	274.67	273.639	273.639	0	276.268	276.268	0

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
HANNEL5-1	274.7	273.716	273.716	0	276.336	276.336	0
HANNEL5-1	280.533	275.251	275.251	0	278.1	278.1	0
HANNEL5-1	280.533	275.86	275.86	0	278.464	278.464	0
HANNEL5-1	282.433	274.74	274.74	0	278.622	278.622	0
HANNEL5-1	283.75	281.295	281.295	0	281.939	281.939	0
HANNEL5-1	288.25	286.934	286.934	0	288.577	288.577	0
HANNEL5-1	291.5	286.467	286.467	0	288.899	288.899	0
CHANNEL5-	269.4	270.394	270.394	0	271.183	271.18	-0.003
HANNEL5-2	290.1	287.799	287.799	0	289.597	289.597	0
HANNEL5-2	292.31	289.733	289.733	0	290.466	290.466	0
HANNEL5-2	292.5	289.735	289.735	0	290.469	290.469	0
CHANNEL5-	270.61	270.662	270.662	0	271.588	271.586	-0.002
CHANNEL5-	277.51	272.186	272.186	0	274.723	274.723	0
CHANNEL5-	277.7	272.371	272.372	0.001	274.926	274.926	0
CHANNEL5-	274.3	272.452	272.453	0.001	275.065	275.065	0
CHANNEL5-	274.94	273.115	273.116	0.001	275.789	275.789	0
CHANNEL5-	275.913	273.12	273.119	-0.001	275.913	275.913	0
CHANNEL-6	259.72	260.64	256.943	-3.697	262.495	261.518	-0.977
CHANNEL6-	270.72	266.549	266.562	0.013	269.139	268.289	-0.85
HANNEL6-1	276.76	275.776	275.836	0.06	277.898	277.916	0.018
HANNEL6-1	276.78	276.189	276.233	0.044	278.304	278.319	0.015
HANNEL6-1	279.28	276.954	277.131	0.177	280.109	278.899	-1.21
HANNEL6-1	279.91	277.295	277.5	0.205	279.91	279.013	-0.897
HANNEL6-1	280.37	278.76	279.564	0.804	280.888	280.741	-0.147
HANNEL6-1	280.7	279.229	279.959	0.73	281.549	281.351	-0.198
HANNEL6-1	281.01	277.473	278.202	0.729	280.199	279.299	-0.9
HANNEL6-1	281.61	280.621	280.568	-0.053	281.61	281.534	-0.076
HANNEL6-1	281.51	280.777	280.788	0.011	281.665	281.576	-0.089
HANNEL6-1	284.99	280.728	280.688	-0.04	282.305	282.183	-0.122
CHANNEL6-	271.22	268.512	268.538	0.026	270.834	270.737	-0.097
HANNEL6-2	285.57	280.723	280.637	-0.086	282.389	282.267	-0.122
HANNEL6-2	285.52	283.058	283.06	0.002	284.061	284.061	0
HANNEL6-2	289	285.196	285.196	0	285.578	285.578	0
CHANNEL6-	272.51	269.835	269.858	0.023	273.136	273.179	0.043
CHANNEL6-	272.5	270.611	270.636	0.025	273.609	273.67	0.061
CHANNEL6-	273.19	271.062	271.085	0.023	274.022	274.095	0.073
CHANNEL6-	278	270.363	270.381	0.018	273.772	273.853	0.081
CHANNEL6-	277.02	272.265	272.315	0.05	274.227	274.3	0.073
CHANNEL6-	277.35	274.922	274.97	0.048	276.576	276.598	0.022
CHANNEL6-	276.35	275.249	275.314	0.065	277.036	277.088	0.052

NODE ID	Ground Elevation	Existing 10YR	Proposed 10YR	10YR Improvement	Existing 100YR	Proposed 100YR	100YR Improvement
CHANNEL-7	259.49	261.097	258.533	-2.564	263.141	262.024	-1.117
CHANNEL7-	293.23	288.529	288.53	0.001	288.931	288.934	0.003
CHANNEL7-	296.18	291.248	291.248	0	291.536	291.536	0
CHANNEL7-	299.64	295.52	295.52	0	295.976	295.976	0
CHANNEL7-	300.867	296.665	296.665	0	296.854	296.854	0
CHANNEL7-	307.6	305.34	305.34	0	306.083	306.083	0
CHANNEL-8	261	261.25	261.506	0.256	263.46	262.228	-1.232
CHANNEL-9	261.3	261.286	259.701	-1.585	263.56	262.282	-1.278
JCT-15.1	229.1	227.213	227.213	0	228.191	228.192	0.001
JCT-15.2	236.67	227.13	227.13	0	228.072	228.073	0.001
JCT-15.4	235.44	224.404	224.404	0	224.98	224.981	0.001
JCT-174.5	243.8	231.734	231.523	-0.211	240.258	240.268	0.01
JCT-175.3	236.076	225.777	225.777	0	226.65	226.651	0.001
JCT-452.5	243.94	238.159	238.159	0	240.628	240.52	-0.108
JCT-453.5	243.23	237.188	237.188	0	238.566	238.352	-0.214
JCT-461.2	258.3	254.431	254.431	0	259.192	259.192	0
JCT-463	257	254.747	254.673	-0.074	257.361	257.346	-0.015
JCT-465	256	253.227	253.227	0	256.253	256.108	-0.145
JCT-9.5	232.47	229.936	229.936	0	231.267	231.241	-0.026
JCT-9.6	236.84	235.26	235.26	0	235.475	235.477	0.002
JCT-9.7	236.7	235.356	235.356	0	235.667	235.669	0.002
JCT-9.8	239	237.07	237.07	0	237.182	237.182	0
JCT-9.9	238.8	237.686	237.686	0	238.014	238.014	0



*HORIZONTAL AND VERTICAL SCALES ARE IN FEET


HGL
Links:
CDT-310
809
880
CDT-306
808
881
603
Storage 43.5
100YR Existing HGL
100YR Proposed HGL
280
275
270
265
260
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
Nodes:
43.7
43.6
43.5
43.4
43.3
43.2
43.1
43
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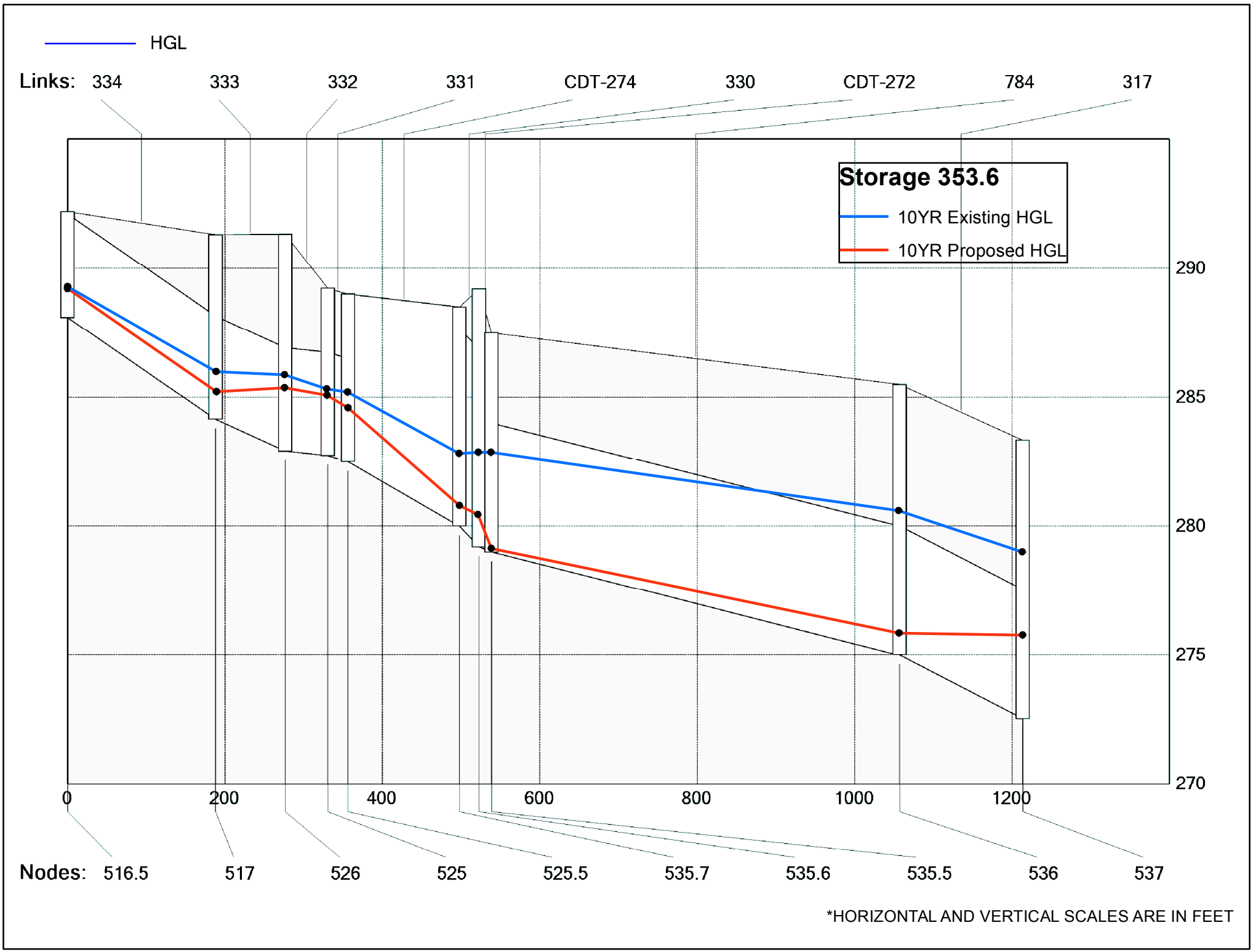
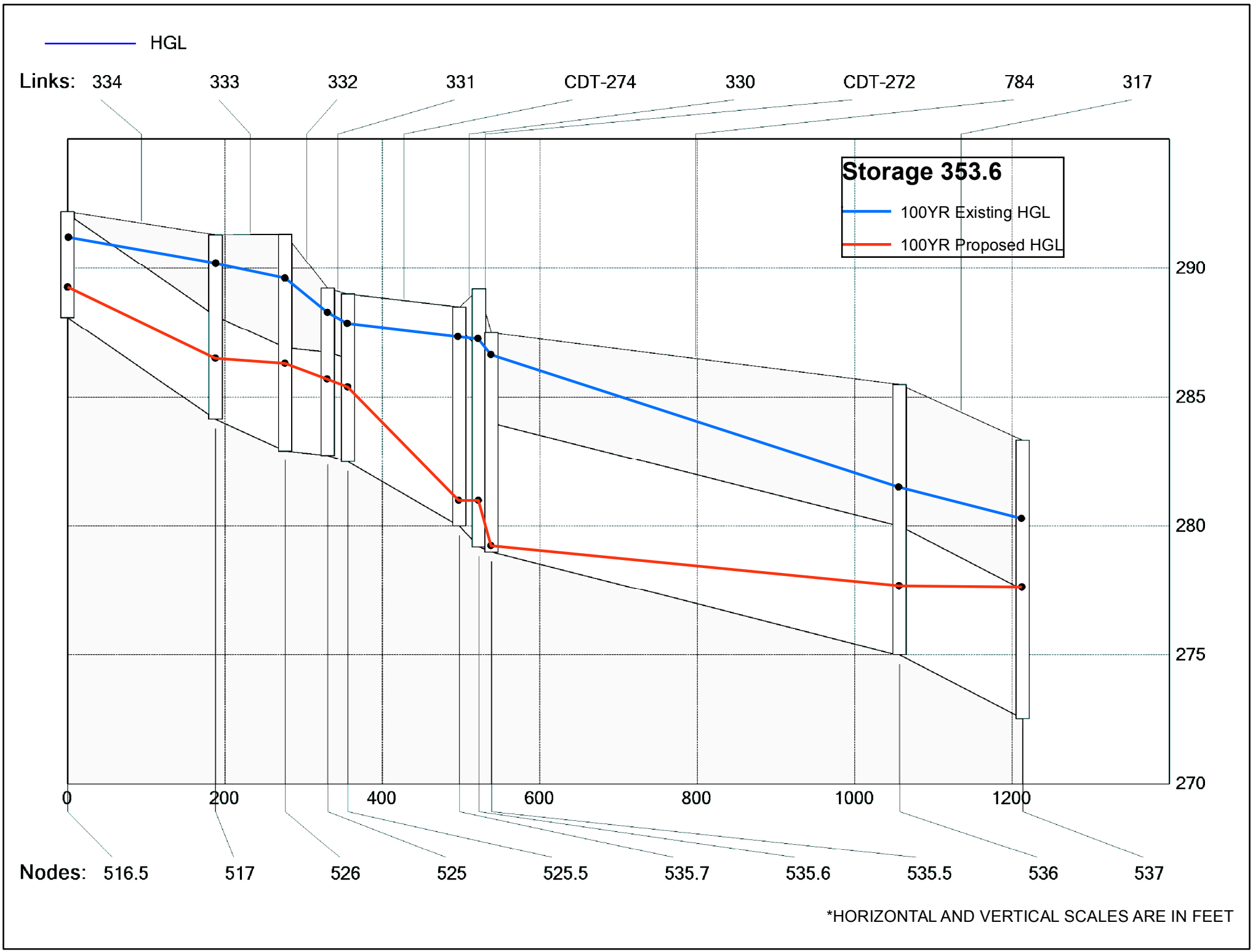
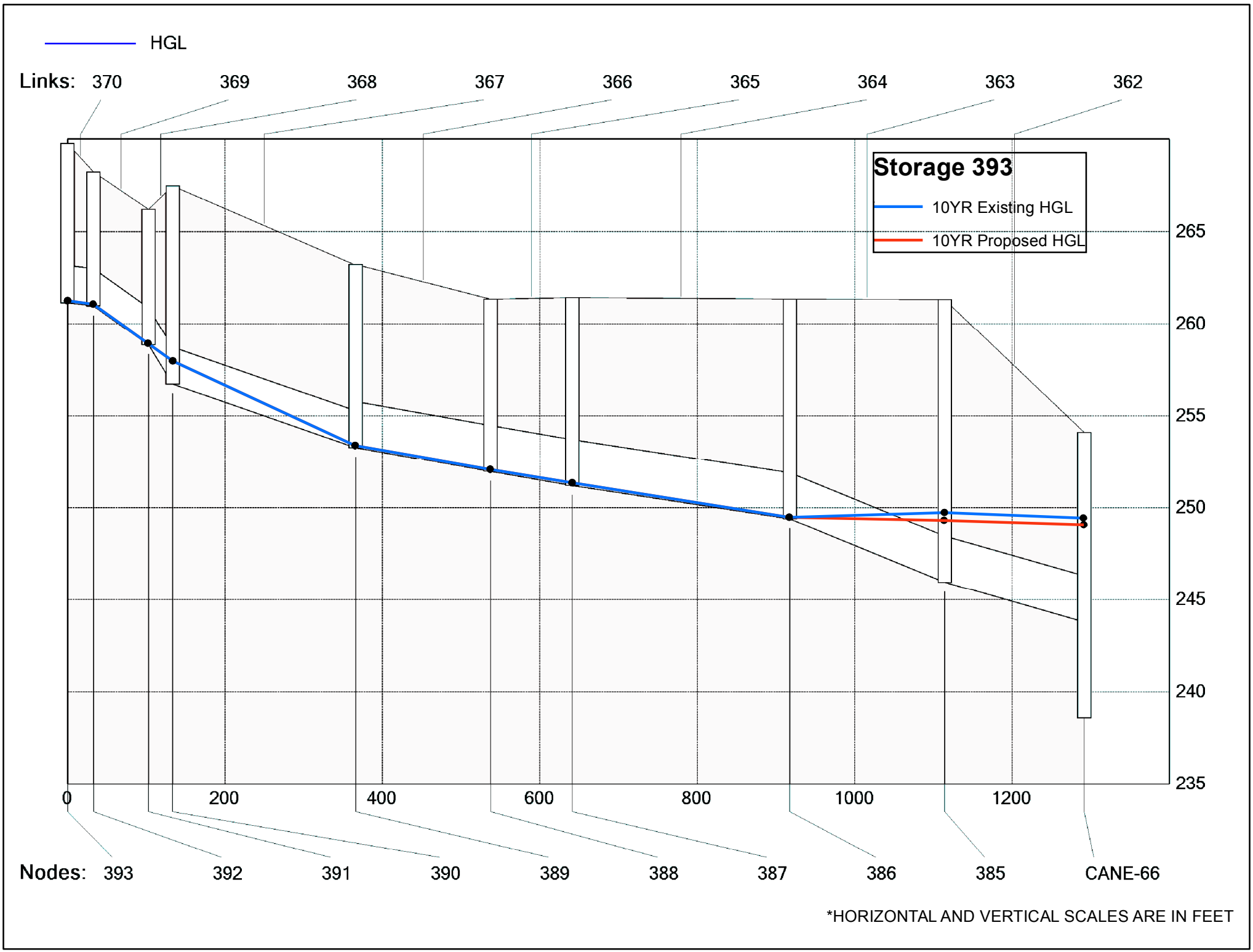
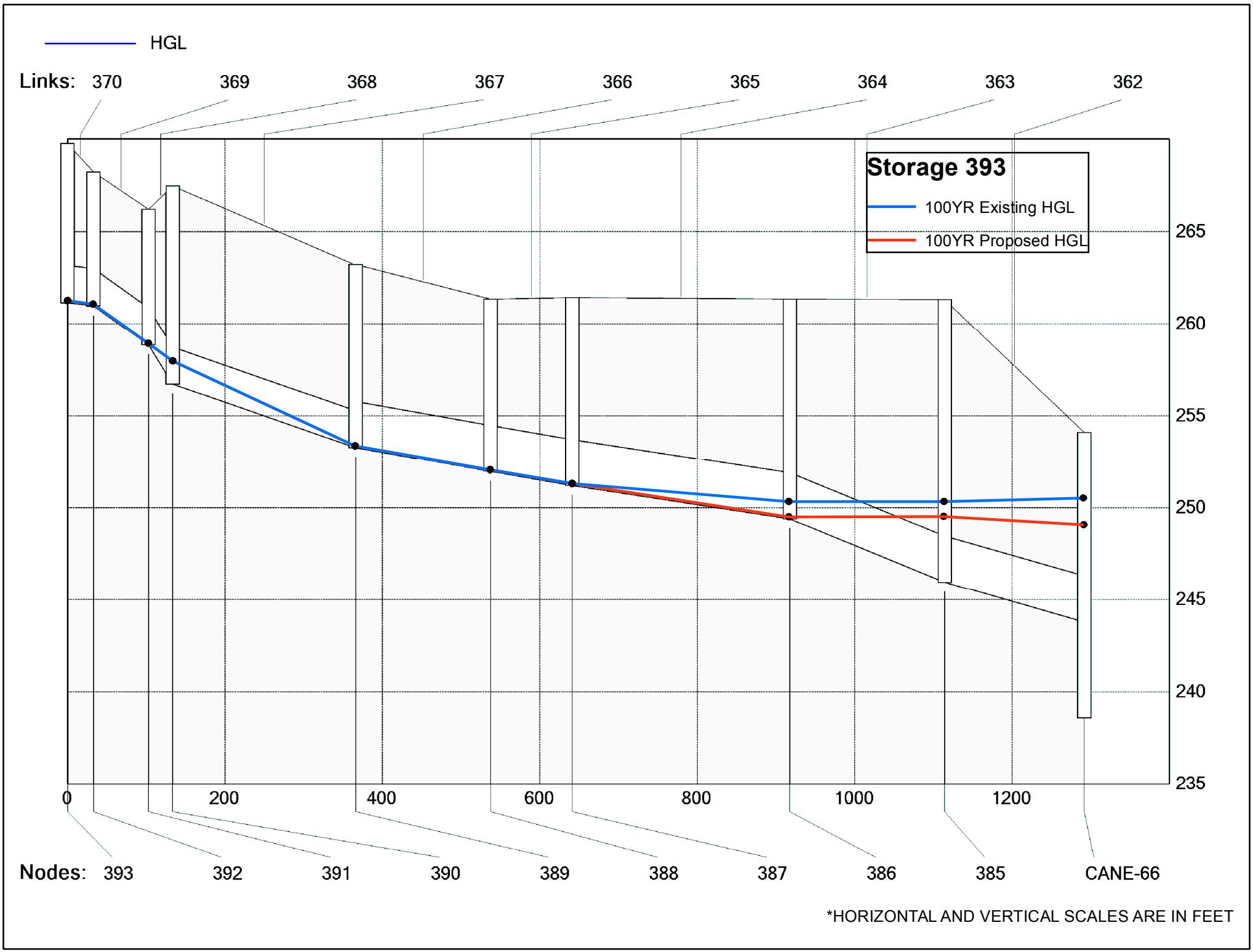
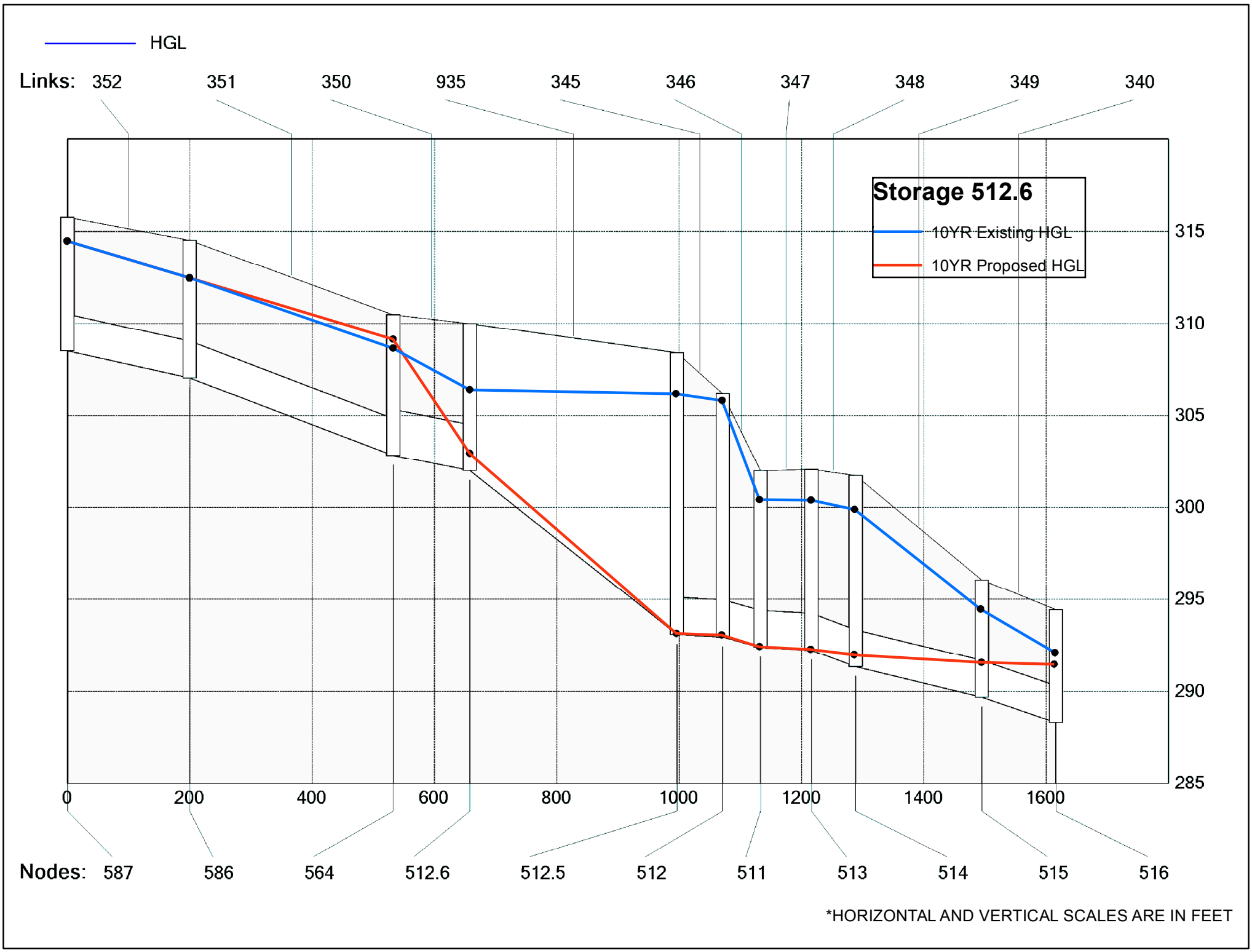
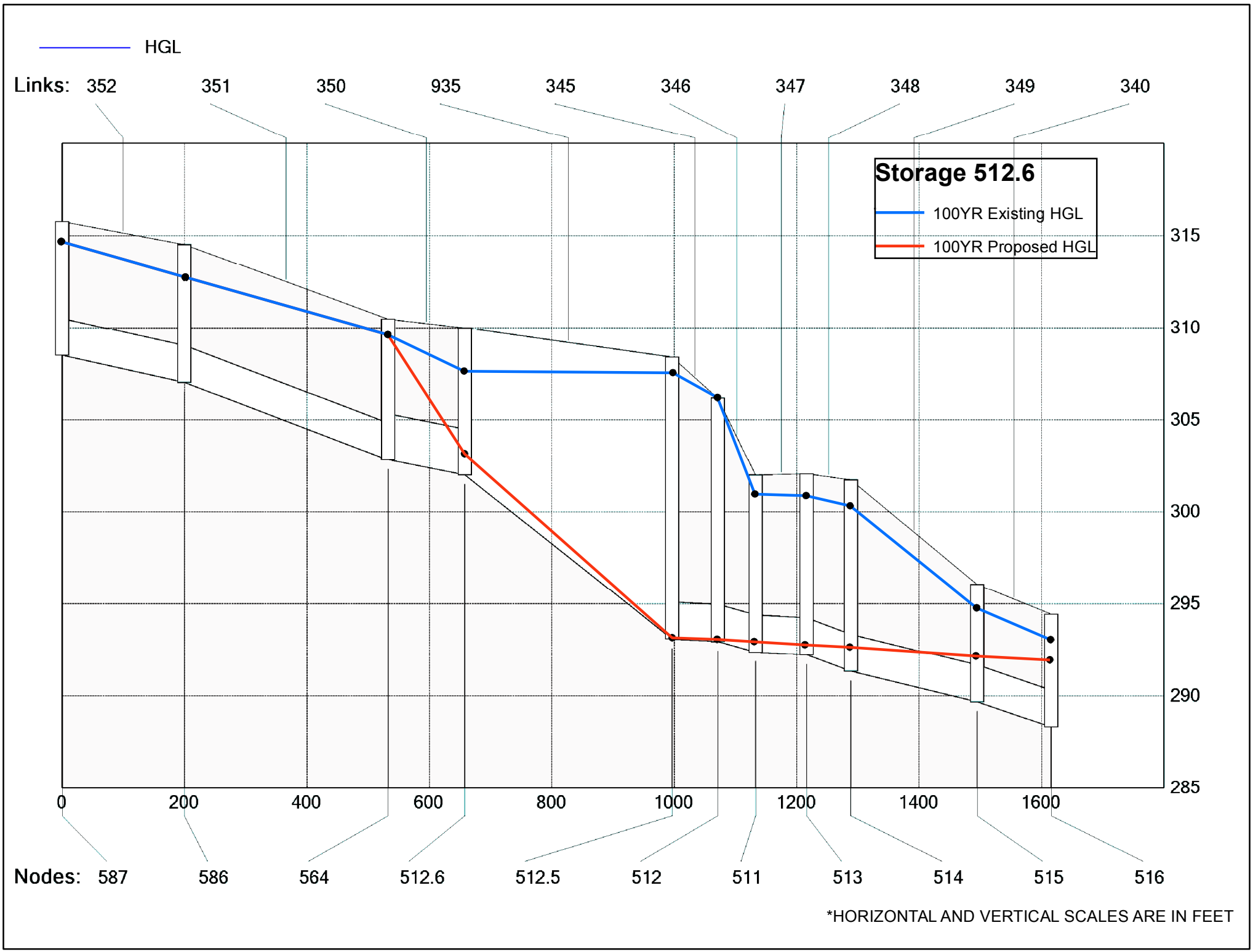

HGL
Links: 334 333 332 331 CDT-274 330 CDT-272 784 317
Storage 353.6
10YR Existing HGL
10YR Proposed HGL
290
285
280
275
270
0 200 400 600 800 1000 1200
Nodes: 516.5 517 526 525 525.5 535.7 535.6 535.5 536 537
*HORIZONTAL AND VERTICAL SCALES ARE IN FEET

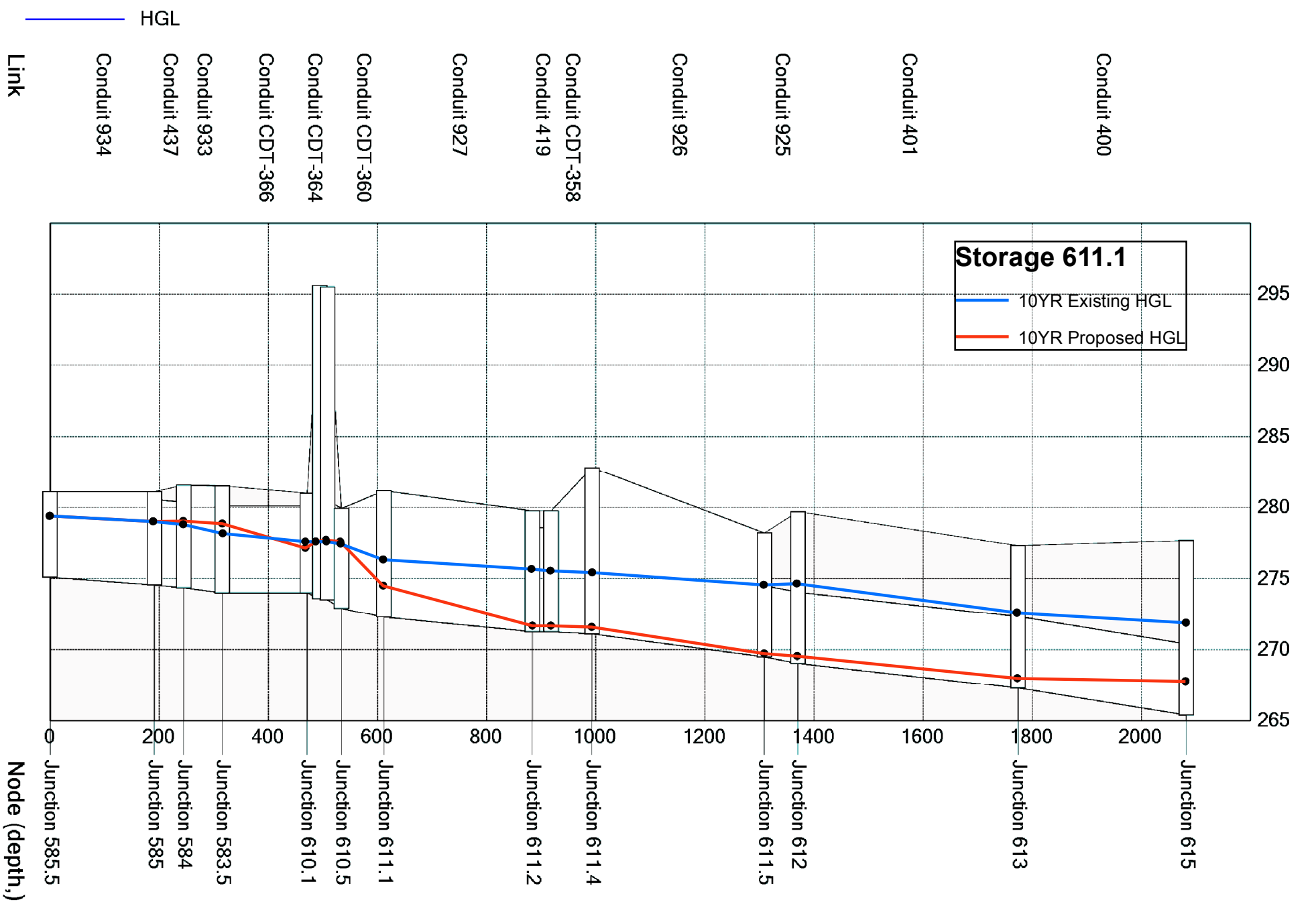

HGL
Links: 334 333 332 331 CDT-274 330 CDT-272 784 317
Storage 353.6
100YR Existing HGL
100YR Proposed HGL
290
285
280
275
270
0 200 400 600 800 1000 1200
Nodes: 516.5 517 526 525 525.5 535.7 535.6 535.5 536 537
*HORIZONTAL AND VERTICAL SCALES ARE IN FEET


HGL
Links: 370 369 368 367 366 365 364 363 362
Storage 393
10YR Existing HGL
10YR Proposed HGL
265
260
255
250
245
240
235
0
200
400
600
800
1000
1200
Nodes: 393 392 391 390 389 388 387 386 385 CANE-66
*HORIZONTAL AND VERTICAL SCALES ARE IN FEET

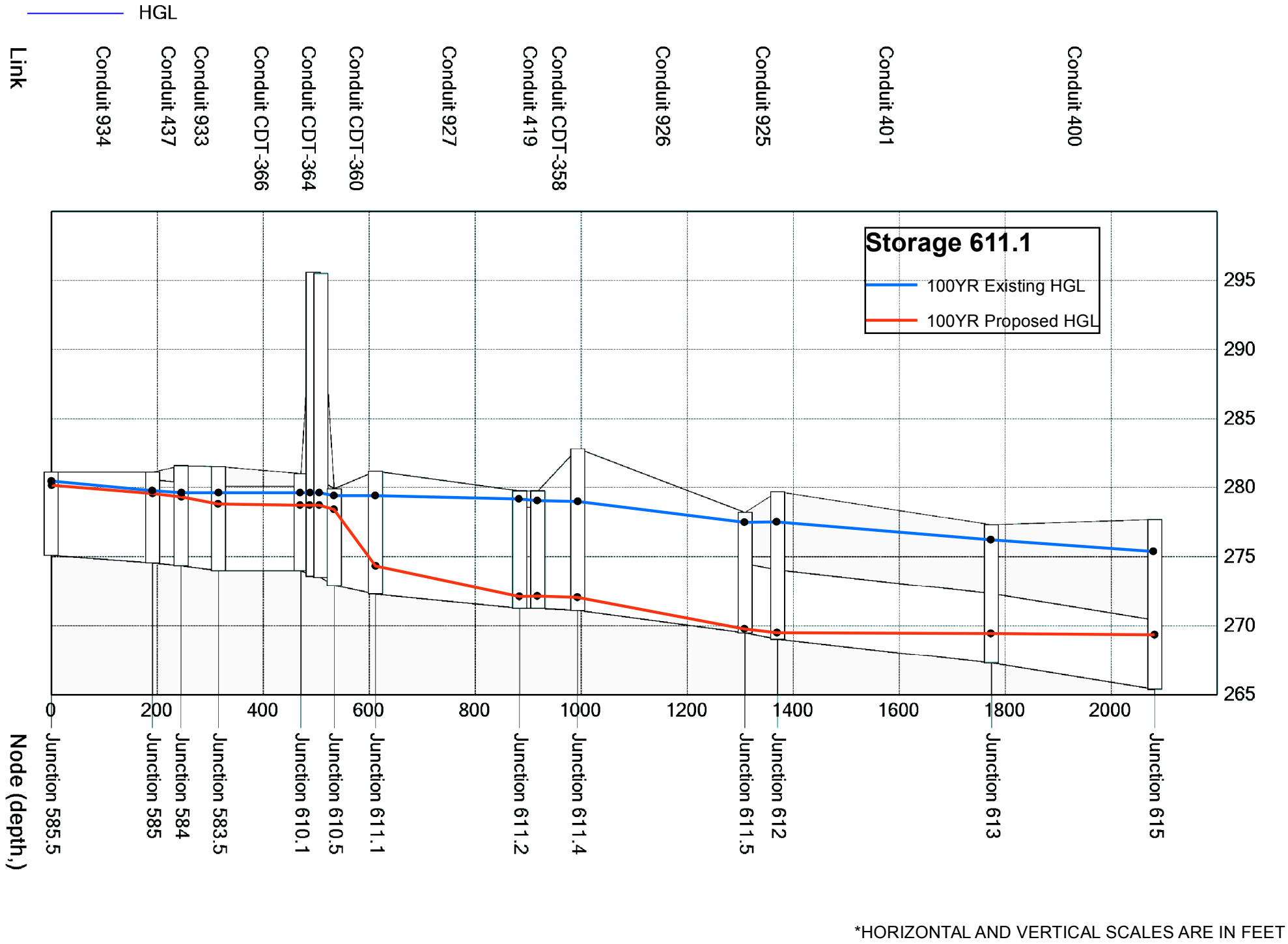

HGL
Links: 370 369 368 367 366 365 364 363 362
Storage 393
100YR Existing HGL
100YR Proposed HGL
265
260
255
250
245
240
235
0
200
400
600
800
1000
1200
Nodes: 393 392 391 390 389 388 387 386 385 CANE-66
*HORIZONTAL AND VERTICAL SCALES ARE IN FEET


HGL
Links: 352 351 350 935 345 346 347 348 349 340
Storage 512.6
10YR Existing HGL
10YR Proposed HGL
315
310
305
300
295
290
285
0 200 400 600 800 1000 1200 1400 1600
Nodes: 587 586 564 512.6 512.5 512 511 513 514 515 516
*HORIZONTAL AND VERTICAL SCALES ARE IN FEET

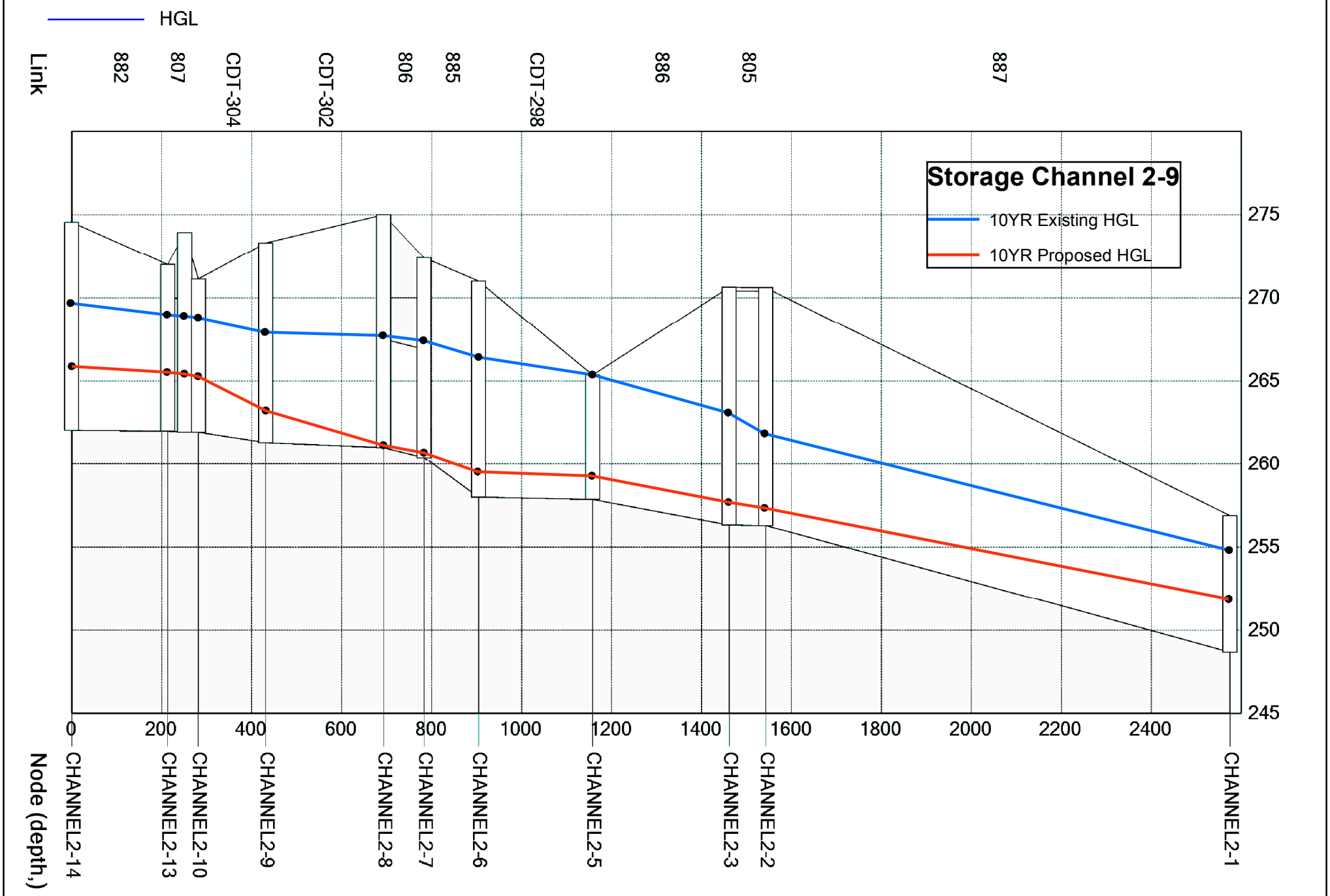

HGL
Links: 352 351 350 935 345 346 347 348 349 340
Storage 512.6
100YR Existing HGL
100YR Proposed HGL
315
310
305
300
295
290
285
0 200 400 600 800 1000 1200 1400 1600
Nodes: 587 586 564 512.6 512.5 512 511 513 514 515 516
*HORIZONTAL AND VERTICAL SCALES ARE IN FEET



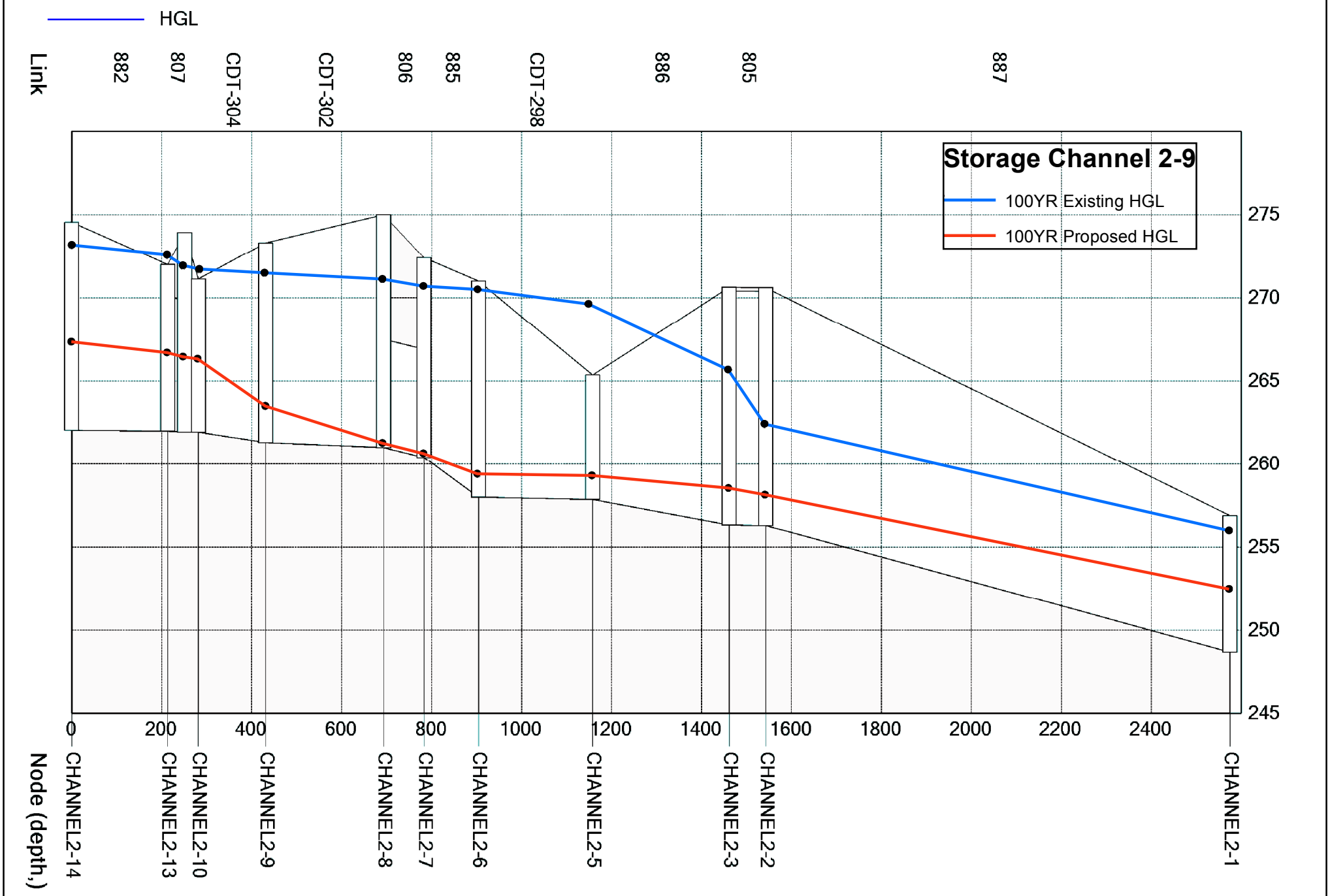
*HORIZONTAL AND VERTICAL SCALES ARE IN FEET



*HORIZONTAL AND VERTICAL SCALES ARE IN FEET



*HORIZONTAL AND VERTICAL SCALES ARE IN FEET



*HORIZONTAL AND VERTICAL SCALES ARE IN FEET

Cane Creek Watershed Stormwater Mapping
10 Year Flooding

- Nodes
- Proposed Detention Pond
- Watershed
- Stormwater Conveyance System
- 10 Year Boundaries
- 10 Year Boundaries with Detention Ponds

APPENDIX G

N
W E
S

0 500 1,000 2,000
Feet

Sources: Esri, Airbus DS, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Cane Creek Watershed Stormwater Mapping
100 Year Flooding

- Nodes
- Proposed Detention Pond
- Watershed
- Stormwater Conveyance System
- 100 Year Boundaries
- 100 Year Boundaries with Detention Ponds

APPENDIX H

N
W E
S

0 500 1,000 2,000
Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Project Summary:

Project Number: 60330437 Disaster #:

Program: FMA Agency: AECOM

Analyst: Kulvir Singh

Point of Contact: kulvir singh Phone Number: 4049469476

Address: Memphis, Tennessee

Email: kulvir.singh@aecom.com

Comments:

Structure Summary For:

2000 boyle ave, 2000 boyle ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $64,000 Costs: $107,670 BCR: 0.59

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	0.59	$64,000	$107,670

2007 E Person Ave, 2007 E Person Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $5,346 Costs: $1 BCR: 5,346.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	5,346.00	$5,346	$1

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

2008 boyle Ave, 2008 boyle Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $9,509 Costs: $1 BCR: 9,509.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	9,509.00	$9,509	$1

2014 boyle Ave, 2014 boyle Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,599 Costs: $1 BCR: 13,599.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,599.00	$13,599	$1

2021 Boyle ave, 2021 Boyle ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,576 Costs: $1 BCR: 13,576.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,576.00	$13,576	$1

2022 Boyle Ave, 2022 Boyle Ave, Memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $5,346 Costs: $1 BCR: 5,346.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	5,346.00	$5,346	$1

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

2024 Boyles Ave, 2024 Boyles Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $18,064 Costs: $1 BCR: 18,064.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,064.00	$18,064	$1

Appartment building, 2012 Person Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $40,637 Costs: $1 BCR: 40,637.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	40,637.00	$40,637	$1

C&J barbecue, 2019 E Person Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $32,692 Costs: $1 BCR: 32,692.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	32,692.00	$32,692	$1

J&C Community Super Store, 1701 Castalia St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $57,612 Costs: $1 BCR: 57,612.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	57,612.00	$57,612	$1

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Kellogg Industry, 2227-2251 kellogg Ave, Memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $2,330,254 Costs: $1 BCR: 2,330,254.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	2,330,254.00	$2,330,254	$1

Next to 2022 Boyle Ave, Next to 2022 Boyle Ave, Memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $6,504 Costs: $1 BCR: 6,504.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	6,504.00	$6,504	$1

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 2000 boyle ave, 2000 boyle ave, memphis, Tennessee, , Shelby

Benefits: $64,000 Costs: $107,670 BCR: .59

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	272.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$24,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	272.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Coastal Flood Elevations

Flood Source Name:			
Base Flood Elevation:		Flood Profile Number:	
Elevation At Which Barrier Will Be Overtopped:	0.0000		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	
Has Sea Level Rise Been Included?	No	Sea Level Rise Increase:	
Base Flood Elevation With Sea Level Rise:			

Recurrence Interval (yr)	Percent Annual Chance (%)	Stillwater Elevation Before Mitigation	Stillwater Elevation Before Mitigation With SLR	Stillwater Elevation After Mitigation	Stillwater Elevation After Mitigation With SLR
10	10.00%	274.0		270.0	
50	2.00%	274.5		270.0	
100	1.00%	277.4		271.0	
500	0.20%	278.0		271.0	

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using FEMA FIA

Building	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	3.0%	0.0%	$1,440	3.0%	0.0%	$1,440
-1.0	5.0%	0.0%	$2,400	5.0%	0.0%	$2,400
0.0	6.0%	0.0%	$2,880	6.0%	0.0%	$2,880
1.0	16.0%	0.0%	$7,680	16.0%	0.0%	$7,680
2.0	19.0%	0.0%	$9,120	19.0%	0.0%	$9,120
3.0	22.0%	0.0%	$10,560	22.0%	0.0%	$10,560
4.0	27.0%	0.0%	$12,960	27.0%	0.0%	$12,960
5.0	32.0%	0.0%	$15,360	32.0%	0.0%	$15,360
6.0	35.0%	0.0%	$16,800	35.0%	0.0%	$16,800
7.0	36.0%	0.0%	$17,280	36.0%	0.0%	$17,280
8.0	44.0%	0.0%	$21,120	44.0%	0.0%	$21,120
9.0	48.0%	0.0%	$23,040	48.0%	0.0%	$23,040
10.0	50.0%	0.0%	$48,000	50.0%	0.0%	$48,000
11.0	52.0%	0.0%	$48,000	52.0%	0.0%	$48,000
12.0	54.0%	0.0%	$48,000	54.0%	0.0%	$48,000
13.0	56.0%	0.0%	$48,000	56.0%	0.0%	$48,000
14.0	58.0%	0.0%	$48,000	58.0%	0.0%	$48,000
15.0	58.0%	0.0%	$48,000	58.0%	0.0%	$48,000
16.0	58.0%	0.0%	$48,000	58.0%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using FEMA FIA

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	4.5%	0.0%	$2,160	4.5%	0.0%	$2,160
-1.0	7.5%	0.0%	$3,600	7.5%	0.0%	$3,600
0.0	9.0%	0.0%	$4,320	9.0%	0.0%	$4,320
1.0	24.0%	0.0%	$11,520	24.0%	0.0%	$11,520
2.0	28.5%	0.0%	$13,680	28.5%	0.0%	$13,680
3.0	33.0%	0.0%	$15,840	33.0%	0.0%	$15,840
4.0	40.5%	0.0%	$19,440	40.5%	0.0%	$19,440
5.0	48.0%	0.0%	$23,040	48.0%	0.0%	$23,040
6.0	52.5%	0.0%	$48,000	52.5%	0.0%	$48,000
7.0	54.0%	0.0%	$48,000	54.0%	0.0%	$48,000
8.0	66.0%	0.0%	$48,000	66.0%	0.0%	$48,000
9.0	72.0%	0.0%	$48,000	72.0%	0.0%	$48,000
10.0	75.0%	0.0%	$48,000	75.0%	0.0%	$48,000
11.0	78.0%	0.0%	$48,000	78.0%	0.0%	$48,000
12.0	81.0%	0.0%	$48,000	81.0%	0.0%	$48,000
13.0	84.0%	0.0%	$48,000	84.0%	0.0%	$48,000
14.0	87.0%	0.0%	$48,000	87.0%	0.0%	$48,000
15.0	87.0%	0.0%	$48,000	87.0%	0.0%	$48,000
16.0	87.0%	0.0%	$48,000	87.0%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using FEMA FIA

Displacement	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	78.0		$48,000	78.0		$48,000
2.0	102.0		$48,000	102.0		$48,000
3.0	126.0		$48,000	126.0		$48,000
4.0	166.0		$48,000	166.0		$48,000
5.0	206.0		$48,000	206.0		$48,000
6.0	230.0		$48,000	230.0		$48,000
7.0	238.0		$48,000	238.0		$48,000
8.0	302.0		$48,000	302.0		$48,000
9.0	334.0		$48,000	334.0		$48,000
10.0	350.0		$48,000	350.0		$48,000
11.0	365.0		$48,000	365.0		$48,000
12.0	365.0		$48,000	365.0		$48,000
13.0	365.0		$48,000	365.0		$48,000
14.0	365.0		$48,000	365.0		$48,000
15.0	365.0		$48,000	365.0		$48,000
16.0	365.0		$48,000	365.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using FEMA FIA

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	3.0		$1,440	3.0		$1,440
-1.0	5.0		$2,400	5.0		$2,400
0.0	6.0		$2,880	6.0		$2,880
1.0	16.0		$7,680	16.0		$7,680
2.0	19.0		$9,120	19.0		$9,120
3.0	22.0		$10,560	22.0		$10,560
4.0	27.0		$12,960	27.0		$12,960
5.0	30.0		$14,400	30.0		$14,400
6.0	30.0		$14,400	30.0		$14,400
7.0	30.0		$14,400	30.0		$14,400
8.0	30.0		$14,400	30.0		$14,400
9.0	30.0		$14,400	30.0		$14,400
10.0	30.0		$14,400	30.0		$14,400
11.0	30.0		$14,400	30.0		$14,400
12.0	30.0		$14,400	30.0		$14,400
13.0	30.0		$14,400	30.0		$14,400
14.0	30.0		$14,400	30.0		$14,400
15.0	30.0		$14,400	30.0		$14,400
16.0	30.0		$14,400	30.0		$14,400

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$5,185	Annual:	$28	Annual:	$5,157
Present Value:	$64,343	Present Value:	$343	Present Value:	$64,000

Mitigation Benefits: $64,000 Mitigation Costs: $107,670

Benefits Minus Costs: ($43,670) Benefit-Cost Ratio: 0.59

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$107,670	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 2007 E Person Ave, 2007 E Person Ave, memphis, Tennessee, , Shelby

Benefits: $5,346 Costs: $1 BCR: 5,346.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	276.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	276.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.10	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	278.00	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,200	2.5%	0.0%	$1,200
0.0	13.4%	0.0%	$6,432	13.4%	0.0%	$6,432
1.0	23.3%	0.0%	$11,184	23.3%	0.0%	$11,184
2.0	32.1%	0.0%	$15,408	32.1%	0.0%	$15,408
3.0	40.1%	0.0%	$19,248	40.1%	0.0%	$19,248
4.0	47.1%	0.0%	$22,608	47.1%	0.0%	$22,608
5.0	53.2%	0.0%	$48,000	53.2%	0.0%	$48,000
6.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
7.0	63.2%	0.0%	$48,000	63.2%	0.0%	$48,000
8.0	67.2%	0.0%	$48,000	67.2%	0.0%	$48,000
9.0	70.5%	0.0%	$48,000	70.5%	0.0%	$48,000
10.0	73.2%	0.0%	$48,000	73.2%	0.0%	$48,000
11.0	75.4%	0.0%	$48,000	75.4%	0.0%	$48,000
12.0	77.2%	0.0%	$48,000	77.2%	0.0%	$48,000
13.0	78.5%	0.0%	$48,000	78.5%	0.0%	$48,000
14.0	79.5%	0.0%	$48,000	79.5%	0.0%	$48,000
15.0	80.2%	0.0%	$48,000	80.2%	0.0%	$48,000
16.0	80.7%	0.0%	$48,000	80.7%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,152	2.4%	0.0%	$1,152
0.0	8.1%	0.0%	$3,888	8.1%	0.0%	$3,888
1.0	13.3%	0.0%	$6,384	13.3%	0.0%	$6,384
2.0	17.9%	0.0%	$8,592	17.9%	0.0%	$8,592
3.0	22.0%	0.0%	$10,560	22.0%	0.0%	$10,560
4.0	25.7%	0.0%	$12,336	25.7%	0.0%	$12,336
5.0	28.8%	0.0%	$13,824	28.8%	0.0%	$13,824
6.0	31.5%	0.0%	$15,120	31.5%	0.0%	$15,120
7.0	33.8%	0.0%	$16,224	33.8%	0.0%	$16,224
8.0	35.7%	0.0%	$17,136	35.7%	0.0%	$17,136
9.0	37.2%	0.0%	$17,856	37.2%	0.0%	$17,856
10.0	38.4%	0.0%	$18,432	38.4%	0.0%	$18,432
11.0	39.2%	0.0%	$18,816	39.2%	0.0%	$18,816
12.0	39.7%	0.0%	$19,056	39.7%	0.0%	$19,056
13.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
14.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
15.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
16.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$431	Annual:	$0	Annual:	$431
Present Value:	$5,346	Present Value:	$0	Present Value:	$5,346

Mitigation Benefits: $5,346 Mitigation Costs: $1

Benefits Minus Costs: $5,345 Benefit-Cost Ratio: 5,346.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 2008 boyle Ave, 2008 boyle Ave, memphis, Tennessee, , Shelby

Benefits: $9,509 Costs: $1 BCR: 9,509.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	275.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	275.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.10	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	278.00	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,200	2.5%	0.0%	$1,200
0.0	13.4%	0.0%	$6,432	13.4%	0.0%	$6,432
1.0	23.3%	0.0%	$11,184	23.3%	0.0%	$11,184
2.0	32.1%	0.0%	$15,408	32.1%	0.0%	$15,408
3.0	40.1%	0.0%	$19,248	40.1%	0.0%	$19,248
4.0	47.1%	0.0%	$22,608	47.1%	0.0%	$22,608
5.0	53.2%	0.0%	$48,000	53.2%	0.0%	$48,000
6.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
7.0	63.2%	0.0%	$48,000	63.2%	0.0%	$48,000
8.0	67.2%	0.0%	$48,000	67.2%	0.0%	$48,000
9.0	70.5%	0.0%	$48,000	70.5%	0.0%	$48,000
10.0	73.2%	0.0%	$48,000	73.2%	0.0%	$48,000
11.0	75.4%	0.0%	$48,000	75.4%	0.0%	$48,000
12.0	77.2%	0.0%	$48,000	77.2%	0.0%	$48,000
13.0	78.5%	0.0%	$48,000	78.5%	0.0%	$48,000
14.0	79.5%	0.0%	$48,000	79.5%	0.0%	$48,000
15.0	80.2%	0.0%	$48,000	80.2%	0.0%	$48,000
16.0	80.7%	0.0%	$48,000	80.7%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,152	2.4%	0.0%	$1,152
0.0	8.1%	0.0%	$3,888	8.1%	0.0%	$3,888
1.0	13.3%	0.0%	$6,384	13.3%	0.0%	$6,384
2.0	17.9%	0.0%	$8,592	17.9%	0.0%	$8,592
3.0	22.0%	0.0%	$10,560	22.0%	0.0%	$10,560
4.0	25.7%	0.0%	$12,336	25.7%	0.0%	$12,336
5.0	28.8%	0.0%	$13,824	28.8%	0.0%	$13,824
6.0	31.5%	0.0%	$15,120	31.5%	0.0%	$15,120
7.0	33.8%	0.0%	$16,224	33.8%	0.0%	$16,224
8.0	35.7%	0.0%	$17,136	35.7%	0.0%	$17,136
9.0	37.2%	0.0%	$17,856	37.2%	0.0%	$17,856
10.0	38.4%	0.0%	$18,432	38.4%	0.0%	$18,432
11.0	39.2%	0.0%	$18,816	39.2%	0.0%	$18,816
12.0	39.7%	0.0%	$19,056	39.7%	0.0%	$19,056
13.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
14.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
15.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
16.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$766	Annual:	$0	Annual:	$766
Present Value:	$9,509	Present Value:	$0	Present Value:	$9,509

Mitigation Benefits: $9,509 Mitigation Costs: $1

Benefits Minus Costs: $9,508 Benefit-Cost Ratio: 9,509.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 2014 boyle Ave, 2014 boyle Ave, memphis, Tennessee, , Shelby

Benefits: $13,599 Costs: $1 BCR: 13,599.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	275.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	275.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.50	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	277.50	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,200	2.5%	0.0%	$1,200
0.0	13.4%	0.0%	$6,432	13.4%	0.0%	$6,432
1.0	23.3%	0.0%	$11,184	23.3%	0.0%	$11,184
2.0	32.1%	0.0%	$15,408	32.1%	0.0%	$15,408
3.0	40.1%	0.0%	$19,248	40.1%	0.0%	$19,248
4.0	47.1%	0.0%	$22,608	47.1%	0.0%	$22,608
5.0	53.2%	0.0%	$48,000	53.2%	0.0%	$48,000
6.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
7.0	63.2%	0.0%	$48,000	63.2%	0.0%	$48,000
8.0	67.2%	0.0%	$48,000	67.2%	0.0%	$48,000
9.0	70.5%	0.0%	$48,000	70.5%	0.0%	$48,000
10.0	73.2%	0.0%	$48,000	73.2%	0.0%	$48,000
11.0	75.4%	0.0%	$48,000	75.4%	0.0%	$48,000
12.0	77.2%	0.0%	$48,000	77.2%	0.0%	$48,000
13.0	78.5%	0.0%	$48,000	78.5%	0.0%	$48,000
14.0	79.5%	0.0%	$48,000	79.5%	0.0%	$48,000
15.0	80.2%	0.0%	$48,000	80.2%	0.0%	$48,000
16.0	80.7%	0.0%	$48,000	80.7%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,152	2.4%	0.0%	$1,152
0.0	8.1%	0.0%	$3,888	8.1%	0.0%	$3,888
1.0	13.3%	0.0%	$6,384	13.3%	0.0%	$6,384
2.0	17.9%	0.0%	$8,592	17.9%	0.0%	$8,592
3.0	22.0%	0.0%	$10,560	22.0%	0.0%	$10,560
4.0	25.7%	0.0%	$12,336	25.7%	0.0%	$12,336
5.0	28.8%	0.0%	$13,824	28.8%	0.0%	$13,824
6.0	31.5%	0.0%	$15,120	31.5%	0.0%	$15,120
7.0	33.8%	0.0%	$16,224	33.8%	0.0%	$16,224
8.0	35.7%	0.0%	$17,136	35.7%	0.0%	$17,136
9.0	37.2%	0.0%	$17,856	37.2%	0.0%	$17,856
10.0	38.4%	0.0%	$18,432	38.4%	0.0%	$18,432
11.0	39.2%	0.0%	$18,816	39.2%	0.0%	$18,816
12.0	39.7%	0.0%	$19,056	39.7%	0.0%	$19,056
13.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
14.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
15.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
16.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,096	Annual:	$0	Annual:	$1,096
Present Value:	$13,600	Present Value:	$1	Present Value:	$13,599

Mitigation Benefits: $13,599 Mitigation Costs: $1

Benefits Minus Costs: $13,598 Benefit-Cost Ratio: 13,599.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 2021 Boyle ave, 2021 Boyle ave, memphis, Tennessee, , Shelby

Benefits: $13,576 Costs: $1 BCR: 13,576.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	275.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	275.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.00	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	278.00	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,200	2.5%	0.0%	$1,200
0.0	13.4%	0.0%	$6,432	13.4%	0.0%	$6,432
1.0	23.3%	0.0%	$11,184	23.3%	0.0%	$11,184
2.0	32.1%	0.0%	$15,408	32.1%	0.0%	$15,408
3.0	40.1%	0.0%	$19,248	40.1%	0.0%	$19,248
4.0	47.1%	0.0%	$22,608	47.1%	0.0%	$22,608
5.0	53.2%	0.0%	$48,000	53.2%	0.0%	$48,000
6.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
7.0	63.2%	0.0%	$48,000	63.2%	0.0%	$48,000
8.0	67.2%	0.0%	$48,000	67.2%	0.0%	$48,000
9.0	70.5%	0.0%	$48,000	70.5%	0.0%	$48,000
10.0	73.2%	0.0%	$48,000	73.2%	0.0%	$48,000
11.0	75.4%	0.0%	$48,000	75.4%	0.0%	$48,000
12.0	77.2%	0.0%	$48,000	77.2%	0.0%	$48,000
13.0	78.5%	0.0%	$48,000	78.5%	0.0%	$48,000
14.0	79.5%	0.0%	$48,000	79.5%	0.0%	$48,000
15.0	80.2%	0.0%	$48,000	80.2%	0.0%	$48,000
16.0	80.7%	0.0%	$48,000	80.7%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,152	2.4%	0.0%	$1,152
0.0	8.1%	0.0%	$3,888	8.1%	0.0%	$3,888
1.0	13.3%	0.0%	$6,384	13.3%	0.0%	$6,384
2.0	17.9%	0.0%	$8,592	17.9%	0.0%	$8,592
3.0	22.0%	0.0%	$10,560	22.0%	0.0%	$10,560
4.0	25.7%	0.0%	$12,336	25.7%	0.0%	$12,336
5.0	28.8%	0.0%	$13,824	28.8%	0.0%	$13,824
6.0	31.5%	0.0%	$15,120	31.5%	0.0%	$15,120
7.0	33.8%	0.0%	$16,224	33.8%	0.0%	$16,224
8.0	35.7%	0.0%	$17,136	35.7%	0.0%	$17,136
9.0	37.2%	0.0%	$17,856	37.2%	0.0%	$17,856
10.0	38.4%	0.0%	$18,432	38.4%	0.0%	$18,432
11.0	39.2%	0.0%	$18,816	39.2%	0.0%	$18,816
12.0	39.7%	0.0%	$19,056	39.7%	0.0%	$19,056
13.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
14.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
15.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
16.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,094	Annual:	$0	Annual:	$1,094
Present Value:	$13,577	Present Value:	$1	Present Value:	$13,576

Mitigation Benefits: $13,576 Mitigation Costs: $1

Benefits Minus Costs: $13,575 Benefit-Cost Ratio: 13,576.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 2022 Boyle Ave, 2022 Boyle Ave, Memphis, Tennessee, , Shelby

Benefits: $5,346 Costs: $1 BCR: 5,346.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	276.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	276.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.00	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	278.00	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,200	2.5%	0.0%	$1,200
0.0	13.4%	0.0%	$6,432	13.4%	0.0%	$6,432
1.0	23.3%	0.0%	$11,184	23.3%	0.0%	$11,184
2.0	32.1%	0.0%	$15,408	32.1%	0.0%	$15,408
3.0	40.1%	0.0%	$19,248	40.1%	0.0%	$19,248
4.0	47.1%	0.0%	$22,608	47.1%	0.0%	$22,608
5.0	53.2%	0.0%	$48,000	53.2%	0.0%	$48,000
6.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
7.0	63.2%	0.0%	$48,000	63.2%	0.0%	$48,000
8.0	67.2%	0.0%	$48,000	67.2%	0.0%	$48,000
9.0	70.5%	0.0%	$48,000	70.5%	0.0%	$48,000
10.0	73.2%	0.0%	$48,000	73.2%	0.0%	$48,000
11.0	75.4%	0.0%	$48,000	75.4%	0.0%	$48,000
12.0	77.2%	0.0%	$48,000	77.2%	0.0%	$48,000
13.0	78.5%	0.0%	$48,000	78.5%	0.0%	$48,000
14.0	79.5%	0.0%	$48,000	79.5%	0.0%	$48,000
15.0	80.2%	0.0%	$48,000	80.2%	0.0%	$48,000
16.0	80.7%	0.0%	$48,000	80.7%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,152	2.4%	0.0%	$1,152
0.0	8.1%	0.0%	$3,888	8.1%	0.0%	$3,888
1.0	13.3%	0.0%	$6,384	13.3%	0.0%	$6,384
2.0	17.9%	0.0%	$8,592	17.9%	0.0%	$8,592
3.0	22.0%	0.0%	$10,560	22.0%	0.0%	$10,560
4.0	25.7%	0.0%	$12,336	25.7%	0.0%	$12,336
5.0	28.8%	0.0%	$13,824	28.8%	0.0%	$13,824
6.0	31.5%	0.0%	$15,120	31.5%	0.0%	$15,120
7.0	33.8%	0.0%	$16,224	33.8%	0.0%	$16,224
8.0	35.7%	0.0%	$17,136	35.7%	0.0%	$17,136
9.0	37.2%	0.0%	$17,856	37.2%	0.0%	$17,856
10.0	38.4%	0.0%	$18,432	38.4%	0.0%	$18,432
11.0	39.2%	0.0%	$18,816	39.2%	0.0%	$18,816
12.0	39.7%	0.0%	$19,056	39.7%	0.0%	$19,056
13.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
14.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
15.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
16.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$431	Annual:	$0	Annual:	$431
Present Value:	$5,346	Present Value:	$0	Present Value:	$5,346

Mitigation Benefits: $5,346 Mitigation Costs: $1

Benefits Minus Costs: $5,345 Benefit-Cost Ratio: 5,346.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 2024 Boyles Ave, 2024 Boyles Ave, memphis, Tennessee, , Shelby

Benefits: $18,064 Costs: $1 BCR: 18,064.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	276.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	276.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.00	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	278.00	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	13.8%	0.0%	$6,624	13.8%	0.0%	$6,624
-1.0	19.4%	0.0%	$9,312	19.4%	0.0%	$9,312
0.0	25.5%	0.0%	$12,240	25.5%	0.0%	$12,240
1.0	32.0%	0.0%	$15,360	32.0%	0.0%	$15,360
2.0	38.7%	0.0%	$18,576	38.7%	0.0%	$18,576
3.0	45.5%	0.0%	$21,840	45.5%	0.0%	$21,840
4.0	52.2%	0.0%	$48,000	52.2%	0.0%	$48,000
5.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
6.0	64.5%	0.0%	$48,000	64.5%	0.0%	$48,000
7.0	69.8%	0.0%	$48,000	69.8%	0.0%	$48,000
8.0	74.2%	0.0%	$48,000	74.2%	0.0%	$48,000
9.0	77.7%	0.0%	$48,000	77.7%	0.0%	$48,000
10.0	80.1%	0.0%	$48,000	80.1%	0.0%	$48,000
11.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
12.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
13.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
14.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
15.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
16.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	10.5%	0.0%	$5,040	10.5%	0.0%	$5,040
-1.0	13.2%	0.0%	$6,336	13.2%	0.0%	$6,336
0.0	16.0%	0.0%	$7,680	16.0%	0.0%	$7,680
1.0	18.9%	0.0%	$9,072	18.9%	0.0%	$9,072
2.0	21.8%	0.0%	$10,464	21.8%	0.0%	$10,464
3.0	24.7%	0.0%	$11,856	24.7%	0.0%	$11,856
4.0	27.4%	0.0%	$13,152	27.4%	0.0%	$13,152
5.0	30.0%	0.0%	$14,400	30.0%	0.0%	$14,400
6.0	32.4%	0.0%	$15,552	32.4%	0.0%	$15,552
7.0	34.5%	0.0%	$16,560	34.5%	0.0%	$16,560
8.0	36.3%	0.0%	$17,424	36.3%	0.0%	$17,424
9.0	37.7%	0.0%	$18,096	37.7%	0.0%	$18,096
10.0	38.6%	0.0%	$18,528	38.6%	0.0%	$18,528
11.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
12.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
13.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
14.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
15.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
16.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,456	Annual:	$0	Annual:	$1,456
Present Value:	$18,065	Present Value:	$1	Present Value:	$18,064

Mitigation Benefits: $18,064 Mitigation Costs: $1

Benefits Minus Costs: $18,063 Benefit-Cost Ratio: 18,064.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: Appartment building, 2012 Person Ave, memphis, Tennessee, , Shelby

Benefits: $40,637 Costs: $1 BCR: 40,637.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	5,596	BRV ($/sf):	$80.00	Total BRV:	$447,680
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$447,680 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$2,027 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	50
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.00	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	278.00	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$11,192	2.5%	0.0%	$11,192
0.0	13.4%	0.0%	$59,989	13.4%	0.0%	$59,989
1.0	23.3%	0.0%	$104,309	23.3%	0.0%	$104,309
2.0	32.1%	0.0%	$143,705	32.1%	0.0%	$143,705
3.0	40.1%	0.0%	$179,520	40.1%	0.0%	$179,520
4.0	47.1%	0.0%	$210,857	47.1%	0.0%	$210,857
5.0	53.2%	0.0%	$447,680	53.2%	0.0%	$447,680
6.0	58.6%	0.0%	$447,680	58.6%	0.0%	$447,680
7.0	63.2%	0.0%	$447,680	63.2%	0.0%	$447,680
8.0	67.2%	0.0%	$447,680	67.2%	0.0%	$447,680
9.0	70.5%	0.0%	$447,680	70.5%	0.0%	$447,680
10.0	73.2%	0.0%	$447,680	73.2%	0.0%	$447,680
11.0	75.4%	0.0%	$447,680	75.4%	0.0%	$447,680
12.0	77.2%	0.0%	$447,680	77.2%	0.0%	$447,680
13.0	78.5%	0.0%	$447,680	78.5%	0.0%	$447,680
14.0	79.5%	0.0%	$447,680	79.5%	0.0%	$447,680
15.0	80.2%	0.0%	$447,680	80.2%	0.0%	$447,680
16.0	80.7%	0.0%	$447,680	80.7%	0.0%	$447,680

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$10,744	2.4%	0.0%	$10,744
0.0	8.1%	0.0%	$36,262	8.1%	0.0%	$36,262
1.0	13.3%	0.0%	$59,541	13.3%	0.0%	$59,541
2.0	17.9%	0.0%	$80,135	17.9%	0.0%	$80,135
3.0	22.0%	0.0%	$98,490	22.0%	0.0%	$98,490
4.0	25.7%	0.0%	$115,054	25.7%	0.0%	$115,054
5.0	28.8%	0.0%	$128,932	28.8%	0.0%	$128,932
6.0	31.5%	0.0%	$141,019	31.5%	0.0%	$141,019
7.0	33.8%	0.0%	$151,316	33.8%	0.0%	$151,316
8.0	35.7%	0.0%	$159,822	35.7%	0.0%	$159,822
9.0	37.2%	0.0%	$166,537	37.2%	0.0%	$166,537
10.0	38.4%	0.0%	$171,909	38.4%	0.0%	$171,909
11.0	39.2%	0.0%	$175,491	39.2%	0.0%	$175,491
12.0	39.7%	0.0%	$177,729	39.7%	0.0%	$177,729
13.0	40.0%	0.0%	$179,072	40.0%	0.0%	$179,072
14.0	40.0%	0.0%	$179,072	40.0%	0.0%	$179,072
15.0	40.0%	0.0%	$179,072	40.0%	0.0%	$179,072
16.0	40.0%	0.0%	$179,072	40.0%	0.0%	$179,072

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$201,456	45.0		$201,456
2.0	90.0		$447,680	90.0		$447,680
3.0	135.0		$447,680	135.0		$447,680
4.0	180.0		$447,680	180.0		$447,680
5.0	225.0		$447,680	225.0		$447,680
6.0	270.0		$447,680	270.0		$447,680
7.0	315.0		$447,680	315.0		$447,680
8.0	360.0		$447,680	360.0		$447,680
9.0	405.0		$447,680	405.0		$447,680
10.0	450.0		$447,680	450.0		$447,680
11.0	495.0		$447,680	495.0		$447,680
12.0	540.0		$447,680	540.0		$447,680
13.0	585.0		$447,680	585.0		$447,680
14.0	630.0		$447,680	630.0		$447,680
15.0	675.0		$447,680	675.0		$447,680
16.0	720.0		$447,680	720.0		$447,680

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$201,456	45.0		$201,456
2.0	90.0		$447,680	90.0		$447,680
3.0	135.0		$447,680	135.0		$447,680
4.0	180.0		$447,680	180.0		$447,680
5.0	225.0		$447,680	225.0		$447,680
6.0	270.0		$447,680	270.0		$447,680
7.0	315.0		$447,680	315.0		$447,680
8.0	360.0		$447,680	360.0		$447,680
9.0	405.0		$447,680	405.0		$447,680
10.0	450.0		$447,680	450.0		$447,680
11.0	495.0		$447,680	495.0		$447,680
12.0	540.0		$447,680	540.0		$447,680
13.0	585.0		$447,680	585.0		$447,680
14.0	630.0		$447,680	630.0		$447,680
15.0	675.0		$447,680	675.0		$447,680
16.0	720.0		$447,680	720.0		$447,680

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$3,275	Annual:	$0	Annual:	$3,275
Present Value:	$40,636	Present Value:	($1)	Present Value:	$40,637

Mitigation Benefits: $40,637 Mitigation Costs: $1

Benefits Minus Costs: $40,636 Benefit-Cost Ratio: 40,637.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: C&J barbecue, 2019 E Person Ave, memphis, Tennessee, , Shelby

Benefits: $32,692 Costs: $1 BCR: 32,692.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,610	BRV ($/sf):	$70.00	Total BRV:	$182,700
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$182,700 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.00	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	277.80	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	13.8%	0.0%	$25,213	13.8%	0.0%	$25,213
-1.0	19.4%	0.0%	$35,444	19.4%	0.0%	$35,444
0.0	25.5%	0.0%	$46,589	25.5%	0.0%	$46,589
1.0	32.0%	0.0%	$58,464	32.0%	0.0%	$58,464
2.0	38.7%	0.0%	$70,705	38.7%	0.0%	$70,705
3.0	45.5%	0.0%	$83,129	45.5%	0.0%	$83,129
4.0	52.2%	0.0%	$182,700	52.2%	0.0%	$182,700
5.0	58.6%	0.0%	$182,700	58.6%	0.0%	$182,700
6.0	64.5%	0.0%	$182,700	64.5%	0.0%	$182,700
7.0	69.8%	0.0%	$182,700	69.8%	0.0%	$182,700
8.0	74.2%	0.0%	$182,700	74.2%	0.0%	$182,700
9.0	77.7%	0.0%	$182,700	77.7%	0.0%	$182,700
10.0	80.1%	0.0%	$182,700	80.1%	0.0%	$182,700
11.0	81.1%	0.0%	$182,700	81.1%	0.0%	$182,700
12.0	81.1%	0.0%	$182,700	81.1%	0.0%	$182,700
13.0	81.1%	0.0%	$182,700	81.1%	0.0%	$182,700
14.0	81.1%	0.0%	$182,700	81.1%	0.0%	$182,700
15.0	81.1%	0.0%	$182,700	81.1%	0.0%	$182,700
16.0	81.1%	0.0%	$182,700	81.1%	0.0%	$182,700

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	10.5%	0.0%	$19,184	10.5%	0.0%	$19,184
-1.0	13.2%	0.0%	$24,116	13.2%	0.0%	$24,116
0.0	16.0%	0.0%	$29,232	16.0%	0.0%	$29,232
1.0	18.9%	0.0%	$34,530	18.9%	0.0%	$34,530
2.0	21.8%	0.0%	$39,829	21.8%	0.0%	$39,829
3.0	24.7%	0.0%	$45,127	24.7%	0.0%	$45,127
4.0	27.4%	0.0%	$50,060	27.4%	0.0%	$50,060
5.0	30.0%	0.0%	$54,810	30.0%	0.0%	$54,810
6.0	32.4%	0.0%	$59,195	32.4%	0.0%	$59,195
7.0	34.5%	0.0%	$63,032	34.5%	0.0%	$63,032
8.0	36.3%	0.0%	$66,320	36.3%	0.0%	$66,320
9.0	37.7%	0.0%	$68,878	37.7%	0.0%	$68,878
10.0	38.6%	0.0%	$70,522	38.6%	0.0%	$70,522
11.0	39.1%	0.0%	$71,436	39.1%	0.0%	$71,436
12.0	39.1%	0.0%	$71,436	39.1%	0.0%	$71,436
13.0	39.1%	0.0%	$71,436	39.1%	0.0%	$71,436
14.0	39.1%	0.0%	$71,436	39.1%	0.0%	$71,436
15.0	39.1%	0.0%	$71,436	39.1%	0.0%	$71,436
16.0	39.1%	0.0%	$71,436	39.1%	0.0%	$71,436

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$82,215	45.0		$82,215
2.0	90.0		$182,700	90.0		$182,700
3.0	135.0		$182,700	135.0		$182,700
4.0	180.0		$182,700	180.0		$182,700
5.0	225.0		$182,700	225.0		$182,700
6.0	270.0		$182,700	270.0		$182,700
7.0	315.0		$182,700	315.0		$182,700
8.0	360.0		$182,700	360.0		$182,700
9.0	405.0		$182,700	405.0		$182,700
10.0	450.0		$182,700	450.0		$182,700
11.0	495.0		$182,700	495.0		$182,700
12.0	540.0		$182,700	540.0		$182,700
13.0	585.0		$182,700	585.0		$182,700
14.0	630.0		$182,700	630.0		$182,700
15.0	675.0		$182,700	675.0		$182,700
16.0	720.0		$182,700	720.0		$182,700

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$82,215	45.0		$82,215
2.0	90.0		$182,700	90.0		$182,700
3.0	135.0		$182,700	135.0		$182,700
4.0	180.0		$182,700	180.0		$182,700
5.0	225.0		$182,700	225.0		$182,700
6.0	270.0		$182,700	270.0		$182,700
7.0	315.0		$182,700	315.0		$182,700
8.0	360.0		$182,700	360.0		$182,700
9.0	405.0		$182,700	405.0		$182,700
10.0	450.0		$182,700	450.0		$182,700
11.0	495.0		$182,700	495.0		$182,700
12.0	540.0		$182,700	540.0		$182,700
13.0	585.0		$182,700	585.0		$182,700
14.0	630.0		$182,700	630.0		$182,700
15.0	675.0		$182,700	675.0		$182,700
16.0	720.0		$182,700	720.0		$182,700

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$2,635	Annual:	$0	Annual:	$2,635
Present Value:	$32,692	Present Value:	$0	Present Value:	$32,692

Mitigation Benefits: $32,692 Mitigation Costs: $1

Benefits Minus Costs: $32,691 Benefit-Cost Ratio: 32,692.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: J&C Community Super Store, 1701 Castalia St, memphis, Tennessee, , Shelby

Benefits: $57,612 Costs: $1 BCR: 57,612.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	7,143	BRV ($/sf):	$60.00	Total BRV:	$428,580
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.40	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$428,580 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.40			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.00	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	277.50	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	13.8%	0.0%	$59,144	13.8%	0.0%	$59,144
-1.0	19.4%	0.0%	$83,145	19.4%	0.0%	$83,145
0.0	25.5%	0.0%	$109,288	25.5%	0.0%	$109,288
1.0	32.0%	0.0%	$137,146	32.0%	0.0%	$137,146
2.0	38.7%	0.0%	$165,860	38.7%	0.0%	$165,860
3.0	45.5%	0.0%	$195,004	45.5%	0.0%	$195,004
4.0	52.2%	0.0%	$428,580	52.2%	0.0%	$428,580
5.0	58.6%	0.0%	$428,580	58.6%	0.0%	$428,580
6.0	64.5%	0.0%	$428,580	64.5%	0.0%	$428,580
7.0	69.8%	0.0%	$428,580	69.8%	0.0%	$428,580
8.0	74.2%	0.0%	$428,580	74.2%	0.0%	$428,580
9.0	77.7%	0.0%	$428,580	77.7%	0.0%	$428,580
10.0	80.1%	0.0%	$428,580	80.1%	0.0%	$428,580
11.0	81.1%	0.0%	$428,580	81.1%	0.0%	$428,580
12.0	81.1%	0.0%	$428,580	81.1%	0.0%	$428,580
13.0	81.1%	0.0%	$428,580	81.1%	0.0%	$428,580
14.0	81.1%	0.0%	$428,580	81.1%	0.0%	$428,580
15.0	81.1%	0.0%	$428,580	81.1%	0.0%	$428,580
16.0	81.1%	0.0%	$428,580	81.1%	0.0%	$428,580

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	10.5%	0.0%	$45,001	10.5%	0.0%	$45,001
-1.0	13.2%	0.0%	$56,573	13.2%	0.0%	$56,573
0.0	16.0%	0.0%	$68,573	16.0%	0.0%	$68,573
1.0	18.9%	0.0%	$81,002	18.9%	0.0%	$81,002
2.0	21.8%	0.0%	$93,430	21.8%	0.0%	$93,430
3.0	24.7%	0.0%	$105,859	24.7%	0.0%	$105,859
4.0	27.4%	0.0%	$117,431	27.4%	0.0%	$117,431
5.0	30.0%	0.0%	$128,574	30.0%	0.0%	$128,574
6.0	32.4%	0.0%	$138,860	32.4%	0.0%	$138,860
7.0	34.5%	0.0%	$147,860	34.5%	0.0%	$147,860
8.0	36.3%	0.0%	$155,575	36.3%	0.0%	$155,575
9.0	37.7%	0.0%	$161,575	37.7%	0.0%	$161,575
10.0	38.6%	0.0%	$165,432	38.6%	0.0%	$165,432
11.0	39.1%	0.0%	$167,575	39.1%	0.0%	$167,575
12.0	39.1%	0.0%	$167,575	39.1%	0.0%	$167,575
13.0	39.1%	0.0%	$167,575	39.1%	0.0%	$167,575
14.0	39.1%	0.0%	$167,575	39.1%	0.0%	$167,575
15.0	39.1%	0.0%	$167,575	39.1%	0.0%	$167,575
16.0	39.1%	0.0%	$167,575	39.1%	0.0%	$167,575

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$192,861	45.0		$192,861
2.0	90.0		$428,580	90.0		$428,580
3.0	135.0		$428,580	135.0		$428,580
4.0	180.0		$428,580	180.0		$428,580
5.0	225.0		$428,580	225.0		$428,580
6.0	270.0		$428,580	270.0		$428,580
7.0	315.0		$428,580	315.0		$428,580
8.0	360.0		$428,580	360.0		$428,580
9.0	405.0		$428,580	405.0		$428,580
10.0	450.0		$428,580	450.0		$428,580
11.0	495.0		$428,580	495.0		$428,580
12.0	540.0		$428,580	540.0		$428,580
13.0	585.0		$428,580	585.0		$428,580
14.0	630.0		$428,580	630.0		$428,580
15.0	675.0		$428,580	675.0		$428,580
16.0	720.0		$428,580	720.0		$428,580

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$192,861	45.0		$192,861
2.0	90.0		$428,580	90.0		$428,580
3.0	135.0		$428,580	135.0		$428,580
4.0	180.0		$428,580	180.0		$428,580
5.0	225.0		$428,580	225.0		$428,580
6.0	270.0		$428,580	270.0		$428,580
7.0	315.0		$428,580	315.0		$428,580
8.0	360.0		$428,580	360.0		$428,580
9.0	405.0		$428,580	405.0		$428,580
10.0	450.0		$428,580	450.0		$428,580
11.0	495.0		$428,580	495.0		$428,580
12.0	540.0		$428,580	540.0		$428,580
13.0	585.0		$428,580	585.0		$428,580
14.0	630.0		$428,580	630.0		$428,580
15.0	675.0		$428,580	675.0		$428,580
16.0	720.0		$428,580	720.0		$428,580

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$4,643	Annual:	$0	Annual:	$4,643
Present Value:	$57,612	Present Value:	$0	Present Value:	$57,612

Mitigation Benefits: $57,612 Mitigation Costs: $1

Benefits Minus Costs: $57,611 Benefit-Cost Ratio: 57,612.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: Kellogg Industry, 2227-2251 kellogg Ave, Memphis, Tennessee, , Shelby

Benefits: $2,330,254 Costs: $1 BCR: 2,330,254.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	614,390	BRV ($/sf):	$30.00	Total BRV:	$18,431,700
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$18,431,700 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$272 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	5
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.10	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	278.00	4.0	271.95	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	13.8%	0.0%	$2,543,575	13.8%	0.0%	$2,543,575
-1.0	19.4%	0.0%	$3,575,750	19.4%	0.0%	$3,575,750
0.0	25.5%	0.0%	$4,700,084	25.5%	0.0%	$4,700,084
1.0	32.0%	0.0%	$5,898,144	32.0%	0.0%	$5,898,144
2.0	38.7%	0.0%	$7,133,068	38.7%	0.0%	$7,133,068
3.0	45.5%	0.0%	$8,386,424	45.5%	0.0%	$8,386,424
4.0	52.2%	0.0%	$18,431,700	52.2%	0.0%	$18,431,700
5.0	58.6%	0.0%	$18,431,700	58.6%	0.0%	$18,431,700
6.0	64.5%	0.0%	$18,431,700	64.5%	0.0%	$18,431,700
7.0	69.8%	0.0%	$18,431,700	69.8%	0.0%	$18,431,700
8.0	74.2%	0.0%	$18,431,700	74.2%	0.0%	$18,431,700
9.0	77.7%	0.0%	$18,431,700	77.7%	0.0%	$18,431,700
10.0	80.1%	0.0%	$18,431,700	80.1%	0.0%	$18,431,700
11.0	81.1%	0.0%	$18,431,700	81.1%	0.0%	$18,431,700
12.0	81.1%	0.0%	$18,431,700	81.1%	0.0%	$18,431,700
13.0	81.1%	0.0%	$18,431,700	81.1%	0.0%	$18,431,700
14.0	81.1%	0.0%	$18,431,700	81.1%	0.0%	$18,431,700
15.0	81.1%	0.0%	$18,431,700	81.1%	0.0%	$18,431,700
16.0	81.1%	0.0%	$18,431,700	81.1%	0.0%	$18,431,700

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	10.5%	0.0%	$1,935,329	10.5%	0.0%	$1,935,329
-1.0	13.2%	0.0%	$2,432,984	13.2%	0.0%	$2,432,984
0.0	16.0%	0.0%	$2,949,072	16.0%	0.0%	$2,949,072
1.0	18.9%	0.0%	$3,483,591	18.9%	0.0%	$3,483,591
2.0	21.8%	0.0%	$4,018,111	21.8%	0.0%	$4,018,111
3.0	24.7%	0.0%	$4,552,630	24.7%	0.0%	$4,552,630
4.0	27.4%	0.0%	$5,050,286	27.4%	0.0%	$5,050,286
5.0	30.0%	0.0%	$5,529,510	30.0%	0.0%	$5,529,510
6.0	32.4%	0.0%	$5,971,871	32.4%	0.0%	$5,971,871
7.0	34.5%	0.0%	$6,358,937	34.5%	0.0%	$6,358,937
8.0	36.3%	0.0%	$6,690,707	36.3%	0.0%	$6,690,707
9.0	37.7%	0.0%	$6,948,751	37.7%	0.0%	$6,948,751
10.0	38.6%	0.0%	$7,114,636	38.6%	0.0%	$7,114,636
11.0	39.1%	0.0%	$7,206,795	39.1%	0.0%	$7,206,795
12.0	39.1%	0.0%	$7,206,795	39.1%	0.0%	$7,206,795
13.0	39.1%	0.0%	$7,206,795	39.1%	0.0%	$7,206,795
14.0	39.1%	0.0%	$7,206,795	39.1%	0.0%	$7,206,795
15.0	39.1%	0.0%	$7,206,795	39.1%	0.0%	$7,206,795
16.0	39.1%	0.0%	$7,206,795	39.1%	0.0%	$7,206,795

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$8,294,265	45.0		$8,294,265
2.0	90.0		$18,431,700	90.0		$18,431,700
3.0	135.0		$18,431,700	135.0		$18,431,700
4.0	180.0		$18,431,700	180.0		$18,431,700
5.0	225.0		$18,431,700	225.0		$18,431,700
6.0	270.0		$18,431,700	270.0		$18,431,700
7.0	315.0		$18,431,700	315.0		$18,431,700
8.0	360.0		$18,431,700	360.0		$18,431,700
9.0	405.0		$18,431,700	405.0		$18,431,700
10.0	450.0		$18,431,700	450.0		$18,431,700
11.0	495.0		$18,431,700	495.0		$18,431,700
12.0	540.0		$18,431,700	540.0		$18,431,700
13.0	585.0		$18,431,700	585.0		$18,431,700
14.0	630.0		$18,431,700	630.0		$18,431,700
15.0	675.0		$18,431,700	675.0		$18,431,700
16.0	720.0		$18,431,700	720.0		$18,431,700

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$8,294,265	45.0		$8,294,265
2.0	90.0		$18,431,700	90.0		$18,431,700
3.0	135.0		$18,431,700	135.0		$18,431,700
4.0	180.0		$18,431,700	180.0		$18,431,700
5.0	225.0		$18,431,700	225.0		$18,431,700
6.0	270.0		$18,431,700	270.0		$18,431,700
7.0	315.0		$18,431,700	315.0		$18,431,700
8.0	360.0		$18,431,700	360.0		$18,431,700
9.0	405.0		$18,431,700	405.0		$18,431,700
10.0	450.0		$18,431,700	450.0		$18,431,700
11.0	495.0		$18,431,700	495.0		$18,431,700
12.0	540.0		$18,431,700	540.0		$18,431,700
13.0	585.0		$18,431,700	585.0		$18,431,700
14.0	630.0		$18,431,700	630.0		$18,431,700
15.0	675.0		$18,431,700	675.0		$18,431,700
16.0	720.0		$18,431,700	720.0		$18,431,700

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$188,042	Annual:	$255	Annual:	$187,787
Present Value:	$2,333,423	Present Value:	$3,169	Present Value:	$2,330,254

Mitigation Benefits:	$2,330,254	Mitigation Costs:	$1
Benefits Minus Costs:	$2,330,253	Benefit-Cost Ratio:	2,330,254.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: Next to 2022 Boyle Ave, Next to 2022 Boyle Ave, Memphis, Tennessee, , Shelby

Benefits: $6,504 Costs: $1 BCR: 6,504.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.40	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.40			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	274.01	1.0	269.98	1.0
50	2.00%	274.50	2.0	270.00	2.0
100	1.00%	277.35	3.0	270.95	3.0
500	0.20%	277.50	4.0	271.00	4.0

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	13.8%	0.0%	$6,624	13.8%	0.0%	$6,624
-1.0	19.4%	0.0%	$9,312	19.4%	0.0%	$9,312
0.0	25.5%	0.0%	$12,240	25.5%	0.0%	$12,240
1.0	32.0%	0.0%	$15,360	32.0%	0.0%	$15,360
2.0	38.7%	0.0%	$18,576	38.7%	0.0%	$18,576
3.0	45.5%	0.0%	$21,840	45.5%	0.0%	$21,840
4.0	52.2%	0.0%	$48,000	52.2%	0.0%	$48,000
5.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
6.0	64.5%	0.0%	$48,000	64.5%	0.0%	$48,000
7.0	69.8%	0.0%	$48,000	69.8%	0.0%	$48,000
8.0	74.2%	0.0%	$48,000	74.2%	0.0%	$48,000
9.0	77.7%	0.0%	$48,000	77.7%	0.0%	$48,000
10.0	80.1%	0.0%	$48,000	80.1%	0.0%	$48,000
11.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
12.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
13.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
14.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
15.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000
16.0	81.1%	0.0%	$48,000	81.1%	0.0%	$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	10.5%	0.0%	$5,040	10.5%	0.0%	$5,040
-1.0	13.2%	0.0%	$6,336	13.2%	0.0%	$6,336
0.0	16.0%	0.0%	$7,680	16.0%	0.0%	$7,680
1.0	18.9%	0.0%	$9,072	18.9%	0.0%	$9,072
2.0	21.8%	0.0%	$10,464	21.8%	0.0%	$10,464
3.0	24.7%	0.0%	$11,856	24.7%	0.0%	$11,856
4.0	27.4%	0.0%	$13,152	27.4%	0.0%	$13,152
5.0	30.0%	0.0%	$14,400	30.0%	0.0%	$14,400
6.0	32.4%	0.0%	$15,552	32.4%	0.0%	$15,552
7.0	34.5%	0.0%	$16,560	34.5%	0.0%	$16,560
8.0	36.3%	0.0%	$17,424	36.3%	0.0%	$17,424
9.0	37.7%	0.0%	$18,096	37.7%	0.0%	$18,096
10.0	38.6%	0.0%	$18,528	38.6%	0.0%	$18,528
11.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
12.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
13.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
14.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
15.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768
16.0	39.1%	0.0%	$18,768	39.1%	0.0%	$18,768

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$524	Annual:	$0	Annual:	$524
Present Value:	$6,504	Present Value:	$0	Present Value:	$6,504

Mitigation Benefits: $6,504 Mitigation Costs: $1

Benefits Minus Costs: $6,503 Benefit-Cost Ratio: 6,504.00

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$2,597,139** Total Costs: **$107,681** BCR: **24.12**

Project Number: 60330437 Disaster #: Program: FMA Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Project Summary:

Project Number: 60330437 Disaster #:

Program: Agency: AECOM

Analyst: kulvir singh

Point of Contact: kulvir singh Phone Number: 4049469676

Address: memphis, Tennessee

Email: kulvir.singh@aecom.com

Comments:

Structure Summary For:

1561 W Dianne Cir, 1561 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,857 Costs: $29,115 BCR: 0.48

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	0.48	$13,857	$29,115

1565 W Dianne Cir, 1565 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,621.00	$12,621	$1

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1568 W Dianne Cir, 1568 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,621.00	$12,621	$1

1571 W Dianne Cir, 1571 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,621.00	$12,621	$1

1574 W Dianne Cir, 1574 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,529.00	$10,529	$1

1574 W Dianne Cir, 1574 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,529.00	$10,529	$1

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1575 E Dianne Cir, 1575 E Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,529.00	$10,529	$1

1577 W Dianne Cir, 1577 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,529.00	$10,529	$1

1578 W Dianne Cir, 1578 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,529.00	$10,529	$1

1581 W Dianne Cir, 1581 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,529.00	$10,529	$1

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1585 W Dianne Cir, 1585 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,529.00	$10,529	$1

1589 W Dianne Cir, 1589 W Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,052 Costs: $1 BCR: 11,052.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,052.00	$11,052	$1

1590 E Dianne Cir, 1590 E Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,621.00	$12,621	$1

1987 S Dianne Cir, 1987 S Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,621.00	$12,621	$1

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1990 s Dianne Cir, 1990 s Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,621.00	$12,621	$1

1991 S Dianne Cir, 1991 S Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,858 Costs: $1 BCR: 10,858.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,858.00	$10,858	$1

1994 S Dianne Cir, 1994 S Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,621.00	$12,621	$1

1995 Dianne Cir, 1995 Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,082 Costs: $1 BCR: 8,082.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,082.00	$8,082	$1

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1999 S Dianne Cir, 1999 S Dianne Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,855 Costs: $1 BCR: 8,855.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,855.00	$8,855	$1

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1561 W Dianne Cir, 1561 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $13,857 Costs: $29,115 BCR: .48

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$60.00	Total BRV:	$138,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$138,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	265.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,450	2.5%	0.0%	$3,450
0.0	13.4%	0.0%	$18,492	13.4%	0.0%	$18,492
1.0	23.3%	0.0%	$32,154	23.3%	0.0%	$32,154
2.0	32.1%	0.0%	$44,298	32.1%	0.0%	$44,298
3.0	40.1%	0.0%	$55,338	40.1%	0.0%	$55,338
4.0	47.1%	0.0%	$64,998	47.1%	0.0%	$64,998
5.0	53.2%	0.0%	$138,000	53.2%	0.0%	$138,000
6.0	58.6%	0.0%	$138,000	58.6%	0.0%	$138,000
7.0	63.2%	0.0%	$138,000	63.2%	0.0%	$138,000
8.0	67.2%	0.0%	$138,000	67.2%	0.0%	$138,000
9.0	70.5%	0.0%	$138,000	70.5%	0.0%	$138,000
10.0	73.2%	0.0%	$138,000	73.2%	0.0%	$138,000
11.0	75.4%	0.0%	$138,000	75.4%	0.0%	$138,000
12.0	77.2%	0.0%	$138,000	77.2%	0.0%	$138,000
13.0	78.5%	0.0%	$138,000	78.5%	0.0%	$138,000
14.0	79.5%	0.0%	$138,000	79.5%	0.0%	$138,000
15.0	80.2%	0.0%	$138,000	80.2%	0.0%	$138,000
16.0	80.7%	0.0%	$138,000	80.7%	0.0%	$138,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,312	2.4%	0.0%	$3,312
0.0	8.1%	0.0%	$11,178	8.1%	0.0%	$11,178
1.0	13.3%	0.0%	$18,354	13.3%	0.0%	$18,354
2.0	17.9%	0.0%	$24,702	17.9%	0.0%	$24,702
3.0	22.0%	0.0%	$30,360	22.0%	0.0%	$30,360
4.0	25.7%	0.0%	$35,466	25.7%	0.0%	$35,466
5.0	28.8%	0.0%	$39,744	28.8%	0.0%	$39,744
6.0	31.5%	0.0%	$43,470	31.5%	0.0%	$43,470
7.0	33.8%	0.0%	$46,644	33.8%	0.0%	$46,644
8.0	35.7%	0.0%	$49,266	35.7%	0.0%	$49,266
9.0	37.2%	0.0%	$51,336	37.2%	0.0%	$51,336
10.0	38.4%	0.0%	$52,992	38.4%	0.0%	$52,992
11.0	39.2%	0.0%	$54,096	39.2%	0.0%	$54,096
12.0	39.7%	0.0%	$54,786	39.7%	0.0%	$54,786
13.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
14.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
15.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
16.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,117	Annual:	$0	Annual:	$1,117
Present Value:	$13,857	Present Value:	$0	Present Value:	$13,857

Mitigation Benefits: $13,857 Mitigation Costs: $29,115

Benefits Minus Costs: ($15,258) Benefit-Cost Ratio: 0.48

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$29,115	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1565 W Dianne Cir, 1565 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,017	Annual:	$0	Annual:	$1,017
Present Value:	$12,621	Present Value:	$0	Present Value:	$12,621

Mitigation Benefits: $12,621 Mitigation Costs: $1

Benefits Minus Costs: $12,620 Benefit-Cost Ratio: 12,621.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1568 W Dianne Cir, 1568 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,017	Annual:	$0	Annual:	$1,017
Present Value:	$12,621	Present Value:	$0	Present Value:	$12,621

Mitigation Benefits: $12,621 Mitigation Costs: $1

Benefits Minus Costs: $12,620 Benefit-Cost Ratio: 12,621.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1571 W Dianne Cir, 1571 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,017	Annual:	$0	Annual:	$1,017
Present Value:	$12,621	Present Value:	$0	Present Value:	$12,621

Mitigation Benefits: $12,621 Mitigation Costs: $1

Benefits Minus Costs: $12,620 Benefit-Cost Ratio: 12,621.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1574 W Dianne Cir, 1574 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$848	Annual:	$0	Annual:	$848
Present Value:	$10,529	Present Value:	$0	Present Value:	$10,529

Mitigation Benefits: $10,529 Mitigation Costs: $1

Benefits Minus Costs: $10,528 Benefit-Cost Ratio: 10,529.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1574 W Dianne Cir, 1574 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$848	Annual:	$0	Annual:	$848
Present Value:	$10,529	Present Value:	$0	Present Value:	$10,529

Mitigation Benefits: $10,529 Mitigation Costs: $1

Benefits Minus Costs: $10,528 Benefit-Cost Ratio: 10,529.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1575 E Dianne Cir, 1575 E Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$848	Annual:	$0	Annual:	$848
Present Value:	$10,529	Present Value:	$0	Present Value:	$10,529

Mitigation Benefits: $10,529 Mitigation Costs: $1

Benefits Minus Costs: $10,528 Benefit-Cost Ratio: 10,529.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1577 W Dianne Cir, 1577 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	260.85	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$848	Annual:	$0	Annual:	$848
Present Value:	$10,529	Present Value:	$0	Present Value:	$10,529

Mitigation Benefits: $10,529 Mitigation Costs: $1

Benefits Minus Costs: $10,528 Benefit-Cost Ratio: 10,529.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1578 W Dianne Cir, 1578 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$848	Annual:	$0	Annual:	$848
Present Value:	$10,529	Present Value:	$0	Present Value:	$10,529

Mitigation Benefits: $10,529 Mitigation Costs: $1

Benefits Minus Costs: $10,528 Benefit-Cost Ratio: 10,529.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1581 W Dianne Cir, 1581 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$848	Annual:	$0	Annual:	$848
Present Value:	$10,529	Present Value:	$0	Present Value:	$10,529

Mitigation Benefits: $10,529 Mitigation Costs: $1

Benefits Minus Costs: $10,528 Benefit-Cost Ratio: 10,529.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1585 W Dianne Cir, 1585 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,529 Costs: $1 BCR: 10,529.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	260.85	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$848	Annual:	$0	Annual:	$848
Present Value:	$10,529	Present Value:	$0	Present Value:	$10,529

Mitigation Benefits: $10,529 Mitigation Costs: $1

Benefits Minus Costs: $10,528 Benefit-Cost Ratio: 10,529.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1589 W Dianne Cir, 1589 W Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $11,052 Costs: $1 BCR: 11,052.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$50.00	Total BRV:	$105,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$105,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,625	2.5%	0.0%	$2,625
0.0	13.4%	0.0%	$14,070	13.4%	0.0%	$14,070
1.0	23.3%	0.0%	$24,465	23.3%	0.0%	$24,465
2.0	32.1%	0.0%	$33,705	32.1%	0.0%	$33,705
3.0	40.1%	0.0%	$42,105	40.1%	0.0%	$42,105
4.0	47.1%	0.0%	$49,455	47.1%	0.0%	$49,455
5.0	53.2%	0.0%	$105,000	53.2%	0.0%	$105,000
6.0	58.6%	0.0%	$105,000	58.6%	0.0%	$105,000
7.0	63.2%	0.0%	$105,000	63.2%	0.0%	$105,000
8.0	67.2%	0.0%	$105,000	67.2%	0.0%	$105,000
9.0	70.5%	0.0%	$105,000	70.5%	0.0%	$105,000
10.0	73.2%	0.0%	$105,000	73.2%	0.0%	$105,000
11.0	75.4%	0.0%	$105,000	75.4%	0.0%	$105,000
12.0	77.2%	0.0%	$105,000	77.2%	0.0%	$105,000
13.0	78.5%	0.0%	$105,000	78.5%	0.0%	$105,000
14.0	79.5%	0.0%	$105,000	79.5%	0.0%	$105,000
15.0	80.2%	0.0%	$105,000	80.2%	0.0%	$105,000
16.0	80.7%	0.0%	$105,000	80.7%	0.0%	$105,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,520	2.4%	0.0%	$2,520
0.0	8.1%	0.0%	$8,505	8.1%	0.0%	$8,505
1.0	13.3%	0.0%	$13,965	13.3%	0.0%	$13,965
2.0	17.9%	0.0%	$18,795	17.9%	0.0%	$18,795
3.0	22.0%	0.0%	$23,100	22.0%	0.0%	$23,100
4.0	25.7%	0.0%	$26,985	25.7%	0.0%	$26,985
5.0	28.8%	0.0%	$30,240	28.8%	0.0%	$30,240
6.0	31.5%	0.0%	$33,075	31.5%	0.0%	$33,075
7.0	33.8%	0.0%	$35,490	33.8%	0.0%	$35,490
8.0	35.7%	0.0%	$37,485	35.7%	0.0%	$37,485
9.0	37.2%	0.0%	$39,060	37.2%	0.0%	$39,060
10.0	38.4%	0.0%	$40,320	38.4%	0.0%	$40,320
11.0	39.2%	0.0%	$41,160	39.2%	0.0%	$41,160
12.0	39.7%	0.0%	$41,685	39.7%	0.0%	$41,685
13.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
14.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
15.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
16.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$47,250	45.0		$47,250
2.0	90.0		$105,000	90.0		$105,000
3.0	135.0		$105,000	135.0		$105,000
4.0	180.0		$105,000	180.0		$105,000
5.0	225.0		$105,000	225.0		$105,000
6.0	270.0		$105,000	270.0		$105,000
7.0	315.0		$105,000	315.0		$105,000
8.0	360.0		$105,000	360.0		$105,000
9.0	405.0		$105,000	405.0		$105,000
10.0	450.0		$105,000	450.0		$105,000
11.0	495.0		$105,000	495.0		$105,000
12.0	540.0		$105,000	540.0		$105,000
13.0	585.0		$105,000	585.0		$105,000
14.0	630.0		$105,000	630.0		$105,000
15.0	675.0		$105,000	675.0		$105,000
16.0	720.0		$105,000	720.0		$105,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$47,250	45.0		$47,250
2.0	90.0		$105,000	90.0		$105,000
3.0	135.0		$105,000	135.0		$105,000
4.0	180.0		$105,000	180.0		$105,000
5.0	225.0		$105,000	225.0		$105,000
6.0	270.0		$105,000	270.0		$105,000
7.0	315.0		$105,000	315.0		$105,000
8.0	360.0		$105,000	360.0		$105,000
9.0	405.0		$105,000	405.0		$105,000
10.0	450.0		$105,000	450.0		$105,000
11.0	495.0		$105,000	495.0		$105,000
12.0	540.0		$105,000	540.0		$105,000
13.0	585.0		$105,000	585.0		$105,000
14.0	630.0		$105,000	630.0		$105,000
15.0	675.0		$105,000	675.0		$105,000
16.0	720.0		$105,000	720.0		$105,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$891	Annual:	$0	Annual:	$891
Present Value:	$11,052	Present Value:	$0	Present Value:	$11,052

Mitigation Benefits: $11,052 Mitigation Costs: $1

Benefits Minus Costs: $11,051 Benefit-Cost Ratio: 11,052.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1590 E Dianne Cir, 1590 E Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	260.85	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,017	Annual:	$0	Annual:	$1,017
Present Value:	$12,621	Present Value:	$0	Present Value:	$12,621

Mitigation Benefits: $12,621 Mitigation Costs: $1

Benefits Minus Costs: $12,620 Benefit-Cost Ratio: 12,621.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1987 S Dianne Cir, 1987 S Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,017	Annual:	$0	Annual:	$1,017
Present Value:	$12,621	Present Value:	$0	Present Value:	$12,621

Mitigation Benefits: $12,621 Mitigation Costs: $1

Benefits Minus Costs: $12,620 Benefit-Cost Ratio: 12,621.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1990 s Dianne Cir, 1990 s Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,017	Annual:	$0	Annual:	$1,017
Present Value:	$12,621	Present Value:	$0	Present Value:	$12,621

Mitigation Benefits: $12,621 Mitigation Costs: $1

Benefits Minus Costs: $12,620 Benefit-Cost Ratio: 12,621.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1991 S Dianne Cir, 1991 S Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $10,858 Costs: $1 BCR: 10,858.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.70	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$875	Annual:	$0	Annual:	$875
Present Value:	$10,858	Present Value:	$0	Present Value:	$10,858

Mitigation Benefits: $10,858 Mitigation Costs: $1

Benefits Minus Costs: $10,857 Benefit-Cost Ratio: 10,858.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1994 S Dianne Cir, 1994 S Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $12,621 Costs: $1 BCR: 12,621.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	260.85	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,017	Annual:	$0	Annual:	$1,017
Present Value:	$12,621	Present Value:	$0	Present Value:	$12,621

Mitigation Benefits: $12,621 Mitigation Costs: $1

Benefits Minus Costs: $12,620 Benefit-Cost Ratio: 12,621.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1995 Dianne Cir, 1995 Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $8,082 Costs: $1 BCR: 8,082.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.10	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.10			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$651	Annual:	$0	Annual:	$651
Present Value:	$8,082	Present Value:	$0	Present Value:	$8,082

Mitigation Benefits: $8,082 Mitigation Costs: $1

Benefits Minus Costs: $8,081 Benefit-Cost Ratio: 8,082.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1999 S Dianne Cir, 1999 S Dianne Cir, memphis, Tennessee, , Shelby

Benefits: $8,855 Costs: $1 BCR: 8,855.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$40.00	Total BRV:	$84,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	271.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$84,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	271.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	261.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	267.36	1.0	260.85	1.0
50	2.00%	270.00	2.0	260.85	2.0
100	1.00%	271.70	3.0	260.85	3.0
500	0.20%	272.00	4.0	261.00	4.0

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,100	2.5%	0.0%	$2,100
0.0	13.4%	0.0%	$11,256	13.4%	0.0%	$11,256
1.0	23.3%	0.0%	$19,572	23.3%	0.0%	$19,572
2.0	32.1%	0.0%	$26,964	32.1%	0.0%	$26,964
3.0	40.1%	0.0%	$33,684	40.1%	0.0%	$33,684
4.0	47.1%	0.0%	$39,564	47.1%	0.0%	$39,564
5.0	53.2%	0.0%	$84,000	53.2%	0.0%	$84,000
6.0	58.6%	0.0%	$84,000	58.6%	0.0%	$84,000
7.0	63.2%	0.0%	$84,000	63.2%	0.0%	$84,000
8.0	67.2%	0.0%	$84,000	67.2%	0.0%	$84,000
9.0	70.5%	0.0%	$84,000	70.5%	0.0%	$84,000
10.0	73.2%	0.0%	$84,000	73.2%	0.0%	$84,000
11.0	75.4%	0.0%	$84,000	75.4%	0.0%	$84,000
12.0	77.2%	0.0%	$84,000	77.2%	0.0%	$84,000
13.0	78.5%	0.0%	$84,000	78.5%	0.0%	$84,000
14.0	79.5%	0.0%	$84,000	79.5%	0.0%	$84,000
15.0	80.2%	0.0%	$84,000	80.2%	0.0%	$84,000
16.0	80.7%	0.0%	$84,000	80.7%	0.0%	$84,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,016	2.4%	0.0%	$2,016
0.0	8.1%	0.0%	$6,804	8.1%	0.0%	$6,804
1.0	13.3%	0.0%	$11,172	13.3%	0.0%	$11,172
2.0	17.9%	0.0%	$15,036	17.9%	0.0%	$15,036
3.0	22.0%	0.0%	$18,480	22.0%	0.0%	$18,480
4.0	25.7%	0.0%	$21,588	25.7%	0.0%	$21,588
5.0	28.8%	0.0%	$24,192	28.8%	0.0%	$24,192
6.0	31.5%	0.0%	$26,460	31.5%	0.0%	$26,460
7.0	33.8%	0.0%	$28,392	33.8%	0.0%	$28,392
8.0	35.7%	0.0%	$29,988	35.7%	0.0%	$29,988
9.0	37.2%	0.0%	$31,248	37.2%	0.0%	$31,248
10.0	38.4%	0.0%	$32,256	38.4%	0.0%	$32,256
11.0	39.2%	0.0%	$32,928	39.2%	0.0%	$32,928
12.0	39.7%	0.0%	$33,348	39.7%	0.0%	$33,348
13.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600
14.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600
15.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600
16.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$37,800	45.0		$37,800
2.0	90.0		$84,000	90.0		$84,000
3.0	135.0		$84,000	135.0		$84,000
4.0	180.0		$84,000	180.0		$84,000
5.0	225.0		$84,000	225.0		$84,000
6.0	270.0		$84,000	270.0		$84,000
7.0	315.0		$84,000	315.0		$84,000
8.0	360.0		$84,000	360.0		$84,000
9.0	405.0		$84,000	405.0		$84,000
10.0	450.0		$84,000	450.0		$84,000
11.0	495.0		$84,000	495.0		$84,000
12.0	540.0		$84,000	540.0		$84,000
13.0	585.0		$84,000	585.0		$84,000
14.0	630.0		$84,000	630.0		$84,000
15.0	675.0		$84,000	675.0		$84,000
16.0	720.0		$84,000	720.0		$84,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$37,800	45.0		$37,800
2.0	90.0		$84,000	90.0		$84,000
3.0	135.0		$84,000	135.0		$84,000
4.0	180.0		$84,000	180.0		$84,000
5.0	225.0		$84,000	225.0		$84,000
6.0	270.0		$84,000	270.0		$84,000
7.0	315.0		$84,000	315.0		$84,000
8.0	360.0		$84,000	360.0		$84,000
9.0	405.0		$84,000	405.0		$84,000
10.0	450.0		$84,000	450.0		$84,000
11.0	495.0		$84,000	495.0		$84,000
12.0	540.0		$84,000	540.0		$84,000
13.0	585.0		$84,000	585.0		$84,000
14.0	630.0		$84,000	630.0		$84,000
15.0	675.0		$84,000	675.0		$84,000
16.0	720.0		$84,000	720.0		$84,000

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$714	Annual:	$0	Annual:	$714
Present Value:	$8,855	Present Value:	$0	Present Value:	$8,855

Mitigation Benefits: $8,855 Mitigation Costs: $1

Benefits Minus Costs: $8,854 Benefit-Cost Ratio: 8,855.00

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$214,754** Total Costs: **$29,133** BCR: **7.37**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

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Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Project Summary:

Project Number: 60330437 Disaster #:

Program: Agency: AECOM

Analyst: Kulvir Singh

Point of Contact: kulvir singh Phone Number: 4049469476

Address: memphis, Tennessee

Email: kulvir.singh@aecom.com

Comments:

Structure Summary For:

1545 Ragan St, 1545 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $72,705 Costs: $65,575 BCR: 1.11

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.11	$72,705	$65,575

1551 Ragan St, 1551 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $71,986 Costs: $1 BCR: 71,986.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	71,986.00	$71,986	$1

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

1609 Ragan St, 1609 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $9,040 Costs: $1 BCR: 9,040.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	9,040.00	$9,040	$1

1615 Ragan St, 1615 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,019.00	$18,019	$1

1619 Ragan St, 1619 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,019.00	$18,019	$1

1623 Ragan St, 1623 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,019.00	$18,019	$1

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

1633 Ragan St, 1633 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,019.00	$18,019	$1

1639 Ragan St, 1639 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,019.00	$18,019	$1

1643 Ragan St, 1643 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,019.00	$18,019	$1

Master Halco Fence Company, 1588 Ragan St, memphis, Tennessee,

Structure Type: Building Historic Building: No Contact:

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,019.00	$18,019	$1

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1545 Ragan St, 1545 Ragan St, memphis, Tennessee,

Benefits: $72,705 Costs: $65,575 BCR: 1.11

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	800	BRV ($/sf):	$60.00	Total BRV:	$48,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	262.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$48,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	262.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:
Number of Hours Volunteered/Person:
Cost of Volunteers Time ($/Hour/Person):
Number of Days Lodging/Volunteer:
Per-Person Cost of Lodging for a Volunteer:
Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Number of Person:
Treatment Costs per person: $2,443.00
Total Mental Stress and Anxiety Cost: $0.00

Lost Productivity

Number of Worker:
Productivity Loss per person: $8,736.00
Total Lost Productivity Cost: $0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 260.0
Flood Profile Number:
Flood Source Name:
Elevation At Which Barrier Will Be Overtopped: 0.00
FEMA Elevation Certificate Diagram Description:
Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	262.01	1.0	254.42	1.0
50	2.00%	262.25	2.0	254.50	2.0
100	1.00%	262.54	3.0	254.74	3.0
500	0.20%	263.00	4.0	255.00	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,200	2.5%	0.0%	$1,200
0.0	13.4%	0.0%	$6,432	13.4%	0.0%	$6,432
1.0	23.3%	0.0%	$11,184	23.3%	0.0%	$11,184
2.0	32.1%	0.0%	$15,408	32.1%	0.0%	$15,408
3.0	40.1%	0.0%	$19,248	40.1%	0.0%	$19,248
4.0	47.1%	0.0%	$22,608	47.1%	0.0%	$22,608
5.0	53.2%	0.0%	$48,000	53.2%	0.0%	$48,000
6.0	58.6%	0.0%	$48,000	58.6%	0.0%	$48,000
7.0	63.2%	0.0%	$48,000	63.2%	0.0%	$48,000
8.0	67.2%	0.0%	$48,000	67.2%	0.0%	$48,000
9.0	70.5%	0.0%	$48,000	70.5%	0.0%	$48,000
10.0	73.2%	0.0%	$48,000	73.2%	0.0%	$48,000
11.0	75.4%	0.0%	$48,000	75.4%	0.0%	$48,000
12.0	77.2%	0.0%	$48,000	77.2%	0.0%	$48,000
13.0	78.5%	0.0%	$48,000	78.5%	0.0%	$48,000
14.0	79.5%	0.0%	$48,000	79.5%	0.0%	$48,000
15.0	80.2%	0.0%	$48,000	80.2%	0.0%	$48,000
16.0	80.7%	0.0%	$48,000	80.7%	0.0%	$48,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,152	2.4%	0.0%	$1,152
0.0	8.1%	0.0%	$3,888	8.1%	0.0%	$3,888
1.0	13.3%	0.0%	$6,384	13.3%	0.0%	$6,384
2.0	17.9%	0.0%	$8,592	17.9%	0.0%	$8,592
3.0	22.0%	0.0%	$10,560	22.0%	0.0%	$10,560
4.0	25.7%	0.0%	$12,336	25.7%	0.0%	$12,336
5.0	28.8%	0.0%	$13,824	28.8%	0.0%	$13,824
6.0	31.5%	0.0%	$15,120	31.5%	0.0%	$15,120
7.0	33.8%	0.0%	$16,224	33.8%	0.0%	$16,224
8.0	35.7%	0.0%	$17,136	35.7%	0.0%	$17,136
9.0	37.2%	0.0%	$17,856	37.2%	0.0%	$17,856
10.0	38.4%	0.0%	$18,432	38.4%	0.0%	$18,432
11.0	39.2%	0.0%	$18,816	39.2%	0.0%	$18,816
12.0	39.7%	0.0%	$19,056	39.7%	0.0%	$19,056
13.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
14.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
15.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200
16.0	40.0%	0.0%	$19,200	40.0%	0.0%	$19,200

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$21,600	45.0		$21,600
2.0	90.0		$48,000	90.0		$48,000
3.0	135.0		$48,000	135.0		$48,000
4.0	180.0		$48,000	180.0		$48,000
5.0	225.0		$48,000	225.0		$48,000
6.0	270.0		$48,000	270.0		$48,000
7.0	315.0		$48,000	315.0		$48,000
8.0	360.0		$48,000	360.0		$48,000
9.0	405.0		$48,000	405.0		$48,000
10.0	450.0		$48,000	450.0		$48,000
11.0	495.0		$48,000	495.0		$48,000
12.0	540.0		$48,000	540.0		$48,000
13.0	585.0		$48,000	585.0		$48,000
14.0	630.0		$48,000	630.0		$48,000
15.0	675.0		$48,000	675.0		$48,000
16.0	720.0		$48,000	720.0		$48,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$5,859	Annual:	$0	Annual:	$5,859
Present Value:	$72,705	Present Value:	$0	Present Value:	$72,705

Mitigation Benefits: $72,705 Mitigation Costs: $65,575

Benefits Minus Costs: $7,130 Benefit-Cost Ratio: 1.11

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$65,575	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1551 Ragan St, 1551 Ragan St, memphis, Tennessee,

Benefits: $71,986 Costs: $1 BCR: 71,986.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	950	BRV ($/sf):	$60.00	Total BRV:	$57,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	262.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$57,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	262.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	253.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	262.01	1.0	254.42	1.0
50	2.00%	262.25	2.0	254.50	2.0
100	1.00%	262.54	3.0	254.74	3.0
500	0.20%	263.00	4.0	256.10	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,425	2.5%	0.0%	$1,425
0.0	13.4%	0.0%	$7,638	13.4%	0.0%	$7,638
1.0	23.3%	0.0%	$13,281	23.3%	0.0%	$13,281
2.0	32.1%	0.0%	$18,297	32.1%	0.0%	$18,297
3.0	40.1%	0.0%	$22,857	40.1%	0.0%	$22,857
4.0	47.1%	0.0%	$26,847	47.1%	0.0%	$26,847
5.0	53.2%	0.0%	$57,000	53.2%	0.0%	$57,000
6.0	58.6%	0.0%	$57,000	58.6%	0.0%	$57,000
7.0	63.2%	0.0%	$57,000	63.2%	0.0%	$57,000
8.0	67.2%	0.0%	$57,000	67.2%	0.0%	$57,000
9.0	70.5%	0.0%	$57,000	70.5%	0.0%	$57,000
10.0	73.2%	0.0%	$57,000	73.2%	0.0%	$57,000
11.0	75.4%	0.0%	$57,000	75.4%	0.0%	$57,000
12.0	77.2%	0.0%	$57,000	77.2%	0.0%	$57,000
13.0	78.5%	0.0%	$57,000	78.5%	0.0%	$57,000
14.0	79.5%	0.0%	$57,000	79.5%	0.0%	$57,000
15.0	80.2%	0.0%	$57,000	80.2%	0.0%	$57,000
16.0	80.7%	0.0%	$57,000	80.7%	0.0%	$57,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,368	2.4%	0.0%	$1,368
0.0	8.1%	0.0%	$4,617	8.1%	0.0%	$4,617
1.0	13.3%	0.0%	$7,581	13.3%	0.0%	$7,581
2.0	17.9%	0.0%	$10,203	17.9%	0.0%	$10,203
3.0	22.0%	0.0%	$12,540	22.0%	0.0%	$12,540
4.0	25.7%	0.0%	$14,649	25.7%	0.0%	$14,649
5.0	28.8%	0.0%	$16,416	28.8%	0.0%	$16,416
6.0	31.5%	0.0%	$17,955	31.5%	0.0%	$17,955
7.0	33.8%	0.0%	$19,266	33.8%	0.0%	$19,266
8.0	35.7%	0.0%	$20,349	35.7%	0.0%	$20,349
9.0	37.2%	0.0%	$21,204	37.2%	0.0%	$21,204
10.0	38.4%	0.0%	$21,888	38.4%	0.0%	$21,888
11.0	39.2%	0.0%	$22,344	39.2%	0.0%	$22,344
12.0	39.7%	0.0%	$22,629	39.7%	0.0%	$22,629
13.0	40.0%	0.0%	$22,800	40.0%	0.0%	$22,800
14.0	40.0%	0.0%	$22,800	40.0%	0.0%	$22,800
15.0	40.0%	0.0%	$22,800	40.0%	0.0%	$22,800
16.0	40.0%	0.0%	$22,800	40.0%	0.0%	$22,800

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$25,650	45.0		$25,650
2.0	90.0		$57,000	90.0		$57,000
3.0	135.0		$57,000	135.0		$57,000
4.0	180.0		$57,000	180.0		$57,000
5.0	225.0		$57,000	225.0		$57,000
6.0	270.0		$57,000	270.0		$57,000
7.0	315.0		$57,000	315.0		$57,000
8.0	360.0		$57,000	360.0		$57,000
9.0	405.0		$57,000	405.0		$57,000
10.0	450.0		$57,000	450.0		$57,000
11.0	495.0		$57,000	495.0		$57,000
12.0	540.0		$57,000	540.0		$57,000
13.0	585.0		$57,000	585.0		$57,000
14.0	630.0		$57,000	630.0		$57,000
15.0	675.0		$57,000	675.0		$57,000
16.0	720.0		$57,000	720.0		$57,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$25,650	45.0		$25,650
2.0	90.0		$57,000	90.0		$57,000
3.0	135.0		$57,000	135.0		$57,000
4.0	180.0		$57,000	180.0		$57,000
5.0	225.0		$57,000	225.0		$57,000
6.0	270.0		$57,000	270.0		$57,000
7.0	315.0		$57,000	315.0		$57,000
8.0	360.0		$57,000	360.0		$57,000
9.0	405.0		$57,000	405.0		$57,000
10.0	450.0		$57,000	450.0		$57,000
11.0	495.0		$57,000	495.0		$57,000
12.0	540.0		$57,000	540.0		$57,000
13.0	585.0		$57,000	585.0		$57,000
14.0	630.0		$57,000	630.0		$57,000
15.0	675.0		$57,000	675.0		$57,000
16.0	720.0		$57,000	720.0		$57,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$5,801	Annual:	$0	Annual:	$5,801
Present Value:	$71,986	Present Value:	$0	Present Value:	$71,986

Mitigation Benefits: $71,986 Mitigation Costs: $1

Benefits Minus Costs: $71,985 Benefit-Cost Ratio: 71,986.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1609 Ragan St, 1609 Ragan St, memphis, Tennessee,

Benefits: $9,040 Costs: $1 BCR: 9,040.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,000	BRV ($/sf):	$30.00	Total BRV:	$30,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$30,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:
Number of Hours Volunteered/Person:
Cost of Volunteers Time ($/Hour/Person):
Number of Days Lodging/Volunteer:
Per-Person Cost of Lodging for a Volunteer:
Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Number of Person:
Treatment Costs per person: $2,443.00
Total Mental Stress and Anxiety Cost: $0.00

Lost Productivity

Number of Worker:
Productivity Loss per person: $8,736.00
Total Lost Productivity Cost: $0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 250.0
Flood Profile Number:
Flood Source Name:
Elevation At Which Barrier Will Be Overtopped: 0.00
FEMA Elevation Certificate Diagram Description:
Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.16	1.0
50	2.00%	260.50	2.0	250.50	2.0
100	1.00%	261.15	3.0	250.15	3.0
500	0.20%	261.50	4.0	251.50	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$750	2.5%	0.0%	$750
0.0	13.4%	0.0%	$4,020	13.4%	0.0%	$4,020
1.0	23.3%	0.0%	$6,990	23.3%	0.0%	$6,990
2.0	32.1%	0.0%	$9,630	32.1%	0.0%	$9,630
3.0	40.1%	0.0%	$12,030	40.1%	0.0%	$12,030
4.0	47.1%	0.0%	$14,130	47.1%	0.0%	$14,130
5.0	53.2%	0.0%	$30,000	53.2%	0.0%	$30,000
6.0	58.6%	0.0%	$30,000	58.6%	0.0%	$30,000
7.0	63.2%	0.0%	$30,000	63.2%	0.0%	$30,000
8.0	67.2%	0.0%	$30,000	67.2%	0.0%	$30,000
9.0	70.5%	0.0%	$30,000	70.5%	0.0%	$30,000
10.0	73.2%	0.0%	$30,000	73.2%	0.0%	$30,000
11.0	75.4%	0.0%	$30,000	75.4%	0.0%	$30,000
12.0	77.2%	0.0%	$30,000	77.2%	0.0%	$30,000
13.0	78.5%	0.0%	$30,000	78.5%	0.0%	$30,000
14.0	79.5%	0.0%	$30,000	79.5%	0.0%	$30,000
15.0	80.2%	0.0%	$30,000	80.2%	0.0%	$30,000
16.0	80.7%	0.0%	$30,000	80.7%	0.0%	$30,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$720	2.4%	0.0%	$720
0.0	8.1%	0.0%	$2,430	8.1%	0.0%	$2,430
1.0	13.3%	0.0%	$3,990	13.3%	0.0%	$3,990
2.0	17.9%	0.0%	$5,370	17.9%	0.0%	$5,370
3.0	22.0%	0.0%	$6,600	22.0%	0.0%	$6,600
4.0	25.7%	0.0%	$7,710	25.7%	0.0%	$7,710
5.0	28.8%	0.0%	$8,640	28.8%	0.0%	$8,640
6.0	31.5%	0.0%	$9,450	31.5%	0.0%	$9,450
7.0	33.8%	0.0%	$10,140	33.8%	0.0%	$10,140
8.0	35.7%	0.0%	$10,710	35.7%	0.0%	$10,710
9.0	37.2%	0.0%	$11,160	37.2%	0.0%	$11,160
10.0	38.4%	0.0%	$11,520	38.4%	0.0%	$11,520
11.0	39.2%	0.0%	$11,760	39.2%	0.0%	$11,760
12.0	39.7%	0.0%	$11,910	39.7%	0.0%	$11,910
13.0	40.0%	0.0%	$12,000	40.0%	0.0%	$12,000
14.0	40.0%	0.0%	$12,000	40.0%	0.0%	$12,000
15.0	40.0%	0.0%	$12,000	40.0%	0.0%	$12,000
16.0	40.0%	0.0%	$12,000	40.0%	0.0%	$12,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$13,500	45.0		$13,500
2.0	90.0		$30,000	90.0		$30,000
3.0	135.0		$30,000	135.0		$30,000
4.0	180.0		$30,000	180.0		$30,000
5.0	225.0		$30,000	225.0		$30,000
6.0	270.0		$30,000	270.0		$30,000
7.0	315.0		$30,000	315.0		$30,000
8.0	360.0		$30,000	360.0		$30,000
9.0	405.0		$30,000	405.0		$30,000
10.0	450.0		$30,000	450.0		$30,000
11.0	495.0		$30,000	495.0		$30,000
12.0	540.0		$30,000	540.0		$30,000
13.0	585.0		$30,000	585.0		$30,000
14.0	630.0		$30,000	630.0		$30,000
15.0	675.0		$30,000	675.0		$30,000
16.0	720.0		$30,000	720.0		$30,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$13,500	45.0		$13,500
2.0	90.0		$30,000	90.0		$30,000
3.0	135.0		$30,000	135.0		$30,000
4.0	180.0		$30,000	180.0		$30,000
5.0	225.0		$30,000	225.0		$30,000
6.0	270.0		$30,000	270.0		$30,000
7.0	315.0		$30,000	315.0		$30,000
8.0	360.0		$30,000	360.0		$30,000
9.0	405.0		$30,000	405.0		$30,000
10.0	450.0		$30,000	450.0		$30,000
11.0	495.0		$30,000	495.0		$30,000
12.0	540.0		$30,000	540.0		$30,000
13.0	585.0		$30,000	585.0		$30,000
14.0	630.0		$30,000	630.0		$30,000
15.0	675.0		$30,000	675.0		$30,000
16.0	720.0		$30,000	720.0		$30,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$729	Annual:	$0	Annual:	$729
Present Value:	$9,040	Present Value:	$0	Present Value:	$9,040

Mitigation Benefits: $9,040 Mitigation Costs: $1

Benefits Minus Costs: $9,039 Benefit-Cost Ratio: 9,040.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1615 Ragan St, 1615 Ragan St, memphis, Tennessee,

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,000	BRV ($/sf):	$60.00	Total BRV:	$60,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$60,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	250.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.58	1.0
50	2.00%	260.50	2.0	250.58	2.0
100	1.00%	261.15	3.0	250.58	3.0
500	0.20%	261.50	4.0	251.50	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,500	2.5%	0.0%	$1,500
0.0	13.4%	0.0%	$8,040	13.4%	0.0%	$8,040
1.0	23.3%	0.0%	$13,980	23.3%	0.0%	$13,980
2.0	32.1%	0.0%	$19,260	32.1%	0.0%	$19,260
3.0	40.1%	0.0%	$24,060	40.1%	0.0%	$24,060
4.0	47.1%	0.0%	$28,260	47.1%	0.0%	$28,260
5.0	53.2%	0.0%	$60,000	53.2%	0.0%	$60,000
6.0	58.6%	0.0%	$60,000	58.6%	0.0%	$60,000
7.0	63.2%	0.0%	$60,000	63.2%	0.0%	$60,000
8.0	67.2%	0.0%	$60,000	67.2%	0.0%	$60,000
9.0	70.5%	0.0%	$60,000	70.5%	0.0%	$60,000
10.0	73.2%	0.0%	$60,000	73.2%	0.0%	$60,000
11.0	75.4%	0.0%	$60,000	75.4%	0.0%	$60,000
12.0	77.2%	0.0%	$60,000	77.2%	0.0%	$60,000
13.0	78.5%	0.0%	$60,000	78.5%	0.0%	$60,000
14.0	79.5%	0.0%	$60,000	79.5%	0.0%	$60,000
15.0	80.2%	0.0%	$60,000	80.2%	0.0%	$60,000
16.0	80.7%	0.0%	$60,000	80.7%	0.0%	$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,440	2.4%	0.0%	$1,440
0.0	8.1%	0.0%	$4,860	8.1%	0.0%	$4,860
1.0	13.3%	0.0%	$7,980	13.3%	0.0%	$7,980
2.0	17.9%	0.0%	$10,740	17.9%	0.0%	$10,740
3.0	22.0%	0.0%	$13,200	22.0%	0.0%	$13,200
4.0	25.7%	0.0%	$15,420	25.7%	0.0%	$15,420
5.0	28.8%	0.0%	$17,280	28.8%	0.0%	$17,280
6.0	31.5%	0.0%	$18,900	31.5%	0.0%	$18,900
7.0	33.8%	0.0%	$20,280	33.8%	0.0%	$20,280
8.0	35.7%	0.0%	$21,420	35.7%	0.0%	$21,420
9.0	37.2%	0.0%	$22,320	37.2%	0.0%	$22,320
10.0	38.4%	0.0%	$23,040	38.4%	0.0%	$23,040
11.0	39.2%	0.0%	$23,520	39.2%	0.0%	$23,520
12.0	39.7%	0.0%	$23,820	39.7%	0.0%	$23,820
13.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
14.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
15.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
16.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,452	Annual:	$0	Annual:	$1,452
Present Value:	$18,019	Present Value:	$0	Present Value:	$18,019

Mitigation Benefits: $18,019 Mitigation Costs: $1

Benefits Minus Costs: $18,018 Benefit-Cost Ratio: 18,019.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1619 Ragan St, 1619 Ragan St, memphis, Tennessee,

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,000	BRV ($/sf):	$60.00	Total BRV:	$60,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$60,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	250.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.58	1.0
50	2.00%	260.50	2.0	250.58	2.0
100	1.00%	261.15	3.0	250.58	3.0
500	0.20%	261.50	4.0	251.50	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,500	2.5%	0.0%	$1,500
0.0	13.4%	0.0%	$8,040	13.4%	0.0%	$8,040
1.0	23.3%	0.0%	$13,980	23.3%	0.0%	$13,980
2.0	32.1%	0.0%	$19,260	32.1%	0.0%	$19,260
3.0	40.1%	0.0%	$24,060	40.1%	0.0%	$24,060
4.0	47.1%	0.0%	$28,260	47.1%	0.0%	$28,260
5.0	53.2%	0.0%	$60,000	53.2%	0.0%	$60,000
6.0	58.6%	0.0%	$60,000	58.6%	0.0%	$60,000
7.0	63.2%	0.0%	$60,000	63.2%	0.0%	$60,000
8.0	67.2%	0.0%	$60,000	67.2%	0.0%	$60,000
9.0	70.5%	0.0%	$60,000	70.5%	0.0%	$60,000
10.0	73.2%	0.0%	$60,000	73.2%	0.0%	$60,000
11.0	75.4%	0.0%	$60,000	75.4%	0.0%	$60,000
12.0	77.2%	0.0%	$60,000	77.2%	0.0%	$60,000
13.0	78.5%	0.0%	$60,000	78.5%	0.0%	$60,000
14.0	79.5%	0.0%	$60,000	79.5%	0.0%	$60,000
15.0	80.2%	0.0%	$60,000	80.2%	0.0%	$60,000
16.0	80.7%	0.0%	$60,000	80.7%	0.0%	$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,440	2.4%	0.0%	$1,440
0.0	8.1%	0.0%	$4,860	8.1%	0.0%	$4,860
1.0	13.3%	0.0%	$7,980	13.3%	0.0%	$7,980
2.0	17.9%	0.0%	$10,740	17.9%	0.0%	$10,740
3.0	22.0%	0.0%	$13,200	22.0%	0.0%	$13,200
4.0	25.7%	0.0%	$15,420	25.7%	0.0%	$15,420
5.0	28.8%	0.0%	$17,280	28.8%	0.0%	$17,280
6.0	31.5%	0.0%	$18,900	31.5%	0.0%	$18,900
7.0	33.8%	0.0%	$20,280	33.8%	0.0%	$20,280
8.0	35.7%	0.0%	$21,420	35.7%	0.0%	$21,420
9.0	37.2%	0.0%	$22,320	37.2%	0.0%	$22,320
10.0	38.4%	0.0%	$23,040	38.4%	0.0%	$23,040
11.0	39.2%	0.0%	$23,520	39.2%	0.0%	$23,520
12.0	39.7%	0.0%	$23,820	39.7%	0.0%	$23,820
13.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
14.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
15.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
16.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,452	Annual:	$0	Annual:	$1,452
Present Value:	$18,019	Present Value:	$0	Present Value:	$18,019

Mitigation Benefits: $18,019 Mitigation Costs: $1

Benefits Minus Costs: $18,018 Benefit-Cost Ratio: 18,019.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1623 Ragan St, 1623 Ragan St, memphis, Tennessee,

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,000	BRV ($/sf):	$60.00	Total BRV:	$60,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$60,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	250.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.58	1.0
50	2.00%	260.50	2.0	250.58	2.0
100	1.00%	261.15	3.0	250.58	3.0
500	0.20%	261.50	4.0	251.50	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,500	2.5%	0.0%	$1,500
0.0	13.4%	0.0%	$8,040	13.4%	0.0%	$8,040
1.0	23.3%	0.0%	$13,980	23.3%	0.0%	$13,980
2.0	32.1%	0.0%	$19,260	32.1%	0.0%	$19,260
3.0	40.1%	0.0%	$24,060	40.1%	0.0%	$24,060
4.0	47.1%	0.0%	$28,260	47.1%	0.0%	$28,260
5.0	53.2%	0.0%	$60,000	53.2%	0.0%	$60,000
6.0	58.6%	0.0%	$60,000	58.6%	0.0%	$60,000
7.0	63.2%	0.0%	$60,000	63.2%	0.0%	$60,000
8.0	67.2%	0.0%	$60,000	67.2%	0.0%	$60,000
9.0	70.5%	0.0%	$60,000	70.5%	0.0%	$60,000
10.0	73.2%	0.0%	$60,000	73.2%	0.0%	$60,000
11.0	75.4%	0.0%	$60,000	75.4%	0.0%	$60,000
12.0	77.2%	0.0%	$60,000	77.2%	0.0%	$60,000
13.0	78.5%	0.0%	$60,000	78.5%	0.0%	$60,000
14.0	79.5%	0.0%	$60,000	79.5%	0.0%	$60,000
15.0	80.2%	0.0%	$60,000	80.2%	0.0%	$60,000
16.0	80.7%	0.0%	$60,000	80.7%	0.0%	$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,440	2.4%	0.0%	$1,440
0.0	8.1%	0.0%	$4,860	8.1%	0.0%	$4,860
1.0	13.3%	0.0%	$7,980	13.3%	0.0%	$7,980
2.0	17.9%	0.0%	$10,740	17.9%	0.0%	$10,740
3.0	22.0%	0.0%	$13,200	22.0%	0.0%	$13,200
4.0	25.7%	0.0%	$15,420	25.7%	0.0%	$15,420
5.0	28.8%	0.0%	$17,280	28.8%	0.0%	$17,280
6.0	31.5%	0.0%	$18,900	31.5%	0.0%	$18,900
7.0	33.8%	0.0%	$20,280	33.8%	0.0%	$20,280
8.0	35.7%	0.0%	$21,420	35.7%	0.0%	$21,420
9.0	37.2%	0.0%	$22,320	37.2%	0.0%	$22,320
10.0	38.4%	0.0%	$23,040	38.4%	0.0%	$23,040
11.0	39.2%	0.0%	$23,520	39.2%	0.0%	$23,520
12.0	39.7%	0.0%	$23,820	39.7%	0.0%	$23,820
13.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
14.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
15.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
16.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,452	Annual:	$0	Annual:	$1,452
Present Value:	$18,019	Present Value:	$0	Present Value:	$18,019

Mitigation Benefits: $18,019 Mitigation Costs: $1

Benefits Minus Costs: $18,018 Benefit-Cost Ratio: 18,019.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1633 Ragan St, 1633 Ragan St, memphis, Tennessee,

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,000	BRV ($/sf):	$60.00	Total BRV:	$60,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$60,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	250.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.58	1.0
50	2.00%	260.50	2.0	250.58	2.0
100	1.00%	261.15	3.0	250.58	3.0
500	0.20%	261.50	4.0	251.50	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,500	2.5%	0.0%	$1,500
0.0	13.4%	0.0%	$8,040	13.4%	0.0%	$8,040
1.0	23.3%	0.0%	$13,980	23.3%	0.0%	$13,980
2.0	32.1%	0.0%	$19,260	32.1%	0.0%	$19,260
3.0	40.1%	0.0%	$24,060	40.1%	0.0%	$24,060
4.0	47.1%	0.0%	$28,260	47.1%	0.0%	$28,260
5.0	53.2%	0.0%	$60,000	53.2%	0.0%	$60,000
6.0	58.6%	0.0%	$60,000	58.6%	0.0%	$60,000
7.0	63.2%	0.0%	$60,000	63.2%	0.0%	$60,000
8.0	67.2%	0.0%	$60,000	67.2%	0.0%	$60,000
9.0	70.5%	0.0%	$60,000	70.5%	0.0%	$60,000
10.0	73.2%	0.0%	$60,000	73.2%	0.0%	$60,000
11.0	75.4%	0.0%	$60,000	75.4%	0.0%	$60,000
12.0	77.2%	0.0%	$60,000	77.2%	0.0%	$60,000
13.0	78.5%	0.0%	$60,000	78.5%	0.0%	$60,000
14.0	79.5%	0.0%	$60,000	79.5%	0.0%	$60,000
15.0	80.2%	0.0%	$60,000	80.2%	0.0%	$60,000
16.0	80.7%	0.0%	$60,000	80.7%	0.0%	$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,440	2.4%	0.0%	$1,440
0.0	8.1%	0.0%	$4,860	8.1%	0.0%	$4,860
1.0	13.3%	0.0%	$7,980	13.3%	0.0%	$7,980
2.0	17.9%	0.0%	$10,740	17.9%	0.0%	$10,740
3.0	22.0%	0.0%	$13,200	22.0%	0.0%	$13,200
4.0	25.7%	0.0%	$15,420	25.7%	0.0%	$15,420
5.0	28.8%	0.0%	$17,280	28.8%	0.0%	$17,280
6.0	31.5%	0.0%	$18,900	31.5%	0.0%	$18,900
7.0	33.8%	0.0%	$20,280	33.8%	0.0%	$20,280
8.0	35.7%	0.0%	$21,420	35.7%	0.0%	$21,420
9.0	37.2%	0.0%	$22,320	37.2%	0.0%	$22,320
10.0	38.4%	0.0%	$23,040	38.4%	0.0%	$23,040
11.0	39.2%	0.0%	$23,520	39.2%	0.0%	$23,520
12.0	39.7%	0.0%	$23,820	39.7%	0.0%	$23,820
13.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
14.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
15.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
16.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,452	Annual:	$0	Annual:	$1,452
Present Value:	$18,019	Present Value:	$0	Present Value:	$18,019

Mitigation Benefits: $18,019 Mitigation Costs: $1

Benefits Minus Costs: $18,018 Benefit-Cost Ratio: 18,019.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1639 Ragan St, 1639 Ragan St, memphis, Tennessee,

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,000	BRV ($/sf):	$60.00	Total BRV:	$60,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:	Unknown	Loss of Rent:	$0		
Building Contents:	$60,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:
Number of Hours Volunteered/Person:
Cost of Volunteers Time ($/Hour/Person):
Number of Days Lodging/Volunteer:
Per-Person Cost of Lodging for a Volunteer:
Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Number of Person:
Treatment Costs per person: $2,443.00
Total Mental Stress and Anxiety Cost: $0.00

Lost Productivity

Number of Worker:
Productivity Loss per person: $8,736.00
Total Lost Productivity Cost: $0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 250.0
Flood Profile Number:
Flood Source Name:
Elevation At Which Barrier Will Be Overtopped: 0.00
FEMA Elevation Certificate Diagram Description:
Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.58	1.0
50	2.00%	260.50	2.0	250.58	2.0
100	1.00%	261.15	3.0	250.58	3.0
500	0.20%	261.50	4.0	251.50	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,500	2.5%	0.0%	$1,500
0.0	13.4%	0.0%	$8,040	13.4%	0.0%	$8,040
1.0	23.3%	0.0%	$13,980	23.3%	0.0%	$13,980
2.0	32.1%	0.0%	$19,260	32.1%	0.0%	$19,260
3.0	40.1%	0.0%	$24,060	40.1%	0.0%	$24,060
4.0	47.1%	0.0%	$28,260	47.1%	0.0%	$28,260
5.0	53.2%	0.0%	$60,000	53.2%	0.0%	$60,000
6.0	58.6%	0.0%	$60,000	58.6%	0.0%	$60,000
7.0	63.2%	0.0%	$60,000	63.2%	0.0%	$60,000
8.0	67.2%	0.0%	$60,000	67.2%	0.0%	$60,000
9.0	70.5%	0.0%	$60,000	70.5%	0.0%	$60,000
10.0	73.2%	0.0%	$60,000	73.2%	0.0%	$60,000
11.0	75.4%	0.0%	$60,000	75.4%	0.0%	$60,000
12.0	77.2%	0.0%	$60,000	77.2%	0.0%	$60,000
13.0	78.5%	0.0%	$60,000	78.5%	0.0%	$60,000
14.0	79.5%	0.0%	$60,000	79.5%	0.0%	$60,000
15.0	80.2%	0.0%	$60,000	80.2%	0.0%	$60,000
16.0	80.7%	0.0%	$60,000	80.7%	0.0%	$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,440	2.4%	0.0%	$1,440
0.0	8.1%	0.0%	$4,860	8.1%	0.0%	$4,860
1.0	13.3%	0.0%	$7,980	13.3%	0.0%	$7,980
2.0	17.9%	0.0%	$10,740	17.9%	0.0%	$10,740
3.0	22.0%	0.0%	$13,200	22.0%	0.0%	$13,200
4.0	25.7%	0.0%	$15,420	25.7%	0.0%	$15,420
5.0	28.8%	0.0%	$17,280	28.8%	0.0%	$17,280
6.0	31.5%	0.0%	$18,900	31.5%	0.0%	$18,900
7.0	33.8%	0.0%	$20,280	33.8%	0.0%	$20,280
8.0	35.7%	0.0%	$21,420	35.7%	0.0%	$21,420
9.0	37.2%	0.0%	$22,320	37.2%	0.0%	$22,320
10.0	38.4%	0.0%	$23,040	38.4%	0.0%	$23,040
11.0	39.2%	0.0%	$23,520	39.2%	0.0%	$23,520
12.0	39.7%	0.0%	$23,820	39.7%	0.0%	$23,820
13.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
14.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
15.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
16.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,452	Annual:	$0	Annual:	$1,452
Present Value:	$18,019	Present Value:	$0	Present Value:	$18,019

Mitigation Benefits: $18,019 Mitigation Costs: $1

Benefits Minus Costs: $18,018 Benefit-Cost Ratio: 18,019.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1643 Ragan St, 1643 Ragan St, memphis, Tennessee,

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,000	BRV ($/sf):	$60.00	Total BRV:	$60,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$60,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:
Number of Hours Volunteered/Person:
Cost of Volunteers Time ($/Hour/Person):
Number of Days Lodging/Volunteer:
Per-Person Cost of Lodging for a Volunteer:
Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Number of Person:
Treatment Costs per person: $2,443.00
Total Mental Stress and Anxiety Cost: $0.00

Lost Productivity

Number of Worker:
Productivity Loss per person: $8,736.00
Total Lost Productivity Cost: $0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 250.0
Flood Profile Number:
Flood Source Name:
Elevation At Which Barrier Will Be Overtopped: 0.00
FEMA Elevation Certificate Diagram Description:
Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.58	1.0
50	2.00%	260.50	2.0	250.58	2.0
100	1.00%	261.15	3.0	250.58	3.0
500	0.20%	261.50	4.0	251.58	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,500	2.5%	0.0%	$1,500
0.0	13.4%	0.0%	$8,040	13.4%	0.0%	$8,040
1.0	23.3%	0.0%	$13,980	23.3%	0.0%	$13,980
2.0	32.1%	0.0%	$19,260	32.1%	0.0%	$19,260
3.0	40.1%	0.0%	$24,060	40.1%	0.0%	$24,060
4.0	47.1%	0.0%	$28,260	47.1%	0.0%	$28,260
5.0	53.2%	0.0%	$60,000	53.2%	0.0%	$60,000
6.0	58.6%	0.0%	$60,000	58.6%	0.0%	$60,000
7.0	63.2%	0.0%	$60,000	63.2%	0.0%	$60,000
8.0	67.2%	0.0%	$60,000	67.2%	0.0%	$60,000
9.0	70.5%	0.0%	$60,000	70.5%	0.0%	$60,000
10.0	73.2%	0.0%	$60,000	73.2%	0.0%	$60,000
11.0	75.4%	0.0%	$60,000	75.4%	0.0%	$60,000
12.0	77.2%	0.0%	$60,000	77.2%	0.0%	$60,000
13.0	78.5%	0.0%	$60,000	78.5%	0.0%	$60,000
14.0	79.5%	0.0%	$60,000	79.5%	0.0%	$60,000
15.0	80.2%	0.0%	$60,000	80.2%	0.0%	$60,000
16.0	80.7%	0.0%	$60,000	80.7%	0.0%	$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,440	2.4%	0.0%	$1,440
0.0	8.1%	0.0%	$4,860	8.1%	0.0%	$4,860
1.0	13.3%	0.0%	$7,980	13.3%	0.0%	$7,980
2.0	17.9%	0.0%	$10,740	17.9%	0.0%	$10,740
3.0	22.0%	0.0%	$13,200	22.0%	0.0%	$13,200
4.0	25.7%	0.0%	$15,420	25.7%	0.0%	$15,420
5.0	28.8%	0.0%	$17,280	28.8%	0.0%	$17,280
6.0	31.5%	0.0%	$18,900	31.5%	0.0%	$18,900
7.0	33.8%	0.0%	$20,280	33.8%	0.0%	$20,280
8.0	35.7%	0.0%	$21,420	35.7%	0.0%	$21,420
9.0	37.2%	0.0%	$22,320	37.2%	0.0%	$22,320
10.0	38.4%	0.0%	$23,040	38.4%	0.0%	$23,040
11.0	39.2%	0.0%	$23,520	39.2%	0.0%	$23,520
12.0	39.7%	0.0%	$23,820	39.7%	0.0%	$23,820
13.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
14.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
15.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
16.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,452	Annual:	$0	Annual:	$1,452
Present Value:	$18,019	Present Value:	$0	Present Value:	$18,019

Mitigation Benefits: $18,019 Mitigation Costs: $1

Benefits Minus Costs: $18,018 Benefit-Cost Ratio: 18,019.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Structure and Mitigation Details For: Master Halco Fence Company, 1588 Ragan St, memphis, Tennessee,

Benefits: $18,019 Costs: $1 BCR: 18,019.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$30.00	Total BRV:	$60,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	261.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$60,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	261.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	250.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	260.16	1.0	250.58	1.0
50	2.00%	260.50	2.0	250.58	2.0
100	1.00%	261.15	3.0	250.58	3.0
500	0.20%	261.50	4.0	251.50	4.0

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,500	2.5%	0.0%	$1,500
0.0	13.4%	0.0%	$8,040	13.4%	0.0%	$8,040
1.0	23.3%	0.0%	$13,980	23.3%	0.0%	$13,980
2.0	32.1%	0.0%	$19,260	32.1%	0.0%	$19,260
3.0	40.1%	0.0%	$24,060	40.1%	0.0%	$24,060
4.0	47.1%	0.0%	$28,260	47.1%	0.0%	$28,260
5.0	53.2%	0.0%	$60,000	53.2%	0.0%	$60,000
6.0	58.6%	0.0%	$60,000	58.6%	0.0%	$60,000
7.0	63.2%	0.0%	$60,000	63.2%	0.0%	$60,000
8.0	67.2%	0.0%	$60,000	67.2%	0.0%	$60,000
9.0	70.5%	0.0%	$60,000	70.5%	0.0%	$60,000
10.0	73.2%	0.0%	$60,000	73.2%	0.0%	$60,000
11.0	75.4%	0.0%	$60,000	75.4%	0.0%	$60,000
12.0	77.2%	0.0%	$60,000	77.2%	0.0%	$60,000
13.0	78.5%	0.0%	$60,000	78.5%	0.0%	$60,000
14.0	79.5%	0.0%	$60,000	79.5%	0.0%	$60,000
15.0	80.2%	0.0%	$60,000	80.2%	0.0%	$60,000
16.0	80.7%	0.0%	$60,000	80.7%	0.0%	$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,440	2.4%	0.0%	$1,440
0.0	8.1%	0.0%	$4,860	8.1%	0.0%	$4,860
1.0	13.3%	0.0%	$7,980	13.3%	0.0%	$7,980
2.0	17.9%	0.0%	$10,740	17.9%	0.0%	$10,740
3.0	22.0%	0.0%	$13,200	22.0%	0.0%	$13,200
4.0	25.7%	0.0%	$15,420	25.7%	0.0%	$15,420
5.0	28.8%	0.0%	$17,280	28.8%	0.0%	$17,280
6.0	31.5%	0.0%	$18,900	31.5%	0.0%	$18,900
7.0	33.8%	0.0%	$20,280	33.8%	0.0%	$20,280
8.0	35.7%	0.0%	$21,420	35.7%	0.0%	$21,420
9.0	37.2%	0.0%	$22,320	37.2%	0.0%	$22,320
10.0	38.4%	0.0%	$23,040	38.4%	0.0%	$23,040
11.0	39.2%	0.0%	$23,520	39.2%	0.0%	$23,520
12.0	39.7%	0.0%	$23,820	39.7%	0.0%	$23,820
13.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
14.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
15.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000
16.0	40.0%	0.0%	$24,000	40.0%	0.0%	$24,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic (Default)

Loss of Function	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$27,000	45.0		$27,000
2.0	90.0		$60,000	90.0		$60,000
3.0	135.0		$60,000	135.0		$60,000
4.0	180.0		$60,000	180.0		$60,000
5.0	225.0		$60,000	225.0		$60,000
6.0	270.0		$60,000	270.0		$60,000
7.0	315.0		$60,000	315.0		$60,000
8.0	360.0		$60,000	360.0		$60,000
9.0	405.0		$60,000	405.0		$60,000
10.0	450.0		$60,000	450.0		$60,000
11.0	495.0		$60,000	495.0		$60,000
12.0	540.0		$60,000	540.0		$60,000
13.0	585.0		$60,000	585.0		$60,000
14.0	630.0		$60,000	630.0		$60,000
15.0	675.0		$60,000	675.0		$60,000
16.0	720.0		$60,000	720.0		$60,000

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,452	Annual:	$0	Annual:	$1,452
Present Value:	$18,019	Present Value:	$0	Present Value:	$18,019

Mitigation Benefits: $18,019 Mitigation Costs: $1

Benefits Minus Costs: $18,018 Benefit-Cost Ratio: 18,019.00

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$279,864** Total Costs: **$65,584** BCR: **4.27**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

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Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Project Summary:

Project Number: 60330437 Disaster #:

Program: Agency: AECOM

Analyst: Kulvir Singh

Point of Contact: Kulvir Singh Phone Number: 4049469476

Address: Memphis, Tennessee

Email: kulvir.singh@aecom.com

Comments:

Structure Summary For:

1247 C Barksdale St, 1247 C Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $23,652 Costs: $1 BCR: 23,652.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	23,652.00	$23,652	$1

1253 S Barksdale St, 1253 S Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $14,805 Costs: $1 BCR: 14,805.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	14,805.00	$14,805	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1259 S Barksdale St, 1259 S Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $14,805 Costs: $1 BCR: 14,805.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	14,805.00	$14,805	$1

1279 S Barksdale St, 1279 S Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $7,891 Costs: $1 BCR: 7,891.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	7,891.00	$7,891	$1

1283 S Barksdale St, 1283 S Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $9,454 Costs: $1 BCR: 9,454.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	9,454.00	$9,454	$1

1286 S Barksdale St, 1286 S Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,924 Costs: $1 BCR: 10,924.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,924.00	$10,924	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1287 Lapaloma St, 1287 Lapaloma St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,885 Costs: $1 BCR: 11,885.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,885.00	$11,885	$1

1287 S Barksdale St, 1287 S Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

1288 s Barksdale St, 1288 s Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $9,367 Costs: $1 BCR: 9,367.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	9,367.00	$9,367	$1

1293 Lapaloma Cir, 1293 Lapaloma Cir, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,224 Costs: $1 BCR: 13,224.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,224.00	$13,224	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1298 S Barksdale St, 1298 S Barksdale St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $9,367 Costs: $1 BCR: 9,367.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	9,367.00	$9,367	$1

1810 Netherwood Ave, 1810 Netherwood Ave, Memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $19,970 Costs: $1 BCR: 19,970.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	19,970.00	$19,970	$1

1814 Netherwood Ave, 1814 Netherwood Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,065.00	$13,065	$1

1815 Waverly Ave, 1815 Waverly Ave, Memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $17,182 Costs: $37,620 BCR: 0.46

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	0.46	$17,182	$37,620

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1824 Foster Ave, 1824 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,065.00	$13,065	$1

1830 Foster Ave, 1830 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $14,993 Costs: $1 BCR: 14,993.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	14,993.00	$14,993	$1

1833 Netherwood Ave, 1833 Netherwood Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,065.00	$13,065	$1

1836 Foster Ave, 1836 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $15,016 Costs: $1 BCR: 15,016.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	15,016.00	$15,016	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1841 Netherwood Ave, 1841 Netherwood Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,065.00	$13,065	$1

1846 Foster Ave, 1846 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $14,993 Costs: $1 BCR: 14,993.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	14,993.00	$14,993	$1

1847 Foster Ave, 1847 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,045.00	$13,045	$1

1850 foster Ave, 1850 foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $20,002 Costs: $1 BCR: 20,002.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	20,002.00	$20,002	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1853 Foster Ave, 1853 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,045.00	$13,045	$1

1856 Foster Ave, 1856 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $15,016 Costs: $1 BCR: 15,016.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	15,016.00	$15,016	$1

1856 Kendale Ave, 1856 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

1857 Foster Ave, 1857 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,045.00	$13,045	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1862 Foster Ave, 1862 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $15,016 Costs: $1 BCR: 15,016.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	15,016.00	$15,016	$1

1862 Kendale Ave, 1862 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $9,367 Costs: $1 BCR: 9,367.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	9,367.00	$9,367	$1

1863 Foster Ave, 1863 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $15,870 Costs: $1 BCR: 15,870.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	15,870.00	$15,870	$1

1866 Kendale Ave, 1866 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1867 Foster Ave, 1867 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $15,209 Costs: $1 BCR: 15,209.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	15,209.00	$15,209	$1

1867 Kendale Ave, 1867 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,045.00	$13,045	$1

1872 foster Ave, 1872 foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,065.00	$13,065	$1

1872 Kendale Ave, 1872 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,684 Costs: $1 BCR: 10,684.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,684.00	$10,684	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1873 Foster Ave, 1873 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,045.00	$13,045	$1

1873 Kendale Ave, 1873 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

1877 Kendale Ave, 1877 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

1878 Kendale Ave, 1878 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1883 Foster Ave, 1883 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,065.00	$13,065	$1

1887 Kendale Ave, 1887 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,885 Costs: $1 BCR: 11,885.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,885.00	$11,885	$1

1889 Foster Ave, 1889 Foster Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	13,065.00	$13,065	$1

1907 Kendale Ave, 1907 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

1919 Kendale Ave, 1919 Kendale Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,922.00	$8,922	$1

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1247 C Barksdale St, 1247 C Barksdale St, memphis, Tennessee, , Shelby

Benefits: $23,652 Costs: $1 BCR: 23,652.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$80.00	Total BRV:	$160,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	273.80	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$160,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	273.80			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$4,000	2.5%	0.0%	$4,000
0.0	13.4%	0.0%	$21,440	13.4%	0.0%	$21,440
1.0	23.3%	0.0%	$37,280	23.3%	0.0%	$37,280
2.0	32.1%	0.0%	$51,360	32.1%	0.0%	$51,360
3.0	40.1%	0.0%	$64,160	40.1%	0.0%	$64,160
4.0	47.1%	0.0%	$75,360	47.1%	0.0%	$75,360
5.0	53.2%	0.0%	$160,000	53.2%	0.0%	$160,000
6.0	58.6%	0.0%	$160,000	58.6%	0.0%	$160,000
7.0	63.2%	0.0%	$160,000	63.2%	0.0%	$160,000
8.0	67.2%	0.0%	$160,000	67.2%	0.0%	$160,000
9.0	70.5%	0.0%	$160,000	70.5%	0.0%	$160,000
10.0	73.2%	0.0%	$160,000	73.2%	0.0%	$160,000
11.0	75.4%	0.0%	$160,000	75.4%	0.0%	$160,000
12.0	77.2%	0.0%	$160,000	77.2%	0.0%	$160,000
13.0	78.5%	0.0%	$160,000	78.5%	0.0%	$160,000
14.0	79.5%	0.0%	$160,000	79.5%	0.0%	$160,000
15.0	80.2%	0.0%	$160,000	80.2%	0.0%	$160,000
16.0	80.7%	0.0%	$160,000	80.7%	0.0%	$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,840	2.4%	0.0%	$3,840
0.0	8.1%	0.0%	$12,960	8.1%	0.0%	$12,960
1.0	13.3%	0.0%	$21,280	13.3%	0.0%	$21,280
2.0	17.9%	0.0%	$28,640	17.9%	0.0%	$28,640
3.0	22.0%	0.0%	$35,200	22.0%	0.0%	$35,200
4.0	25.7%	0.0%	$41,120	25.7%	0.0%	$41,120
5.0	28.8%	0.0%	$46,080	28.8%	0.0%	$46,080
6.0	31.5%	0.0%	$50,400	31.5%	0.0%	$50,400
7.0	33.8%	0.0%	$54,080	33.8%	0.0%	$54,080
8.0	35.7%	0.0%	$57,120	35.7%	0.0%	$57,120
9.0	37.2%	0.0%	$59,520	37.2%	0.0%	$59,520
10.0	38.4%	0.0%	$61,440	38.4%	0.0%	$61,440
11.0	39.2%	0.0%	$62,720	39.2%	0.0%	$62,720
12.0	39.7%	0.0%	$63,520	39.7%	0.0%	$63,520
13.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
14.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
15.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
16.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$2,339	Annual:	$433	Annual:	$1,906
Present Value:	$29,025	Present Value:	$5,373	Present Value:	$23,652

Mitigation Benefits: $23,652 Mitigation Costs: $1

Benefits Minus Costs: $23,651 Benefit-Cost Ratio: 23,652.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1253 S Barksdale St, 1253 S Barksdale St, memphis, Tennessee, , Shelby

Benefits: $14,805 Costs: $1 BCR: 14,805.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,494	Annual:	$301	Annual:	$1,193
Present Value:	$18,537	Present Value:	$3,732	Present Value:	$14,805

Mitigation Benefits: $14,805 Mitigation Costs: $1

Benefits Minus Costs: $14,804 Benefit-Cost Ratio: 14,805.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1259 S Barksdale St, 1259 S Barksdale St, memphis, Tennessee, , Shelby

Benefits: $14,805 Costs: $1 BCR: 14,805.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,494	Annual:	$301	Annual:	$1,193
Present Value:	$18,537	Present Value:	$3,732	Present Value:	$14,805

Mitigation Benefits: $14,805 Mitigation Costs: $1

Benefits Minus Costs: $14,804 Benefit-Cost Ratio: 14,805.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1279 S Barksdale St, 1279 S Barksdale St, memphis, Tennessee, , Shelby

Benefits: $7,891 Costs: $1 BCR: 7,891.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$50.00	Total BRV:	$100,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$100,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,500	2.5%	0.0%	$2,500
0.0	13.4%	0.0%	$13,400	13.4%	0.0%	$13,400
1.0	23.3%	0.0%	$23,300	23.3%	0.0%	$23,300
2.0	32.1%	0.0%	$32,100	32.1%	0.0%	$32,100
3.0	40.1%	0.0%	$40,100	40.1%	0.0%	$40,100
4.0	47.1%	0.0%	$47,100	47.1%	0.0%	$47,100
5.0	53.2%	0.0%	$100,000	53.2%	0.0%	$100,000
6.0	58.6%	0.0%	$100,000	58.6%	0.0%	$100,000
7.0	63.2%	0.0%	$100,000	63.2%	0.0%	$100,000
8.0	67.2%	0.0%	$100,000	67.2%	0.0%	$100,000
9.0	70.5%	0.0%	$100,000	70.5%	0.0%	$100,000
10.0	73.2%	0.0%	$100,000	73.2%	0.0%	$100,000
11.0	75.4%	0.0%	$100,000	75.4%	0.0%	$100,000
12.0	77.2%	0.0%	$100,000	77.2%	0.0%	$100,000
13.0	78.5%	0.0%	$100,000	78.5%	0.0%	$100,000
14.0	79.5%	0.0%	$100,000	79.5%	0.0%	$100,000
15.0	80.2%	0.0%	$100,000	80.2%	0.0%	$100,000
16.0	80.7%	0.0%	$100,000	80.7%	0.0%	$100,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,400	2.4%	0.0%	$2,400
0.0	8.1%	0.0%	$8,100	8.1%	0.0%	$8,100
1.0	13.3%	0.0%	$13,300	13.3%	0.0%	$13,300
2.0	17.9%	0.0%	$17,900	17.9%	0.0%	$17,900
3.0	22.0%	0.0%	$22,000	22.0%	0.0%	$22,000
4.0	25.7%	0.0%	$25,700	25.7%	0.0%	$25,700
5.0	28.8%	0.0%	$28,800	28.8%	0.0%	$28,800
6.0	31.5%	0.0%	$31,500	31.5%	0.0%	$31,500
7.0	33.8%	0.0%	$33,800	33.8%	0.0%	$33,800
8.0	35.7%	0.0%	$35,700	35.7%	0.0%	$35,700
9.0	37.2%	0.0%	$37,200	37.2%	0.0%	$37,200
10.0	38.4%	0.0%	$38,400	38.4%	0.0%	$38,400
11.0	39.2%	0.0%	$39,200	39.2%	0.0%	$39,200
12.0	39.7%	0.0%	$39,700	39.7%	0.0%	$39,700
13.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
14.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
15.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000
16.0	40.0%	0.0%	$40,000	40.0%	0.0%	$40,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$45,000	45.0		$45,000
2.0	90.0		$100,000	90.0		$100,000
3.0	135.0		$100,000	135.0		$100,000
4.0	180.0		$100,000	180.0		$100,000
5.0	225.0		$100,000	225.0		$100,000
6.0	270.0		$100,000	270.0		$100,000
7.0	315.0		$100,000	315.0		$100,000
8.0	360.0		$100,000	360.0		$100,000
9.0	405.0		$100,000	405.0		$100,000
10.0	450.0		$100,000	450.0		$100,000
11.0	495.0		$100,000	495.0		$100,000
12.0	540.0		$100,000	540.0		$100,000
13.0	585.0		$100,000	585.0		$100,000
14.0	630.0		$100,000	630.0		$100,000
15.0	675.0		$100,000	675.0		$100,000
16.0	720.0		$100,000	720.0		$100,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$842	Annual:	$206	Annual:	$636
Present Value:	$10,446	Present Value:	$2,555	Present Value:	$7,891

Mitigation Benefits: $7,891 Mitigation Costs: $1

Benefits Minus Costs: $7,890 Benefit-Cost Ratio: 7,891.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1283 S Barksdale St, 1283 S Barksdale St, memphis, Tennessee, , Shelby

Benefits: $9,454 Costs: $1 BCR: 9,454.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$116 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	1
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,008	Annual:	$246	Annual:	$762
Present Value:	$12,509	Present Value:	$3,055	Present Value:	$9,454

Mitigation Benefits: $9,454 Mitigation Costs: $1

Benefits Minus Costs: $9,453 Benefit-Cost Ratio: 9,454.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1286 S Barksdale St, 1286 S Barksdale St, memphis, Tennessee, , Shelby

Benefits: $10,924 Costs: $1 BCR: 10,924.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$50.00	Total BRV:	$105,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$105,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.5	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,625	2.5%	0.0%	$2,625
0.0	13.4%	0.0%	$14,070	13.4%	0.0%	$14,070
1.0	23.3%	0.0%	$24,465	23.3%	0.0%	$24,465
2.0	32.1%	0.0%	$33,705	32.1%	0.0%	$33,705
3.0	40.1%	0.0%	$42,105	40.1%	0.0%	$42,105
4.0	47.1%	0.0%	$49,455	47.1%	0.0%	$49,455
5.0	53.2%	0.0%	$105,000	53.2%	0.0%	$105,000
6.0	58.6%	0.0%	$105,000	58.6%	0.0%	$105,000
7.0	63.2%	0.0%	$105,000	63.2%	0.0%	$105,000
8.0	67.2%	0.0%	$105,000	67.2%	0.0%	$105,000
9.0	70.5%	0.0%	$105,000	70.5%	0.0%	$105,000
10.0	73.2%	0.0%	$105,000	73.2%	0.0%	$105,000
11.0	75.4%	0.0%	$105,000	75.4%	0.0%	$105,000
12.0	77.2%	0.0%	$105,000	77.2%	0.0%	$105,000
13.0	78.5%	0.0%	$105,000	78.5%	0.0%	$105,000
14.0	79.5%	0.0%	$105,000	79.5%	0.0%	$105,000
15.0	80.2%	0.0%	$105,000	80.2%	0.0%	$105,000
16.0	80.7%	0.0%	$105,000	80.7%	0.0%	$105,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,520	2.4%	0.0%	$2,520
0.0	8.1%	0.0%	$8,505	8.1%	0.0%	$8,505
1.0	13.3%	0.0%	$13,965	13.3%	0.0%	$13,965
2.0	17.9%	0.0%	$18,795	17.9%	0.0%	$18,795
3.0	22.0%	0.0%	$23,100	22.0%	0.0%	$23,100
4.0	25.7%	0.0%	$26,985	25.7%	0.0%	$26,985
5.0	28.8%	0.0%	$30,240	28.8%	0.0%	$30,240
6.0	31.5%	0.0%	$33,075	31.5%	0.0%	$33,075
7.0	33.8%	0.0%	$35,490	33.8%	0.0%	$35,490
8.0	35.7%	0.0%	$37,485	35.7%	0.0%	$37,485
9.0	37.2%	0.0%	$39,060	37.2%	0.0%	$39,060
10.0	38.4%	0.0%	$40,320	38.4%	0.0%	$40,320
11.0	39.2%	0.0%	$41,160	39.2%	0.0%	$41,160
12.0	39.7%	0.0%	$41,685	39.7%	0.0%	$41,685
13.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
14.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
15.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
16.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$47,250	45.0		$47,250
2.0	90.0		$105,000	90.0		$105,000
3.0	135.0		$105,000	135.0		$105,000
4.0	180.0		$105,000	180.0		$105,000
5.0	225.0		$105,000	225.0		$105,000
6.0	270.0		$105,000	270.0		$105,000
7.0	315.0		$105,000	315.0		$105,000
8.0	360.0		$105,000	360.0		$105,000
9.0	405.0		$105,000	405.0		$105,000
10.0	450.0		$105,000	450.0		$105,000
11.0	495.0		$105,000	495.0		$105,000
12.0	540.0		$105,000	540.0		$105,000
13.0	585.0		$105,000	585.0		$105,000
14.0	630.0		$105,000	630.0		$105,000
15.0	675.0		$105,000	675.0		$105,000
16.0	720.0		$105,000	720.0		$105,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$47,250	45.0		$47,250
2.0	90.0		$105,000	90.0		$105,000
3.0	135.0		$105,000	135.0		$105,000
4.0	180.0		$105,000	180.0		$105,000
5.0	225.0		$105,000	225.0		$105,000
6.0	270.0		$105,000	270.0		$105,000
7.0	315.0		$105,000	315.0		$105,000
8.0	360.0		$105,000	360.0		$105,000
9.0	405.0		$105,000	405.0		$105,000
10.0	450.0		$105,000	450.0		$105,000
11.0	495.0		$105,000	495.0		$105,000
12.0	540.0		$105,000	540.0		$105,000
13.0	585.0		$105,000	585.0		$105,000
14.0	630.0		$105,000	630.0		$105,000
15.0	675.0		$105,000	675.0		$105,000
16.0	720.0		$105,000	720.0		$105,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$880	Annual:	$0	Annual:	$880
Present Value:	$10,924	Present Value:	$0	Present Value:	$10,924

Mitigation Benefits: $10,924 Mitigation Costs: $1

Benefits Minus Costs: $10,923 Benefit-Cost Ratio: 10,924.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1287 Lapaloma St, 1287 Lapaloma St, memphis, Tennessee, , Shelby

Benefits: $11,885 Costs: $1 BCR: 11,885.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$80.00	Total BRV:	$160,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$160,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$4,000	2.5%	0.0%	$4,000
0.0	13.4%	0.0%	$21,440	13.4%	0.0%	$21,440
1.0	23.3%	0.0%	$37,280	23.3%	0.0%	$37,280
2.0	32.1%	0.0%	$51,360	32.1%	0.0%	$51,360
3.0	40.1%	0.0%	$64,160	40.1%	0.0%	$64,160
4.0	47.1%	0.0%	$75,360	47.1%	0.0%	$75,360
5.0	53.2%	0.0%	$160,000	53.2%	0.0%	$160,000
6.0	58.6%	0.0%	$160,000	58.6%	0.0%	$160,000
7.0	63.2%	0.0%	$160,000	63.2%	0.0%	$160,000
8.0	67.2%	0.0%	$160,000	67.2%	0.0%	$160,000
9.0	70.5%	0.0%	$160,000	70.5%	0.0%	$160,000
10.0	73.2%	0.0%	$160,000	73.2%	0.0%	$160,000
11.0	75.4%	0.0%	$160,000	75.4%	0.0%	$160,000
12.0	77.2%	0.0%	$160,000	77.2%	0.0%	$160,000
13.0	78.5%	0.0%	$160,000	78.5%	0.0%	$160,000
14.0	79.5%	0.0%	$160,000	79.5%	0.0%	$160,000
15.0	80.2%	0.0%	$160,000	80.2%	0.0%	$160,000
16.0	80.7%	0.0%	$160,000	80.7%	0.0%	$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,840	2.4%	0.0%	$3,840
0.0	8.1%	0.0%	$12,960	8.1%	0.0%	$12,960
1.0	13.3%	0.0%	$21,280	13.3%	0.0%	$21,280
2.0	17.9%	0.0%	$28,640	17.9%	0.0%	$28,640
3.0	22.0%	0.0%	$35,200	22.0%	0.0%	$35,200
4.0	25.7%	0.0%	$41,120	25.7%	0.0%	$41,120
5.0	28.8%	0.0%	$46,080	28.8%	0.0%	$46,080
6.0	31.5%	0.0%	$50,400	31.5%	0.0%	$50,400
7.0	33.8%	0.0%	$54,080	33.8%	0.0%	$54,080
8.0	35.7%	0.0%	$57,120	35.7%	0.0%	$57,120
9.0	37.2%	0.0%	$59,520	37.2%	0.0%	$59,520
10.0	38.4%	0.0%	$61,440	38.4%	0.0%	$61,440
11.0	39.2%	0.0%	$62,720	39.2%	0.0%	$62,720
12.0	39.7%	0.0%	$63,520	39.7%	0.0%	$63,520
13.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
14.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
15.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
16.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,275	Annual:	$318	Annual:	$957
Present Value:	$15,825	Present Value:	$3,940	Present Value:	$11,885

Mitigation Benefits: $11,885 Mitigation Costs: $1

Benefits Minus Costs: $11,884 Benefit-Cost Ratio: 11,885.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1287 S Barksdale St, 1287 S Barksdale St, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1288 s Barksdale St, 1288 s Barksdale St, memphis, Tennessee, , Shelby

Benefits: $9,367 Costs: $1 BCR: 9,367.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$60.00	Total BRV:	$126,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$126,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,150	2.5%	0.0%	$3,150
0.0	13.4%	0.0%	$16,884	13.4%	0.0%	$16,884
1.0	23.3%	0.0%	$29,358	23.3%	0.0%	$29,358
2.0	32.1%	0.0%	$40,446	32.1%	0.0%	$40,446
3.0	40.1%	0.0%	$50,526	40.1%	0.0%	$50,526
4.0	47.1%	0.0%	$59,346	47.1%	0.0%	$59,346
5.0	53.2%	0.0%	$126,000	53.2%	0.0%	$126,000
6.0	58.6%	0.0%	$126,000	58.6%	0.0%	$126,000
7.0	63.2%	0.0%	$126,000	63.2%	0.0%	$126,000
8.0	67.2%	0.0%	$126,000	67.2%	0.0%	$126,000
9.0	70.5%	0.0%	$126,000	70.5%	0.0%	$126,000
10.0	73.2%	0.0%	$126,000	73.2%	0.0%	$126,000
11.0	75.4%	0.0%	$126,000	75.4%	0.0%	$126,000
12.0	77.2%	0.0%	$126,000	77.2%	0.0%	$126,000
13.0	78.5%	0.0%	$126,000	78.5%	0.0%	$126,000
14.0	79.5%	0.0%	$126,000	79.5%	0.0%	$126,000
15.0	80.2%	0.0%	$126,000	80.2%	0.0%	$126,000
16.0	80.7%	0.0%	$126,000	80.7%	0.0%	$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,024	2.4%	0.0%	$3,024
0.0	8.1%	0.0%	$10,206	8.1%	0.0%	$10,206
1.0	13.3%	0.0%	$16,758	13.3%	0.0%	$16,758
2.0	17.9%	0.0%	$22,554	17.9%	0.0%	$22,554
3.0	22.0%	0.0%	$27,720	22.0%	0.0%	$27,720
4.0	25.7%	0.0%	$32,382	25.7%	0.0%	$32,382
5.0	28.8%	0.0%	$36,288	28.8%	0.0%	$36,288
6.0	31.5%	0.0%	$39,690	31.5%	0.0%	$39,690
7.0	33.8%	0.0%	$42,588	33.8%	0.0%	$42,588
8.0	35.7%	0.0%	$44,982	35.7%	0.0%	$44,982
9.0	37.2%	0.0%	$46,872	37.2%	0.0%	$46,872
10.0	38.4%	0.0%	$48,384	38.4%	0.0%	$48,384
11.0	39.2%	0.0%	$49,392	39.2%	0.0%	$49,392
12.0	39.7%	0.0%	$50,022	39.7%	0.0%	$50,022
13.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
14.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
15.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
16.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,005	Annual:	$250	Annual:	$755
Present Value:	$12,475	Present Value:	$3,108	Present Value:	$9,367

Mitigation Benefits: $9,367 Mitigation Costs: $1

Benefits Minus Costs: $9,366 Benefit-Cost Ratio: 9,367.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1293 Lapaloma Cir, 1293 Lapaloma Cir, memphis, Tennessee, , Shelby

Benefits: $13,224 Costs: $1 BCR: 13,224.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$80.00	Total BRV:	$168,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$168,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$116 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	1
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$4,200	2.5%	0.0%	$4,200
0.0	13.4%	0.0%	$22,512	13.4%	0.0%	$22,512
1.0	23.3%	0.0%	$39,144	23.3%	0.0%	$39,144
2.0	32.1%	0.0%	$53,928	32.1%	0.0%	$53,928
3.0	40.1%	0.0%	$67,368	40.1%	0.0%	$67,368
4.0	47.1%	0.0%	$79,128	47.1%	0.0%	$79,128
5.0	53.2%	0.0%	$168,000	53.2%	0.0%	$168,000
6.0	58.6%	0.0%	$168,000	58.6%	0.0%	$168,000
7.0	63.2%	0.0%	$168,000	63.2%	0.0%	$168,000
8.0	67.2%	0.0%	$168,000	67.2%	0.0%	$168,000
9.0	70.5%	0.0%	$168,000	70.5%	0.0%	$168,000
10.0	73.2%	0.0%	$168,000	73.2%	0.0%	$168,000
11.0	75.4%	0.0%	$168,000	75.4%	0.0%	$168,000
12.0	77.2%	0.0%	$168,000	77.2%	0.0%	$168,000
13.0	78.5%	0.0%	$168,000	78.5%	0.0%	$168,000
14.0	79.5%	0.0%	$168,000	79.5%	0.0%	$168,000
15.0	80.2%	0.0%	$168,000	80.2%	0.0%	$168,000
16.0	80.7%	0.0%	$168,000	80.7%	0.0%	$168,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$4,032	2.4%	0.0%	$4,032
0.0	8.1%	0.0%	$13,608	8.1%	0.0%	$13,608
1.0	13.3%	0.0%	$22,344	13.3%	0.0%	$22,344
2.0	17.9%	0.0%	$30,072	17.9%	0.0%	$30,072
3.0	22.0%	0.0%	$36,960	22.0%	0.0%	$36,960
4.0	25.7%	0.0%	$43,176	25.7%	0.0%	$43,176
5.0	28.8%	0.0%	$48,384	28.8%	0.0%	$48,384
6.0	31.5%	0.0%	$52,920	31.5%	0.0%	$52,920
7.0	33.8%	0.0%	$56,784	33.8%	0.0%	$56,784
8.0	35.7%	0.0%	$59,976	35.7%	0.0%	$59,976
9.0	37.2%	0.0%	$62,496	37.2%	0.0%	$62,496
10.0	38.4%	0.0%	$64,512	38.4%	0.0%	$64,512
11.0	39.2%	0.0%	$65,856	39.2%	0.0%	$65,856
12.0	39.7%	0.0%	$66,696	39.7%	0.0%	$66,696
13.0	40.0%	0.0%	$67,200	40.0%	0.0%	$67,200
14.0	40.0%	0.0%	$67,200	40.0%	0.0%	$67,200
15.0	40.0%	0.0%	$67,200	40.0%	0.0%	$67,200
16.0	40.0%	0.0%	$67,200	40.0%	0.0%	$67,200

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$75,600	45.0		$75,600
2.0	90.0		$168,000	90.0		$168,000
3.0	135.0		$168,000	135.0		$168,000
4.0	180.0		$168,000	180.0		$168,000
5.0	225.0		$168,000	225.0		$168,000
6.0	270.0		$168,000	270.0		$168,000
7.0	315.0		$168,000	315.0		$168,000
8.0	360.0		$168,000	360.0		$168,000
9.0	405.0		$168,000	405.0		$168,000
10.0	450.0		$168,000	450.0		$168,000
11.0	495.0		$168,000	495.0		$168,000
12.0	540.0		$168,000	540.0		$168,000
13.0	585.0		$168,000	585.0		$168,000
14.0	630.0		$168,000	630.0		$168,000
15.0	675.0		$168,000	675.0		$168,000
16.0	720.0		$168,000	720.0		$168,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$75,600	45.0		$75,600
2.0	90.0		$168,000	90.0		$168,000
3.0	135.0		$168,000	135.0		$168,000
4.0	180.0		$168,000	180.0		$168,000
5.0	225.0		$168,000	225.0		$168,000
6.0	270.0		$168,000	270.0		$168,000
7.0	315.0		$168,000	315.0		$168,000
8.0	360.0		$168,000	360.0		$168,000
9.0	405.0		$168,000	405.0		$168,000
10.0	450.0		$168,000	450.0		$168,000
11.0	495.0		$168,000	495.0		$168,000
12.0	540.0		$168,000	540.0		$168,000
13.0	585.0		$168,000	585.0		$168,000
14.0	630.0		$168,000	630.0		$168,000
15.0	675.0		$168,000	675.0		$168,000
16.0	720.0		$168,000	720.0		$168,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,410	Annual:	$344	Annual:	$1,066
Present Value:	$17,494	Present Value:	$4,270	Present Value:	$13,224

Mitigation Benefits: $13,224 Mitigation Costs: $1

Benefits Minus Costs: $13,223 Benefit-Cost Ratio: 13,224.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1298 S Barksdale St, 1298 S Barksdale St, memphis, Tennessee, , Shelby

Benefits: $9,367 Costs: $1 BCR: 9,367.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$60.00	Total BRV:	$126,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$126,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,150	2.5%	0.0%	$3,150
0.0	13.4%	0.0%	$16,884	13.4%	0.0%	$16,884
1.0	23.3%	0.0%	$29,358	23.3%	0.0%	$29,358
2.0	32.1%	0.0%	$40,446	32.1%	0.0%	$40,446
3.0	40.1%	0.0%	$50,526	40.1%	0.0%	$50,526
4.0	47.1%	0.0%	$59,346	47.1%	0.0%	$59,346
5.0	53.2%	0.0%	$126,000	53.2%	0.0%	$126,000
6.0	58.6%	0.0%	$126,000	58.6%	0.0%	$126,000
7.0	63.2%	0.0%	$126,000	63.2%	0.0%	$126,000
8.0	67.2%	0.0%	$126,000	67.2%	0.0%	$126,000
9.0	70.5%	0.0%	$126,000	70.5%	0.0%	$126,000
10.0	73.2%	0.0%	$126,000	73.2%	0.0%	$126,000
11.0	75.4%	0.0%	$126,000	75.4%	0.0%	$126,000
12.0	77.2%	0.0%	$126,000	77.2%	0.0%	$126,000
13.0	78.5%	0.0%	$126,000	78.5%	0.0%	$126,000
14.0	79.5%	0.0%	$126,000	79.5%	0.0%	$126,000
15.0	80.2%	0.0%	$126,000	80.2%	0.0%	$126,000
16.0	80.7%	0.0%	$126,000	80.7%	0.0%	$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,024	2.4%	0.0%	$3,024
0.0	8.1%	0.0%	$10,206	8.1%	0.0%	$10,206
1.0	13.3%	0.0%	$16,758	13.3%	0.0%	$16,758
2.0	17.9%	0.0%	$22,554	17.9%	0.0%	$22,554
3.0	22.0%	0.0%	$27,720	22.0%	0.0%	$27,720
4.0	25.7%	0.0%	$32,382	25.7%	0.0%	$32,382
5.0	28.8%	0.0%	$36,288	28.8%	0.0%	$36,288
6.0	31.5%	0.0%	$39,690	31.5%	0.0%	$39,690
7.0	33.8%	0.0%	$42,588	33.8%	0.0%	$42,588
8.0	35.7%	0.0%	$44,982	35.7%	0.0%	$44,982
9.0	37.2%	0.0%	$46,872	37.2%	0.0%	$46,872
10.0	38.4%	0.0%	$48,384	38.4%	0.0%	$48,384
11.0	39.2%	0.0%	$49,392	39.2%	0.0%	$49,392
12.0	39.7%	0.0%	$50,022	39.7%	0.0%	$50,022
13.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
14.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
15.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
16.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,005	Annual:	$250	Annual:	$755
Present Value:	$12,475	Present Value:	$3,108	Present Value:	$9,367

Mitigation Benefits: $9,367 Mitigation Costs: $1

Benefits Minus Costs: $9,366 Benefit-Cost Ratio: 9,367.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1810 Netherwood Ave, 1810 Netherwood Ave, Memphis, Tennessee, , Shelby

Benefits: $19,970 Costs: $1 BCR: 19,970.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$80.00	Total BRV:	$184,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$184,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.02	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$4,600	2.5%	0.0%	$4,600
0.0	13.4%	0.0%	$24,656	13.4%	0.0%	$24,656
1.0	23.3%	0.0%	$42,872	23.3%	0.0%	$42,872
2.0	32.1%	0.0%	$59,064	32.1%	0.0%	$59,064
3.0	40.1%	0.0%	$73,784	40.1%	0.0%	$73,784
4.0	47.1%	0.0%	$86,664	47.1%	0.0%	$86,664
5.0	53.2%	0.0%	$184,000	53.2%	0.0%	$184,000
6.0	58.6%	0.0%	$184,000	58.6%	0.0%	$184,000
7.0	63.2%	0.0%	$184,000	63.2%	0.0%	$184,000
8.0	67.2%	0.0%	$184,000	67.2%	0.0%	$184,000
9.0	70.5%	0.0%	$184,000	70.5%	0.0%	$184,000
10.0	73.2%	0.0%	$184,000	73.2%	0.0%	$184,000
11.0	75.4%	0.0%	$184,000	75.4%	0.0%	$184,000
12.0	77.2%	0.0%	$184,000	77.2%	0.0%	$184,000
13.0	78.5%	0.0%	$184,000	78.5%	0.0%	$184,000
14.0	79.5%	0.0%	$184,000	79.5%	0.0%	$184,000
15.0	80.2%	0.0%	$184,000	80.2%	0.0%	$184,000
16.0	80.7%	0.0%	$184,000	80.7%	0.0%	$184,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$4,416	2.4%	0.0%	$4,416
0.0	8.1%	0.0%	$14,904	8.1%	0.0%	$14,904
1.0	13.3%	0.0%	$24,472	13.3%	0.0%	$24,472
2.0	17.9%	0.0%	$32,936	17.9%	0.0%	$32,936
3.0	22.0%	0.0%	$40,480	22.0%	0.0%	$40,480
4.0	25.7%	0.0%	$47,288	25.7%	0.0%	$47,288
5.0	28.8%	0.0%	$52,992	28.8%	0.0%	$52,992
6.0	31.5%	0.0%	$57,960	31.5%	0.0%	$57,960
7.0	33.8%	0.0%	$62,192	33.8%	0.0%	$62,192
8.0	35.7%	0.0%	$65,688	35.7%	0.0%	$65,688
9.0	37.2%	0.0%	$68,448	37.2%	0.0%	$68,448
10.0	38.4%	0.0%	$70,656	38.4%	0.0%	$70,656
11.0	39.2%	0.0%	$72,128	39.2%	0.0%	$72,128
12.0	39.7%	0.0%	$73,048	39.7%	0.0%	$73,048
13.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600
14.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600
15.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600
16.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$82,800	45.0		$82,800
2.0	90.0		$184,000	90.0		$184,000
3.0	135.0		$184,000	135.0		$184,000
4.0	180.0		$184,000	180.0		$184,000
5.0	225.0		$184,000	225.0		$184,000
6.0	270.0		$184,000	270.0		$184,000
7.0	315.0		$184,000	315.0		$184,000
8.0	360.0		$184,000	360.0		$184,000
9.0	405.0		$184,000	405.0		$184,000
10.0	450.0		$184,000	450.0		$184,000
11.0	495.0		$184,000	495.0		$184,000
12.0	540.0		$184,000	540.0		$184,000
13.0	585.0		$184,000	585.0		$184,000
14.0	630.0		$184,000	630.0		$184,000
15.0	675.0		$184,000	675.0		$184,000
16.0	720.0		$184,000	720.0		$184,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$82,800	45.0		$82,800
2.0	90.0		$184,000	90.0		$184,000
3.0	135.0		$184,000	135.0		$184,000
4.0	180.0		$184,000	180.0		$184,000
5.0	225.0		$184,000	225.0		$184,000
6.0	270.0		$184,000	270.0		$184,000
7.0	315.0		$184,000	315.0		$184,000
8.0	360.0		$184,000	360.0		$184,000
9.0	405.0		$184,000	405.0		$184,000
10.0	450.0		$184,000	450.0		$184,000
11.0	495.0		$184,000	495.0		$184,000
12.0	540.0		$184,000	540.0		$184,000
13.0	585.0		$184,000	585.0		$184,000
14.0	630.0		$184,000	630.0		$184,000
15.0	675.0		$184,000	675.0		$184,000
16.0	720.0		$184,000	720.0		$184,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,609	Annual:	$0	Annual:	$1,609
Present Value:	$19,971	Present Value:	$1	Present Value:	$19,970

Mitigation Benefits: $19,970 Mitigation Costs: $1

Benefits Minus Costs: $19,969 Benefit-Cost Ratio: 19,970.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1814 Netherwood Ave, 1814 Netherwood Ave, memphis, Tennessee, , Shelby

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,053	Annual:	$0	Annual:	$1,053
Present Value:	$13,066	Present Value:	$1	Present Value:	$13,065

Mitigation Benefits: $13,065 Mitigation Costs: $1

Benefits Minus Costs: $13,064 Benefit-Cost Ratio: 13,065.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1815 Waverly Ave, 1815 Waverly Ave, Memphis, Tennessee, , Shelby

Benefits: $17,182 Costs: $37,620 BCR: .46

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$80.00	Total BRV:	$160,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.32	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$160,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.32			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.06	2.0
100	1.00%	277.38	3.0	271.02	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$4,000	2.5%	0.0%	$4,000
0.0	13.4%	0.0%	$21,440	13.4%	0.0%	$21,440
1.0	23.3%	0.0%	$37,280	23.3%	0.0%	$37,280
2.0	32.1%	0.0%	$51,360	32.1%	0.0%	$51,360
3.0	40.1%	0.0%	$64,160	40.1%	0.0%	$64,160
4.0	47.1%	0.0%	$75,360	47.1%	0.0%	$75,360
5.0	53.2%	0.0%	$160,000	53.2%	0.0%	$160,000
6.0	58.6%	0.0%	$160,000	58.6%	0.0%	$160,000
7.0	63.2%	0.0%	$160,000	63.2%	0.0%	$160,000
8.0	67.2%	0.0%	$160,000	67.2%	0.0%	$160,000
9.0	70.5%	0.0%	$160,000	70.5%	0.0%	$160,000
10.0	73.2%	0.0%	$160,000	73.2%	0.0%	$160,000
11.0	75.4%	0.0%	$160,000	75.4%	0.0%	$160,000
12.0	77.2%	0.0%	$160,000	77.2%	0.0%	$160,000
13.0	78.5%	0.0%	$160,000	78.5%	0.0%	$160,000
14.0	79.5%	0.0%	$160,000	79.5%	0.0%	$160,000
15.0	80.2%	0.0%	$160,000	80.2%	0.0%	$160,000
16.0	80.7%	0.0%	$160,000	80.7%	0.0%	$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,840	2.4%	0.0%	$3,840
0.0	8.1%	0.0%	$12,960	8.1%	0.0%	$12,960
1.0	13.3%	0.0%	$21,280	13.3%	0.0%	$21,280
2.0	17.9%	0.0%	$28,640	17.9%	0.0%	$28,640
3.0	22.0%	0.0%	$35,200	22.0%	0.0%	$35,200
4.0	25.7%	0.0%	$41,120	25.7%	0.0%	$41,120
5.0	28.8%	0.0%	$46,080	28.8%	0.0%	$46,080
6.0	31.5%	0.0%	$50,400	31.5%	0.0%	$50,400
7.0	33.8%	0.0%	$54,080	33.8%	0.0%	$54,080
8.0	35.7%	0.0%	$57,120	35.7%	0.0%	$57,120
9.0	37.2%	0.0%	$59,520	37.2%	0.0%	$59,520
10.0	38.4%	0.0%	$61,440	38.4%	0.0%	$61,440
11.0	39.2%	0.0%	$62,720	39.2%	0.0%	$62,720
12.0	39.7%	0.0%	$63,520	39.7%	0.0%	$63,520
13.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
14.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
15.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
16.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,385	Annual:	$0	Annual:	$1,385
Present Value:	$17,183	Present Value:	$1	Present Value:	$17,182

Mitigation Benefits: $17,182 Mitigation Costs: $37,620

Benefits Minus Costs: ($20,438) Benefit-Cost Ratio: 0.46

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$37,620	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1824 Foster Ave, 1824 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.02	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,053	Annual:	$0	Annual:	$1,053
Present Value:	$13,066	Present Value:	$1	Present Value:	$13,065

Mitigation Benefits: $13,065 Mitigation Costs: $1

Benefits Minus Costs: $13,064 Benefit-Cost Ratio: 13,065.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1830 Foster Ave, 1830 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $14,993 Costs: $1 BCR: 14,993.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$60.00	Total BRV:	$138,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$138,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.02	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,450	2.5%	0.0%	$3,450
0.0	13.4%	0.0%	$18,492	13.4%	0.0%	$18,492
1.0	23.3%	0.0%	$32,154	23.3%	0.0%	$32,154
2.0	32.1%	0.0%	$44,298	32.1%	0.0%	$44,298
3.0	40.1%	0.0%	$55,338	40.1%	0.0%	$55,338
4.0	47.1%	0.0%	$64,998	47.1%	0.0%	$64,998
5.0	53.2%	0.0%	$138,000	53.2%	0.0%	$138,000
6.0	58.6%	0.0%	$138,000	58.6%	0.0%	$138,000
7.0	63.2%	0.0%	$138,000	63.2%	0.0%	$138,000
8.0	67.2%	0.0%	$138,000	67.2%	0.0%	$138,000
9.0	70.5%	0.0%	$138,000	70.5%	0.0%	$138,000
10.0	73.2%	0.0%	$138,000	73.2%	0.0%	$138,000
11.0	75.4%	0.0%	$138,000	75.4%	0.0%	$138,000
12.0	77.2%	0.0%	$138,000	77.2%	0.0%	$138,000
13.0	78.5%	0.0%	$138,000	78.5%	0.0%	$138,000
14.0	79.5%	0.0%	$138,000	79.5%	0.0%	$138,000
15.0	80.2%	0.0%	$138,000	80.2%	0.0%	$138,000
16.0	80.7%	0.0%	$138,000	80.7%	0.0%	$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,312	2.4%	0.0%	$3,312
0.0	8.1%	0.0%	$11,178	8.1%	0.0%	$11,178
1.0	13.3%	0.0%	$18,354	13.3%	0.0%	$18,354
2.0	17.9%	0.0%	$24,702	17.9%	0.0%	$24,702
3.0	22.0%	0.0%	$30,360	22.0%	0.0%	$30,360
4.0	25.7%	0.0%	$35,466	25.7%	0.0%	$35,466
5.0	28.8%	0.0%	$39,744	28.8%	0.0%	$39,744
6.0	31.5%	0.0%	$43,470	31.5%	0.0%	$43,470
7.0	33.8%	0.0%	$46,644	33.8%	0.0%	$46,644
8.0	35.7%	0.0%	$49,266	35.7%	0.0%	$49,266
9.0	37.2%	0.0%	$51,336	37.2%	0.0%	$51,336
10.0	38.4%	0.0%	$52,992	38.4%	0.0%	$52,992
11.0	39.2%	0.0%	$54,096	39.2%	0.0%	$54,096
12.0	39.7%	0.0%	$54,786	39.7%	0.0%	$54,786
13.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
14.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
15.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
16.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,208	Annual:	$0	Annual:	$1,208
Present Value:	$14,994	Present Value:	$1	Present Value:	$14,993

Mitigation Benefits: $14,993 Mitigation Costs: $1

Benefits Minus Costs: $14,992 Benefit-Cost Ratio: 14,993.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1833 Netherwood Ave, 1833 Netherwood Ave, memphis, Tennessee, , Shelby

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,053	Annual:	$0	Annual:	$1,053
Present Value:	$13,066	Present Value:	$1	Present Value:	$13,065

Mitigation Benefits: $13,065 Mitigation Costs: $1

Benefits Minus Costs: $13,064 Benefit-Cost Ratio: 13,065.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1836 Foster Ave, 1836 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $15,016 Costs: $1 BCR: 15,016.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$60.00	Total BRV:	$138,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$138,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.02	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,450	2.5%	0.0%	$3,450
0.0	13.4%	0.0%	$18,492	13.4%	0.0%	$18,492
1.0	23.3%	0.0%	$32,154	23.3%	0.0%	$32,154
2.0	32.1%	0.0%	$44,298	32.1%	0.0%	$44,298
3.0	40.1%	0.0%	$55,338	40.1%	0.0%	$55,338
4.0	47.1%	0.0%	$64,998	47.1%	0.0%	$64,998
5.0	53.2%	0.0%	$138,000	53.2%	0.0%	$138,000
6.0	58.6%	0.0%	$138,000	58.6%	0.0%	$138,000
7.0	63.2%	0.0%	$138,000	63.2%	0.0%	$138,000
8.0	67.2%	0.0%	$138,000	67.2%	0.0%	$138,000
9.0	70.5%	0.0%	$138,000	70.5%	0.0%	$138,000
10.0	73.2%	0.0%	$138,000	73.2%	0.0%	$138,000
11.0	75.4%	0.0%	$138,000	75.4%	0.0%	$138,000
12.0	77.2%	0.0%	$138,000	77.2%	0.0%	$138,000
13.0	78.5%	0.0%	$138,000	78.5%	0.0%	$138,000
14.0	79.5%	0.0%	$138,000	79.5%	0.0%	$138,000
15.0	80.2%	0.0%	$138,000	80.2%	0.0%	$138,000
16.0	80.7%	0.0%	$138,000	80.7%	0.0%	$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,312	2.4%	0.0%	$3,312
0.0	8.1%	0.0%	$11,178	8.1%	0.0%	$11,178
1.0	13.3%	0.0%	$18,354	13.3%	0.0%	$18,354
2.0	17.9%	0.0%	$24,702	17.9%	0.0%	$24,702
3.0	22.0%	0.0%	$30,360	22.0%	0.0%	$30,360
4.0	25.7%	0.0%	$35,466	25.7%	0.0%	$35,466
5.0	28.8%	0.0%	$39,744	28.8%	0.0%	$39,744
6.0	31.5%	0.0%	$43,470	31.5%	0.0%	$43,470
7.0	33.8%	0.0%	$46,644	33.8%	0.0%	$46,644
8.0	35.7%	0.0%	$49,266	35.7%	0.0%	$49,266
9.0	37.2%	0.0%	$51,336	37.2%	0.0%	$51,336
10.0	38.4%	0.0%	$52,992	38.4%	0.0%	$52,992
11.0	39.2%	0.0%	$54,096	39.2%	0.0%	$54,096
12.0	39.7%	0.0%	$54,786	39.7%	0.0%	$54,786
13.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
14.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
15.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
16.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,210	Annual:	$0	Annual:	$1,210
Present Value:	$15,017	Present Value:	$1	Present Value:	$15,016

Mitigation Benefits: $15,016 Mitigation Costs: $1

Benefits Minus Costs: $15,015 Benefit-Cost Ratio: 15,016.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1841 Netherwood Ave, 1841 Netherwood Ave, memphis, Tennessee, , Shelby

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,053	Annual:	$0	Annual:	$1,053
Present Value:	$13,066	Present Value:	$1	Present Value:	$13,065

Mitigation Benefits: $13,065 Mitigation Costs: $1

Benefits Minus Costs: $13,064 Benefit-Cost Ratio: 13,065.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1846 Foster Ave, 1846 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $14,993 Costs: $1 BCR: 14,993.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$60.00	Total BRV:	$138,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$138,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,450	2.5%	0.0%	$3,450
0.0	13.4%	0.0%	$18,492	13.4%	0.0%	$18,492
1.0	23.3%	0.0%	$32,154	23.3%	0.0%	$32,154
2.0	32.1%	0.0%	$44,298	32.1%	0.0%	$44,298
3.0	40.1%	0.0%	$55,338	40.1%	0.0%	$55,338
4.0	47.1%	0.0%	$64,998	47.1%	0.0%	$64,998
5.0	53.2%	0.0%	$138,000	53.2%	0.0%	$138,000
6.0	58.6%	0.0%	$138,000	58.6%	0.0%	$138,000
7.0	63.2%	0.0%	$138,000	63.2%	0.0%	$138,000
8.0	67.2%	0.0%	$138,000	67.2%	0.0%	$138,000
9.0	70.5%	0.0%	$138,000	70.5%	0.0%	$138,000
10.0	73.2%	0.0%	$138,000	73.2%	0.0%	$138,000
11.0	75.4%	0.0%	$138,000	75.4%	0.0%	$138,000
12.0	77.2%	0.0%	$138,000	77.2%	0.0%	$138,000
13.0	78.5%	0.0%	$138,000	78.5%	0.0%	$138,000
14.0	79.5%	0.0%	$138,000	79.5%	0.0%	$138,000
15.0	80.2%	0.0%	$138,000	80.2%	0.0%	$138,000
16.0	80.7%	0.0%	$138,000	80.7%	0.0%	$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,312	2.4%	0.0%	$3,312
0.0	8.1%	0.0%	$11,178	8.1%	0.0%	$11,178
1.0	13.3%	0.0%	$18,354	13.3%	0.0%	$18,354
2.0	17.9%	0.0%	$24,702	17.9%	0.0%	$24,702
3.0	22.0%	0.0%	$30,360	22.0%	0.0%	$30,360
4.0	25.7%	0.0%	$35,466	25.7%	0.0%	$35,466
5.0	28.8%	0.0%	$39,744	28.8%	0.0%	$39,744
6.0	31.5%	0.0%	$43,470	31.5%	0.0%	$43,470
7.0	33.8%	0.0%	$46,644	33.8%	0.0%	$46,644
8.0	35.7%	0.0%	$49,266	35.7%	0.0%	$49,266
9.0	37.2%	0.0%	$51,336	37.2%	0.0%	$51,336
10.0	38.4%	0.0%	$52,992	38.4%	0.0%	$52,992
11.0	39.2%	0.0%	$54,096	39.2%	0.0%	$54,096
12.0	39.7%	0.0%	$54,786	39.7%	0.0%	$54,786
13.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
14.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
15.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
16.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,208	Annual:	$0	Annual:	$1,208
Present Value:	$14,994	Present Value:	$1	Present Value:	$14,993

Mitigation Benefits: $14,993 Mitigation Costs: $1

Benefits Minus Costs: $14,992 Benefit-Cost Ratio: 14,993.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1847 Foster Ave, 1847 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,051	Annual:	$0	Annual:	$1,051
Present Value:	$13,046	Present Value:	$1	Present Value:	$13,045

Mitigation Benefits: $13,045 Mitigation Costs: $1

Benefits Minus Costs: $13,044 Benefit-Cost Ratio: 13,045.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1850 foster Ave, 1850 foster Ave, memphis, Tennessee, , Shelby

Benefits: $20,002 Costs: $1 BCR: 20,002.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$80.00	Total BRV:	$184,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$184,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$4,600	2.5%	0.0%	$4,600
0.0	13.4%	0.0%	$24,656	13.4%	0.0%	$24,656
1.0	23.3%	0.0%	$42,872	23.3%	0.0%	$42,872
2.0	32.1%	0.0%	$59,064	32.1%	0.0%	$59,064
3.0	40.1%	0.0%	$73,784	40.1%	0.0%	$73,784
4.0	47.1%	0.0%	$86,664	47.1%	0.0%	$86,664
5.0	53.2%	0.0%	$184,000	53.2%	0.0%	$184,000
6.0	58.6%	0.0%	$184,000	58.6%	0.0%	$184,000
7.0	63.2%	0.0%	$184,000	63.2%	0.0%	$184,000
8.0	67.2%	0.0%	$184,000	67.2%	0.0%	$184,000
9.0	70.5%	0.0%	$184,000	70.5%	0.0%	$184,000
10.0	73.2%	0.0%	$184,000	73.2%	0.0%	$184,000
11.0	75.4%	0.0%	$184,000	75.4%	0.0%	$184,000
12.0	77.2%	0.0%	$184,000	77.2%	0.0%	$184,000
13.0	78.5%	0.0%	$184,000	78.5%	0.0%	$184,000
14.0	79.5%	0.0%	$184,000	79.5%	0.0%	$184,000
15.0	80.2%	0.0%	$184,000	80.2%	0.0%	$184,000
16.0	80.7%	0.0%	$184,000	80.7%	0.0%	$184,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$4,416	2.4%	0.0%	$4,416
0.0	8.1%	0.0%	$14,904	8.1%	0.0%	$14,904
1.0	13.3%	0.0%	$24,472	13.3%	0.0%	$24,472
2.0	17.9%	0.0%	$32,936	17.9%	0.0%	$32,936
3.0	22.0%	0.0%	$40,480	22.0%	0.0%	$40,480
4.0	25.7%	0.0%	$47,288	25.7%	0.0%	$47,288
5.0	28.8%	0.0%	$52,992	28.8%	0.0%	$52,992
6.0	31.5%	0.0%	$57,960	31.5%	0.0%	$57,960
7.0	33.8%	0.0%	$62,192	33.8%	0.0%	$62,192
8.0	35.7%	0.0%	$65,688	35.7%	0.0%	$65,688
9.0	37.2%	0.0%	$68,448	37.2%	0.0%	$68,448
10.0	38.4%	0.0%	$70,656	38.4%	0.0%	$70,656
11.0	39.2%	0.0%	$72,128	39.2%	0.0%	$72,128
12.0	39.7%	0.0%	$73,048	39.7%	0.0%	$73,048
13.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600
14.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600
15.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600
16.0	40.0%	0.0%	$73,600	40.0%	0.0%	$73,600

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$82,800	45.0		$82,800
2.0	90.0		$184,000	90.0		$184,000
3.0	135.0		$184,000	135.0		$184,000
4.0	180.0		$184,000	180.0		$184,000
5.0	225.0		$184,000	225.0		$184,000
6.0	270.0		$184,000	270.0		$184,000
7.0	315.0		$184,000	315.0		$184,000
8.0	360.0		$184,000	360.0		$184,000
9.0	405.0		$184,000	405.0		$184,000
10.0	450.0		$184,000	450.0		$184,000
11.0	495.0		$184,000	495.0		$184,000
12.0	540.0		$184,000	540.0		$184,000
13.0	585.0		$184,000	585.0		$184,000
14.0	630.0		$184,000	630.0		$184,000
15.0	675.0		$184,000	675.0		$184,000
16.0	720.0		$184,000	720.0		$184,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$82,800	45.0		$82,800
2.0	90.0		$184,000	90.0		$184,000
3.0	135.0		$184,000	135.0		$184,000
4.0	180.0		$184,000	180.0		$184,000
5.0	225.0		$184,000	225.0		$184,000
6.0	270.0		$184,000	270.0		$184,000
7.0	315.0		$184,000	315.0		$184,000
8.0	360.0		$184,000	360.0		$184,000
9.0	405.0		$184,000	405.0		$184,000
10.0	450.0		$184,000	450.0		$184,000
11.0	495.0		$184,000	495.0		$184,000
12.0	540.0		$184,000	540.0		$184,000
13.0	585.0		$184,000	585.0		$184,000
14.0	630.0		$184,000	630.0		$184,000
15.0	675.0		$184,000	675.0		$184,000
16.0	720.0		$184,000	720.0		$184,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,612	Annual:	$0	Annual:	$1,612
Present Value:	$20,003	Present Value:	$1	Present Value:	$20,002

Mitigation Benefits: $20,002 Mitigation Costs: $1

Benefits Minus Costs: $20,001 Benefit-Cost Ratio: 20,002.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1853 Foster Ave, 1853 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,051	Annual:	$0	Annual:	$1,051
Present Value:	$13,046	Present Value:	$1	Present Value:	$13,045

Mitigation Benefits: $13,045 Mitigation Costs: $1

Benefits Minus Costs: $13,044 Benefit-Cost Ratio: 13,045.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1856 Foster Ave, 1856 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $15,016 Costs: $1 BCR: 15,016.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$60.00	Total BRV:	$138,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$138,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,450	2.5%	0.0%	$3,450
0.0	13.4%	0.0%	$18,492	13.4%	0.0%	$18,492
1.0	23.3%	0.0%	$32,154	23.3%	0.0%	$32,154
2.0	32.1%	0.0%	$44,298	32.1%	0.0%	$44,298
3.0	40.1%	0.0%	$55,338	40.1%	0.0%	$55,338
4.0	47.1%	0.0%	$64,998	47.1%	0.0%	$64,998
5.0	53.2%	0.0%	$138,000	53.2%	0.0%	$138,000
6.0	58.6%	0.0%	$138,000	58.6%	0.0%	$138,000
7.0	63.2%	0.0%	$138,000	63.2%	0.0%	$138,000
8.0	67.2%	0.0%	$138,000	67.2%	0.0%	$138,000
9.0	70.5%	0.0%	$138,000	70.5%	0.0%	$138,000
10.0	73.2%	0.0%	$138,000	73.2%	0.0%	$138,000
11.0	75.4%	0.0%	$138,000	75.4%	0.0%	$138,000
12.0	77.2%	0.0%	$138,000	77.2%	0.0%	$138,000
13.0	78.5%	0.0%	$138,000	78.5%	0.0%	$138,000
14.0	79.5%	0.0%	$138,000	79.5%	0.0%	$138,000
15.0	80.2%	0.0%	$138,000	80.2%	0.0%	$138,000
16.0	80.7%	0.0%	$138,000	80.7%	0.0%	$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,312	2.4%	0.0%	$3,312
0.0	8.1%	0.0%	$11,178	8.1%	0.0%	$11,178
1.0	13.3%	0.0%	$18,354	13.3%	0.0%	$18,354
2.0	17.9%	0.0%	$24,702	17.9%	0.0%	$24,702
3.0	22.0%	0.0%	$30,360	22.0%	0.0%	$30,360
4.0	25.7%	0.0%	$35,466	25.7%	0.0%	$35,466
5.0	28.8%	0.0%	$39,744	28.8%	0.0%	$39,744
6.0	31.5%	0.0%	$43,470	31.5%	0.0%	$43,470
7.0	33.8%	0.0%	$46,644	33.8%	0.0%	$46,644
8.0	35.7%	0.0%	$49,266	35.7%	0.0%	$49,266
9.0	37.2%	0.0%	$51,336	37.2%	0.0%	$51,336
10.0	38.4%	0.0%	$52,992	38.4%	0.0%	$52,992
11.0	39.2%	0.0%	$54,096	39.2%	0.0%	$54,096
12.0	39.7%	0.0%	$54,786	39.7%	0.0%	$54,786
13.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
14.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
15.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
16.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,210	Annual:	$0	Annual:	$1,210
Present Value:	$15,017	Present Value:	$1	Present Value:	$15,016

Mitigation Benefits: $15,016 Mitigation Costs: $1

Benefits Minus Costs: $15,015 Benefit-Cost Ratio: 15,016.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1856 Kendale Ave, 1856 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1857 Foster Ave, 1857 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,051	Annual:	$0	Annual:	$1,051
Present Value:	$13,046	Present Value:	$1	Present Value:	$13,045

Mitigation Benefits: $13,045 Mitigation Costs: $1

Benefits Minus Costs: $13,044 Benefit-Cost Ratio: 13,045.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1862 Foster Ave, 1862 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $15,016 Costs: $1 BCR: 15,016.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,300	BRV ($/sf):	$60.00	Total BRV:	$138,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$138,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,450	2.5%	0.0%	$3,450
0.0	13.4%	0.0%	$18,492	13.4%	0.0%	$18,492
1.0	23.3%	0.0%	$32,154	23.3%	0.0%	$32,154
2.0	32.1%	0.0%	$44,298	32.1%	0.0%	$44,298
3.0	40.1%	0.0%	$55,338	40.1%	0.0%	$55,338
4.0	47.1%	0.0%	$64,998	47.1%	0.0%	$64,998
5.0	53.2%	0.0%	$138,000	53.2%	0.0%	$138,000
6.0	58.6%	0.0%	$138,000	58.6%	0.0%	$138,000
7.0	63.2%	0.0%	$138,000	63.2%	0.0%	$138,000
8.0	67.2%	0.0%	$138,000	67.2%	0.0%	$138,000
9.0	70.5%	0.0%	$138,000	70.5%	0.0%	$138,000
10.0	73.2%	0.0%	$138,000	73.2%	0.0%	$138,000
11.0	75.4%	0.0%	$138,000	75.4%	0.0%	$138,000
12.0	77.2%	0.0%	$138,000	77.2%	0.0%	$138,000
13.0	78.5%	0.0%	$138,000	78.5%	0.0%	$138,000
14.0	79.5%	0.0%	$138,000	79.5%	0.0%	$138,000
15.0	80.2%	0.0%	$138,000	80.2%	0.0%	$138,000
16.0	80.7%	0.0%	$138,000	80.7%	0.0%	$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,312	2.4%	0.0%	$3,312
0.0	8.1%	0.0%	$11,178	8.1%	0.0%	$11,178
1.0	13.3%	0.0%	$18,354	13.3%	0.0%	$18,354
2.0	17.9%	0.0%	$24,702	17.9%	0.0%	$24,702
3.0	22.0%	0.0%	$30,360	22.0%	0.0%	$30,360
4.0	25.7%	0.0%	$35,466	25.7%	0.0%	$35,466
5.0	28.8%	0.0%	$39,744	28.8%	0.0%	$39,744
6.0	31.5%	0.0%	$43,470	31.5%	0.0%	$43,470
7.0	33.8%	0.0%	$46,644	33.8%	0.0%	$46,644
8.0	35.7%	0.0%	$49,266	35.7%	0.0%	$49,266
9.0	37.2%	0.0%	$51,336	37.2%	0.0%	$51,336
10.0	38.4%	0.0%	$52,992	38.4%	0.0%	$52,992
11.0	39.2%	0.0%	$54,096	39.2%	0.0%	$54,096
12.0	39.7%	0.0%	$54,786	39.7%	0.0%	$54,786
13.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
14.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
15.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200
16.0	40.0%	0.0%	$55,200	40.0%	0.0%	$55,200

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$62,100	45.0		$62,100
2.0	90.0		$138,000	90.0		$138,000
3.0	135.0		$138,000	135.0		$138,000
4.0	180.0		$138,000	180.0		$138,000
5.0	225.0		$138,000	225.0		$138,000
6.0	270.0		$138,000	270.0		$138,000
7.0	315.0		$138,000	315.0		$138,000
8.0	360.0		$138,000	360.0		$138,000
9.0	405.0		$138,000	405.0		$138,000
10.0	450.0		$138,000	450.0		$138,000
11.0	495.0		$138,000	495.0		$138,000
12.0	540.0		$138,000	540.0		$138,000
13.0	585.0		$138,000	585.0		$138,000
14.0	630.0		$138,000	630.0		$138,000
15.0	675.0		$138,000	675.0		$138,000
16.0	720.0		$138,000	720.0		$138,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,210	Annual:	$0	Annual:	$1,210
Present Value:	$15,017	Present Value:	$1	Present Value:	$15,016

Mitigation Benefits: $15,016 Mitigation Costs: $1

Benefits Minus Costs: $15,015 Benefit-Cost Ratio: 15,016.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1862 Kendale Ave, 1862 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $9,367 Costs: $1 BCR: 9,367.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$60.00	Total BRV:	$126,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$126,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,150	2.5%	0.0%	$3,150
0.0	13.4%	0.0%	$16,884	13.4%	0.0%	$16,884
1.0	23.3%	0.0%	$29,358	23.3%	0.0%	$29,358
2.0	32.1%	0.0%	$40,446	32.1%	0.0%	$40,446
3.0	40.1%	0.0%	$50,526	40.1%	0.0%	$50,526
4.0	47.1%	0.0%	$59,346	47.1%	0.0%	$59,346
5.0	53.2%	0.0%	$126,000	53.2%	0.0%	$126,000
6.0	58.6%	0.0%	$126,000	58.6%	0.0%	$126,000
7.0	63.2%	0.0%	$126,000	63.2%	0.0%	$126,000
8.0	67.2%	0.0%	$126,000	67.2%	0.0%	$126,000
9.0	70.5%	0.0%	$126,000	70.5%	0.0%	$126,000
10.0	73.2%	0.0%	$126,000	73.2%	0.0%	$126,000
11.0	75.4%	0.0%	$126,000	75.4%	0.0%	$126,000
12.0	77.2%	0.0%	$126,000	77.2%	0.0%	$126,000
13.0	78.5%	0.0%	$126,000	78.5%	0.0%	$126,000
14.0	79.5%	0.0%	$126,000	79.5%	0.0%	$126,000
15.0	80.2%	0.0%	$126,000	80.2%	0.0%	$126,000
16.0	80.7%	0.0%	$126,000	80.7%	0.0%	$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,024	2.4%	0.0%	$3,024
0.0	8.1%	0.0%	$10,206	8.1%	0.0%	$10,206
1.0	13.3%	0.0%	$16,758	13.3%	0.0%	$16,758
2.0	17.9%	0.0%	$22,554	17.9%	0.0%	$22,554
3.0	22.0%	0.0%	$27,720	22.0%	0.0%	$27,720
4.0	25.7%	0.0%	$32,382	25.7%	0.0%	$32,382
5.0	28.8%	0.0%	$36,288	28.8%	0.0%	$36,288
6.0	31.5%	0.0%	$39,690	31.5%	0.0%	$39,690
7.0	33.8%	0.0%	$42,588	33.8%	0.0%	$42,588
8.0	35.7%	0.0%	$44,982	35.7%	0.0%	$44,982
9.0	37.2%	0.0%	$46,872	37.2%	0.0%	$46,872
10.0	38.4%	0.0%	$48,384	38.4%	0.0%	$48,384
11.0	39.2%	0.0%	$49,392	39.2%	0.0%	$49,392
12.0	39.7%	0.0%	$50,022	39.7%	0.0%	$50,022
13.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
14.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
15.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
16.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,005	Annual:	$250	Annual:	$755
Present Value:	$12,475	Present Value:	$3,108	Present Value:	$9,367

Mitigation Benefits: $9,367 Mitigation Costs: $1

Benefits Minus Costs: $9,366 Benefit-Cost Ratio: 9,367.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1863 Foster Ave, 1863 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $15,870 Costs: $1 BCR: 15,870.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$70.00	Total BRV:	$147,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$147,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	269.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,675	2.5%	0.0%	$3,675
0.0	13.4%	0.0%	$19,698	13.4%	0.0%	$19,698
1.0	23.3%	0.0%	$34,251	23.3%	0.0%	$34,251
2.0	32.1%	0.0%	$47,187	32.1%	0.0%	$47,187
3.0	40.1%	0.0%	$58,947	40.1%	0.0%	$58,947
4.0	47.1%	0.0%	$69,237	47.1%	0.0%	$69,237
5.0	53.2%	0.0%	$147,000	53.2%	0.0%	$147,000
6.0	58.6%	0.0%	$147,000	58.6%	0.0%	$147,000
7.0	63.2%	0.0%	$147,000	63.2%	0.0%	$147,000
8.0	67.2%	0.0%	$147,000	67.2%	0.0%	$147,000
9.0	70.5%	0.0%	$147,000	70.5%	0.0%	$147,000
10.0	73.2%	0.0%	$147,000	73.2%	0.0%	$147,000
11.0	75.4%	0.0%	$147,000	75.4%	0.0%	$147,000
12.0	77.2%	0.0%	$147,000	77.2%	0.0%	$147,000
13.0	78.5%	0.0%	$147,000	78.5%	0.0%	$147,000
14.0	79.5%	0.0%	$147,000	79.5%	0.0%	$147,000
15.0	80.2%	0.0%	$147,000	80.2%	0.0%	$147,000
16.0	80.7%	0.0%	$147,000	80.7%	0.0%	$147,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,528	2.4%	0.0%	$3,528
0.0	8.1%	0.0%	$11,907	8.1%	0.0%	$11,907
1.0	13.3%	0.0%	$19,551	13.3%	0.0%	$19,551
2.0	17.9%	0.0%	$26,313	17.9%	0.0%	$26,313
3.0	22.0%	0.0%	$32,340	22.0%	0.0%	$32,340
4.0	25.7%	0.0%	$37,779	25.7%	0.0%	$37,779
5.0	28.8%	0.0%	$42,336	28.8%	0.0%	$42,336
6.0	31.5%	0.0%	$46,305	31.5%	0.0%	$46,305
7.0	33.8%	0.0%	$49,686	33.8%	0.0%	$49,686
8.0	35.7%	0.0%	$52,479	35.7%	0.0%	$52,479
9.0	37.2%	0.0%	$54,684	37.2%	0.0%	$54,684
10.0	38.4%	0.0%	$56,448	38.4%	0.0%	$56,448
11.0	39.2%	0.0%	$57,624	39.2%	0.0%	$57,624
12.0	39.7%	0.0%	$58,359	39.7%	0.0%	$58,359
13.0	40.0%	0.0%	$58,800	40.0%	0.0%	$58,800
14.0	40.0%	0.0%	$58,800	40.0%	0.0%	$58,800
15.0	40.0%	0.0%	$58,800	40.0%	0.0%	$58,800
16.0	40.0%	0.0%	$58,800	40.0%	0.0%	$58,800

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$66,150	45.0		$66,150
2.0	90.0		$147,000	90.0		$147,000
3.0	135.0		$147,000	135.0		$147,000
4.0	180.0		$147,000	180.0		$147,000
5.0	225.0		$147,000	225.0		$147,000
6.0	270.0		$147,000	270.0		$147,000
7.0	315.0		$147,000	315.0		$147,000
8.0	360.0		$147,000	360.0		$147,000
9.0	405.0		$147,000	405.0		$147,000
10.0	450.0		$147,000	450.0		$147,000
11.0	495.0		$147,000	495.0		$147,000
12.0	540.0		$147,000	540.0		$147,000
13.0	585.0		$147,000	585.0		$147,000
14.0	630.0		$147,000	630.0		$147,000
15.0	675.0		$147,000	675.0		$147,000
16.0	720.0		$147,000	720.0		$147,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$66,150	45.0		$66,150
2.0	90.0		$147,000	90.0		$147,000
3.0	135.0		$147,000	135.0		$147,000
4.0	180.0		$147,000	180.0		$147,000
5.0	225.0		$147,000	225.0		$147,000
6.0	270.0		$147,000	270.0		$147,000
7.0	315.0		$147,000	315.0		$147,000
8.0	360.0		$147,000	360.0		$147,000
9.0	405.0		$147,000	405.0		$147,000
10.0	450.0		$147,000	450.0		$147,000
11.0	495.0		$147,000	495.0		$147,000
12.0	540.0		$147,000	540.0		$147,000
13.0	585.0		$147,000	585.0		$147,000
14.0	630.0		$147,000	630.0		$147,000
15.0	675.0		$147,000	675.0		$147,000
16.0	720.0		$147,000	720.0		$147,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,281	Annual:	$2	Annual:	$1,279
Present Value:	$15,900	Present Value:	$30	Present Value:	$15,870

Mitigation Benefits: $15,870 Mitigation Costs: $1

Benefits Minus Costs: $15,869 Benefit-Cost Ratio: 15,870.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1866 Kendale Ave, 1866 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1867 Foster Ave, 1867 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $15,209 Costs: $1 BCR: 15,209.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$70.00	Total BRV:	$140,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$140,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,500	2.5%	0.0%	$3,500
0.0	13.4%	0.0%	$18,760	13.4%	0.0%	$18,760
1.0	23.3%	0.0%	$32,620	23.3%	0.0%	$32,620
2.0	32.1%	0.0%	$44,940	32.1%	0.0%	$44,940
3.0	40.1%	0.0%	$56,140	40.1%	0.0%	$56,140
4.0	47.1%	0.0%	$65,940	47.1%	0.0%	$65,940
5.0	53.2%	0.0%	$140,000	53.2%	0.0%	$140,000
6.0	58.6%	0.0%	$140,000	58.6%	0.0%	$140,000
7.0	63.2%	0.0%	$140,000	63.2%	0.0%	$140,000
8.0	67.2%	0.0%	$140,000	67.2%	0.0%	$140,000
9.0	70.5%	0.0%	$140,000	70.5%	0.0%	$140,000
10.0	73.2%	0.0%	$140,000	73.2%	0.0%	$140,000
11.0	75.4%	0.0%	$140,000	75.4%	0.0%	$140,000
12.0	77.2%	0.0%	$140,000	77.2%	0.0%	$140,000
13.0	78.5%	0.0%	$140,000	78.5%	0.0%	$140,000
14.0	79.5%	0.0%	$140,000	79.5%	0.0%	$140,000
15.0	80.2%	0.0%	$140,000	80.2%	0.0%	$140,000
16.0	80.7%	0.0%	$140,000	80.7%	0.0%	$140,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,360	2.4%	0.0%	$3,360
0.0	8.1%	0.0%	$11,340	8.1%	0.0%	$11,340
1.0	13.3%	0.0%	$18,620	13.3%	0.0%	$18,620
2.0	17.9%	0.0%	$25,060	17.9%	0.0%	$25,060
3.0	22.0%	0.0%	$30,800	22.0%	0.0%	$30,800
4.0	25.7%	0.0%	$35,980	25.7%	0.0%	$35,980
5.0	28.8%	0.0%	$40,320	28.8%	0.0%	$40,320
6.0	31.5%	0.0%	$44,100	31.5%	0.0%	$44,100
7.0	33.8%	0.0%	$47,320	33.8%	0.0%	$47,320
8.0	35.7%	0.0%	$49,980	35.7%	0.0%	$49,980
9.0	37.2%	0.0%	$52,080	37.2%	0.0%	$52,080
10.0	38.4%	0.0%	$53,760	38.4%	0.0%	$53,760
11.0	39.2%	0.0%	$54,880	39.2%	0.0%	$54,880
12.0	39.7%	0.0%	$55,580	39.7%	0.0%	$55,580
13.0	40.0%	0.0%	$56,000	40.0%	0.0%	$56,000
14.0	40.0%	0.0%	$56,000	40.0%	0.0%	$56,000
15.0	40.0%	0.0%	$56,000	40.0%	0.0%	$56,000
16.0	40.0%	0.0%	$56,000	40.0%	0.0%	$56,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$63,000	45.0		$63,000
2.0	90.0		$140,000	90.0		$140,000
3.0	135.0		$140,000	135.0		$140,000
4.0	180.0		$140,000	180.0		$140,000
5.0	225.0		$140,000	225.0		$140,000
6.0	270.0		$140,000	270.0		$140,000
7.0	315.0		$140,000	315.0		$140,000
8.0	360.0		$140,000	360.0		$140,000
9.0	405.0		$140,000	405.0		$140,000
10.0	450.0		$140,000	450.0		$140,000
11.0	495.0		$140,000	495.0		$140,000
12.0	540.0		$140,000	540.0		$140,000
13.0	585.0		$140,000	585.0		$140,000
14.0	630.0		$140,000	630.0		$140,000
15.0	675.0		$140,000	675.0		$140,000
16.0	720.0		$140,000	720.0		$140,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$63,000	45.0		$63,000
2.0	90.0		$140,000	90.0		$140,000
3.0	135.0		$140,000	135.0		$140,000
4.0	180.0		$140,000	180.0		$140,000
5.0	225.0		$140,000	225.0		$140,000
6.0	270.0		$140,000	270.0		$140,000
7.0	315.0		$140,000	315.0		$140,000
8.0	360.0		$140,000	360.0		$140,000
9.0	405.0		$140,000	405.0		$140,000
10.0	450.0		$140,000	450.0		$140,000
11.0	495.0		$140,000	495.0		$140,000
12.0	540.0		$140,000	540.0		$140,000
13.0	585.0		$140,000	585.0		$140,000
14.0	630.0		$140,000	630.0		$140,000
15.0	675.0		$140,000	675.0		$140,000
16.0	720.0		$140,000	720.0		$140,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,226	Annual:	$0	Annual:	$1,226
Present Value:	$15,210	Present Value:	$1	Present Value:	$15,209

Mitigation Benefits: $15,209 Mitigation Costs: $1

Benefits Minus Costs: $15,208 Benefit-Cost Ratio: 15,209.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1867 Kendale Ave, 1867 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.02	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,051	Annual:	$0	Annual:	$1,051
Present Value:	$13,046	Present Value:	$1	Present Value:	$13,045

Mitigation Benefits: $13,045 Mitigation Costs: $1

Benefits Minus Costs: $13,044 Benefit-Cost Ratio: 13,045.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1872 foster Ave, 1872 foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.02	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,053	Annual:	$0	Annual:	$1,053
Present Value:	$13,066	Present Value:	$1	Present Value:	$13,065

Mitigation Benefits: $13,065 Mitigation Costs: $1

Benefits Minus Costs: $13,064 Benefit-Cost Ratio: 13,065.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1872 Kendale Ave, 1872 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $10,684 Costs: $1 BCR: 10,684.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,125	Annual:	$264	Annual:	$861
Present Value:	$13,959	Present Value:	$3,275	Present Value:	$10,684

Mitigation Benefits: $10,684 Mitigation Costs: $1

Benefits Minus Costs: $10,683 Benefit-Cost Ratio: 10,684.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1873 Foster Ave, 1873 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,045 Costs: $1 BCR: 13,045.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.08	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,051	Annual:	$0	Annual:	$1,051
Present Value:	$13,046	Present Value:	$1	Present Value:	$13,045

Mitigation Benefits: $13,045 Mitigation Costs: $1

Benefits Minus Costs: $13,044 Benefit-Cost Ratio: 13,045.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1873 Kendale Ave, 1873 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1877 Kendale Ave, 1877 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1878 Kendale Ave, 1878 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1883 Foster Ave, 1883 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,053	Annual:	$0	Annual:	$1,053
Present Value:	$13,066	Present Value:	$1	Present Value:	$13,065

Mitigation Benefits: $13,065 Mitigation Costs: $1

Benefits Minus Costs: $13,064 Benefit-Cost Ratio: 13,065.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1887 Kendale Ave, 1887 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $11,885 Costs: $1 BCR: 11,885.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$80.00	Total BRV:	$160,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$160,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$4,000	2.5%	0.0%	$4,000
0.0	13.4%	0.0%	$21,440	13.4%	0.0%	$21,440
1.0	23.3%	0.0%	$37,280	23.3%	0.0%	$37,280
2.0	32.1%	0.0%	$51,360	32.1%	0.0%	$51,360
3.0	40.1%	0.0%	$64,160	40.1%	0.0%	$64,160
4.0	47.1%	0.0%	$75,360	47.1%	0.0%	$75,360
5.0	53.2%	0.0%	$160,000	53.2%	0.0%	$160,000
6.0	58.6%	0.0%	$160,000	58.6%	0.0%	$160,000
7.0	63.2%	0.0%	$160,000	63.2%	0.0%	$160,000
8.0	67.2%	0.0%	$160,000	67.2%	0.0%	$160,000
9.0	70.5%	0.0%	$160,000	70.5%	0.0%	$160,000
10.0	73.2%	0.0%	$160,000	73.2%	0.0%	$160,000
11.0	75.4%	0.0%	$160,000	75.4%	0.0%	$160,000
12.0	77.2%	0.0%	$160,000	77.2%	0.0%	$160,000
13.0	78.5%	0.0%	$160,000	78.5%	0.0%	$160,000
14.0	79.5%	0.0%	$160,000	79.5%	0.0%	$160,000
15.0	80.2%	0.0%	$160,000	80.2%	0.0%	$160,000
16.0	80.7%	0.0%	$160,000	80.7%	0.0%	$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,840	2.4%	0.0%	$3,840
0.0	8.1%	0.0%	$12,960	8.1%	0.0%	$12,960
1.0	13.3%	0.0%	$21,280	13.3%	0.0%	$21,280
2.0	17.9%	0.0%	$28,640	17.9%	0.0%	$28,640
3.0	22.0%	0.0%	$35,200	22.0%	0.0%	$35,200
4.0	25.7%	0.0%	$41,120	25.7%	0.0%	$41,120
5.0	28.8%	0.0%	$46,080	28.8%	0.0%	$46,080
6.0	31.5%	0.0%	$50,400	31.5%	0.0%	$50,400
7.0	33.8%	0.0%	$54,080	33.8%	0.0%	$54,080
8.0	35.7%	0.0%	$57,120	35.7%	0.0%	$57,120
9.0	37.2%	0.0%	$59,520	37.2%	0.0%	$59,520
10.0	38.4%	0.0%	$61,440	38.4%	0.0%	$61,440
11.0	39.2%	0.0%	$62,720	39.2%	0.0%	$62,720
12.0	39.7%	0.0%	$63,520	39.7%	0.0%	$63,520
13.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
14.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
15.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000
16.0	40.0%	0.0%	$64,000	40.0%	0.0%	$64,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$72,000	45.0		$72,000
2.0	90.0		$160,000	90.0		$160,000
3.0	135.0		$160,000	135.0		$160,000
4.0	180.0		$160,000	180.0		$160,000
5.0	225.0		$160,000	225.0		$160,000
6.0	270.0		$160,000	270.0		$160,000
7.0	315.0		$160,000	315.0		$160,000
8.0	360.0		$160,000	360.0		$160,000
9.0	405.0		$160,000	405.0		$160,000
10.0	450.0		$160,000	450.0		$160,000
11.0	495.0		$160,000	495.0		$160,000
12.0	540.0		$160,000	540.0		$160,000
13.0	585.0		$160,000	585.0		$160,000
14.0	630.0		$160,000	630.0		$160,000
15.0	675.0		$160,000	675.0		$160,000
16.0	720.0		$160,000	720.0		$160,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,275	Annual:	$318	Annual:	$957
Present Value:	$15,825	Present Value:	$3,940	Present Value:	$11,885

Mitigation Benefits: $11,885 Mitigation Costs: $1

Benefits Minus Costs: $11,884 Benefit-Cost Ratio: 11,885.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1889 Foster Ave, 1889 Foster Ave, memphis, Tennessee, , Shelby

Benefits: $13,065 Costs: $1 BCR: 13,065.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)	
Miles of street (miles)	
Length of road (miles)	

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.09	1.0	269.79	1.0
50	2.00%	276.00	2.0	270.00	2.0
100	1.00%	277.38	3.0	271.03	3.0
500	0.20%	278.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,053	Annual:	$0	Annual:	$1,053
Present Value:	$13,066	Present Value:	$1	Present Value:	$13,065

Mitigation Benefits: $13,065 Mitigation Costs: $1

Benefits Minus Costs: $13,064 Benefit-Cost Ratio: 13,065.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1907 Kendale Ave, 1907 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Structure and Mitigation Details For: 1919 Kendale Ave, 1919 Kendale Ave, memphis, Tennessee, , Shelby

Benefits: $8,922 Costs: $1 BCR: 8,922.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	274.60	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	274.60			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	268.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	272.38	1.0	268.41	1.0
50	2.00%	273.00	2.0	269.00	2.0
100	1.00%	274.66	3.0	271.23	3.0
500	0.20%	275.00	4.0	271.50	4.0

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$958	Annual:	$239	Annual:	$719
Present Value:	$11,883	Present Value:	$2,961	Present Value:	$8,922

Mitigation Benefits: $8,922 Mitigation Costs: $1

Benefits Minus Costs: $8,921 Benefit-Cost Ratio: 8,922.00

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$548,633** Total Costs: **$37,662** BCR: **14.57**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: Kulvir Singh Analyst: Kulvir Singh

Justification/Attachments

Field	Description	Attachments

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Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Project Summary:

Project Number: 60330437 Disaster #:

Program: Agency: AECOM

Analyst: kulvir singh

Point of Contact: kulvir singh Phone Number: 4044749476

Address: memphis, Tennessee

Email: kulvir.singh@aecom.com

Comments:

Structure Summary For:

1293 Edith Ave, 1293 Edith Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $44,009 Costs: $26,321 BCR: 1.67

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	1.67	$44,009	$26,321

1362 E McLemore Ave, 1362 E McLemore Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $50,537 Costs: $1 BCR: 50,537.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	50,537.00	$50,537	$1

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1293 Edith Ave, 1293 Edith Ave, memphis, Tennessee, , Shelby

Benefits: $44,009 Costs: $26,321 BCR: 1.67

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	8,100	BRV ($/sf):	$40.00	Total BRV:	$324,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	292.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$324,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	292.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$272 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	5
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:

Number of Hours Volunteered/Person:

Cost of Volunteers Time ($/Hour/Person):

Number of Days Lodging/Volunteer:

Per-Person Cost of Lodging for a Volunteer:

Cost of Volunteers:

Social Benefits

Mental Stress and Anxiety

Number of Person:

Treatment Costs per person: $2,443.00

Total Mental Stress and Anxiety Cost: $0.00

Lost Productivity

Number of Worker:

Productivity Loss per person: $8,736.00

Total Lost Productivity Cost: $0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft): 285.0

Flood Profile Number:

Flood Source Name:

Elevation At Which Barrier Will Be Overtopped: 0.00

FEMA Elevation Certificate Diagram Description:

Other Elevation Source:

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	289.55	1.0	289.34	1.0
50	2.00%	290.00	2.0	289.40	2.0
100	1.00%	294.01	3.0	289.85	3.0
500	0.20%	294.50	4.0	289.90	4.0

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$8,100	2.5%	0.0%	$8,100
0.0	13.4%	0.0%	$43,416	13.4%	0.0%	$43,416
1.0	23.3%	0.0%	$75,492	23.3%	0.0%	$75,492
2.0	32.1%	0.0%	$104,004	32.1%	0.0%	$104,004
3.0	40.1%	0.0%	$129,924	40.1%	0.0%	$129,924
4.0	47.1%	0.0%	$152,604	47.1%	0.0%	$152,604
5.0	53.2%	0.0%	$324,000	53.2%	0.0%	$324,000
6.0	58.6%	0.0%	$324,000	58.6%	0.0%	$324,000
7.0	63.2%	0.0%	$324,000	63.2%	0.0%	$324,000
8.0	67.2%	0.0%	$324,000	67.2%	0.0%	$324,000
9.0	70.5%	0.0%	$324,000	70.5%	0.0%	$324,000
10.0	73.2%	0.0%	$324,000	73.2%	0.0%	$324,000
11.0	75.4%	0.0%	$324,000	75.4%	0.0%	$324,000
12.0	77.2%	0.0%	$324,000	77.2%	0.0%	$324,000
13.0	78.5%	0.0%	$324,000	78.5%	0.0%	$324,000
14.0	79.5%	0.0%	$324,000	79.5%	0.0%	$324,000
15.0	80.2%	0.0%	$324,000	80.2%	0.0%	$324,000
16.0	80.7%	0.0%	$324,000	80.7%	0.0%	$324,000

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$7,776	2.4%	0.0%	$7,776
0.0	8.1%	0.0%	$26,244	8.1%	0.0%	$26,244
1.0	13.3%	0.0%	$43,092	13.3%	0.0%	$43,092
2.0	17.9%	0.0%	$57,996	17.9%	0.0%	$57,996
3.0	22.0%	0.0%	$71,280	22.0%	0.0%	$71,280
4.0	25.7%	0.0%	$83,268	25.7%	0.0%	$83,268
5.0	28.8%	0.0%	$93,312	28.8%	0.0%	$93,312
6.0	31.5%	0.0%	$102,060	31.5%	0.0%	$102,060
7.0	33.8%	0.0%	$109,512	33.8%	0.0%	$109,512
8.0	35.7%	0.0%	$115,668	35.7%	0.0%	$115,668
9.0	37.2%	0.0%	$120,528	37.2%	0.0%	$120,528
10.0	38.4%	0.0%	$124,416	38.4%	0.0%	$124,416
11.0	39.2%	0.0%	$127,008	39.2%	0.0%	$127,008
12.0	39.7%	0.0%	$128,628	39.7%	0.0%	$128,628
13.0	40.0%	0.0%	$129,600	40.0%	0.0%	$129,600
14.0	40.0%	0.0%	$129,600	40.0%	0.0%	$129,600
15.0	40.0%	0.0%	$129,600	40.0%	0.0%	$129,600
16.0	40.0%	0.0%	$129,600	40.0%	0.0%	$129,600

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$145,800	45.0		$145,800
2.0	90.0		$324,000	90.0		$324,000
3.0	135.0		$324,000	135.0		$324,000
4.0	180.0		$324,000	180.0		$324,000
5.0	225.0		$324,000	225.0		$324,000
6.0	270.0		$324,000	270.0		$324,000
7.0	315.0		$324,000	315.0		$324,000
8.0	360.0		$324,000	360.0		$324,000
9.0	405.0		$324,000	405.0		$324,000
10.0	450.0		$324,000	450.0		$324,000
11.0	495.0		$324,000	495.0		$324,000
12.0	540.0		$324,000	540.0		$324,000
13.0	585.0		$324,000	585.0		$324,000
14.0	630.0		$324,000	630.0		$324,000
15.0	675.0		$324,000	675.0		$324,000
16.0	720.0		$324,000	720.0		$324,000

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$145,800	45.0		$145,800
2.0	90.0		$324,000	90.0		$324,000
3.0	135.0		$324,000	135.0		$324,000
4.0	180.0		$324,000	180.0		$324,000
5.0	225.0		$324,000	225.0		$324,000
6.0	270.0		$324,000	270.0		$324,000
7.0	315.0		$324,000	315.0		$324,000
8.0	360.0		$324,000	360.0		$324,000
9.0	405.0		$324,000	405.0		$324,000
10.0	450.0		$324,000	450.0		$324,000
11.0	495.0		$324,000	495.0		$324,000
12.0	540.0		$324,000	540.0		$324,000
13.0	585.0		$324,000	585.0		$324,000
14.0	630.0		$324,000	630.0		$324,000
15.0	675.0		$324,000	675.0		$324,000
16.0	720.0		$324,000	720.0		$324,000

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$3,546	Annual:	$0	Annual:	$3,546
Present Value:	$44,008	Present Value:	($1)	Present Value:	$44,009

Mitigation Benefits: $44,009 Mitigation Costs: $26,321

Benefits Minus Costs: $17,688 Benefit-Cost Ratio: 1.67

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$26,321	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1362 E McLemore Ave, 1362 E McLemore Ave, memphis, Tennessee, , Shelby

Benefits: $50,537 Costs: $1 BCR: 50,537.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	8,200	BRV ($/sf):	$40.00	Total BRV:	$328,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	292.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$328,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	292.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	0.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	289.55	1.0	289.34	1.0
50	2.00%	290.00	2.0	289.40	2.0
100	1.00%	294.01	3.0	289.85	3.0
500	0.20%	294.50	4.0	289.90	4.0

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$8,200	2.5%	0.0%	$8,200
0.0	13.4%	0.0%	$43,952	13.4%	0.0%	$43,952
1.0	23.3%	0.0%	$76,424	23.3%	0.0%	$76,424
2.0	32.1%	0.0%	$105,288	32.1%	0.0%	$105,288
3.0	40.1%	0.0%	$131,528	40.1%	0.0%	$131,528
4.0	47.1%	0.0%	$154,488	47.1%	0.0%	$154,488
5.0	53.2%	0.0%	$328,000	53.2%	0.0%	$328,000
6.0	58.6%	0.0%	$328,000	58.6%	0.0%	$328,000
7.0	63.2%	0.0%	$328,000	63.2%	0.0%	$328,000
8.0	67.2%	0.0%	$328,000	67.2%	0.0%	$328,000
9.0	70.5%	0.0%	$328,000	70.5%	0.0%	$328,000
10.0	73.2%	0.0%	$328,000	73.2%	0.0%	$328,000
11.0	75.4%	0.0%	$328,000	75.4%	0.0%	$328,000
12.0	77.2%	0.0%	$328,000	77.2%	0.0%	$328,000
13.0	78.5%	0.0%	$328,000	78.5%	0.0%	$328,000
14.0	79.5%	0.0%	$328,000	79.5%	0.0%	$328,000
15.0	80.2%	0.0%	$328,000	80.2%	0.0%	$328,000
16.0	80.7%	0.0%	$328,000	80.7%	0.0%	$328,000

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$7,872	2.4%	0.0%	$7,872
0.0	8.1%	0.0%	$26,568	8.1%	0.0%	$26,568
1.0	13.3%	0.0%	$43,624	13.3%	0.0%	$43,624
2.0	17.9%	0.0%	$58,712	17.9%	0.0%	$58,712
3.0	22.0%	0.0%	$72,160	22.0%	0.0%	$72,160
4.0	25.7%	0.0%	$84,296	25.7%	0.0%	$84,296
5.0	28.8%	0.0%	$94,464	28.8%	0.0%	$94,464
6.0	31.5%	0.0%	$103,320	31.5%	0.0%	$103,320
7.0	33.8%	0.0%	$110,864	33.8%	0.0%	$110,864
8.0	35.7%	0.0%	$117,096	35.7%	0.0%	$117,096
9.0	37.2%	0.0%	$122,016	37.2%	0.0%	$122,016
10.0	38.4%	0.0%	$125,952	38.4%	0.0%	$125,952
11.0	39.2%	0.0%	$128,576	39.2%	0.0%	$128,576
12.0	39.7%	0.0%	$130,216	39.7%	0.0%	$130,216
13.0	40.0%	0.0%	$131,200	40.0%	0.0%	$131,200
14.0	40.0%	0.0%	$131,200	40.0%	0.0%	$131,200
15.0	40.0%	0.0%	$131,200	40.0%	0.0%	$131,200
16.0	40.0%	0.0%	$131,200	40.0%	0.0%	$131,200

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$147,600	45.0		$147,600
2.0	90.0		$328,000	90.0		$328,000
3.0	135.0		$328,000	135.0		$328,000
4.0	180.0		$328,000	180.0		$328,000
5.0	225.0		$328,000	225.0		$328,000
6.0	270.0		$328,000	270.0		$328,000
7.0	315.0		$328,000	315.0		$328,000
8.0	360.0		$328,000	360.0		$328,000
9.0	405.0		$328,000	405.0		$328,000
10.0	450.0		$328,000	450.0		$328,000
11.0	495.0		$328,000	495.0		$328,000
12.0	540.0		$328,000	540.0		$328,000
13.0	585.0		$328,000	585.0		$328,000
14.0	630.0		$328,000	630.0		$328,000
15.0	675.0		$328,000	675.0		$328,000
16.0	720.0		$328,000	720.0		$328,000

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$147,600	45.0		$147,600
2.0	90.0		$328,000	90.0		$328,000
3.0	135.0		$328,000	135.0		$328,000
4.0	180.0		$328,000	180.0		$328,000
5.0	225.0		$328,000	225.0		$328,000
6.0	270.0		$328,000	270.0		$328,000
7.0	315.0		$328,000	315.0		$328,000
8.0	360.0		$328,000	360.0		$328,000
9.0	405.0		$328,000	405.0		$328,000
10.0	450.0		$328,000	450.0		$328,000
11.0	495.0		$328,000	495.0		$328,000
12.0	540.0		$328,000	540.0		$328,000
13.0	585.0		$328,000	585.0		$328,000
14.0	630.0		$328,000	630.0		$328,000
15.0	675.0		$328,000	675.0		$328,000
16.0	720.0		$328,000	720.0		$328,000

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$4,073	Annual:	$0	Annual:	$4,073
Present Value:	$50,536	Present Value:	($1)	Present Value:	$50,537

Mitigation Benefits: $50,537 Mitigation Costs: $1

Benefits Minus Costs: $50,536 Benefit-Cost Ratio: 50,537.00

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$94,546** Total Costs: **$26,322** BCR: **3.59**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

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Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Project Summary:

Project Number: 60330437 Disaster #:

Program: Agency: AECOM

Analyst: kulvir singh

Point of Contact: kulvir singh Phone Number: 4044749476

Address: Memphis, Tennessee

Email: kulvir.singh@aecom.com

Comments:

Structure Summary For:

1205 Wilson St, 1205 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $104,554 Costs: $28,300 BCR: 3.69

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	3.69	$104,554	$28,300

1209 Wilson St, 1209 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $87,152 Costs: $1 BCR: 87,152.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	87,152.00	$87,152	$1

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1215 Wilson St, 1215 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $66,434 Costs: $1 BCR: 66,434.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	66,434.00	$66,434	$1

1220 Wilson St, 1220 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $37,114 Costs: $1 BCR: 37,114.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	37,114.00	$37,114	$1

1221 Wilson St, 1221 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $37,114 Costs: $1 BCR: 37,114.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	37,114.00	$37,114	$1

1223 Wilson St, 1223 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $18,530 Costs: $1 BCR: 18,530.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	18,530.00	$18,530	$1

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1224 wilson St, 1224 wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $9,502 Costs: $1 BCR: 9,502.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	9,502.00	$9,502	$1

1229 Wilson St, 1229 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $7,783 Costs: $1 BCR: 7,783.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	7,783.00	$7,783	$1

1233 Wilson St, 1233 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,213 Costs: $1 BCR: 8,213.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,213.00	$8,213	$1

1234 Wilson St, 1234 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $7,783 Costs: $1 BCR: 7,783.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	7,783.00	$7,783	$1

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1239 Wilson St, 1239 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,642 Costs: $1 BCR: 8,642.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,642.00	$8,642	$1

1243 Wilson St, 1243 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $12,940 Costs: $1 BCR: 12,940.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	12,940.00	$12,940	$1

1245 Wilson St, 1245 Wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $8,171 Costs: $1 BCR: 8,171.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	8,171.00	$8,171	$1

1254 wilson St, 1254 wilson St, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,652 Costs: $1 BCR: 11,652.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,652.00	$11,652	$1

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1336 Gleason Ave, 1336 Gleason Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $16,869 Costs: $1 BCR: 16,869.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	16,869.00	$16,869	$1

1349 Orgill Ave, 1349 Orgill Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $10,145 Costs: $1 BCR: 10,145.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	10,145.00	$10,145	$1

1377 Trigg Ave, 1377 Trigg Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,265.00	$11,265	$1

1378 Gleason Ave, 1378 Gleason Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,265.00	$11,265	$1

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1386 Richmond Ave, 1386 Richmond Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,265.00	$11,265	$1

1388 South Parkway E, 1388 South Parkway E, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,265.00	$11,265	$1

1392 Richmond Ave, 1392 Richmond Ave, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,265.00	$11,265	$1

1393 South Parkway E, 1393 South Parkway E, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,265.00	$11,265	$1

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

1408 South Parkway E, 1408 South Parkway E, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,209 Costs: $1 BCR: 11,209.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,209.00	$11,209	$1

1410 South Parkway E, 1410 South Parkway E, memphis, Tennessee, , Shelby

Structure Type: Building Historic Building: No Contact:

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Mitigation	Hazard	BCR	Benefits	Costs
Dry Flood Proofing	Flood	11,265.00	$11,265	$1

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1205 Wilson St, 1205 Wilson St, memphis, Tennessee, , Shelby

Benefits: $104,554 Costs: $28,300 BCR: 3.69

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$60.00	Total BRV:	$126,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	279.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$126,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	279.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,150	2.5%	0.0%	$3,150
0.0	13.4%	0.0%	$16,884	13.4%	0.0%	$16,884
1.0	23.3%	0.0%	$29,358	23.3%	0.0%	$29,358
2.0	32.1%	0.0%	$40,446	32.1%	0.0%	$40,446
3.0	40.1%	0.0%	$50,526	40.1%	0.0%	$50,526
4.0	47.1%	0.0%	$59,346	47.1%	0.0%	$59,346
5.0	53.2%	0.0%	$126,000	53.2%	0.0%	$126,000
6.0	58.6%	0.0%	$126,000	58.6%	0.0%	$126,000
7.0	63.2%	0.0%	$126,000	63.2%	0.0%	$126,000
8.0	67.2%	0.0%	$126,000	67.2%	0.0%	$126,000
9.0	70.5%	0.0%	$126,000	70.5%	0.0%	$126,000
10.0	73.2%	0.0%	$126,000	73.2%	0.0%	$126,000
11.0	75.4%	0.0%	$126,000	75.4%	0.0%	$126,000
12.0	77.2%	0.0%	$126,000	77.2%	0.0%	$126,000
13.0	78.5%	0.0%	$126,000	78.5%	0.0%	$126,000
14.0	79.5%	0.0%	$126,000	79.5%	0.0%	$126,000
15.0	80.2%	0.0%	$126,000	80.2%	0.0%	$126,000
16.0	80.7%	0.0%	$126,000	80.7%	0.0%	$126,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$3,024	2.4%	0.0%	$3,024
0.0	8.1%	0.0%	$10,206	8.1%	0.0%	$10,206
1.0	13.3%	0.0%	$16,758	13.3%	0.0%	$16,758
2.0	17.9%	0.0%	$22,554	17.9%	0.0%	$22,554
3.0	22.0%	0.0%	$27,720	22.0%	0.0%	$27,720
4.0	25.7%	0.0%	$32,382	25.7%	0.0%	$32,382
5.0	28.8%	0.0%	$36,288	28.8%	0.0%	$36,288
6.0	31.5%	0.0%	$39,690	31.5%	0.0%	$39,690
7.0	33.8%	0.0%	$42,588	33.8%	0.0%	$42,588
8.0	35.7%	0.0%	$44,982	35.7%	0.0%	$44,982
9.0	37.2%	0.0%	$46,872	37.2%	0.0%	$46,872
10.0	38.4%	0.0%	$48,384	38.4%	0.0%	$48,384
11.0	39.2%	0.0%	$49,392	39.2%	0.0%	$49,392
12.0	39.7%	0.0%	$50,022	39.7%	0.0%	$50,022
13.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
14.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
15.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400
16.0	40.0%	0.0%	$50,400	40.0%	0.0%	$50,400

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$56,700	45.0		$56,700
2.0	90.0		$126,000	90.0		$126,000
3.0	135.0		$126,000	135.0		$126,000
4.0	180.0		$126,000	180.0		$126,000
5.0	225.0		$126,000	225.0		$126,000
6.0	270.0		$126,000	270.0		$126,000
7.0	315.0		$126,000	315.0		$126,000
8.0	360.0		$126,000	360.0		$126,000
9.0	405.0		$126,000	405.0		$126,000
10.0	450.0		$126,000	450.0		$126,000
11.0	495.0		$126,000	495.0		$126,000
12.0	540.0		$126,000	540.0		$126,000
13.0	585.0		$126,000	585.0		$126,000
14.0	630.0		$126,000	630.0		$126,000
15.0	675.0		$126,000	675.0		$126,000
16.0	720.0		$126,000	720.0		$126,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$8,726	Annual:	$300	Annual:	$8,426
Present Value:	$108,279	Present Value:	$3,725	Present Value:	$104,554

Mitigation Benefits: $104,554 Mitigation Costs: $28,300

Benefits Minus Costs: $76,254 Benefit-Cost Ratio: 3.69

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$28,300	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1209 Wilson St, 1209 Wilson St, memphis, Tennessee, , Shelby

Benefits: $87,152 Costs: $1 BCR: 87,152.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$50.00	Total BRV:	$105,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	279.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$105,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	279.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,625	2.5%	0.0%	$2,625
0.0	13.4%	0.0%	$14,070	13.4%	0.0%	$14,070
1.0	23.3%	0.0%	$24,465	23.3%	0.0%	$24,465
2.0	32.1%	0.0%	$33,705	32.1%	0.0%	$33,705
3.0	40.1%	0.0%	$42,105	40.1%	0.0%	$42,105
4.0	47.1%	0.0%	$49,455	47.1%	0.0%	$49,455
5.0	53.2%	0.0%	$105,000	53.2%	0.0%	$105,000
6.0	58.6%	0.0%	$105,000	58.6%	0.0%	$105,000
7.0	63.2%	0.0%	$105,000	63.2%	0.0%	$105,000
8.0	67.2%	0.0%	$105,000	67.2%	0.0%	$105,000
9.0	70.5%	0.0%	$105,000	70.5%	0.0%	$105,000
10.0	73.2%	0.0%	$105,000	73.2%	0.0%	$105,000
11.0	75.4%	0.0%	$105,000	75.4%	0.0%	$105,000
12.0	77.2%	0.0%	$105,000	77.2%	0.0%	$105,000
13.0	78.5%	0.0%	$105,000	78.5%	0.0%	$105,000
14.0	79.5%	0.0%	$105,000	79.5%	0.0%	$105,000
15.0	80.2%	0.0%	$105,000	80.2%	0.0%	$105,000
16.0	80.7%	0.0%	$105,000	80.7%	0.0%	$105,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,520	2.4%	0.0%	$2,520
0.0	8.1%	0.0%	$8,505	8.1%	0.0%	$8,505
1.0	13.3%	0.0%	$13,965	13.3%	0.0%	$13,965
2.0	17.9%	0.0%	$18,795	17.9%	0.0%	$18,795
3.0	22.0%	0.0%	$23,100	22.0%	0.0%	$23,100
4.0	25.7%	0.0%	$26,985	25.7%	0.0%	$26,985
5.0	28.8%	0.0%	$30,240	28.8%	0.0%	$30,240
6.0	31.5%	0.0%	$33,075	31.5%	0.0%	$33,075
7.0	33.8%	0.0%	$35,490	33.8%	0.0%	$35,490
8.0	35.7%	0.0%	$37,485	35.7%	0.0%	$37,485
9.0	37.2%	0.0%	$39,060	37.2%	0.0%	$39,060
10.0	38.4%	0.0%	$40,320	38.4%	0.0%	$40,320
11.0	39.2%	0.0%	$41,160	39.2%	0.0%	$41,160
12.0	39.7%	0.0%	$41,685	39.7%	0.0%	$41,685
13.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
14.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
15.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000
16.0	40.0%	0.0%	$42,000	40.0%	0.0%	$42,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$47,250	45.0		$47,250
2.0	90.0		$105,000	90.0		$105,000
3.0	135.0		$105,000	135.0		$105,000
4.0	180.0		$105,000	180.0		$105,000
5.0	225.0		$105,000	225.0		$105,000
6.0	270.0		$105,000	270.0		$105,000
7.0	315.0		$105,000	315.0		$105,000
8.0	360.0		$105,000	360.0		$105,000
9.0	405.0		$105,000	405.0		$105,000
10.0	450.0		$105,000	450.0		$105,000
11.0	495.0		$105,000	495.0		$105,000
12.0	540.0		$105,000	540.0		$105,000
13.0	585.0		$105,000	585.0		$105,000
14.0	630.0		$105,000	630.0		$105,000
15.0	675.0		$105,000	675.0		$105,000
16.0	720.0		$105,000	720.0		$105,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$47,250	45.0		$47,250
2.0	90.0		$105,000	90.0		$105,000
3.0	135.0		$105,000	135.0		$105,000
4.0	180.0		$105,000	180.0		$105,000
5.0	225.0		$105,000	225.0		$105,000
6.0	270.0		$105,000	270.0		$105,000
7.0	315.0		$105,000	315.0		$105,000
8.0	360.0		$105,000	360.0		$105,000
9.0	405.0		$105,000	405.0		$105,000
10.0	450.0		$105,000	450.0		$105,000
11.0	495.0		$105,000	495.0		$105,000
12.0	540.0		$105,000	540.0		$105,000
13.0	585.0		$105,000	585.0		$105,000
14.0	630.0		$105,000	630.0		$105,000
15.0	675.0		$105,000	675.0		$105,000
16.0	720.0		$105,000	720.0		$105,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$7,274	Annual:	$250	Annual:	$7,024
Present Value:	$90,260	Present Value:	$3,108	Present Value:	$87,152

Mitigation Benefits: $87,152 Mitigation Costs: $1

Benefits Minus Costs: $87,151 Benefit-Cost Ratio: 87,152.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1215 Wilson St, 1215 Wilson St, memphis, Tennessee, , Shelby

Benefits: $66,434 Costs: $1 BCR: 66,434.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	279.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	279.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$5,545	Annual:	$191	Annual:	$5,354
Present Value:	$68,808	Present Value:	$2,374	Present Value:	$66,434

Mitigation Benefits: $66,434 Mitigation Costs: $1

Benefits Minus Costs: $66,433 Benefit-Cost Ratio: 66,434.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1220 Wilson St, 1220 Wilson St, memphis, Tennessee, , Shelby

Benefits: $37,114 Costs: $1 BCR: 37,114.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	280.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	280.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$3,131	Annual:	$140	Annual:	$2,991
Present Value:	$38,847	Present Value:	$1,733	Present Value:	$37,114

Mitigation Benefits: $37,114 Mitigation Costs: $1

Benefits Minus Costs: $37,113 Benefit-Cost Ratio: 37,114.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1221 Wilson St, 1221 Wilson St, memphis, Tennessee, , Shelby

Benefits: $37,114 Costs: $1 BCR: 37,114.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	280.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	280.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$3,131	Annual:	$140	Annual:	$2,991
Present Value:	$38,847	Present Value:	$1,733	Present Value:	$37,114

Mitigation Benefits: $37,114 Mitigation Costs: $1

Benefits Minus Costs: $37,113 Benefit-Cost Ratio: 37,114.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1223 Wilson St, 1223 Wilson St, memphis, Tennessee, , Shelby

Benefits: $18,530 Costs: $1 BCR: 18,530.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	280.50	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	280.50			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,593	Annual:	$100	Annual:	$1,493
Present Value:	$19,767	Present Value:	$1,237	Present Value:	$18,530

Mitigation Benefits: $18,530 Mitigation Costs: $1

Benefits Minus Costs: $18,529 Benefit-Cost Ratio: 18,530.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1224 wilson St, 1224 wilson St, memphis, Tennessee, , Shelby

Benefits: $9,502 Costs: $1 BCR: 9,502.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,200	BRV ($/sf):	$40.00	Total BRV:	$88,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.20	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$88,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.20			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,200	2.5%	0.0%	$2,200
0.0	13.4%	0.0%	$11,792	13.4%	0.0%	$11,792
1.0	23.3%	0.0%	$20,504	23.3%	0.0%	$20,504
2.0	32.1%	0.0%	$28,248	32.1%	0.0%	$28,248
3.0	40.1%	0.0%	$35,288	40.1%	0.0%	$35,288
4.0	47.1%	0.0%	$41,448	47.1%	0.0%	$41,448
5.0	53.2%	0.0%	$88,000	53.2%	0.0%	$88,000
6.0	58.6%	0.0%	$88,000	58.6%	0.0%	$88,000
7.0	63.2%	0.0%	$88,000	63.2%	0.0%	$88,000
8.0	67.2%	0.0%	$88,000	67.2%	0.0%	$88,000
9.0	70.5%	0.0%	$88,000	70.5%	0.0%	$88,000
10.0	73.2%	0.0%	$88,000	73.2%	0.0%	$88,000
11.0	75.4%	0.0%	$88,000	75.4%	0.0%	$88,000
12.0	77.2%	0.0%	$88,000	77.2%	0.0%	$88,000
13.0	78.5%	0.0%	$88,000	78.5%	0.0%	$88,000
14.0	79.5%	0.0%	$88,000	79.5%	0.0%	$88,000
15.0	80.2%	0.0%	$88,000	80.2%	0.0%	$88,000
16.0	80.7%	0.0%	$88,000	80.7%	0.0%	$88,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,112	2.4%	0.0%	$2,112
0.0	8.1%	0.0%	$7,128	8.1%	0.0%	$7,128
1.0	13.3%	0.0%	$11,704	13.3%	0.0%	$11,704
2.0	17.9%	0.0%	$15,752	17.9%	0.0%	$15,752
3.0	22.0%	0.0%	$19,360	22.0%	0.0%	$19,360
4.0	25.7%	0.0%	$22,616	25.7%	0.0%	$22,616
5.0	28.8%	0.0%	$25,344	28.8%	0.0%	$25,344
6.0	31.5%	0.0%	$27,720	31.5%	0.0%	$27,720
7.0	33.8%	0.0%	$29,744	33.8%	0.0%	$29,744
8.0	35.7%	0.0%	$31,416	35.7%	0.0%	$31,416
9.0	37.2%	0.0%	$32,736	37.2%	0.0%	$32,736
10.0	38.4%	0.0%	$33,792	38.4%	0.0%	$33,792
11.0	39.2%	0.0%	$34,496	39.2%	0.0%	$34,496
12.0	39.7%	0.0%	$34,936	39.7%	0.0%	$34,936
13.0	40.0%	0.0%	$35,200	40.0%	0.0%	$35,200
14.0	40.0%	0.0%	$35,200	40.0%	0.0%	$35,200
15.0	40.0%	0.0%	$35,200	40.0%	0.0%	$35,200
16.0	40.0%	0.0%	$35,200	40.0%	0.0%	$35,200

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$39,600	45.0		$39,600
2.0	90.0		$88,000	90.0		$88,000
3.0	135.0		$88,000	135.0		$88,000
4.0	180.0		$88,000	180.0		$88,000
5.0	225.0		$88,000	225.0		$88,000
6.0	270.0		$88,000	270.0		$88,000
7.0	315.0		$88,000	315.0		$88,000
8.0	360.0		$88,000	360.0		$88,000
9.0	405.0		$88,000	405.0		$88,000
10.0	450.0		$88,000	450.0		$88,000
11.0	495.0		$88,000	495.0		$88,000
12.0	540.0		$88,000	540.0		$88,000
13.0	585.0		$88,000	585.0		$88,000
14.0	630.0		$88,000	630.0		$88,000
15.0	675.0		$88,000	675.0		$88,000
16.0	720.0		$88,000	720.0		$88,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$39,600	45.0		$39,600
2.0	90.0		$88,000	90.0		$88,000
3.0	135.0		$88,000	135.0		$88,000
4.0	180.0		$88,000	180.0		$88,000
5.0	225.0		$88,000	225.0		$88,000
6.0	270.0		$88,000	270.0		$88,000
7.0	315.0		$88,000	315.0		$88,000
8.0	360.0		$88,000	360.0		$88,000
9.0	405.0		$88,000	405.0		$88,000
10.0	450.0		$88,000	450.0		$88,000
11.0	495.0		$88,000	495.0		$88,000
12.0	540.0		$88,000	540.0		$88,000
13.0	585.0		$88,000	585.0		$88,000
14.0	630.0		$88,000	630.0		$88,000
15.0	675.0		$88,000	675.0		$88,000
16.0	720.0		$88,000	720.0		$88,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$844	Annual:	$78	Annual:	$766
Present Value:	$10,470	Present Value:	$968	Present Value:	$9,502

Mitigation Benefits: $9,502 Mitigation Costs: $1

Benefits Minus Costs: $9,501 Benefit-Cost Ratio: 9,502.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1229 Wilson St, 1229 Wilson St, memphis, Tennessee, , Shelby

Benefits: $7,783 Costs: $1 BCR: 7,783.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,800	BRV ($/sf):	$40.00	Total BRV:	$72,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.20	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$72,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.20			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,800	2.5%	0.0%	$1,800
0.0	13.4%	0.0%	$9,648	13.4%	0.0%	$9,648
1.0	23.3%	0.0%	$16,776	23.3%	0.0%	$16,776
2.0	32.1%	0.0%	$23,112	32.1%	0.0%	$23,112
3.0	40.1%	0.0%	$28,872	40.1%	0.0%	$28,872
4.0	47.1%	0.0%	$33,912	47.1%	0.0%	$33,912
5.0	53.2%	0.0%	$72,000	53.2%	0.0%	$72,000
6.0	58.6%	0.0%	$72,000	58.6%	0.0%	$72,000
7.0	63.2%	0.0%	$72,000	63.2%	0.0%	$72,000
8.0	67.2%	0.0%	$72,000	67.2%	0.0%	$72,000
9.0	70.5%	0.0%	$72,000	70.5%	0.0%	$72,000
10.0	73.2%	0.0%	$72,000	73.2%	0.0%	$72,000
11.0	75.4%	0.0%	$72,000	75.4%	0.0%	$72,000
12.0	77.2%	0.0%	$72,000	77.2%	0.0%	$72,000
13.0	78.5%	0.0%	$72,000	78.5%	0.0%	$72,000
14.0	79.5%	0.0%	$72,000	79.5%	0.0%	$72,000
15.0	80.2%	0.0%	$72,000	80.2%	0.0%	$72,000
16.0	80.7%	0.0%	$72,000	80.7%	0.0%	$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,728	2.4%	0.0%	$1,728
0.0	8.1%	0.0%	$5,832	8.1%	0.0%	$5,832
1.0	13.3%	0.0%	$9,576	13.3%	0.0%	$9,576
2.0	17.9%	0.0%	$12,888	17.9%	0.0%	$12,888
3.0	22.0%	0.0%	$15,840	22.0%	0.0%	$15,840
4.0	25.7%	0.0%	$18,504	25.7%	0.0%	$18,504
5.0	28.8%	0.0%	$20,736	28.8%	0.0%	$20,736
6.0	31.5%	0.0%	$22,680	31.5%	0.0%	$22,680
7.0	33.8%	0.0%	$24,336	33.8%	0.0%	$24,336
8.0	35.7%	0.0%	$25,704	35.7%	0.0%	$25,704
9.0	37.2%	0.0%	$26,784	37.2%	0.0%	$26,784
10.0	38.4%	0.0%	$27,648	38.4%	0.0%	$27,648
11.0	39.2%	0.0%	$28,224	39.2%	0.0%	$28,224
12.0	39.7%	0.0%	$28,584	39.7%	0.0%	$28,584
13.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
14.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
15.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
16.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$32,400	45.0		$32,400
2.0	90.0		$72,000	90.0		$72,000
3.0	135.0		$72,000	135.0		$72,000
4.0	180.0		$72,000	180.0		$72,000
5.0	225.0		$72,000	225.0		$72,000
6.0	270.0		$72,000	270.0		$72,000
7.0	315.0		$72,000	315.0		$72,000
8.0	360.0		$72,000	360.0		$72,000
9.0	405.0		$72,000	405.0		$72,000
10.0	450.0		$72,000	450.0		$72,000
11.0	495.0		$72,000	495.0		$72,000
12.0	540.0		$72,000	540.0		$72,000
13.0	585.0		$72,000	585.0		$72,000
14.0	630.0		$72,000	630.0		$72,000
15.0	675.0		$72,000	675.0		$72,000
16.0	720.0		$72,000	720.0		$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$32,400	45.0		$32,400
2.0	90.0		$72,000	90.0		$72,000
3.0	135.0		$72,000	135.0		$72,000
4.0	180.0		$72,000	180.0		$72,000
5.0	225.0		$72,000	225.0		$72,000
6.0	270.0		$72,000	270.0		$72,000
7.0	315.0		$72,000	315.0		$72,000
8.0	360.0		$72,000	360.0		$72,000
9.0	405.0		$72,000	405.0		$72,000
10.0	450.0		$72,000	450.0		$72,000
11.0	495.0		$72,000	495.0		$72,000
12.0	540.0		$72,000	540.0		$72,000
13.0	585.0		$72,000	585.0		$72,000
14.0	630.0		$72,000	630.0		$72,000
15.0	675.0		$72,000	675.0		$72,000
16.0	720.0		$72,000	720.0		$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$691	Annual:	$64	Annual:	$627
Present Value:	$8,577	Present Value:	$794	Present Value:	$7,783

Mitigation Benefits: $7,783 Mitigation Costs: $1

Benefits Minus Costs: $7,782 Benefit-Cost Ratio: 7,783.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1233 Wilson St, 1233 Wilson St, memphis, Tennessee, , Shelby

Benefits: $8,213 Costs: $1 BCR: 8,213.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,900	BRV ($/sf):	$40.00	Total BRV:	$76,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.20	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$76,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.20			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,900	2.5%	0.0%	$1,900
0.0	13.4%	0.0%	$10,184	13.4%	0.0%	$10,184
1.0	23.3%	0.0%	$17,708	23.3%	0.0%	$17,708
2.0	32.1%	0.0%	$24,396	32.1%	0.0%	$24,396
3.0	40.1%	0.0%	$30,476	40.1%	0.0%	$30,476
4.0	47.1%	0.0%	$35,796	47.1%	0.0%	$35,796
5.0	53.2%	0.0%	$76,000	53.2%	0.0%	$76,000
6.0	58.6%	0.0%	$76,000	58.6%	0.0%	$76,000
7.0	63.2%	0.0%	$76,000	63.2%	0.0%	$76,000
8.0	67.2%	0.0%	$76,000	67.2%	0.0%	$76,000
9.0	70.5%	0.0%	$76,000	70.5%	0.0%	$76,000
10.0	73.2%	0.0%	$76,000	73.2%	0.0%	$76,000
11.0	75.4%	0.0%	$76,000	75.4%	0.0%	$76,000
12.0	77.2%	0.0%	$76,000	77.2%	0.0%	$76,000
13.0	78.5%	0.0%	$76,000	78.5%	0.0%	$76,000
14.0	79.5%	0.0%	$76,000	79.5%	0.0%	$76,000
15.0	80.2%	0.0%	$76,000	80.2%	0.0%	$76,000
16.0	80.7%	0.0%	$76,000	80.7%	0.0%	$76,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,824	2.4%	0.0%	$1,824
0.0	8.1%	0.0%	$6,156	8.1%	0.0%	$6,156
1.0	13.3%	0.0%	$10,108	13.3%	0.0%	$10,108
2.0	17.9%	0.0%	$13,604	17.9%	0.0%	$13,604
3.0	22.0%	0.0%	$16,720	22.0%	0.0%	$16,720
4.0	25.7%	0.0%	$19,532	25.7%	0.0%	$19,532
5.0	28.8%	0.0%	$21,888	28.8%	0.0%	$21,888
6.0	31.5%	0.0%	$23,940	31.5%	0.0%	$23,940
7.0	33.8%	0.0%	$25,688	33.8%	0.0%	$25,688
8.0	35.7%	0.0%	$27,132	35.7%	0.0%	$27,132
9.0	37.2%	0.0%	$28,272	37.2%	0.0%	$28,272
10.0	38.4%	0.0%	$29,184	38.4%	0.0%	$29,184
11.0	39.2%	0.0%	$29,792	39.2%	0.0%	$29,792
12.0	39.7%	0.0%	$30,172	39.7%	0.0%	$30,172
13.0	40.0%	0.0%	$30,400	40.0%	0.0%	$30,400
14.0	40.0%	0.0%	$30,400	40.0%	0.0%	$30,400
15.0	40.0%	0.0%	$30,400	40.0%	0.0%	$30,400
16.0	40.0%	0.0%	$30,400	40.0%	0.0%	$30,400

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$34,200	45.0		$34,200
2.0	90.0		$76,000	90.0		$76,000
3.0	135.0		$76,000	135.0		$76,000
4.0	180.0		$76,000	180.0		$76,000
5.0	225.0		$76,000	225.0		$76,000
6.0	270.0		$76,000	270.0		$76,000
7.0	315.0		$76,000	315.0		$76,000
8.0	360.0		$76,000	360.0		$76,000
9.0	405.0		$76,000	405.0		$76,000
10.0	450.0		$76,000	450.0		$76,000
11.0	495.0		$76,000	495.0		$76,000
12.0	540.0		$76,000	540.0		$76,000
13.0	585.0		$76,000	585.0		$76,000
14.0	630.0		$76,000	630.0		$76,000
15.0	675.0		$76,000	675.0		$76,000
16.0	720.0		$76,000	720.0		$76,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$34,200	45.0		$34,200
2.0	90.0		$76,000	90.0		$76,000
3.0	135.0		$76,000	135.0		$76,000
4.0	180.0		$76,000	180.0		$76,000
5.0	225.0		$76,000	225.0		$76,000
6.0	270.0		$76,000	270.0		$76,000
7.0	315.0		$76,000	315.0		$76,000
8.0	360.0		$76,000	360.0		$76,000
9.0	405.0		$76,000	405.0		$76,000
10.0	450.0		$76,000	450.0		$76,000
11.0	495.0		$76,000	495.0		$76,000
12.0	540.0		$76,000	540.0		$76,000
13.0	585.0		$76,000	585.0		$76,000
14.0	630.0		$76,000	630.0		$76,000
15.0	675.0		$76,000	675.0		$76,000
16.0	720.0		$76,000	720.0		$76,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$729	Annual:	$67	Annual:	$662
Present Value:	$9,050	Present Value:	$837	Present Value:	$8,213

Mitigation Benefits: $8,213 Mitigation Costs: $1

Benefits Minus Costs: $8,212 Benefit-Cost Ratio: 8,213.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1234 Wilson St, 1234 Wilson St, memphis, Tennessee, , Shelby

Benefits: $7,783 Costs: $1 BCR: 7,783.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,800	BRV ($/sf):	$40.00	Total BRV:	$72,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.20	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$72,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.20			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,800	2.5%	0.0%	$1,800
0.0	13.4%	0.0%	$9,648	13.4%	0.0%	$9,648
1.0	23.3%	0.0%	$16,776	23.3%	0.0%	$16,776
2.0	32.1%	0.0%	$23,112	32.1%	0.0%	$23,112
3.0	40.1%	0.0%	$28,872	40.1%	0.0%	$28,872
4.0	47.1%	0.0%	$33,912	47.1%	0.0%	$33,912
5.0	53.2%	0.0%	$72,000	53.2%	0.0%	$72,000
6.0	58.6%	0.0%	$72,000	58.6%	0.0%	$72,000
7.0	63.2%	0.0%	$72,000	63.2%	0.0%	$72,000
8.0	67.2%	0.0%	$72,000	67.2%	0.0%	$72,000
9.0	70.5%	0.0%	$72,000	70.5%	0.0%	$72,000
10.0	73.2%	0.0%	$72,000	73.2%	0.0%	$72,000
11.0	75.4%	0.0%	$72,000	75.4%	0.0%	$72,000
12.0	77.2%	0.0%	$72,000	77.2%	0.0%	$72,000
13.0	78.5%	0.0%	$72,000	78.5%	0.0%	$72,000
14.0	79.5%	0.0%	$72,000	79.5%	0.0%	$72,000
15.0	80.2%	0.0%	$72,000	80.2%	0.0%	$72,000
16.0	80.7%	0.0%	$72,000	80.7%	0.0%	$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,728	2.4%	0.0%	$1,728
0.0	8.1%	0.0%	$5,832	8.1%	0.0%	$5,832
1.0	13.3%	0.0%	$9,576	13.3%	0.0%	$9,576
2.0	17.9%	0.0%	$12,888	17.9%	0.0%	$12,888
3.0	22.0%	0.0%	$15,840	22.0%	0.0%	$15,840
4.0	25.7%	0.0%	$18,504	25.7%	0.0%	$18,504
5.0	28.8%	0.0%	$20,736	28.8%	0.0%	$20,736
6.0	31.5%	0.0%	$22,680	31.5%	0.0%	$22,680
7.0	33.8%	0.0%	$24,336	33.8%	0.0%	$24,336
8.0	35.7%	0.0%	$25,704	35.7%	0.0%	$25,704
9.0	37.2%	0.0%	$26,784	37.2%	0.0%	$26,784
10.0	38.4%	0.0%	$27,648	38.4%	0.0%	$27,648
11.0	39.2%	0.0%	$28,224	39.2%	0.0%	$28,224
12.0	39.7%	0.0%	$28,584	39.7%	0.0%	$28,584
13.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
14.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
15.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
16.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$32,400	45.0		$32,400
2.0	90.0		$72,000	90.0		$72,000
3.0	135.0		$72,000	135.0		$72,000
4.0	180.0		$72,000	180.0		$72,000
5.0	225.0		$72,000	225.0		$72,000
6.0	270.0		$72,000	270.0		$72,000
7.0	315.0		$72,000	315.0		$72,000
8.0	360.0		$72,000	360.0		$72,000
9.0	405.0		$72,000	405.0		$72,000
10.0	450.0		$72,000	450.0		$72,000
11.0	495.0		$72,000	495.0		$72,000
12.0	540.0		$72,000	540.0		$72,000
13.0	585.0		$72,000	585.0		$72,000
14.0	630.0		$72,000	630.0		$72,000
15.0	675.0		$72,000	675.0		$72,000
16.0	720.0		$72,000	720.0		$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$32,400	45.0		$32,400
2.0	90.0		$72,000	90.0		$72,000
3.0	135.0		$72,000	135.0		$72,000
4.0	180.0		$72,000	180.0		$72,000
5.0	225.0		$72,000	225.0		$72,000
6.0	270.0		$72,000	270.0		$72,000
7.0	315.0		$72,000	315.0		$72,000
8.0	360.0		$72,000	360.0		$72,000
9.0	405.0		$72,000	405.0		$72,000
10.0	450.0		$72,000	450.0		$72,000
11.0	495.0		$72,000	495.0		$72,000
12.0	540.0		$72,000	540.0		$72,000
13.0	585.0		$72,000	585.0		$72,000
14.0	630.0		$72,000	630.0		$72,000
15.0	675.0		$72,000	675.0		$72,000
16.0	720.0		$72,000	720.0		$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$691	Annual:	$64	Annual:	$627
Present Value:	$8,577	Present Value:	$794	Present Value:	$7,783

Mitigation Benefits: $7,783 Mitigation Costs: $1

Benefits Minus Costs: $7,782 Benefit-Cost Ratio: 7,783.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1239 Wilson St, 1239 Wilson St, memphis, Tennessee, , Shelby

Benefits: $8,642 Costs: $1 BCR: 8,642.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.20	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.20			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$767	Annual:	$71	Annual:	$696
Present Value:	$9,523	Present Value:	$881	Present Value:	$8,642

Mitigation Benefits: $8,642 Mitigation Costs: $1

Benefits Minus Costs: $8,641 Benefit-Cost Ratio: 8,642.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1243 Wilson St, 1243 Wilson St, memphis, Tennessee, , Shelby

Benefits: $12,940 Costs: $1 BCR: 12,940.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.20	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.20			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,149	Annual:	$106	Annual:	$1,043
Present Value:	$14,256	Present Value:	$1,316	Present Value:	$12,940

Mitigation Benefits: $12,940 Mitigation Costs: $1

Benefits Minus Costs: $12,939 Benefit-Cost Ratio: 12,940.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1245 Wilson St, 1245 Wilson St, memphis, Tennessee, , Shelby

Benefits: $8,171 Costs: $1 BCR: 8,171.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,100	BRV ($/sf):	$40.00	Total BRV:	$84,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$84,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,100	2.5%	0.0%	$2,100
0.0	13.4%	0.0%	$11,256	13.4%	0.0%	$11,256
1.0	23.3%	0.0%	$19,572	23.3%	0.0%	$19,572
2.0	32.1%	0.0%	$26,964	32.1%	0.0%	$26,964
3.0	40.1%	0.0%	$33,684	40.1%	0.0%	$33,684
4.0	47.1%	0.0%	$39,564	47.1%	0.0%	$39,564
5.0	53.2%	0.0%	$84,000	53.2%	0.0%	$84,000
6.0	58.6%	0.0%	$84,000	58.6%	0.0%	$84,000
7.0	63.2%	0.0%	$84,000	63.2%	0.0%	$84,000
8.0	67.2%	0.0%	$84,000	67.2%	0.0%	$84,000
9.0	70.5%	0.0%	$84,000	70.5%	0.0%	$84,000
10.0	73.2%	0.0%	$84,000	73.2%	0.0%	$84,000
11.0	75.4%	0.0%	$84,000	75.4%	0.0%	$84,000
12.0	77.2%	0.0%	$84,000	77.2%	0.0%	$84,000
13.0	78.5%	0.0%	$84,000	78.5%	0.0%	$84,000
14.0	79.5%	0.0%	$84,000	79.5%	0.0%	$84,000
15.0	80.2%	0.0%	$84,000	80.2%	0.0%	$84,000
16.0	80.7%	0.0%	$84,000	80.7%	0.0%	$84,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,016	2.4%	0.0%	$2,016
0.0	8.1%	0.0%	$6,804	8.1%	0.0%	$6,804
1.0	13.3%	0.0%	$11,172	13.3%	0.0%	$11,172
2.0	17.9%	0.0%	$15,036	17.9%	0.0%	$15,036
3.0	22.0%	0.0%	$18,480	22.0%	0.0%	$18,480
4.0	25.7%	0.0%	$21,588	25.7%	0.0%	$21,588
5.0	28.8%	0.0%	$24,192	28.8%	0.0%	$24,192
6.0	31.5%	0.0%	$26,460	31.5%	0.0%	$26,460
7.0	33.8%	0.0%	$28,392	33.8%	0.0%	$28,392
8.0	35.7%	0.0%	$29,988	35.7%	0.0%	$29,988
9.0	37.2%	0.0%	$31,248	37.2%	0.0%	$31,248
10.0	38.4%	0.0%	$32,256	38.4%	0.0%	$32,256
11.0	39.2%	0.0%	$32,928	39.2%	0.0%	$32,928
12.0	39.7%	0.0%	$33,348	39.7%	0.0%	$33,348
13.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600
14.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600
15.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600
16.0	40.0%	0.0%	$33,600	40.0%	0.0%	$33,600

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$37,800	45.0		$37,800
2.0	90.0		$84,000	90.0		$84,000
3.0	135.0		$84,000	135.0		$84,000
4.0	180.0		$84,000	180.0		$84,000
5.0	225.0		$84,000	225.0		$84,000
6.0	270.0		$84,000	270.0		$84,000
7.0	315.0		$84,000	315.0		$84,000
8.0	360.0		$84,000	360.0		$84,000
9.0	405.0		$84,000	405.0		$84,000
10.0	450.0		$84,000	450.0		$84,000
11.0	495.0		$84,000	495.0		$84,000
12.0	540.0		$84,000	540.0		$84,000
13.0	585.0		$84,000	585.0		$84,000
14.0	630.0		$84,000	630.0		$84,000
15.0	675.0		$84,000	675.0		$84,000
16.0	720.0		$84,000	720.0		$84,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$37,800	45.0		$37,800
2.0	90.0		$84,000	90.0		$84,000
3.0	135.0		$84,000	135.0		$84,000
4.0	180.0		$84,000	180.0		$84,000
5.0	225.0		$84,000	225.0		$84,000
6.0	270.0		$84,000	270.0		$84,000
7.0	315.0		$84,000	315.0		$84,000
8.0	360.0		$84,000	360.0		$84,000
9.0	405.0		$84,000	405.0		$84,000
10.0	450.0		$84,000	450.0		$84,000
11.0	495.0		$84,000	495.0		$84,000
12.0	540.0		$84,000	540.0		$84,000
13.0	585.0		$84,000	585.0		$84,000
14.0	630.0		$84,000	630.0		$84,000
15.0	675.0		$84,000	675.0		$84,000
16.0	720.0		$84,000	720.0		$84,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$730	Annual:	$71	Annual:	$659
Present Value:	$9,054	Present Value:	$883	Present Value:	$8,171

Mitigation Benefits: $8,171 Mitigation Costs: $1

Benefits Minus Costs: $8,170 Benefit-Cost Ratio: 8,171.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1254 wilson St, 1254 wilson St, memphis, Tennessee, , Shelby

Benefits: $11,652 Costs: $1 BCR: 11,652.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	281.30	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	281.30			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	276.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	279.47	1.0	276.20	1.0
50	2.00%	280.00	2.0	277.00	2.0
100	1.00%	281.00	3.0	277.27	3.0
500	0.20%	281.50	4.0	278.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,040	Annual:	$101	Annual:	$939
Present Value:	$12,910	Present Value:	$1,258	Present Value:	$11,652

Mitigation Benefits: $11,652 Mitigation Costs: $1

Benefits Minus Costs: $11,651 Benefit-Cost Ratio: 11,652.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1336 Gleason Ave, 1336 Gleason Ave, memphis, Tennessee, , Shelby

Benefits: $16,869 Costs: $1 BCR: 16,869.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$60.00	Total BRV:	$120,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$120,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$3,000	2.5%	0.0%	$3,000
0.0	13.4%	0.0%	$16,080	13.4%	0.0%	$16,080
1.0	23.3%	0.0%	$27,960	23.3%	0.0%	$27,960
2.0	32.1%	0.0%	$38,520	32.1%	0.0%	$38,520
3.0	40.1%	0.0%	$48,120	40.1%	0.0%	$48,120
4.0	47.1%	0.0%	$56,520	47.1%	0.0%	$56,520
5.0	53.2%	0.0%	$120,000	53.2%	0.0%	$120,000
6.0	58.6%	0.0%	$120,000	58.6%	0.0%	$120,000
7.0	63.2%	0.0%	$120,000	63.2%	0.0%	$120,000
8.0	67.2%	0.0%	$120,000	67.2%	0.0%	$120,000
9.0	70.5%	0.0%	$120,000	70.5%	0.0%	$120,000
10.0	73.2%	0.0%	$120,000	73.2%	0.0%	$120,000
11.0	75.4%	0.0%	$120,000	75.4%	0.0%	$120,000
12.0	77.2%	0.0%	$120,000	77.2%	0.0%	$120,000
13.0	78.5%	0.0%	$120,000	78.5%	0.0%	$120,000
14.0	79.5%	0.0%	$120,000	79.5%	0.0%	$120,000
15.0	80.2%	0.0%	$120,000	80.2%	0.0%	$120,000
16.0	80.7%	0.0%	$120,000	80.7%	0.0%	$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$2,880	2.4%	0.0%	$2,880
0.0	8.1%	0.0%	$9,720	8.1%	0.0%	$9,720
1.0	13.3%	0.0%	$15,960	13.3%	0.0%	$15,960
2.0	17.9%	0.0%	$21,480	17.9%	0.0%	$21,480
3.0	22.0%	0.0%	$26,400	22.0%	0.0%	$26,400
4.0	25.7%	0.0%	$30,840	25.7%	0.0%	$30,840
5.0	28.8%	0.0%	$34,560	28.8%	0.0%	$34,560
6.0	31.5%	0.0%	$37,800	31.5%	0.0%	$37,800
7.0	33.8%	0.0%	$40,560	33.8%	0.0%	$40,560
8.0	35.7%	0.0%	$42,840	35.7%	0.0%	$42,840
9.0	37.2%	0.0%	$44,640	37.2%	0.0%	$44,640
10.0	38.4%	0.0%	$46,080	38.4%	0.0%	$46,080
11.0	39.2%	0.0%	$47,040	39.2%	0.0%	$47,040
12.0	39.7%	0.0%	$47,640	39.7%	0.0%	$47,640
13.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
14.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
15.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000
16.0	40.0%	0.0%	$48,000	40.0%	0.0%	$48,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$54,000	45.0		$54,000
2.0	90.0		$120,000	90.0		$120,000
3.0	135.0		$120,000	135.0		$120,000
4.0	180.0		$120,000	180.0		$120,000
5.0	225.0		$120,000	225.0		$120,000
6.0	270.0		$120,000	270.0		$120,000
7.0	315.0		$120,000	315.0		$120,000
8.0	360.0		$120,000	360.0		$120,000
9.0	405.0		$120,000	405.0		$120,000
10.0	450.0		$120,000	450.0		$120,000
11.0	495.0		$120,000	495.0		$120,000
12.0	540.0		$120,000	540.0		$120,000
13.0	585.0		$120,000	585.0		$120,000
14.0	630.0		$120,000	630.0		$120,000
15.0	675.0		$120,000	675.0		$120,000
16.0	720.0		$120,000	720.0		$120,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$1,415	Annual:	$56	Annual:	$1,359
Present Value:	$17,562	Present Value:	$693	Present Value:	$16,869

Mitigation Benefits: $16,869 Mitigation Costs: $1

Benefits Minus Costs: $16,868 Benefit-Cost Ratio: 16,869.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1349 Orgill Ave, 1349 Orgill Ave, memphis, Tennessee, , Shelby

Benefits: $10,145 Costs: $1 BCR: 10,145.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	1,800	BRV ($/sf):	$40.00	Total BRV:	$72,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$72,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$1,800	2.5%	0.0%	$1,800
0.0	13.4%	0.0%	$9,648	13.4%	0.0%	$9,648
1.0	23.3%	0.0%	$16,776	23.3%	0.0%	$16,776
2.0	32.1%	0.0%	$23,112	32.1%	0.0%	$23,112
3.0	40.1%	0.0%	$28,872	40.1%	0.0%	$28,872
4.0	47.1%	0.0%	$33,912	47.1%	0.0%	$33,912
5.0	53.2%	0.0%	$72,000	53.2%	0.0%	$72,000
6.0	58.6%	0.0%	$72,000	58.6%	0.0%	$72,000
7.0	63.2%	0.0%	$72,000	63.2%	0.0%	$72,000
8.0	67.2%	0.0%	$72,000	67.2%	0.0%	$72,000
9.0	70.5%	0.0%	$72,000	70.5%	0.0%	$72,000
10.0	73.2%	0.0%	$72,000	73.2%	0.0%	$72,000
11.0	75.4%	0.0%	$72,000	75.4%	0.0%	$72,000
12.0	77.2%	0.0%	$72,000	77.2%	0.0%	$72,000
13.0	78.5%	0.0%	$72,000	78.5%	0.0%	$72,000
14.0	79.5%	0.0%	$72,000	79.5%	0.0%	$72,000
15.0	80.2%	0.0%	$72,000	80.2%	0.0%	$72,000
16.0	80.7%	0.0%	$72,000	80.7%	0.0%	$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,728	2.4%	0.0%	$1,728
0.0	8.1%	0.0%	$5,832	8.1%	0.0%	$5,832
1.0	13.3%	0.0%	$9,576	13.3%	0.0%	$9,576
2.0	17.9%	0.0%	$12,888	17.9%	0.0%	$12,888
3.0	22.0%	0.0%	$15,840	22.0%	0.0%	$15,840
4.0	25.7%	0.0%	$18,504	25.7%	0.0%	$18,504
5.0	28.8%	0.0%	$20,736	28.8%	0.0%	$20,736
6.0	31.5%	0.0%	$22,680	31.5%	0.0%	$22,680
7.0	33.8%	0.0%	$24,336	33.8%	0.0%	$24,336
8.0	35.7%	0.0%	$25,704	35.7%	0.0%	$25,704
9.0	37.2%	0.0%	$26,784	37.2%	0.0%	$26,784
10.0	38.4%	0.0%	$27,648	38.4%	0.0%	$27,648
11.0	39.2%	0.0%	$28,224	39.2%	0.0%	$28,224
12.0	39.7%	0.0%	$28,584	39.7%	0.0%	$28,584
13.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
14.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
15.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800
16.0	40.0%	0.0%	$28,800	40.0%	0.0%	$28,800

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$32,400	45.0		$32,400
2.0	90.0		$72,000	90.0		$72,000
3.0	135.0		$72,000	135.0		$72,000
4.0	180.0		$72,000	180.0		$72,000
5.0	225.0		$72,000	225.0		$72,000
6.0	270.0		$72,000	270.0		$72,000
7.0	315.0		$72,000	315.0		$72,000
8.0	360.0		$72,000	360.0		$72,000
9.0	405.0		$72,000	405.0		$72,000
10.0	450.0		$72,000	450.0		$72,000
11.0	495.0		$72,000	495.0		$72,000
12.0	540.0		$72,000	540.0		$72,000
13.0	585.0		$72,000	585.0		$72,000
14.0	630.0		$72,000	630.0		$72,000
15.0	675.0		$72,000	675.0		$72,000
16.0	720.0		$72,000	720.0		$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$32,400	45.0		$32,400
2.0	90.0		$72,000	90.0		$72,000
3.0	135.0		$72,000	135.0		$72,000
4.0	180.0		$72,000	180.0		$72,000
5.0	225.0		$72,000	225.0		$72,000
6.0	270.0		$72,000	270.0		$72,000
7.0	315.0		$72,000	315.0		$72,000
8.0	360.0		$72,000	360.0		$72,000
9.0	405.0		$72,000	405.0		$72,000
10.0	450.0		$72,000	450.0		$72,000
11.0	495.0		$72,000	495.0		$72,000
12.0	540.0		$72,000	540.0		$72,000
13.0	585.0		$72,000	585.0		$72,000
14.0	630.0		$72,000	630.0		$72,000
15.0	675.0		$72,000	675.0		$72,000
16.0	720.0		$72,000	720.0		$72,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$851	Annual:	$34	Annual:	$817
Present Value:	$10,563	Present Value:	$418	Present Value:	$10,145

Mitigation Benefits: $10,145 Mitigation Costs: $1

Benefits Minus Costs: $10,144 Benefit-Cost Ratio: 10,145.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1377 Trigg Ave, 1377 Trigg Ave, memphis, Tennessee, , Shelby

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$945	Annual:	$37	Annual:	$908
Present Value:	$11,729	Present Value:	$464	Present Value:	$11,265

Mitigation Benefits: $11,265 Mitigation Costs: $1

Benefits Minus Costs: $11,264 Benefit-Cost Ratio: 11,265.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1378 Gleason Ave, 1378 Gleason Ave, memphis, Tennessee, , Shelby

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$945	Annual:	$37	Annual:	$908
Present Value:	$11,729	Present Value:	$464	Present Value:	$11,265

Mitigation Benefits: $11,265 Mitigation Costs: $1

Benefits Minus Costs: $11,264 Benefit-Cost Ratio: 11,265.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1386 Richmond Ave, 1386 Richmond Ave, memphis, Tennessee, , Shelby

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$945	Annual:	$37	Annual:	$908
Present Value:	$11,729	Present Value:	$464	Present Value:	$11,265

Mitigation Benefits: $11,265 Mitigation Costs: $1

Benefits Minus Costs: $11,264 Benefit-Cost Ratio: 11,265.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1388 South Parkway E, 1388 South Parkway E, memphis, Tennessee, , Shelby

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$945	Annual:	$37	Annual:	$908
Present Value:	$11,729	Present Value:	$464	Present Value:	$11,265

Mitigation Benefits: $11,265 Mitigation Costs: $1

Benefits Minus Costs: $11,264 Benefit-Cost Ratio: 11,265.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1392 Richmond Ave, 1392 Richmond Ave, memphis, Tennessee, , Shelby

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$945	Annual:	$37	Annual:	$908
Present Value:	$11,729	Present Value:	$464	Present Value:	$11,265

Mitigation Benefits: $11,265 Mitigation Costs: $1

Benefits Minus Costs: $11,264 Benefit-Cost Ratio: 11,265.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1393 South Parkway E, 1393 South Parkway E, memphis, Tennessee, , Shelby

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$945	Annual:	$37	Annual:	$908
Present Value:	$11,729	Present Value:	$464	Present Value:	$11,265

Mitigation Benefits: $11,265 Mitigation Costs: $1

Benefits Minus Costs: $11,264 Benefit-Cost Ratio: 11,265.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1408 South Parkway E, 1408 South Parkway E, memphis, Tennessee, , Shelby

Benefits: $11,209 Costs: $1 BCR: 11,209.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.40	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$941	Annual:	$37	Annual:	$904
Present Value:	$11,673	Present Value:	$464	Present Value:	$11,209

Mitigation Benefits: $11,209 Mitigation Costs: $1

Benefits Minus Costs: $11,208 Benefit-Cost Ratio: 11,209.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Structure and Mitigation Details For: 1410 South Parkway E, 1410 South Parkway E, memphis, Tennessee, , Shelby

Benefits: $11,265 Costs: $1 BCR: 11,265.00

Hazard: **Flood**

Mitigation Option: Dry Flood Proofing

Latitude:		Longitude:			
Size of Building:	2,000	BRV ($/sf):	$40.00	Total BRV:	$80,000
Residential:	Yes	Building Type:	One-Story		
Obstruction:	N/A	Foundation Type:	Slab	Basement:	No
Building Primary Use:		Structure Type:		Historic Building:	No
Structure Elevation:	277.00	First Floor Being Raised:		Demolition Threshold:	50.00%
Source of Flood Data:		Project in SFHA:	Yes	Community ID Number:	
Effective FIS Date:		FIRM Panel Number:		FIRM Effective Date:	
Project Useful Life:	30	H&H Study Title:		H&H Effective Date:	
Flood Zone:		Loss of Rent:	$0		
Building Contents:	$80,000 (Default)			Value of Crawlspace Contents:	$0
Ground Surface Elevation:				Flood Zone Determination:	
Breaking Wave Height:	0.00			Utilities that are not elevated:	No
Height FFE Above Grade:	277.00			One Time Displacement Costs:	
NFIP:	No			Displacement Costs:	$155 (Default)
ICC:	No			Current federal lodging per diem:	$77
				Population affected :	2
				Current federal meals per diem:	$46
				Cost per person to eat meals at home:	$7

Street Maintenance Details

Street maintenance budget ($)

Miles of street (miles)

Length of road (miles)

Total Reduced Street Maintenance Costs $0.00

Volunteer Costs

Number of Volunteers Required:		Number of Hours Volunteered/Person:	
Cost of Volunteers Time ($/Hour/Person):		Number of Days Lodging/Volunteer:	
Per-Person Cost of Lodging for a Volunteer:		Cost of Volunteers:	

Social Benefits

Mental Stress and Anxiety

Number of Person:	
Treatment Costs per person:	$2,443.00
Total Mental Stress and Anxiety Cost:	$0.00

Lost Productivity

Number of Worker:	
Productivity Loss per person:	$8,736.00
Total Lost Productivity Cost:	$0.00

Riverine Elevation and Discharge Data

Streambed Elevation (ft):	273.0	Flood Profile Number:	
Flood Source Name:			
Elevation At Which Barrier Will Be Overtopped:	0.00		
FEMA Elevation Certificate Diagram Description:		Other Elevation Source:	

Recurrence Interval (yr)	Percent Annual Chance (%)	Elevation Before Mitigation (ft)	Discharge Before Mitigation (cfs)	Elevation After Mitigation (ft)	Discharge After Mitigation (cfs)
10	10.00%	275.41	1.0	273.49	1.0
50	2.00%	276.00	2.0	274.00	2.0
100	1.00%	277.19	3.0	274.41	3.0
500	0.20%	278.00	4.0	275.00	4.0

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Building	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.5%	0.0%	$2,000	2.5%	0.0%	$2,000
0.0	13.4%	0.0%	$10,720	13.4%	0.0%	$10,720
1.0	23.3%	0.0%	$18,640	23.3%	0.0%	$18,640
2.0	32.1%	0.0%	$25,680	32.1%	0.0%	$25,680
3.0	40.1%	0.0%	$32,080	40.1%	0.0%	$32,080
4.0	47.1%	0.0%	$37,680	47.1%	0.0%	$37,680
5.0	53.2%	0.0%	$80,000	53.2%	0.0%	$80,000
6.0	58.6%	0.0%	$80,000	58.6%	0.0%	$80,000
7.0	63.2%	0.0%	$80,000	63.2%	0.0%	$80,000
8.0	67.2%	0.0%	$80,000	67.2%	0.0%	$80,000
9.0	70.5%	0.0%	$80,000	70.5%	0.0%	$80,000
10.0	73.2%	0.0%	$80,000	73.2%	0.0%	$80,000
11.0	75.4%	0.0%	$80,000	75.4%	0.0%	$80,000
12.0	77.2%	0.0%	$80,000	77.2%	0.0%	$80,000
13.0	78.5%	0.0%	$80,000	78.5%	0.0%	$80,000
14.0	79.5%	0.0%	$80,000	79.5%	0.0%	$80,000
15.0	80.2%	0.0%	$80,000	80.2%	0.0%	$80,000
16.0	80.7%	0.0%	$80,000	80.7%	0.0%	$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Contents	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (pct)**	**Before Mitigation User Entered (pct)**	**Before Mitigation ($)**	**After Mitigation (pct)**	**After Mitigation User Entered (pct)**	**After Mitigation ($)**
-2.0	0.0%	0.0%	$0	0.0%	0.0%	$0
-1.0	2.4%	0.0%	$1,920	2.4%	0.0%	$1,920
0.0	8.1%	0.0%	$6,480	8.1%	0.0%	$6,480
1.0	13.3%	0.0%	$10,640	13.3%	0.0%	$10,640
2.0	17.9%	0.0%	$14,320	17.9%	0.0%	$14,320
3.0	22.0%	0.0%	$17,600	22.0%	0.0%	$17,600
4.0	25.7%	0.0%	$20,560	25.7%	0.0%	$20,560
5.0	28.8%	0.0%	$23,040	28.8%	0.0%	$23,040
6.0	31.5%	0.0%	$25,200	31.5%	0.0%	$25,200
7.0	33.8%	0.0%	$27,040	33.8%	0.0%	$27,040
8.0	35.7%	0.0%	$28,560	35.7%	0.0%	$28,560
9.0	37.2%	0.0%	$29,760	37.2%	0.0%	$29,760
10.0	38.4%	0.0%	$30,720	38.4%	0.0%	$30,720
11.0	39.2%	0.0%	$31,360	39.2%	0.0%	$31,360
12.0	39.7%	0.0%	$31,760	39.7%	0.0%	$31,760
13.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
14.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
15.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000
16.0	40.0%	0.0%	$32,000	40.0%	0.0%	$32,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Displacement	**Before Mitigation Values:**			**After Mitigation Values:**		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Depth-Damage Functions Using USACE Generic

Loss of Function	Before Mitigation Values:			After Mitigation Values:		
Flood Depth (ft)	**Before Mitigation (Days)**	**Before Mitigation User Entered (Days)**	**Before Mitigation ($)**	**After Mitigation (Days)**	**After Mitigation User Entered (Days)**	**After Mitigation ($)**
-2.0	0.0		$0	0.0		$0
-1.0	0.0		$0	0.0		$0
0.0	0.0		$0	0.0		$0
1.0	45.0		$36,000	45.0		$36,000
2.0	90.0		$80,000	90.0		$80,000
3.0	135.0		$80,000	135.0		$80,000
4.0	180.0		$80,000	180.0		$80,000
5.0	225.0		$80,000	225.0		$80,000
6.0	270.0		$80,000	270.0		$80,000
7.0	315.0		$80,000	315.0		$80,000
8.0	360.0		$80,000	360.0		$80,000
9.0	405.0		$80,000	405.0		$80,000
10.0	450.0		$80,000	450.0		$80,000
11.0	495.0		$80,000	495.0		$80,000
12.0	540.0		$80,000	540.0		$80,000
13.0	585.0		$80,000	585.0		$80,000
14.0	630.0		$80,000	630.0		$80,000
15.0	675.0		$80,000	675.0		$80,000
16.0	720.0		$80,000	720.0		$80,000

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Other Benefits

Other Benefits Before Mitigation

No Data

Other Benefits After Mitigation

No Data

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$945	Annual:	$37	Annual:	$908
Present Value:	$11,729	Present Value:	$464	Present Value:	$11,265

Mitigation Benefits: $11,265 Mitigation Costs: $1

Benefits Minus Costs: $11,264 Benefit-Cost Ratio: 11,265.00

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Cost Estimate

Project Useful Life (years):	30	Construction Type:	
Mitigation Project Cost:	$0	Detailed Scope of Work:	No
Annual Project Maintenance Cost:	$0	Detailed Estimate for Entire Project:	No
Final Mitigation Project Cost:	$1	Years of Maintenance:	
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	
Construction Start Year:		Estimate Reflects Current Prices:	No
Construction End Year:		Project Escalation:	

No Rows

Total Benefits: **$542,662** Total Costs: **$28,323** BCR: **19.16**

Project Number: 60330437 Disaster #: Program: Agency: **AECOM**

State: **Tennessee** Point of Contact: kulvir singh Analyst: kulvir singh

Justification/Attachments

Field	Description	Attachments