

Appendix G
Plan Formulation

Complete List of Flood Damage Reduction Measures

Measures Developed for North Gabouri Creek

- A. CH – Channelization – Widen / deepen channel from Main Street to above 4th Street.
- B. BR – Bridge(s) replacement – Replace bridges at Burlington-Northern and Missouri-Illinois Railroads, Main Street, 4th Street, and culvert at 3rd Street. Minor excavation required, only at crossings, only in areas of prior fill. Rip rap added to channel sections at and around new bridges.
- C. OF – Open floodway – Remove all bridges and structures impeding flow near channel. Allow wide floodway width to pass high events, with no constrictions.
- D. LH – LaHaye levee – Raise LaHaye Street upstream of 3rd Street to where it meets high ground. Protects all structures north of LaHaye. Some induced flooding upstream.
- E. N1 – Detention at site N1
- F. N2 – Detention at site N2
- G. N3 – Detention at site N3
- H. N4 – Detention at site N4. Site N4 is located within the City limits, at the site of several FEMA buyout properties.
- I. N5 – Detention at site N5 (with five sub-locations). Site N5 is located just outside the City limits, at the site of several agricultural fields.
- J. 3L – Levee at 3rd Street. This levee would connect high ground between 3rd and 4th Streets to high ground immediately downstream of 3rd Street. This would prevent floodwaters from flowing over the intersection of 3rd and LaHaye Streets, flooding structures to the east of 3rd Street.
- K. CH2 – Limited Channelization – Localized channelization used in conjunction with other measures.
- L. L2 – A levee beginning at high ground near Main Street, running on the north side of North Gabouri creek to just upstream of 6th Street and tying into high ground behind the structures on the west side of 6th Street.. Protects all structures north of LaHaye in this area. Some induced flooding adjacent and upstream.
- M. FP – Floodproofing
- N. BO – Buyouts

O. RL – Relocations

Measures Developed for South Gabouri Creek

- A. CH – Channelization – Widen and deepen channel throughout town from the Burlington-Northern Railroad to US 61.
- B. BR – Bridge(s) replacement – Replace the bridge at 4th Street and both Missouri-Illinois Railroad crossings. Some minor excavation required, only at crossings, only in areas of prior fill. Rip rap added to channel sections at and around new bridges
- C. OF – Open floodway – Remove all bridges and structures impeding flow near channel. Allow wide floodway width to pass high events, with no constrictions.
- D. GL – Gabouri Street levee – Levee protecting homes between approximately 5th and 8th Streets. 100-year levee along north side of creek. Homes upstream of the levee would receive induced flooding.
- E. LE – Lime excavation – Comparison of old bridge drawings with new survey information shows that lime deposits in South Gabouri Creek have raised the invert of the creek 6 inches to 2 feet in most areas downstream of the Mississippi Lime Company. This measure involves minor channel excavation in areas of deposition only.
- F. DW – Downstream widening – Widen the channel downstream of Main Street to the new railroad bridge.
- G. S1 – Detention site S1. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.
- H. S2 – Detention site S2. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.
- I. S3 – Detention site S3. Site S3 is located between the upstream Missouri-Illinois railroad crossing and US 61. It was considered but was later determined to have unacceptable impacts to the Mississippi Lime Company to warrant consideration during the alternatives analysis.
- J. S4 – Detention site S4. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.
- K. S5 – Detention site S5. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.
- L. S6 – Detention site S6. Site S6 is located immediately upstream of US 61.

- M. S7 – Detention site S7. Site S7 is located upstream of the Mississippi Lime Company properties.
- N. FP – floodproofing
- O. BO – Buyouts
- P. RL – Relocations

Complete List of Flood Damage Reduction Alternatives

Alternatives Developed for North Gabouri Creek

- A. EC – No Action. This plan involves no action on the part of the Federal government and assumes no significant action on the part of the City of Ste Genevieve. It was carried forward for the purpose of comparison.
- B. CH-BR – Authorized Plan. This plan combined the channelization and bridge replacement measures. The channelization aspects of this plan were not generally supported by the environmental agencies. However, a variation of this plan was carried forward for comparison purposes because it was the authorized plan (see CH-BR-FP).
- C. BR – Replace bridges. This plan only involved replacing bridges. It did not yield significant reductions in flooding and was not carried forward.
- D. OF – Open the floodway. This plan involves removing obstructions in the floodway. It did not yield significant reductions in flooding and was not carried forward.
- E. LH – LaHaye Levee. This plan involved raising a portion of LaHaye Street to act as a levee, thereby protecting the structures land-side of the street. This alternative protected a significant number of structures but was eventually not carried forward due to technical concerns (structures located close to the road, floodway infringement, visual impacts, etc.). It also caused induced flooding upstream.
- F. LH-BR – LaHaye Levee plus replace bridges. This plan was formulated to address the induced flooding caused by the LH plan. However, it was not carried forward for the same reasons as that plan.
- G. N1 - Detention at site N1. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.
- H. N2 - Detention at site N2. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.
- I. N3 - Detention at site N3. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.

- J. N4 - Detention at site N4. This site was considered but was later determined to have insufficient capacity to warrant consideration during the alternatives analysis.
- K. N5(100) – 100-year detention at site N5. This plan eliminated all flooding along North Gabouri Creek. The City expressed concern with the cost. However, due to its effectiveness, it was originally carried forward for further consideration but was later eliminated due to unreliable subsurface conditions.
- L. N5(25) – 25-year detention at site N5. This plan had significantly less effectiveness than the N5(100) plan but was not anticipated to have significantly less cost, due to the added dam height required by dam safety requirements. This plan was not carried forward.
- M. N5(10) – 10-year detention at site N5. This plan had significantly less effectiveness than the N5(100) plan but was not anticipated to have significantly less cost, due to the added dam height required by dam safety requirements. This plan was not carried forward.
- N. N5(25)-BR – 25-year detention at N5 plus bridges. Bridge replacements were added to the N5(25) plan to attempt to compensate for the lower dam height. It did not achieve the effectiveness of N5(100) and was anticipated to cost more. This plan was not carried forward.
- O. N5(25)-OF – 25-year detention at N5 plus open floodway. The OF measure was added to the N5(25) plan to attempt to compensate for the lower dam height. It did not achieve the effectiveness of N5(100) and was anticipated to cost more. This plan was not carried forward.
- P. N5(25)-LH – 25-year detention at N5 plus LaHaye levee. The LH measure was added to the N5(25) plan to attempt to compensate for the lower dam height. It did not achieve the effectiveness of N5(100) and was anticipated to cost more. This plan was not carried forward.
- Q. N5(10)-BR – 10-year detention at N5 plus bridges.
- R. N5(10)-OF – 10-year detention at N5 plus open floodway.
- S. N5(10)-LH – 10-year detention at N5 plus LaHaye levee.
- T. 3L – Small Levee on the North side of 3rd Street.
- U. FP – Floodproofing. Due to the nature of flash flooding, removable barriers were not considered effective.
- V. BO – Buyouts. Due to the significant loss of structures following the Flood of 1993 and the effects of those losses on the historic character of the City, buyouts were not considered to be a viable stand-alone alternative.

- W. RL – Relocations. Due to the significant loss of structures following the Flood of 1993 and the effects of those losses on the historic character of the City, and considering the limited available land within the historic district, relocations were not considered to be a viable stand-alone alternative.
- X. FP-BO-RL – Floodproofing, buyouts, and relocations
- Y. L2-CH2 – Levee and Channel. A levee beginning at high ground near Main Street, running on the north side of North Gabouri creek to just upstream of 6th Street and tying into high ground behind the structures on the west side of 6th Street. Includes new bridges at Main Street and 4th Street. This alignment cuts across a small portion of the creek and a new channel is constructed to re-connect flow in the creek
- Z. FP-BR – Bridge replacements with floodproofing. This was considered to determine if selective bridge replacement could reduce the heights of the structure elevation in the floodproofing measure (and thereby reduce the cultural impacts). This was not found to be sufficiently effective
- AA. L2-CH2-FP – Levee and Channel with Floodproofing. A levee beginning at high ground near Main Street, running on the north side of North Gabouri creek to just upstream of 6th Street and tying into high ground behind the structures on the west side of 6th Street. Includes new bridges at Main Street and 4th Street. This alignment cuts across a small portion of the creek and a new channel is constructed to re-connect flow in the creek. Flooded structures located upstream of the levee would be floodproofed.
- BB. CH-BR-FP– Authorized Plan with Floodproofing. This plan combined the channelization and bridge replacement measures. The channelization aspects of this plan were not generally supported by the environmental agencies. However, this plan was carried forward for comparison purposes because it was the authorized plan. Floodproofing was added to address the remaining flooded structures.

Alternatives Developed for South Gabouri Creek

- A. EC – No Action. This plan involves no action on the part of the Federal government and assumes no significant action on the part of the City of Ste Genevieve. It was carried forward for the purpose of comparison.
- B. CH-BR - Authorized Plan. This plan combined the channelization and bridge replacement measures. The channelization aspects of this plan were not generally supported by the environmental agencies. However, a variation of this plan was carried forward for comparison purposes because it was the authorized plan (see CH-BR-FP).
- C. BR – Bridge replacements. This plan only involved replacing bridges. It did not yield significant reductions in flooding and was not carried forward.

- D. LE – Excavate lime deposits. This involved only minor excavation of lime deposits. It did not yield significant reductions in flooding and was not carried forward.
- E. BR-LE – Replace bridges plus excavate lime deposits. Lime excavation was added to the BR plan in an attempt to get further flooding reductions. Almost no additional reductions were achieved and this plan was not carried forward.
- F. OF – Open the floodplain. This plan involves removing obstructions in the floodway. It did not yield significant reductions in flooding and was not carried forward.
- G. GL – Gabouri Street Levee. This plan reduced flooding by roughly half. Although there were concerns with visual impacts and induced flooding, this version of this plan was carried forward (see GL-FP).
- H. OF-DW – Open floodplain plus downstream widening. Downstream widening was added to the OF plan in an attempt to get further flooding reductions. Almost no additional reductions were achieved and this plan was not carried forward.
- I. GL-OF-DW – Levee plus open floodplain plus downstream widening. OF and DW were added to GL in an attempt to reduce induced flooding impacts.
- J. S7(100) – 100-year detention at S7. This plan eliminated almost all flooding. A variation of this plan was originally carried forward for further consideration (see S7(100)-FP) but was later eliminated due to unreliable subsurface conditions.
- K. S7(25) – 25-year detention at S7. This plan was not as effective as S7(100) and was anticipated to cost almost as much. It was not carried forward.
- L. S7(100)-BR – 100-year detention at S7 plus bridge replacements. Bridge replacement was added to S7(100) in an attempt to eliminate the remaining flooding. Only one additional structure was protected and the additional cost was substantial. This plan was not carried forward.
- M. S7(100)-LE – 100-year detention at S7 plus lime excavation. Lime excavation was added to S7(100) in an attempt to eliminate the remaining flooding
- N. S7(100)-BR-LE – 100-year detention at S7 plus bridge replacements plus lime excavation. Bridge replacement and lime excavation were added to S7(100) in an attempt to eliminate the remaining flooding. It was successful but the additional cost was substantial. This plan was not carried forward.
- O. S7(100)-OF – 100-year detention at S7 plus open floodway. OF was added to S7(100) in an attempt to eliminate the remaining flooding. No additional structures were protected and this plan was not carried forward.

- P. S7(100)-GL – 100-year detention at S7 plus Gabouri Street levee. GL was added to S7(100) in an attempt to eliminate the remaining flooding. Only one additional structure was protected and the additional cost was substantial. This plan was not carried forward.
- Q. S7(25)-BR – 25-year detention at S7 plus bridge replacements. Bridge replacements were added to S7(25) in an attempt to further reduced flooding. No additional structures were protected and this plan was not carried forward.
- R. S7(25)-LE – 25-year detention at S7 plus lime excavation. LE was added to S7(25) in an attempt to further reduced flooding. No additional structures were protected and this plan was not carried forward.
- S. S7(25)-BR-LE – 25-year detention at S7 plus bridge replacements plus lime excavation. Bridge replacements and LE were added to S7(25) in an attempt to further reduced flooding. No additional structures were protected and this plan was not carried forward.
- T. S7(25)-OF – 25-year detention at S7 plus open floodway. OF was added to S7(25) in an attempt to further reduced flooding. In actuality, more structures were flooded as creek velocities slowed. This plan was not carried forward.
- U. S7(25)-GL – 25-year detention at S7 plus Gabouri Street levee. GL was added to S7(25) in an attempt to reduce the remaining flooding. Only three additional structures were protected and the additional cost was substantial. This plan was not carried forward.
- V. S6-S7 – 100-year Detention at S7 and S6. The intention here was to try to protect the remaining flooded structures.
- W. FP – Floodproofing. Due to the nature of flash flooding, removable barriers were not considered effective. Structure elevation was assumed for all structures for the purpose of cost-estimating.
- X. BO – Buyouts. Due to the significant loss of structures following the Flood of 1993 and the effects of those losses on the historic character of the City, buyouts were not considered to be a viable stand-alone alternative.
- Y. RL – Relocations. Due to the significant loss of structures following the Flood of 1993 and the effects of those losses on the historic character of the City, and considering the limited available land within the historic district, relocations were not considered to be a viable stand-alone alternative.
- Z. FP-BO-RL – Floodproofing, buyouts, and relocations.
- AA. FP-BR – Bridge replacements with floodproofing. This was considered to determine if selective bridge replacement could reduce the heights of the structure elevation in the floodproofing measure (and thereby reduce the cultural impacts). This was not found to be sufficiently effective.

- BB. GL-FP – Gabouri Levee with floodproofing. This would include floodproofing for those structures located outside the levee’s protected area.
- CC. S7(100)-FP – 100-year detention at S7. This plan eliminated almost all flooding. This plan includes floodproofing for those remaining damaged structures. This plan was originally carried forward for comparison but was later eliminated due to unreliable subsurface conditions.
- DD. CH-BR-FP- The Authorized Plan, modified. This plan combined the channelization and bridge replacement measures. The channelization aspects of this plan were not generally supported by the environmental agencies. However, this plan was carried forward for comparison purposes because it was the authorized plan. Floodproofing was added to address the remaining flooded structures.

Table 1. List of Structures Damaged on North and South Gabouri Creeks in Existing Conditions*

Structure Number	First Floor Elevation (feet NGVD)	Beginning Damage Elevation (feet NGVD)	1% Flood Elevation (feet NGVD)	1% Flood Depth Relative to First Floor (feet)	Beginning Damage Frequency	Historic Nature of Structure
North Gabouri Creek						
290	390.4	387.4	386.9	-3.5	0.2% (500-year)	Contributor to National Historic District
300	388.9	385.9	386.1	-2.8	2% (50-year)	Contributor to National Historic District
311	388.3	385.3	386.1	-2.2	10% (10-year)	
408	389.6	386.6	388.9	-0.7	4% (25-year)	Contributor to National Historic District
452	394.9	391.9	395.4	0.5	50% (2-year)	National Historic Landmark
454	398.3	395.3	396.5	-1.8	10% (10-year)	
460	394.5	391.5	391.4	-3.1	0.2% (500-year)	
468	398.1	390.1	389.0	-9.1	0.5% (200-year)	National Historic Landmark
South Gabouri Creek						
76	387.6	384.6	384.9	-2.7	1% (100-year)	Contributor to National Historic District
207	395.5	382.5	393.2	-2.3	50% (2-year)	
209	394.9	391.9	393.4	-1.5	20% (5-year)	
232	395.0	394.0	394.3	-0.6	1% (100-year)	
233	396.9	393.9	394.8	-2.1	4% (25-year)	National Register Eligible
236	396.5	393.5	394.8	-1.7	4% (25-year)	National Register Eligible
240	398.0	395.0	395.2	-2.8	1% (100-year)	National Register Eligible
244	397.8	394.8	397.3	-0.5	20% (5-year)	National Register Eligible

255	398.7	395.7	397.3	-1.5	10% (10-year)	National Register Eligible
257	403.8	400.8	406.0	2.2	50% (2-year)	National Register Eligible

*Note, this table was developed from updated topographic data obtained in 2015.

Preliminary Screening Results

The following tables reflect the results of preliminary screening performed in 2009 which evaluated the effectiveness of each of the above alternatives. After preliminary screening, additional screening reduced the alternatives to the final array. More refined topographic information became available in 2015 after selection of the final array and the hydraulic models were updated. This generally resulted in lower water surface profiles for both creeks and the total number of damaged structures was reduced. Therefore, the number of structures listed in Tables 2 and 3 below does not match listing damaged structures in Table 1. The tables below reflect the data available during the screening process. The study team has reviewed the data and has determined that the screening results would be the same if the updated modeling had been available at that time.

Table 2. North Gabouri Creek – Summary of Effectiveness Screening

Ste. Genevieve Tributary Flood Damage Reduction Project												
Complete list of Alternatives for North Gabouri Creek												
UD = Upland Detention												
Alternatives	#	Alternative Name / Description:	# of Structures					Structures	Additional	Additional	Additional	Additional
			Flooded at Each Frequency					Flooded	Structures	Structures	Structures	Structures
Shorthand			5-yr	10-yr	25-yr	50-yr	100-yr	5-year c/	10-year	25-year	50-year	100-year
NG:EC	0	Existing Conditions (no action)	1	3	3	4	6	452	408,454	--	290	415,840
NG:CH-BR	1	Original Plan (channel widening and bridges)	1	2	2	2	2	452	454	--	--	--
NG:BR	2	Bridge Replacements (RR, Main, 3rd, 4th)	1	2	2	3	4	452	454	--	408	290
NG:OF	3	Open Up Floodplain	1	2	2	3	4	452	454	--	408	290
NG:LH	4	LaHaye Levee	1	2	2	2	2	452	454	--	--	--
NG:LH-BR	5	LaHaye Levee plus Bridge Replacements	1	2	2	2	2	452	454	--	--	--
N5(100)	6	UD N5 only (100-year design elevation)	0	0	0	0	0	--	--	--	--	--
N5(25)	7	UD N5 only (25-year design elevation)	0	0	0	1	3	--	--	--	452	454, 408
N5(10)	8	UD N5 only (10-year design elevation)	0	0	1	3	4	--	--	452	454, 408	290
N5(25)-BR	9	UD N5 (25yr) + bridge replacements (2+7)	0	0	0	1	2	--	--	--	452	454
N5(25)-OF	10	UD N5 (25yr) + open up floodplain (3+7)	0	0	0	1	2	--	--	--	452	454
N5(25)-LH	11	UD N5 (25yr) + LaHaye Levee (4+7)	0	0	0	1	2	--	--	--	452	454
N5(10)-BR	12	UD N5 (10yr) + bridge replacements (2+8)	0	0	1	2	3	--	--	452	454	408
N5(10)-OF	13	UD N5 (10yr) + open up floodplain (3+8)	0	0	1	2	3	--	--	452	454	408
N5(10)-LH	14	UD N5 (10yr) + LaHaye Levee (4+8)	0	0	1	2	2	--	--	452	454	--
N5-N4	15	UD (100yr) at N5 and N4										
NG:3L	16	Levee at 3rd Street	1	3	3	3	4	452	408,454	--	--	415
NG:FP	17	Floodproofing	0	0	0	0	0	--	--	--	--	--
NG:BO	18	Buyouts	0	0	0	0	0	--	--	--	--	--
NG:RL	19	Relocations	0	0	0	0	0	--	--	--	--	--
NG:FP-BO-RL	20	Floodproofing, buyouts, and relocations (not 17+18+19)	0	0	0	0	0	--	--	--	--	--
NG:L2-CH2	21	New North Gabouri Levee	1	2	2	2	2	452	454	--	--	--
NG:FP-BR	22	Floodproofing with limited Bridge Replacement	0	0	0	0	0	--	--	--	--	--
NG:L2-CH2-FP	23	New North Gabouri Levee + Floodproofing (22+17)	0	0	0	0	0	--	--	--	--	--
NG:CH-BR-FP	24	Original Plan + Floodproofing (2+17)	0	0	0	0	0	--	--	--	--	--

c/ For structure numbers listed in the last five columns: Each column adds to the column to its left. For example, in the 10-year event for alternative 0, structures 452,408, and 454 are damaged.

Table 3. South Gabouri Creek – Summary of Effectiveness Screening

Ste. Genevieve Tributary Flood Damage Reduction Project												
Complete list of Alternatives for South Gabouri Creek												
Alternatives	#	Alternative Name / Description:	# of Structures Flooded at Each Frequency					Structures Flooded	Additional Structures Flooded	Additional Structures Flooded	Additional Structures Flooded	Additional Structures Flooded
			5-yr	10-yr	25-yr	50-yr	100-yr	5-year c/	10-year	25-year	50-year	100-year
	0	Existing Conditions (no action)	0	3	9	12	14	--	236,244,255	202,209,233,246,250,257	76,207,240	212,237
SG:CH-BR	1	Original Plan (channel widening and bridges)*	0	0	0	1	2	--	--	--	236	255
SG:BR	2	Bridge Replacements (RR's & 4th)	0	2	7	10	11	--	236,255	209,233,246,250,257	76,207,240	237
SG:LE	3	Excavate Lime Deposits	0	2	7	9	11	--	236,255	209,233,246,250,257	207,240	76,237
SG:BR-LE	4	Excavate Lime & Replace Bridges (2+3)	0	2	7	8	11	--	236,255	209,233,246,250,257	240	76,207,237
SG:OF	5	Open Up Floodplain	0	2	7	9	11	--	236,255	209,233,246,250,257	76,240	207,237
SG:GL	6	Levee	0	2	5	5	6	--	244,255	246,250,257	76	--
SG:OF-DW	7	Open Up Floodplain + Downstream Widening	0	2	7	8	10	--	236,255	209,233,246,250,257	240	207,237
SG:GL-OF-DW	8	Levee +Open Floodplain+ Downstream Widening	0	1	4	4	4	--	255	246,250,257	--	--
S7(100)	9	UD S7 only (100-year design elevation)	0	0	0	0	3	--	--	--	--	154,236,255
S7(25)	10	UD S7 only (25-year design elevation)	0	0	0	0	8	--	--	--	--	209,233,236,244,246,250,255,257
S7(100)-BR	11	UD S7 (100yr) + bridge replacements (2+8)	0	0	0	0	2	--	--	--	--	236,255
S7(100)-LE	12	UD S7 (100yr) + lime excavation (3+8)	0	0	0	0	1	--	--	--	--	255
S7(100)-BR-LE	13	UD S7 (100yr) + bridges + lime exc. (4+8)	0	0	0	0	0	--	--	--	--	255 *(equal to damage elevation)
S7(100)-OF	14	UD S7 (100yr) + open up floodplain (5+8)	0	0	0	0	3	--	--	--	--	76,154,255
S7(100)-GL	15	UD S7 (100yr) + Levee (6+8)	0	0	0	0	2	--	--	--	--	154,255
S7(25)-BR	16	UD S7 (25yr) + bridge replacements (2+9)	0	0	0	0	8	--	--	--	--	209,233,236,244,246,250,255,257
S7(25)-LE	17	UD S7 (25yr) + lime excavation (3+9)	0	0	0	0	8	--	--	--	--	209,233,236,244,246,250,255,257
S7(25)-BR-LE	18	UD S7 (25yr) + bridges + lime exc. (4+9)	0	0	0	0	8	--	--	--	--	209,233,236,244,246,250,255,257
S7(25)-OF	19	UD S7 (25yr) + open up floodplain (5+9)	0	0	0	0	10	--	--	--	--	76,202,209,233,236,244,246,250,255,257
S7(25)-GL	20	UD S7 (25yr) + Levee (6+9)	0	0	0	0	5	--	--	--	--	244,246,250,255,257
S6-S7	21	UD (100yr) at S6 and S7	0	0	0	0	0	--	--	--	--	--
SG:FP	22	Floodproofing	0	0	0	0	0	--	--	--	--	--
SG:BO	23	Buyouts	0	0	0	0	0	--	--	--	--	--
SG:RL	24	Relocations	0	0	0	0	0	--	--	--	--	--
SG:FP-BO-RL	25	Floodproofing, buyouts, and relocations (not 22+23+24)	0	0	0	0	0	--	--	--	--	--
SG:FP-BR	26	Floodproofing with Limited Bridge Replacements	0	0	0	0	0	--	--	--	--	--
SG:GL-FP	27	Levee + Floodproofing (6+22)	0	0	0	0	0	--	--	--	--	--
S7(100)-FP	28	UD S7 (100-year design elevation) + Floodproofing (9+22)	0	0	0	0	0	--	--	--	--	--
SG:CH-BR-FP	29	Original Plan + Floodproofing (1+22)	0	0	0	0	0	--	--	--	--	--

c/ For structure numbers listed in the last five columns: Each column adds to the column to its left. For example, in the 25-year event for alternative 0, all structures listed under the 10-year and 25-year columns are damaged (9 structures).

