

500 Flood Damage Reduction




FEMA NFPICRS Visual 500-1

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500 Flood Damage Reduction

- 501 – Repetitive Loss
- 510 – Floodplain Management Planning
- 520 – Acquisition and Relocation
- 530 – Flood Protection
- 540 – Drainage System Maintenance




FEMA NFPICRS Visual 500-2

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500 Flood Damage Reduction

500 Series – Part 1

- 501 – Repetitive Loss
- 510 – Floodplain Management Planning



FEMA NFPICRS Visual 500-3

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503 – Repetitive Loss Areas



FEMA NFPICRS Visual 500-4


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503 – Repetitive Loss Areas

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501.a Repetitive Losses

- ✓ Repetitive loss: 2 claims > \$1,000 in 10 years
- ✓ Severe RL: Rep loss with 4 claims > \$5,000 or ≥2 claims > building's value



Visual 500-5


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503 – Repetitive Loss Areas

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Repetitive Loss Properties

- ✓ 160,000 repetitive loss properties in US
- ✓ 70,000 currently insured
- ✓ 10,000 severe repetitive loss properties
- ✓ Historically, repetitive loss properties represent 1.3% of all NFIP policies
- ✓ Represent 15% – 20% of all NFIP claims



Visual 500-6

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503 – Repetitive Loss Areas

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501.b Repetitive Loss List

Applications or cycle visits:

- ✓ Submit and ISAA to FEMA for the list.
- ✓ The previous information can be used while waiting for the new data.
- ✓ Know the Privacy Act restrictions



Visual 500-7


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503 – Repetitive Loss Areas

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The Privacy Act

- ✓ Flood insurance data, including repetitive loss data, has Personally Identifiable Information (PII), such as the addresses of insured properties
- ✓ PII is protected under the Privacy Act



Visual 500-8

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503 – Repetitive Loss Areas

The Privacy Act: Working with local data

- Local Government → Data with Names and/or Addresses → Public
 - Permits
 - Substantial Damage
- States → Data with Names and/or Addresses → Public
 - Varying State Laws
- FEMA → Data with Names and/or Addresses → ~~Public~~
 - The Privacy Act of 1974

Visual 500-9

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503 – Repetitive Loss Areas

The Privacy Act: Working with FEMA data

- Local Government → FEMA Data with Names and/or Addresses → ~~Public~~
 - Policy Holders
 - Insurance Claims
 - Repetitive Loss Properties
- States → FEMA Data with Names and/or Addresses → ~~Public~~
- FEMA → FEMA Data with Names and/or Addresses → ~~Public~~
 - Policy Holders
 - Insurance Claims
 - Repetitive Loss Properties

Visual 500-10

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503 – Repetitive Loss Areas

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The Privacy Act

✓ General or aggregated information not connected to a particular property may be made public.

| Address Line 2 | City | ST | Pol Eff Dt | Pol Exp Dt | Losses | Empty Nbr | Policy Nbr | Total Paid |
|-------------------|-----------|----|------------|------------|--------|------------|------------|------------|
| 112 SUNNYSIDE WAY | SUNNYSIDE | FL | 03/20/1989 | 03/20/1999 | 14168 | 25143 | 0901002575 | 4,237 |
| 112 SUNNYSIDE WAY | SUNNYSIDE | FL | 05/20/2000 | 05/20/2000 | 14168 | 25143 | 0901RA0444 | 18,100 |
| 114 SUNNYSIDE WAY | SUNNYSIDE | FL | 07/2000 | 06/2000 | 14168 | 21660 | 0650015360 | 11,445 |
| 116 SUNNYSIDE WAY | SUNNYSIDE | FL | 07/2000 | 07/2000 | 14168 | 25143 | 0901RA0079 | 1,408 |
| 118 SUNNYSIDE WAY | SUNNYSIDE | FL | 08/17/1990 | 08/17/1990 | 14168 | 14168 | 9218267000 | 1,050 |
| 118 SUNNYSIDE WAY | SUNNYSIDE | FL | 08/17/1998 | 08/17/1998 | 14168 | 14168 | 9218267000 | 1,024 |
| 118 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/01/2000 | 09/01/2000 | 14168 | 14168 | 9218267000 | 16,923 |
| 122 SUNNYSIDE WAY | SUNNYSIDE | FL | 03/16/1991 | 03/16/1991 | 14168 | 14168 | 9218267000 | 3,104 |
| 122 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/2/2000 | 09/2/2000 | 14168 | 14168 | 9218267000 | 4,504 |
| 124 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/01/2000 | 02/003 | 14168 | 032714690F | 17,333 | |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/17/1998 | 09/17/1998 | 14168 | 14168 | 9218267000 | 2,369 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/17/1998 | 09/17/1998 | 14168 | 02003 | 032714690F | 22,351 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 05/2005 | 05/2005 | 14168 | 19652 | 990123328 | 0 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 05/09/1979 | 05/09/1979 | 14168 | 19999 | 193664463 | 162 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/16/1999 | 09/16/2000 | 14168 | 28401 | 0134544599 | 22,903 |
| 166 W MAIN ST | SUNNYSIDE | FL | 08/14/1998 | 08/14/1999 | 14168 | 16578 | 0019541298 | 9,105 |

Visual 500-11

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503 – Repetitive Loss Areas

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The Privacy Act

✓ General or aggregated information not connected to a particular property may be made public.

Visual 500-12

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503 – Repetitive Loss Areas

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501.b Repetitive Loss List

- ✓ The repetitive loss list has Personally Identifiable Information (PII) protected under the Privacy Act.
- ✓ Mark flood insurance and PII data:

*“For internal use only.
Protected by the Privacy Act of 1974.”*
- ✓ Keep in a drawer (locked if possible)
- ✓ Use a password to access digital files



Visual 500-13

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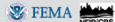
503 – Repetitive Loss Areas

Manual Pages 500-4 – 5

501.c Updating the List

Review each property for:

- ✓ Correct address
- ✓ In your community
- ✓ Actually 2 floods
- ✓ Removed or otherwise mitigated



Visual 500-14


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503 – Repetitive Loss Areas

501.c Updating the List

Paperwork:

- ✓ Mark up each AW-501
- ✓ Send the updates to FEMA
- ✓ Minimum: at application and cycle (once you have the data)



Visual 500-15

15

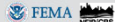
503 – Repetitive Loss Areas

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501.c Updating the List

Cycle:

- ✓ Must review the list
- ✓ Must sign CC-RL



Visual 500-16


16

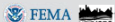

503 – Repetitive Loss Areas

Manual Page 500-7

502 Repetitive loss category
 After correcting and updating the AW-501s

- A: No repetitive loss properties
 - ✓ No requirements
- B: 1 – 49 repetitive loss properties
 - ✓ Map the areas
 - ✓ Outreach project
- C: 50+ repetitive loss properties
 - ✓ Map and outreach project
 - ✓ 510 plan



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503 – Repetitive Loss Areas


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502.b Effective dates
 Category changes when number of repetitive losses change

Effective:

- (1) When crediting 510 (Floodplain Management Planning)
- (2) When modifying for a class increase
- (3) At the cycle visit

Must meet new category requirements the following year




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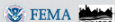

503 – Repetitive Loss Areas

Manual Page 500-8

503 Repetitive loss areas
 At each visit, a category B or C community must submit:

- (1) AW-501s (if needed)
- (2) Signed CC-RL
- (3) Map of repetitive loss areas
- (4) Describe the cause of the repetitive flooding
- (5) List of addresses and the number of buildings in the mapped areas



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503 – Repetitive Loss Areas

Mapping Repetitive Loss Areas Page 1

503.a The map

Mapping Repetitive Loss Areas



In preparation for the Community Rating System, community risk maps are developed to identify areas of repetitive loss. The community risk map is developed for the purpose of identifying areas of repetitive loss. The community risk map is developed for the purpose of identifying areas of repetitive loss. The community risk map is developed for the purpose of identifying areas of repetitive loss.

The community's repetitive loss category is based on the number of repetitive loss areas. The community's repetitive loss category is based on the number of repetitive loss areas. The community's repetitive loss category is based on the number of repetitive loss areas.

Repeaters are those areas that are identified as repetitive loss areas. Repeaters are those areas that are identified as repetitive loss areas. Repeaters are those areas that are identified as repetitive loss areas.

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503 – Repetitive Loss Areas

Mapping Repetitive Loss Areas Page 2

The Privacy Act of 1974: Flood insurance data about private property, including repetitive loss properties, are protected under the Privacy Act. Personally identifiable Information such as the names or addresses of specific properties, whether they are covered by flood insurance, whether they have received flood insurance claims, and/or the amounts of such claims may not be released outside of local government agencies or to the public or used for solicitation or other purposes.

Such information should be marked “For internal use only. Protected by the Privacy Act of 1974.” FEMA has a cover sheet that is helpful in reminding users about how to handle this sensitive information.

General or aggregated information, such as total claims paid for a community or an area, or data not connected to a particular property may be made public. For example, a community may publish a map showing a repetitive loss area or a list of addresses in that area, provided that it does not show which individual addresses or parcels received flood insurance claim payments.




Visual 500-21

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503 – Repetitive Loss Areas

Mapping Repetitive Loss Areas Page 2

1. Locate the properties on the *updated* rep loss list



Visual 500-22

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503 – Repetitive Loss Areas

Mapping Repetitive Loss Areas Page 2

2. Locate nearby properties that received 1 insurance claim
– These are listed in the “historical claims” Excel file

| Address Line 2 | City | ST | Pol EIR Dt | Pol Exp Dt | Dt of Loss | Comp Nbr | Policy Nbr | Total Paid |
|--------------------|-----------|----|------------|------------|------------|----------|------------|------------|
| 112 SUNNYSIDE WAY | SUNNYSIDE | FL | 03/20/1989 | 03/20/1990 | 08/17/1998 | 25143 | 0901D00575 | 4,237 |
| 112 SUNNYSIDE WAY | SUNNYSIDE | FL | 05/25/2000 | 05/20/2001 | 09/01/2000 | 25143 | 0901RA0444 | 18,100 |
| 114 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/07/2000 | 06/07/2001 | 09/03/2000 | 21960 | 0650015360 | 11,444 |
| 116 SUNNYSIDE WAY | SUNNYSIDE | FL | 03/12/2000 | 03/12/2001 | 09/01/2000 | 25143 | 0901RA0799 | 1,408 |
| 118 SUNNYSIDE WAY | SUNNYSIDE | FL | 01/25/1999 | 01/25/2000 | 03/16/1990 | 14168 | 9218267000 | 1,050 |
| 118 SUNNYSIDE WAY | SUNNYSIDE | FL | 01/25/1995 | 01/25/1996 | 08/17/1998 | 14168 | 9218267000 | 1,024 |
| 118 SUNNYSIDE WAY | SUNNYSIDE | FL | 01/25/2000 | 01/25/2001 | 09/01/2000 | 14168 | 9218267000 | 16,823 |
| 122 SUNNYSIDE WAY | SUNNYSIDE | FL | 01/25/1990 | 01/25/1991 | 03/16/1990 | 14168 | 9218267000 | 3,104 |
| 122 SUNNYSIDE WAY | SUNNYSIDE | FL | 01/25/1991 | 01/25/1992 | 09/2/2000 | 14168 | 9218267000 | 4,504 |
| 124 SUNNYSIDE WAY | SUNNYSIDE | FL | 06/30/2000 | 06/30/2001 | 09/01/2000 | 02003 | 032714690F | 17,333 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/30/2000 | 06/30/2001 | 08/17/1998 | 14168 | 9218267000 | 2,369 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 12/22/1999 | 12/22/2000 | 09/01/2000 | 02003 | 032714690F | 22,351 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 06/05/2005 | 06/05/2006 | 08/29/2005 | 19682 | 9901728328 | 0 |
| 126 SUNNYSIDE WAY | SUNNYSIDE | FL | 05/09/1979 | 05/09/1980 | 03/31/1980 | 199999 | 1930654463 | 162 |
| 127 SUNNYSIDE WAY | SUNNYSIDE | FL | 09/16/1999 | 09/16/2000 | 09/01/2000 | 23401 | 0134544559 | 22,903 |
| 166 W MAIN ST | SUNNYSIDE | FL | 08/14/1998 | 08/14/1999 | 06/15/1999 | 16578 | 0019541298 | 9,105 |
| 166 W MAIN ST | SUNNYSIDE | FL | 08/14/2000 | 08/14/2001 | 09/01/2000 | 16578 | 0019541298 | 54,582 |
| 1676 S MEMORIAL DR | SUNNYSIDE | FL | 01/09/1990 | 01/09/1991 | 03/16/1990 | 18988 | 4000359382 | 7,181 |
| 1676 S MEMORIAL DR | SUNNYSIDE | FL | 07/13/1998 | 07/13/1999 | 06/15/1999 | 23841 | 0102682097 | 38,252 |
| 1676 S MEMORIAL DR | SUNNYSIDE | FL | 07/13/2000 | 07/13/2001 | 09/01/2000 | 23841 | 0102682097 | 148,831 |


Visual 500-23

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503 – Repetitive Loss Areas

Mapping Repetitive Loss Areas Page 2

2. Locate nearby properties that received 1 insurance claim



Visual 500-24

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2


3. If you have the capability, overlay a topographic map (GIS) layer to identify low areas
4. Draw lines around those areas with similarly situated properties:
 - Same low elevation
 - History of flood insurance claims

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2

4. Draw lines around those areas with similarly situated properties




FEMA NIPICRS

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2

4. Draw lines around those areas with similarly situated properties




FEMA NIPICRS Visual 500-27

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2

5. Check the area in the field
 See if the buildings on FEMA's list are unique (e.g., only one(s) on slab at grade)




FEMA NIPICRS Visual 500-28

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2

5. Check the area in the field
See if the buildings on FEMA's list are unique (e.g., only one(s) on slab at grade)




3709?
3713
3717?

FEMA NFPICRS Visual 500-29

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2

6. A visit to the site helps confirm that the boundary makes sense



3713 SE 4th Ave
3717 SE 4th Ave

FEMA NFPICRS Visual 500-30

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2

6. A visit to the site helps confirm that the boundary makes sense



3713

FEMA NFPICRS Visual 500-31

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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 2

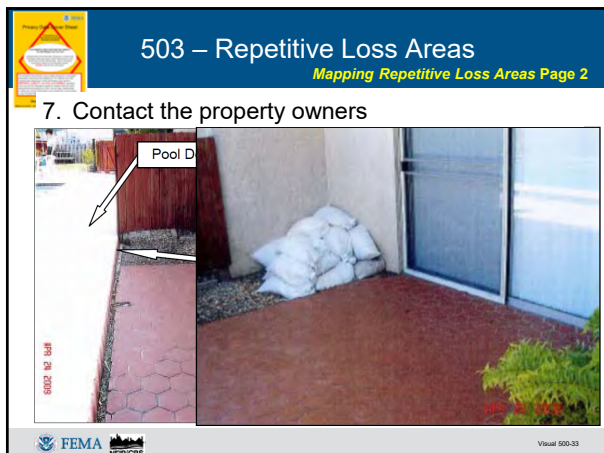
7. If these “remote” ways to determine the repetitive loss area boundary don't explain why an area is flooded repeatedly, contact the property owners



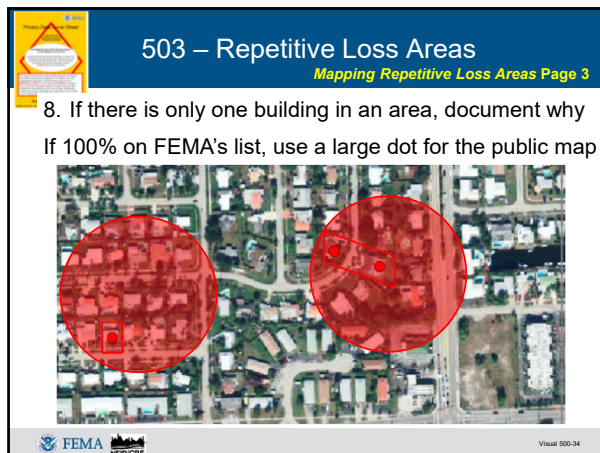
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FEMA NFPICRS Visual 500-32

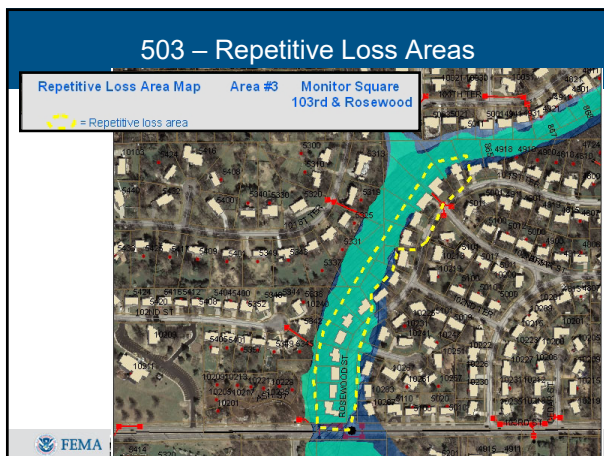
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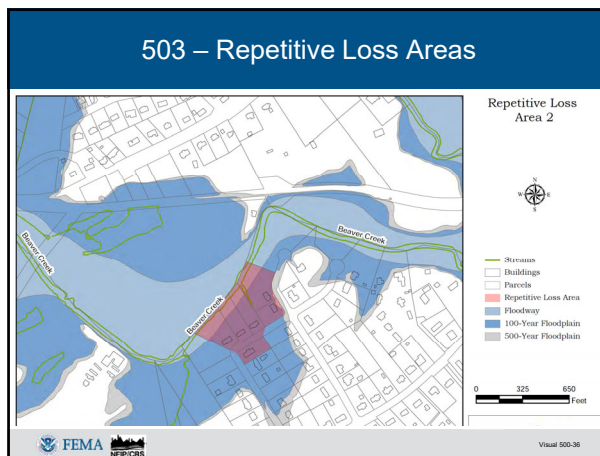
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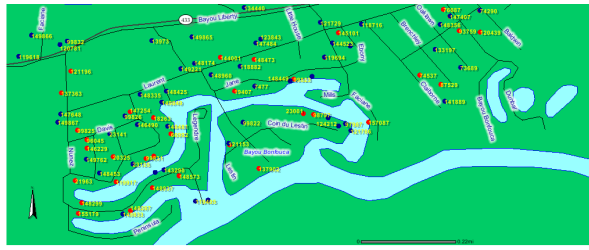
35



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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 3

9. If a lot of repetitive losses spread throughout your community or floodplain, you can declare your entire community or floodplain to be a repetitive loss area.



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503 – Repetitive Loss Areas
Mapping Repetitive Loss Areas Page 3

The map the public sees must not show any individual properties on FEMA's repetitive loss list

Prepare a list of the addresses of all improved parcels in the designated areas
Improved parcel = insurable building

FEMA NFPICRS Visual 500-38

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503 – Repetitive Loss Areas
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504 Repetitive loss area outreach project

Category B or C community must send out a notice that :

- (1) Says the property is in or near an area subject to flooding.
- (2) Explains property protection measures
- (3) Covers sources of financial assistance
- (4) Includes basic facts about flood insurance

Send to ALL properties in rep loss AREAS
Can be a targeted project or a PPI project
Copy included with annual recertification



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503 – Repetitive Loss Areas
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Dear Resident:

You have received this letter because your property is in an area that has been flooded several times. Our community is concerned about repetitive flooding and has an active program to help you protect yourself and your property from future flooding, but here are some things you can do:

1. Check with the Building Department on the extent of past flooding in your area. Department staff can tell you about the causes of repetitive flooding, what the City is doing about it, and what would be an appropriate flood protection level. The staff can visit your property to discuss flood protection alternatives.
2. Prepare for flooding by doing the following:
 - Know how to shut off the electricity and gas to your house when a flood comes.
 - Make a list of emergency numbers and identify a safe place to go.
 - Make a household inventory, especially of basement contents.
 - Put insurance policies, valuable papers, medicine, etc., in a safe place.
 - Collect and put cleaning supplies, camera, waterproof boots, etc., in a handy place.
 - Develop a disaster response plan. See the Red Cross' website at www.redcross.org for information about preparing your home and family for a disaster.
 - Get a copy of *Repairing Your Flooded Home*. We have copies at the Public Works Department or it can be found on the Red Cross' website, too.
3. Consider some permanent flood protection measures.
 - Mark your fuse or breaker box to show the circuits to the floodable areas. Turning off the power to the basement before a flood can reduce property damage and save lives.
 - Consider elevating your house above flood levels.
 - Check your building for water entry points, such as basement windows, the basement stairwell, doors, and dryer vents. These can be protected with low walls or temporary

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503 – Repetitive Loss Areas

Questions?



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510 – Floodplain Management Planning

510 Floodplain Management Planning



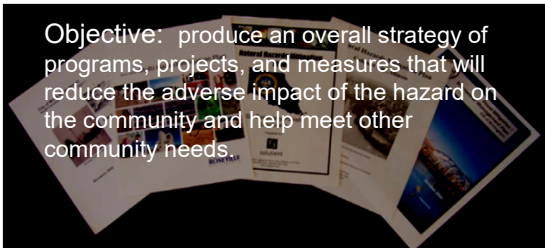
FEMA NFPICRS Visual 500-42

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Manual Page 510-2

510 Floodplain Management Planning

Objective: produce an overall strategy of programs, projects, and measures that will reduce the adverse impact of the hazard on the community and help meet other community needs.



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510 – Floodplain Management Planning

Manual Page 510-2

Activity 510 – Floodplain management planning

Elements:

- a. Floodplain management planning (FMP)
- b. Repetitive loss area analysis (RLAA)
- c. Natural floodplain functions plan (NFP)
- d. Substantial Damage Management Plan (SDP)

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510 – Floodplain Management Planning



Manual Page 510-2

512.a Floodplain management planning (FMP)

A well-prepared plan will:

- ✓ Identify all flood hazards
- ✓ Ensure a comprehensive review
- ✓ Meet other community goals and objectives
- ✓ Match local programs with the hazards
- ✓ Educate residents
- ✓ Build public and political support
- ✓ Build a constituency for implementation
- ✓ Meet the planning requirement for Category C repetitive loss communities



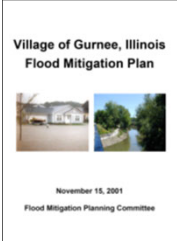



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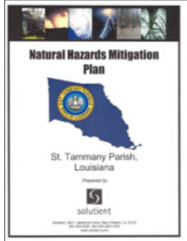
510 – Floodplain Management Planning

Manual Pages 510-2 – 3



Can be a floodplain management plan



or a multi-hazard mitigation plan



As long as the 10 step process is followed



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510 – Floodplain Management Planning

Manual Page 510-5

Table 510-1. Planning steps for mitigation and for the CRS.

| Multi-hazard Mitigation Planning | CRS | Maximum |
|--|-------------------------------|------------|
| Phase I – Planning process | | |
| §201.6(c)(1) | 1. Organize | 15 |
| §201.6(b)(1) | 2. Involve the public | 120 |
| §201.6(b)(2) & (3) | 3. Coordinate | 35 |
| Phase II – Risk assessment | | |
| §201.6(c)(2)(i) | 4. Assess the hazard | 35 |
| §201.6(c)(2)(ii) & (iii) | 5. Assess the problem | 52 |
| Phase III – Mitigation strategy | | |
| §201.6(c)(3)(i) | 6. Set goals | 2 |
| §201.6(c)(3)(ii) | 7. Review possible activities | 35 |
| §201.6(c)(3)(iii) | 8. Draft an action plan | 60 |
| Phase IV – Plan maintenance | | |
| §201.6(c)(5) | 9. Adopt the plan | 2 |
| §201.6(c)(4) | 10. Implement, evaluate, | 26 |
| Total | | 382 |



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510 – Floodplain Management Planning

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512.a Floodplain management planning (FMP)

- ✓ Must receive credit under each of the 10 steps
- ✓ If one step is missing → no credit
- ✓ Exception: Hazard mitigation plans that are accepted by FEMA usually receive some credit under this activity
- ✓ If one step is missing, a FEMA-approved mitigation plan may receive credit, but FMP credit is limited to 50 points
- ✓ If two steps are missing, there is no credit for a FEMA-approved mitigation plan





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510 – Floodplain Management Planning
Manual Pages 510-6 – 8

Step 1. Organize

- (a) Planning office actively involved
- (b) Committee of affected departments
- (c) Formal creation by governing body




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510 – Floodplain Management Planning
Manual Page 510-7

Multi-jurisdictional Plan

- ✓ Each community must have \geq two representatives
- ✓ $\frac{1}{2}$ of the representatives must attend every meeting




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510 – Floodplain Management Planning
Manual Pages 510-8 – 11

Step 2. Involve the Public



Public = "stakeholders"


- residents
- tenants
- businesses
- civic groups
- developers
- academia
- school district
- levee district
- state agency
- Federal agency
- etc.

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510 – Floodplain Management Planning
Manual Pages 510-8 – 11

Step 2. Involve the Public




- (a) Planning committee
 - (1) > 50% public/stakeholders
 - (2) Meet enough times
- (b) Public meetings at beginning
- (c) Public meetings at the end
- (d) Other ways to get public input

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510 – Floodplain Management Planning
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Step 3. Coordinate

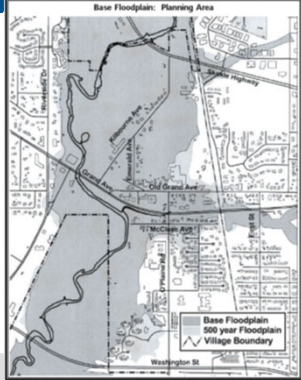


- (a) Existing studies, plans
- (b) Coordinate with other agencies and organizations

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510 – Floodplain Management Planning
Manual Pages 510-13 – 15



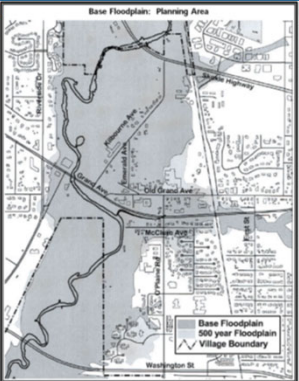
Step 4. Assess the Hazard

- (a) Flood hazard
- (b) Less frequent floods
 - a. Leveed areas
 - b. Dam failure
 - c. Special hazards
 - d. Coastal A Zone
- (c) Future conditions
- (d) Other hazards

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510 – Floodplain Management Planning
Manual Pages 510-16 – 18



Step 5. Assess the Problem

- (a) Overall summary
- (b) Impact on safety, health, economy, buildings, etc.
- (c) Historical damage
- (d) Natural functions
- (e) Development trends
- (f) Impact of future flooding

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510 – Floodplain Management Planning
Manual Page 510-18

Step 6. Set Goals

by similar topics. After discussion, five overall goals of the flood mitigation planning effort were agreed to. They are listed in order of importance.

1. Protect critical facilities and utilities
2. Protect lives and health
3. Protect homes, businesses, and schools
4. Minimize the costs to the City and property owners
5. Ensure that new construction supports these goals

Must address all flood-related problems described in Step 5

FEMA NFPICRS Visual 500-56

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510 – Floodplain Management Planning
Manual Page 510-20

Step 7. Review Possible Activities

1. **Preventive activities** keep flood problems from getting worse. The use and development of flood-prone areas is limited through planning, land acquisition, or regulation. They are usually administered by building, zoning, planning, and/or code enforcement offices.
 - Floodplain mapping and data
 - Planning and zoning
 - Open space preservation
 - Stormwater management
 - Floodplain regulations
 - Drainage system maintenance
 - Coastal setback/erosion regulations
 - Building codes
2. **Property protection activities** are usually undertaken by property owners on a building-by-building or parcel basis.
 - Relocation
 - Retrofitting
 - Acquisition
 - Sewer backup protection
 - Building elevation
 - Insurance
3. **Natural resource protection activities** preserve or restore natural areas or the natural functions of floodplain and watershed areas. They are implemented by a variety of agencies, primarily parks, recreation, or conservation agencies or organizations.
 - Wetlands protection
 - Water quality improvement


Visual 500-57

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Step 7. Review Possible Activities

Preventive Activities
Property Protection
Natural Resource Protection
Emergency Services
Flood Control
Public Information



Visual 500-58

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Step 8. Draft an Action Plan

✓ For each recommendation, the action plan must identify:

- Who is responsible for implementing the action,
- When it will be done, and
- How it will be funded.

✓ Actions must be prioritized

✓ There must be an action item for each goal in Step 6

✓ Special criteria for multi-jurisdictional plans

Visual 500-59

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Step 8. Draft an Action Plan

Action Plan for North Myrtle Beach, South Carolina

| Action Item | Responsible Office | Hazards Addressed | Priority | Deadlines | Budget | Funding Sources |
|---|---------------------|--|----------|-----------------|---|---------------------------------|
| Prevention Measures | | | | | | |
| Maintain an Inventory of the Beach Profile and Erosion Data | City Engineer | Coastal Erosion Hurricanes and Tropical Storms | High | Ongoing | Staff time and contract services \$5,000 | Accommodations Tax |
| Update the City's Beachfront Management Plan | Planning Department | Coastal Erosion Hurricanes and Tropical Storms | High | 2010 | Staff time, consultant, and printing \$28,000 | General Fund |
| Draft Coastal AE-Zone Report and Regulations | Building Division | Coastal Erosion Hurricanes and Tropical Storms | High | January 2011 | Staff time and consultant \$6,000 | Permit Fees and General Fund |
| Hold Hearing and Consider Adoption of Coastal AE-Zone Regulations | City Council | Coastal Erosion Hurricanes and Tropical Storms | High | April 2011 | Staff time and consultant \$2,000 | Permit Fees and General Fund |

Visual 500-60

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Step 9. Adopt the Plan
Adoption by resolution of the governing board

STATE OF SOUTH CAROLINA
COUNTY OF Horry
CITY OF NORTH MYRTLE BEACH

A RESOLUTION ADOPTING THE NORTH MYRTLE BEACH HAZARD MITIGATION PLAN UPDATE AS RECOMMENDED BY THE NORTH MYRTLE BEACH MITIGATION COMMITTEE.

WHEREAS, the City of North Myrtle Beach, has experienced coastal flooding and drainage problems over the years that have damaged buildings, closed businesses, disrupted traffic, and presented a general public health and safety hazard; and

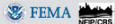
WHEREAS, the City adopted a Hazard Mitigation Plan in 2004 that evaluates the City's options to reduce damage from flooding, drainage problems, and other hazards; and

WHEREAS, a current City Hazard Mitigation Plan is a FEMA requirement to remain eligible for local government grants, as well as a requirement of the Community Rating System program in which the City participates; and

WHEREAS, the City Mitigation Planning Committee has reviewed the Hazard Mitigation Plan and has met numerous times to discuss it, and is recommending this updated Plan based on current standards; and

WHEREAS, a public hearing was held by City Council on May 3, 2010 regarding the Mitigation Planning Committee recommendations;

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of North Myrtle Beach, that:




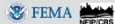
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Step 10. Implement, evaluate, and revise

- Plan must describe monitoring and updating procedures
- Annual evaluation report
- Multi-jurisdictional plan: each community must participate in the annual evaluation
- Planning committee must continue to meet to keep Step 2(a) credit
- More points for more frequent meetings

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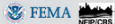
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Step 10. Implement, evaluate, and revise

Five-year update

- ✓ Scored according to *CRS Coordinator's Manual* in effect at that time
- ✓ Specific criteria for each step

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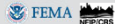
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Documentation

(1) At the visit

(a) Plan, marked or w/checklist

Visual 500-44

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510 – Floodplain Management Planning

www.CRSResources.org/500

510 FLOODPLAIN MANAGEMENT PLANNING CHECKLIST

Community: Floodville, ST 12345
Flood County Hazard Mitigation Plan

511.a Floodplain Management Planning (FMP)
Credit Points: Enter the section or page number of the plan where each credited item can be found.

| CRS Step | Section/Page | Item Score | Step Total |
|---|--|------------|------------|
| 1. Organize to prepare the plan. (max. 15 points) | | | |
| a. Involvement of Office Responsible for Community Planning (4) | | | |
| b. Planning committee of department staff (9) | Chapter 2, Page 2-3 | 9 | 9 |
| c. Process formally created by the community's governing board (2) | | | |
| 2. Involve the public. (max: 120) | | | |
| a. Planning process conducted through a planning committee (60) | | | |
| b. Public meetings held at the beginning of the planning process (15) | Chapter 3, Sections 3.8.1 & 3.8.2 | 5 | |
| c. Public meeting held on draft plan (15) | Chapter 3, Section 3.8, page 3-6 – 3-11 | 30 | 36 |
| d. Other public information activities to encourage input (Up to 30) | | | |
| 3. Coordinate with other agencies. (max: 35) | | | |
| a. Review of existing studies and plans [REQUIRED] (5) | Section 2, pages 2-20 – 2-26 | 5 | |
| b. Coordinating with communities and other agencies (Up to 30) | Chapter 3, Section 3.6, pages 3-3 – 3-5 | 7 | 12 |
| 4. Assess the hazard. (max: 35) | | | |
| a. Plan includes an assessment of the flood hazard [REQUIRED] with: | | | |
| (1) A map of known flood hazards (5) | Chapter 4, Section 4.3, page 4-6 | 5 | |
| (2) A description of known flood hazard (5) | Chapter 4, Section 4.3, pages 4-2 | 5 | |
| (3) A discussion of past floods (5) | Chapter 4, Section 4.3, pages 4-3 – 4-5 | 3 | |
| b. Plan includes assessment of less frequent floods (10) | | | |
| c. Plan includes assessment of areas likely to flood (5) | | | |
| d. The plan describes other natural hazards [REQUIRED FOR DMA] (5) | Chapter 4, Sections 4.1, 4.2, 4.4 – 4.12 | 5 | 18 |

Visual 500-65

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Documentation

(1) At the visit

- (a) Plan, marked or w/checklist
- (b) Step 1 Committee membership
- (c) Step 1 Creation resolution
- (d) Step 2 Committee records
- (e) Step 2 public meeting records
- (f) Step 3 studies/reports reviewed
- (g) Step 3 coordination records
- (h) Adoption resolution

(2) At recertification

- (a) Evaluation report

Visual 500-66

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512.b Repetitive Loss Area Analysis (RLAA)

More in-depth plan for small area(s)
Five step planning process

1. Advise all properties
2. Contact other agencies
3. Collect data on each building
4. Review alternative approaches
5. Document the findings

Repetitive Loss Area Analysis # 13
City of Alvin, Texas




November 22, 2010
University of New Orleans
Center for Hazard Assessment, Response and Technology
www.floodhelp.uno.edu

www.floodhelp.uno.edu

Visual 500-67

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| Address | Foundation | Depth of 100-year flood | Recommended Measure |
|-----------------|------------|--------------------------------------|--------------------------|
| 1024 West Drive | Crawlspace | 2.5 feet over 1 st floor | Elevation |
| 1028 West Drive | Crawlspace | 1.4 feet over 1 st floor | Elevation |
| 1030 West Drive | Slab | 4.1 feet over 1 st floor | Buyout |
| 1032 West Drive | Basement | 0.7 foot under 1 st floor | Dry or wet floodproofing |
| 1036 West Drive | Basement | 0.3 foot over 1 st floor | Dry or wet floodproofing |

Visual 500-68

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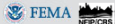
512.b Repetitive Loss Area Analysis (RLAA)

Credit criteria

- (1) Must have at least one repetitive loss area
- (2) Follow the five step process
- (3) Adopted by governing body and available to the public
- (4) Annual evaluation report
- (5) Update by each CRS cycle visit

Credit points

RLAA = 140 x $\frac{\text{number of buildings in analyses}}{\text{number of buildings in repetitive loss areas}}$



Visual 500-69

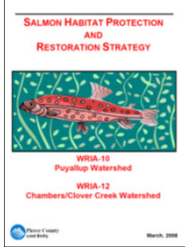
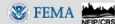
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512.c Natural floodplain functions plan (NFP)

A plan that protects one or more natural functions within the community's floodplain

- ✓ A habitat conservation plan
- ✓ A habitat protection or restoration plan
- ✓ A green infrastructure plan
- ✓ A section of a comprehensive or other community plan that has an ecological inventory and recommends actions

Visual 500-70

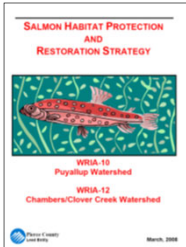
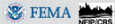
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512.c Natural floodplain functions plan (NFP)

Credit criteria

- (a) Impact natural floodplain functions within the community
- (b) Adopted by an implementing agency
- (c) Updated \geq every 10 years
- (d) Action items
- (e) No credit if only water quality

Visual 500-71


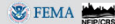
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510 – Floodplain Management Planning
Addendum

512.c Floodplain Species Assessment (FSA)

A plan that protects endangered species within the community's floodplain

- Floodplain Species Assessment (FSA)
 - Identifies endangered species
 - Reviews feasible conservation actions
- Floodplain Species Plan (FSP)
 - Actions for the FSA
 - Needs adoption

Visual 500-72

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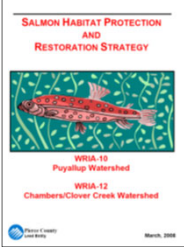
512.c Natural floodplain functions plan (NFP)
 Credit points – 100 max

NFP1 = 100 points
 if entire community covered

NFP2 = 15 points per plan (60 max)
 for site or species specific plans

FSA = 15 points for the assessment

FSP = 85 points for the plan



FEMA NFPICRS Visual 500-73

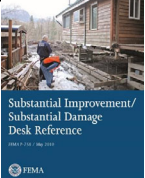
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Addendum

512.d Substantial Damage Management Plan (SDP)

A management plan for substantial damage within the community.

- Describes the process for SD determinations
- Basic plan – pre-flood efforts
- Additional credit for prepopulating SDE
- Additional credit when mitigation alternatives considered



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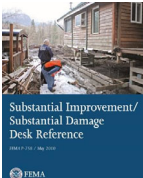
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Addendum

512.d Substantial Damage Management Plan (SDP)

Credit Criteria

1. Must use NFIP definition of SD
2. If CSI is credited, must be referenced
3. Six step process
4. Annual evaluation
5. Must be submitted to governing body
6. Current plan submitted at cycle
7. Made available to the state or FEMA



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510 – Floodplain Management Planning
Addendum

512.d Substantial Damage Management Plan (SDP)

Six step process – 2-5 in any order

1. Access vulnerability
2. Identify a team for SD management
3. Identify post event efforts
4. Build a property database
5. Identify actions to address potential SD
6. Implement and update



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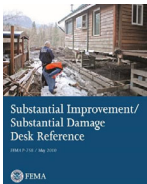
510 – Floodplain Management Planning Addendum

512.d Substantial Damage Management Plan (SDP)

Credit points

SDP = SDP1 + SDP2 + SDP3, up to 140 points

SDP1 = 40 points for SD management plan
 SDP2 = 50 points for prepopulating SDE
 SDP3 = 50 points if pre-event mitigation alternatives considered




Substantial Improvement/
Substantial Damage
Desk Reference
FEMA

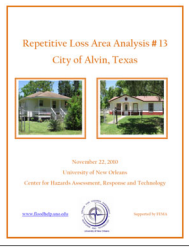
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Questions?





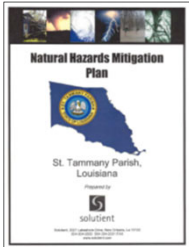


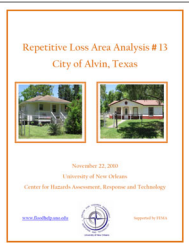
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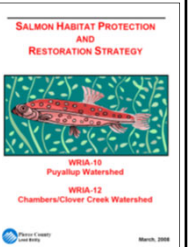
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Poll Questions







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